METANOIA

User Manual - Evaluation Boards

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User Manual - Evaluation Boards

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User Manual Content

1 Board pictures

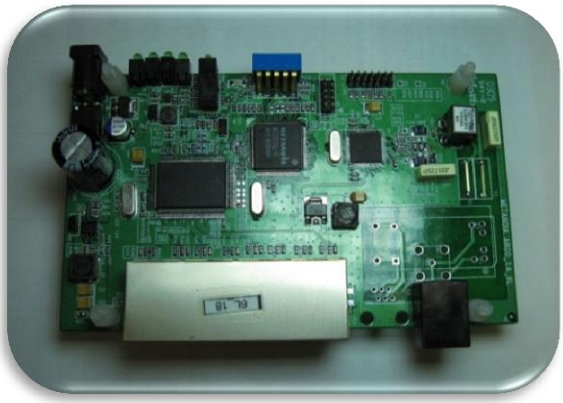


Figure1: EVB2301-B

Figure2: EVB2311-B

Figure3: EVB2301-BA

Figure4: EVB2301-W-RL

2 Settings

2.1 EVB2301-B: LED and DIP-switch explanations

Step by step:

1. **Plug in power**

Power supply: recommend for 9V/1.2A;9V~16V/1.2A is also acceptable

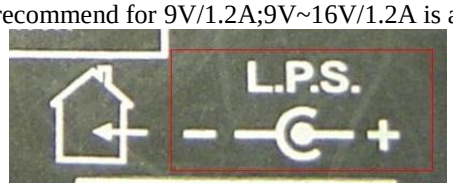
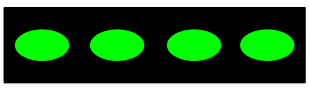


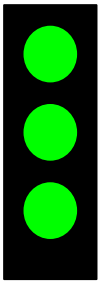
Figure 1 DC Jack Polarity

2. **Select right (or default) profile**

DIPI (side)	DIP2-DIP3 (profile)	DIP4 (Target SNR)	DIP5
Off: CO On: CPE	Off-Off:AnnexA-30a(default) On-Off:AnnexA-17a Off-On:AnnexB-30a-997 On-On:AnnexB-17a-997	Off:9dB(default) On:6dB	Reserved
D2P 2,3,4 are used only at CO, and CPE follows CO's setting			

3. **Connect phone line to CO**
4. **LED indicator:**

LED for RJ-45		
D8 D7 D6 D5  Port3 port2 port1 port0		
	LINK/ACT	Fast : Transmitting Hold : Active

LED for RJ-11			
Power LED Mode LED VDSL LED			
		Power ON	Power OFF
		CPE mode	CO mode
		Slow : Idle Fast : Training Hold : Show time	Off line

2.2 EVB2311-B: LED and DIP-switch explanations

Step by step:

1. **Plug in power**

Power supply: recommend for 9V/1.2A;9V~16V/1.2A is also acceptable

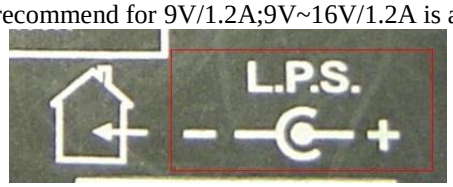


Figure 2 DC Jack Polarity

2. **Select right (or default) profile**

DIPI (side)	DIP2-DIP3 (profile)	DIP4 (Target SNR)	DIP5
Off: CO On: CPE	Off-Off:AnnexA-30a(default) On-Off:AnnexA-17a Off-On:AnnexB-30a-997 On-On:AnnexB-17a-997	Off:9dB(default) On:6dB	Reserved
D2P 2,3,4 are used only at CO, and CPE follows CO's setting			

3. **Connect phone line to CO**
4. **LED indicator:**

LED for RJ-45												
● LINK/ACT			Fast : Transmitting Hold : Active									
Port	Port 1			Port 2			Port 3			Port 4		
Functionality	1GB	100M	10MB	1GB	100M	10MB	1GB	100M	10MB	1GB	100M	10MB
LED number	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12

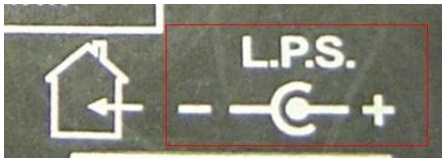
LED for RJ-11			
Function	**LED**	●	○
Power	D16	Power ON	Power OFF
Mode	D17	CPE mode	CO mode
VDSL status	D18	Slow blinking : Idle Fast blinking: Training Hold : Show time	Offline

2.3 EVB2301-BA: LED and DIP-switch explanations

Step by step:

1. **Plug in power**

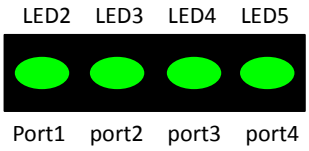
Power supply: recommend for 12V/1A

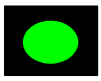
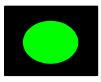


2. **Select right (or default) profile**

DIPI (mode)	DIP2-DIP3	DIP4 (Target SNR)
Off:vdsl2 normal mode On: 8051 program mode	Reserved	Off: CPE On: CO

3. **Connect phone line to CO**
4. **LED indicator:**

LED for RJ-45		
		
	LINK/ACT	Fast : Transmitting Hold : Active

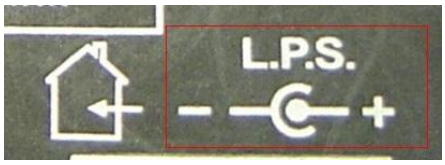
LED for RJ-11			
			
LED 1		Power ON	Power OFF
LED 13		CO mode	CPE mode
LED 10		Slow : Idle Fast : Training Hold : Show time	Offline

2.4 EVB2301-W-RL: LED and DIP-switch explanations

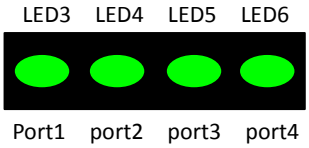
Step by step:

1. **Plug in power**

   Power supply: recommend for 12V/1.2A



2. **Connect phone line to CO**
3. **LED indicator:**

LED for RJ-45		
		
	LINK/ACT	Fast : Transmitting Hold : Active

LED for RJ-11			
LED 12			
		Power ON	Power OFF
LED 8		Slow : Idle Fast : Training Hold : Show time	Offline

3 Installation

Please check the contents before installation. You'll receive one of them because of different types, as below:

One of the 4 types:

EVB2301-B
EVB2311-B
EVB2301-BA
EVB2301-W-RL

Eyebox USB controller *1 (Figure 3)

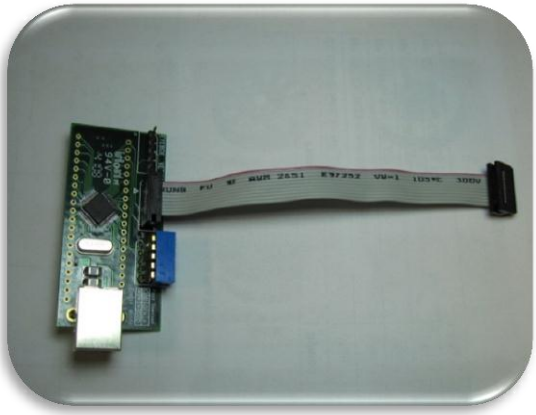
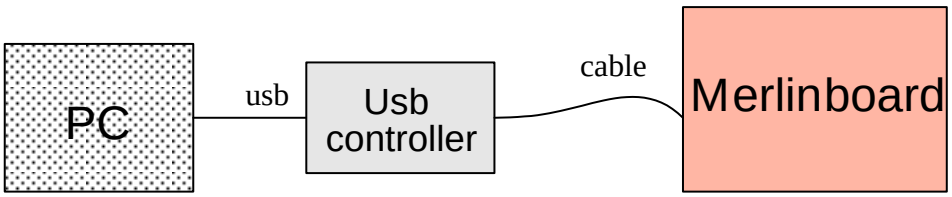


Figure 3 Eyebox USB Controller

3.1 Eyebox USB controller installation



Connect USB controller to PC and reference board as Figure 6~Figure 8, make sure the cable direction is correct. If the direction is not correct, utility will not work.

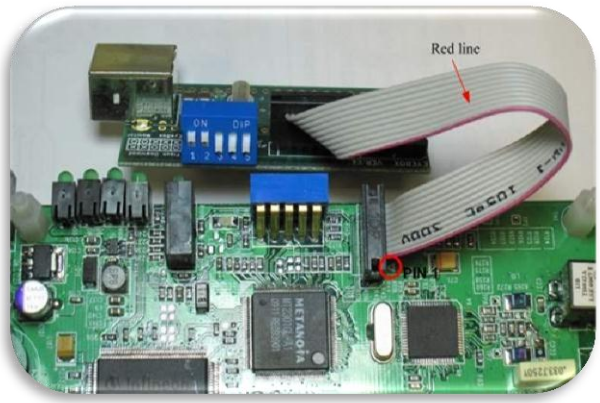


Figure 6: EVB2301-B

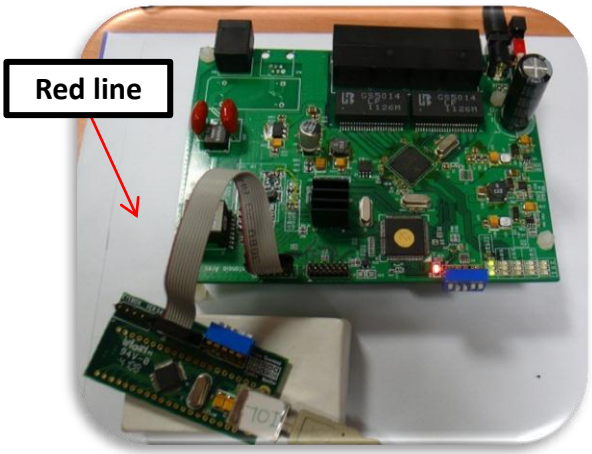


Figure 7: EVB2311-B

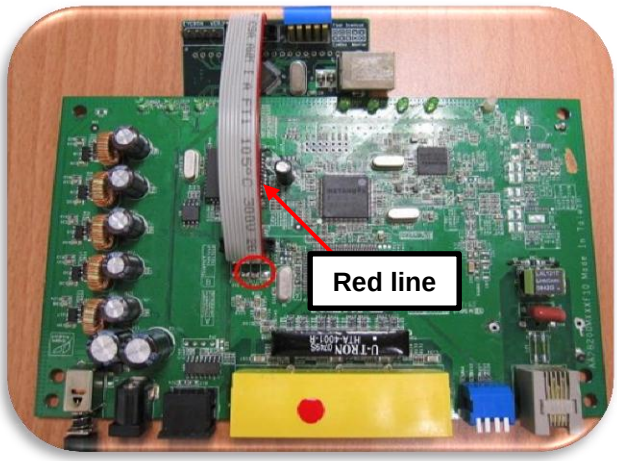


Figure 8: EVB2301-BA

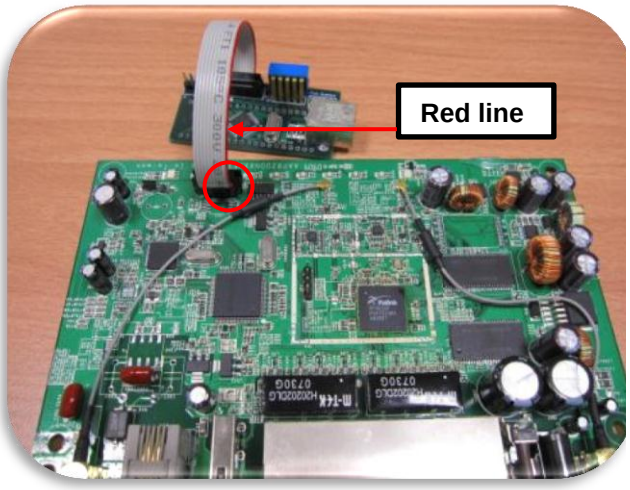


Figure 9: EVB2301-W-RL

*Please match the USB controller in the PIN1(10-pin header), especially notice the red line.

3.2 Eyebox DIP switch settings

Mode	DIP1-DIP2	DIP3 – DIP5 (Target SNR)
Monitoring (USE THIS)	ON	OFF

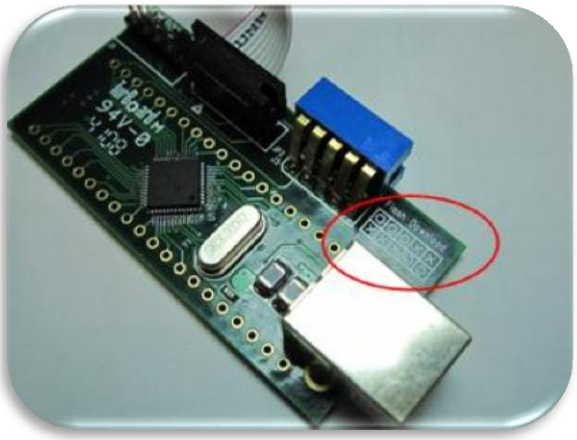


Figure 4 Eyebox Tool

3.3 Eyebox Driver installation

When PC is connected to USB controller, driver installation is requirement. Please visit http://www.ftdichip.com/Drivers/D2XX.htm and select the appropriate driver for your OS.

4 DSLmonitor

In order to be able to monitor the status of the DSL connection on Metanoia's evaluation boards Metanoia provide the software DSLmonitor. DSLmonitor can be used to monitor most of the important parameters to enable evaluation of the connection.

4.1 Get Started

A. Start DSLmonitor

Start DSLmonitor from your *C:\DslMonitor_for_MerlinI.2.1* -directory (IMPORTANT)
If Windows Vista or Windows 7 is used the DSLmonitor should be run in *Windows XP compatibility mode*.
The provided *VDSL2.drv* file must be placed in the DSLmonitor directory before running DSLmonitor.

B. Follow the instruction of Figure 10 to start monitor modem status

1. Click the *Connect* button and when connected the button will show *disConnect*.
2. Click the *MemoryMonitor* tab.
3. Click the "…" to select the right *.ic file.

   NOTE:

   I. Choose the *.ic file with name that matches your board's name.

   II. If your board is used in CO setting the *.ic file ending with …_ot.ic should be used and …_rt.ic should be used if in CPE mode.

   III. The absolute (complete) file path must be given for the *.ic file.

   IV. If the correct *.ic file is not found in the DSLmonitor directory it should be copied into the DSLmonitor directory before used.
4. Choose "METANOIA" group
5. Click the ">>" button to move all variables in the Metanoia group to be monitored. The window to the right shows the parameters in each group and the window to the right shows the currently selected variables to monitor.
6. Click the "*Monitor Variables*" button to start monitor variables.

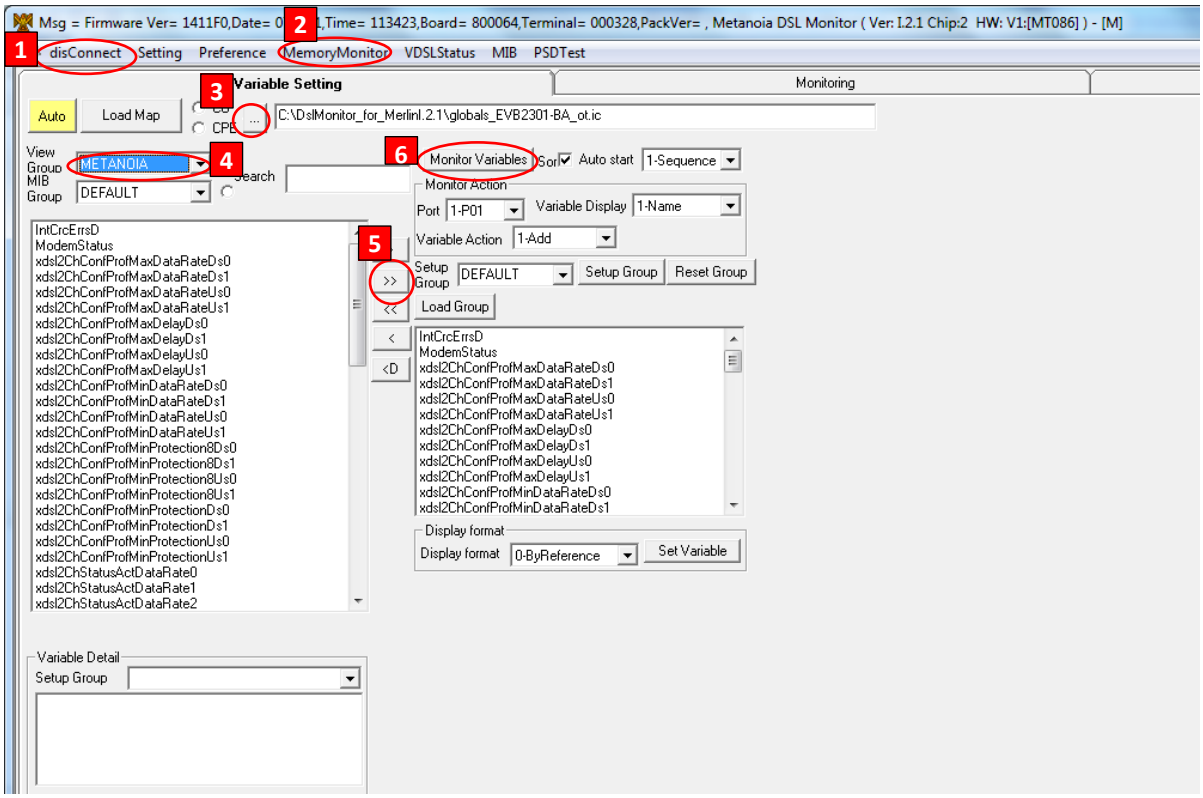


Figure 5 Dsl Monitor Setting Process

C. Real-time monitoring of the variables selected in B.

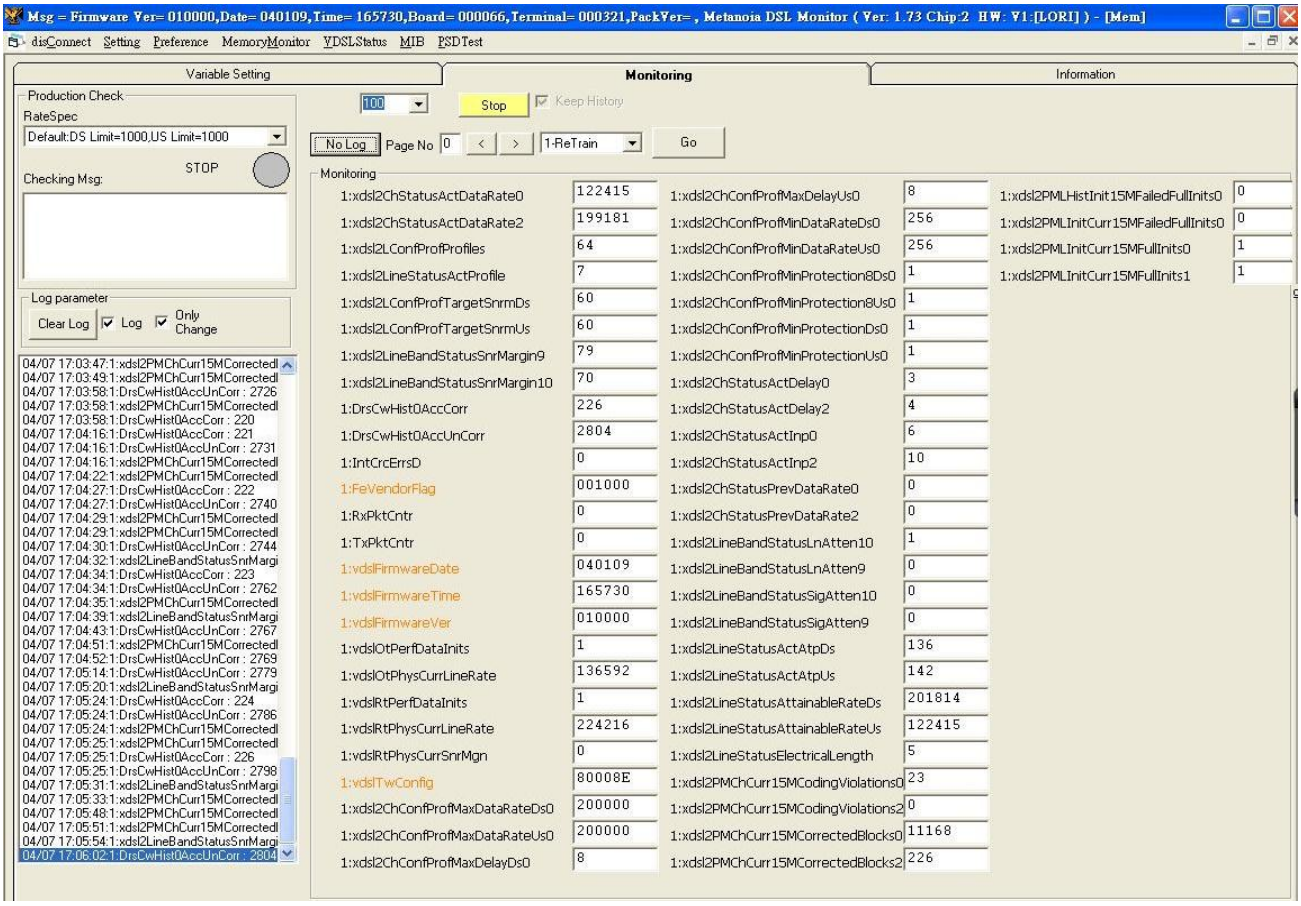


Figure 6 DSL Monitor

D. MIB variables

Most of the variables found in DSLmonitor is defined by the VDSL2 MIB standard, please take reference to the website or the provided doc file (Definitions of Managed Objects for VDSL.doc).

- http://tools.ietf.org/html/rfc5650

Here is an example of a MIB parameter:

- ✓ Upstream: xdsl2ChStatusActDataRate0
- ✓ Downstream: xdsl2ChStatusActDataRate2
- ✓

TYPE	Unsigned32
UNIT	KBits/second
MAX-ACCESS	Read-only
STATUS	Current
DESCRIPTION	The actual net data rate that the bearer channel is operating at, if in L0 power management state. In L1 or L2 states, it relates to the previous L0 state. The data rate is coded in bit/s
REFERENCE	ITU-T G.997.1, paragraph #7.5.2.1(Actual data rate)
DEFVAL	{ 0 }::= { xdsl2ChannelStatusEntry 2 }

E. Discrete monitoring of MIB group variables

1. Please click the "*MIB*" in the top menu
2. Choose the "*ChannelStatusT*" MIB group tab
3. Monitor the MIP parameter value in the *ChannelStatusT* MIB group at a certain time index.

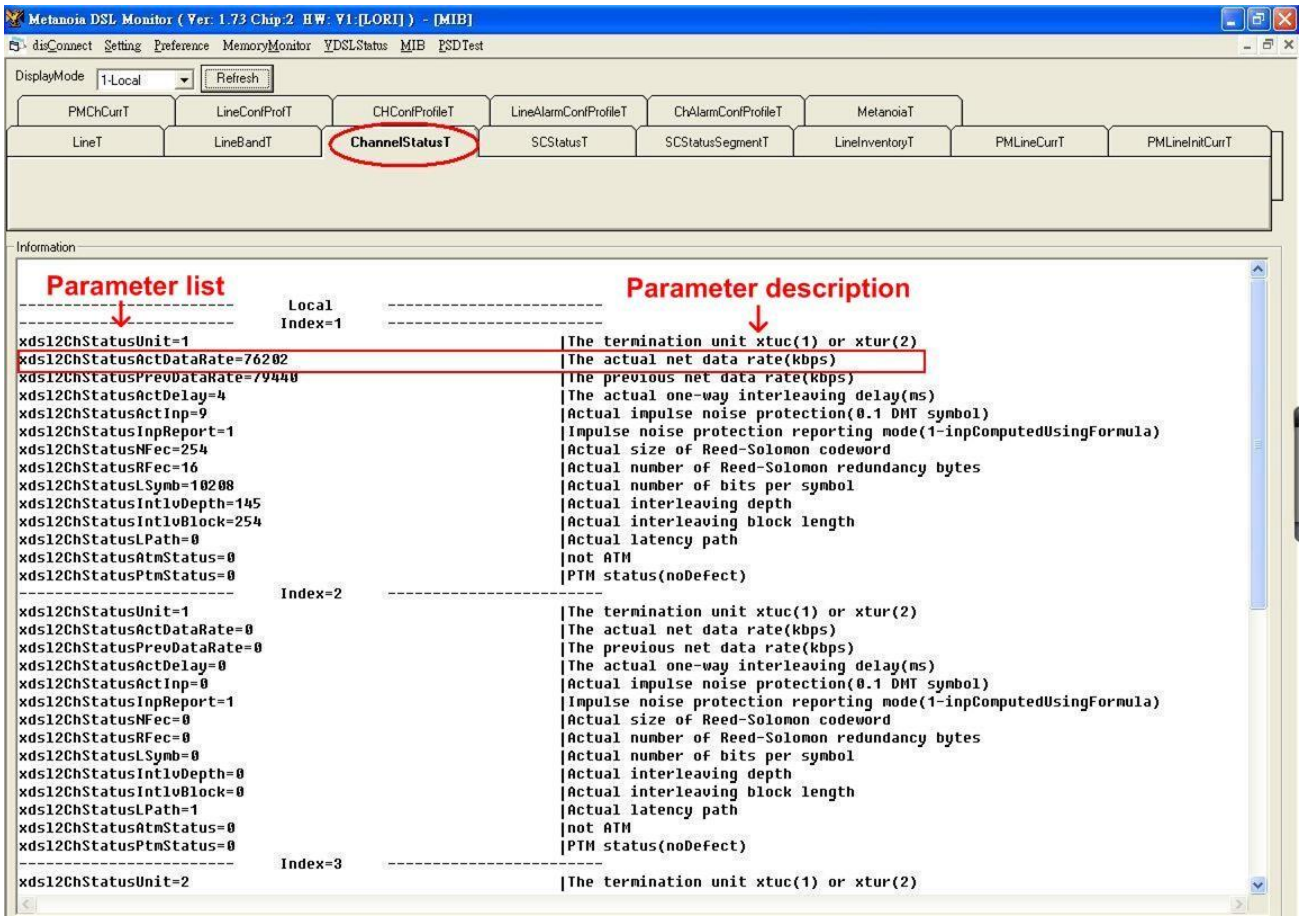


Figure 7 MIB

*The parameter information in the above table can be found on the MIB website or in the provided file MIB.txt.

- http://tools.ietf.org/html/rfc5650

Important parameters

In table 1 below the most commonly monitored parameters are displayed together with their MIB group and MIB name. The MIB names and grouping are originating from the working document (*Definitions of Managed Objects for Very High Speed Digital Subscriber*) by the Internet Engineering Task Force (IETF). In addition to IETF's parameters Metanoia has added a few parameters found in the Metanoia MIB group. In the document by IETF the parameters are described in more detail and also more parameters are described.

The MIB parameters are selected by the same method as in section 4.1.B for monitoring but with exception instead of *View group* the *MIB group* with the right name should be selected, as described in picture 9. The MIB parameters included in the selected MIB group are displayed in the left window and selected the desire MIB parameter and press > the parameter is added to the list of monitored variables showed in the middle of picture 9.

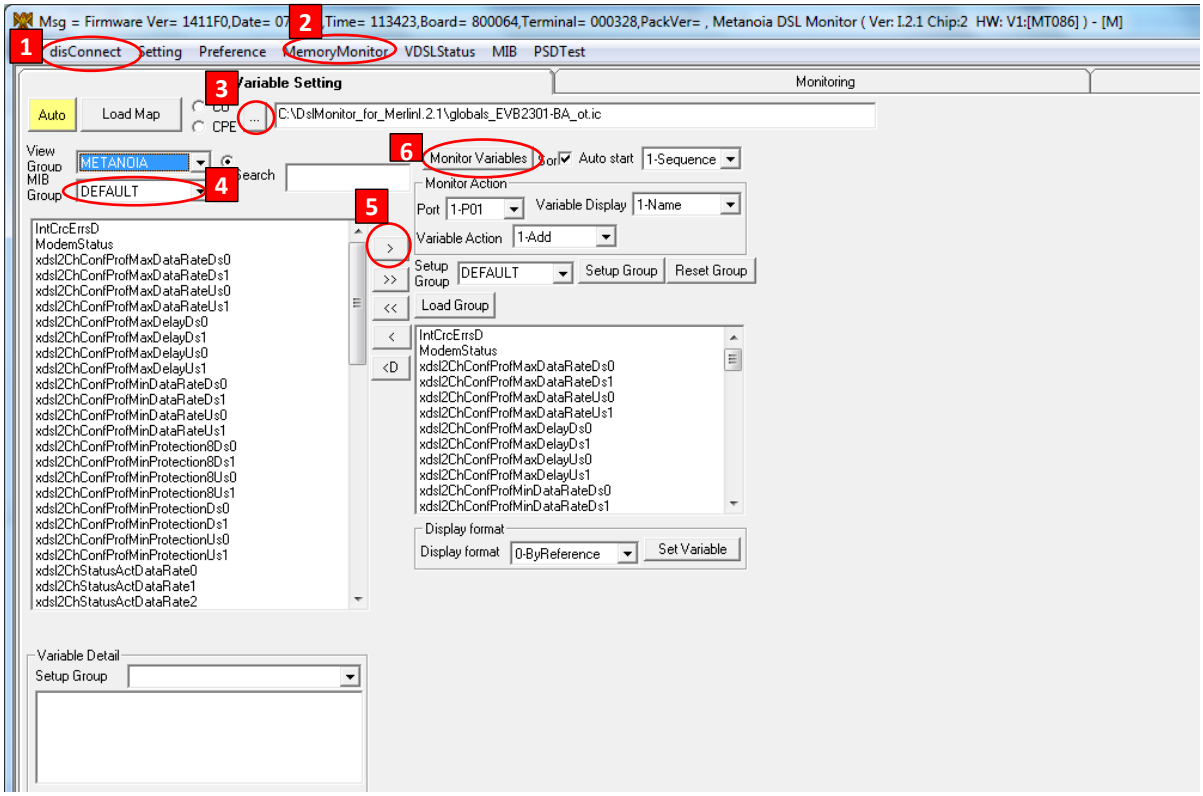


Figure 9 Choosing MIB parameters

Parameter	MIB group	MIB name	Unit	Coding
Actual data rate US	Xdsl2Channel StatusEntry	xdsl2ChStatusActDataRate0	kbps	Usign32
Actual data rate DS	Xdsl2Channel StatusEntry	xdsl2ChStatusActDataRate2	kbps	Usign32
Max attainable data rate US	xdsl2LineGroup	xdsl2LineStatusAttainableRateUs	kbps	Usign32
Max attainable data rate DS	xdsl2LineGroup	xdsl2LineStatusAttainableRateDs	kbps	Usign32
Data rate before last data rate change on US	xdsl2ChannelStatusGroup	xdsl2ChStatusPrevDataRate0	kbps	Usign32
Data rate before last data rate change on DS	xdsl2ChannelStatusGroup	xdsl2ChStatusPrevDataRate2	kbps	Usign32
Target SNR margin DS	Xdsl2LineConfProfEntry	xdsl2LConfProfTargetSnrmDs	0.1dB	Usign32
Target SNR margin US	Xdsl2LineConfProfEntry	xdsl2LConfProfTargetSnrmUs	0.1dB	Usign32
Current SNR US0-4	Xdsl2LineBandEntry	xdsl2LineBandStatusSnrMargin0-4	0.1dB	Int32
Current SNR DS1-4	Xdsl2LineBandEntry	xdsl2LineBandStatusSnrMargin5-8	0.1dB	Int32
Current SNR US	Xdsl2LineBandEntry	xdsl2LineBandStatusSnrMargin9	0.1dB	Int32
Current SNR DS	Xdsl2LineBandEntry	xdsl2LineBandStatusSnrMargin10	0.1dB	Int32
Signal Attenuation	Xdsl2LineBandEntry	xdsl2LineBandStatusSigAtten	0.1dB	Usign32
Line Attenuation	Xdsl2LineBandEntry	xdsl2LineBandStatusLnAtten	0.1dB	Usign32
Actual INP US	Xdsl2Channel StatusEntry	xdsl2ChStatusActInp0	0.1 symbols	Usign32
Actual INP DS	Xdsl2Channel StatusEntry	xdsl2ChStatusActInp2	0.1 symbols	Usign32
Actual delay US	Xdsl2Channel StatusEntry	xdsl2ChStatusActDelay0	ms	Usign32
Actual delay DS	Xdsl2Channel StatusEntry	xdsl2ChStatusActDelay2	ms	Usign32
CRC error counter US	Metanoia	xdslMetanoiaOtCodingViolations0		Usign32
CRC error counter DS	Metanoia	xdslMetanoiaRtCodingViolations0		Usign32
FEC corrected blocks US	Metanoia	xdslMetanoiaOtCorrectedBlocks0		Usign32
FEC corrected blocks DS	Metanoia	xdslMetanoiaRtCorrectedBlocks0		Usign32

Table 1: Important (MIB) parameters.

5 EVB2301-BA commands

5.1 System console:

Connect a serial port to RS232 and set the baud rate to 38400 N81 and the password：**admin**

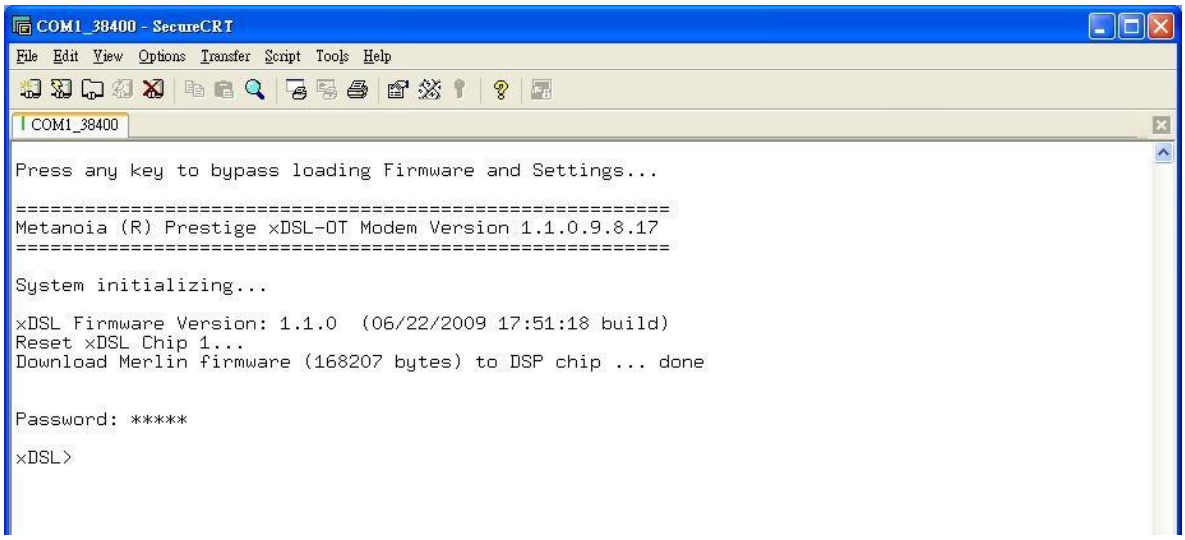


Figure 8 Log In Setting

5.2 Command Syntax*:* help or ?

Description*:* Display all of commands supported in this unit. A typical outcome is shown as below:

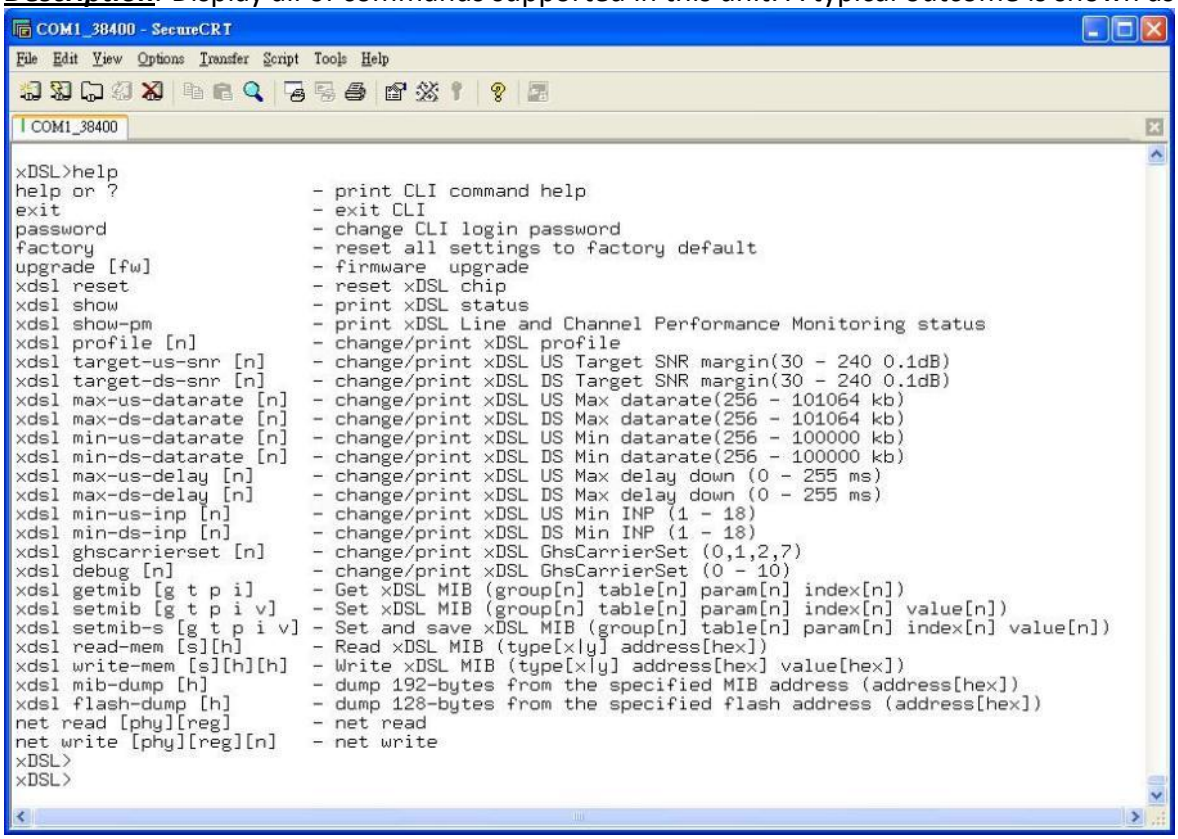


Figure 9 Command 1

5.3 Command Syntax*:* xdsl show

Description*:* this is very useful command used to check current xDSL interface status, including firmware version, status, upstream/downstream actual data rate, SNR, INP values, etc.

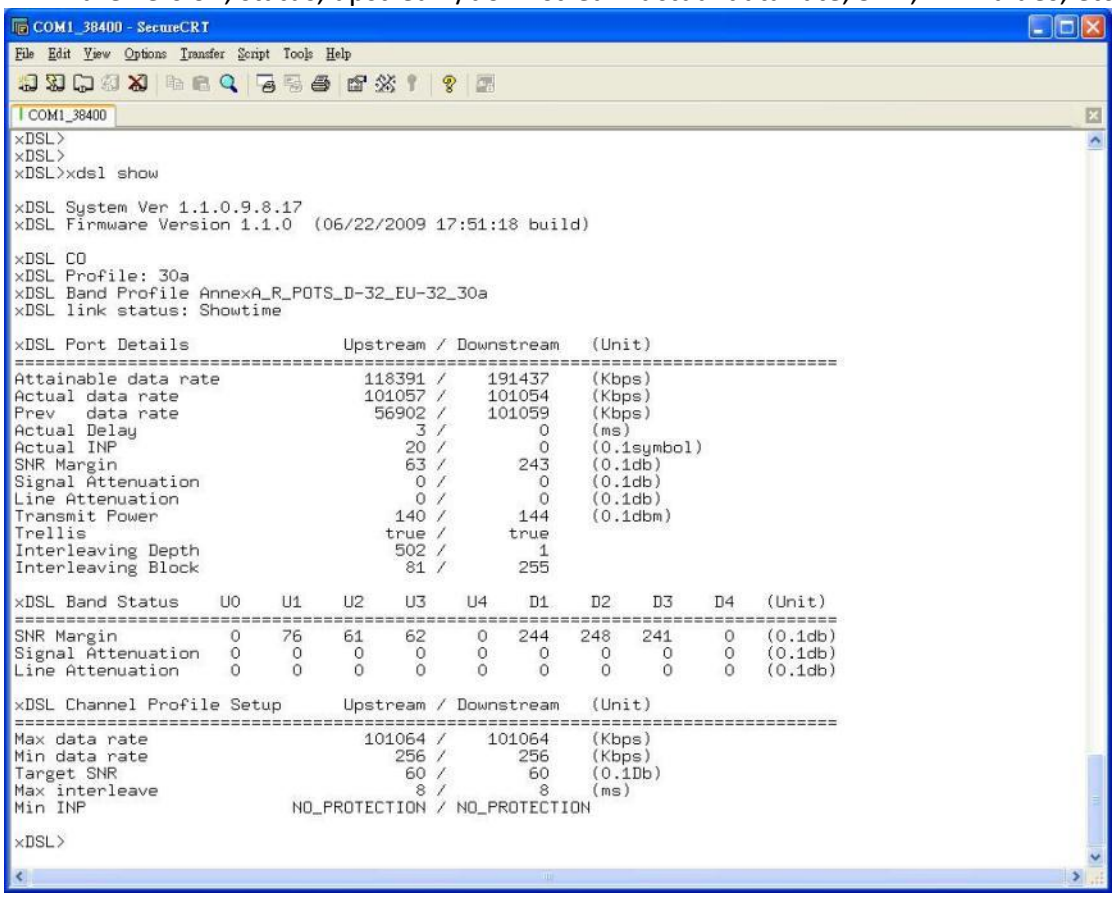


Figure 10 Command 2

5.4 Command Syntax*:* xdsl profile [n]

Description*:* this command is only valid when device is configured in COT mode. Without parameter [n], this command will display how many profiles supported in device and current selected profile. With [n] parameter, the device will switch its profile to selected one. For profile definition, please refer to ITU-T G.993.2 Recommendation or contact technical support. Please be noted, the different COT firmware might support different set of xDSL profiles.

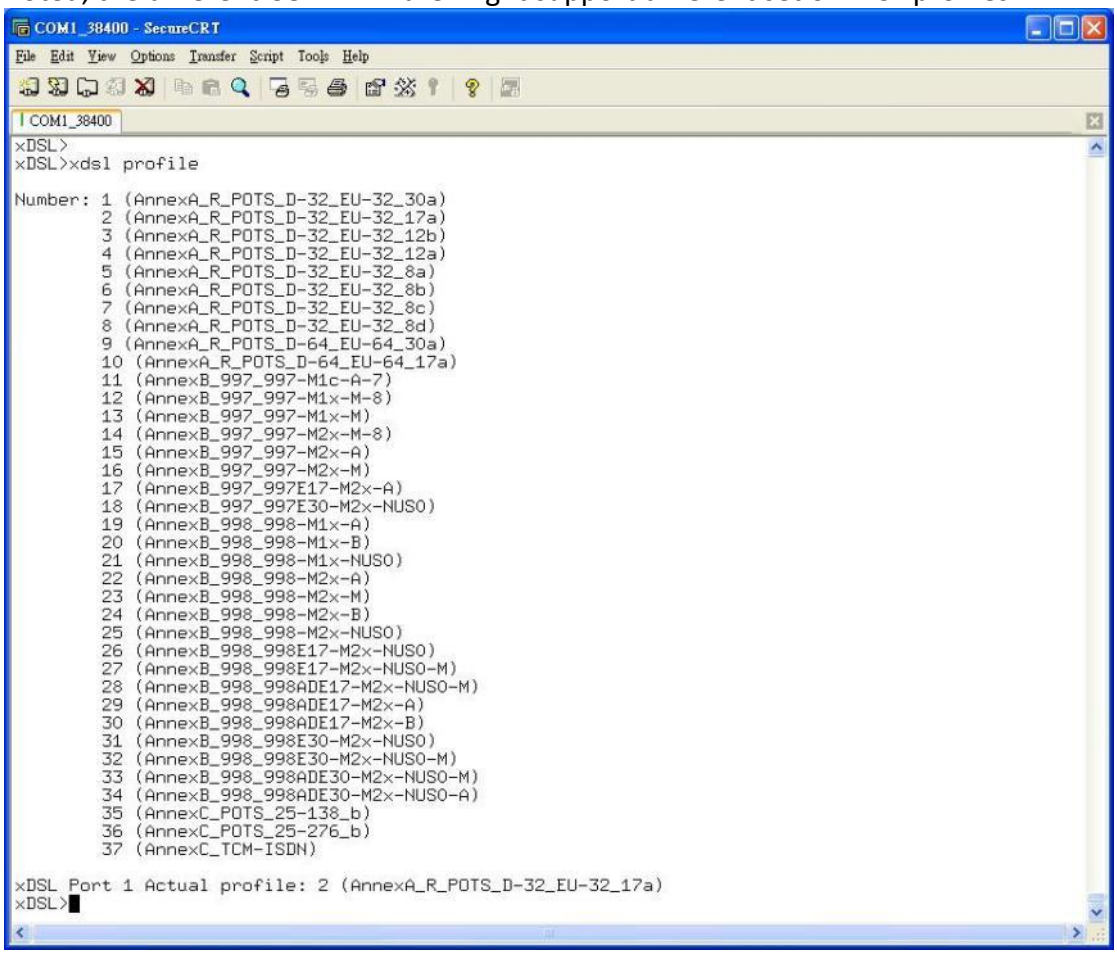


Figure 11 Command 3

5.5 Example

admin> xdsl profile 2

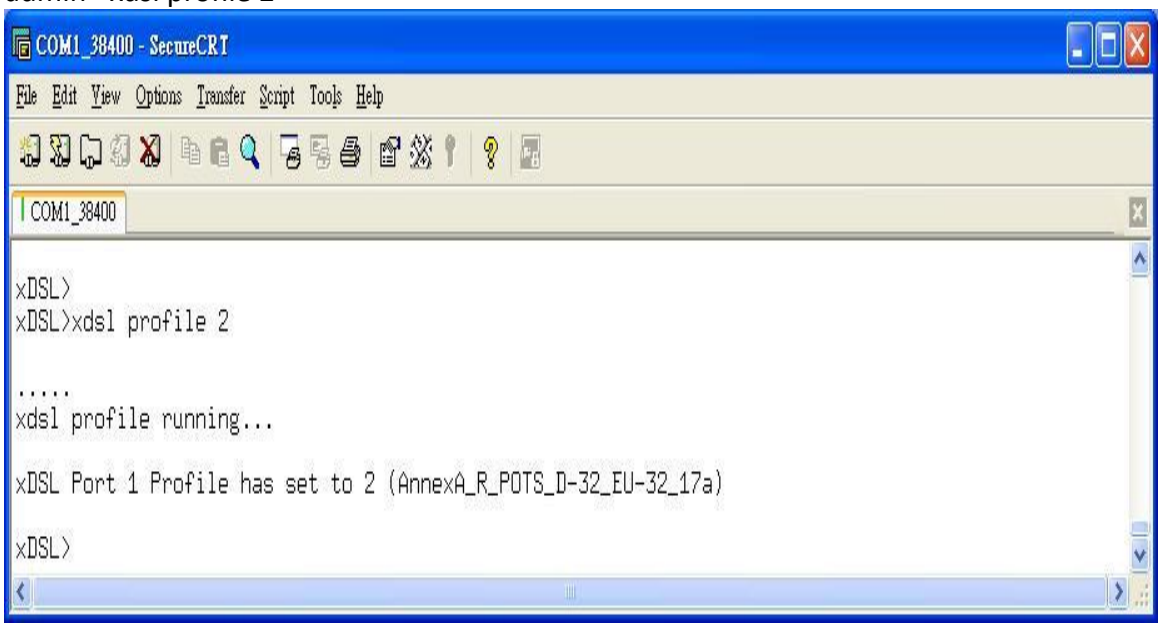
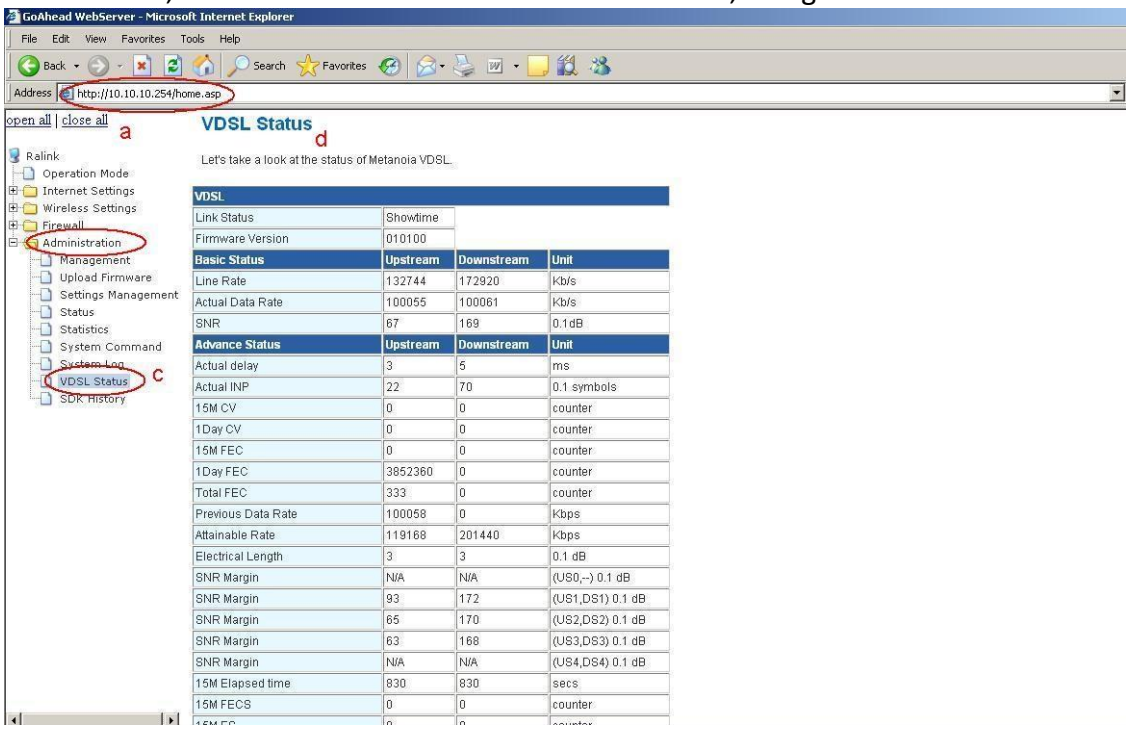


Figure 12 Command 4

6 EVB2301-W-RL Web Information

How to get the VDSL status?

1. Go to the website : http://10.10.10.254
2. Log in (account and code are both "**admin**")
3. Choose **VDSL Status** of Administration file
4. Then, take a look at the status of Metanoia VDSL, as Figure 19



VDSL			
Link Status	Showtime		
Firmware Version	010100		
Basic Status	**Upstream**	**Downstream**	**Unit**
Line Rate	132744	172920	Kb/s
Actual Data Rate	100055	100061	Kb/s
SNR	67	169	0.1dB
Advance Status	**Upstream**	**Downstream**	**Unit**
Actual delay	3	5	ms
Actual INP	22	70	0.1 symbols
15M CV	0	0	counter
1Day CV	0	0	counter
15M FEC	0	0	counter
1Day FEC	3852360	0	counter
Total FEC	333	0	counter
Previous Data Rate	100058	0	Kbps
Attainable Rate	119168	201440	Kbps
Electrical Length	3	3	0.1 dB
SNR Margin	N/A	N/A	(US0,--) 0.1 dB
SNR Margin	93	172	(US1,DS1) 0.1 dB
SNR Margin	65	170	(US2,DS2) 0.1 dB
SNR Margin	63	168	(US3,DS3) 0.1 dB
SNR Margin	N/A	N/A	(US4,DS4) 0.1 dB
15M Elapsed time	830	830	secs
15M FECS	0	0	counter

Figure 13 EVB2301_W_RL VDSL Status

7 Using Firmware manager

When you need to upgrade modem code, you need this tool.

a. Make sure eyebox controller DIP setting is
   *X4:3,4,5 switch ON and1,2 switch OFF
b. Run the FirmwareManager.exe in the directory.
c. Follow the instruction of Figure 20 to flash firmware.
   1. Connect Eyebox to SPI flash.
   2. Select the location of firmware
   3. Download firmware to SPI flash
   4. Flash complete

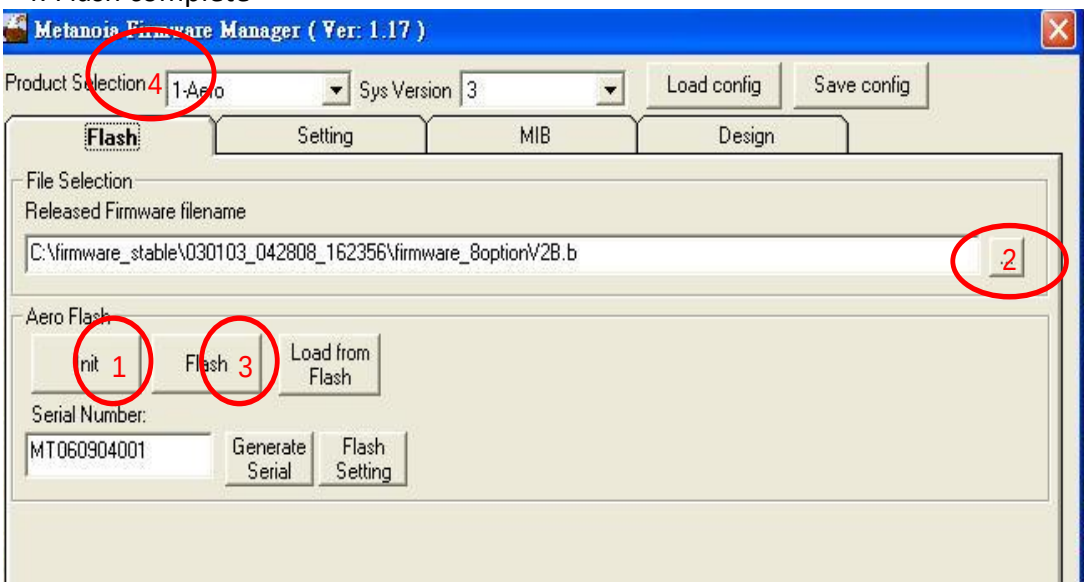


Figure 14 Firmware Manager Process

d. After about 1 minute, you will see “Flash complete” in the window caption.

*X4: the latest DIP version

7.1 EVB2301_W_RL Firmware upgrade

Upgrade the firmware on the website step by step

a. Go to the website : http://10.10.10.254
b. Log in (account and code are both "**admin**")
c. Choose **Upload Firmware** of Administration file
d. Find the file we provide, then click "**Apply**", as Figure 21

Figure 15 EVB2301_W_RL Firmware Upgrade

8 Remote Debug Support by VNC

I. When Complex problem or IOP problem that is not easy to describe.

II. Metanoia support team will use remote desktop (VNC) to help you.

- When to use:
- Requirement:
  - Internet access is required
  - Windows system
- Step by step:
  - Reference as the ***installation guide CD***
  - Path: PC\CD_ROM_Module\Remote Support
  - Use TeamViewerQS
  - Please provide your ID and password to us, as below.

Figure 16 TeamViewerQS Log In