

# Upgrading a Keil Project from PAC52xx pack v1.0.9 to v2.0.0

*Power Application Controller<sup>®</sup>*



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## 1 OVERVIEW

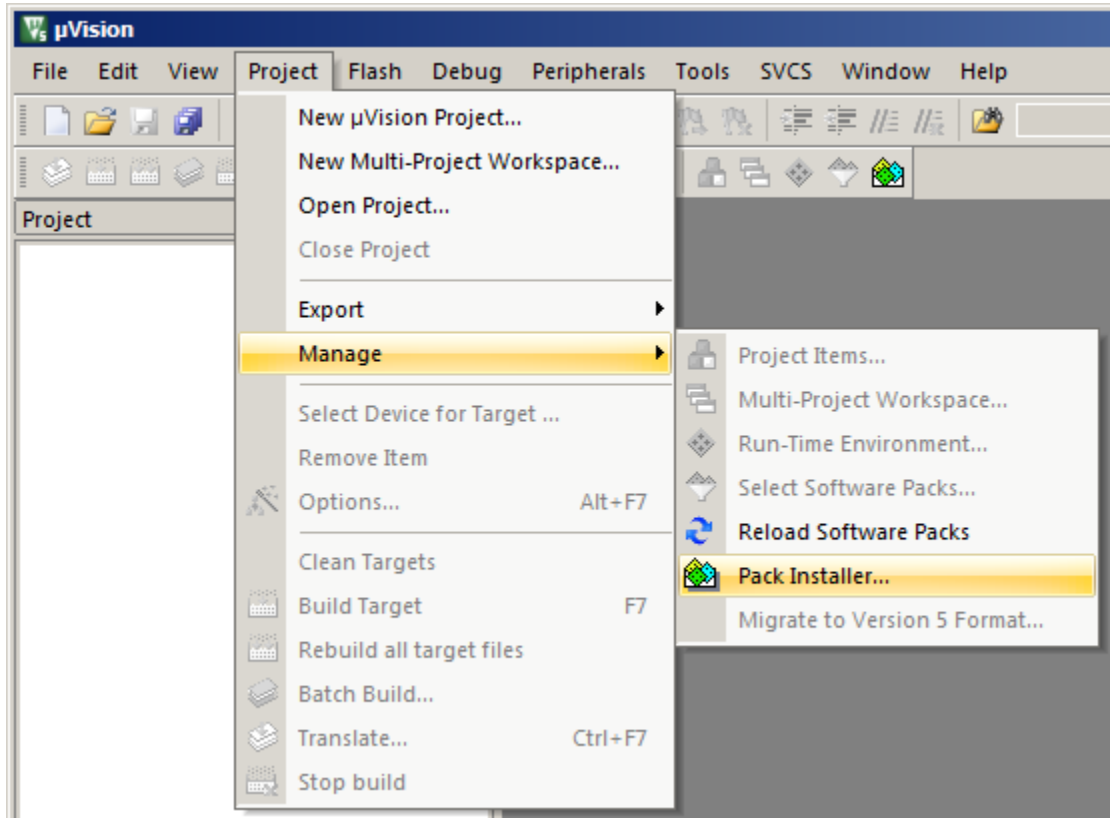
This document will discuss how to upgrade a project from PAC52xx pack v1.0.9 to v2.0.0.

### 1.1 Supported Versions

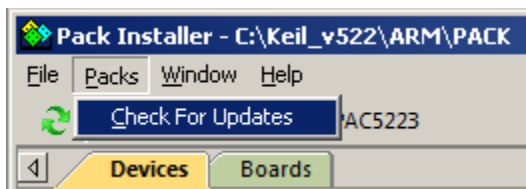
For all versions of Keil uVision v5.14 and newer, follow the instructions in this document.

## 2 UPDATE TO PAC52XX PACK V2.0.0

Run the uVision Pack Installer by selecting “Project->Manage->Pack Installer” in the menu.



Update the Pack Installer database by selecting “Packs->Check For Update” in the menu.



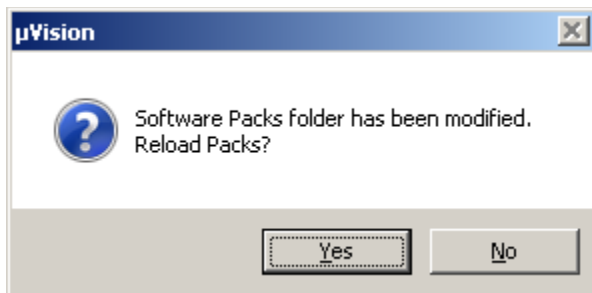
When “Active-Semi” is present in the Devices tab, select it and then click the “Install” button next to “Active-Semi::PAC52XX 2.0.0” in the Packs tab on the right.

Pack	Action	Description
[-] Device Specific	1 Pack	PAC52XX selected
[-] Active-Semi::PAC52XX	Install	PAC52XX Family of Power Application Controllers
2.0.0	Install	PAC52XX Family of Power Application Controllers

After installing the Active-Semi pack, when “Active-Semi” is selected in the Devices tab, it should now say “Up to date” next to “Active-Semi::PAC52XX” in the Packs tab and show both versions.

Pack	Action	Description
[-] Device Specific	1 Pack	
[-] Active-Semi::PAC52XX	Up to date	PAC52XX Family of Power Application Controllers
2.0.0	Remove	PAC52XX Family of Power Application Controllers
1.0.9	Remove	PAC52XX Family of Power Application Controllers

Close the Pack Installer and click “Yes” to reload packs when prompted.

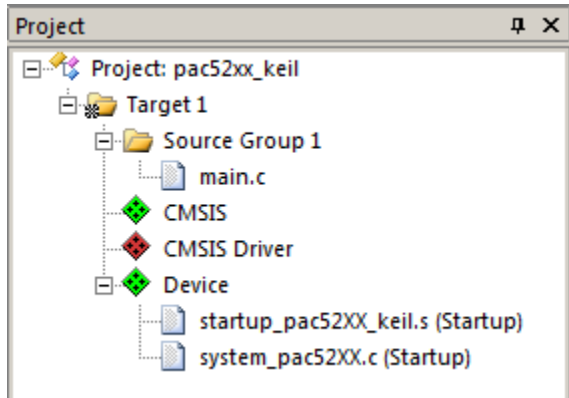


### 3 CONVERTING AN EXISTING PROJECT

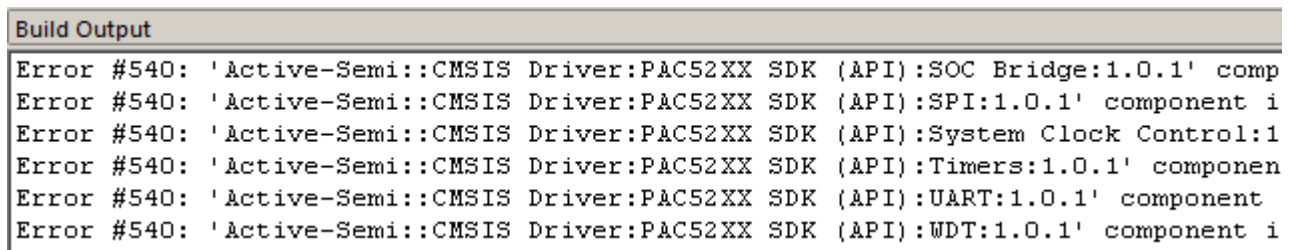
This section will discuss how to convert a project from PAC52xx pack v1.0.9 to 2.0.0.

#### 3.1 Open the Existing Project

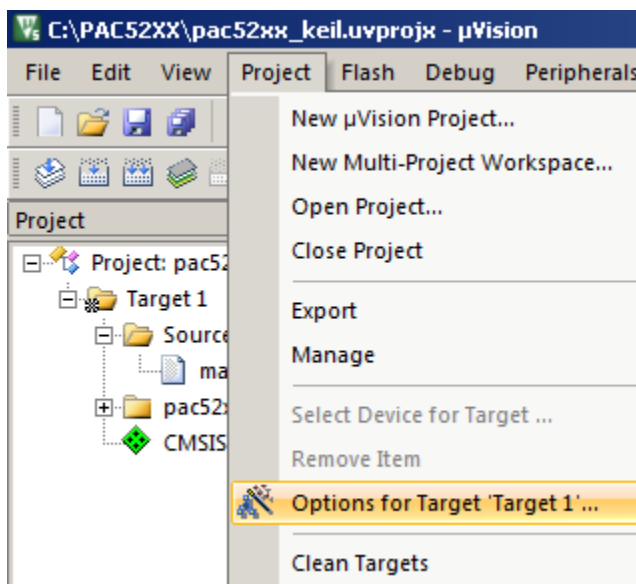
Open a project using PAC52xx pack v1.0.9.



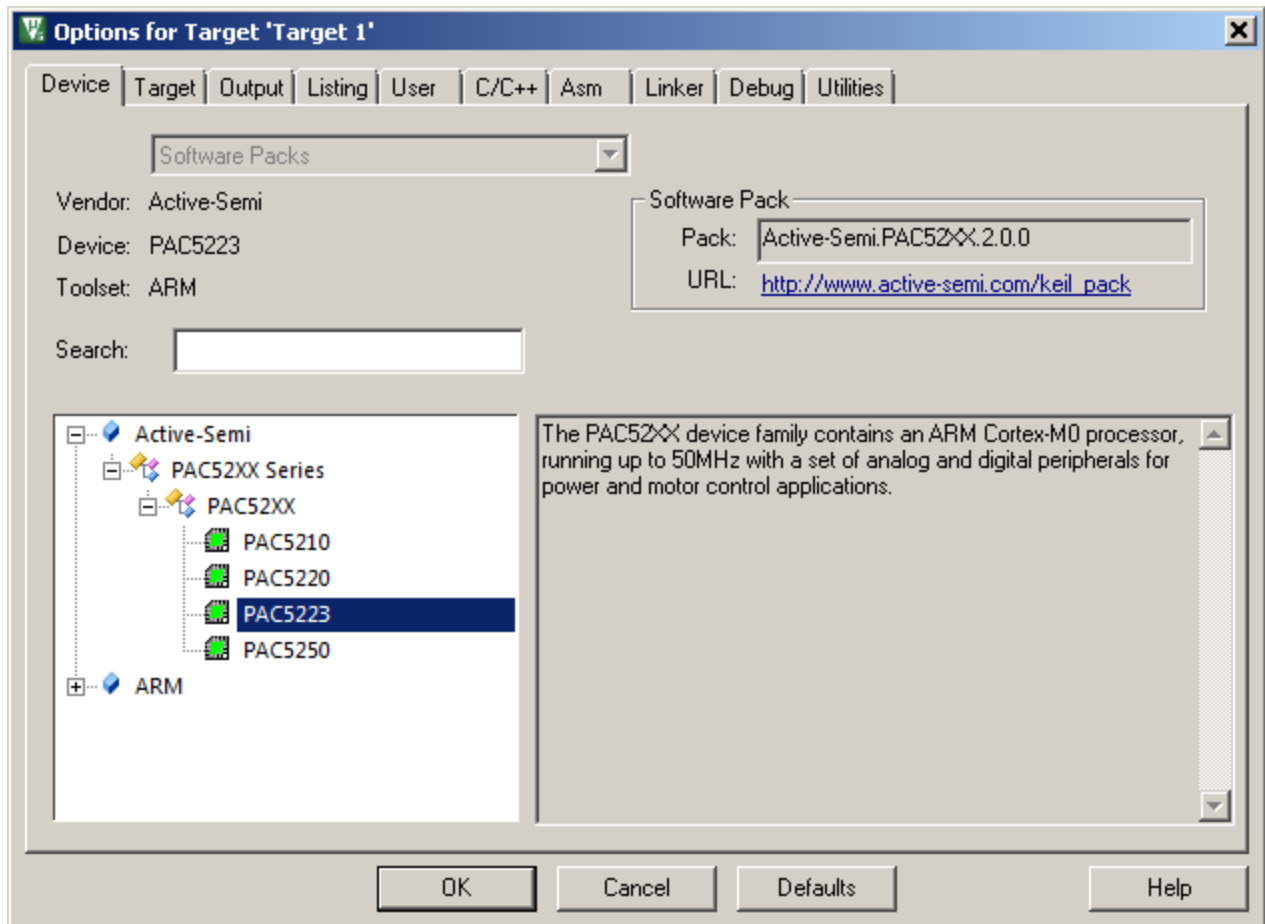
The following errors may appear.



Select "Project->Options for Target..." in the menu.

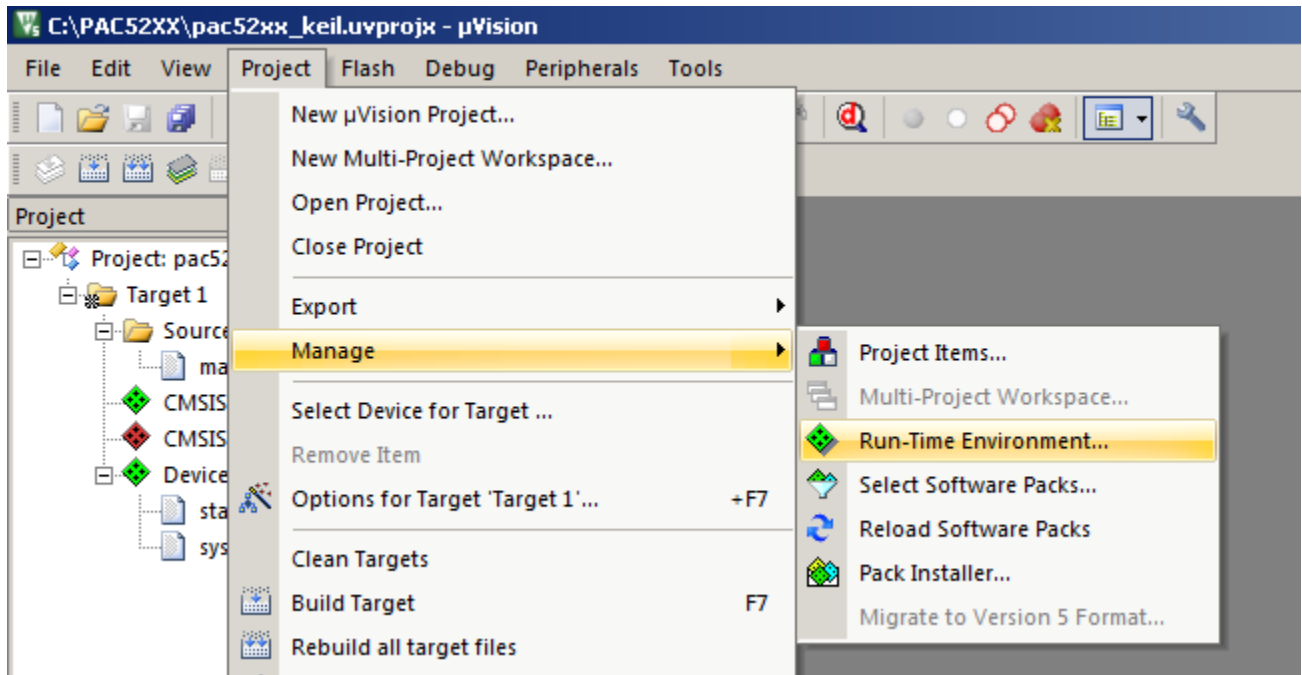


Select the “Device” tab. Verify that the correct PAC5xxx device is selected.

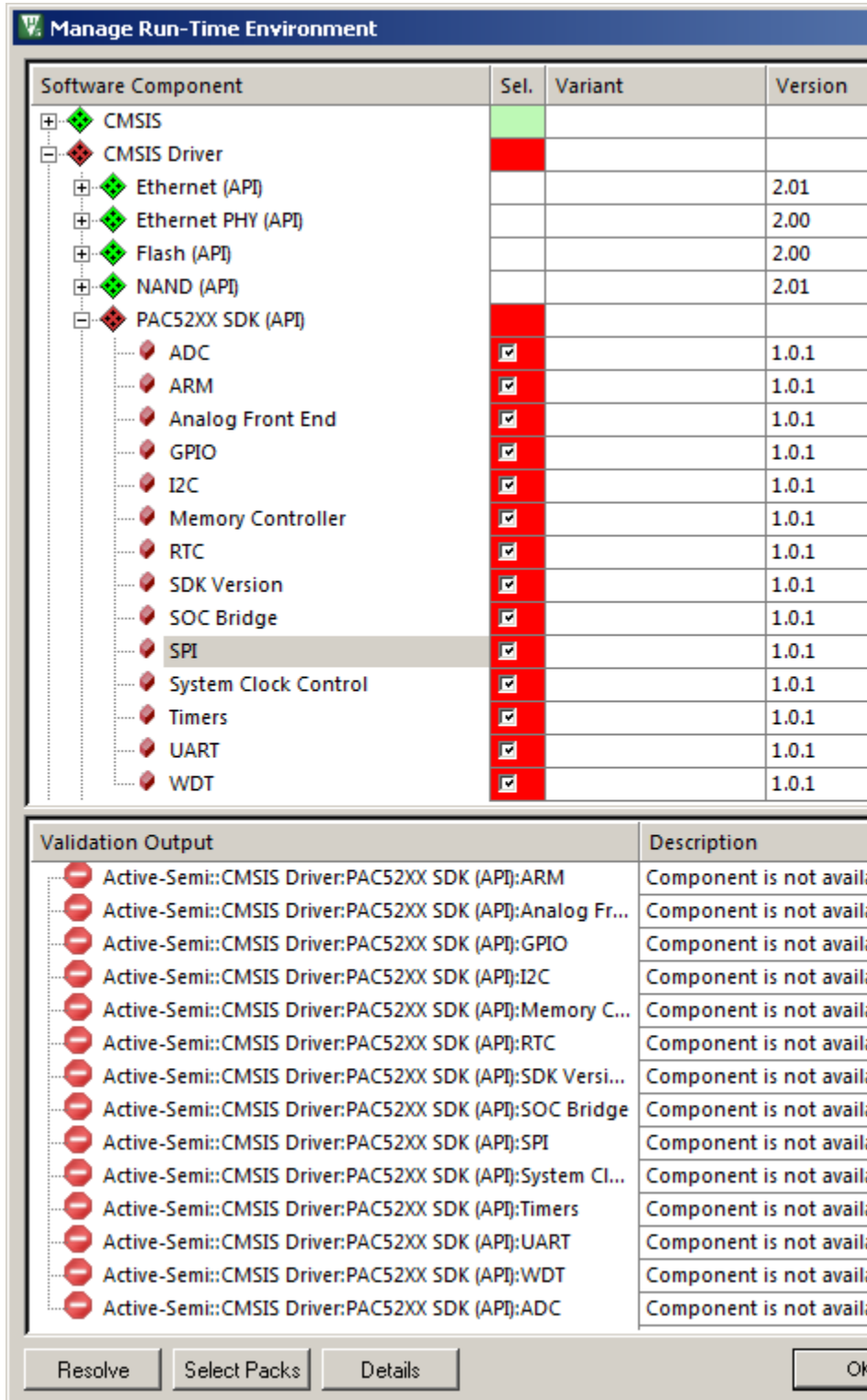


### 3.2 Remove PAC52xx pack v1.0.9 RTE Components

Select "Project->Manage->Run-Time Environment..." in the menu.



A large number of errors associated with the “CMSIS Driver->PAC52XX SDK (API)” components should be shown.



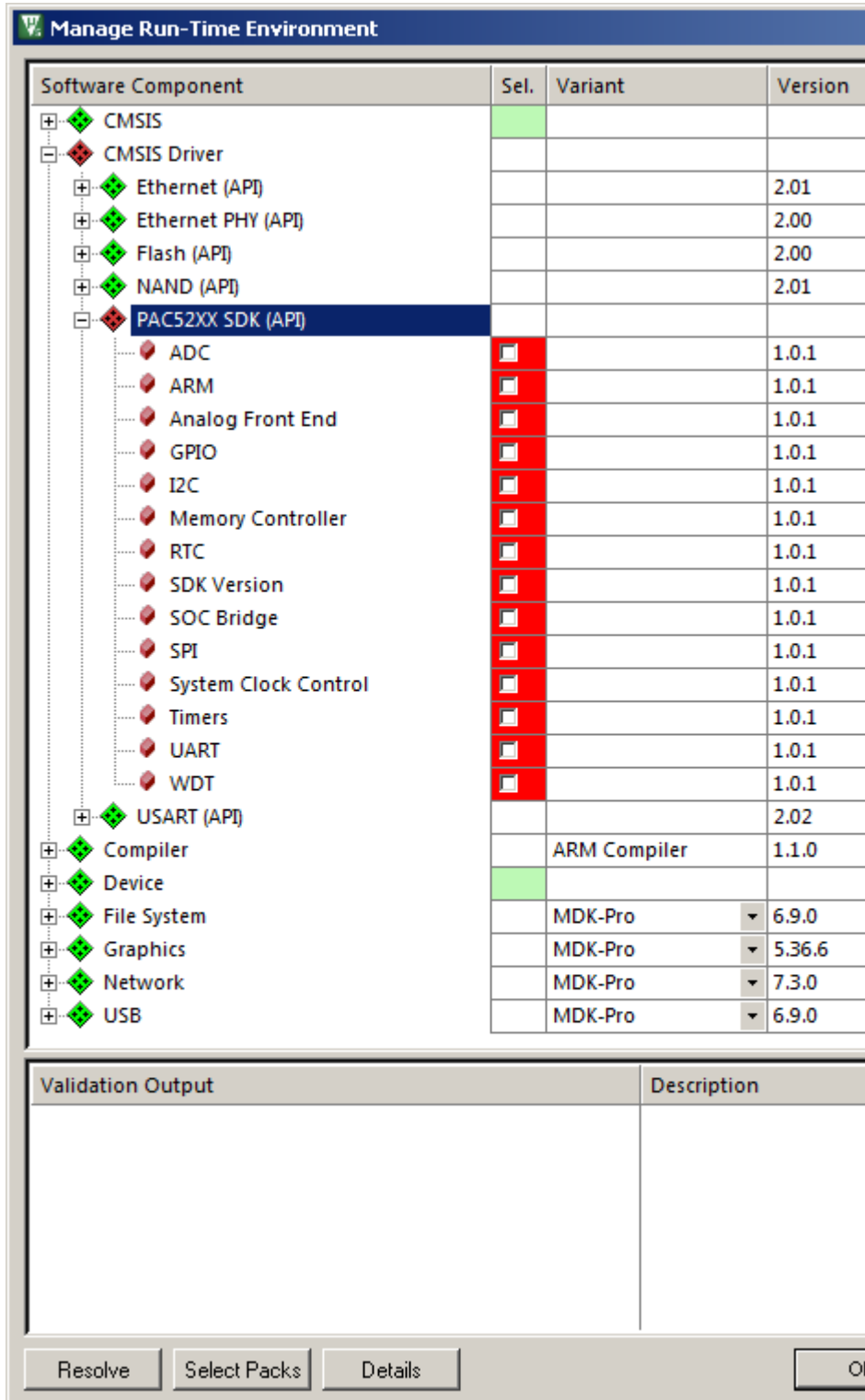
Software Component	Sel.	Variant	Version
CMSIS	<input type="checkbox"/>		
CMSIS Driver	<input checked="" type="checkbox"/>		
Ethernet (API)	<input type="checkbox"/>		2.01
Ethernet PHY (API)	<input type="checkbox"/>		2.00
Flash (API)	<input type="checkbox"/>		2.00
NAND (API)	<input type="checkbox"/>		2.01
PAC52XX SDK (API)	<input checked="" type="checkbox"/>		
ADC	<input checked="" type="checkbox"/>		1.0.1
ARM	<input checked="" type="checkbox"/>		1.0.1
Analog Front End	<input checked="" type="checkbox"/>		1.0.1
GPIO	<input checked="" type="checkbox"/>		1.0.1
I2C	<input checked="" type="checkbox"/>		1.0.1
Memory Controller	<input checked="" type="checkbox"/>		1.0.1
RTC	<input checked="" type="checkbox"/>		1.0.1
SDK Version	<input checked="" type="checkbox"/>		1.0.1
SOC Bridge	<input checked="" type="checkbox"/>		1.0.1
SPI	<input checked="" type="checkbox"/>		1.0.1
System Clock Control	<input checked="" type="checkbox"/>		1.0.1
Timers	<input checked="" type="checkbox"/>		1.0.1
UART	<input checked="" type="checkbox"/>		1.0.1
WDT	<input checked="" type="checkbox"/>		1.0.1

Validation Output	Description
Active-Semi::CMSIS Driver:PAC52XX SDK (API):ARM	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):Analog Fr...	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):GPIO	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):I2C	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):Memory C...	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):RTC	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):SDK Versi...	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):SOC Bridge	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):SPI	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):System Cl...	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):Timers	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):UART	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):WDT	Component is not available
Active-Semi::CMSIS Driver:PAC52XX SDK (API):ADC	Component is not available

Buttons: Resolve, Select Packs, Details, OK



Uncheck all of the boxes for the “CMSIS Driver->PAC52XX SDK (API)” components and the errors should resolve.



Software Component	Sel.	Variant	Version
[-] CMSIS	<input checked="" type="checkbox"/>		
[-] CMSIS Driver	<input checked="" type="checkbox"/>		
[-] Ethernet (API)	<input checked="" type="checkbox"/>		2.01
[-] Ethernet PHY (API)	<input checked="" type="checkbox"/>		2.00
[-] Flash (API)	<input checked="" type="checkbox"/>		2.00
[-] NAND (API)	<input checked="" type="checkbox"/>		2.01
[-] PAC52XX SDK (API)	<input checked="" type="checkbox"/>		
[-] ADC	<input checked="" type="checkbox"/>		1.0.1
[-] ARM	<input checked="" type="checkbox"/>		1.0.1
[-] Analog Front End	<input checked="" type="checkbox"/>		1.0.1
[-] GPIO	<input checked="" type="checkbox"/>		1.0.1
[-] I2C	<input checked="" type="checkbox"/>		1.0.1
[-] Memory Controller	<input checked="" type="checkbox"/>		1.0.1
[-] RTC	<input checked="" type="checkbox"/>		1.0.1
[-] SDK Version	<input checked="" type="checkbox"/>		1.0.1
[-] SOC Bridge	<input checked="" type="checkbox"/>		1.0.1
[-] SPI	<input checked="" type="checkbox"/>		1.0.1
[-] System Clock Control	<input checked="" type="checkbox"/>		1.0.1
[-] Timers	<input checked="" type="checkbox"/>		1.0.1
[-] UART	<input checked="" type="checkbox"/>		1.0.1
[-] WDT	<input checked="" type="checkbox"/>		1.0.1
[-] USART (API)	<input checked="" type="checkbox"/>		2.02
[-] Compiler	<input checked="" type="checkbox"/>	ARM Compiler	1.1.0
[-] Device	<input checked="" type="checkbox"/>		
[-] File System	<input checked="" type="checkbox"/>	MDK-Pro	6.9.0
[-] Graphics	<input checked="" type="checkbox"/>	MDK-Pro	5.36.6
[-] Network	<input checked="" type="checkbox"/>	MDK-Pro	7.3.0
[-] USB	<input checked="" type="checkbox"/>	MDK-Pro	6.9.0

Validation Output	Description

Resolve    Select Packs    Details    OK

Uncheck the box next to the “Device->Startup” component.

Manage Run-Time Environment			
Software Component	Sel.	Variant	Version
+	<input checked="" type="checkbox"/>		
+	<input checked="" type="checkbox"/>		
+	<input checked="" type="checkbox"/>	ARM Compiler	1.1.0
-	<input checked="" type="checkbox"/>		
-	<input type="checkbox"/>		2.0.0
+	<input checked="" type="checkbox"/>	MDK-Pro	6.9.0
+	<input checked="" type="checkbox"/>	MDK-Pro	5.36.6
+	<input checked="" type="checkbox"/>	MDK-Pro	7.3.0
+	<input checked="" type="checkbox"/>	MDK-Pro	6.9.0

Click the “OK” button to close the “Manage Run-Time Environment” window.

### 3.3 Add the PAC52xx SDK

The latest version of the PAC52xx SDK can be downloaded from the Software Tab of any PAC52XX product page. For example, the PAC5223 product page is located at:

<https://active-semi.com/products/intelligent-motor-control/pac5223>

## PAC5223

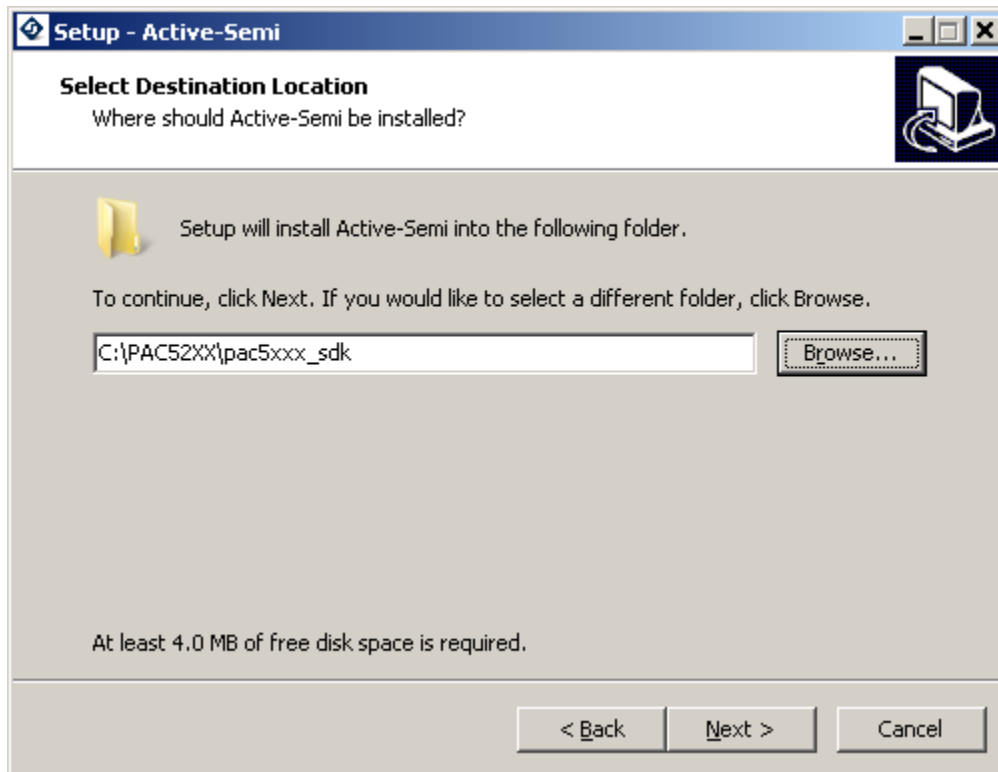
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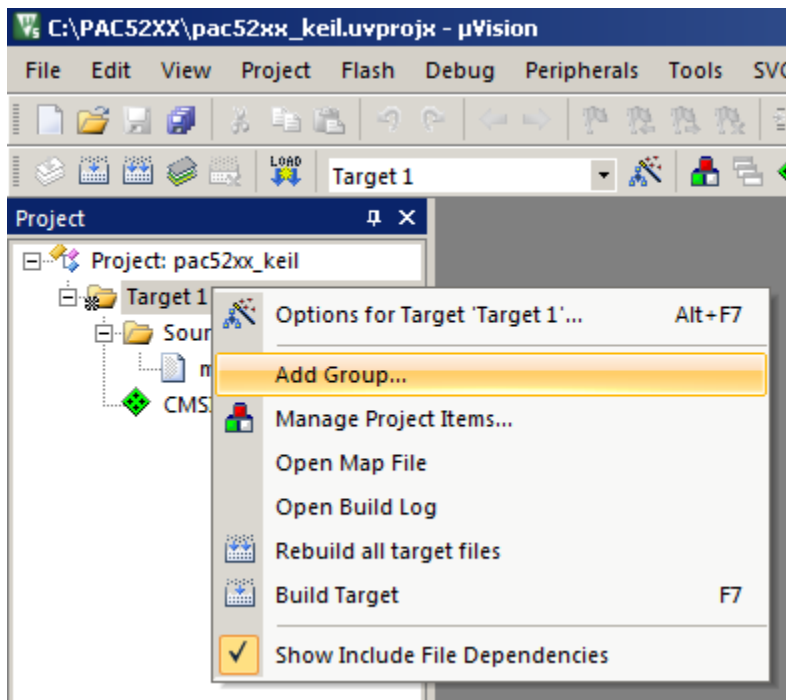
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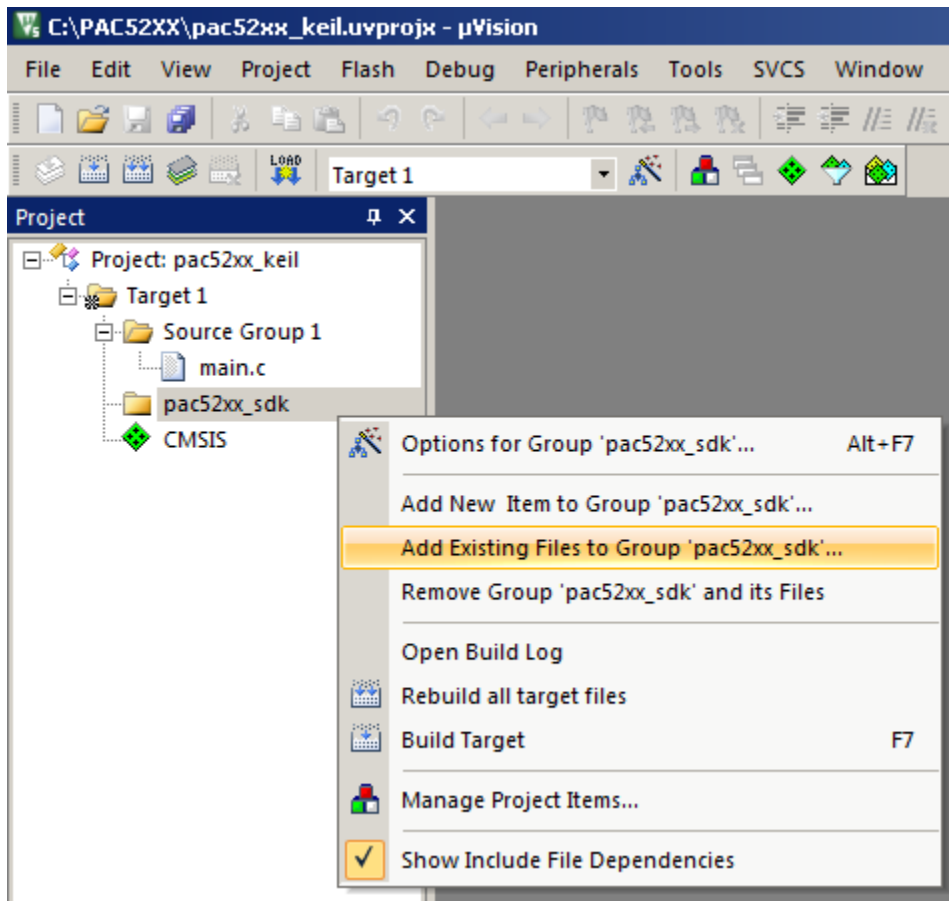
Download and install the PAC52xx SDK into your project directory, being sure to read and accept the License Agreement. The example below uses the project location “C:\PAC52XX\” and installs the PAC52xx SDK into the directory “C:\PAC52XX\pac5xxx\_sdk”



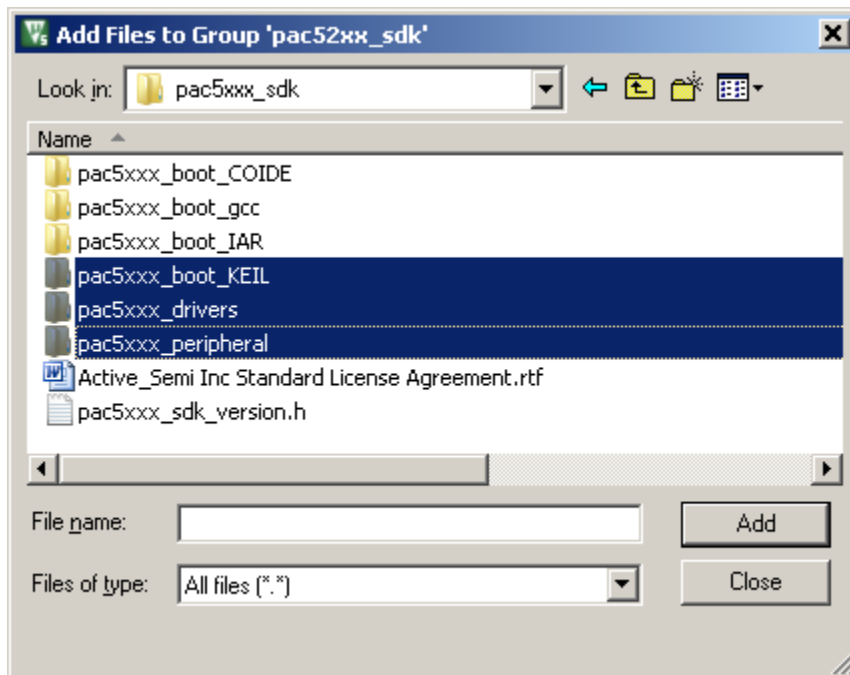
Add a Group to the project by right-clicking on “Target 1” and selecting “Add Group...”



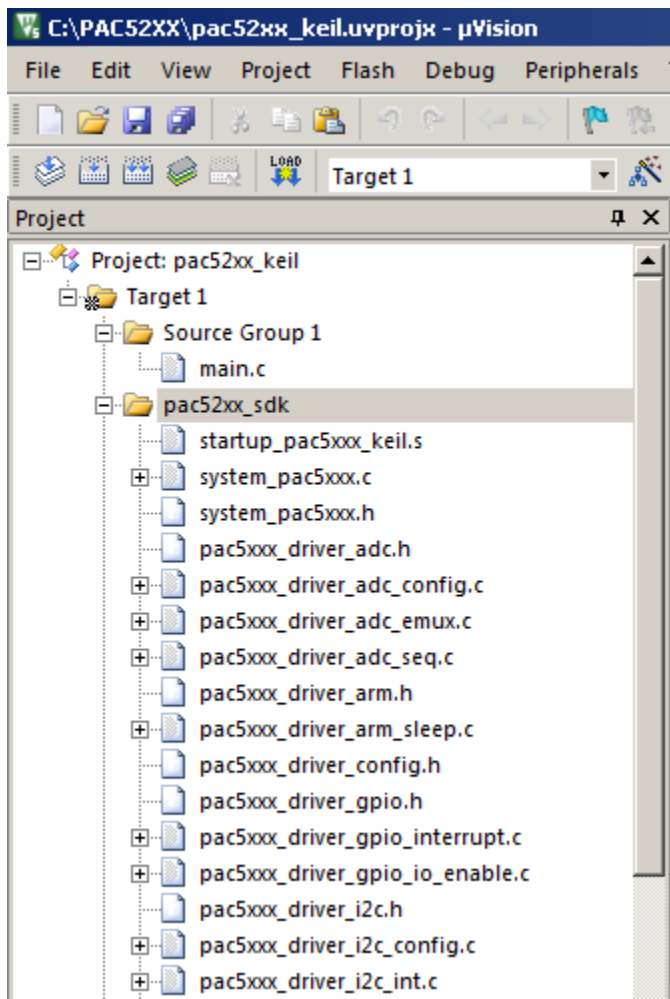
Rename the group to “pac52xx\_sdk” and then add the PAC52xx SDK files to it by right-clicking on it and selecting “Add Existing Files to Group...”



Change the “Files of type:” option to “All Files (\*.\*)” and add all files in the folders highlighted below. These folders are located inside the “pac5xxx\_sdk” folder where the PAC52xx SDK was installed.

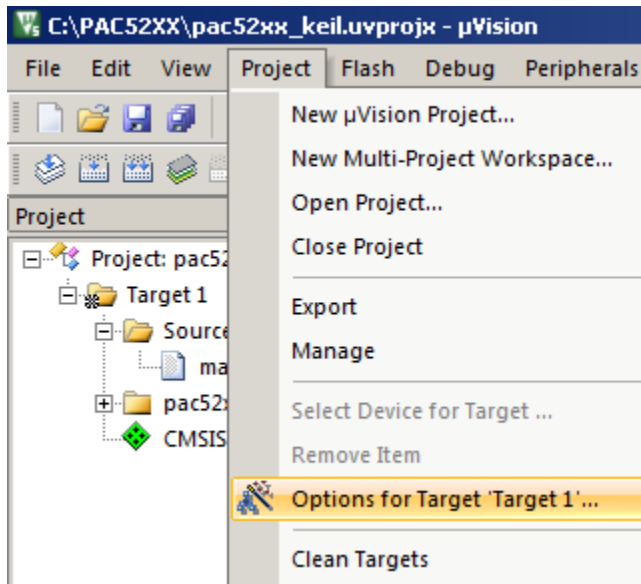


The files from the PAC52xx SDK should now be listed under the “pac5xxx\_sdk” group.

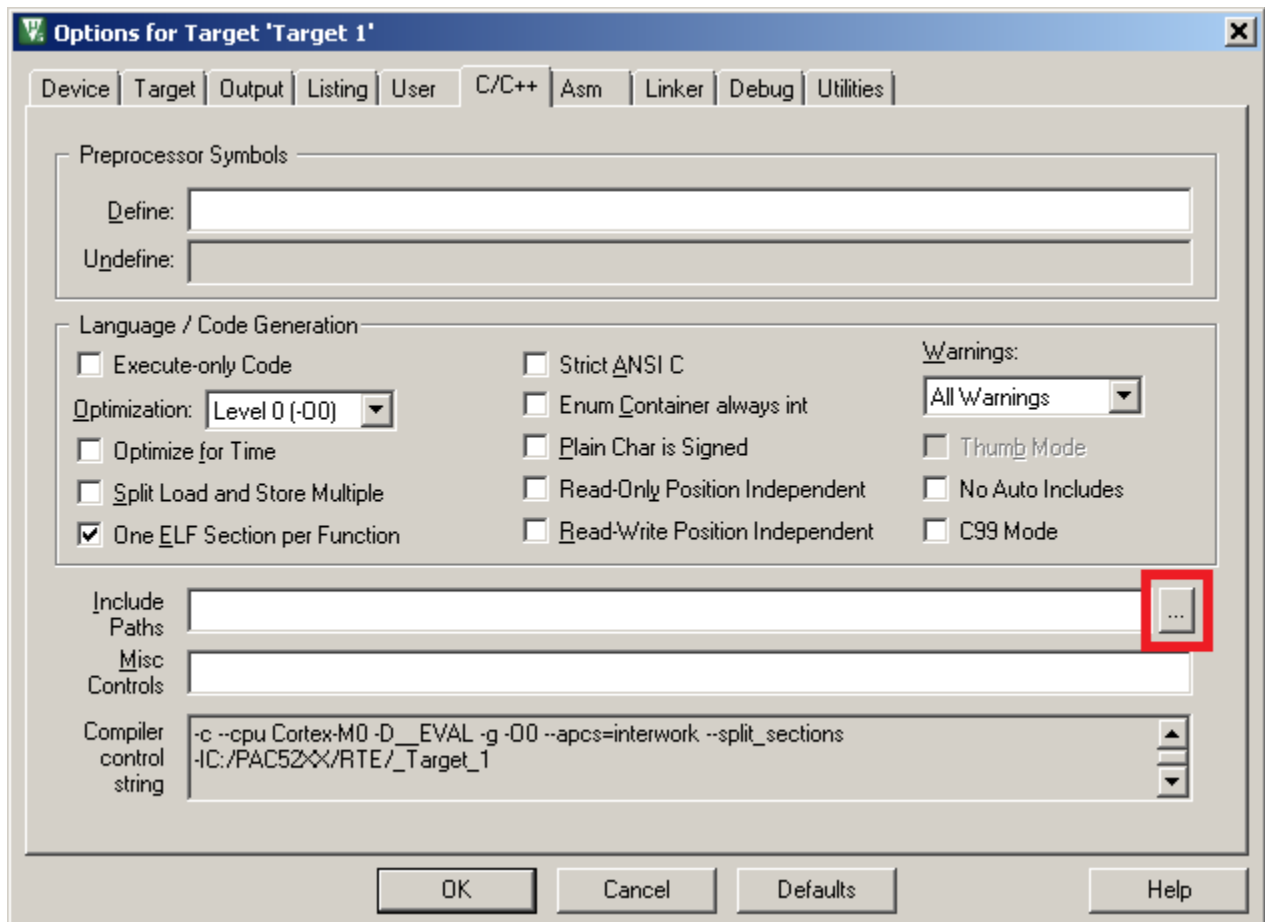


### 3.4 Add PAC52xx SDK folders to Include Paths

Select "Project->Options for Target..." in the menu.

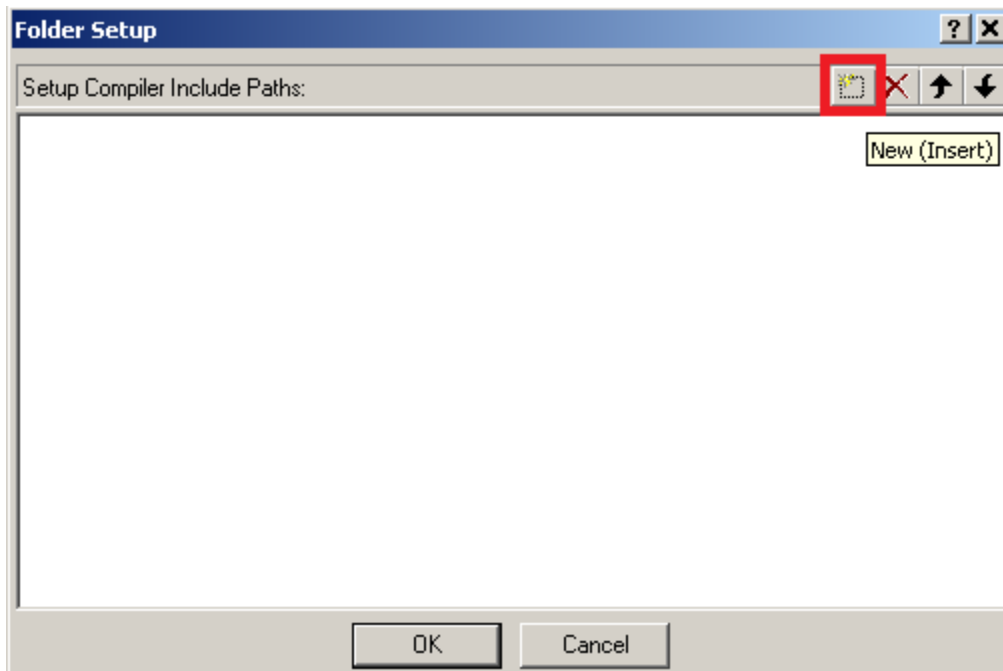


Select the "C/C++" tab. Click on the "..." box next to the "Include Paths" box.

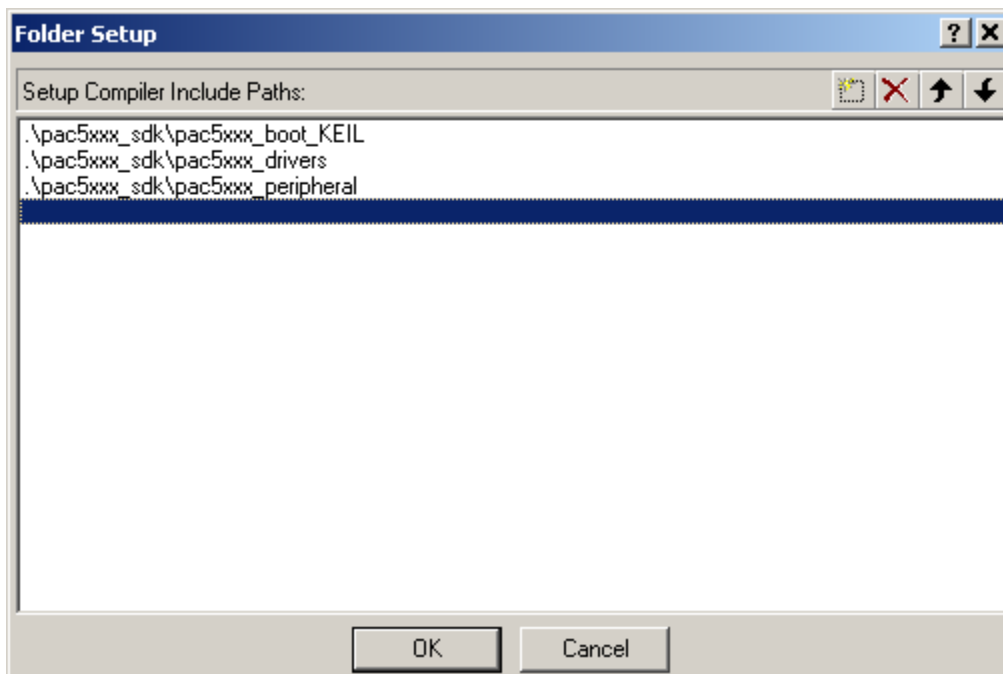




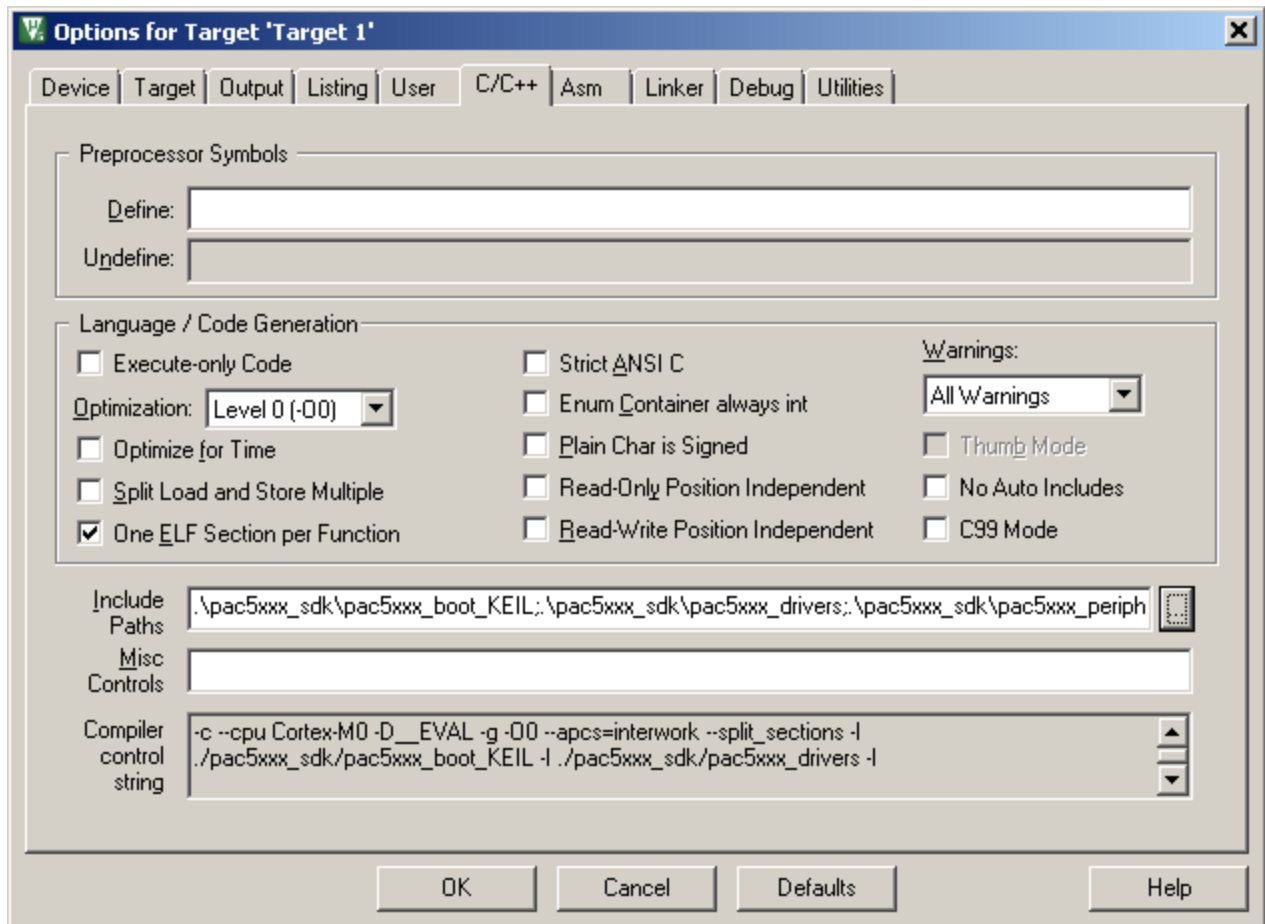
Click on the “New” icon to add a new include path.



Add the PAC52xx SDK folders shown below.

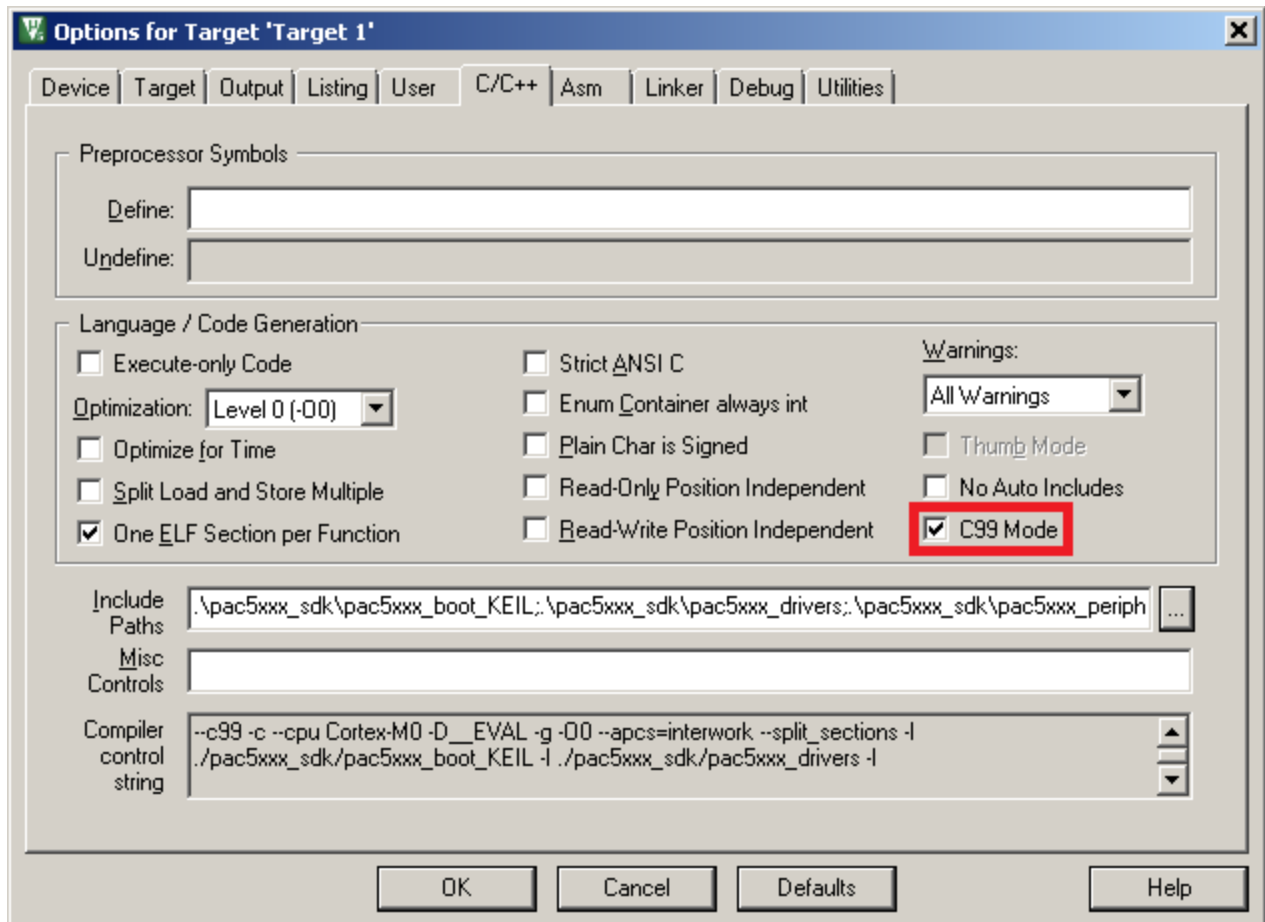


The “C/C++” tab should now show the PAC52xx SDK folders in the “Include Paths” box.



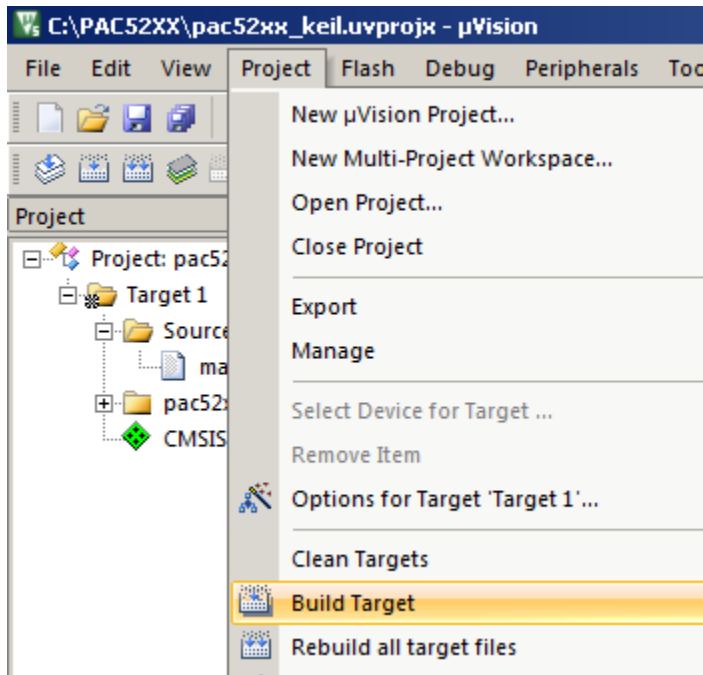
### 3.5 Set C99 Mode

Check the “C99 Mode” box on the “C/C++” tab.



### 3.6 Build the Project

To build the project, select “Project->Build Target” in the menu.



If the build is successful, the “Build Output” window will show 0 Errors and 0 Warnings.

```
Build Output
compiling pac5xxx_driver_watchdog_config_clock.c...
compiling pac5xxx_driver_watchdog_reset.c...
linking...
Program Size: Code=356 RO-data=412 RW-data=4 ZI-data=356
".\Objects\pac52xx_keil.axf" - 0 Error(s), 0 Warning(s).
Build Time Elapsed: 00:00:06
```

## 4 CONCLUSION

The project should now be upgraded from PAC52xx pack v1.0.9 to v2.0.0.

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Active-Semi, Inc., headquartered in Dallas, TX, is a leading innovative semiconductor company with proven power management, analog, and mixed-signal products for end-applications that require power conversion (AC/DC, DC/DC, DC/AC, PFC, etc.), motor drivers and control, and LED drivers and control along with ARM<sup>®</sup> microcontrollers for system development.

Active-Semi's latest family of Power Application Controller<sup>®</sup> (PAC<sup>®</sup>) ICs offer high-level of integration with 32-bit ARM<sup>®</sup> Cortex<sup>®</sup>-M0, along with configurable power management peripherals, a Configurable Analog Front End<sup>™</sup> with high-precision high-speed data converters, single-ended and differential PGAs, and integrated low-voltage and high-voltage gate drives. PAC<sup>®</sup> ICs offer unprecedented flexibility and ease in the systems design of various end-applications such as Wireless Power Transmitters, Motor drives, UPS, Solar Inverters, and LED lighting that require a microcontroller, power conversion, analog sensing, high-voltage gate drives, open-drain outputs, analog and digital general purpose IO, as well as support for wired and wireless communication. More information and samples can be obtained from <http://www.active-semi.com> or by emailing [marketing@active-semi.com](mailto:marketing@active-semi.com)

Active-Semi<sup>®</sup> shipped its 1 Billionth IC in 2012, and has over 120 in patents awarded and pending approval.

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