Atmel Studio IDE

for RIO-2015PG

User Guide

Version 1.0

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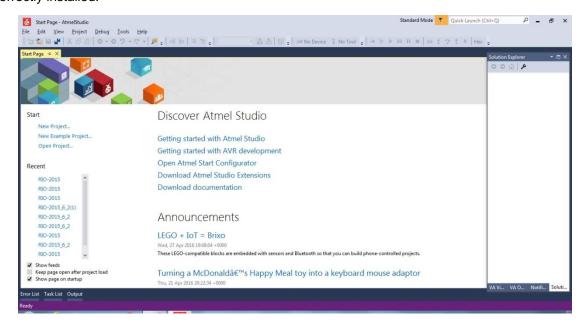# 1. Install Atmel Studio

1.1 Download Atmel Studio

Visit http://www.atmel.com and find the Atmel Studio download to install Atmel Studio. Atmel Studio is based on Microsoft Visual Studio therefore it supports Windows system only.
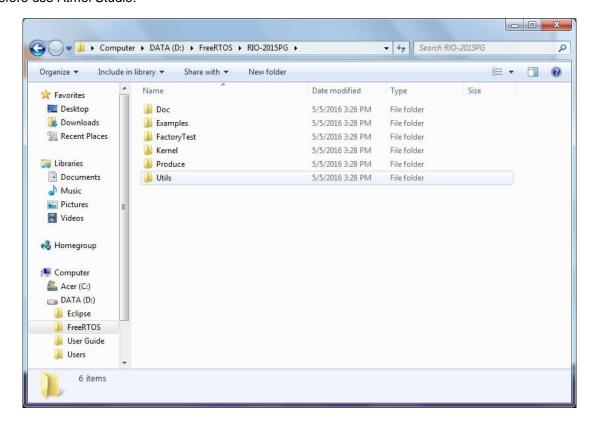

Please check minimum system requirements for Atmel Studio and view the readme first before use Atmel Studio.

Test the installation. Click the Atmel Studio icon will start it and Discover Atmel Studio screen will appear. Now you have Atmel Studio (IDE), Atmel Software Framework and Atmel Toolchains correctly installed.
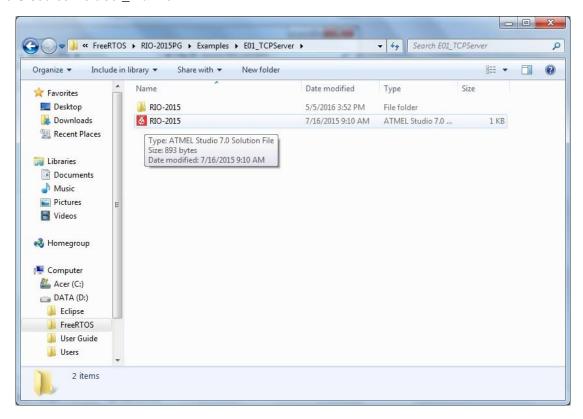
1.2 Install Artila Example Program, FreeRTOS, lwIP and Device Driver

Visit http://www.artila.com and find the Resource button of the product page that you are interested and click and download the library for development. Make sure your products use Atmel Cortex M4 CPU before use Atmel Studio.
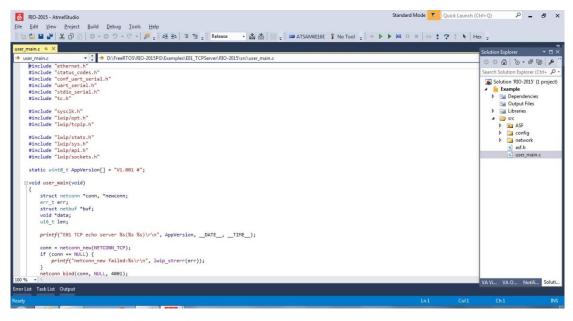
2. Start Compiling Example Program

Find the Atmel Studio Solution File and click it will start the Atmel Studio and load the environment files and C source file ***user_main.c***.
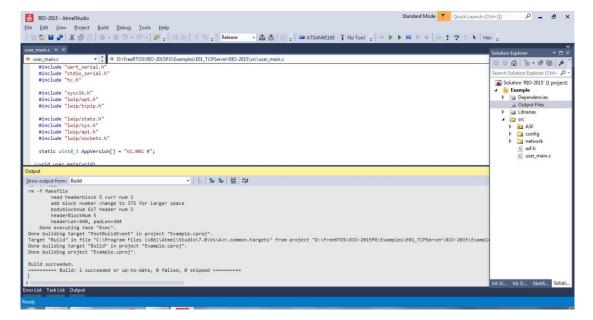

The user_main.c is the application source file in C and It is located at:

\Example\E01_TCPServer\RIO-2015\src.

Use Build Example option to make the application firmware which is named as *Example.aff* and is located at *\Example\E01_TCPServer\RIO-2015\Release*.
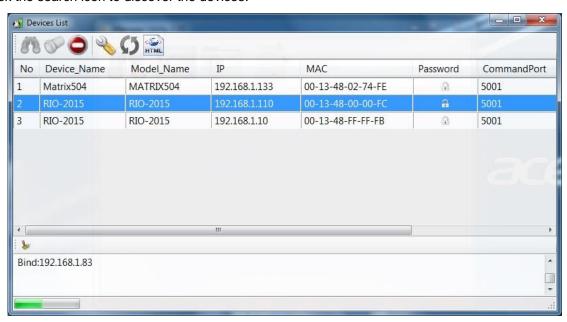
3. Install Manager Utility Software

Find the Manager installation software at \RIO-2015\Utils\Manager.   Click it and install the Manager utility to your windows.   Make sure to use Administrator account to run the Manager.
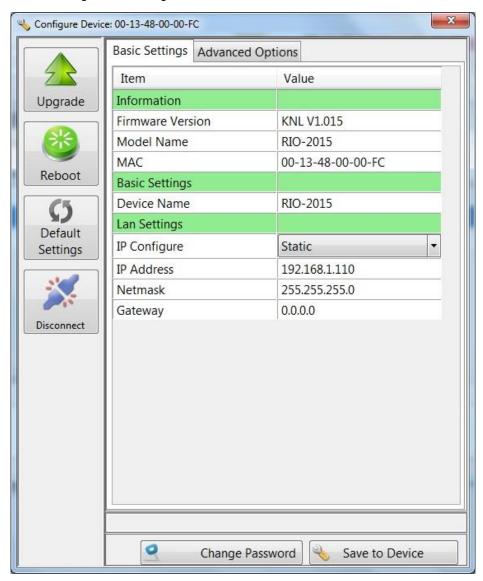

Search device.

Click the search icon to discover the devices.

Click the device to configure its settings.

Click Upgrade button to upload the binary file *Example.aff.*

Before upload, a double check window will appear to ensure the kernel version is the right one to upload.
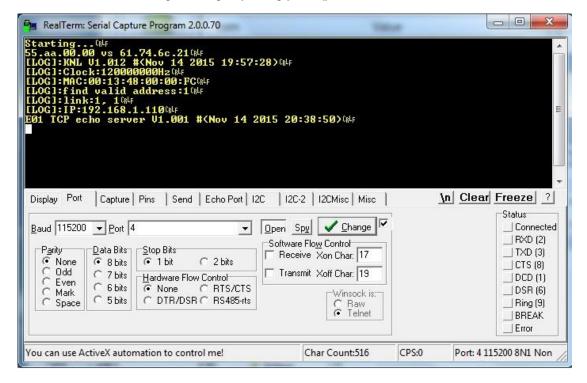

Once completed, the device will reboot.

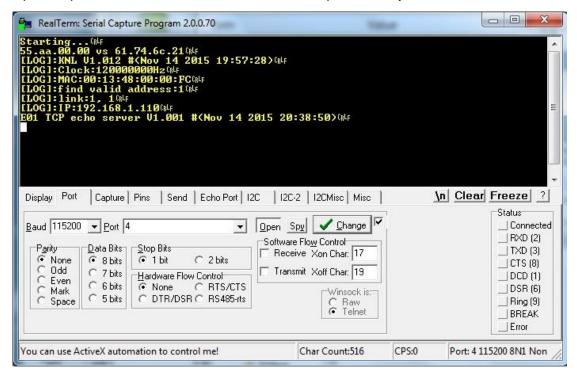

Connecting the Serial Console.

- Serial console is settings is 115200, N81, ANSI (Terminal type).
- The serial console shows system and debug message.
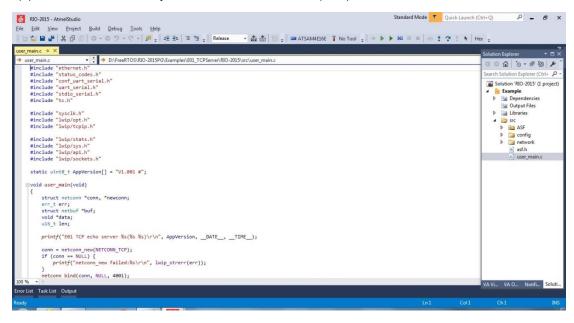- User can show the debug message by using *printf()* function.

4. Example

4.1 Example 1 E01_TCPServer Demostrates the TCP Eche Server Application

Once power up, loader will boot and load FreeRTOS and performed system initialization.

The application C program, user_main() is a single-tasking program and it will run endless e.g. for (;;) or while(1) and cannot return any value i.e. void user_main(void).
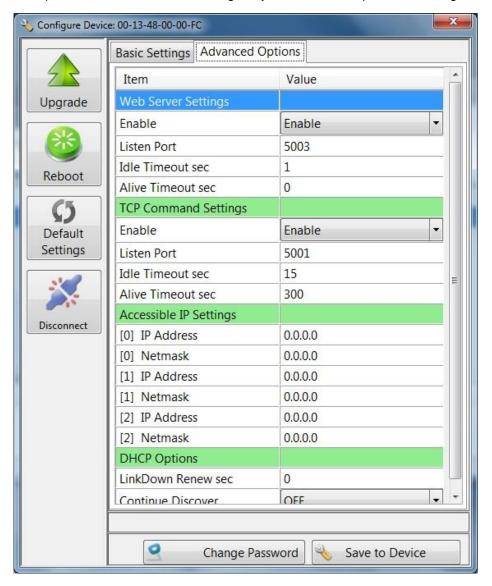

Once complete building the Example project, Example.aff will be generated to:

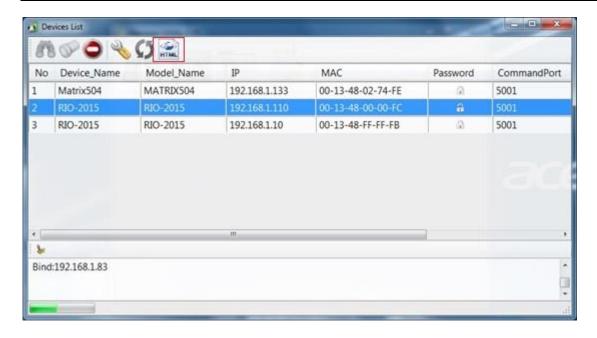***Example\E01_TCPServer\RIO-2015\Release.***

4.2   Example 04 Web DIO (\RIO-2015\Examples\E04_Web_DIO)

This example demonstrates how to write a Web browser to control digital I/O.   User can write a
web_ajax.c program to talk to the Web page Javascript (JQuery).   The demo web page is located at
\Examples\E04_WebDIO\WEB\01.   Users need to use Manager Utility to convert the Web page
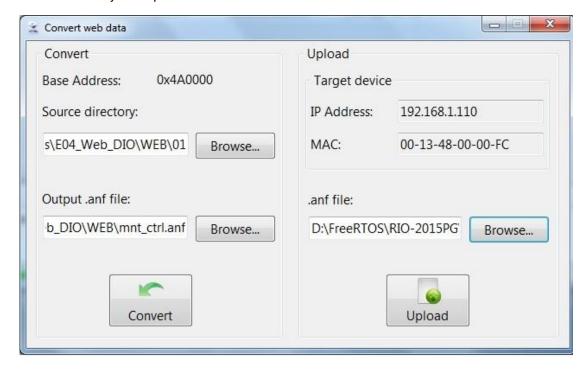source to binary *.anf to update to the web server of RIO-2015PG.

The default Web port is 5003 and it can be changed by the advanced options of Manager.

Click the HTML button on the menu of Manager

Save all Web page related files e.g. html, css, js to a folder and use convert function to covert the Source directory to output file with extension of .anf
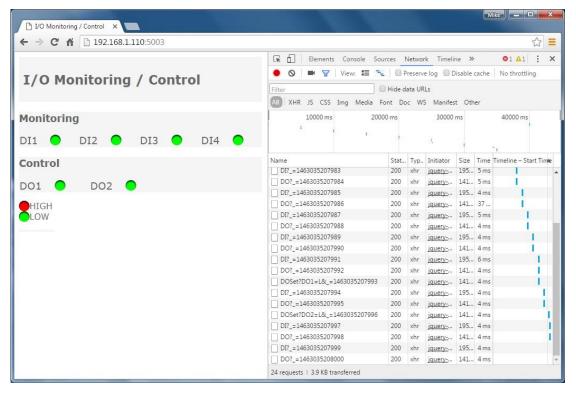

Then use Upload function to upload the web file to RIO-2015PG

Open http://192.168.1.110:5003.

Open Web developer tool that can show you how the AJAX works.

5. Enter bootloader

In case to firmware bug which hangsRIO-2015PG, user can enter the bootloader mode by using serial console, reboot the RIO-2015PG and right after system booting, key "@" (Shift+2) to enter the bootloader function.   Then you can use serial console to update the firmware of RIO-2015PG

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