Integrate XMC™ Lib LLD in Keil, IAR, Atollic and Rowley tool chains

XMC™ microcontrollers
July 2016

Agenda

1 Purpose: Integrate Infineon XMC™ Lib LLD into 3rd party compilers

2 Concept

3 Prerequisites to follow the tutorial

4 Tool chains

Agenda

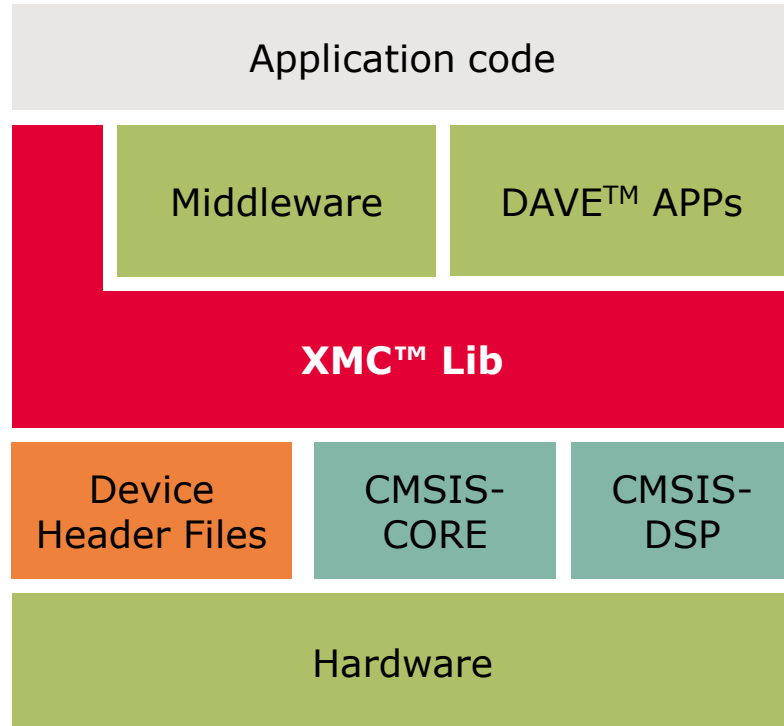**1**   Purpose: Integrate Infineon XMC™ Lib LLD into 3rd party compilers

2   Concept

3   Prerequisites to follow the tutorial

4   Tool chains

Purpose: Integrate Infineon XMC™ Lib LLD into 3rd party compilers

Application code	
	Middleware	DAVE™ APPs
XMC™ Lib	
Device Header Files	CMSIS-CORE	CMSIS-DSP
Hardware	

XMC™ application software layer

› **XMC™ Lib** is a free library consisting of low-level drivers for Infineon XMC™ product family peripherals

› Collection of API routines and data structures which covers all peripheral functions

› MISRA-C 2004 compliant

› 3rd Parties tool chain support:

  – Keil MDK

  – IAR Embedded Workbench® for ARM®

  – Atollic TrueSTUDIO®

  – Rowley CrossWorks®

  – Tasking VX-toolset for ARM® Cortex ®

Agenda

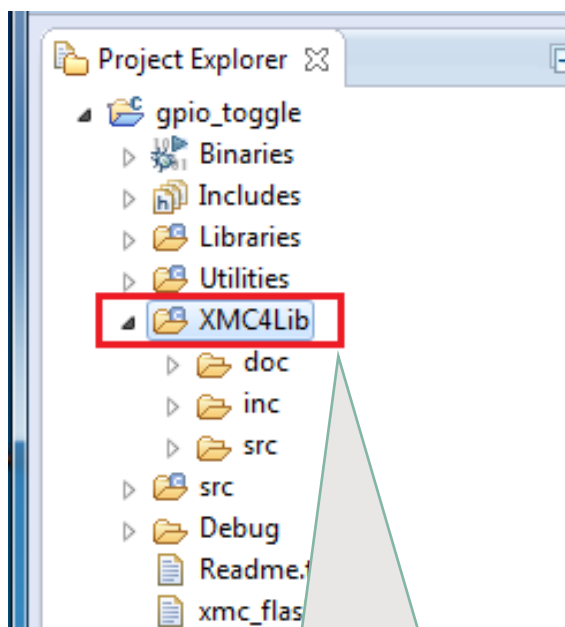**1** Purpose: Integrate Infineon XMC™ Lib LLD into 3rd party compilers

2 Concept

3 Prerequisites to follow the tutorial
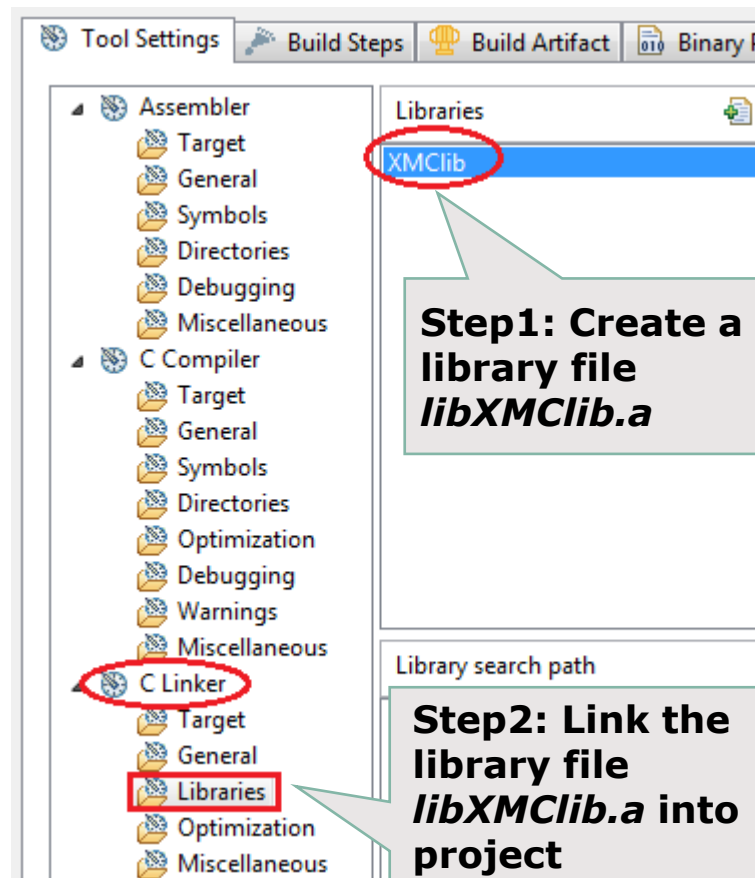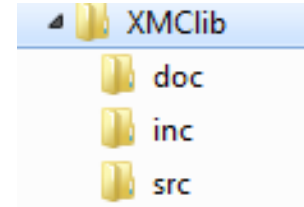
4 Tool chains

5

Concept

Approach 1: Integrate C source code in project

Integrate directly XMC™ Lib C source functions in project

Approach 2:
1. Create precompiled library
2. Link the library into project

Step1: Create a library file *libXMClib.a*

Step2: Link the library file *libXMClib.a* into project

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Prerequisites to follow the tutorial

› Download XMC^{TM} Lib source codes here:

http://dave.infineon.com/Libraries/XMCLib/XMC_Peripheral_Library_v2.1.2.zip

› Choose one of following tool chains:

- Keil MDK, µVision v5.0 or higher

- IAR Embedded Workbench® for ARM®, **v7.40.02** or higher

- Atollic TrueSTUDIO®, v5.30 or higher

- Rowley CrossWorks® version 3.3.1 or higher

› Open the used **Compiler IDE**

› Go to the pages where the corresponding tool chain is described, then follow description…

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1 Purpose: Integrate Infineon XMC™ Lib LLD into 3rd party compilers

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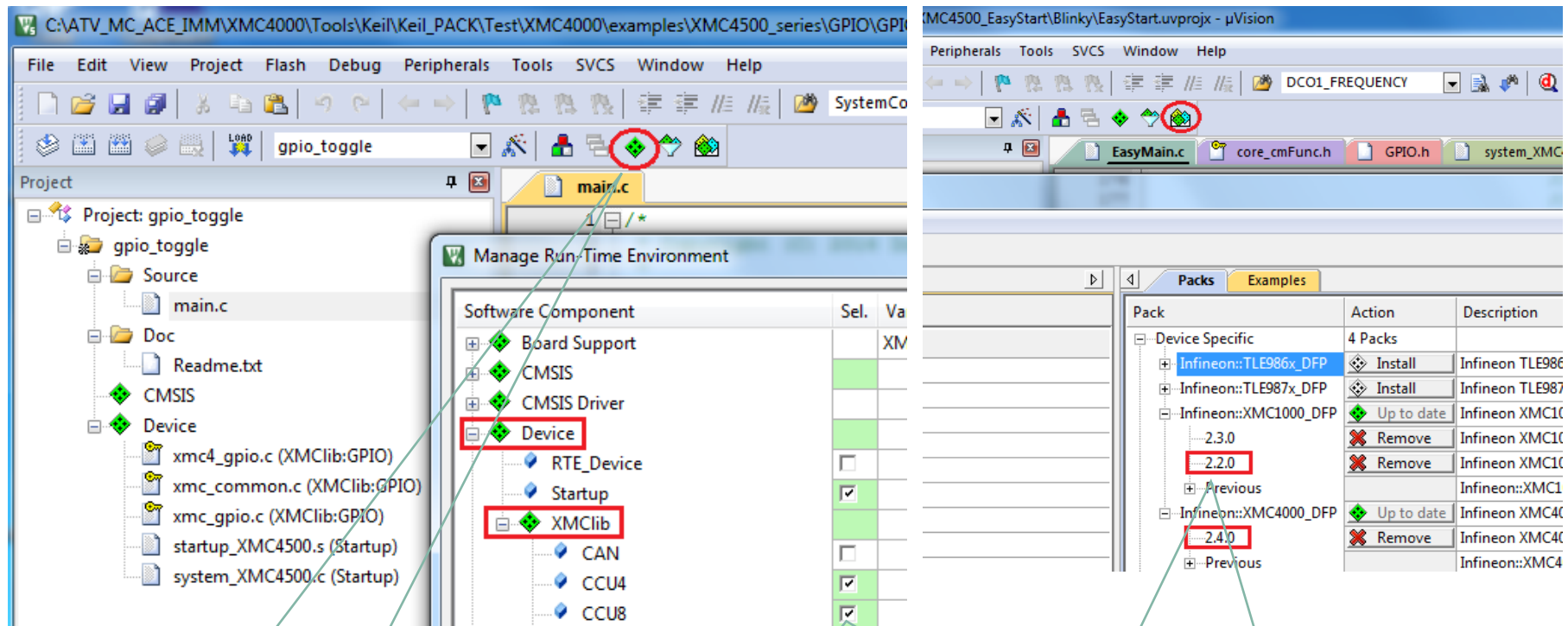
3 Prerequisites to follow the tutorial

4 Tool chains

Keil: Integrate XMC™ Lib source code in project

Infineon MDK PACK contains XMC™ Lib source functions. The user can integrate XMC™ Lib functions in project through selecting the LLD under Device Component

Step 2: Open **Manage Run-Time Environment**

Step 3: Go to **Device**->**XMClib**, select the driver LLD needed

Step 1: Install the *newest* **Infineon PACK** for both **XMC1000** and **XMC4000**

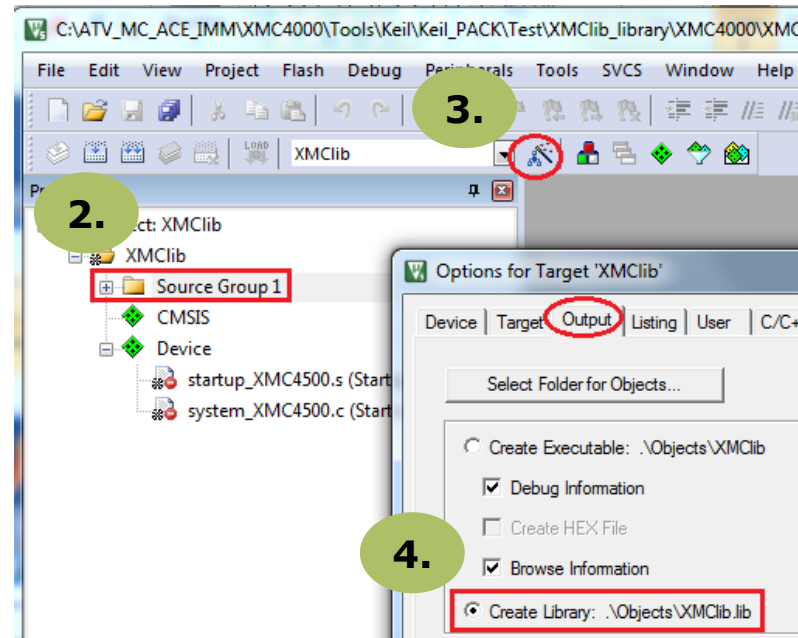# Keil: Create precompiled XMC™ Lib library (XMClib.lib)

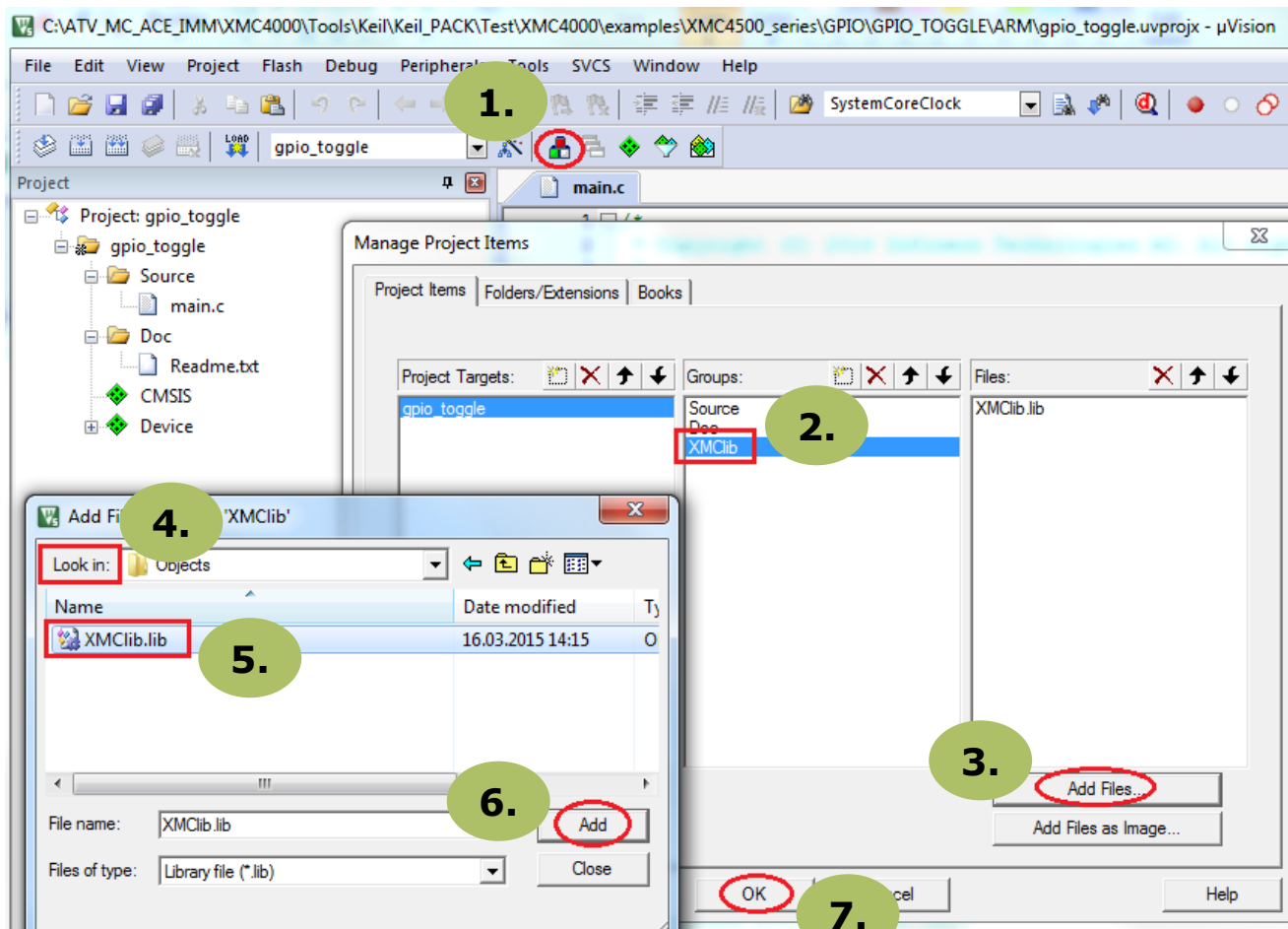A precompiled XMC™ Lib library can be created in Keil MDK in advance, which can be linked in Keil project later
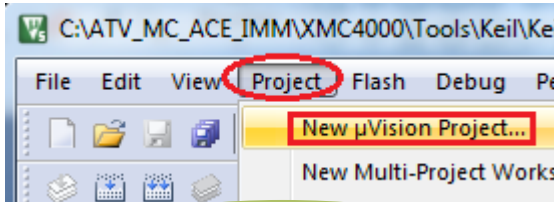
1. Define a new project

6. Build the project

2. Add the **XMClib source files** under **Source Group**

3. Open **Options for Target XMClib**
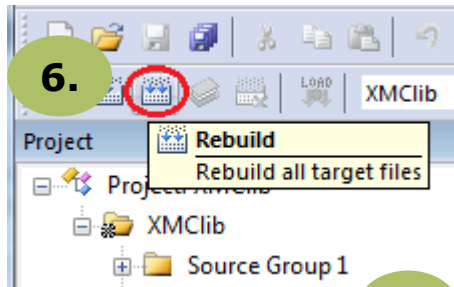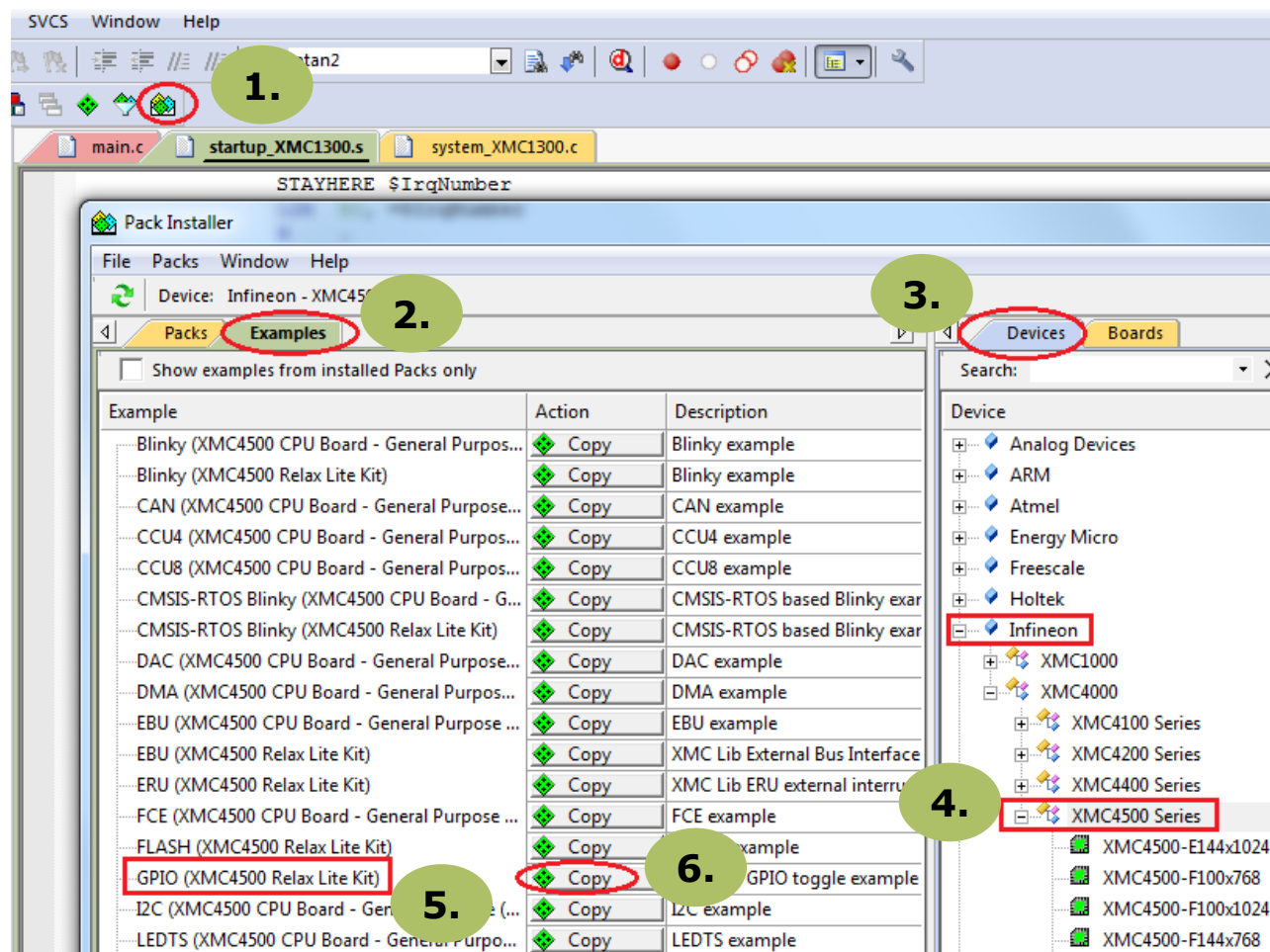
4. Select **Create Library**
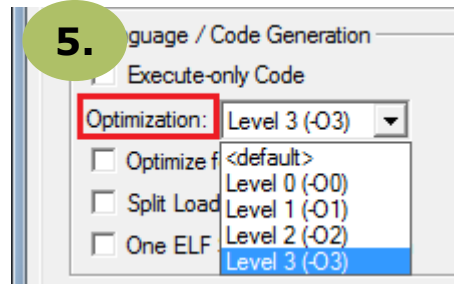
5. Select **optimization level**

Keil: Link the XMClib.lib into project

1. Open **Project Manager Items**

2. Define group **XMClib**

3. Click **Add Files**

4. Browse to *XMClib.lib* folder

5. Select *XMClib.lib*

6. Click **Add**

7. Click **OK**

Keil: Usage of LLD example projects
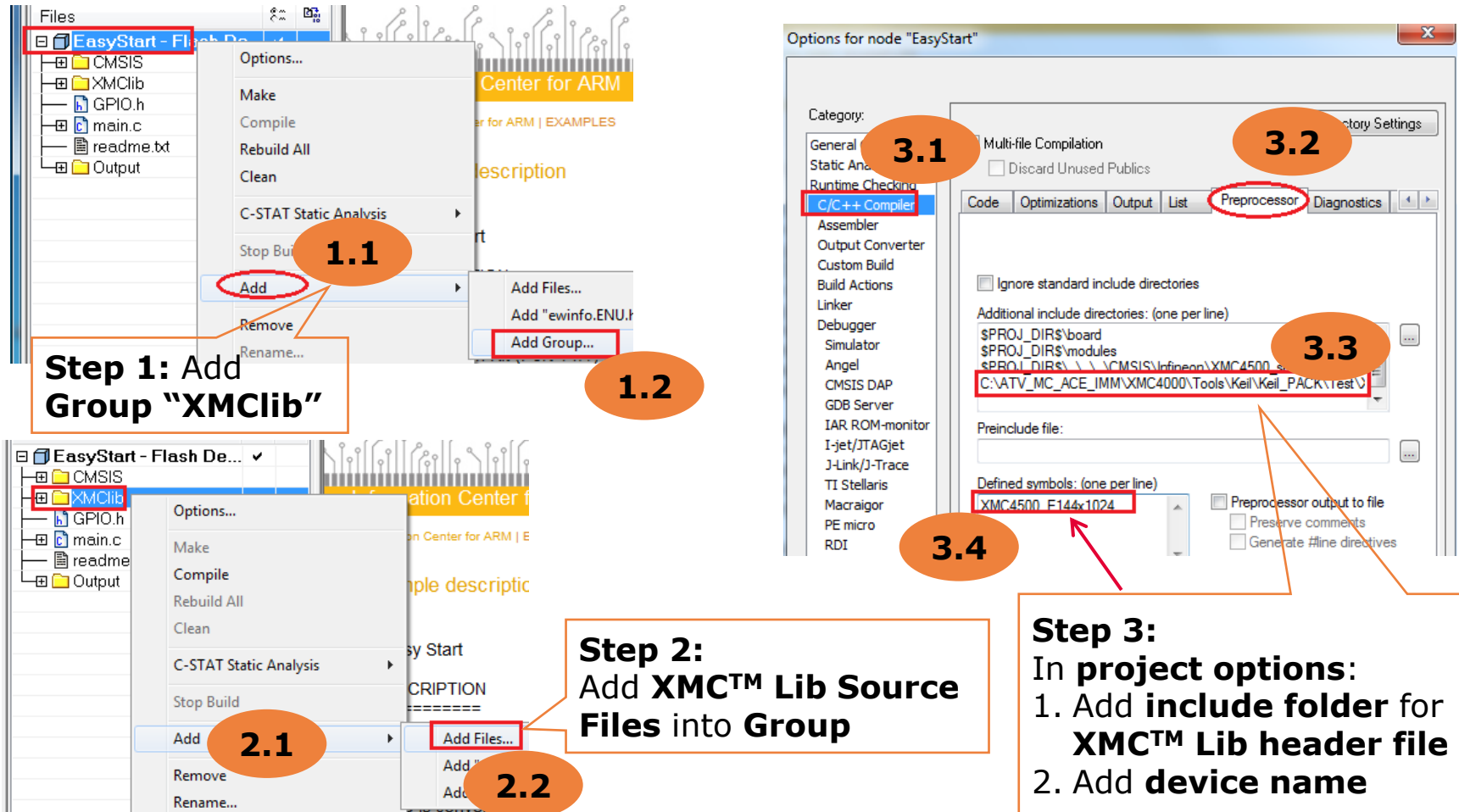
LLD example projects for all Infineon devices are included in PACK as reference

1. Open **Pack Installer**

2. Click **Example**

3. Click **Devices**

4. Select **Infineon device**

5. Select example project

6. Click **Copy**

IAR: Integrate XMC™ Lib source code in project

For IAR project the XMC™ Lib source code needs to be integrated in project manually

Step 1: Add **Group "XMClib"**

Step 2: Add **XMC™ Lib Source Files** into **Group**
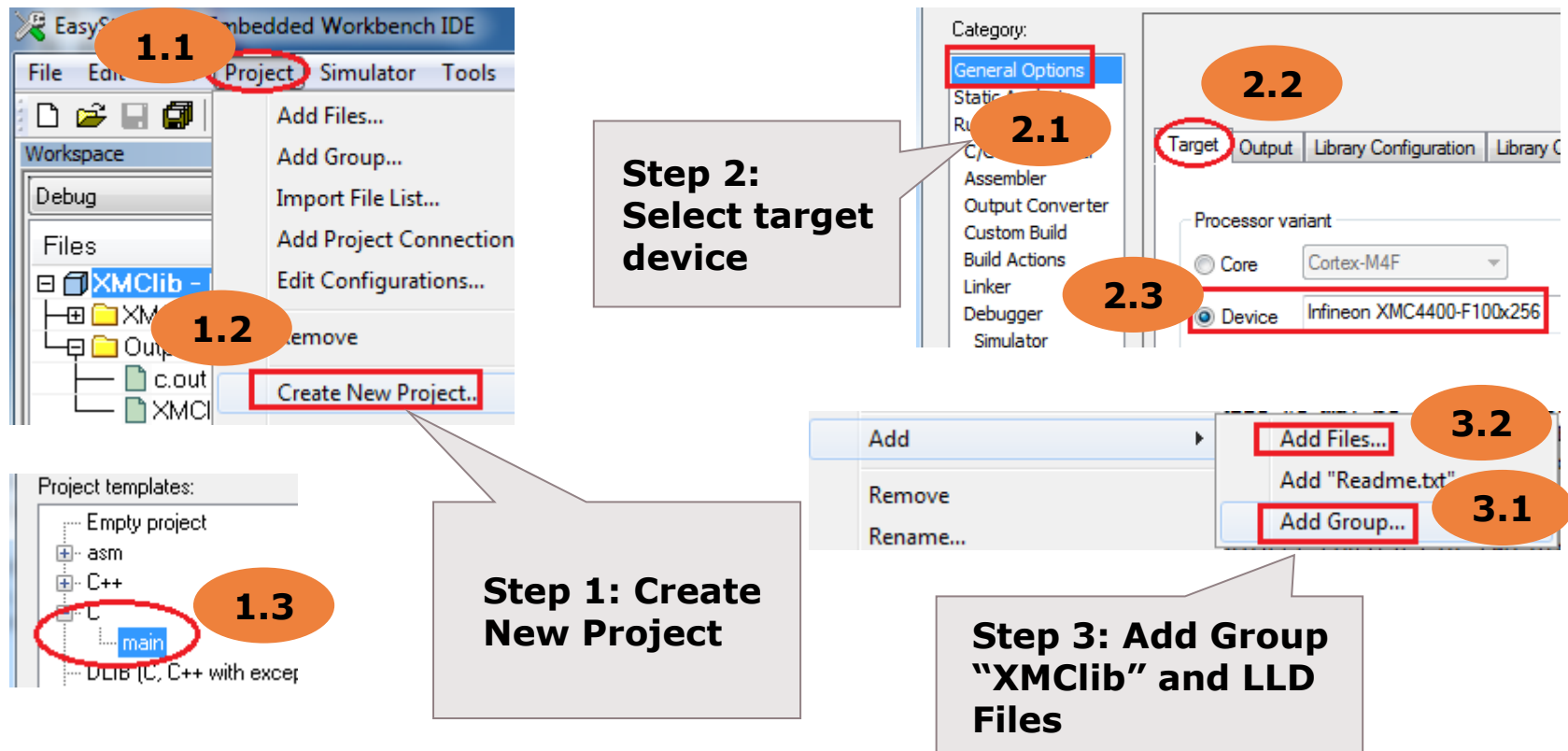
Step 3:
In **project options**:
1. Add **include folder** for **XMC™ Lib header file**
2. Add **device name**

IAR: Create precompiled XMC™ Lib library (XMClib.a) (1/2)

A precompiled XMC™ Lib library can be created in IAR EWARM in advance, which can be linked in IAR project later

Step 2: Select target device

Step 1: Create New Project

Step 3: Add Group "XMClib" and LLD Files

IAR: Create XMC™ Lib library (XMClib.a) (2/2)

4.1

4.2

4.3
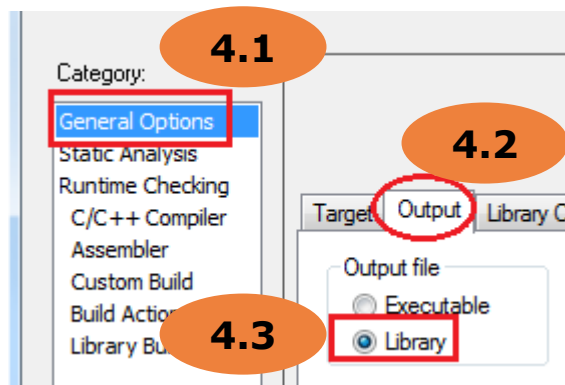
Step 4: Select **Library**

Step 5: Add include directions and Preprocessor

Step 6: Build

5.1

5.2

5.3

5.4
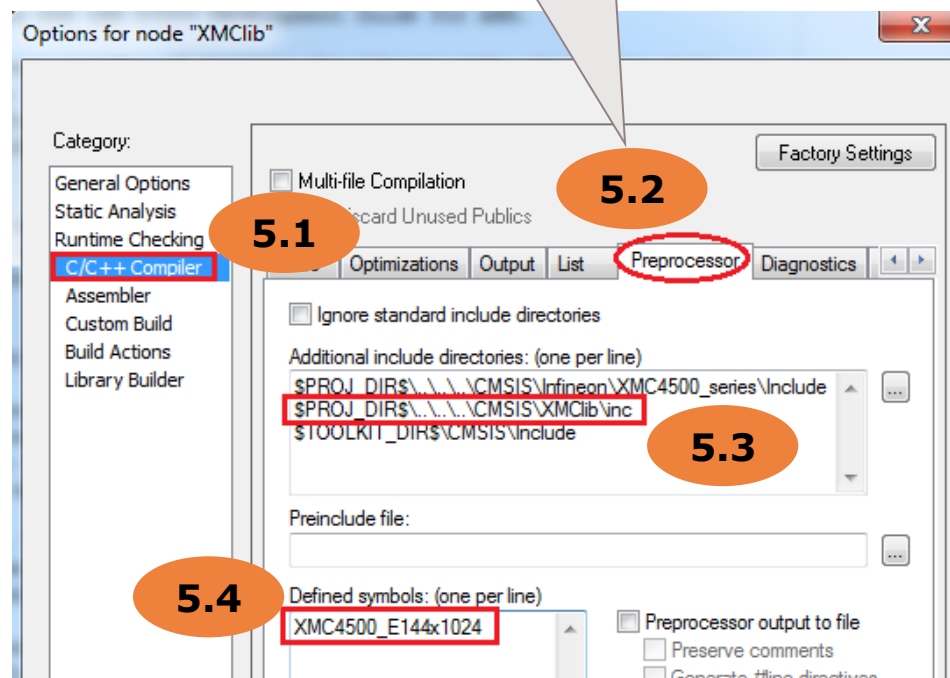
IAR: Link the XMClib.a into IAR project

Link a precompiled XMC^{TM} Lib library in IAR project that needs to use XMC^{TM} Lib LLD

Step 1: Open project options

Step 2: Link XMClib.a library in project

IAR: Usage of example projects

XMC™ Lib LLD example projects are included in the Infineon device example package, and can be directly imported in IAR EWARM as reference
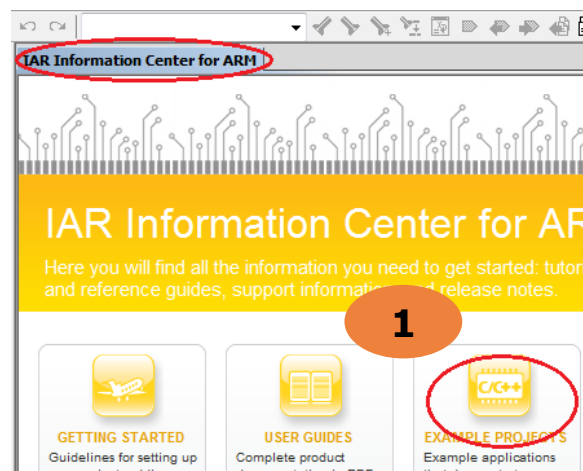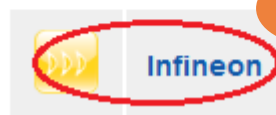

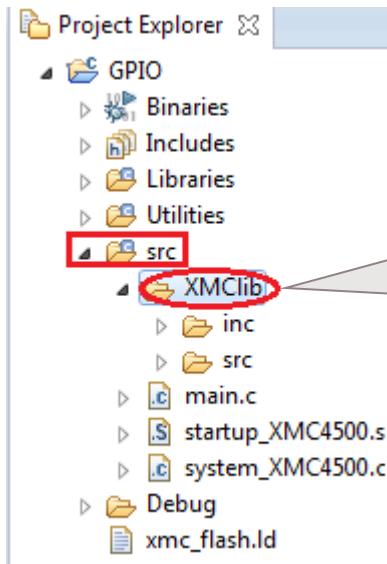**1** Open **Example Projects** in **Information Center for ARM®**

2 Open **"Infineon" example** (if Infineon example package is not installed, please install it)

3 Select **XMC4xxx LLD examples** or **XMC1xxx LLD examples**

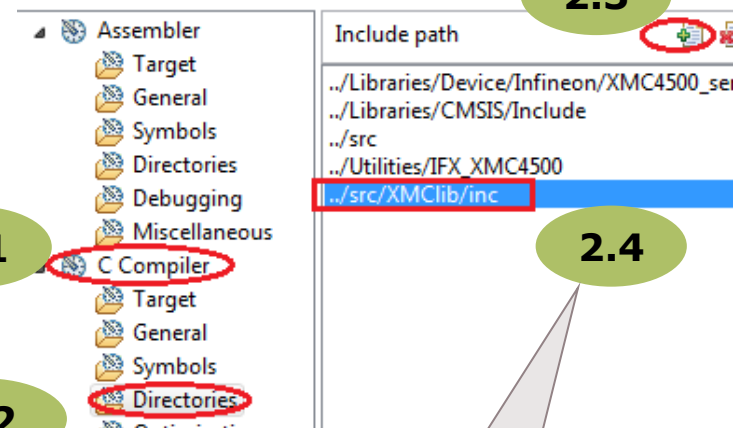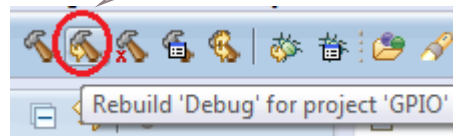**4** **Open the selected LLD example**

Atollic: Integrate XMClib source code in project

For Atollic project the XMClib source code must be added in project manually

Step 1:
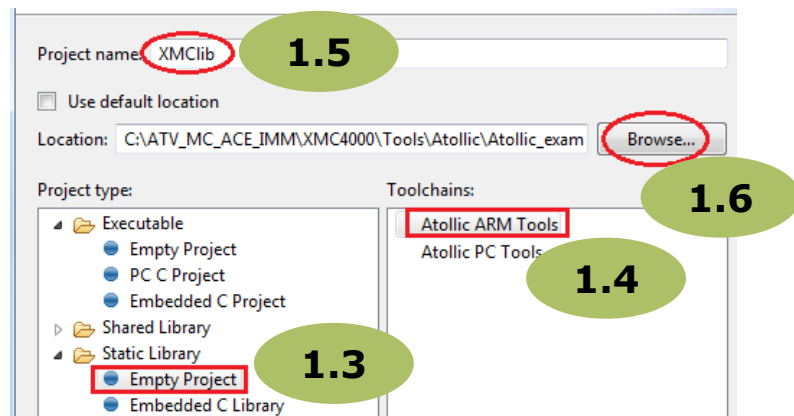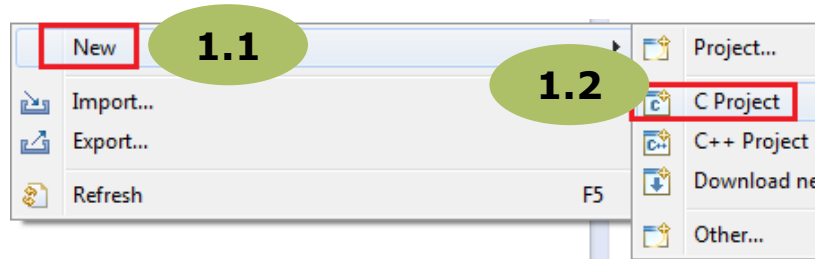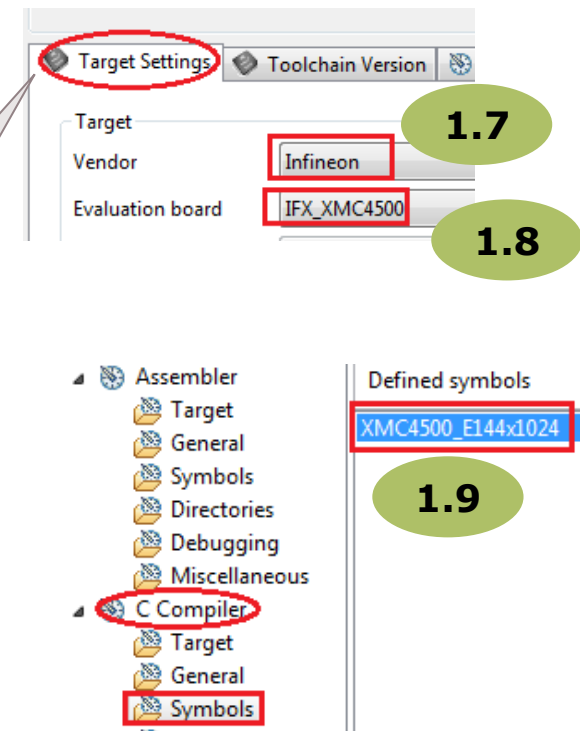Copy the **XMClib source files under ..\src**

Step 3: Build

2.1

2.2

2.3
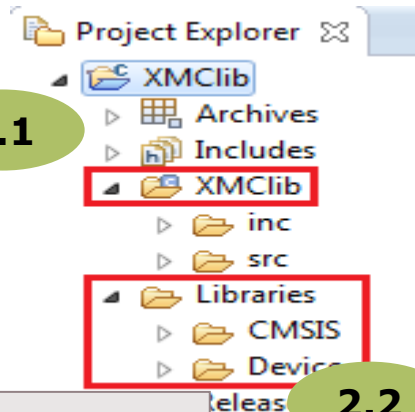
2.4

Step 2:
Add **XMClib header file folder**

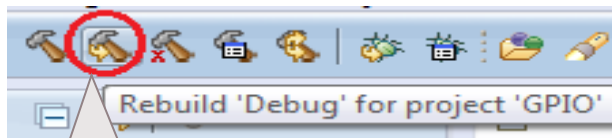A precompiled XMC™ Lib library can be created in Atollic in advance, which can be linked in Atollic project later
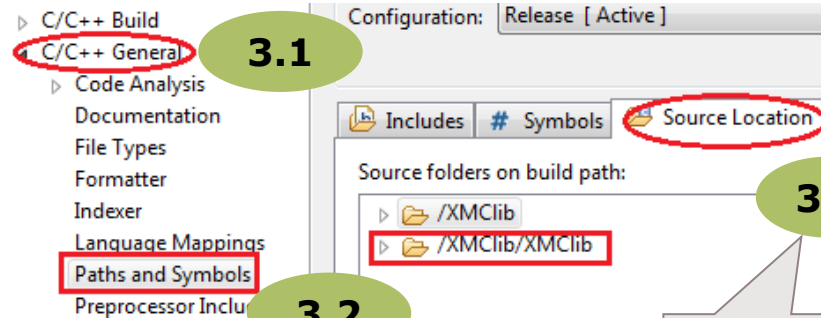

Step 1: Define a new library project

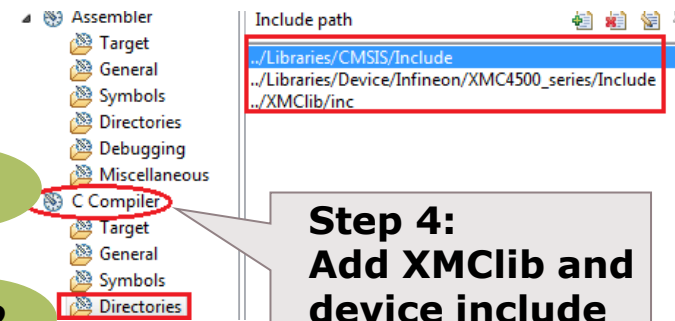# Atollic: Create a precompiled XMC™ Lib library (libXMClib.a) (2/2)

2.1

2.2

Step 2:
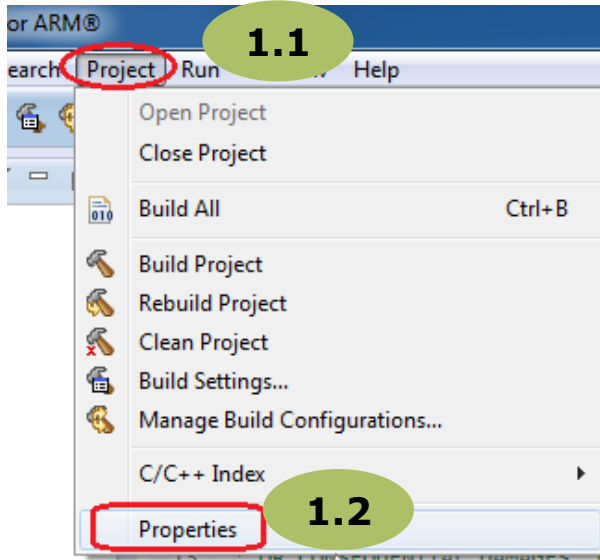**Copy XMClib files and device header file into project**

3.1

3.2

3.3

Step 3:
Add XMClib source path

4.1

4.2

Step 4:
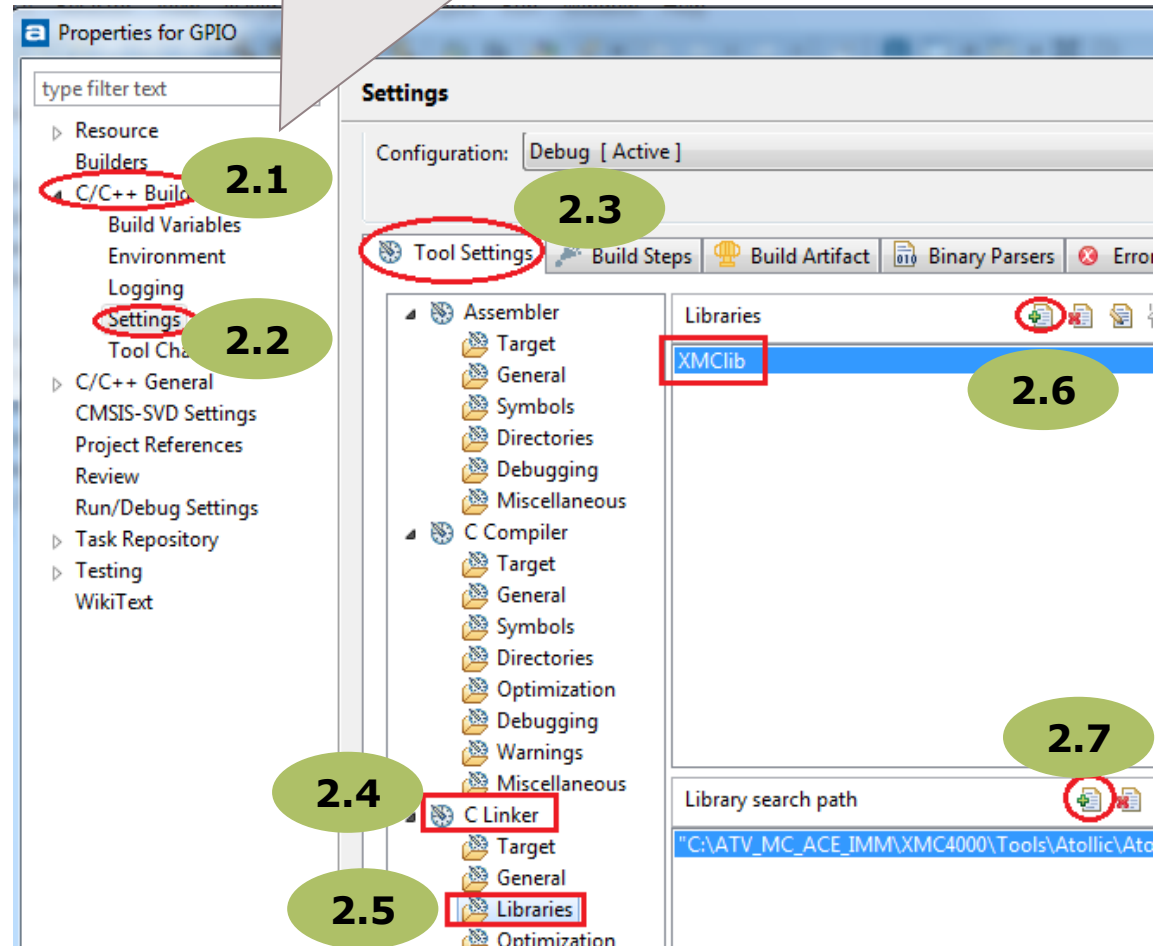**Add XMClib and device include path**

Step 5: Build

Atollic: Link the XMClib.a into Atollic project

Link a precompiled XMC™ Lib library in Atollic project that needs to use XMC™ Lib LLD

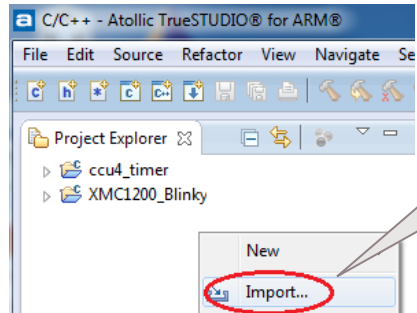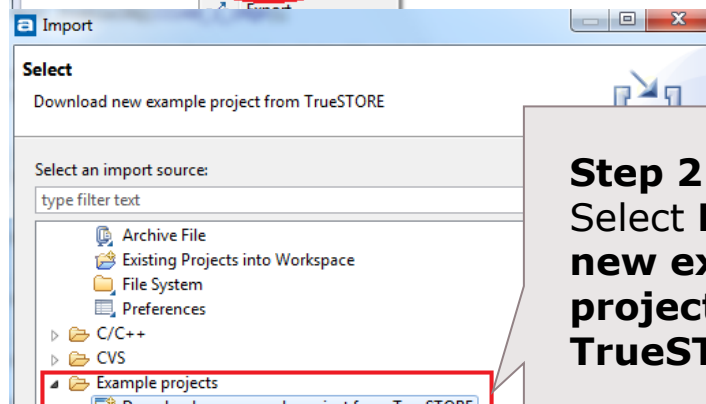**Step 2:** Add **XMClib** in **Linker options**

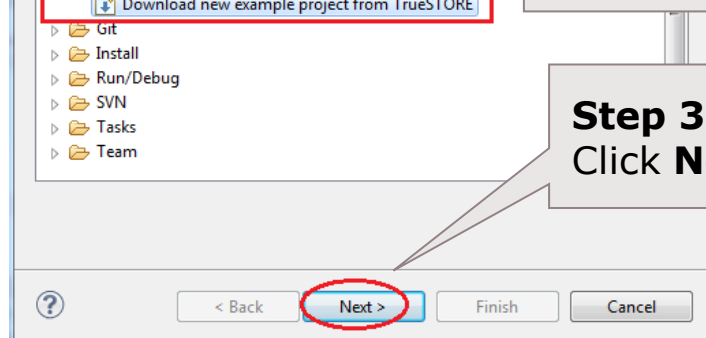**Step 1:** Open **Project Properties**

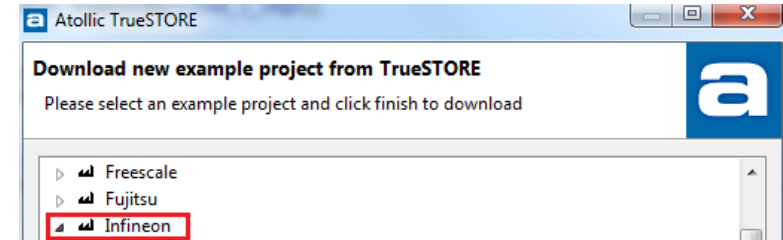# Atollic: Import example projects from TrueSTORE

Step 1:
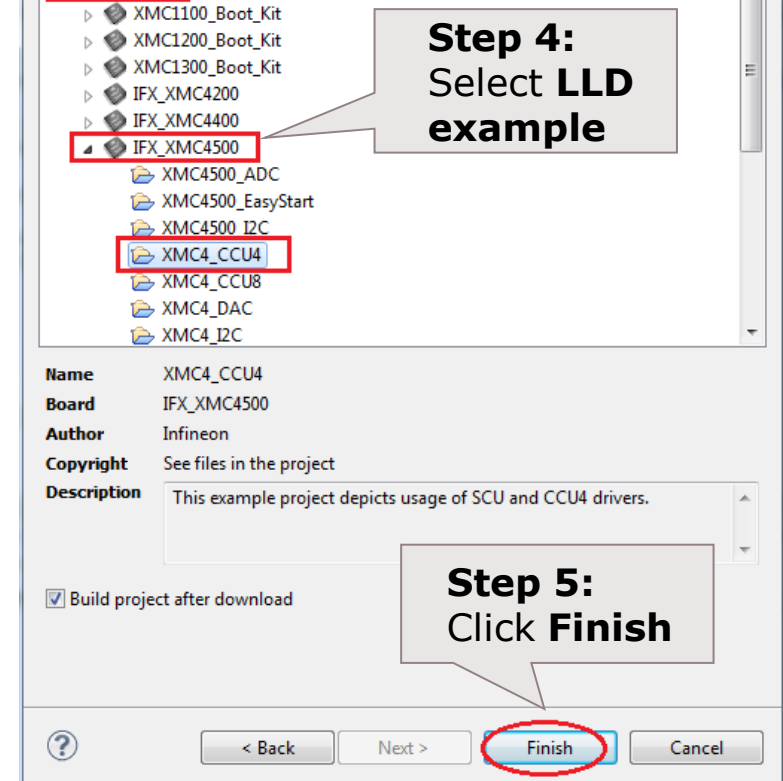**Click right mouse**, select **Import**

Step 2:
Select **Download new example project from TrueSTORE**
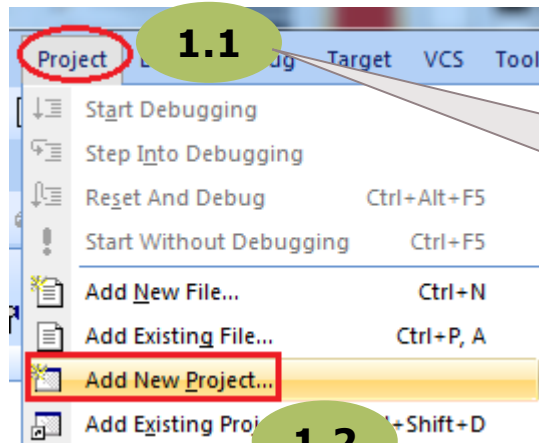
Step 3:
Click **Next**

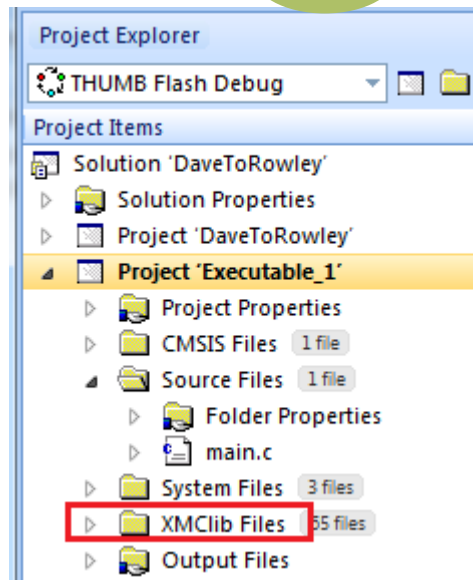Step 4:
Select **LLD example**

Step 5:
Click **Finish**

Rowley: Using template project to integrate XMC™ Lib source code in project

Step 1:
Add a new project in solution

XMClib source files are automatically included in project

Step 2:
Choose template project
Infineon XMC1000 or
XMC4000 that uses XMClib

Rowley: Import example project

The LLD example projects are saved under Infineon package:
C:\Users\wangguan\AppData\Local\Rowley Associates Limited\CrossWorks for ARM\v3\packages\targets\XMC4000\CMSIS\Device\Infineon\XMClib\examples\XMC4500_series

2
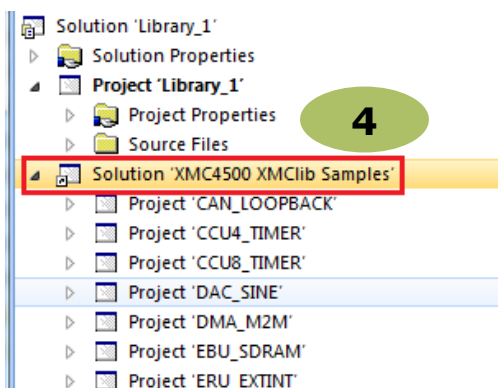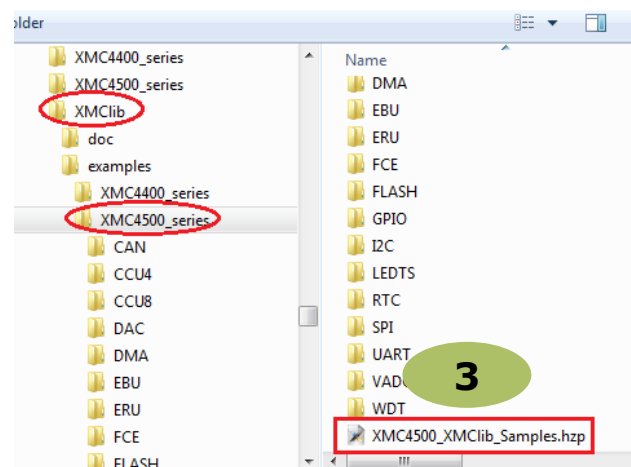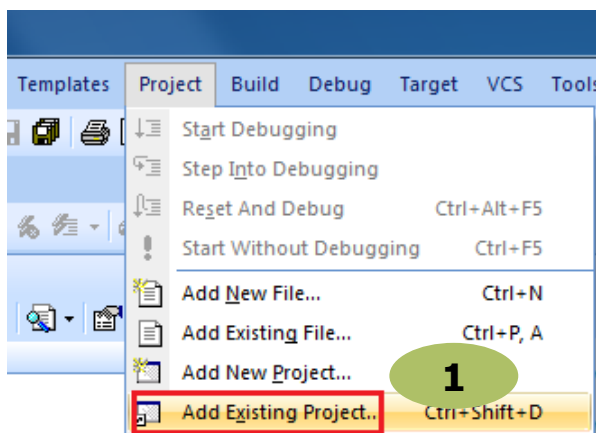
1	Open **Add Existing Projects**
2	Go to **Infineon package folder**
3	Open *XMC4500_XMClib_Sample.hzp*
4	Activate the **LLD example project**

Support material

Collaterals and Brochures	› Product Briefs › Selection Guides › Application Brochures › Presentations › Press Releases, Ads	› www.infineon.com/XMC
Technical Material	› Application Notes › Technical Articles › Simulation Models › Datasheets, MCDS Files › PCB Design Data	› www.infineon.com/XMC › Kits and Boards › DAVE™ › Software and Tool Ecosystem
Videos	› Technical Videos › Product Information Videos	› Infineon Media Center › XMC Mediathek
Contact	› Forums › Product Support	› Infineon Forums › Technical Assistance Center (TAC)

Glossary abbreviations

› MDK   Microcontroller Development Kit

› DAVE™   Free development IDE for XMC™

› EWARM   Embedded Workbench® for ARM®

› LLD   Low-Level Diver

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