

RoBoard RB-050 Console Redirection How-To

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Robotic Division
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About RB-050's Console Redirection Function

- When Console Redirection is enabled, RB-050 will redirect text screens (such as BIOS & DOS screens) to one of its native COM ports.
- By Console Redirection, you are able to manipulate RB-050 on any PC via serial (RS232) ports.
 - Note that Console Redirection will become invalid if RB-050 boots into WinXP, Linux, or any protected-mode OS.



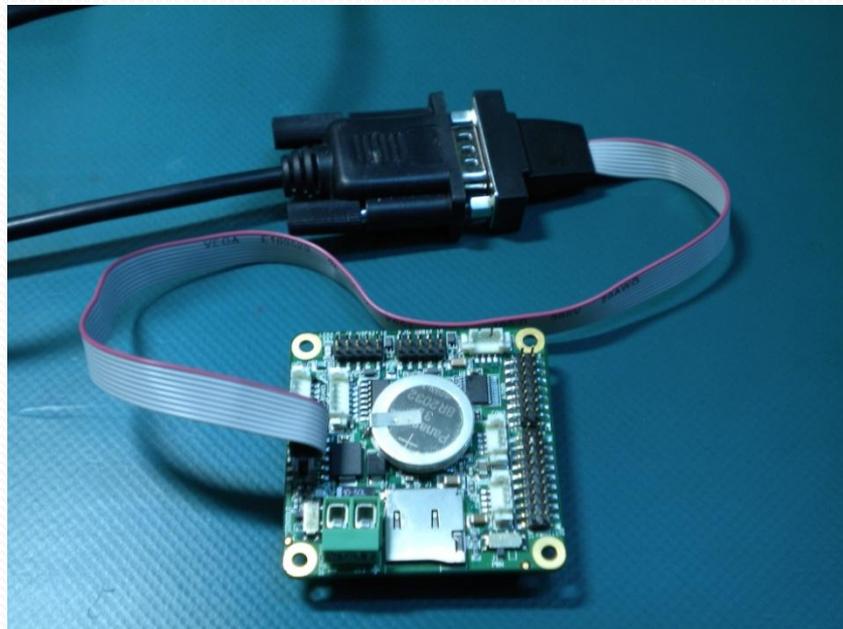
About RB-050's Console Redirection Function

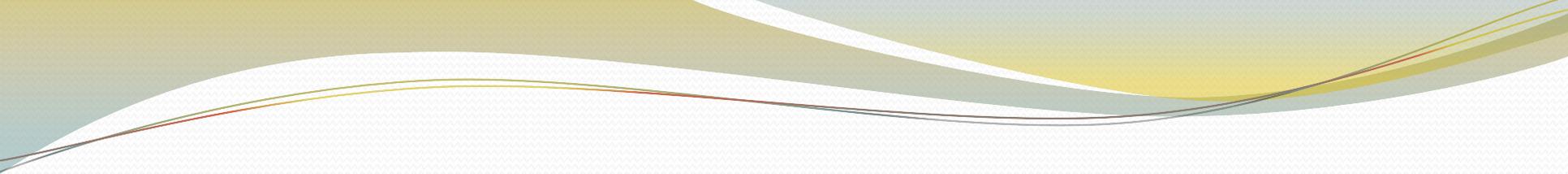
- **Remarks**

- Console Redirection is the only method to manipulate RB-050's BIOS.
- The default console-redirection port is COM1 (RS-232) at 115200 bps (with 1 stop bit, no parity, no flow control).
 - You can change the console-redirection port settings in BIOS, but should be careful to do this.

Hardware Requirement

- RoBoard RB-050
- Any PC with serial (RS-232) ports
 - Assume it will be connected to RB-050's COM1.

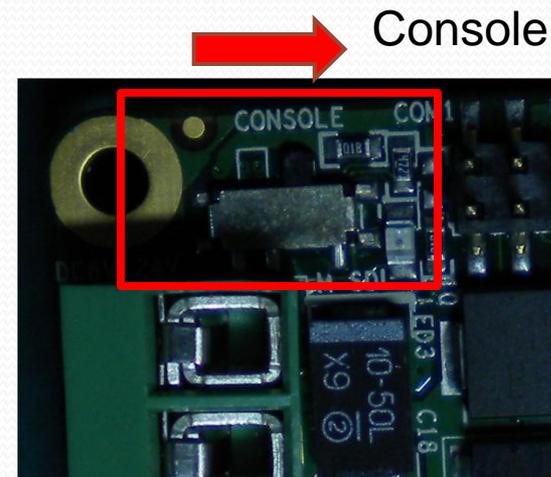
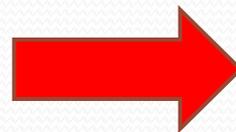
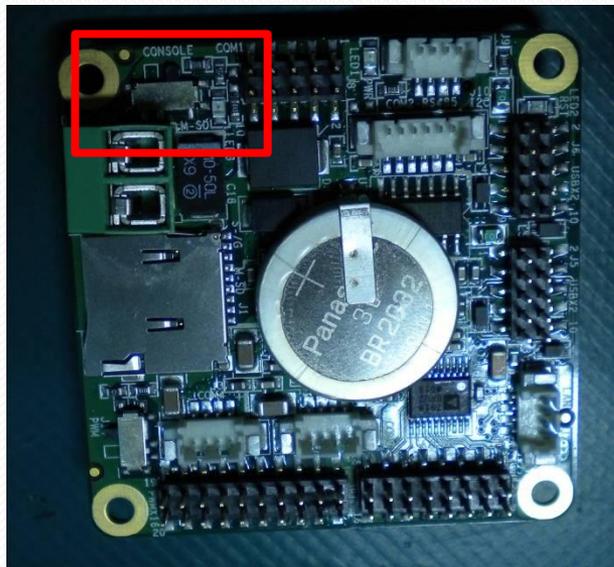




How to Enable RB-050 Console Redirection

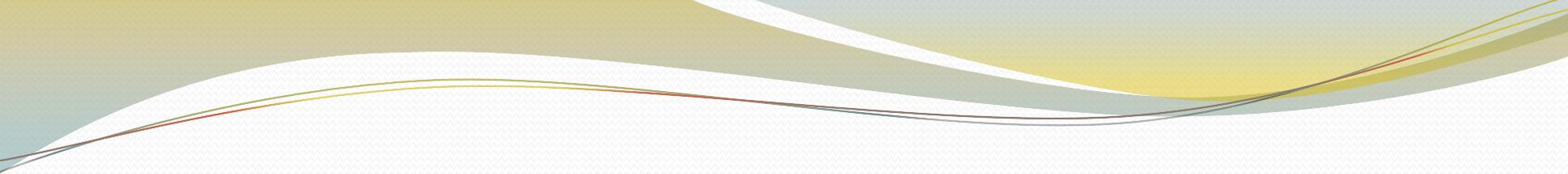
H/W Switch

- Turn Console Redirection switch to “Console Redirection enable” (see also H/W introd. Slide)



Remarks

- Console Redirection Function will occupy the COM port that is set to redirect the console (default COM1 at 115200bps).
- Console Redirection is valid only for Real Mode and the 80×25 text mode.
 - i.e., it doesn't work for any protected-mode OS and any graphic-mode DOS program.



Connect PC to RB-050 via Console Redirection

(Use WinVista & PuTTY as an example)

STEP 1: Download PuTTY

- Download PuTTY from :

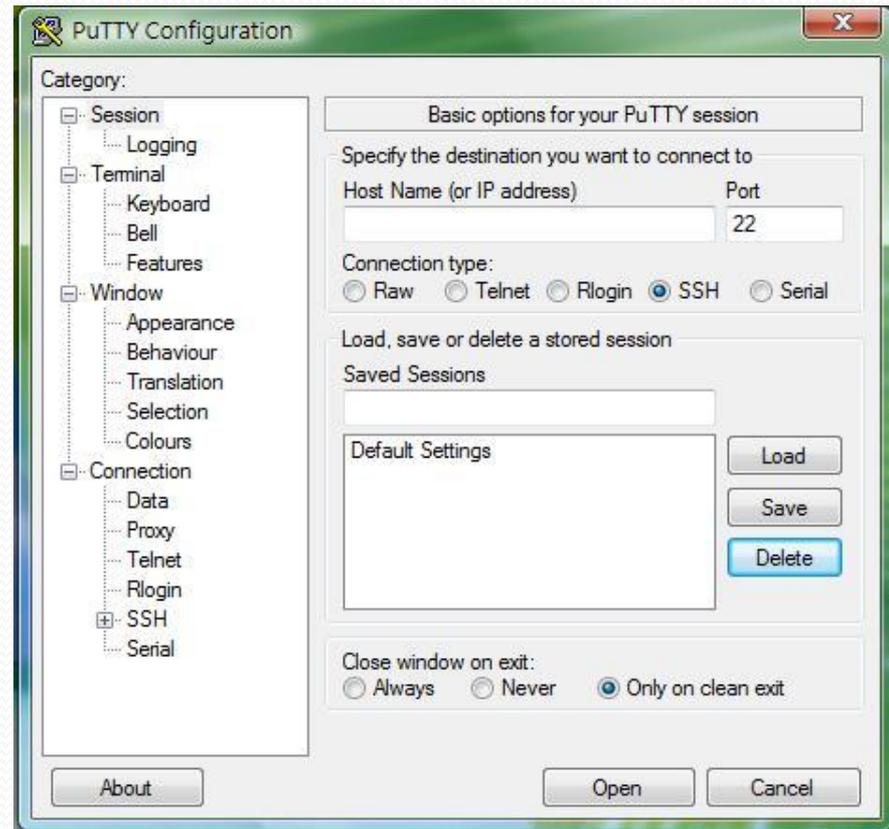
<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>

For Windows on Intel x86

PuTTY:	putty.exe	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYtel:	puttytel.exe	(or by FTP)	(RSA sig)	(DSA sig)
PSCP:	pscp.exe	(or by FTP)	(RSA sig)	(DSA sig)
PSFTP:	psftp.exe	(or by FTP)	(RSA sig)	(DSA sig)
Plink:	plink.exe	(or by FTP)	(RSA sig)	(DSA sig)
Pageant:	pageant.exe	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYgen:	puttygen.exe	(or by FTP)	(RSA sig)	(DSA sig)

STEP 2: Configure PuTTY Serial Settings

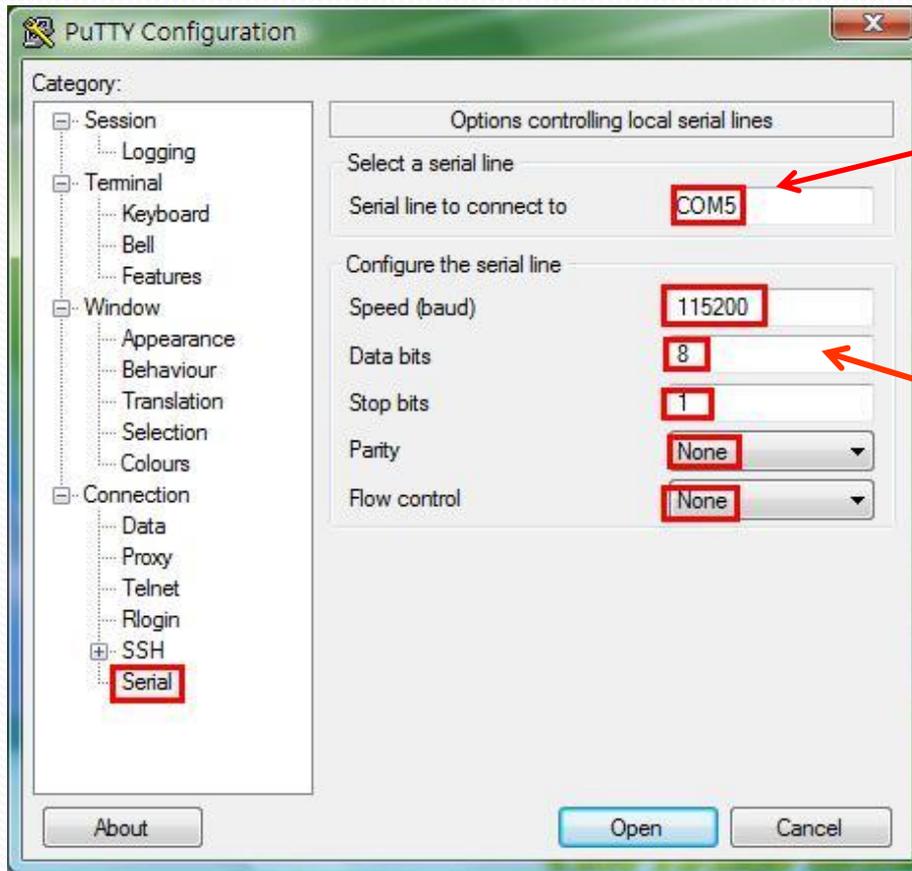
- STEP 2.1: Launch PuTTY



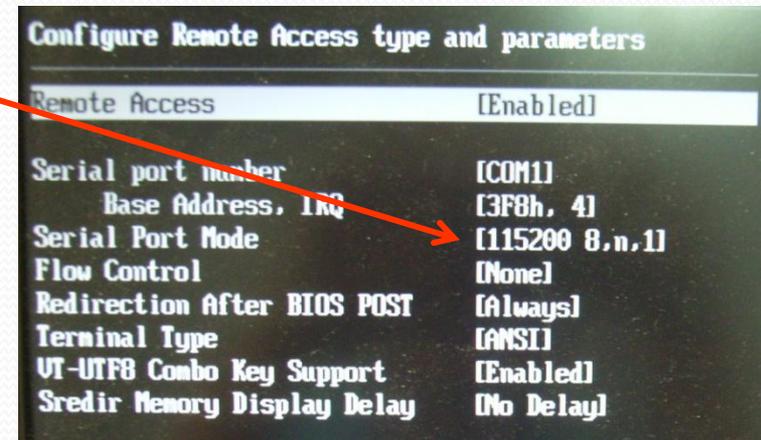
STEP 2: Configure PuTTY Serial Settings

- STEP 2.2: Set the correct serial configuration
 - Select your PC's serial port that will connect to RB-050 (COM5 in this example).
 - The baudrate, data/stop bits, parity, and flow control settings should coincide with RB-050's console-redirectation port.
 - The default settings of RB-050's console-redirectation port are 115200 bps, 8 data bits, 1 stop bit, no parity and no flow control.

STEP 2: Configure PuTTY Serial Settings

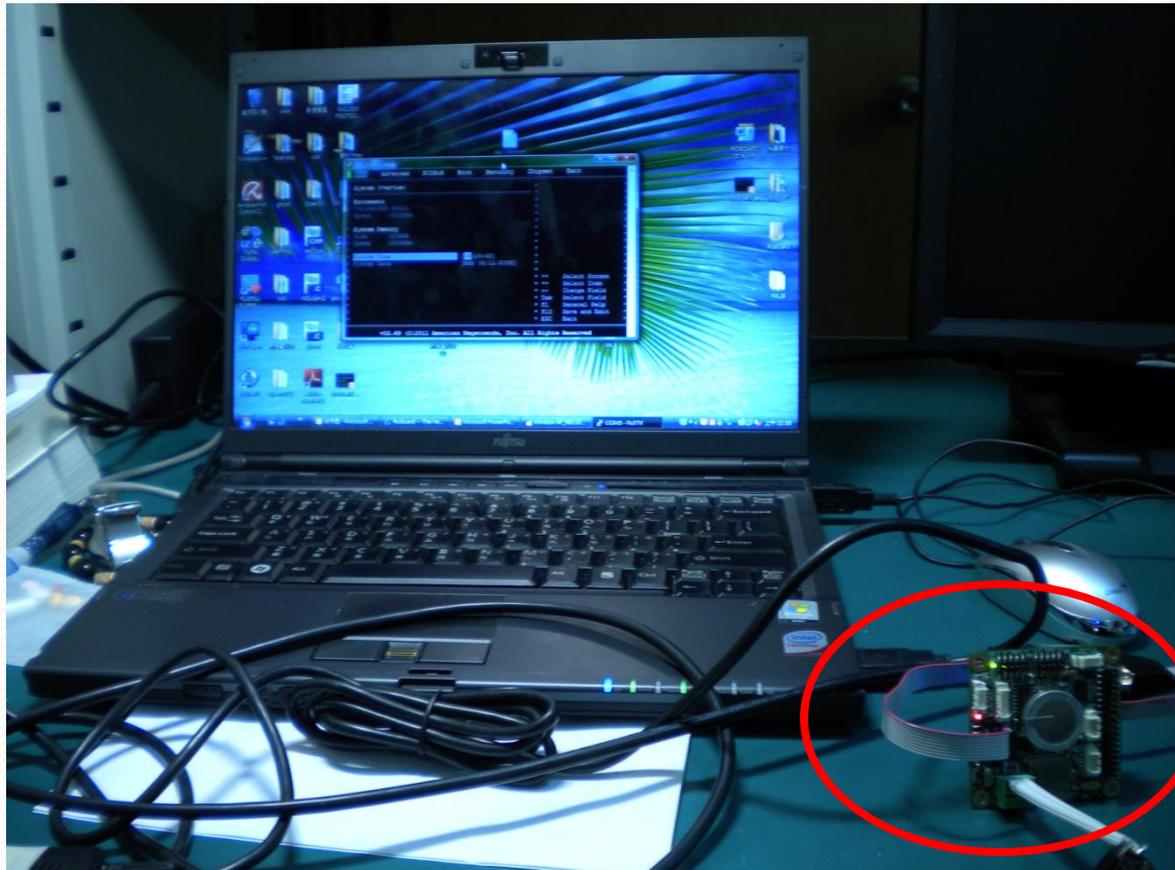


PC's serial port

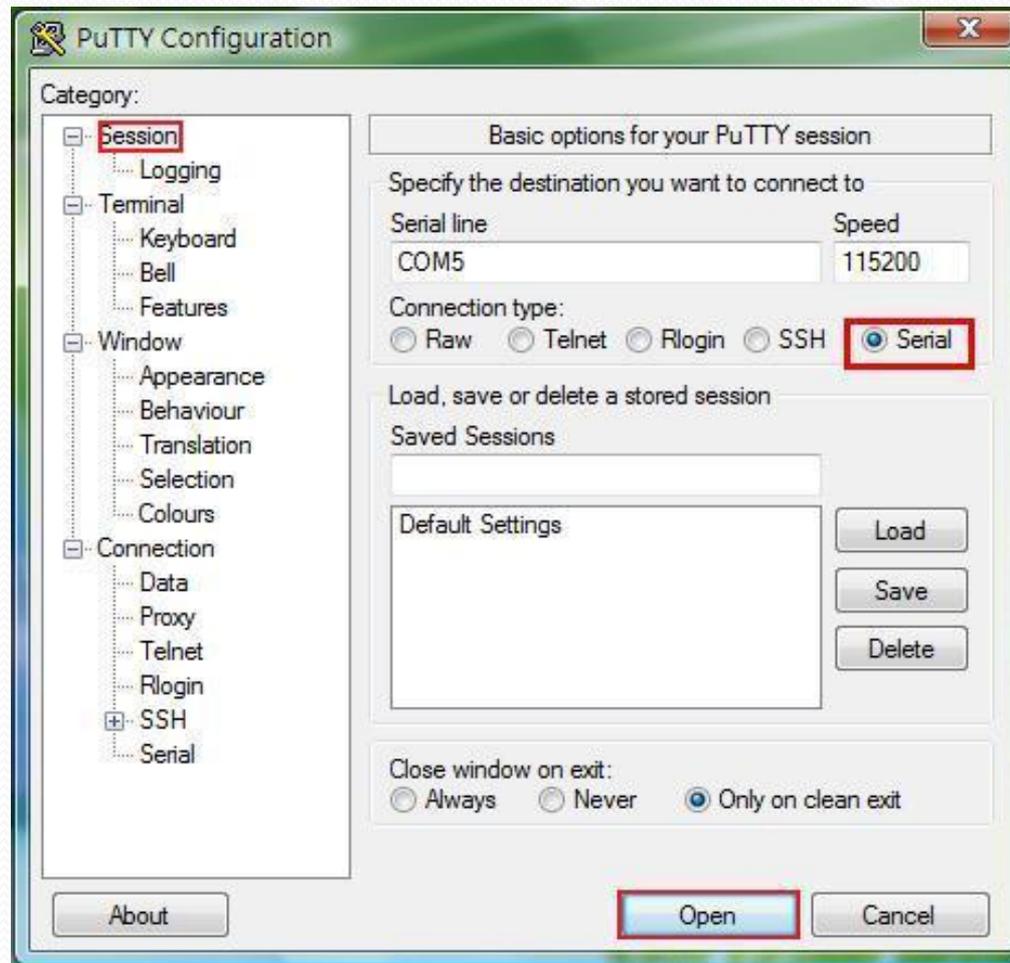


RB-050 BIOS settings

STEP 3: Connect Serial Ports of Your PC and RB-050

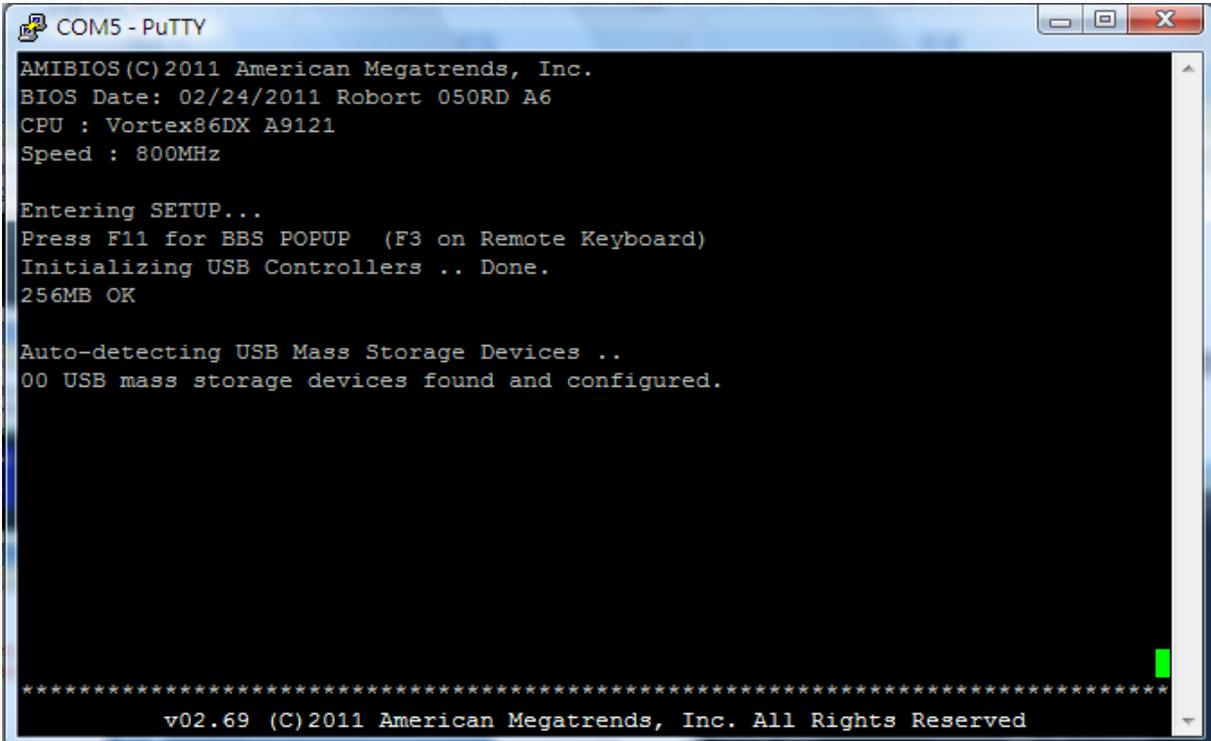


STEP 4: Open PuTTY Serial Connection



STEP 5: Power on RB-050

- Power on RB-050; then you will see the RB-050 boot screen in PuTTY.



```
COM5 - PuTTY
AMIBIOS(C)2011 American Megatrends, Inc.
BIOS Date: 02/24/2011 Robort 050RD A6
CPU : Vortex86DX A9121
Speed : 800MHz

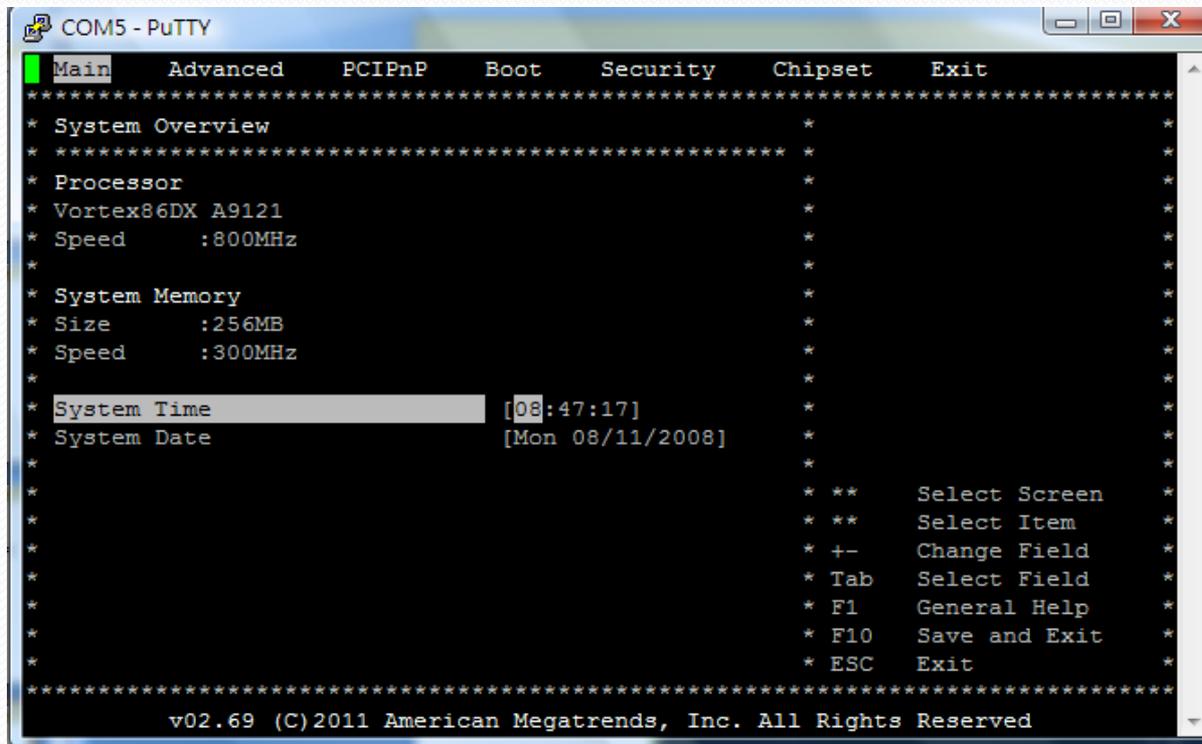
Entering SETUP...
Press F11 for BBS POPUP (F3 on Remote Keyboard)
Initializing USB Controllers .. Done.
256MB OK

Auto-detecting USB Mass Storage Devices ..
00 USB mass storage devices found and configured.

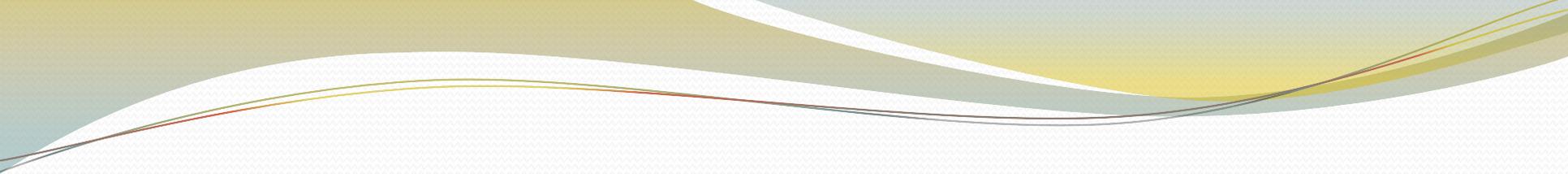
*****
v02.69 (C)2011 American Megatrends, Inc. All Rights Reserved
```

STEP 5: Power on RB-050

- You can then press “F4” key of your PC (in the boot screen) to enter RB-050 BIOS and manipulate it.

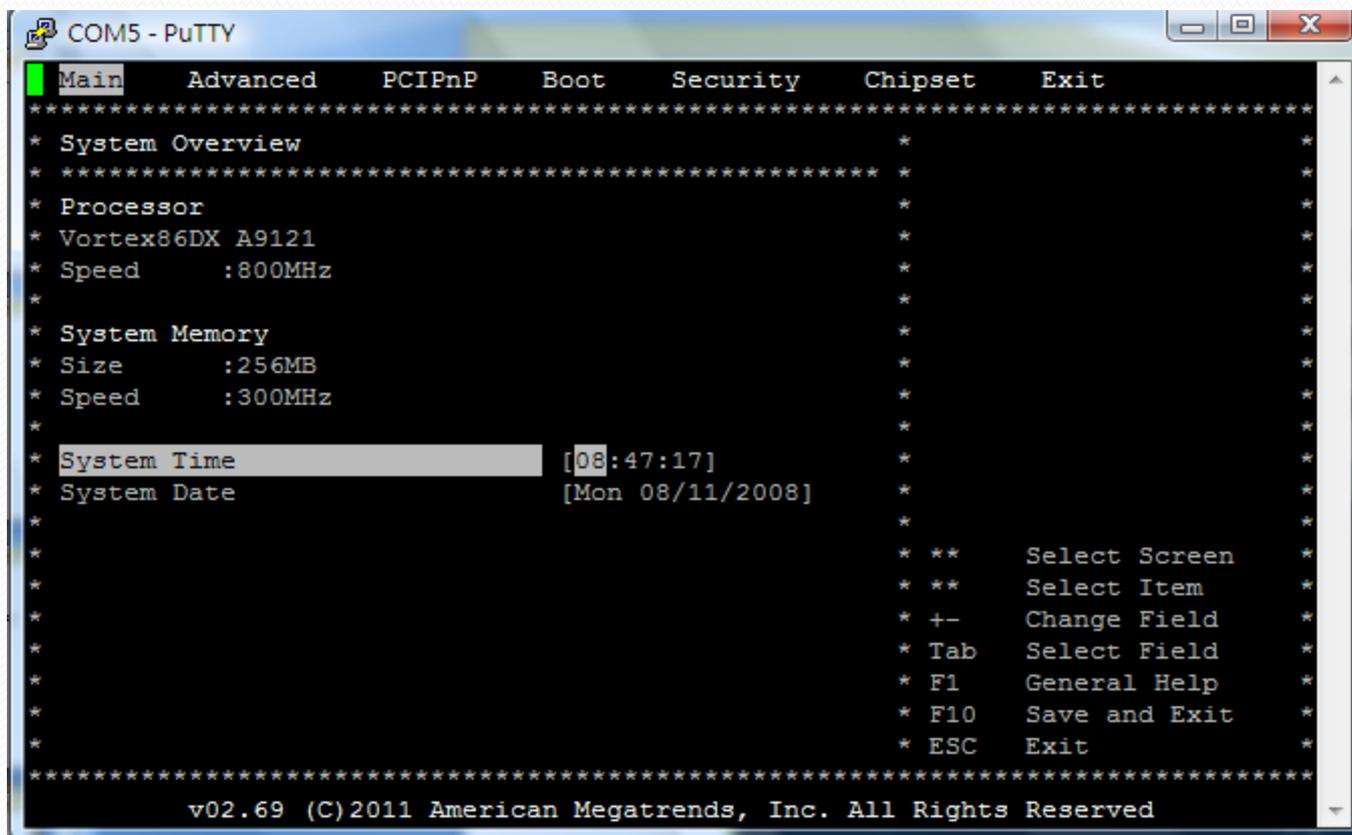


```
COM5 - PuTTY
Main  Advanced  PCIPnP  Boot  Security  Chipset  Exit
*****
* System Overview *
* ***** *
* Processor *
* Vortex86DX A9121 *
* Speed :800MHz *
* *
* System Memory *
* Size :256MB *
* Speed :300MHz *
* *
* System Time [08:47:17] *
* System Date [Mon 08/11/2008] *
* *
* * * * *
* ** Select Screen *
* ** Select Item *
* +- Change Field *
* Tab Select Field *
* F1 General Help *
* F10 Save and Exit *
* ESC Exit *
*****
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```

How to Change the Settings of Console Redirection

- Enter RB-050 BIOS.



The image shows a screenshot of a PuTTY window titled "COM5 - PuTTY". The window displays the BIOS Main menu for an RB-050 system. The menu is organized into several sections: "Main", "Advanced", "PCIPnP", "Boot", "Security", "Chipset", and "Exit". The "Main" section is currently selected and highlighted in green. It contains the following items:

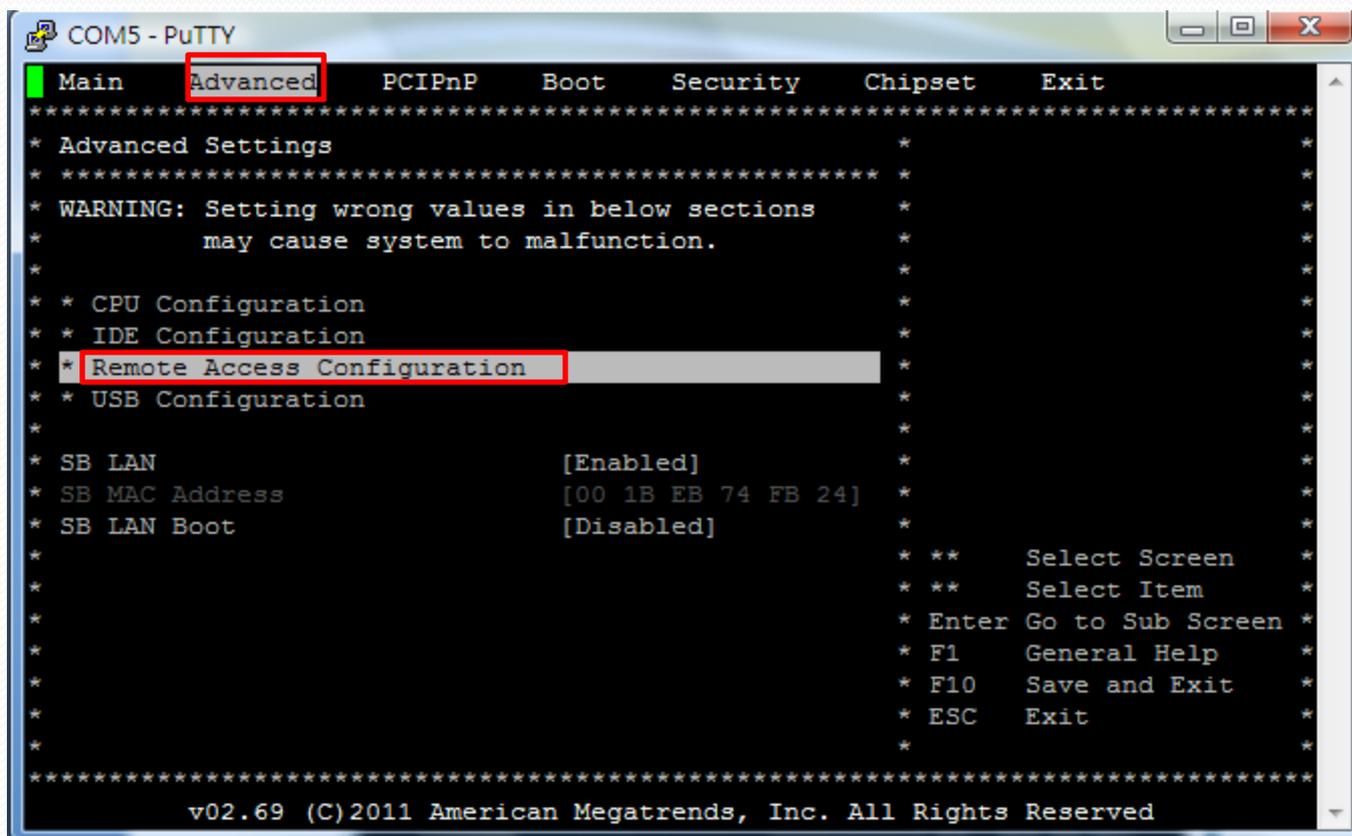
- * System Overview
- * Processor
- * System Memory
- * System Time
- * System Date

The "System Time" and "System Date" items are currently selected and highlighted in grey. The "System Time" is displayed as [08:47:17] and the "System Date" is displayed as [Mon 08/11/2008].

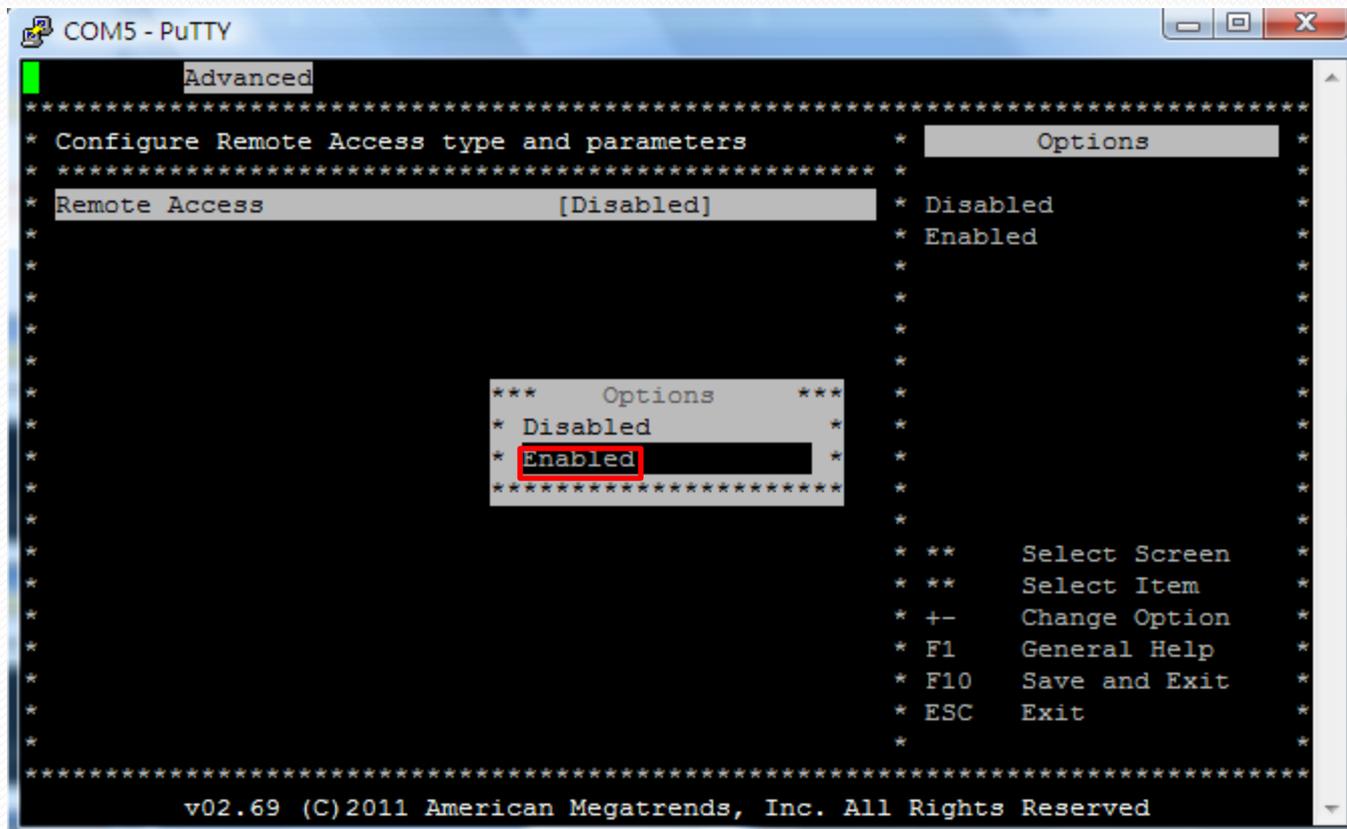
At the bottom of the screen, there is a copyright notice: "v02.69 (C)2011 American Megatrends, Inc. All Rights Reserved".

```
COM5 - PuTTY
Main  Advanced  PCIPnP  Boot  Security  Chipset  Exit
*****
* System Overview                                     *
* *****                                           *
* Processor                                           *
* Vortex86DX A9121                                    *
* Speed      :800MHz                                  *
*                                                    *
* System Memory                                       *
* Size       :256MB                                   *
* Speed      :300MHz                                  *
*                                                    *
* System Time [08:47:17]                               *
* System Date [Mon 08/11/2008]                       *
*                                                    *
*                                                    *
* ** Select Screen                                    *
* ** Select Item                                       *
* +- Change Field                                     *
* Tab Select Field                                    *
* F1 General Help                                    *
* F10 Save and Exit                                  *
* ESC Exit                                           *
*****
v02.69 (C)2011 American Megatrends, Inc. All Rights Reserved
```

- Advanced → Remote Access Configuration.



- Remote Access → Enable.



- Change the console-redirectation port settings.

```

COM5 - PuTTY
Advanced
*****
* Configure Remote Access type and parameters * Options *
* ***** *
* Remote Access [Enabled] * 115200 8,n,1 *
* * * 57600 8,n,1 *
* Serial port number [COM1] * 38400 8,n,1 *
* Base Address, IRQ [3F8h, 4] * 19200 8,n,1 *
* Serial Port Mode [57600 8,n,1] * 09600 8,n,1 *
* * *
* Flow Control [None] *
* Redirection After BIOS POST [Always] *
* Terminal Type [ANSI] *
* VT-UTF8 Combo Key Support [Enabled] *
* Sredir Memory Display Delay [No Delay] *
* *
* *
*****
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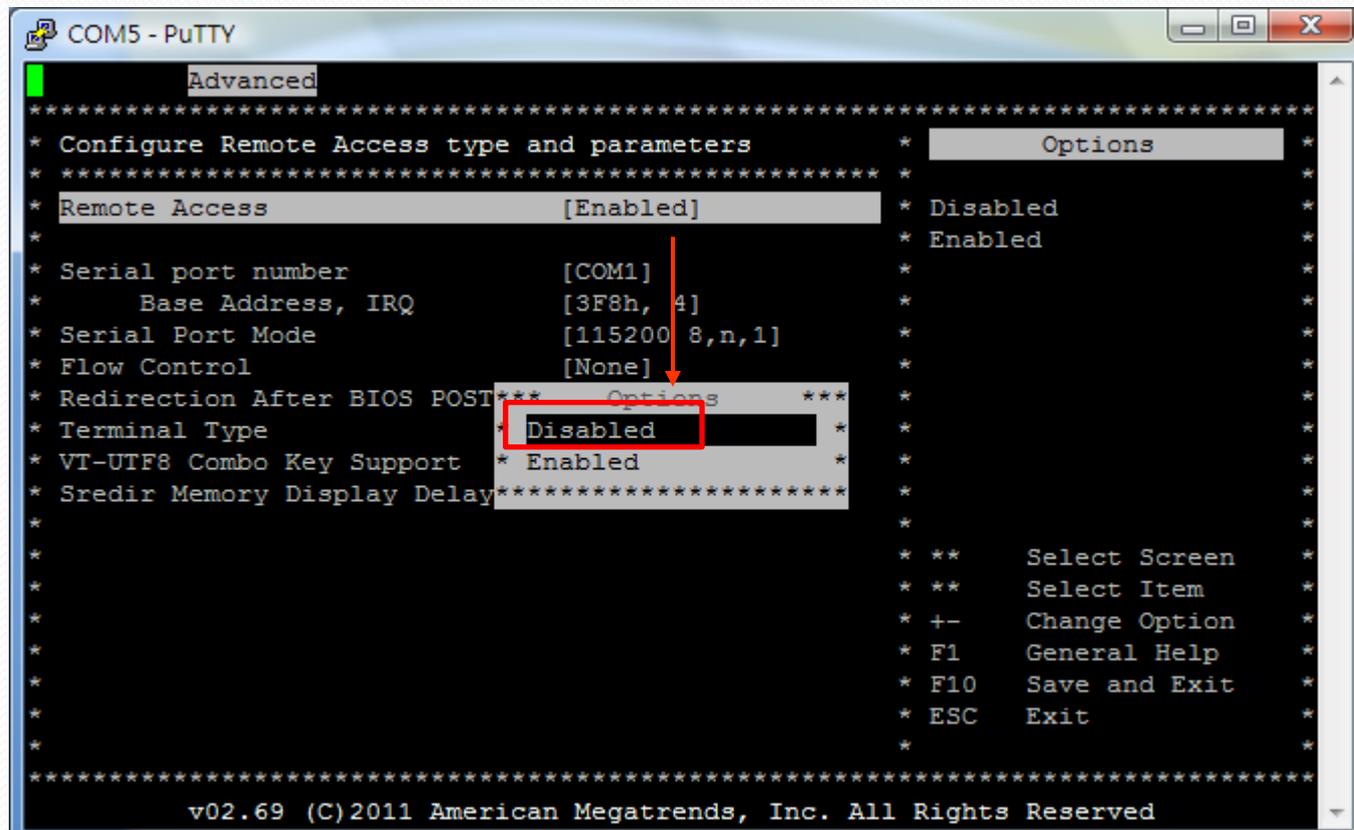
```

```

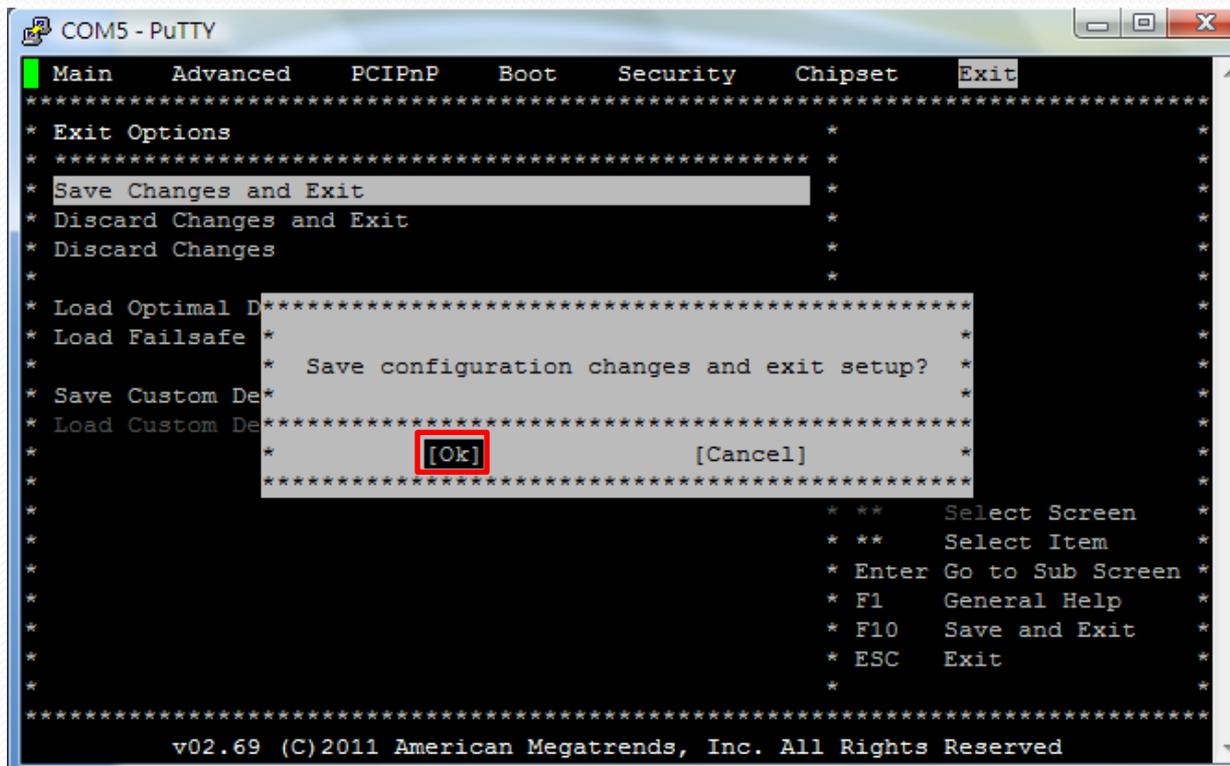
COM5 - PuTTY
Advanced
*****
* Configure Remote Access type and parameters * Options *
* ***** *
* Remote Access [Enabled] * 115200 8,n,1 *
* * * 57600 8,n,1 *
* Serial port number [COM1] * 38400 8,n,1 *
* Base Address, IRQ [3F8h, 4] * 19200 8,n,1 *
* Serial Port Mode *** Options *** * 09600 8,n,1 *
* Flow Control * 115200 8,n,1 *
* Redirection After BIOS POST * 57600 8,n,1 *
* Terminal Type * 38400 8,n,1 *
* VT-UTF8 Combo Key Support * 19200 8,n,1 *
* Sredir Memory Display Delay * 09600 8,n,1 *
* *
* * * Select Screen *
* * * Select Item *
* +- Change Option *
* F1 General Help *
* F10 Save and Exit *
* ESC Exit *
* *
*****
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```

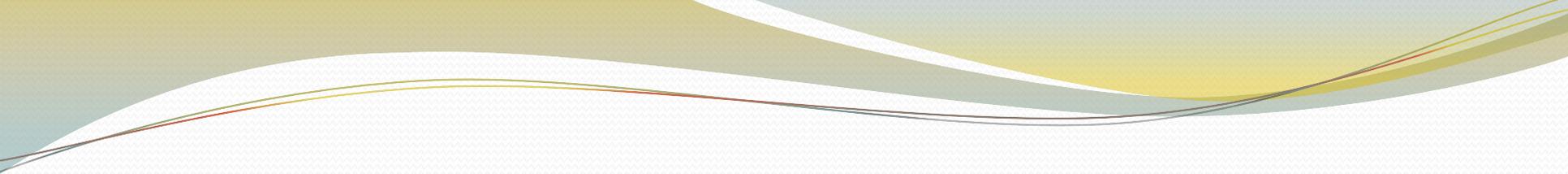
- (After changing your settings) Remote Access → Disable.



- Save configuration changes and exit setup.



- Note that you should then reconnect to RB-050 with the new console-redirection settings.



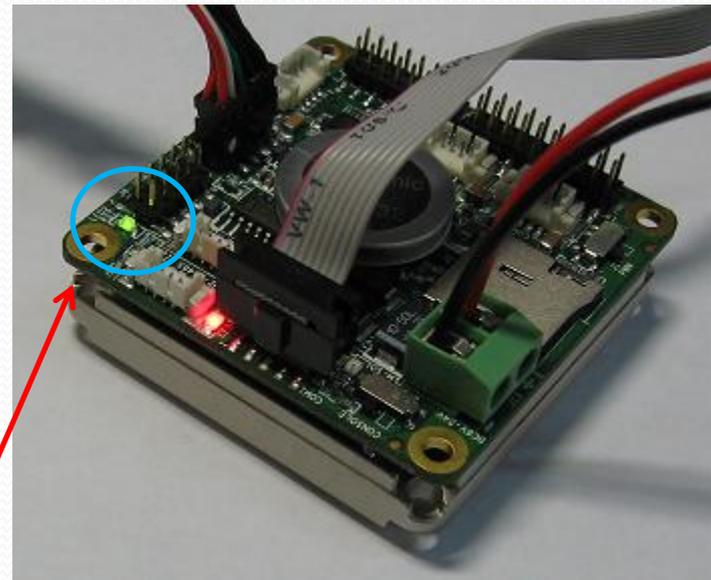
How to Restore the Default Settings of Console Redirection

Restore the Default Setting of Console Redirection

- You may need to restore the BIOS default settings of console redirection if forgetting your original settings.
- Two methods to do this
 - Method 1: Using BIOS hotkey
 - Method 2: Using RB-050 BIOS Settings Rescue Tool

METHOD 1: Using BIOS HotKey

1. Connect an USB keyboard to RB-050
2. Power on RB-050 and Press the “Delete” key to enter BIOS menu (ensure the ~Reset LED remain light)



When RB-050 enters BIOS menu,
the ~Reset LED should remain light

METHOD 1: Using BIOS HotKey

3. Press “F9” → Press “Enter” (Load Optimal Defaults)



4. Press “F10” → Press “Enter” (Save Changes and Exit)

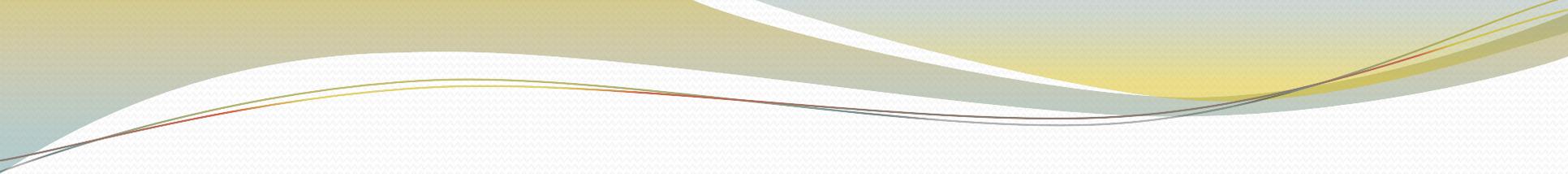
5. Now the console-redirection settings should be restored to default (COM1 115200bps, 1 stop bit, no parity, no flow control)

METHOD 2: Using RB-050 BIOS Settings Rescue Tool

1. Download RB-050 BIOS Settings Rescue Tool from http://www.roboard.com/download_m1.htm

RB-050	
RB-050 BIOS (ver. A6) (contact tech@roboard.com)	
RB-050 BIOS (ver. A6) Settings Rescue Tool	

2. Follow the guide in the tool to restore the RB-050's BIOS default settings.
3. Now the console-redirection settings should return to default (COM1 115200bps, 1 stop bit, no parity, no flow control)



The heart of Robotics

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<http://www.roboard.com>