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METANOIA

MANUAL FOR EVB2311-BL/E

2013

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MANUAL FOR EVB2311-BL/E

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Contents

List of Figures	7
List of Tables	8
1 Evaluation board kit EVB2311-BL/E	9
1.1 The kit	9
1.2 The Boards	9
1.2.1 The EVB2311-BL/Eboard	9
1.2.2 The Eyebox	9
1.3 The Eyebox	10
1.3.1 DIP switch settings on Eyebox	10
1.3.2 Installing Eyebox USB driver on your PC	10
1.4 Set up of EVB2311-BL/E	10
1.4.1 Set up	11
2 Parameter control and monitoring	12
2.1 DSLmonitor	12
2.1.1 Using DSLmonitor to monitor parameters	12
2.1.2 Important MIB parameters	15
3 Update Firmware	17
3.1 Set up	17
3.2 Using <i>FirmwareManager</i> to update firmware	17

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List of Figures

1.1	Explanation of the parts on the EVB2311-BL/E.	9
1.2	Explanation of the parts on the Eyebox board.	9
1.3	DIP switch settings to monitoring parameters.	10
1.4	DIP switch settings to update firmware.	10
1.5	How to connect the Eyebox to EVB2311-BL/E.	11
2.1	How to start monitoring parameters using <i>DSLmonitor</i>	13
2.2	The window where MIB parameters are monitored in real-time.	13
2.3	The window where MIB parameters are monitored discrete.	14
2.4	The window where the SNR margin of specific subcarriers can be monitored.	15
3.1	The steps to use <i>FirmwareManager</i> to load new firmware.	17

List of Tables

1.1	Eyebox DIP switch settings.	10
2.1	Definition of the <i>xdsl2ChStatusActDataRate</i> MIB parameter.	14
2.2	Important MIB parameters.	16

Chapter 1

Evaluation board kit EVB2311-BL/E

1.1 The kit

- 1 pcs EVB2311-BL/E board
- 1 pcs Eyebox
- 1 pcs USB type AB cable
- 1 pcs 5V power supply

1.2 The Boards

1.2.1 The EVB2311-BL/Eboard

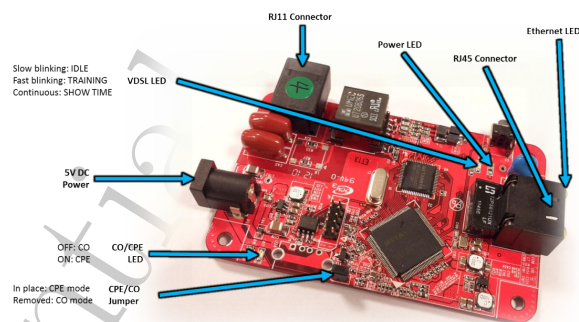


Figure 1.1: Explanation of the parts on the EVB2311-BL/E.

1.2.2 The Eyebox

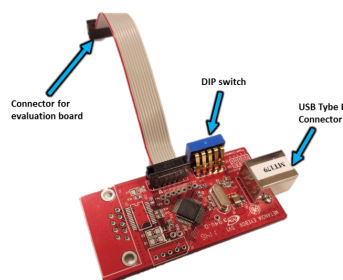


Figure 1.2: Explanation of the parts on the Eyebox board.

1.3 The Eyebbox

The Eyebbox is the tool that enables reading/writing of MIBs from Metanoia's chipsets, it is also used to update firmware.

1.3.1 DIP switch settings on Eyebbox

The Eyebbox can work in two modes, monitoring mode and update mode. In monitoring-mode the MIB parameters for the connection can be observed and in update mode new firmware can be loaded into the board memory. Dip switch settings for the two modes can be seen in table 1.1 and pictures 1.3 & 1.4.

Mode	DIP1	DIP2	DIP3	DIP4	DIP5
Monitoring	ON	ON	OFF	OFF	OFF
Update	OFF	OFF	ON	ON	ON

Table 1.1: Eyebbox DIP switch settings.

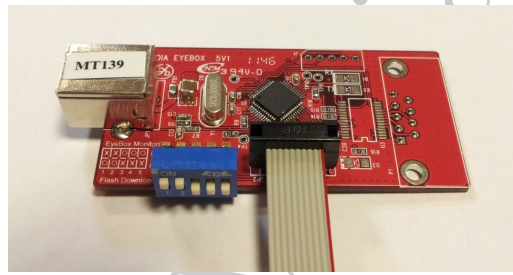


Figure 1.3: DIP switch settings to monitoring parameters.

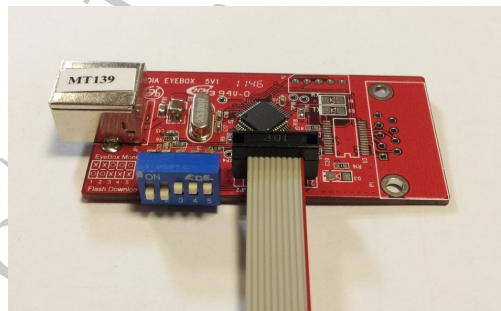


Figure 1.4: DIP switch settings to update firmware.

1.3.2 Installing Eyebbox USB driver on your PC

Please visit the USB chip vendor's homepage [HERE](#) and download the appropriate driver for your OS. When the Eyebbox is connected to the PC using USB and Windows cannot automatically find the correct driver the downloaded driver has to be manually selected.

1.4 Set up of EVB2311-BL/E

The most convenient way to monitor the connection parameters is to do it from the CO side, since the CPE sends MIB parameters to CO all parameters available at CPE side are also available at CO side. If the EVB2311-BL/E are evaluated in a pair or the connection information at CO side is not available the connection parameters can be monitored using the supplied Eyebbox, see procedures below.

1.4.1 Set up

1. Connect power supply (5V 1.2A) to the EVB2311-BL/Eboard.
2. Connect the RJ11 (a.k.a. phone line or twisted copper-pair) from the CO to the RJ11 connector on the EVB2311-BL/E.
3. Connect the RJ45 to the EVB2311-BL/E and the AP or PC.
4. Set the DIP switch on the Eyebox into monitoring mode.
5. Connect the Eyebox to the EVB2311-BL/E, the red line on the wire from the Eyebox should be matched with pin number 1. See Figure 1.5.
6. Connect the USB cable with the squared B type connector to the Eyebox and the A type connector to the PC.

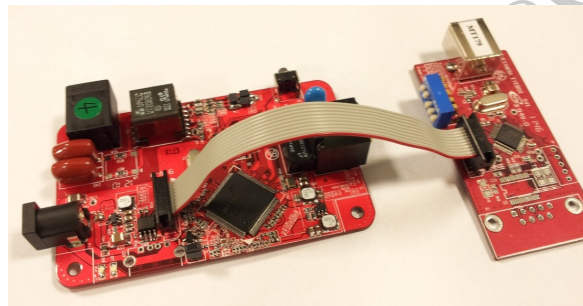


Figure 1.5: How to connect the Eyebox to EVB2311-BL/E.

Chapter 2

Parameter control and monitoring

2.1 DSLmonitor

DSLmonitor is the software provided together with evaluation boards from Metanoia, it enables the user to monitor and set xDSL parameters of the connection. The folder containing the *DSLmonitor* software should be located directly under C: in order for the program to run properly.

2.1.1 Using DSLmonitor to monitor parameters

For monitoring the status of the DSL connection on Metanoia's evaluation boards Metanoia provide the software *DSLmonitor*. *DSLmonitor* can be used to monitor all the important parameters of the connection.

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*.

Select the variables to monitor

Follow the steps below to select the variables to monitor; the steps are also illustrated in Figure 2.1.

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:
 - (a) Choose the *.ic file with name that matches your board's name.
 - (b) 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.
 - (c) The absolute (complete) file path must be given for the *.ic file.
 - (d) 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 left 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, the window will now look like in figure 2.2.

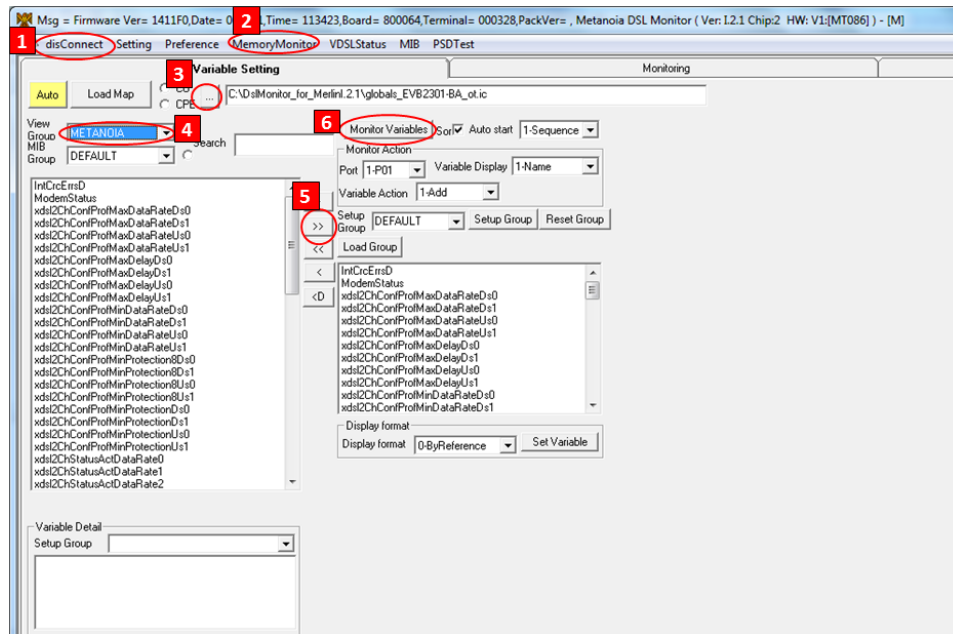


Figure 2.1: How to start monitoring parameters using *DSLmonitor*.

Real-time monitoring of the selected variables

The variable selected in previous steps will now be possible to monitor through the *Monitoring* window, like in figure 2.2.

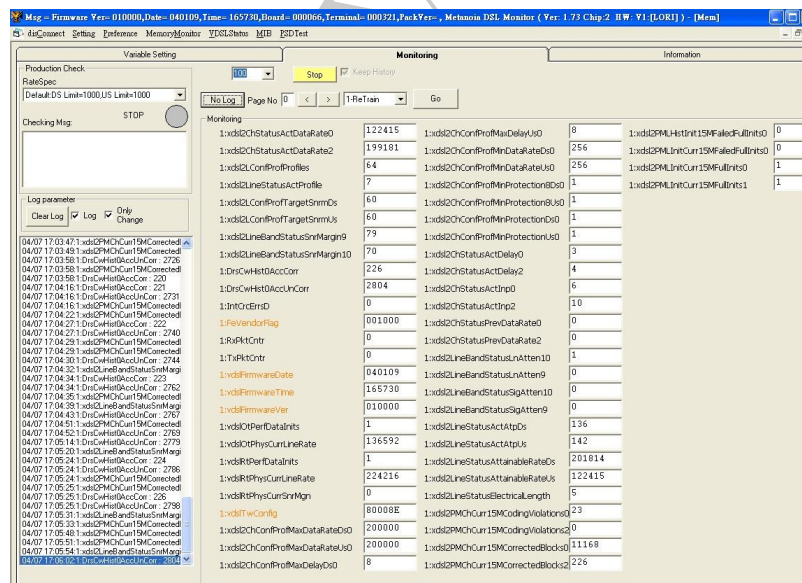


Figure 2.2: The window where MIB parameters are monitored in real-time.

MIB variables

Most of the variables found in DSLmonitor are defined by the VDSL2 MIB standard, please reference to the official website [HERE](#) or the provided text file (MIB.txt), make sure to open MIP.txt in WordPAD (or other editor that can make proper line breaks).

Here is an example of two MIB parameters with the same definition, definition in table 2.1:

- xdsl2ChStatusActDataRate0 (upstream)
- xdsl2ChStatusActDataRate2 (downstream)

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)
DEFAULT VALUE	{ 0 } ::= { xdsl2ChannelStatusEntry 2 }

Table 2.1: Definition of the *xdsl2ChStatusActDataRate* MIB parameter.

Discrete monitoring of MIB group variables

The MIB parameters previously chosen can also be discretely monitored, to so follow these simple steps:

1. Please click the “MIB” in the top menu, and the window should look as in figure 2.3.
2. Choose the “ChannelStatusT” MIB group tab.
3. Monitor the MIB parameter value in the ChannelStatusT MIB group at a certain time index.

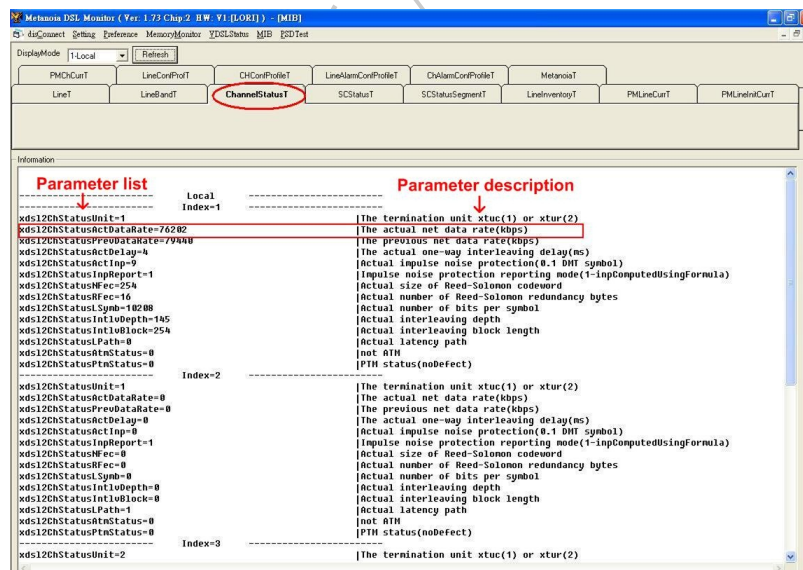


Figure 2.3: The window where MIB parameters are monitored discrete.

Per group current SNR margin setting

1. Please click “MIB” in the menu (reference as in figure 2.4)
2. Choose “SCStatusSegmentT” table
3. Choose the item “5-*xdsl2SCStatusSegmentSnr*” of Plot, and click “GO”.
4. The result will then look as in figure 2.4.

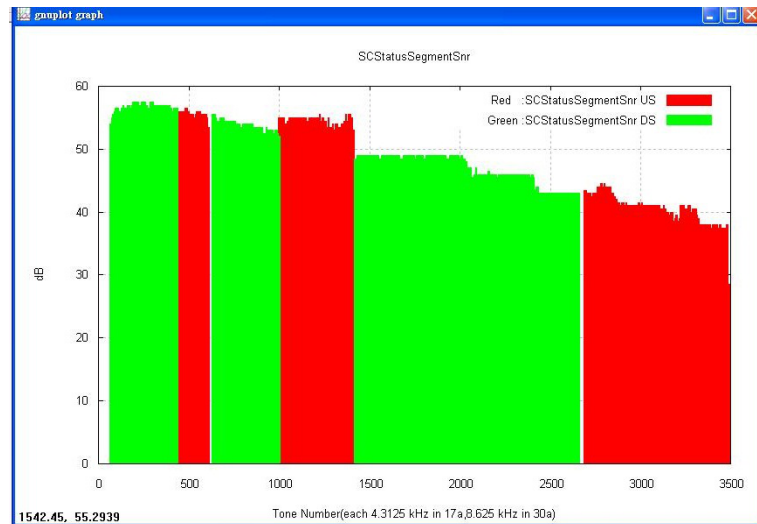


Figure 2.4: The window where the SNR margin of specific subcarriers can be monitored.

2.1.2 Important MIB parameters

In table 2.2 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 2.1.1 for monitoring but with exception instead of View group the MIB group with the right name should be selected, as described in picture 2.1. The MIB parameters included in the selected MIB group are displayed in the left window and selected the desired MIB parameter and press > the parameter is added to the list of monitored variables showed in the middle of picture 2.1.

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	xdsl2Channel-StatusGroup	xdsl2ChStatusPrevDataRate0	kbps	Usign32
Data rate before last data rate change on DS	xdsl2Channel-StatusGroup	xdsl2ChStatusPrevDataRate2	kbps	Usign32
Target SNR margin DS	Xdsl2LineConf-ProfEntry	xdsl2LConfProfTargetSnrmDs	0.1dB	Usign32
Target SNR margin US	Xdsl2LineConf-ProfEntry	xdsl2LConfProfTargetSnrmUs	0.1dB	Usign32
Current SNR US0-4	Xdsl2LineBand-Entry	xdsl2LineBandStatusSnrMargin0-4	0.1dB	Int32
Current SNR DS1-4	Xdsl2LineBand-Entry	xdsl2LineBandStatusSnrMargin5-8	0.1dB	Int32
Current SNR US	Xdsl2LineBand-Entry	xdsl2LineBandStatusSnrMargin9	0.1dB	Int32

Parameter	MIB group	MIB name	Unit	Coding
Current SNR DS	Xdsl2LineBand-Entry	xdsl2LineBandStatusSnrMargin10	0.1dB	Int32
Signal Attenuation	Xdsl2LineBand-Entry	xdsl2LineBandStatusSigAtten	0.1dB	Usign32
Line Attenuation	Xdsl2LineBand-Entry	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 2.2: Important MIB parameters.

Chapter 3

Update Firmware

3.1 Set up

1. Connect power supply (5V 1.2A) to the EVB2311-BL/Eboard.
2. Set the DIP switch on the Eyebox into update mode, as in figure 1.4.
3. Connect the Eyebox to the EVB2311-BL/E, the red line on the wire from the Eyebox should be matched with pin number 1. See figure 1.5.
4. Connect the USB cable with the squared B type connector to the Eyebox and the A type connector to the PC.

3.2 Using *FirmwareManager* to update firmware

To load new the, by Metanoia provided, software *FirmwareManager* is required. Here are the steps to load new firmware described below and in figure 3.1

1. Start *FirmwareManager*.
2. Select the correct firmware version in the *File Section*.
3. Click the *Init* button.
4. When the *Init* button change to *UnInit*, press *Flash*.
5. Wait for the flash procedure to finish.

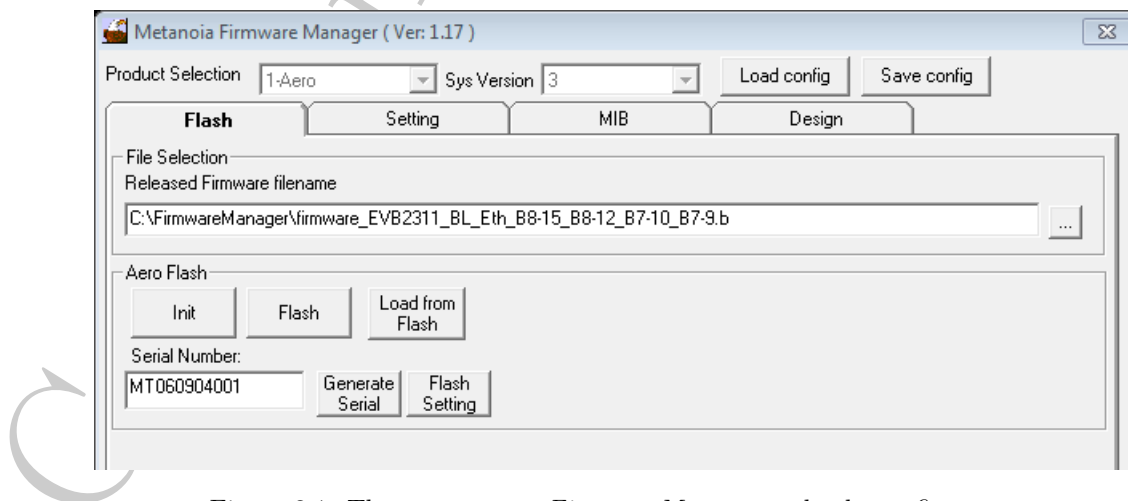


Figure 3.1: The steps to use *FirmwareManager* to load new firmware.