Guide for Serial Console in Keil using the STM32F446 Board

Charalampos Eleftheriadis
elefchar@ece.auth.gr

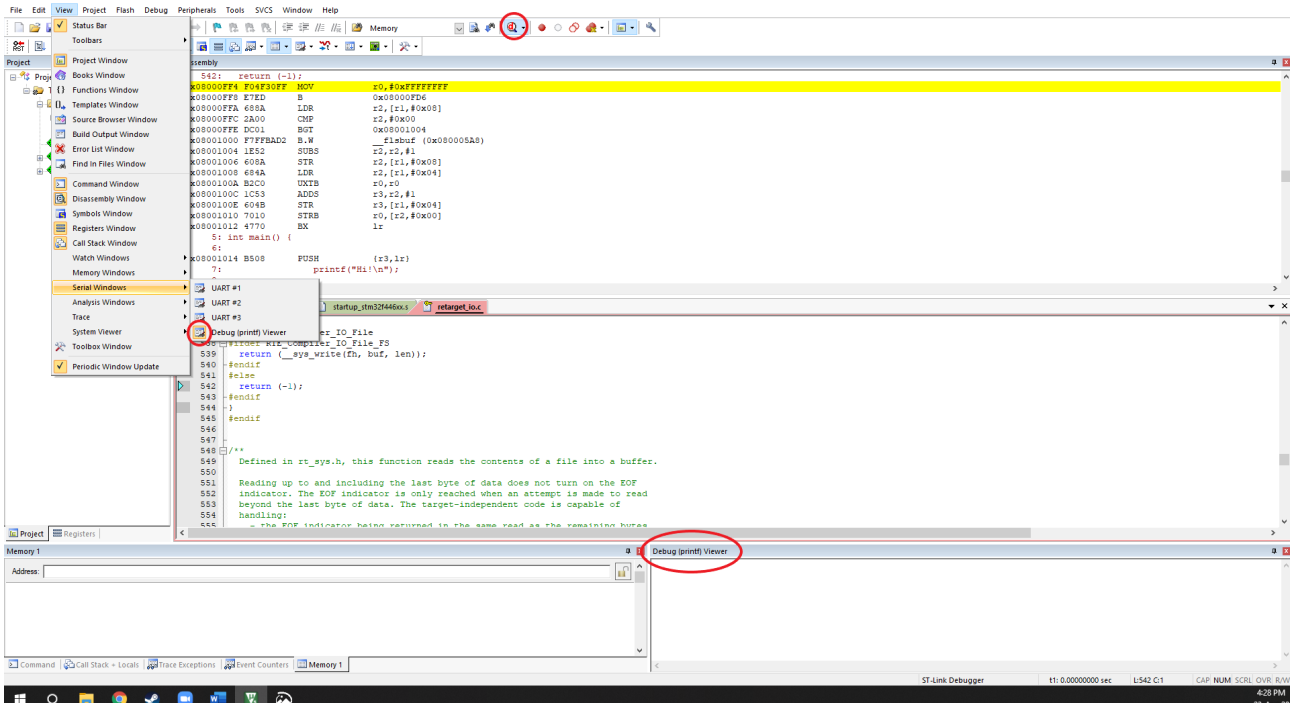
Konstantinos Doumanidis
kdoumani@ece.auth.gr

Aristotle University of Thessaloniki

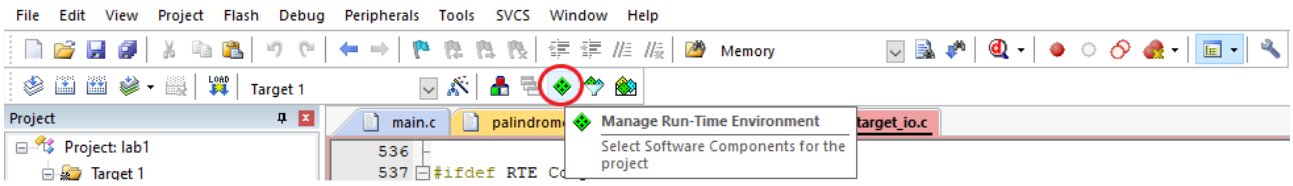
April 23, 2020

Disclaimer The steps described bellow have been tested with Keil μVision5 v5.29 using the STM32F446RE board, though they might also work with other boards. What's more, the only function making use of the serial console that was tested and confirmed working was the **printf()** in the stdio C library. What matters the most is the frequency of the crystal on the board, which in the aforementioned board's case is 8MHz.

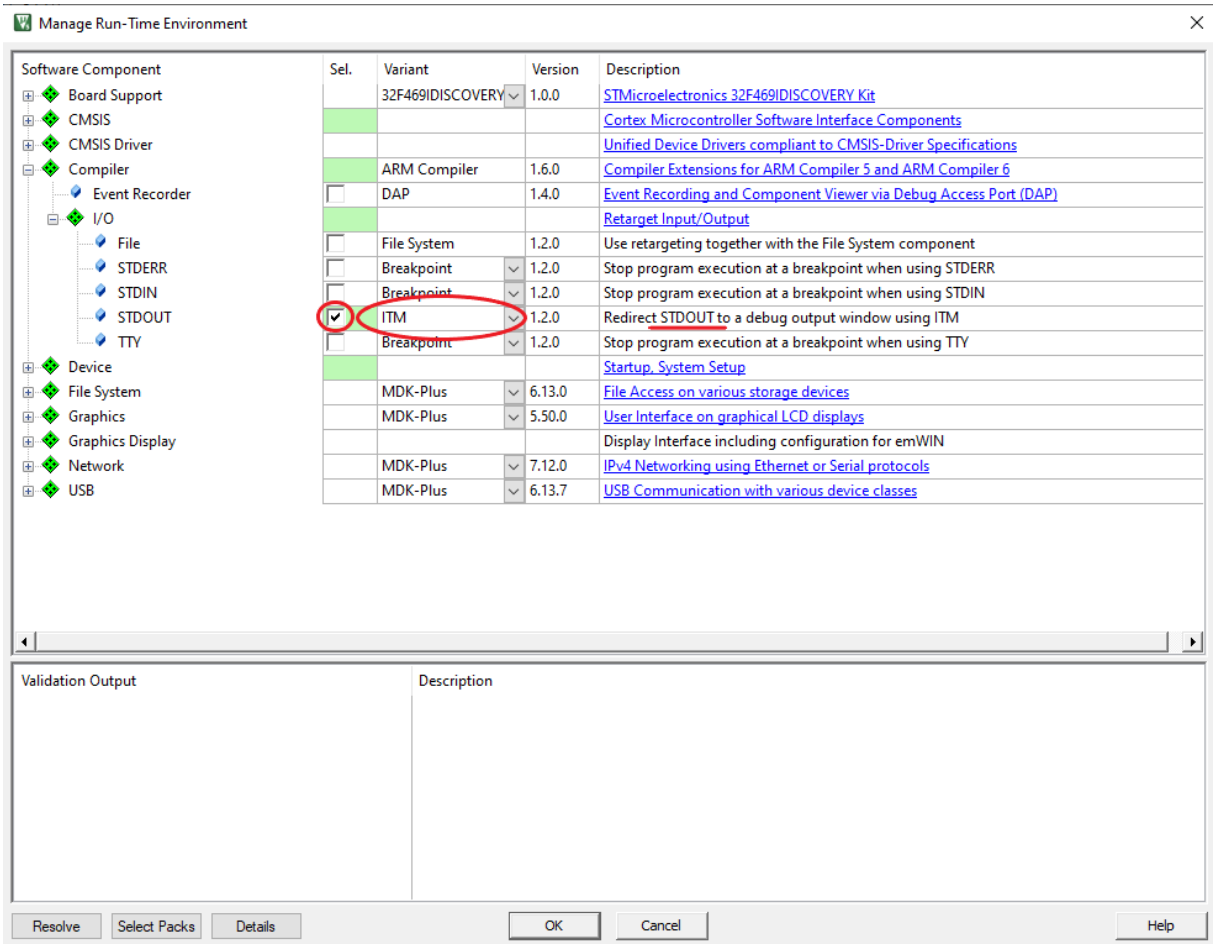
1. After starting a debug session check if the **Debug (printf) Viewer** is enabled through **View** → **Serial Windows** → **Debug (printf) Viewer**



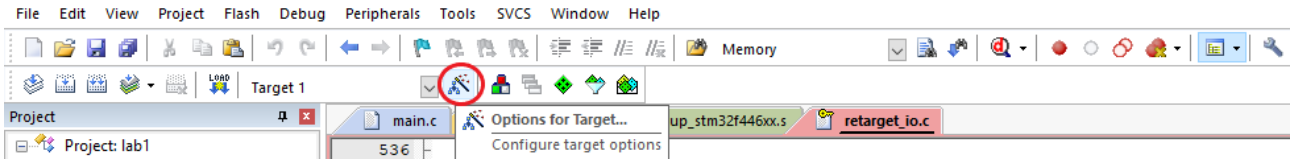
2. Stop any running debug session and click **Manage Run-Time Environment**



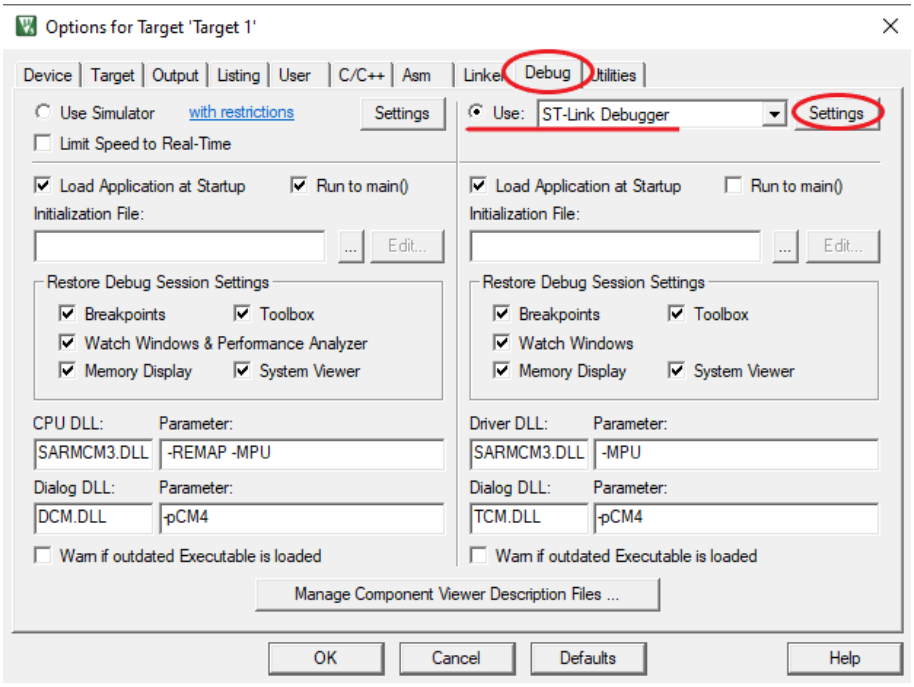
3. In the **Manage Run-Time Environment** window under **Compiler** → **I/O** find the description that refers to **STDOUT** and change it from the default option of Breakpoint to **ITM** and select it. Then click **OK** to save the changes.



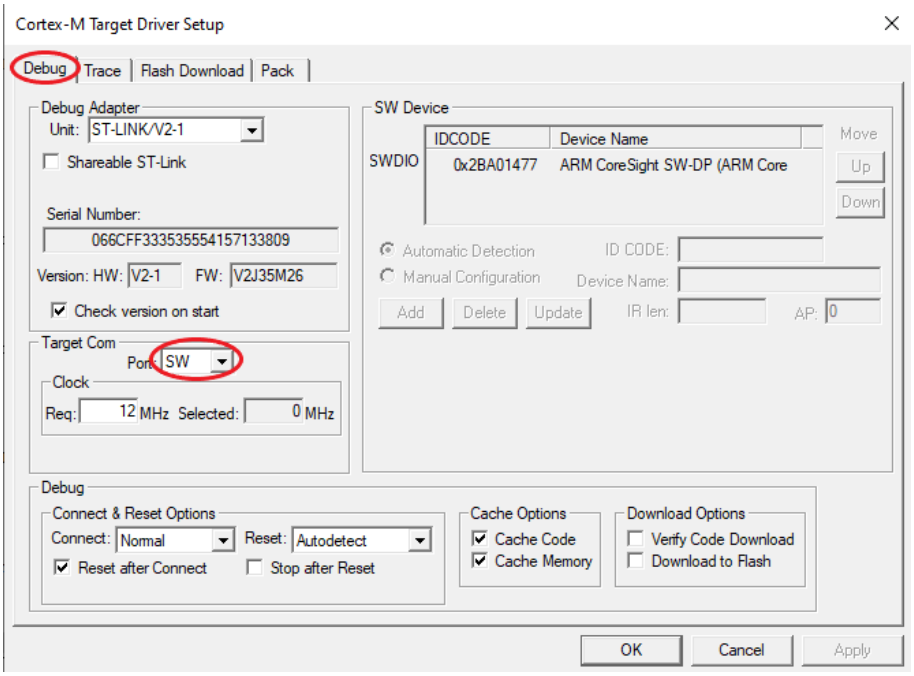
4. Click **Options for Target**



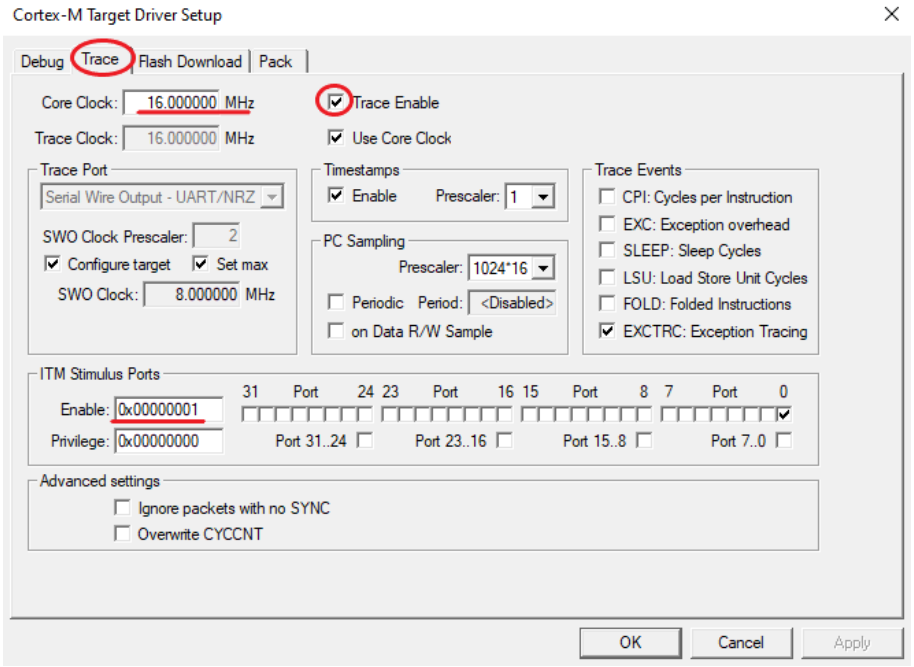
5. Click **Debug** and after selecting the **ST-Link Debugger**, click **Settings**



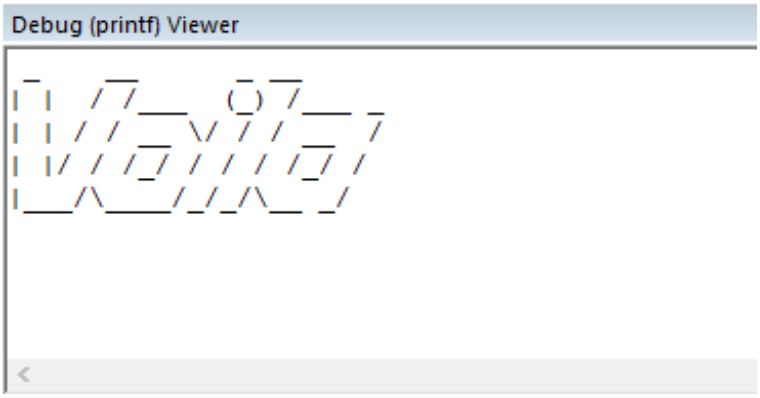
6. Make sure that in the **Debug** sub-menu, **Port** is set to **SW**



7. Click **Trace** and select **Trace Enable**. Set **Core Clock** to **16 MHz** and under **ITM Stimulus Ports** set the **Enable** to **0x00000001**. Click **OK**



8. You are all set, **printf()** calls in your code will be printed to the **Debug (printf) Viewer**



References

[1] ARM Keil Documentation, [Debug (printf) Viewer]
`http://www.keil.com/support/man/docs/uv4/uv4_db_dbg_printf_viewer.htm`