Installation and quick start of iSYSTEM's winIDEA Open in DAVE™ version 4

XMC™ microcontrollers

July 2016

Agenda

1. winIDEA Open overview
2. Installation of the winIDEA Open eclipse plug-in into DAVE™
3. Create a project for the XMC™ 2Go kit
4. Generation of the PWM library
5. Compilation and creation of a new debug configuration
6. Using winIDEA Open IDE as debugger

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About winIDEA Open

- iSYSYTEM provides a free version of its debugger IDE called winIDEA Open; it can use the Segger J-Link SW and J-Link HW to connect to the MCU target
  - Debugger in a proprietary IDE plus the ARM GCC
  - Eclipse plug-in to use the CDT debug perspective or the proprietary IDE
- The eclipse plug-in can be installed in DAVE™ version 4 to extend the debug capabilities of DAVE™ version 4
- The winIDEA Open Debug IDE provides extended functionalities beyond the default DAVE™ debugger:
  - Real-time period update and graphical display of variables while the target MCU is running
  - RTOS Kernel aware debug – e.g. FreeRTOS
  - Integrated unit test tool (without code instrumentation)
  - Process automation and integration, scripting (isystem.connect)

Content of this tutorial

- This tutorial provides a step-by-step description to:
  - Install the winIDEA Open eclipse plug-in into DAVE™ version 4
  - Create a very simple project for the XMC™ 2Go kit
    - Generation of a low frequency PWM signal using DAVE™ Apps to toggle a LED
  - Set up the debug configuration in DAVE™ to use winIDEA Open with the CDT debug perspective in DAVE™
  - Set up the debug configuration in DAVE™ to use the winIDEA Open in its proprietary IDE started from DAVE™
- Prerequisites
  - DAVE™ version 4.1.2 or higher should be installed
    - Including the latest version of the DAVE™ Apps libraries
  - Segger J-Link SW v5.0 or higher should be installed
  - XMC™ 2Go kit (or any other XMC™ kit with J-Link OBD)
    - If a different XMC™ kit is used the device selection (page 8) and the selected output pin for the PWM signal (page 1) may be different
    - If a XMC™ kit without J-Link OBD is used, a separate J-Link debugger – e.g. J-Link Lite – is required

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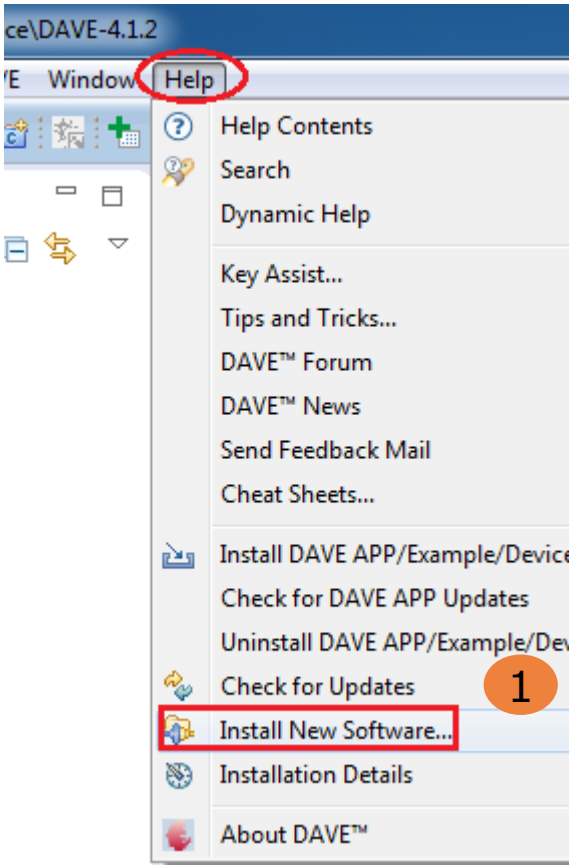
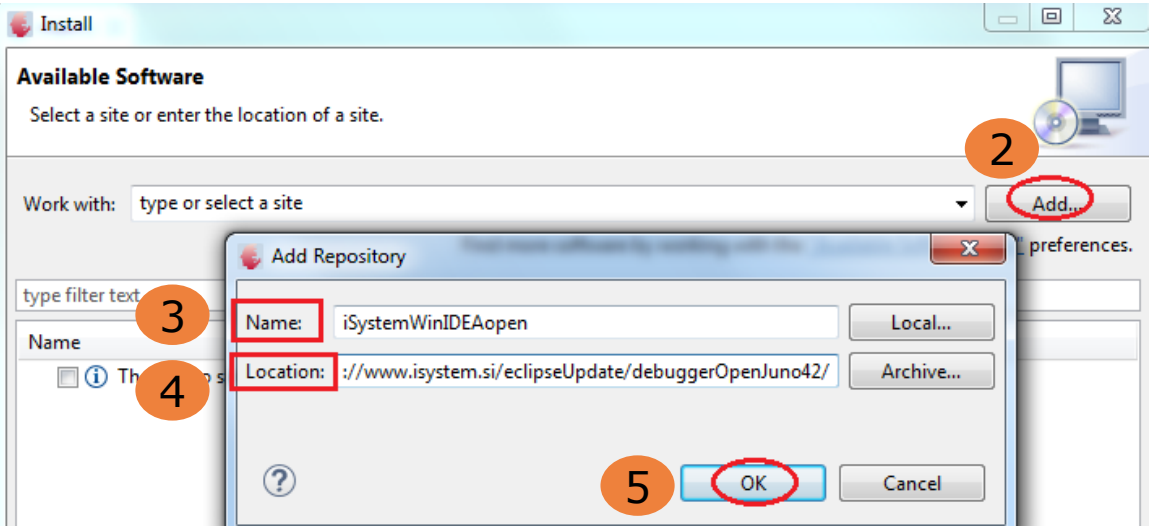
Installation of the winIDEA Open eclipse plug-in into DAVE™ (I)



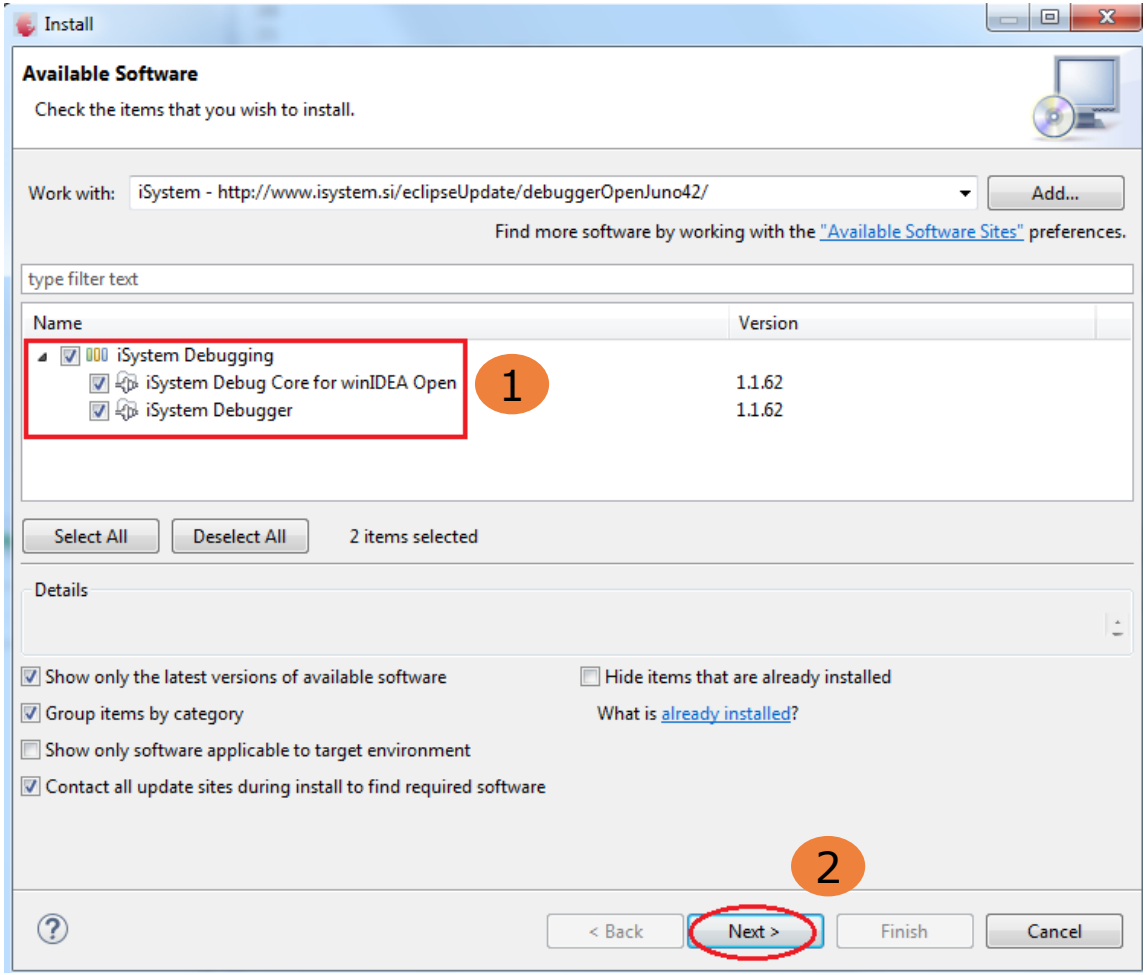
1. Press in DAVE™:
   ->**Help** ->**Install New Software**
2. Press **Add** in **Work with**
3. Enter any name, here, "iSystemWinIDEAopen" is used
4. Copy in **Location** the http link shown below:

http://www.isystem.si/eclipseUpdate/debuggerOpenJuno42/

5. Press **OK**



Installation of the winIDEA Open eclipse plug-in into DAVE™ (II)

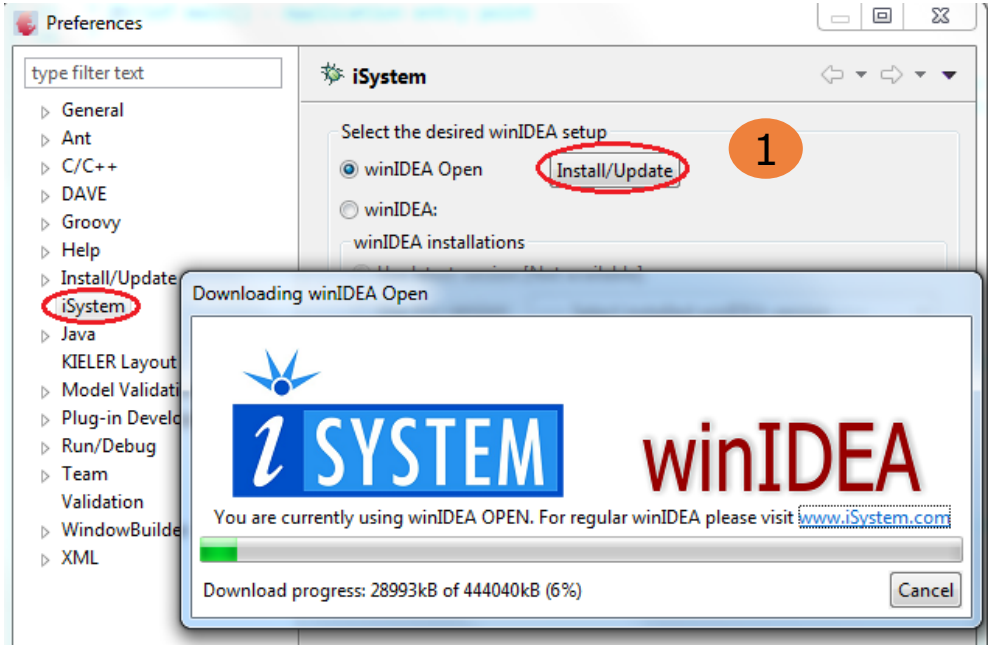


1. Select **iSystem plug-in**
2. Press **Next**

Then follow the further instructions, accept the terms of use and restart DAVE™ after successful installation of the plug-in.

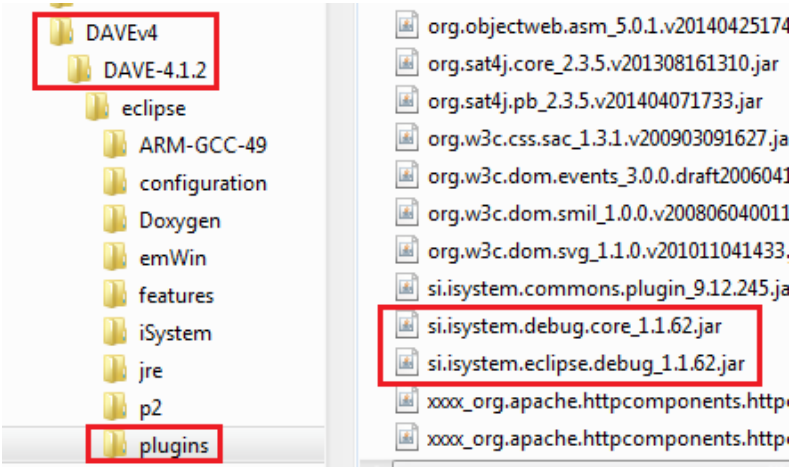
Installation of the winIDEA Open debug engine and IDE

- Open in DAVE™: **Window** ->**Preferences** -> **iSystem**
- Then the below user interface will appear:



1 Click **Install/Update**
Follow/accept subsequent installation prompts

The winIDEA open debugger engine and IDE is then installed in the eclipse folder of the DAVE™ version 4 installation.



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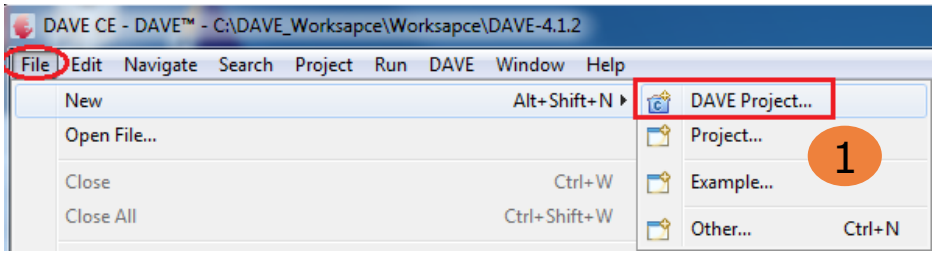
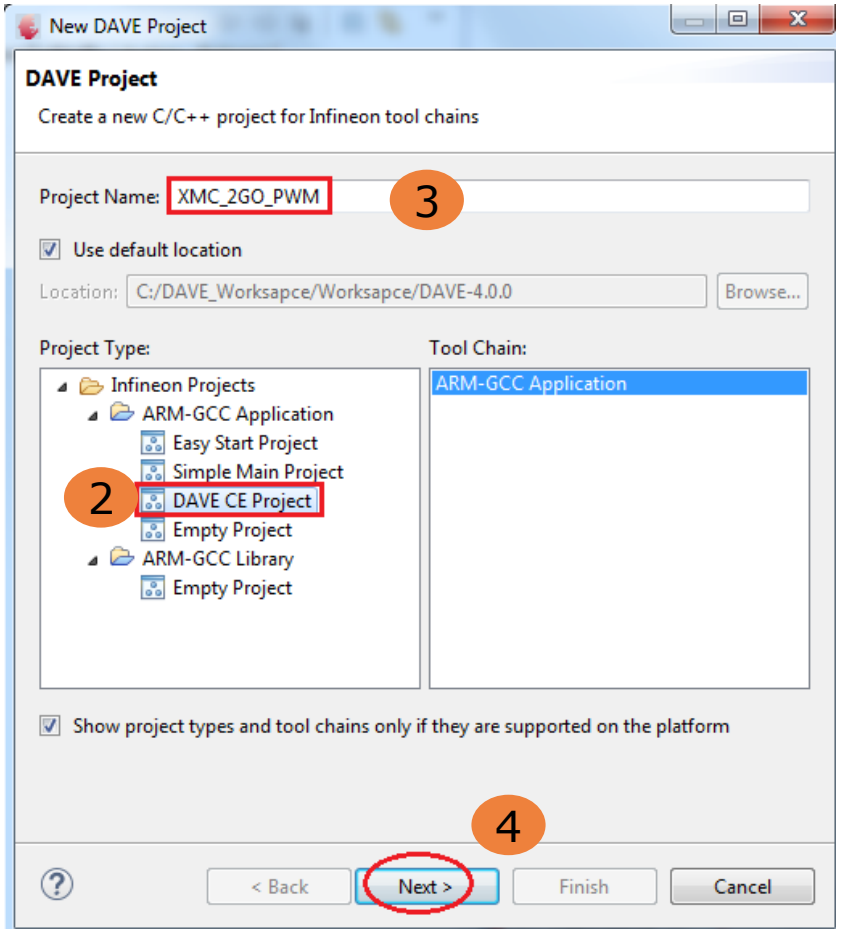
Create a very simple project for the XMC™ 2Go kit (I)

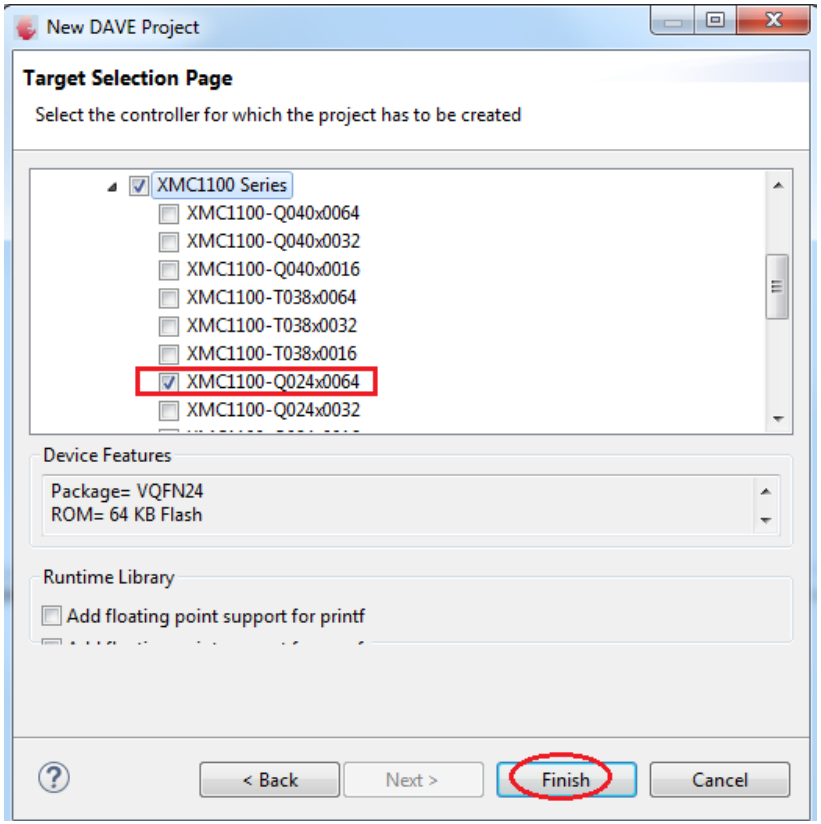
We will now generate a simple project using the PWM App to blink one of the LEDs in the XMC™ 2Go kit with the frequency of the PWM signal.



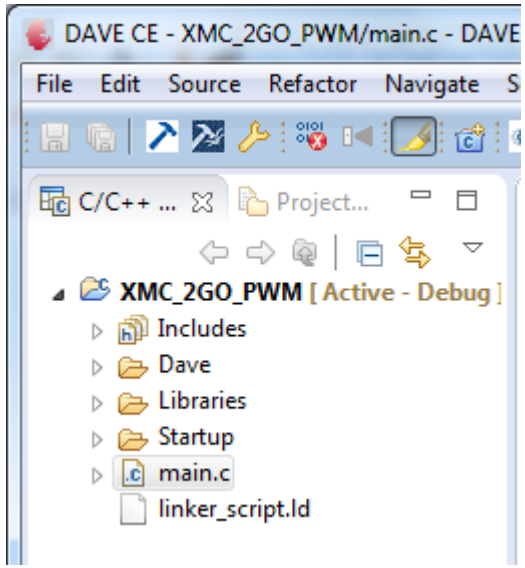


1. Press in DAVE™:
   -> **File** ->**New** ->**DAVE™ Project**
2. Select **DAVE™ CE Project**
3. Enter a project name here:
   XMC_2GO_PWM
4. Press **Next**

Create a very simple project for the XMC™ 2Go kit (II)



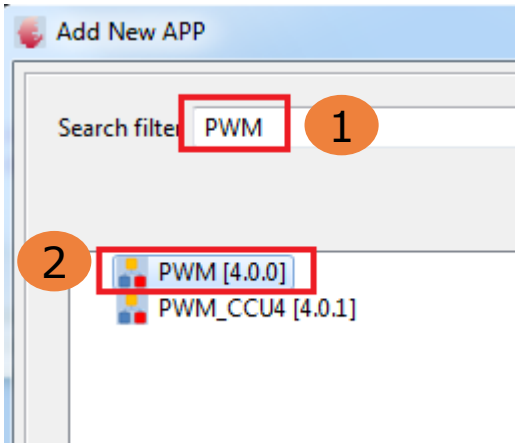
1. Select the **XMC1100-Q024x0064**
   If a different board is used, select the appropriate target MCU
2. Press **Finish**



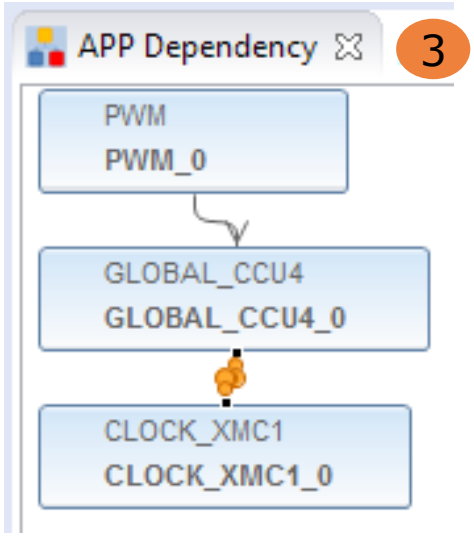
Finally a new project has been added into the workspace.

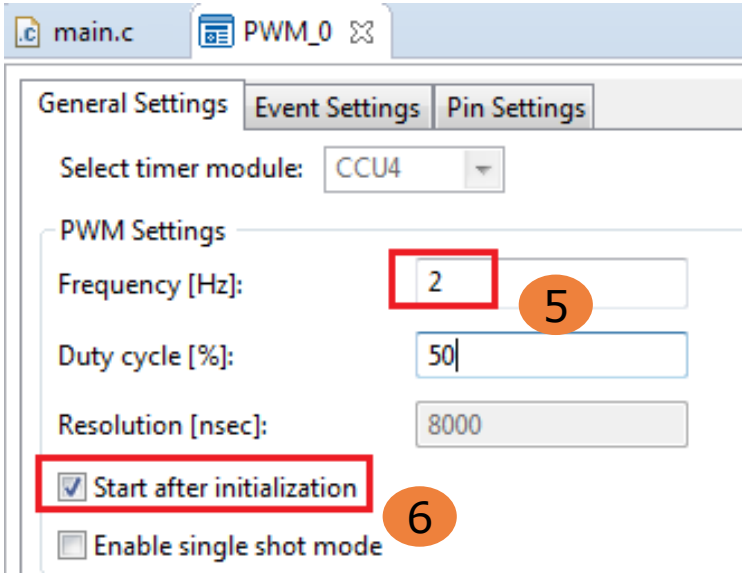
The project includes a very simple main.c that calls the DAVE™ init function, the target specific startup files and linker script file and the stubs for the C library.

Adding and configuring a PWM App to generate the required PWM signal



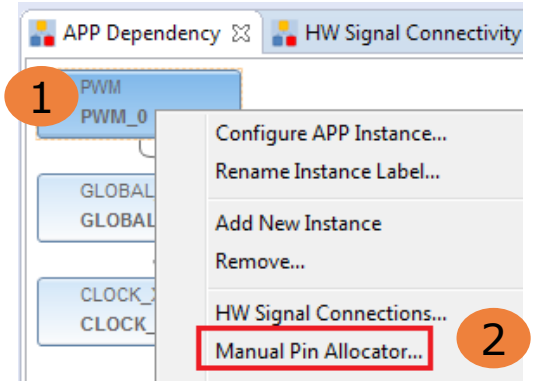
1. Enter **PWM** in App Selection View of DAVE™
2. Double click on **PWM** to add this DAVE™ App to the project
3. Then this App plus additional required Apps can be seen in the S/W App Connectivity View
4. Double click on the **PWM** App to open the configuration GUI
5. 6. Change the marked settings in the configuration GUI



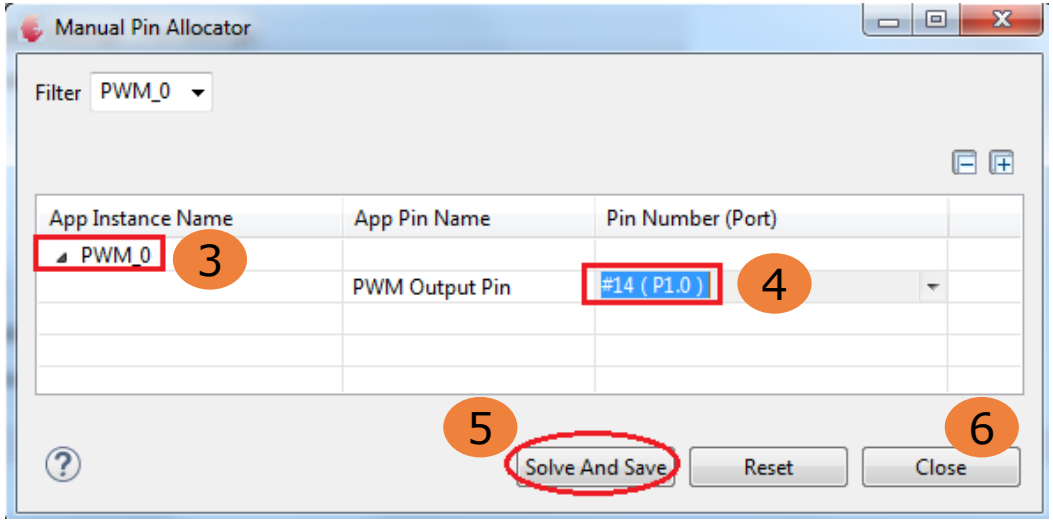


Assign the PWM signal to the required pin

DAVE™ provides a resource solver to map the appropriate chip resources to the DAVE™ Apps. To make sure that the PWM signal will be generated at the pin where the LED is connected we need to assign the required pin manually as constrain for the solver.



1. Right mouse click on the **PWMSP001 App**
2. Select **Manual Pin Assignment**
3. Select **PWM Output Pin**
4. Select **#14(P1.0)**



5. Press **Solve And Save**
6. Press **Close**

If a different board than the XMC™ 2Go kit is used, a different pin has to be assigned.

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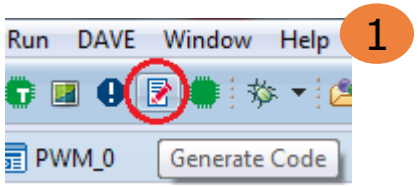
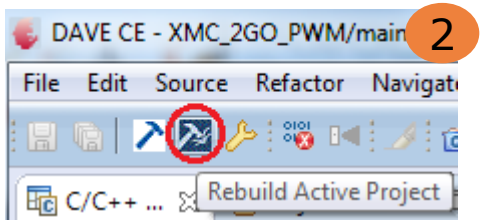
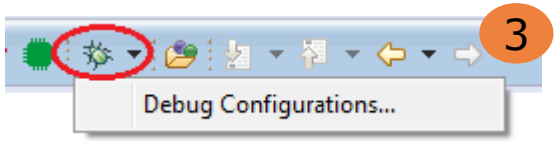
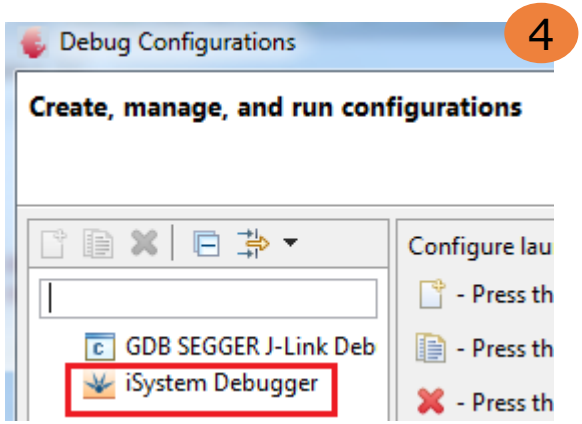
Generation of the PWM library









1. Press **Generate Code**
2. Press **Rebuild Active Project**
   Click on the project name in the workspace
3. Press the combo box of **Debug Configurations**
4. Double click on **iSystem Debugger** to create a new debug configuration

Notes:

- We don't need to add any user code to call any PWM library function because main.c contains already a call of the DAVE™ init function which start the PWM signal with 2 Hz according to our configuration (page 9)
- Before we execute step 3 it is important to select the project (click on the project name), otherwise the debug configuration will not be created with the correct project information (winIDEA does not use the active project functionality to determine the project)

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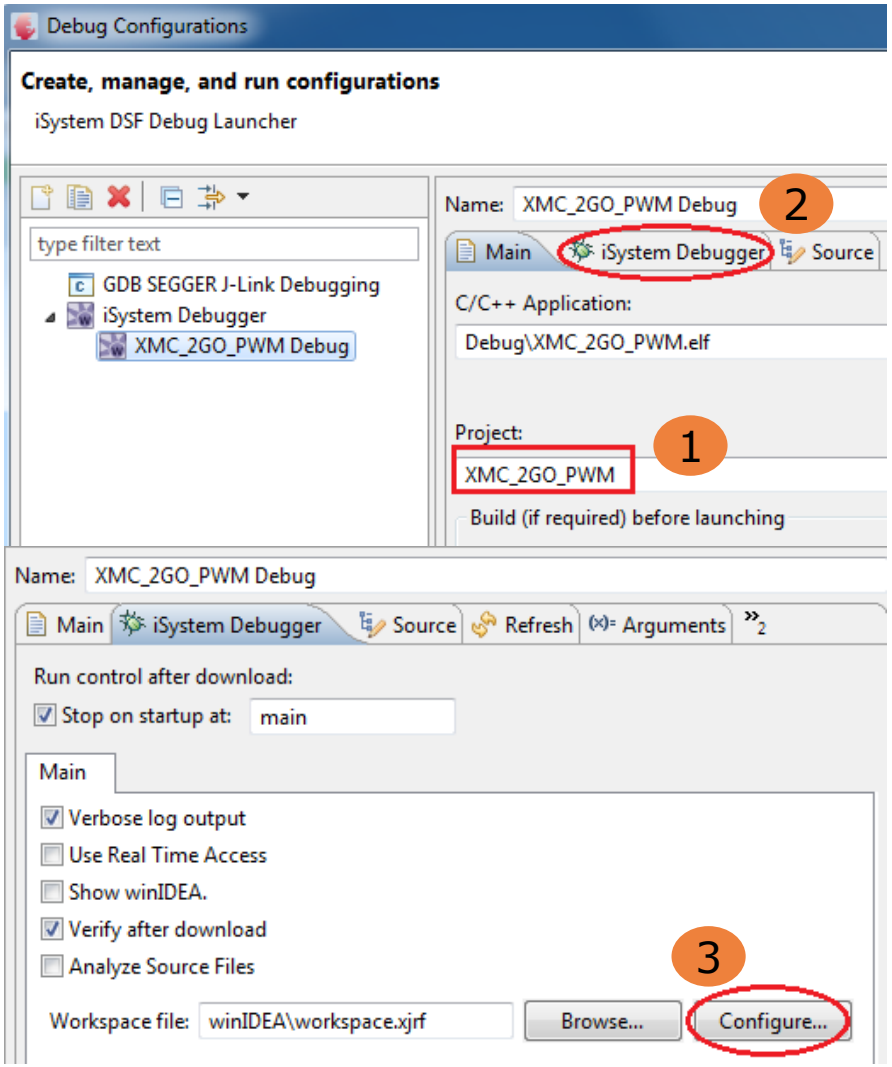
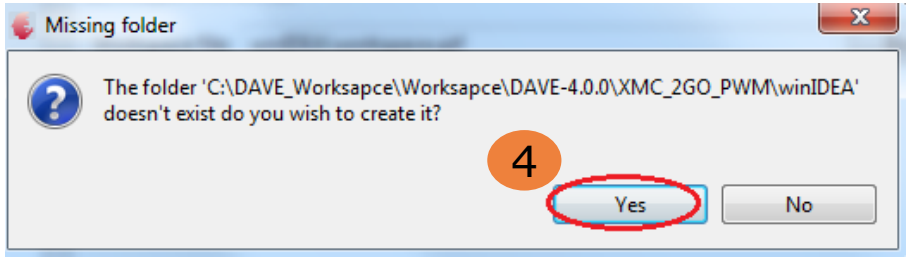
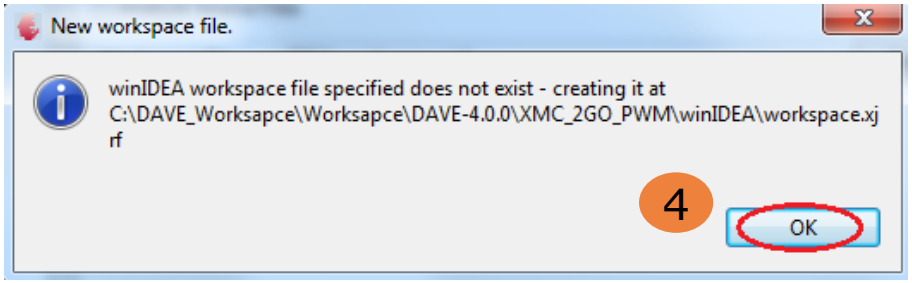
Correct setup of the debug configuration

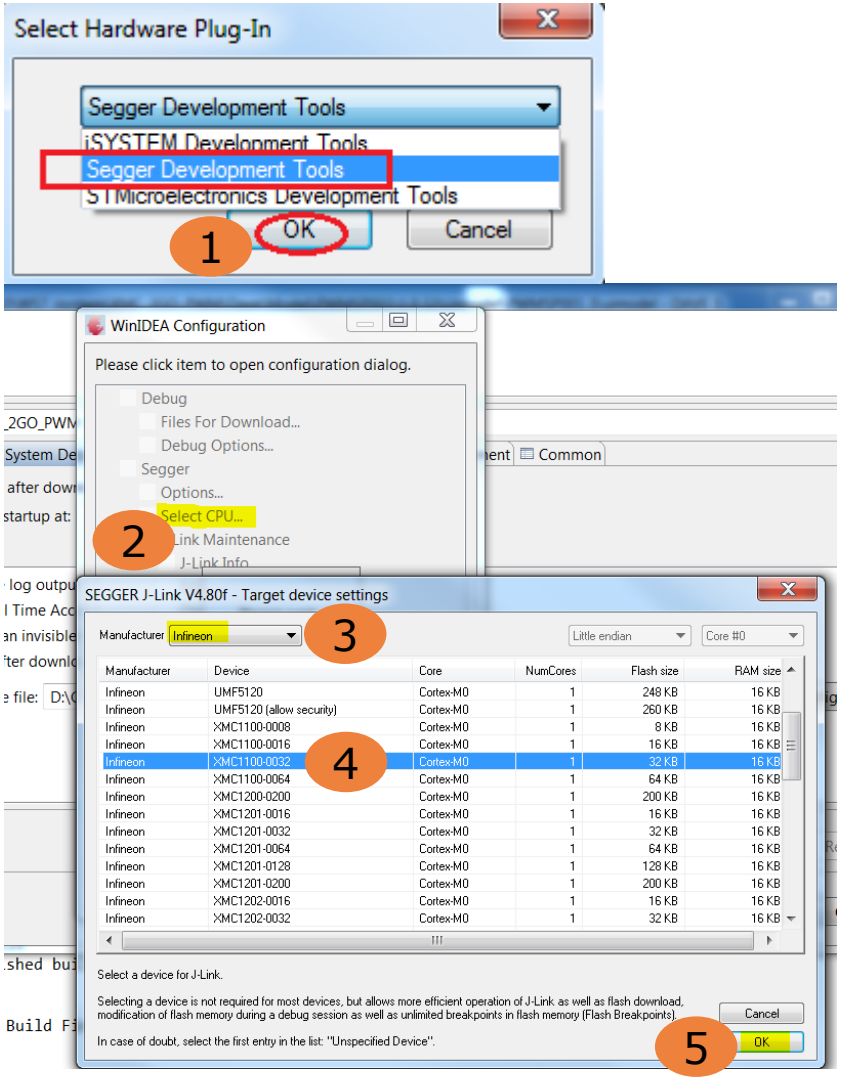


1. The debug configuration should contain the correct project name and elf file
2. Switch to the **iSystem Debugger** tab
3. Press **Configure**
4. Confirm creation of a winIDEA workspace folder and workspace file in the DAVE™ project





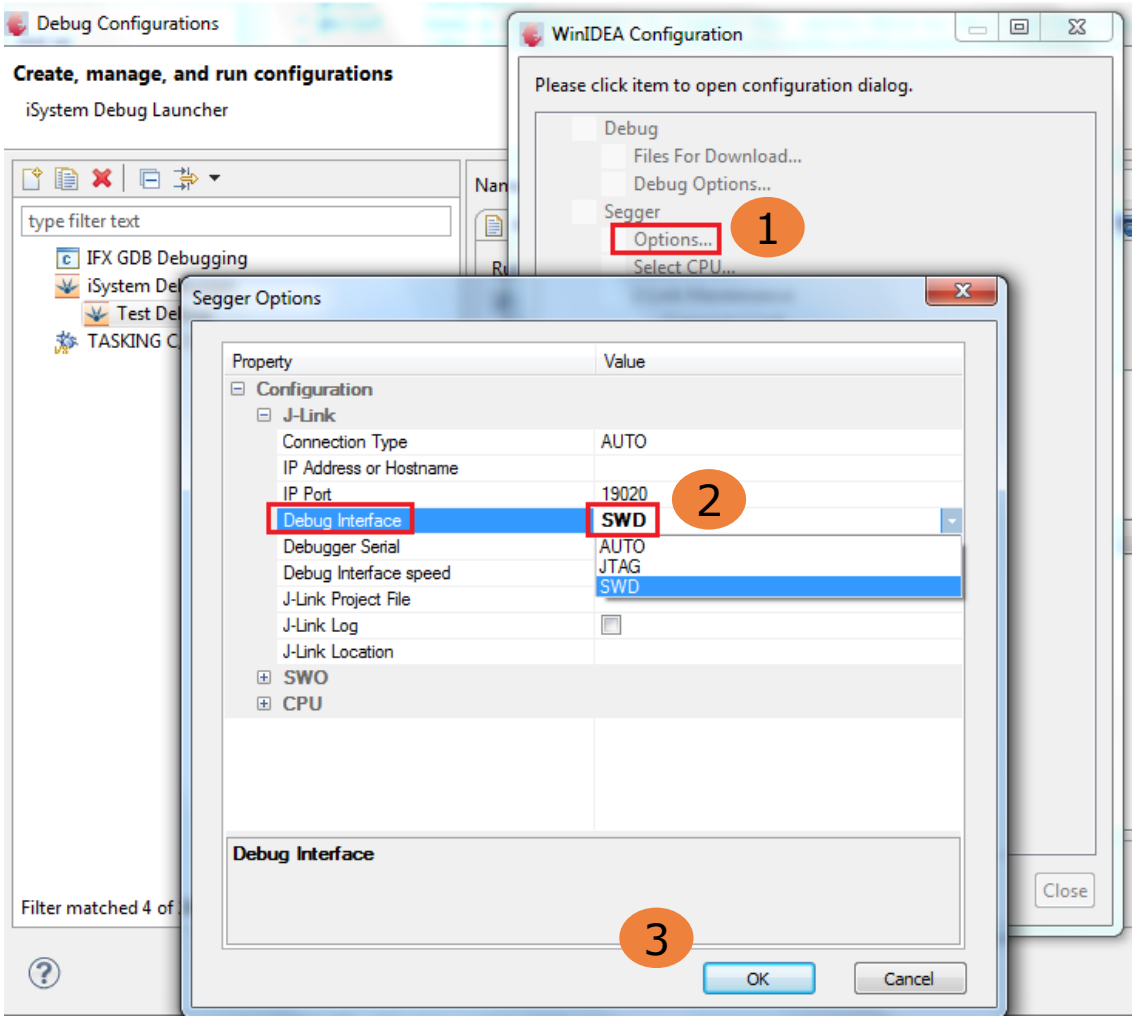
Selecting the MCU target



- winIDEA Open doesn't take the selected device from the DAVE™ project, therefore the MCU target has to be assigned once more
- After the winIDEA Open workspace file has been created, the control to **Select Hardware Plug-In** will appear

1. Select **Segger Development Tools** and click **OK**
2. Press **Select CPU…**
3. Select **Infineon** in Manufacturer combo box
4. Select **XMC1100-0064**
5. Press **OK**

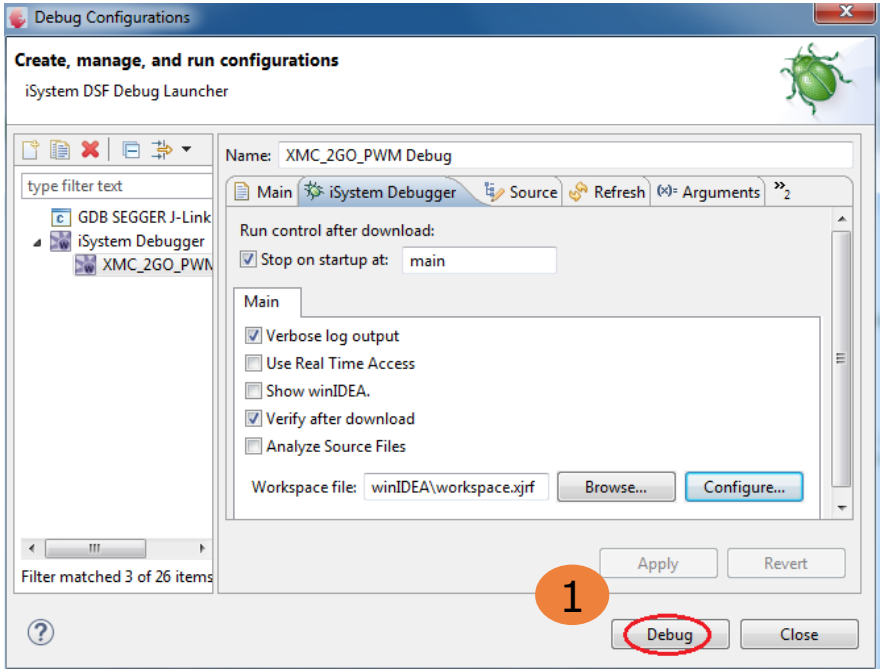
Enable SWD (Serial Wire Debug)

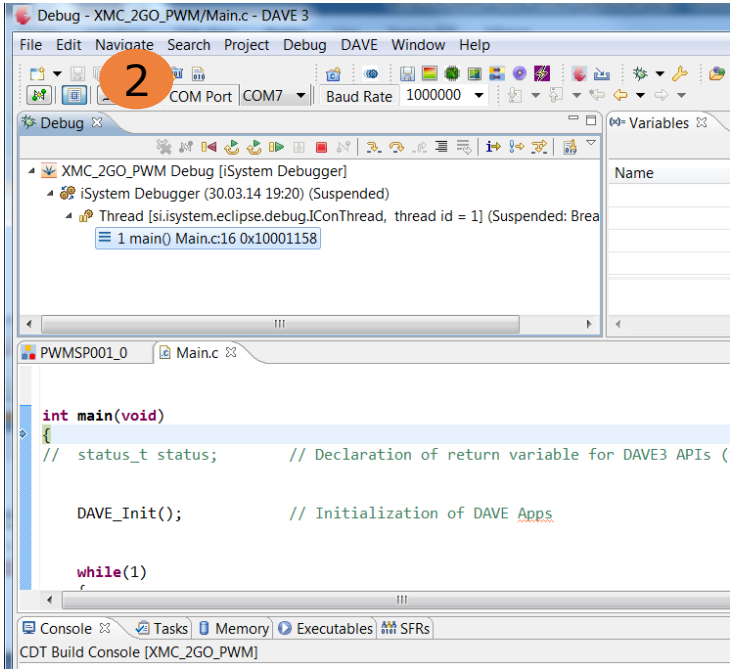


Check if **SWD** (Serial Wire Debug) is selected, if not, select **SWD** under **Debug Interface**:

1. Press **Options...**
2. Press -> **Configuration** -> **Debug Interface** -> **SWD**
3. Press **OK**

Start the debug session





1 Press **Debug**

Now a build will be started, the image will be downloaded to the target and a message to change to the debug perspective will be prompted. After confirmation, the debug perspective will open.

2 Press **Resume** in the debug perspective to run the program

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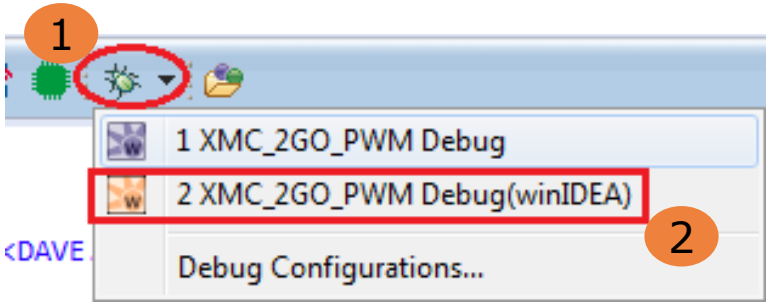
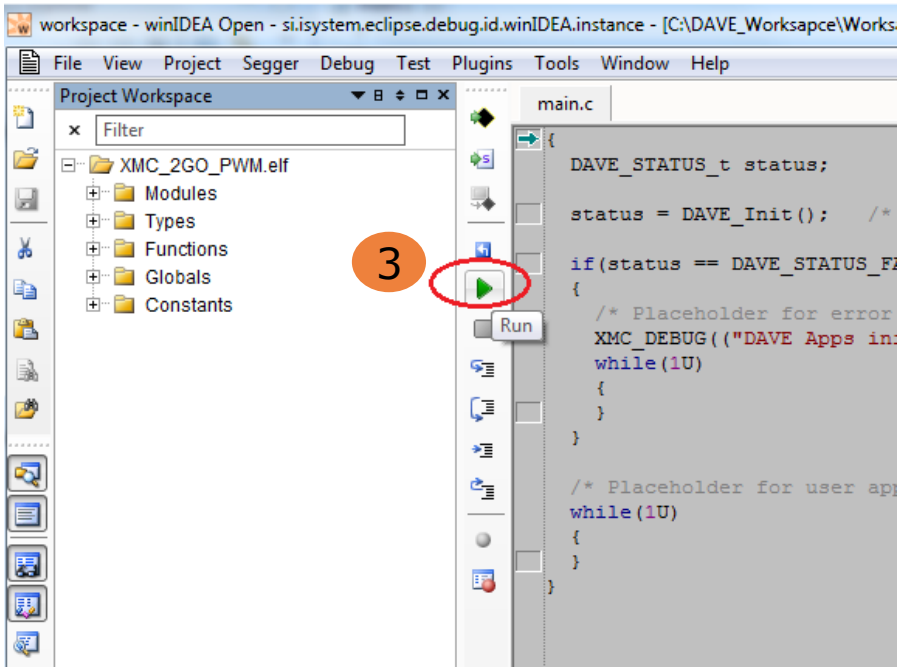
Using winIDEA Open IDE as debugger instead of the eclipse debug perspective

The winIDEA Open IDE provides more comprehensive debug features than implemented in the eclipse CDT debug perspective. Therefore, it might make sense to use this debug user interface instead of the eclipse perspective.

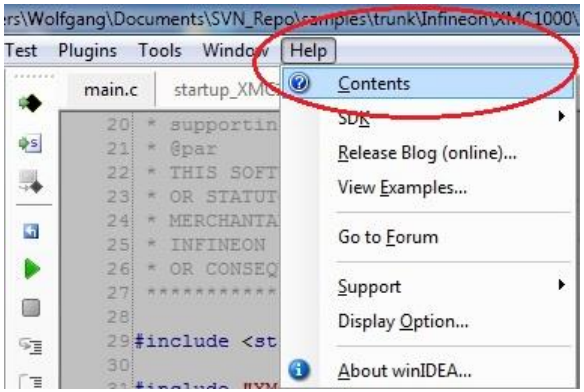




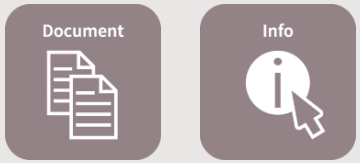
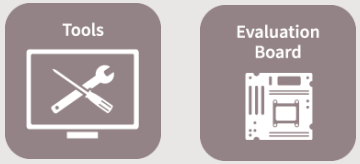
1. Open the debug configuration in DAVE™
2. Select …**Debug (winIDEA)**
3. User interface of winIDEA Open as separate IDE
   Press the **Run** button to start the program

Further information

- iSystem-EclipseDebugPlugin-UsersGuide.pdf
  - http://www.isystem.com/download/eclipse
- iSystem-winIDEA Open extensive Help Menu
  - Accessible in the IDE of winIDEA Open



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

IDE	Integrated Development Environment
DAVE™	Free development IDE for XMC™
PWM	Pulse Width Modulation
SWD	Serial Wire Debug

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