

How to Set Up a PPP Connection with MQX4.2 and Win 7

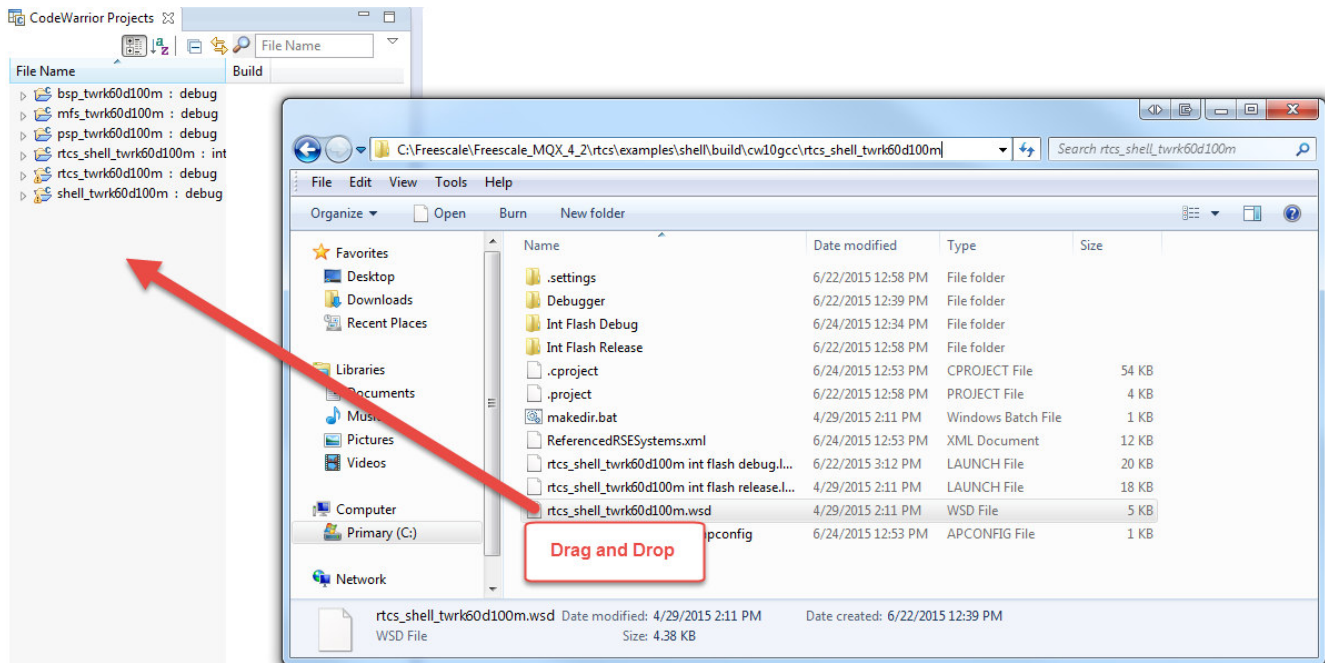
By: Technical Information Center

In MQX4.2 installation folder you can find **PPP_example_readme.pdf** at the following path **C:\Freescale\Freescale_MQX_4_2\rtcs\examples\shell**, however this document explains how to setup the connection with Windows XP. This guide will walk you through the steps to setup a PPP connection with Win 7.

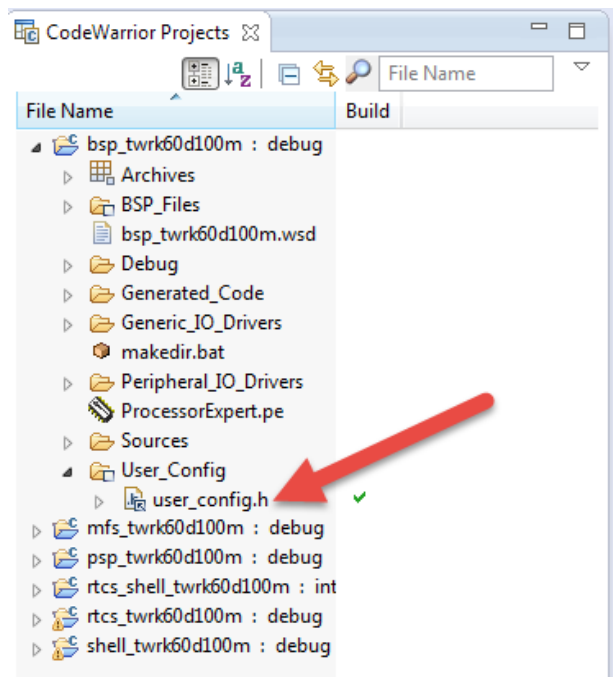
In this guide **TWR-K60D100M** is used as example.

1 Building MQX Libraries

- 1.1 Go to the folder where `rtcs_shell_twrk60d100m` is located and drag `rtcs_shell_twrk60d100m.wsd` to open all the required libraries. This path is `C:\Freescall\Freescale_MQX_4_2\rtcs\examples\shell\build\cw10gcc\rtcs_shell_twrk60d100m`



- 1.2 Open `user_config.h` from BSP project and set `BSPCFG_ENABLE_ITTYD`, `RTCSCFG_ENABLE_PPP` and `RTCSCFG_ENABLE_VIRTUAL_ROUTES`.



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```
mqx_main.c user_config.h config.h
#define BSPCFG_ENABLE_LEGACY_I2C_SLAVE 0
#define BSPCFG_ENABLE_RTCDEV 1
#define BSPCFG_ENABLE_PCFLASH 0
#define BSPCFG_ENABLE_SPI0 0
#define BSPCFG_ENABLE_SPI1 0
#define BSPCFG_ENABLE_SPI2 0
#define BSPCFG_ENABLE_ADC0 0
#define BSPCFG_ENABLE_ADC1 1
#define BSPCFG_ENABLE_FLASHX 0
#define BSPCFG_ENABLE_ESDHC 1
#define BSPCFG_ENABLE_IODEBUG 0
#define BSPCFG_ENABLE_SAI 1

#define BSPCFG_ENABLE_TTYA 0
#define BSPCFG_ENABLE_ITTYA 0

#define BSPCFG_ENABLE_TTYB 0
#define BSPCFG_ENABLE_ITTYB 0

#define BSPCFG_ENABLE_TTYC 0
#define BSPCFG_ENABLE_ITTYC 0

#define BSPCFG_ENABLE_TTYD 0
#define BSPCFG_ENABLE_ITTYD 1

#define BSPCFG_ENABLE_TTYE 0
#define BSPCFG_ENABLE_ITTYE 0

#define BSPCFG_ENABLE_TTYF 1
#define BSPCFG_ENABLE_ITTYF 0

#define MQX_USE_IDLE_TASK 1

#define MQX_TASK_DESTRUCTION 1

#define MQX_ENABLE_LOW_POWER 0

#define RTCSCFG_ENABLE_ICMP 1
#define RTCSCFG_ENABLE_SNMP 0
#define RTCSCFG_ENABLE_UDP 1
#define RTCSCFG_ENABLE_TCP 1
#define RTCSCFG_ENABLE_STATS 1
#define RTCSCFG_ENABLE_GATEWAYS 1
#define RTCSCFG_ENABLE_PPP 1
#define RTCSCFG_ENABLE_VIRTUAL_ROUTES 1
```

BSP MQX RTCS MFS Shell USBH user_config.h

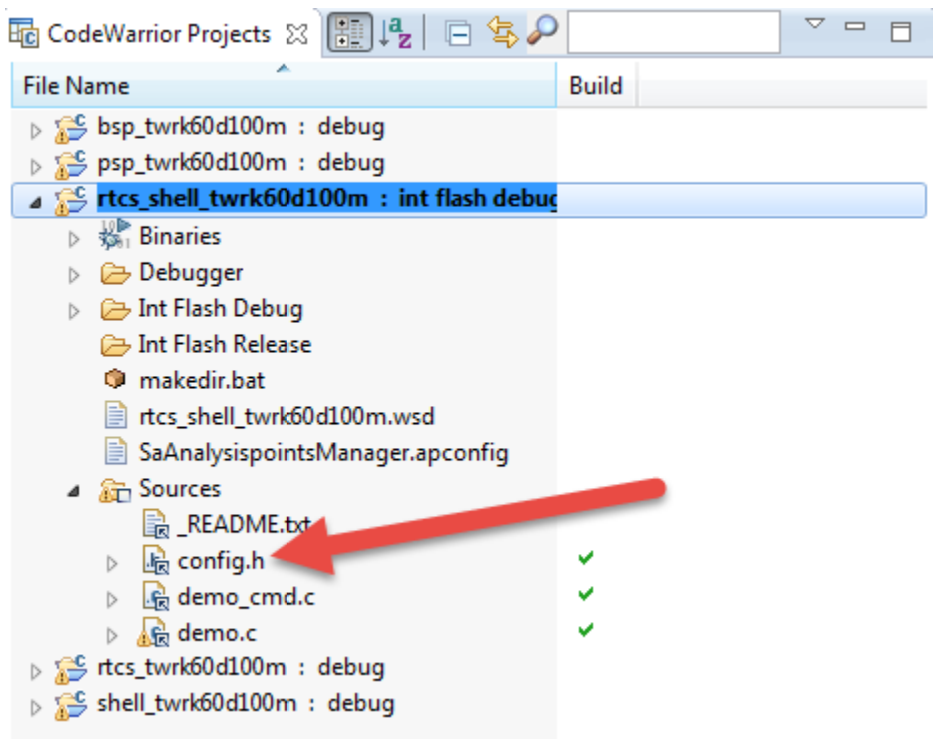
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1.3 Build all the libraries in the following order:

- bsp_twrk60d100m
- psp_twrk60d100m
- mfs_twrk60d100m
- rtcs_twrk60d100m
- shell_twrk60d100m

2 Set up project (PPP Server)

2.1 Open **config.h** file of the **rtcs_shell_twrk60d100m** example project which contains the following PPP-related options which has to be changed/verified:



```
*config.h
/*HEADER*****

/* RAMDISK can not be used from MRAM targets !!! Whole MRAM is used for RamDisk. */
#define DEMOCFG_ENABLE_RAMDISK 1

/* Enable iwconfig command */
#define DEMOCFG_USE_WIFI BSP_ENET_WIFI_ENABLED /* USE WIFI Interface */

/* Enable PPP */
#define DEMOCFG_ENABLE_PPP 1
#define PPP_DEVICE_DUN 1
#define PPP_DEVICE_RAS 0

#define DEMOCFG_ENABLE_MRAM_RAMDISK 0

#define ENET_DEVICE BSP_DEFAULT_ENET_DEVICE

/* PPP device must be set manually and
** must be different from the default IO channel (BSP_DEFAULT_IO_CHANNEL)
*/
#if DEMOCFG_ENABLE_PPP
    #if defined BSP_TWR_K60N512
        #define PPP_DEVICE "ittyd:"
        #define TERMINAL_DEVICE "ttyf:"
    #elif defined BSP_M52259EVB
        #define PPP_DEVICE "ittyb:"
    #else
        //error PPP_DEVICE must be defined! Define it in config.h.
        #define PPP_DEVICE "ittyd:"
    #endif
#endif
#endif
```

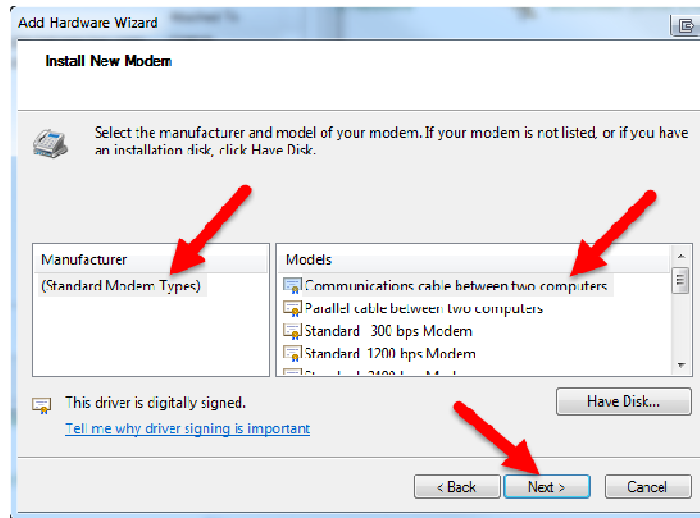
2.2 Build the project.

3 Establish the PPP Connection on the PC Side (Win 7)

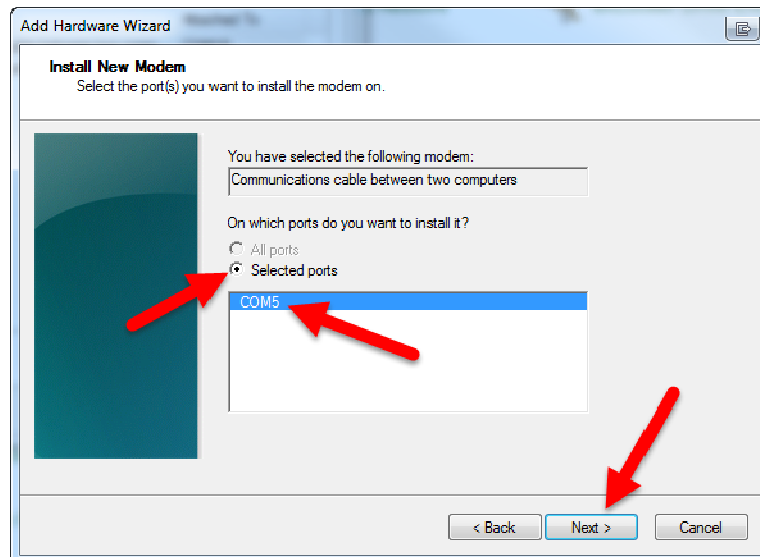
Follow the instructions below in your Win 7 PC to create a new connection.

3.1 Part 1: Install the modem device

- a. **Start > Control Panel > Phone and Modem**
- b. **Modems** tab, click **Add**
- c. Check **Don't detect my modem, I will select it from a list** and click **Next**
- d. Under **Manufacturer**, select **(Standard Modem Types)**
- e. Under **Models**, select **Communications cable between two computers** and click **Next**



- f. Click **Selected Ports** radio button and select the serial port that you will be connecting the cable to and click **Next**



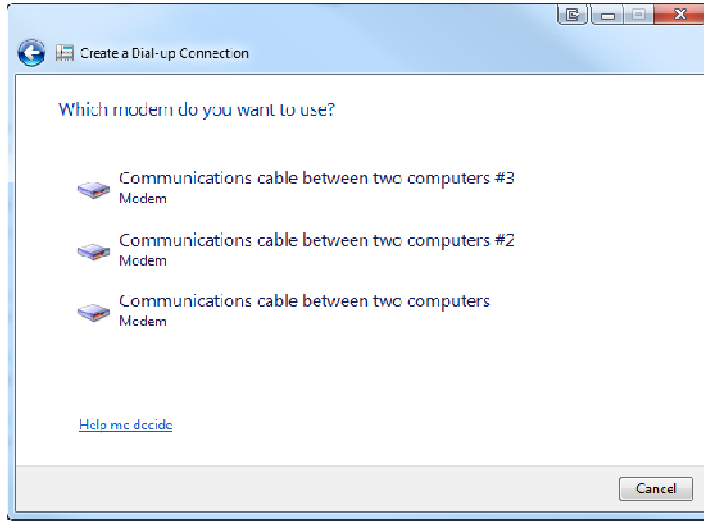
Note: If USB to Serial converter is used it must be connected and appropriate driver must be installed.

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- g. Windows sets up the modem, click **Finish**
- h. Click **Ok** to close the Phone and Modems dialog box

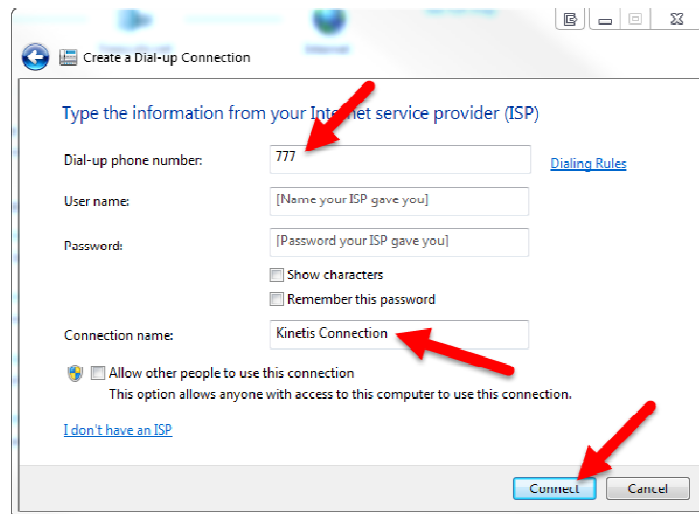
3.2 Part 2: Setting up the connection

- a. **Start > Control Panel > Network and Sharing Center**
- b. **Set up a new connection or network**
- c. Select **Set up a dial-up connection** and click **Next**
- d. Select **Communications cable between two computers**



Note: You may not see this screen if you don't have more than 1 connection.

- e. For dial-up phone number, enter any dummy number.
- f. Leave **User Name** and **Password blank**
- g. Enter a meaningful connection name
- h. Click **Connect**

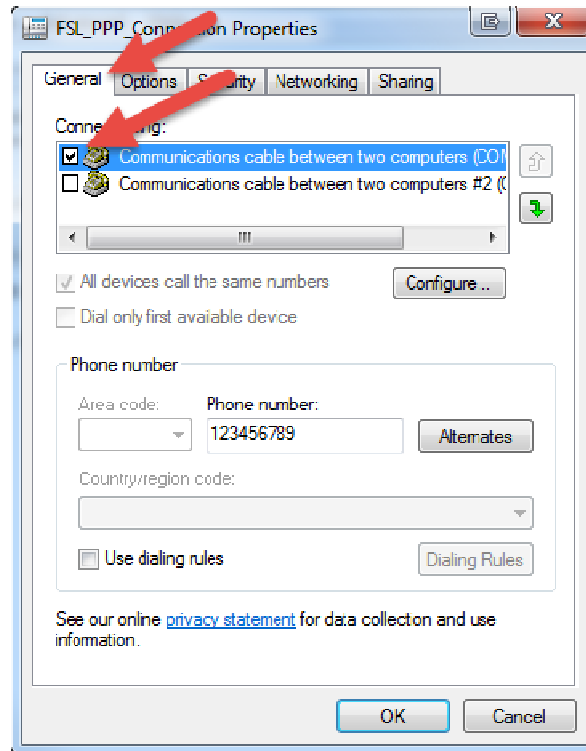


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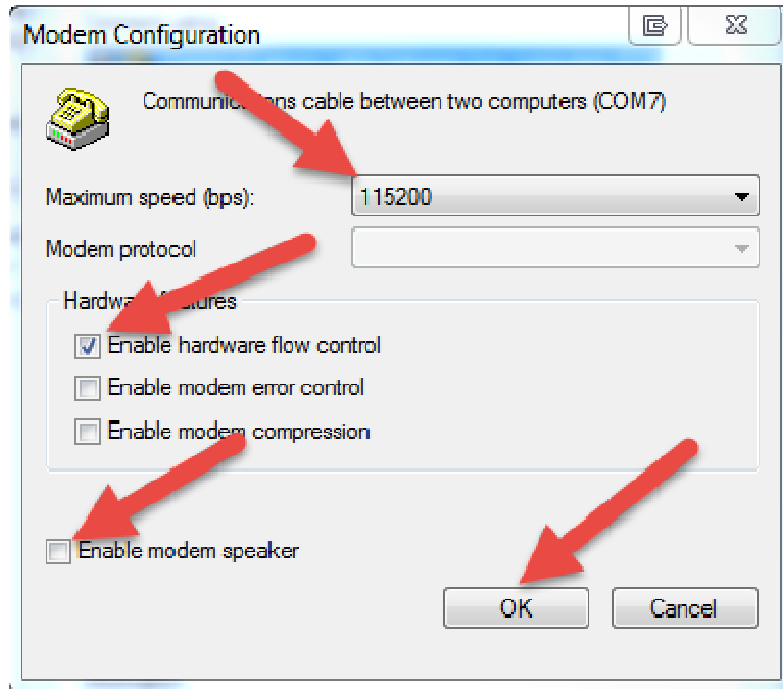
- i. Click **Skip** on the screen that appears. If there is no **Skip** option click **Set up connection anyway**
- j. Windows states that the connection is ready for use. Click **Close**

3.3 Part 3: Configuring the connection

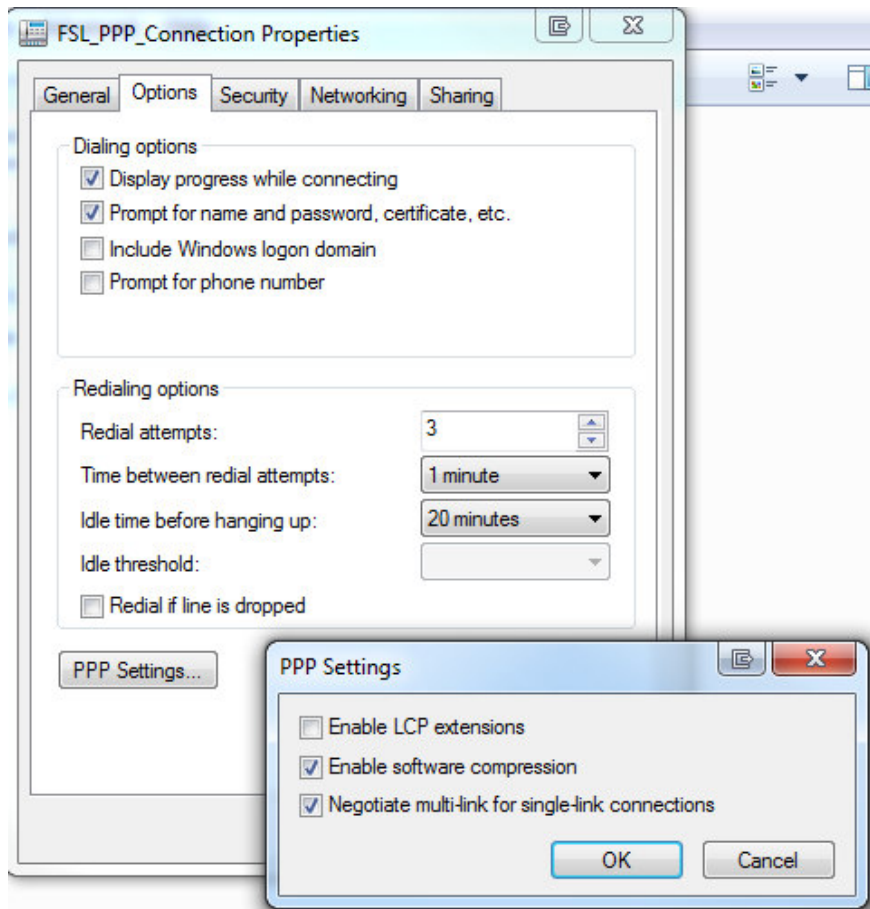
- a. **Start > Control Panel > Network and Sharing Center > Change adapter settings**
- b. Right-click on the connection you created from step 2 and click **Properties**
- c. Under **Connect Using**, be sure **Communication cable between two computers** is checked.



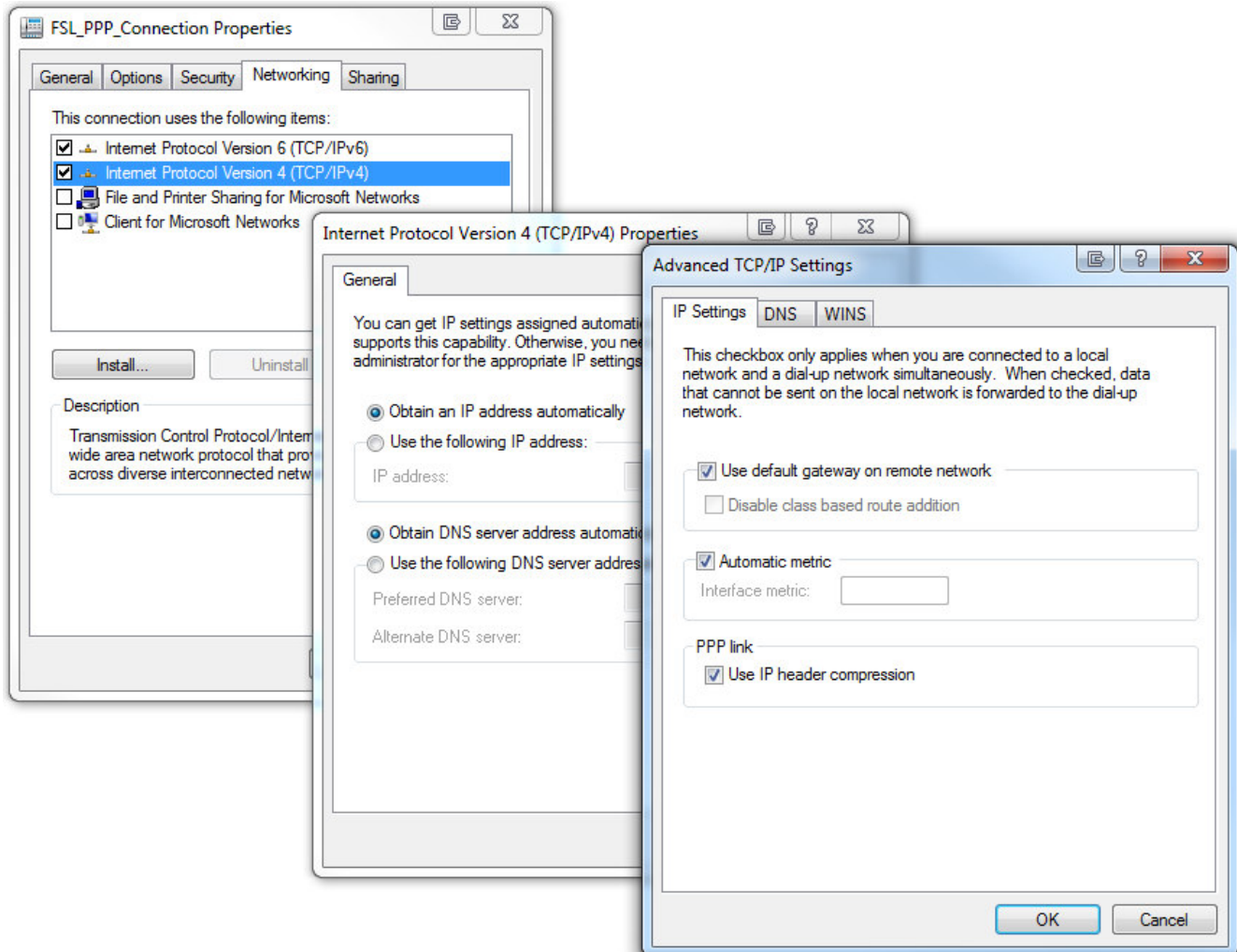
- d. Click **Configure**
- e. For **Maximum Speed**, select **115200** from the drop-down
- f. Ensure **Enable hardware flow control** is checked
- g. Uncheck **Enable modem speaker**
- h. Click **Ok**



- i. Click the **Options** tab
- j. Click **PPP Settings**
- k. Ensure **Enable LCP Extensions** is unchecked
- l. **Enable software compression** and **Negotiate Multi-link for single-link connections** must be checked
- m. Click **Ok**



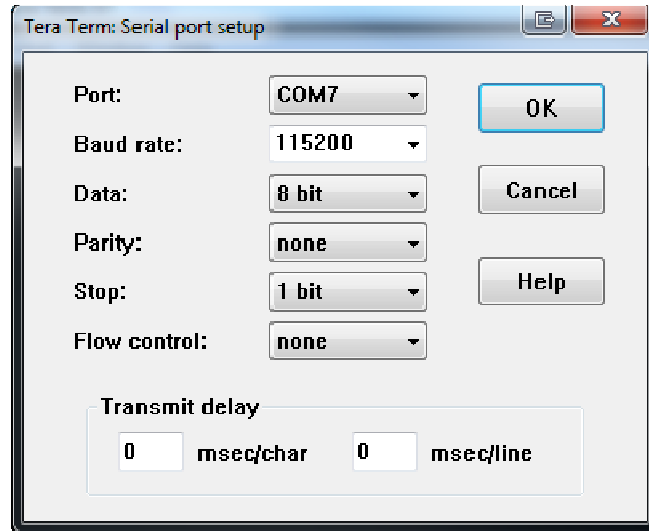
- n. Click **Networking** tab
- o. Highlight **TCP/IP** (or **TCP/IPv4**, or applicable variant)
- p. Click **Properties**
- q. Ensure **Obtain IP address automatically** and **Obtain DNS server addresses automatically** are selected
- r. Click **Advanced**
- s. Uncheck **Use default gateway on remote network**
- t. Click **Ok** three times



Note: Verify that all the connection settings were saved (refer to the beginning of step 3.3). If Baud Rate was not saved correctly then there is an error in the way the connection was created and you must repeat all the procedure in chapter 3.

4 Run the Example

Once the example application is loaded into the Flash memory you can start it. To use shell commands you must start a session in a terminal connected to the default port of TWR-K60d100M. In this case it is UART5 (ttyf:) which is connected to the OSJTAG port on the board with the following parameters.



To start PPP like server, type:

```
shell> ppp listen <interface> <yourlogin> <yourpassword> <local_ip_address> <remoute_ip_address>
```

Example:

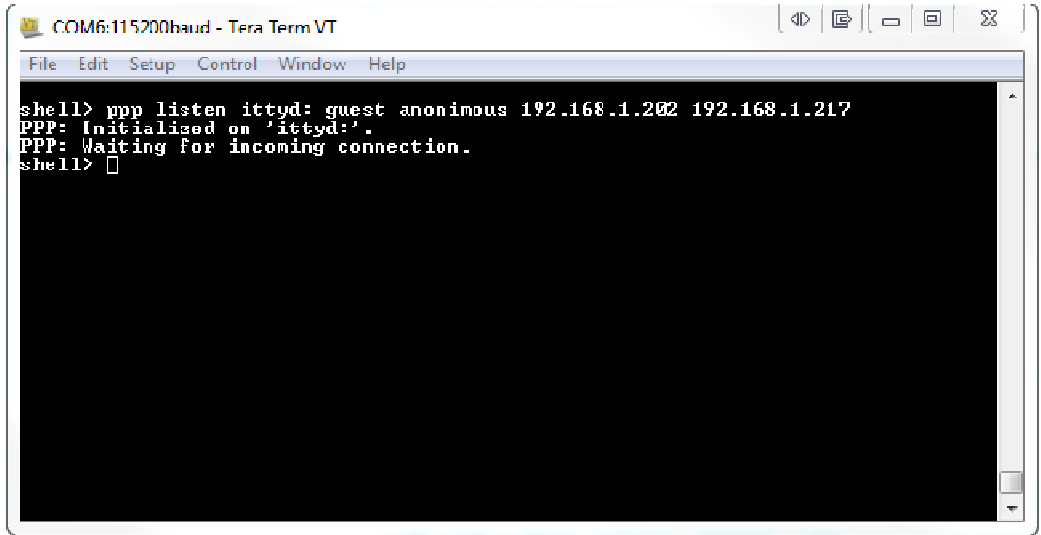
```
shell> ppp listen ittyd: guest anonymous 192.168.0.202 192.168.0.217
```

Here:

- ittyd: is name of your serial interface.
- guest is login to your PPP server.
- anonymous is password to your PPP server.
- 192.168.0.1 is IP address will have your board.
- 192.168.0.217 is IP address that your PPP server will set to client.

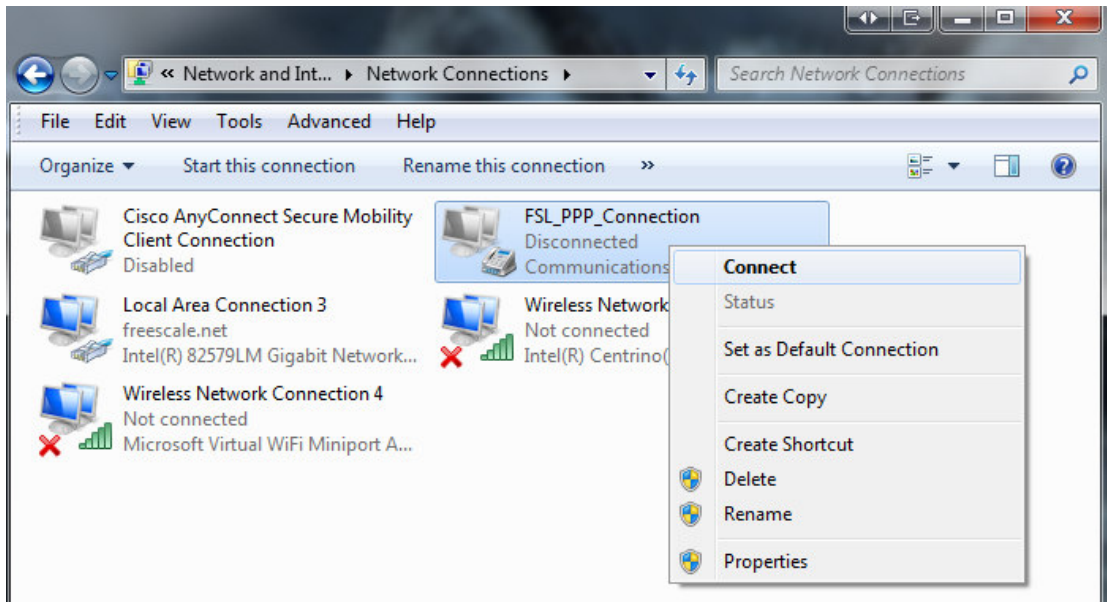
For PPP server you should use all of those parameters.

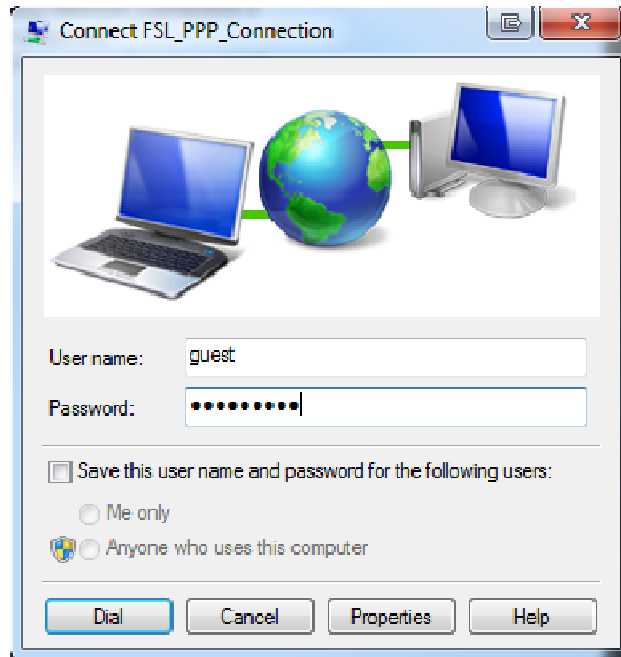
Once the command is issued you will see the following message:



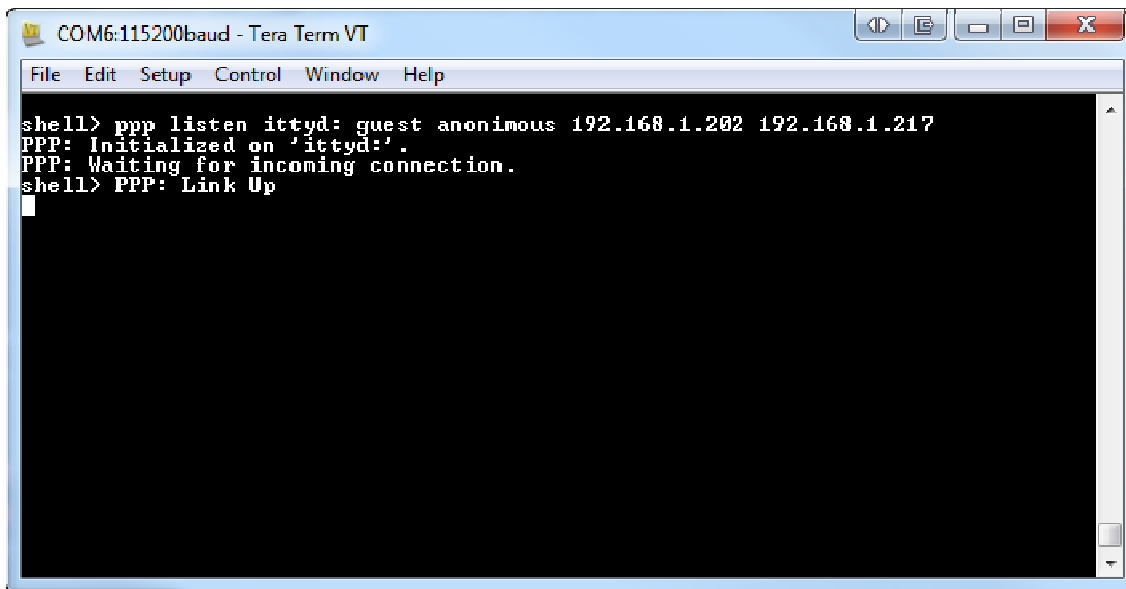
Note, that one needs two serial line connections between the PC and the evaluation board - one for the PPP communication (**ittyd**) and the other for the serial shell (**ttyf/default**).

If the application is started on the embedded side, run the PPP connection on the PC.





When the link is up you will be notified in the Shell.



At this point it is possible to verify the PPP communication by pinging from both PC and embedded side.

To stop PPP server, type "ppp stop".