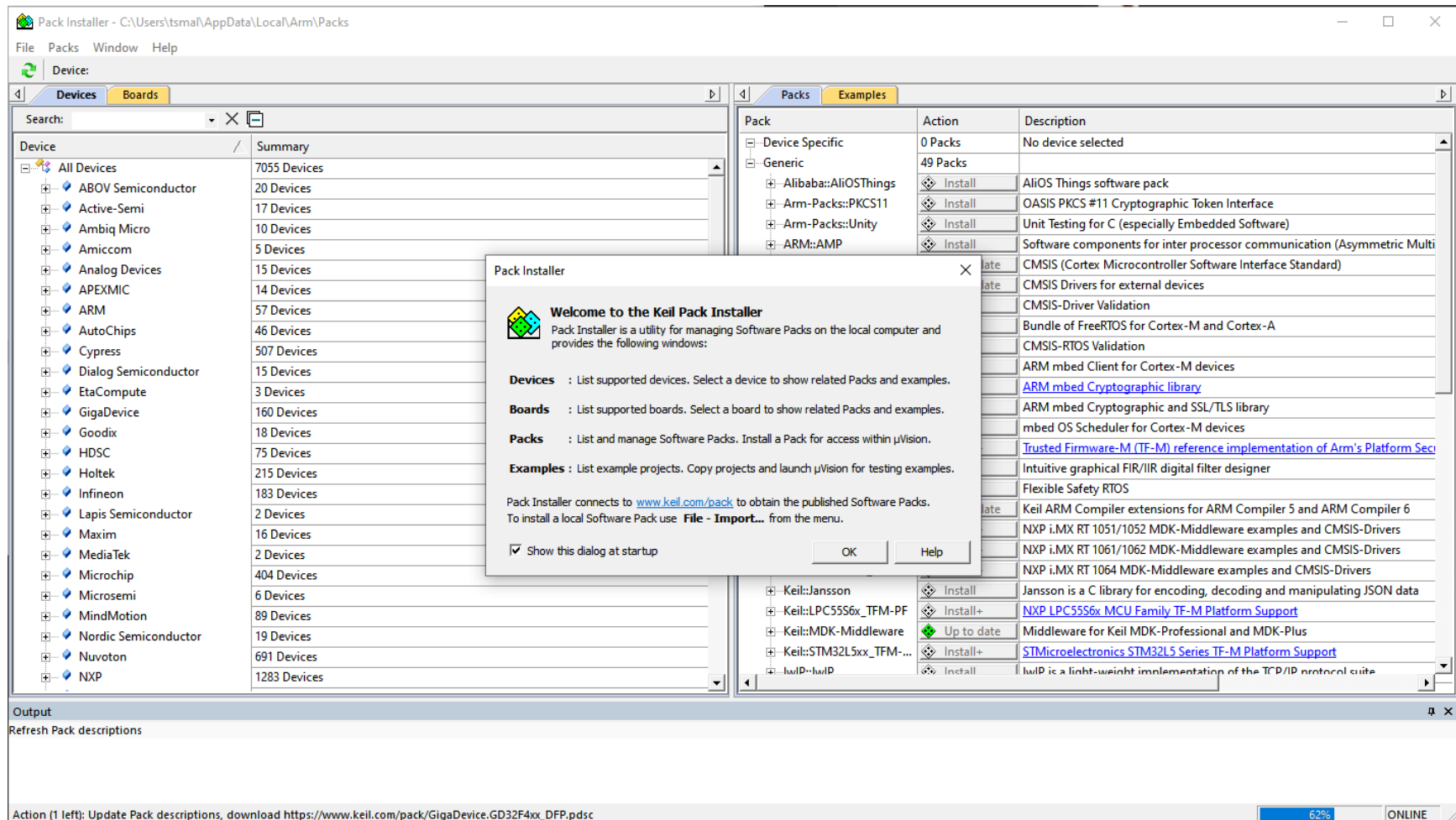
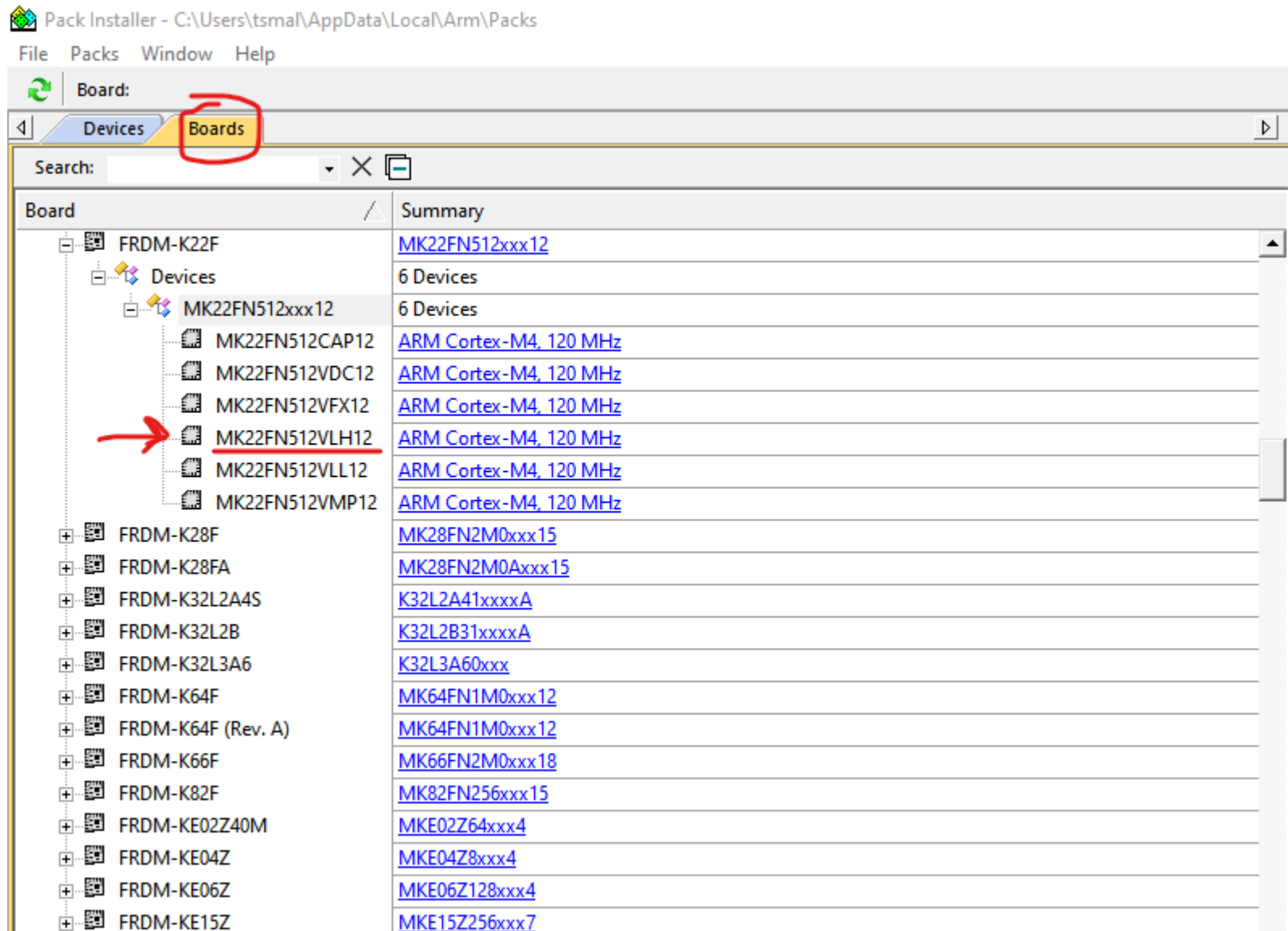


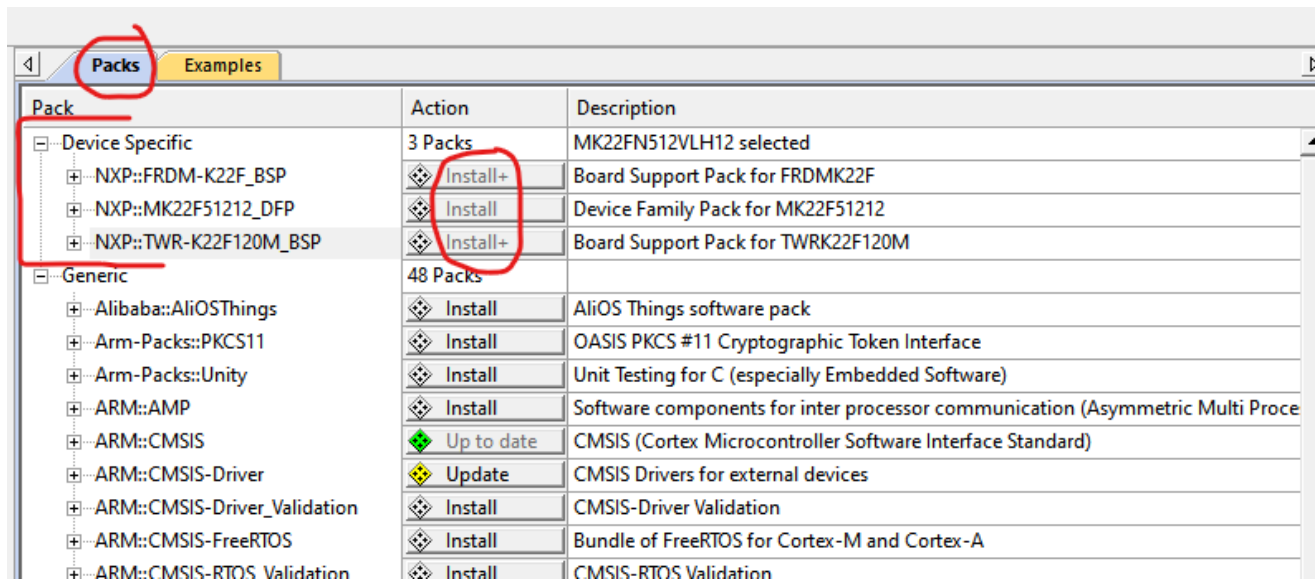
1. Download Keil MDK-ARM software (v5.31 as of 1 Sept 2020) at <https://www.keil.com/demo/eval/arm.htm#/DOWNLOAD>
2. Run .exe file that downloads and go through default setup
3. “Pack Installer” opens automatically after download



4. Select board by: Board tab > FRDM-K22F > MK22FN512xxx12 > MK22FN512VLH12

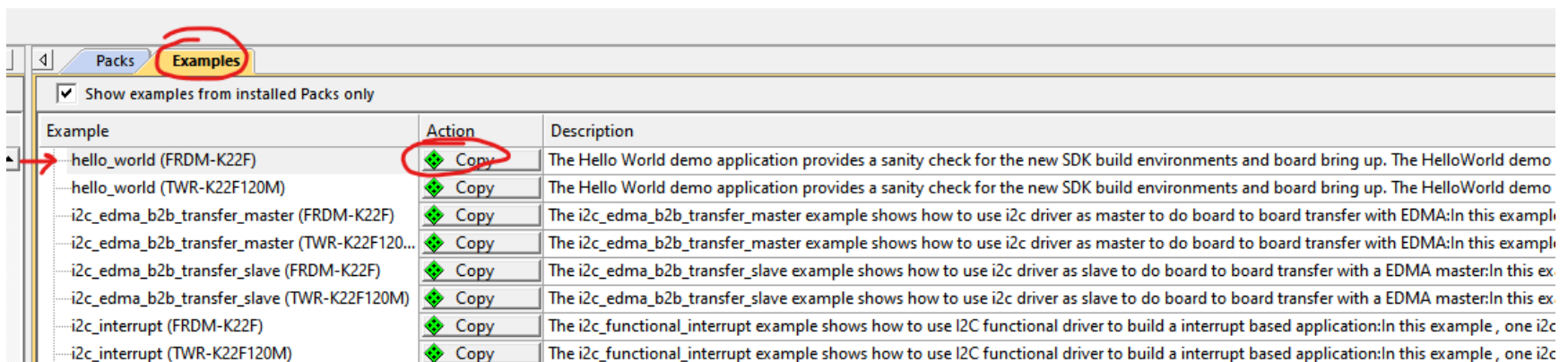


5. The “Device Specific” packs should appear in “Packs” tab. Install all of them

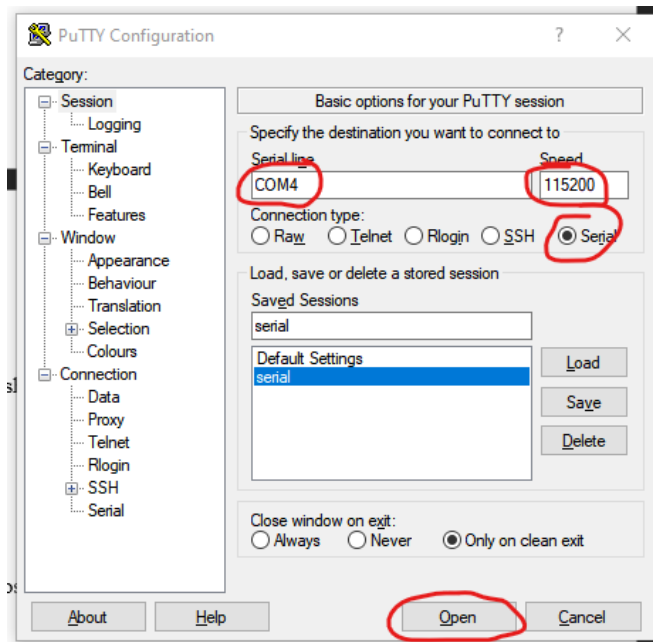


6. Under the “Action” column, update any packs you already have installed that have updates

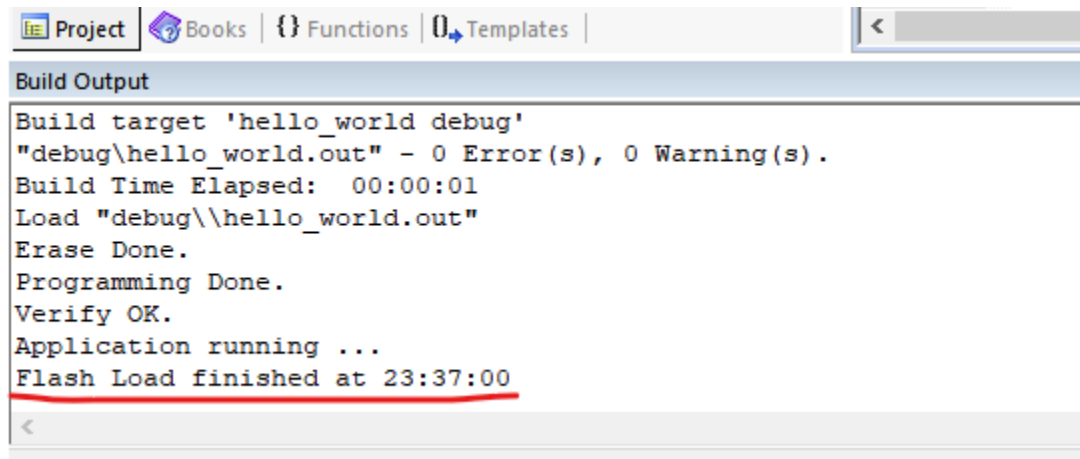
7. Go to “Examples” column. Scroll down to hello world example and click “Copy”



8. This should open in Keil uVision5 IDE
9. Project > Options for Target ... > Utilities > under “Use Target Driver for Flash Programming” click on “Settings” > Flash Download > Add > Add “MKxxN 512kB Prog Flash”
10. Project > Build Target. This should only take a second to build
11. At this point... install PuTTY if not already installed
<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>
12. Connect Freescale dev board to PC through USB. Use the USB connector closer to the corner of the board (this one is for power/debug)
13. Go to windows start menu > device manager > Ports > see which port the “mbed” device is using
14. Open PuTTY session



15. In Keil IDE: Flash > Download (this should take a few seconds and you'll see a progress bar at the bottom)

The image shows the 'Build Output' window in the Keil IDE. The window has a title bar with 'Project', 'Books', 'Functions', and 'Templates' tabs. The main area contains the following text: 'Build target 'hello_world debug'', '"debug\hello_world.out" - 0 Error(s), 0 Warning(s).', 'Build Time Elapsed: 00:00:01', 'Load "debug\\hello_world.out"', 'Erase Done.', 'Programming Done.', 'Verify OK.', 'Application running ...', and 'Flash Load finished at 23:37:00'. The last line is underlined in red. There is a scrollbar on the right side of the window.

```
Project | Books | Functions | Templates | <
Build Output
Build target 'hello_world debug'
"debug\hello_world.out" - 0 Error(s), 0 Warning(s).
Build Time Elapsed: 00:00:01
Load "debug\\hello_world.out"
Erase Done.
Programming Done.
Verify OK.
Application running ...
Flash Load finished at 23:37:00
```

16. magic

The image shows a PuTTY terminal window titled 'COM4 - PuTTY'. The window has a black background with white text. The text 'hello world.' is displayed on the first line, followed by a green cursor. The window has standard Windows window controls (minimize, maximize, close) and a scrollbar on the right side.

```
COM4 - PuTTY
hello world.
[green cursor]
```