Product name:IEEE802.16e WiMAX CardBus
Model name:WC510
Brand name:QMI

Quanta WiMAX Connection Manager
User Guide

Version 1.01

Contents

Revision History

Version	Release Date	Description
1.00	07/04/2007	1st User Guide Release
1.01	08/02/2007	Update some pictutes

1. Introduction

The CardBus of WiMAX Connection Manager supports IEEE 802.16e-2005 state of the art Scalable OFDMA based Technology. It provides users a seamless broadband wireless access, video streaming at home, office or on the move. To protect information transmitting through wireless network, standard security Sublayer PKMv2 EAP based user authorization/authentication and AES for data encryption are supported.

Easy-to-use Windows XP-based utility provide the graphic user interface is for system/link status, configuration and firmware upgrade.

The following chapters we will show you how to install from hardware to software step by step

- Hardware Installation
- NDIS Driver Installation and Old driver un-installation (for previous version)
- Windows Utility Installation
    - .Net Framework 2.0
    - WinPcap Library
    - Quanta Wimax Connection Manager

2. Hardware installation

1. Locate the available CardBus card slot on your Laptop.
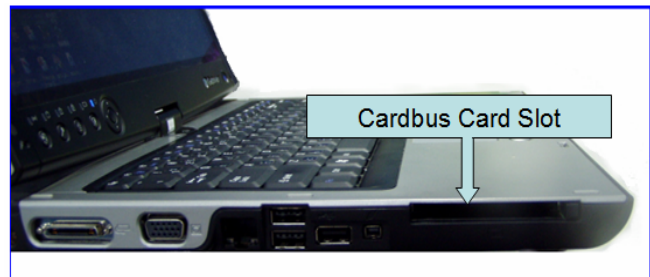
2. Then insert the CardBus Subscriber into the CardBus card slot.

3. Remove method: To remove the CardBus Subscriber, Please press the Eject Button of the CardBus card slot. To make it stretch out. Then, push the Eject Button and the CardBus Subscriber will slide out slightly. And pull it out of the slot.
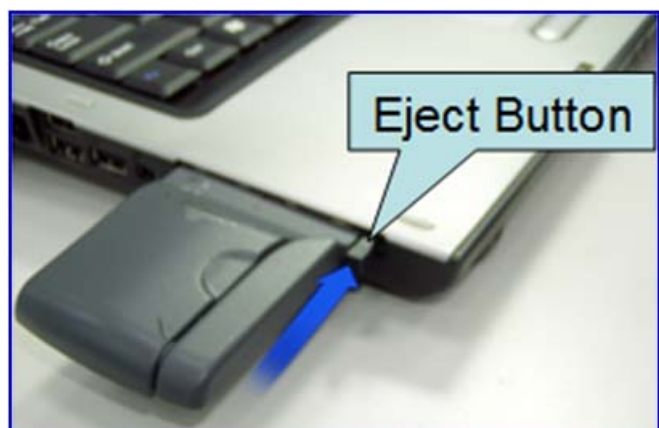
3. Driver installation and un-installation

3.1. Un-install the previous WiMAX NDIS Driver

1. You have to plug the WiMAX Connection Manager card into your laptop before unload the old WiMAX NDIS driver.

2. Right-click on "**My Computer**", in the Start menu, and choose "**Properties**"

3. On the "**Hardware**" tab, choose "**Device Manager**"

4. Expand the "**Network Adapters**"entry
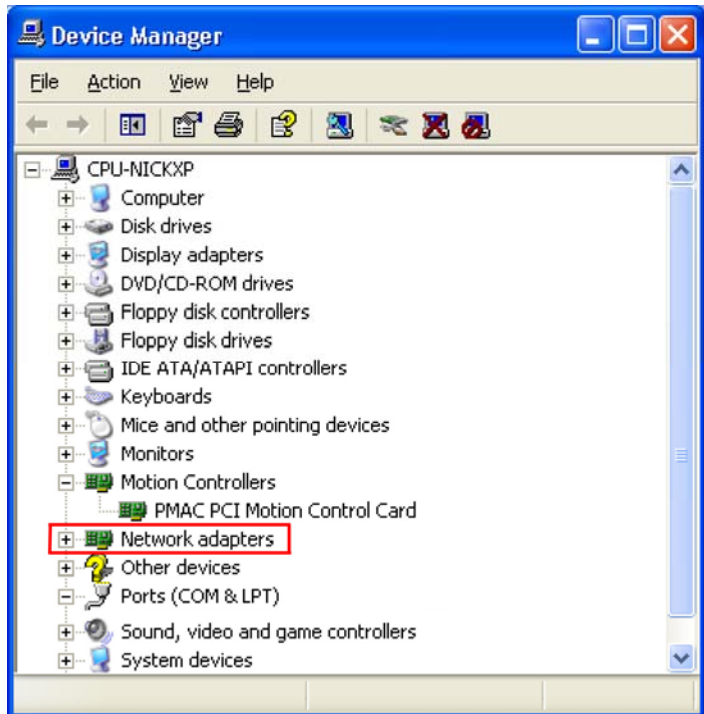
5. Right-click on "**BCM CARDBUS t3 Network device**"and select "**Uninstall**".

6. Choose "**OK**" to confirm the device removal.

7. The old WiMAX NDIS driver has been removed.
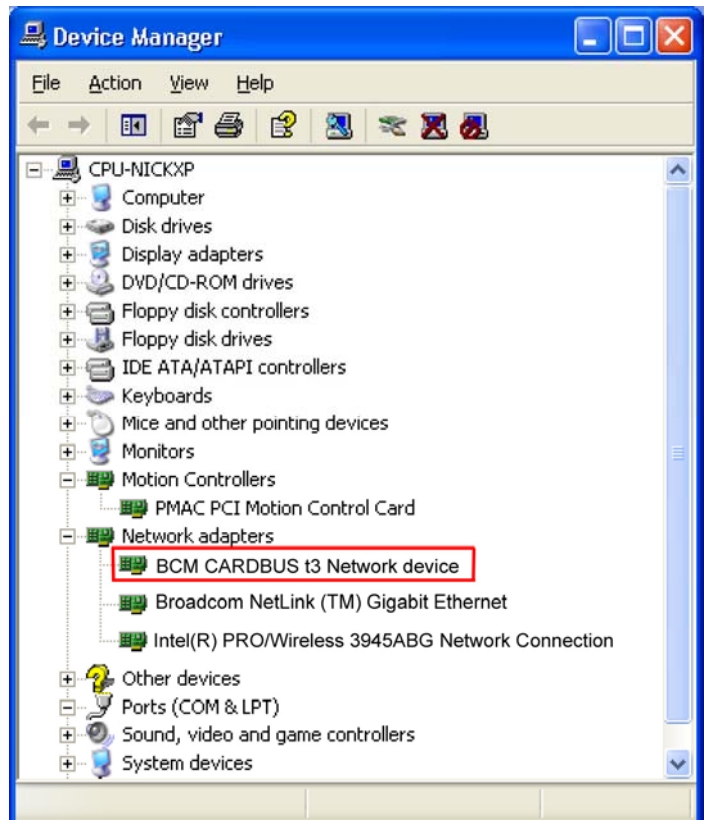
3.2. Install WiMAX NDIS Driver

1. Please, un-install your previous WiMAX NDIS driver before you install the new WiMAX NDIS driver (reference: Chapter 3.1).

2. Please, use WinRAR to decompress the **WiMAX_Driver.rar** to your C disk.

3. It will create a **WiMAX_Driver** folder in your C disk (C:\ WiMAX_Driver).
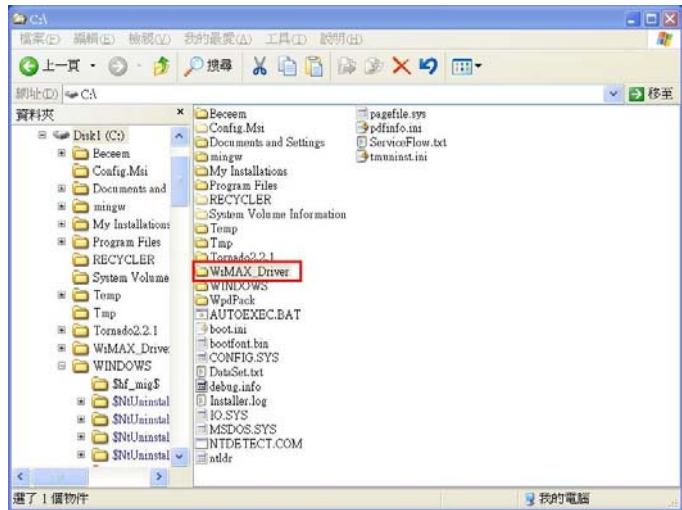
4. When first connect the CardBus Subscriber to your laptop, the operating system (Windows XP) will detect a new device and start the "Found New Hardware Wizard" automatically.

5. Please select the "No, not this time" option

6. Click the "Next >" button to continue the installation.

7. Please select the "Install from a list or specific location (Advanced)" option.

8. Click the "Next >" button to continue the installation.
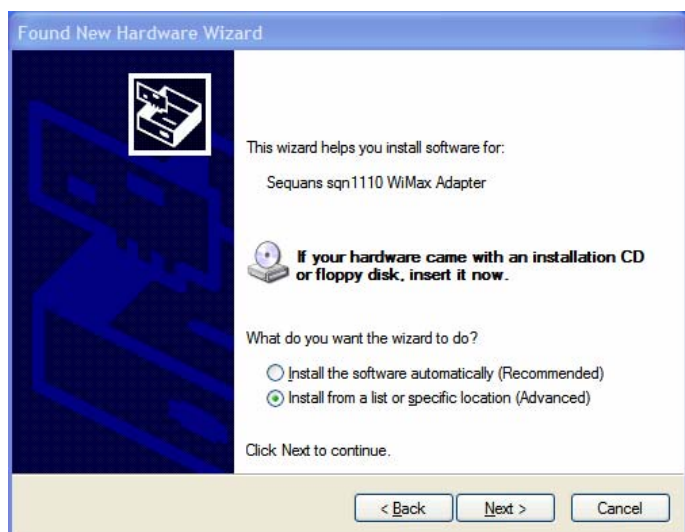
9. When prompt to choose your search and installation options, select "Don't search. I will choose the driver to install." option.

10. Click the "Next >" button to continue the installation.
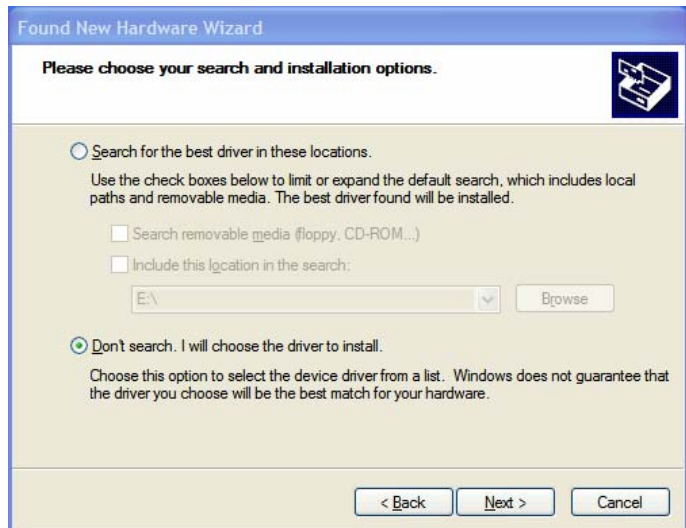
11. Please click the "Have Disk…" button to continue the installation.
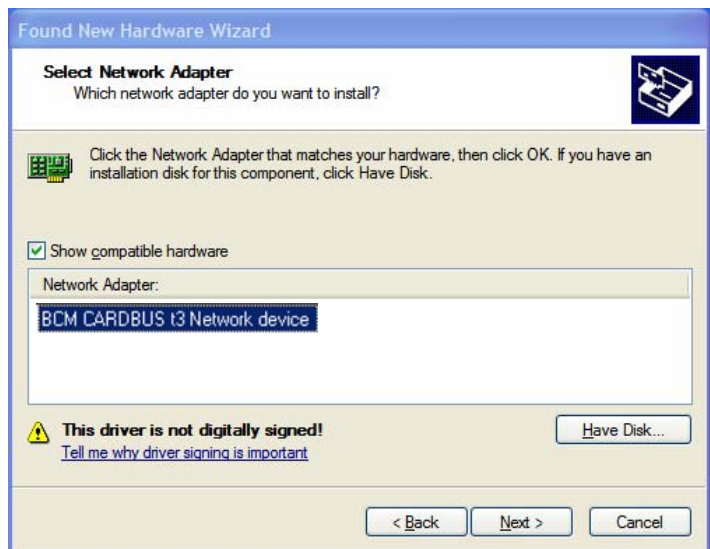
12. Select **C:\ WiMAX_Driver** from pull-down menu and click the 'OK' button to continue the installation
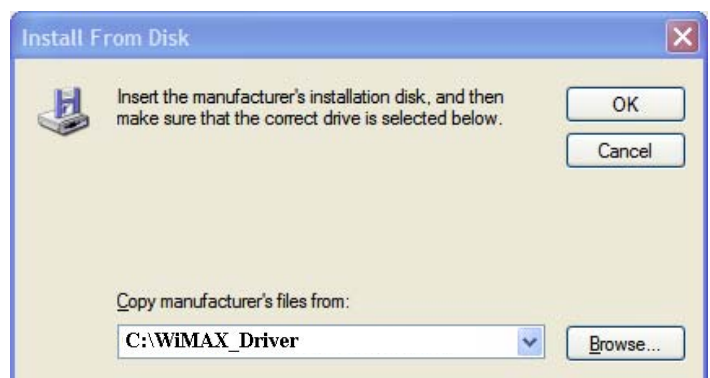
13. Windows XP has found the driver in this directory. Please click "Next >" button to install the driver.

14. Please click on "Continue Anyway" button.

15. Please click the "Finish" button to complete the installation.

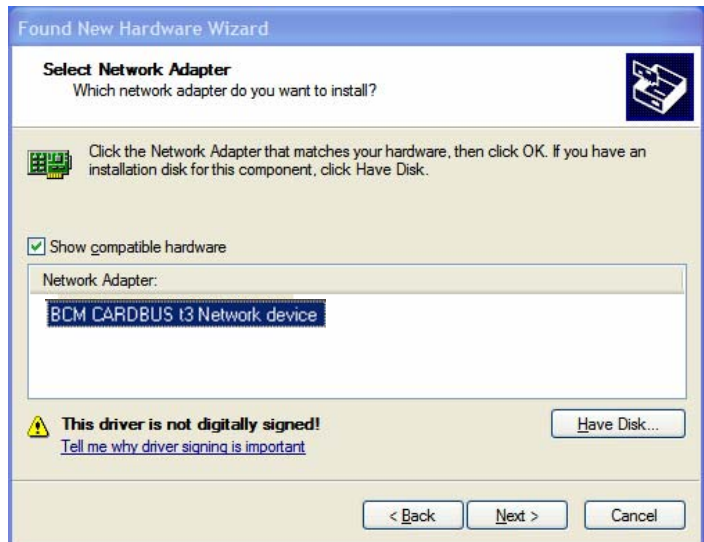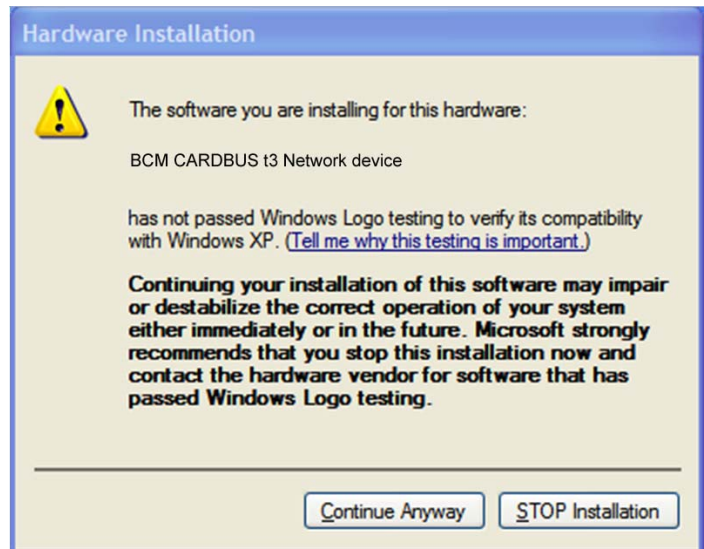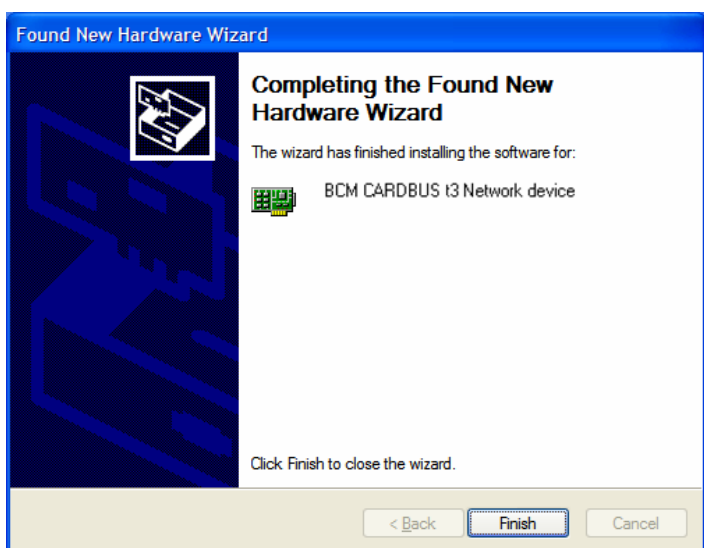# 4. WiMAX Utility installation

4.1. .NET Framwork 2.0

In order to run Quanta WiMAX Connection Manager (WCM), the .NET Framework Version 2.0 (or higher) must be installed. The .NET Framework 2.0 is already installed on many Windows XP computers. If you see a Windows error message that begins 'This application has failed to start because the application configuration is incorrect. …' as soon as you try running the WCM, it's very likely that you do not have the .NET 2.0 framework installed on your computer.

To obtain the Framework, go to the Microsoft Download Center (http://www.microsoft.com/downloads/), search for ".NET Framework Version 2.0 Redistributable Package (x86)", and follow the installation instructions given by Microsoft.

4.2. WinPcap Library installation

In order to run the Quanta WCM with EAP authentication, the WinPcap package must be installed on your computer. WinPcap is already installed on many Windows XP computers. If you see a Windows error message stating that the "**wpcap.dll**" file could not be found, you will need to install WinPCAP.

To obtain WinPCAP, go to http://www.winpcap.org/, click on "Get WinPcap" on the left frame, download the "**WinPcap auto-installer (driver + DLLs)**", and run this installer. **You do not need to install the WinDump package**.

1. Download " WinPcap_4_0.exe" from http://www.winpcap.org/.

2. Please execute "WinPcap_4_0.exe", and click the "<u>N</u>ext >" button.

3. Please click the "Next >" button.
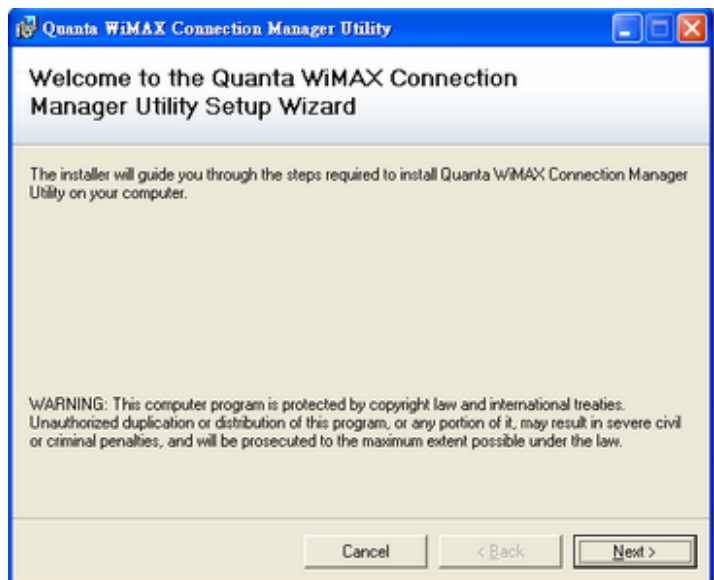
4. Please click the "I Agree" button.
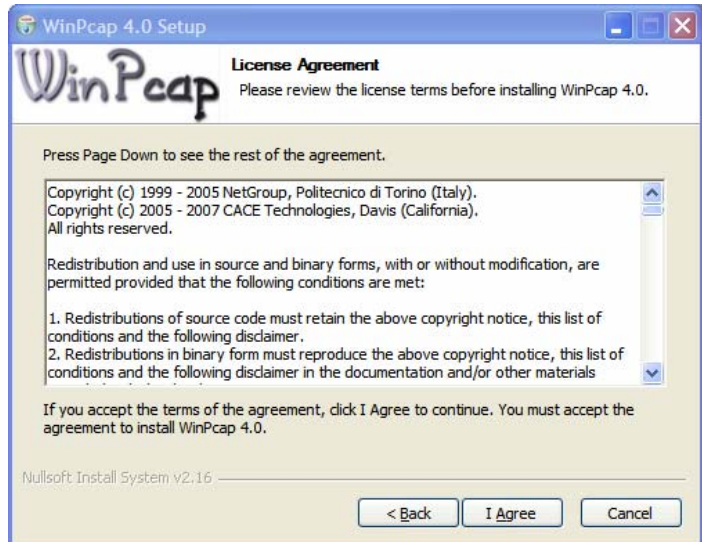
5. Please click the "Finish" button to complete the WinPcap library installation.

4.3. Quanta WiMAX Connection Manager installation

1. Please, use WinRAR to decompress the "QuantaWCM Installer.rar" to your laptop.

2. Then enter "QuantaWCM Installer/" folder and execute "setup.exe" to install Quanta WCM.

3. Please click "Next >" button.

4. If you want to install the utility to a different folder, you can click the "Browse…" button.

5. You can choose "Just me" or "Everyone" to change who can use the utility.

6. Please click the "Next >" button to keep going on.
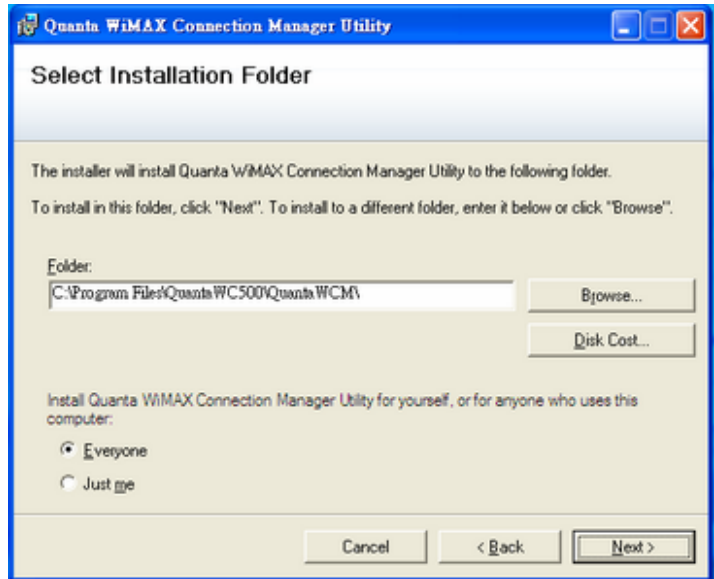
7. Please click the "Next >" button to install the utility.
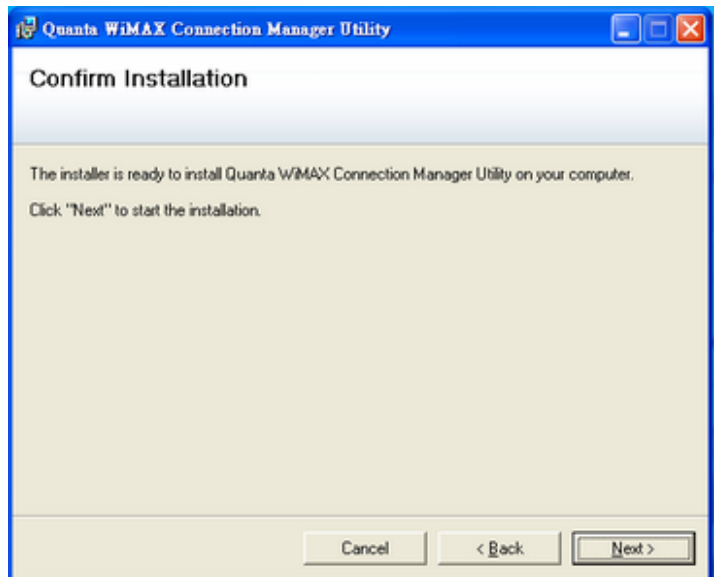
8. Please click the "Close" button to complete the installation.

9. You can start to use the utility, "Quanta WCM" to setup and configure the WiMAX subscriber (WCM).

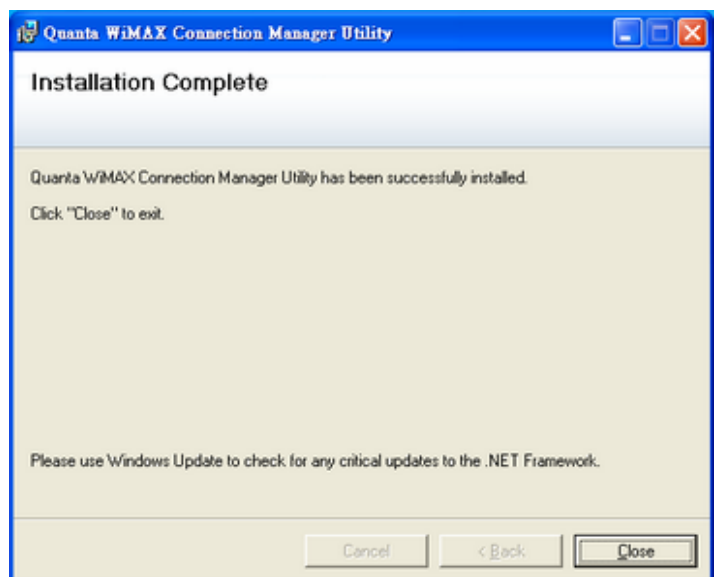After finished Quanta WCM installation, if Quanta WiMAX card was inserted and power on, you can double click the "QuantaWCM" icon to lunch the WCM . Before first running the WCM, it's necessary to configure firmware configuration file, such that it could make it effect on your system.

You can double click the "Quanta Configuration File Editor" icon to modify the related parameters, such as bandwidth, center frequency. Once you lunch the Quanta WCM, it will automatically connect to BS with strongest signal and provide you service. **Please, refer to chapter 6.2 to get detail information about the configuration file parameters**.

5. Configure the WiMAX Card by Quanta WiMAX Connection Manager

5.1. Use Quanta WiMAX Connection Manager to setup WiMAX connection without security configuration
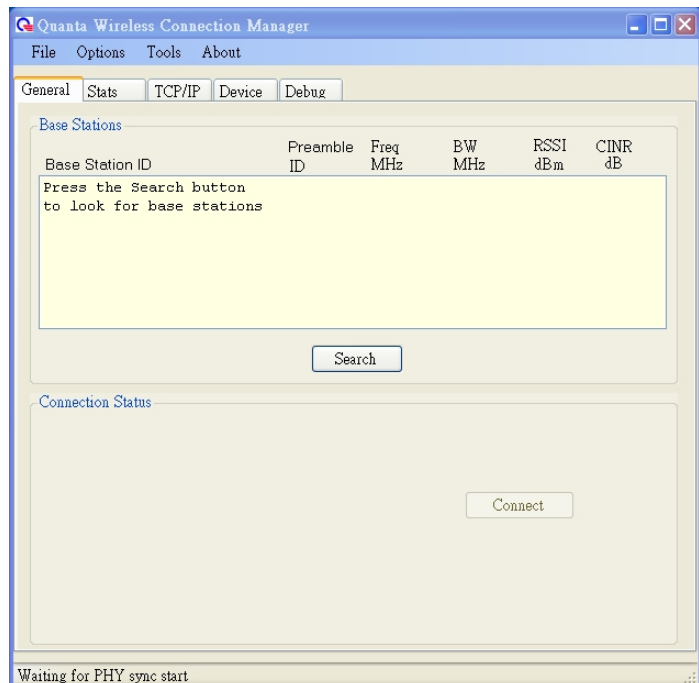
1. Please, double click the "QuantaWCM" icon to lunch the WCM.

2.   Please, click "Option" on the Menu to setup the WiMAX configuration.

3.   You can choose the "Enable MAC management message logging" option to active/de-active MAC message log to file.
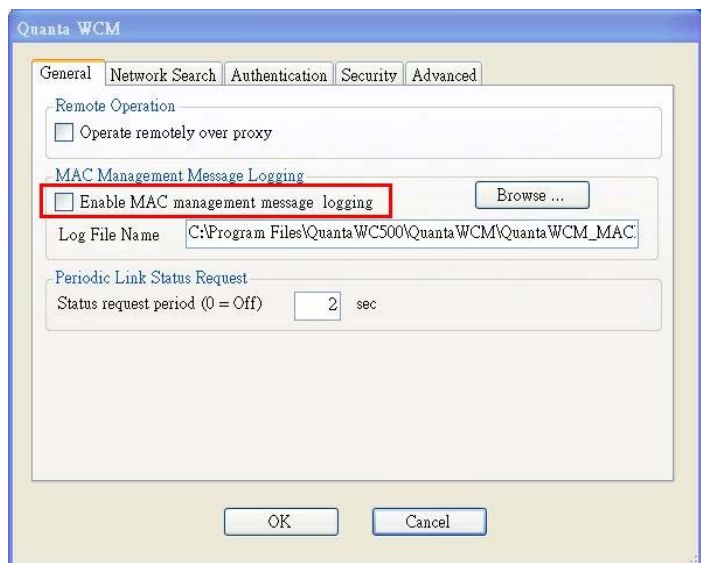
4. Please, click "Network Search" tab to setup WiMAX configuration (Frequency, Bandwidth, etc.)
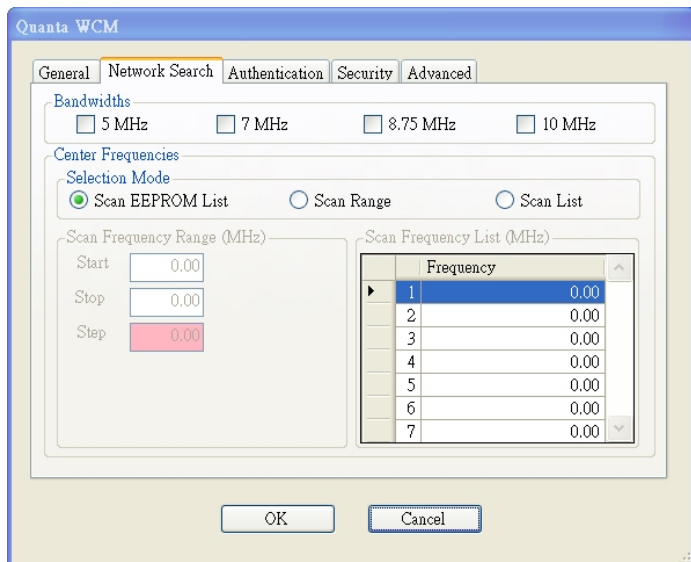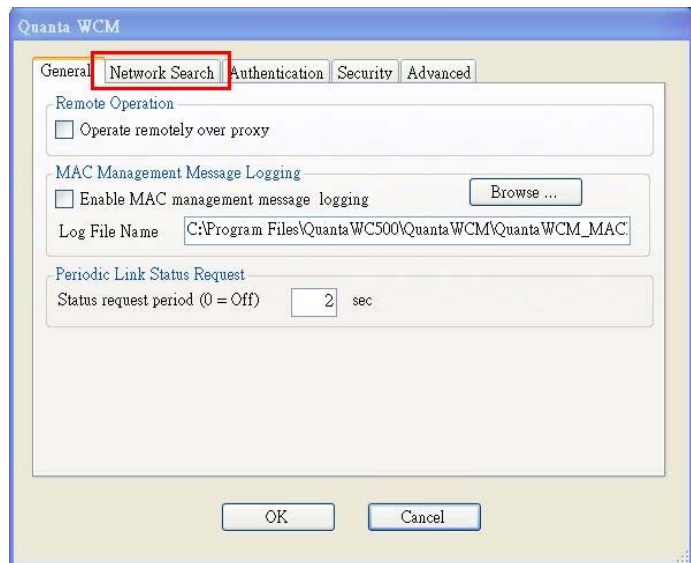
5. You can setup "Bandwidth", "Selection Mode", and "Center Frequencies".

6. Please, click the "OK" button to complete the networking setting.
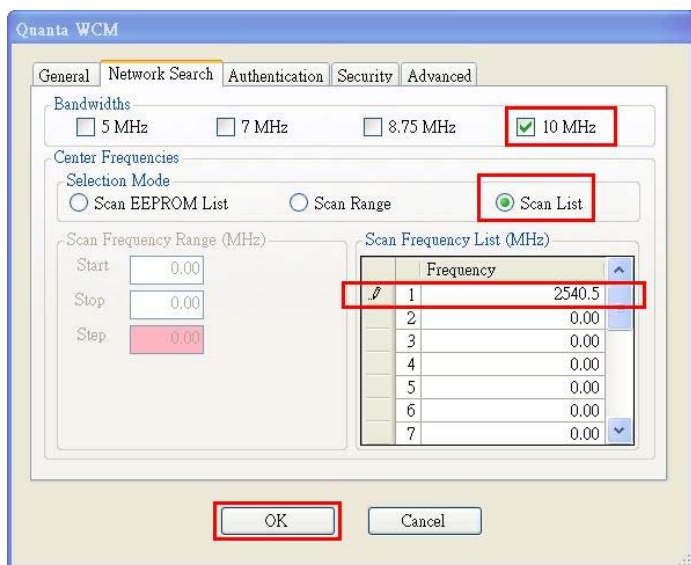
7. Click the "Authentication" tab.

8. Please, **don't click** the "Enable authentication" option. (**We disable the PKMv2-EAP feature**)
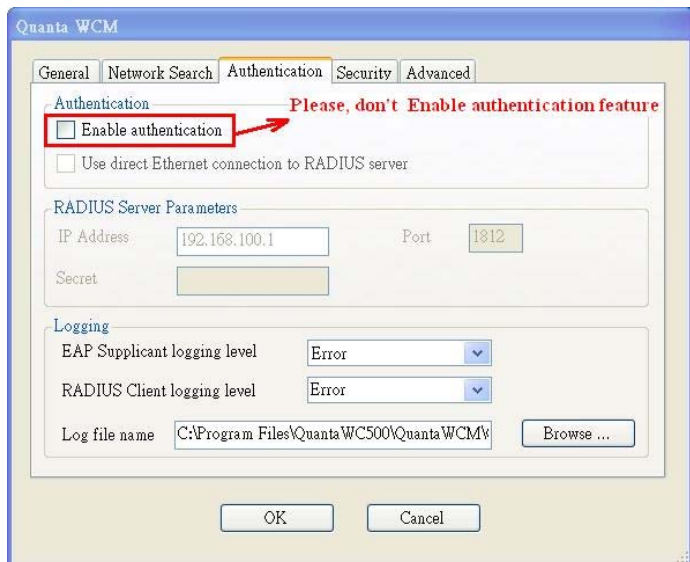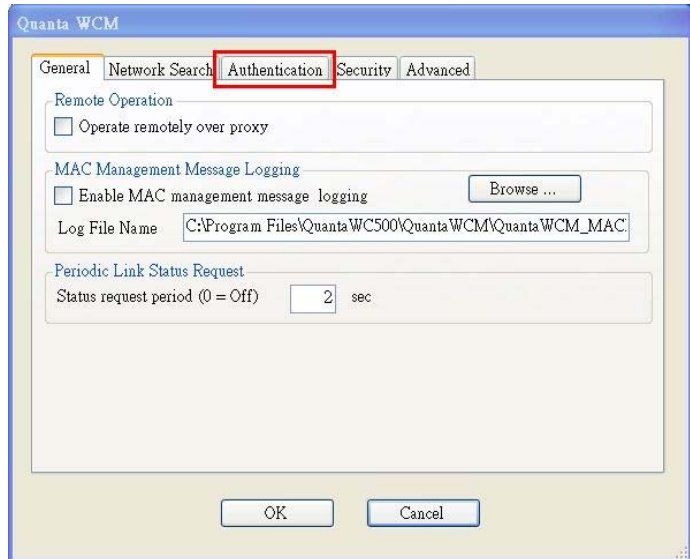
9. When you click the "Security" tab, you can not modify any configuration. Because, you disable authentication feature.

Quanta WCM

General | Network Search | Authentication | Security | Advanced

Security

User Name   myname

Password   ************

Anonymous Identity anonymous

EAP Method   TTLS

Inner EAP   MSCHAPv2

Ca Certificate   C:\Program Files\QuantaWC500\Quanta   Browse ...

OK   Cancel

10. Please, click the "Advance" tab and don't modify any configuration for this current software.

11. Then click the "OK" button to complete the Networking setting.

Quanta WCM

General | Network Search | Authentication | Security | Advanced

Remote Operation
☐ Operate remotely over proxy

MAC Management Message Logging
☐ Enable MAC management message logging   Browse ...
Log File Name   C:\Program Files\QuantaWC500\QuantaWCM\QuantaWCM_MAC

Periodic Link Status Request
Status request period (0 = Off)   2   sec

OK   Cancel

Quanta WCM

General | Network Search | Authentication | Security | Advanced

Set Adapter MAC Address
MAC Address   __:__:__:__:__:__

Debugging Options
☐ Ignore "Waiting For Network Entry Command" link status notifications
☐ Skip Network Search

OK   Cancel

12. Now, we come back the Quanta WCM General window and click the "Search" button to start network searching.
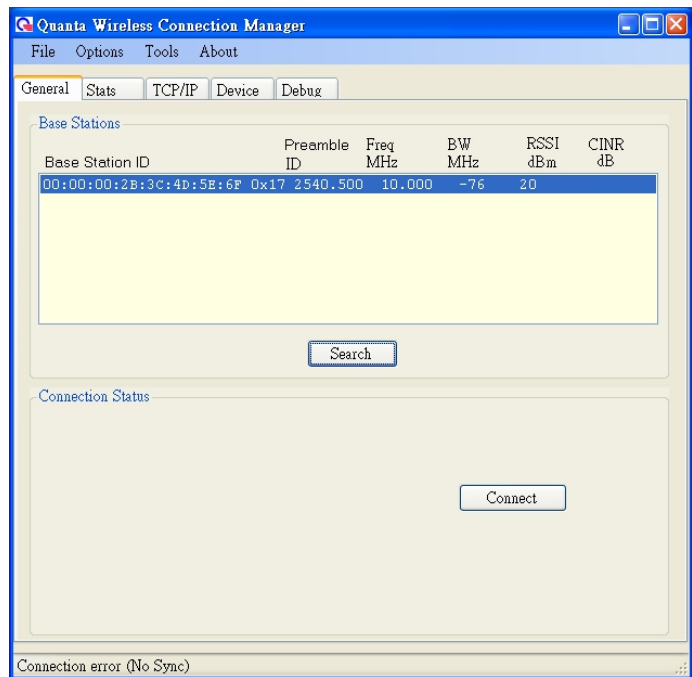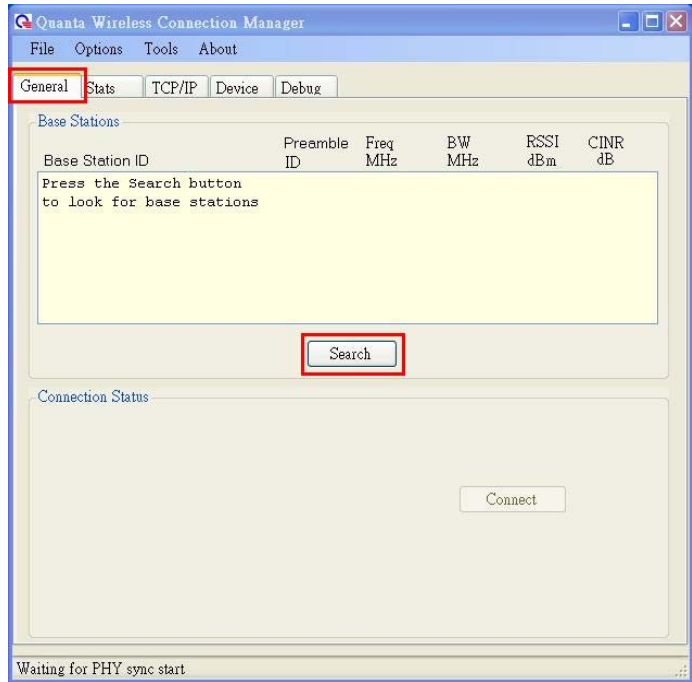
13. If it finds a BS, it will automatically connect to this BS.
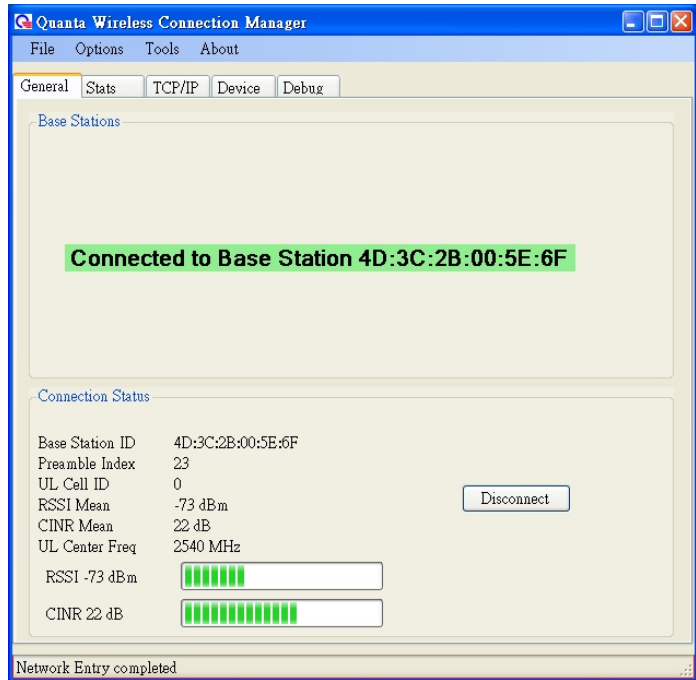
14. Please, click the "Stats" to display WiMAX information.

15. Please, click the "TCP/IP" tabe to display your networking information.

16. Please, click the "Device" tab to display WiMAX device information.
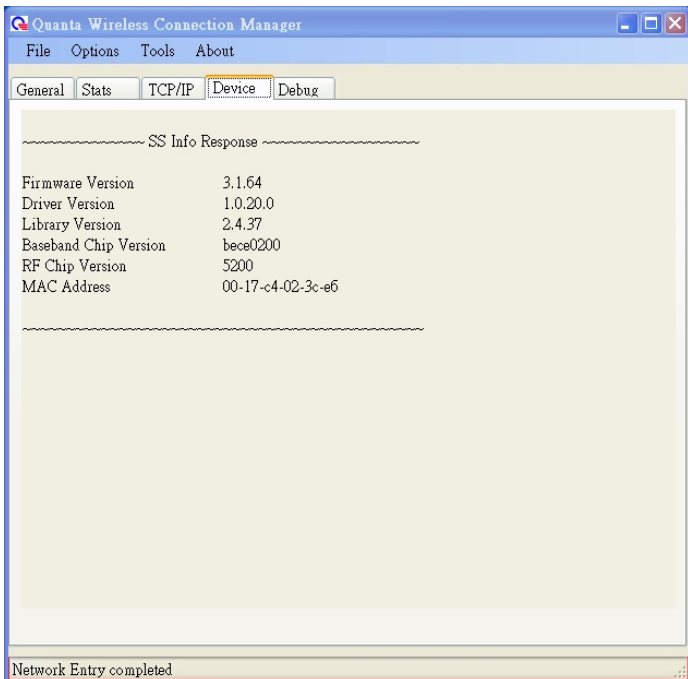
17. Please, click the "Debug" tab to display WiMAX debugging messages
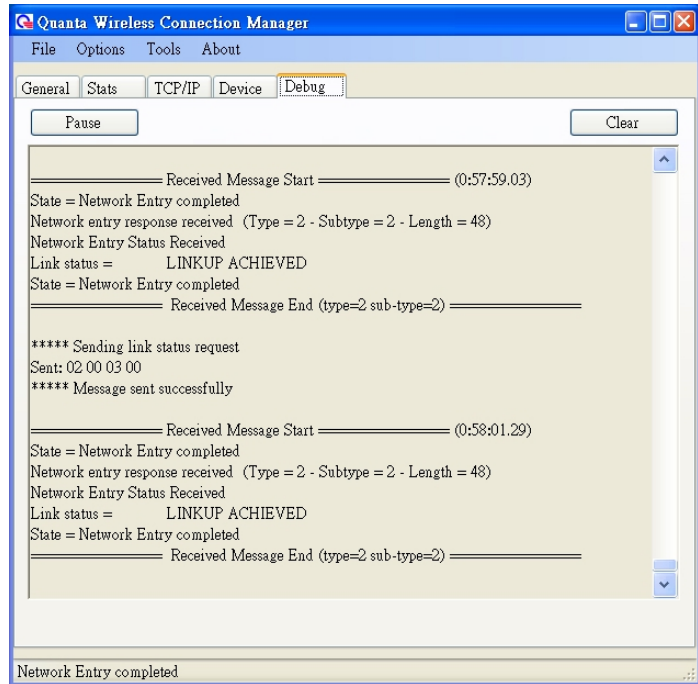
5.2. Use Quanta WiMAX Connection Manager to setup WiMAX connection with security configuration
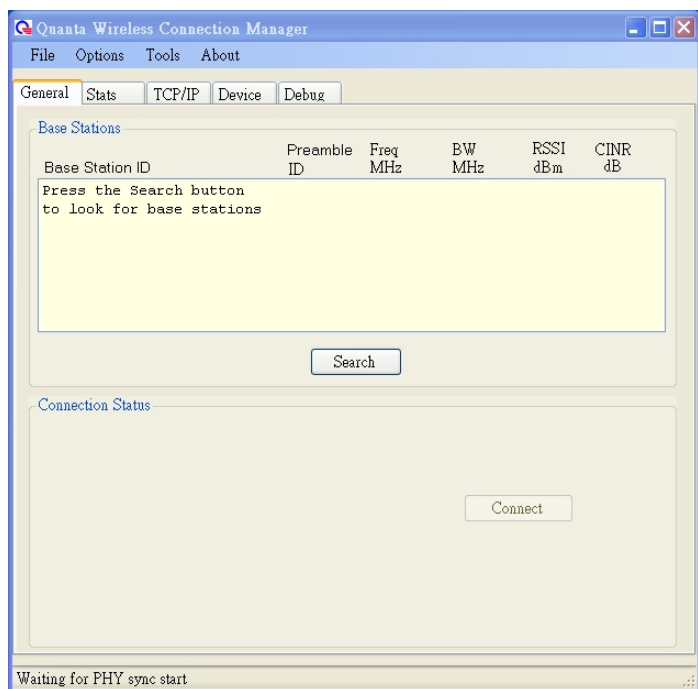
1. Please, double click the "QuantaWCM" icon to lunch the WCM.

2. Please, click "Option" on the Menu to setup the WiMAX configuration.
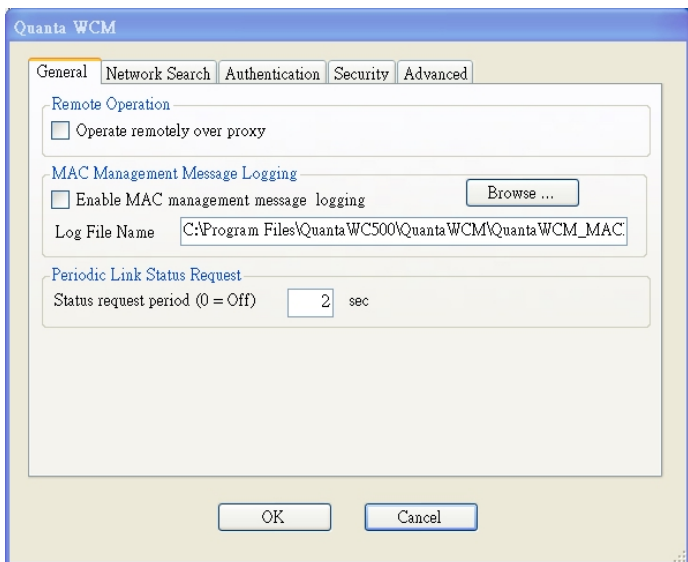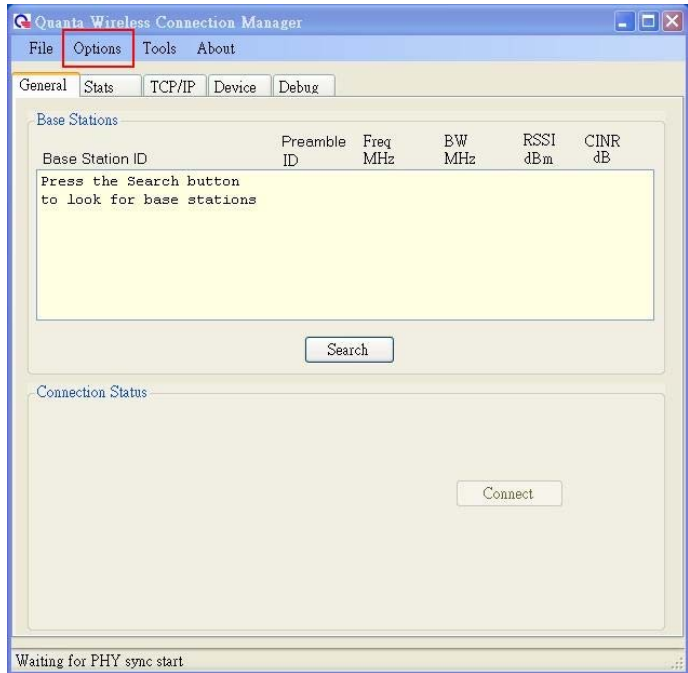
3. You can choose the "Enable MAC management message logging" option to active/de-active MAC message log to file.

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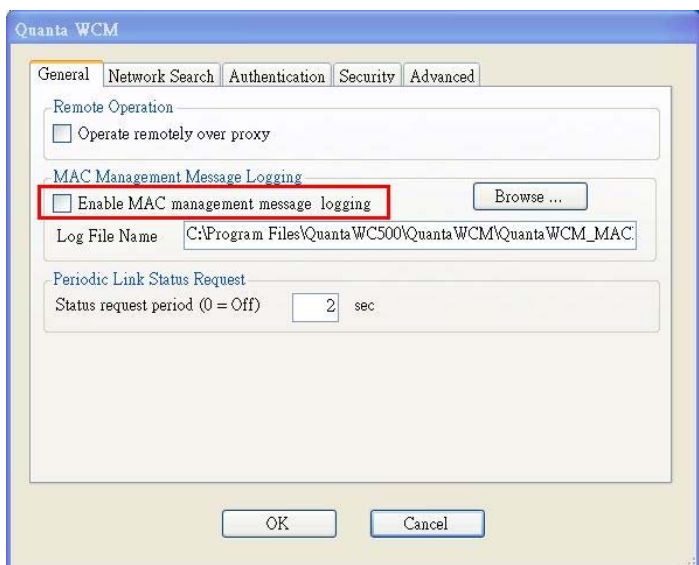
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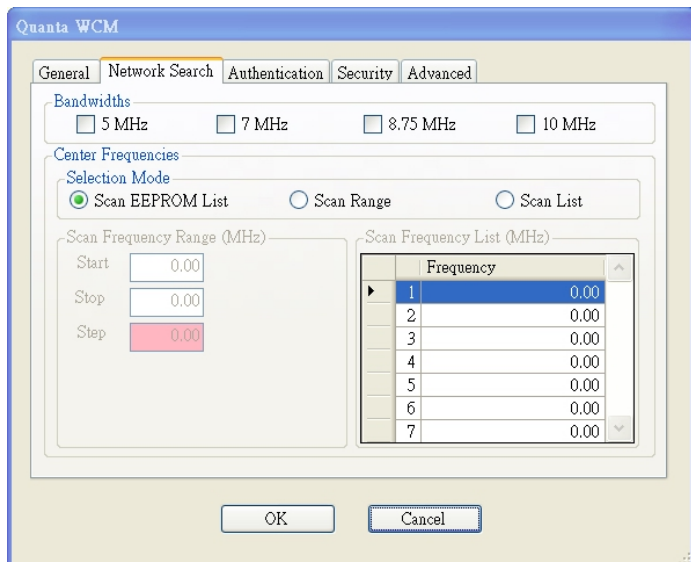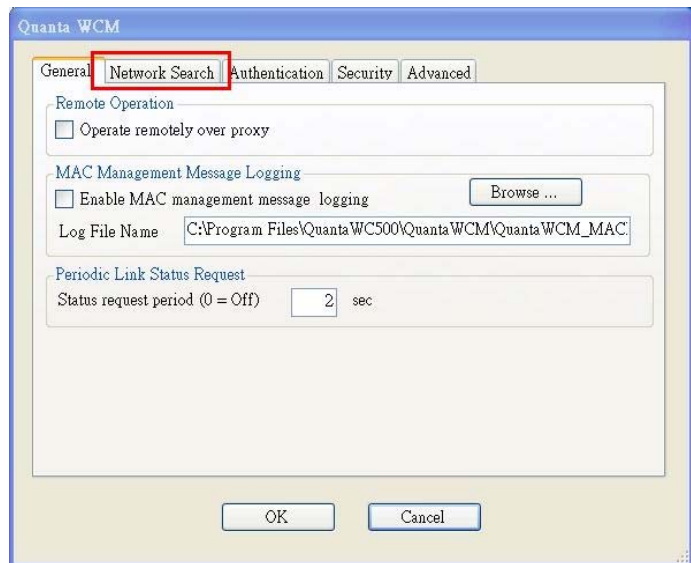
5. You can setup "Bandwidth", "Selection Mode", and "Center Frequencies".

6. Please, click the "OK" button to complete the networking setting.
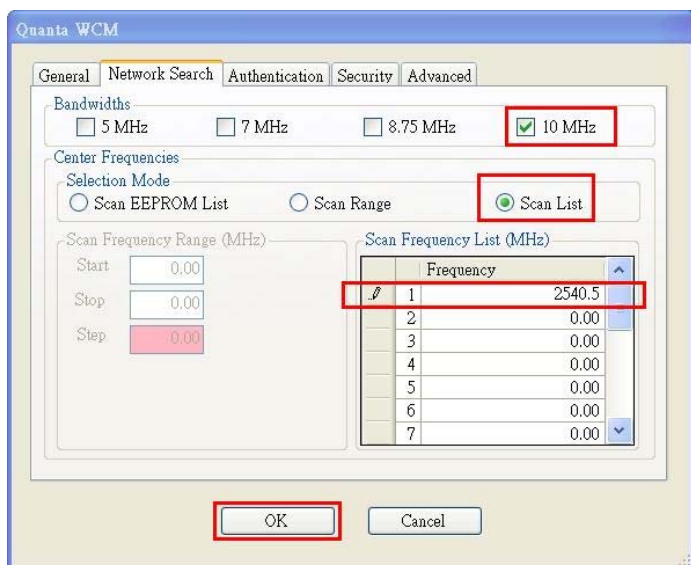
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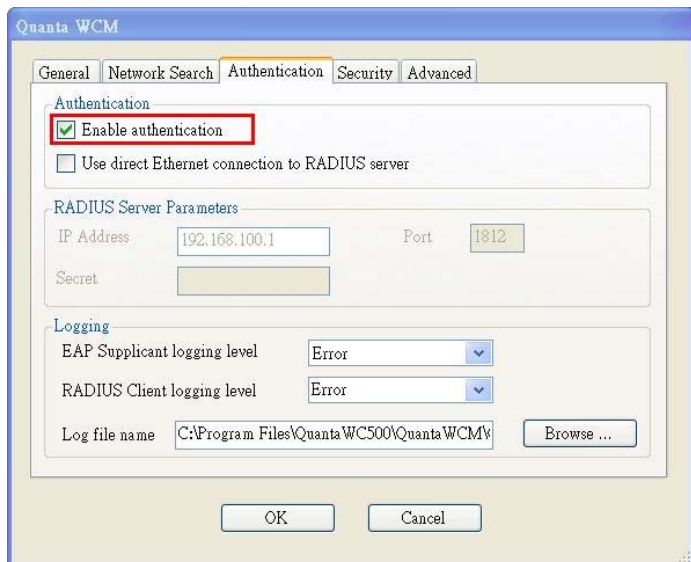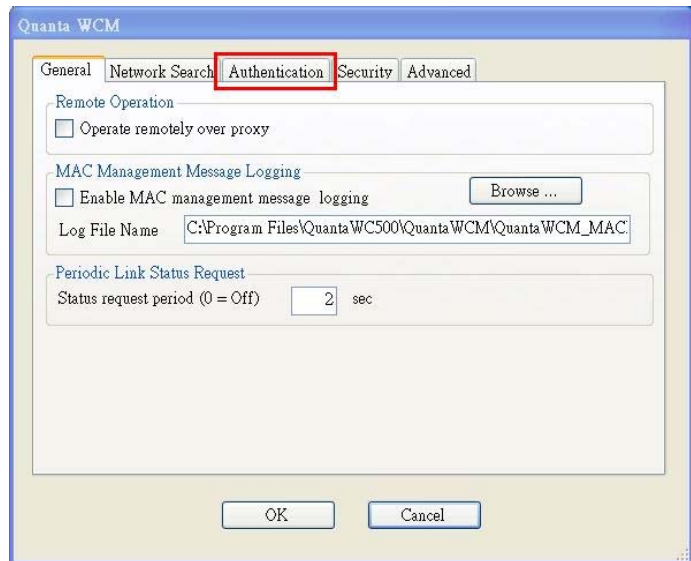
9. Please, click the "Security" tab to setup your authenticated configuration.
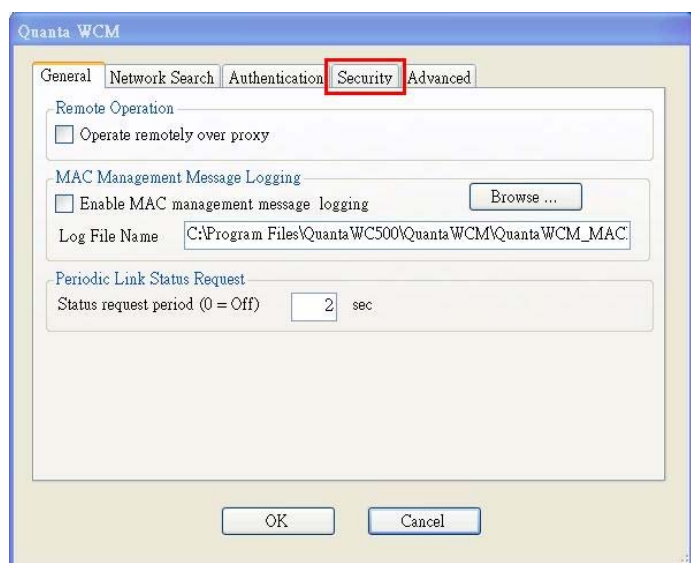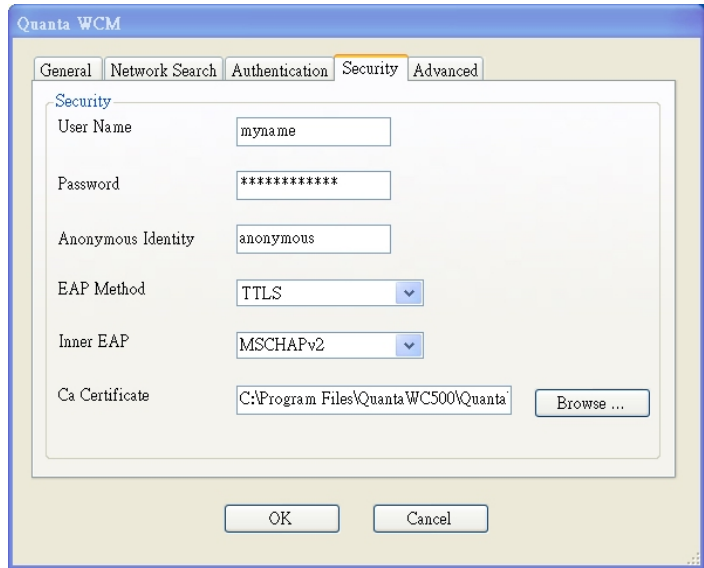
10. Please, click the "Advance" tab and don't modify any configuration for this current software.

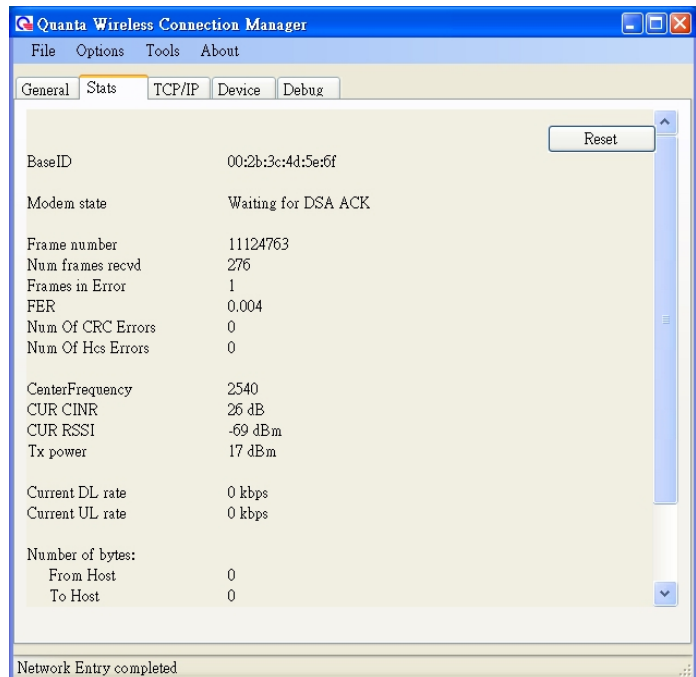11. Then click the "OK" button to complete the Networking setting.

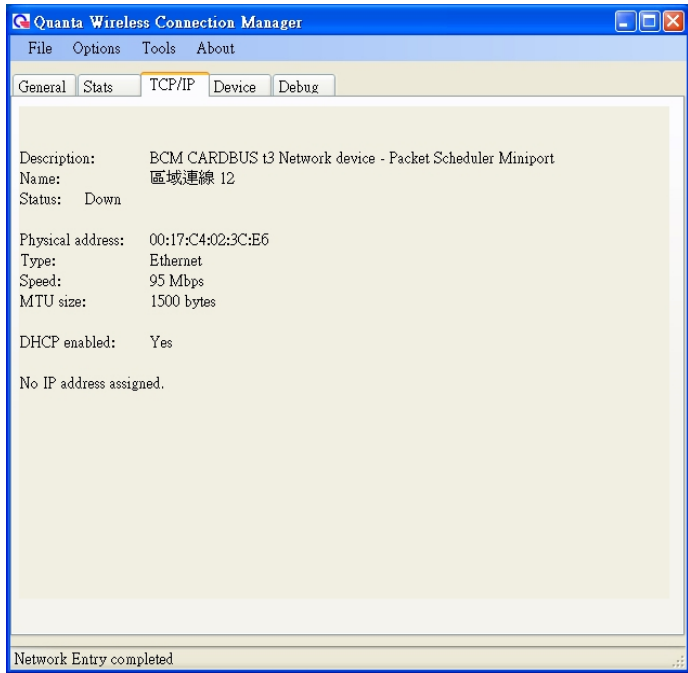12. Now, we come back the Quanta WCM General window and click the "Search" button to start network searching.
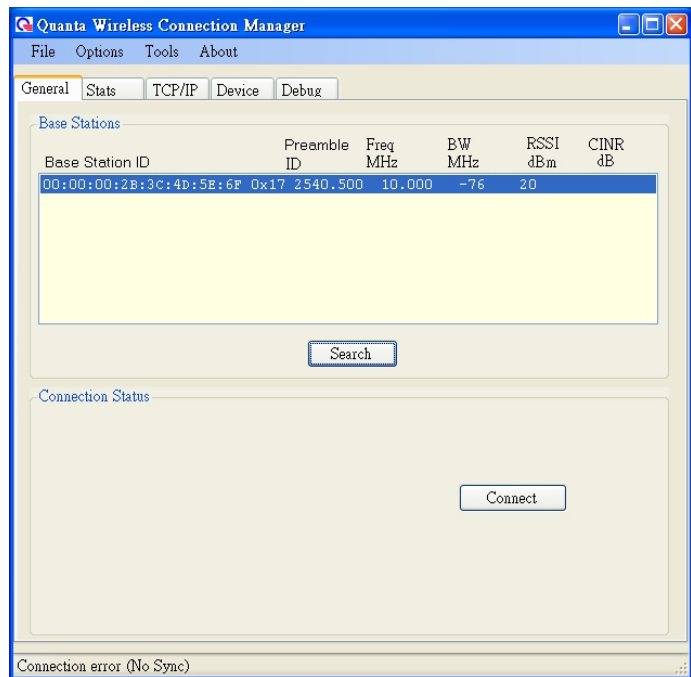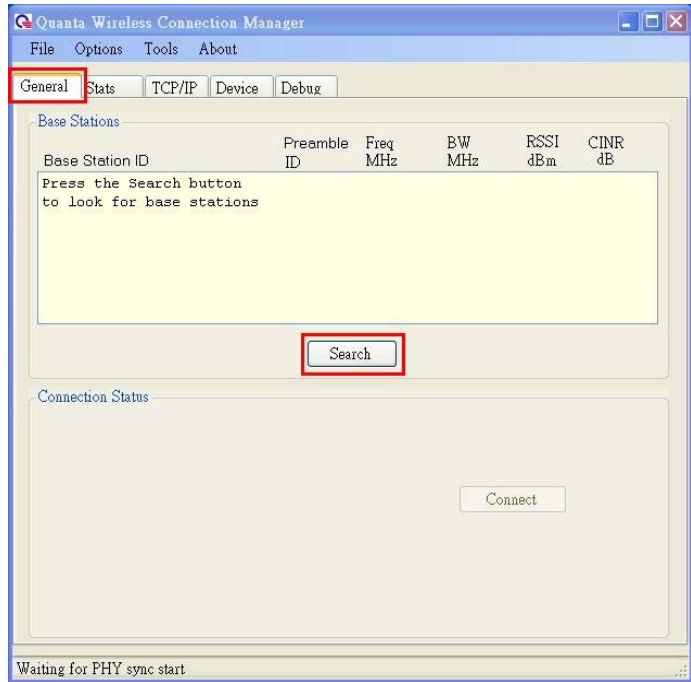
13. If it finds a BS, it will automatically connect to this BS.
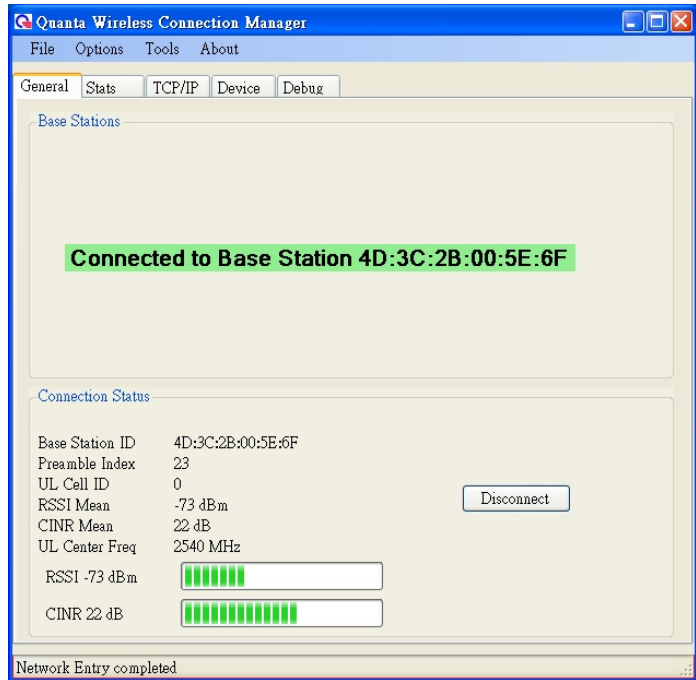
14. Please, click the "Stats" to display WiMAX information.
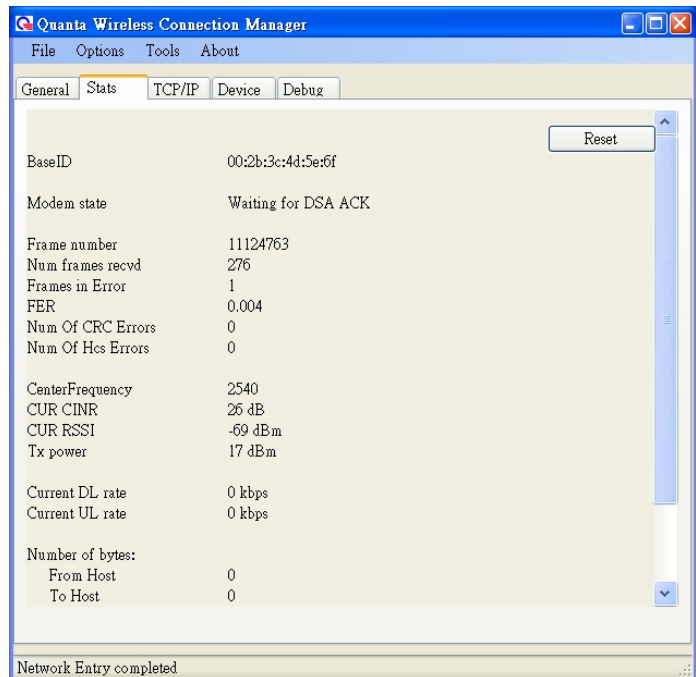
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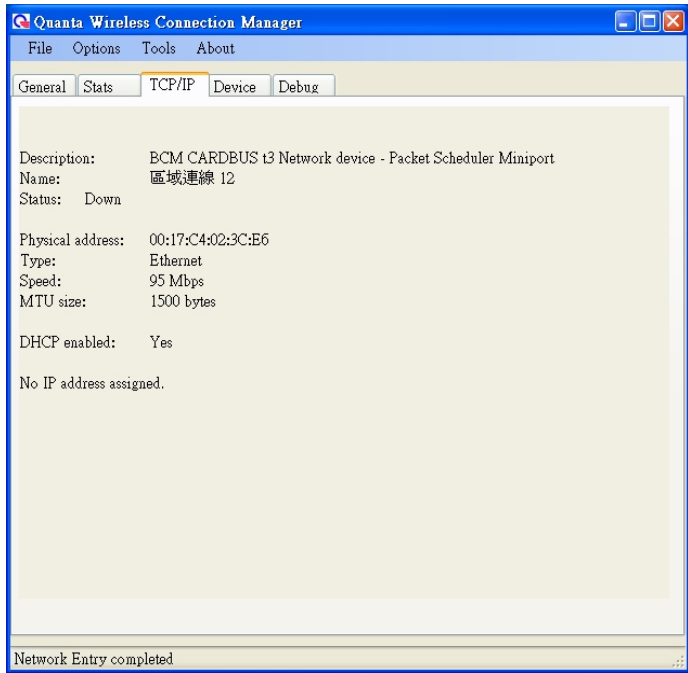
16. Please, click the "Device" tab to display WiMAX device information.
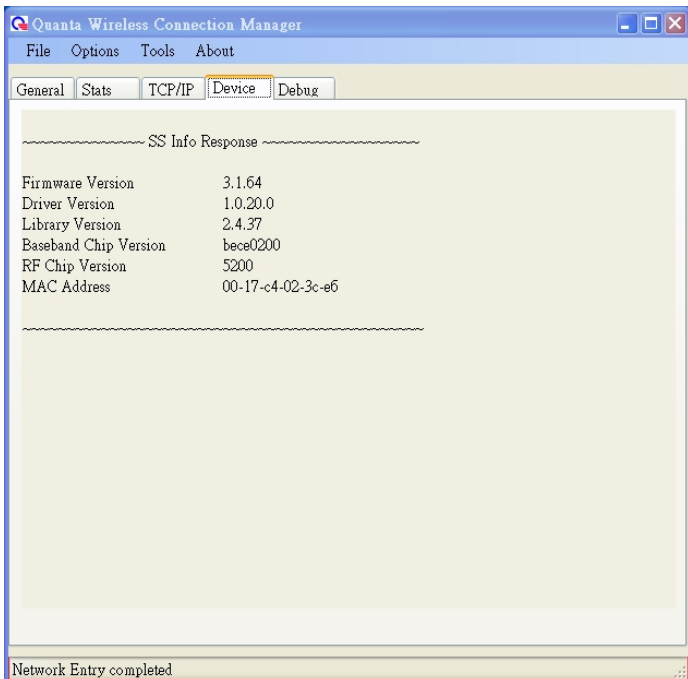
17. Please, click the "Debug" tab to display WiMAX debugging messages
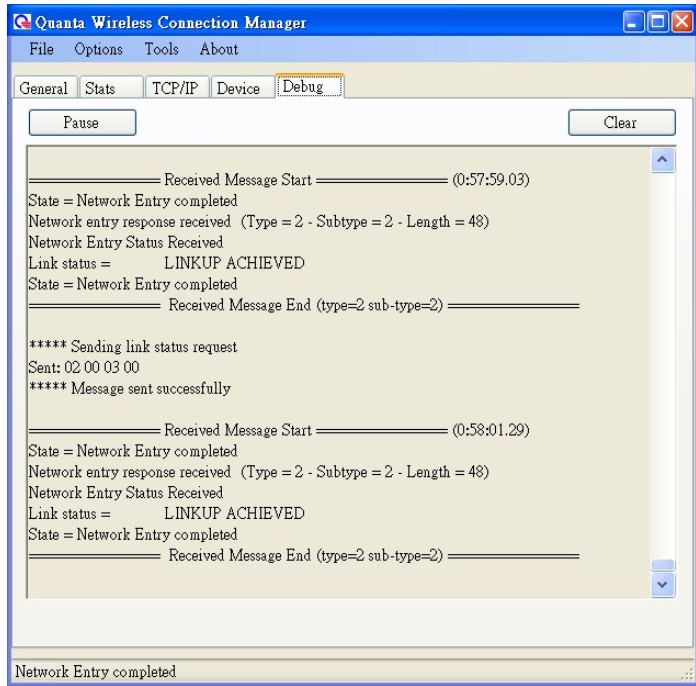
6. Appendix

## 6.1. Use Quanta Config File Editor to setup configuration file parameters

1. Please, double click the "**Quanta Config File Editor**" icon to lunch the Config File Editor.
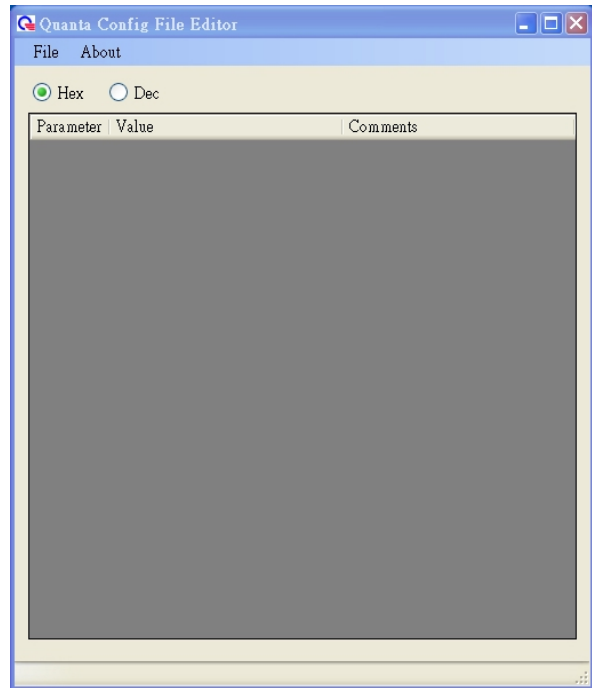
2. Click the "File" on the Menu, and click "Open" to open a configuration file.
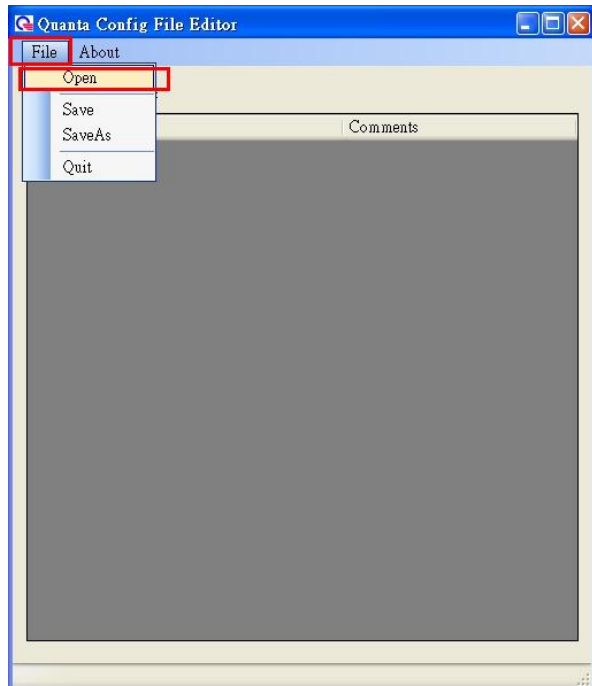
3. Please, open the "**C:\WINDOWS\system32\drivers\ macxvi.cfg**" configuration file and click "Open" button.
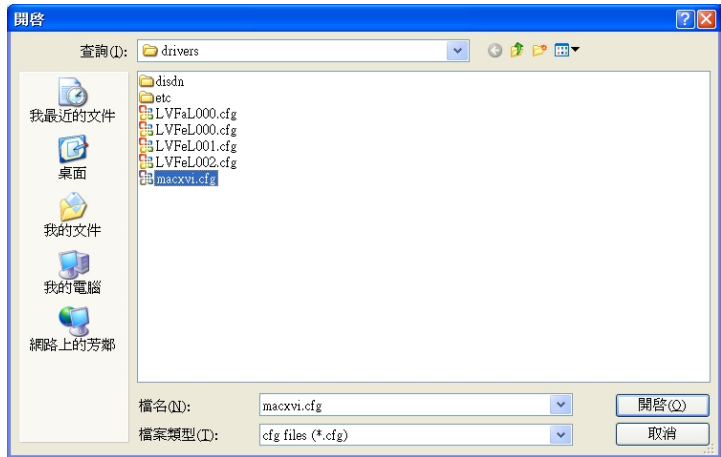
4. You can modify the configuration parameters after you load macxvi.cfg finished.

5. Please, refer to next chapter that descript configuration parameters what you can modify.

6. Please, click the "File" and select "Save" or "Save as" to save your modified.
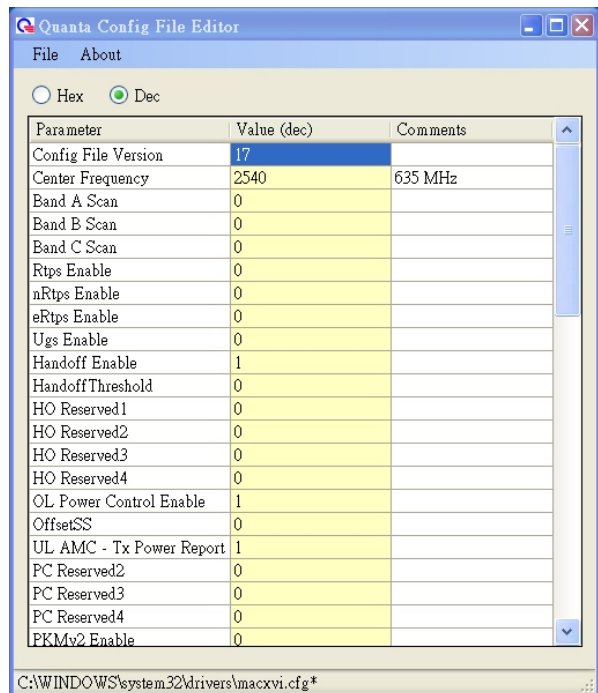
6.2. Configuration File Parameters

The following table shows configuration parameters as found in Config File Version 17. You can use "**Quanta Config File Editor**" utility to edit the "**C:\WINDOWS\system32\drivers\ macxvi.cfg**" configuration file.

Parameter	Description	Comment
Configuration File Version	This parameter is changed whenever a parameter is added or dropped. In other words this defines the config file template version.	A configuration file is matched to a specific firmware release.
Center Frequency	0: Enable scanning Non Zero: specific center frequency in MHz.	Example: Center Frequency = 2545.75 (should be a multiple of 0.25 MHz)

		Please check with Beceem communications to find out supported center frequencies for a given solution.
Band A Scan	1: Band-A is scanned	When a fixed frequency is configured, this parameter shouldn't be configured.
Band B Scan	1: Band-B is scanned	
Band C Scan	1: Band-C is scanned	
Rtps Enable	0: Disable Rtps 1: Enable Rtps	
nRtps Enable	0: Disable nRtps 1: Enable nRtps	
eRtps Enable	0: Disable eRtps 1: Enable eRtps	
Ugs Enable	0: Disable Ugs 1: Enable Ugs	
Handoff Enable	0: Disable Hand Off 1: Enable Hand Off	
HandoffThreshold		
HO Reserved #1		
HO Reserved #2		
HO Reserved #3		
HO Reserved #4		
OL Power Control Enable	0: Disable Open Loop Power Control 1: Enable Open Loop Power Control	
OffsetSS		
UL AMC - Tx Power Report		
PC Reserved #2		
PC Reserved #3		
PC Reserved #4		
PKMv2 Enable	0: Disable PKMv2 1: Enable PKMv2	
PKMv2 Reserved #1		
PKMv2 Reserved #2		
PKMv2 Reserved #3		
PKMv2 Reserved #4		
IdleMode Enable	0: Disable Idle Mode 1: Enable Idle Mode	
Idle Mode timer	Idle Mode timer value in seconds	
Idle Mode Options		
IDLE Mode Reserved #2		
IDLE Mode Reserved #3		
IDLE Mode Reserved #4		
ARQ Enable	0: Disable ARQ 1: Enable ARQ	

ArqType		
ARQ Reserved #1		
ARQ Reserved #2		
ARQ Reserved #3		
ARQ Reserved #4		
MacParameter	0: Broadcast CID value 0xffff 1: Broadcast CID value 0xfeff	
UL PRBS	0: UL PRBS seed encoded to 0. 1: UL PRBS based on frame number	
Random FA Select		
Harq Enable	0: Disable HARQ 1: Enable HARQ	
Compressed Map Enable	0: Disable Compressed Map 1: Enable Compressed Map	
Default DIUC	This value is set as the preferred DIUC setting in the unicast ranging request to the BS	
EEPROM Start	0x20001000: For MII interface 0x10000200: For all other interface	
Customize	Each byte of this parameter has a special meaning. It is organized as <Byte3>< Byte2><Byte1><Byte0> Byte3: 00 Full MAC mode selected 03 VSG mode selected Byte2: Interface type Byte1: Controls MAC/PHY layer functions Byte0: Reserved	Example: Customize = 0x03000100
Firmware Options	Bit 0 : Skip link down request bit: Bit 0 set to 0: enable link down notification and authentication during resync Bit 0 set to 1: The firmware doesn't honor the LINK DOWN request from the driver. Similarly, the firmware does not wait for the LINK UP request to start re-entry. Please note that firmware waits for the LINKUP request from the driver to start the network entry after boot up even if this bit is set Bit 1: Control MAC management message logging. Bit 1 set to 0: Enable MAC management message logging. Bit 1 set to 1: Disable MAC management message logging.	
Bandwidth	5000000: 5 MHz 7000000: 7 MHz 8750000: 8.75 MHz 10000000: 10 MHz	Example: Bandwidth = 10000000
ShutDown Timer Value	Shutdown value in terms of frames	
EncrSupport	0: Disable Encryption 1: Enable Encryption	

NumOfSAId		
RadioParameter	[3:0] = 2, always [7:4] is Band Select [15:8] is a board type that should be zero unless specified by Beceem otherwise. For example: 0x22: For MS120 units supporting Board Type 2.3 to 2.4G 0x32: For MS120 units supporting Board Type 2.5 to 2.7G 0x42: For MS120 units supporting Board Type 3.4 to 3.6G For BCS200, Band Select is a don't care.	Radio Parameter is obvious when Center Frequency is non-zero and is a don't care in such a case
PhyParameter1	This parameter decides the number of DL, UL symbols and TTG value. 0xFFFFFFFF: This is a special value. It forces Use of values as defined in firmware for a given Bandwidth selection. Other values can be configured as follows PhyParameter1 e.g. 0xccccbbaa cccc = [31:16] 80 * Value of TTG in us bb = [15:08] Number of DL symbols aa = [07:00] Number of UL symbols	Example: for 26 DL, 21 UL, TTG = 105.71us, program as 0x21091a15
PhyParameter2		
PhyParameter3		
m_u32TestOptions		
MaxMACDataperDLFrame		
MaxMACDataperULFrame		
Corr2MacFlags	This parameter consists of a bit map for enabling/disabling Corrigendum-2 updates. This should be 0 unless testing for Corrigendum-2. Bit 0: ARQ Bit 1: Encryption Bit 2: HARQ Bit 3: HO Bit 4: Idle Mode Bit 5: Sleep Mode Bit 6: MBS Bit 7: MIB Bit 8: MIMO Bit 9: Bit 10: Network Entry Bit 11: Bit 12: RLC – NE Bit 13: Security Bit 14 Signaling/DSx Bit 15: RLC-Other	

Corr2PhyFlags	This parameter is currently not used. It is a placeholder for a bit map for enabling/disabling Corrigendum-2 updates in PHY. This should be 0 unless testing for Corrigendum-2.	

6.3. Setup WCM network configuration to static IP address

1. Plugin WCM card to your Laptop.

2. Setup WCM with a static IP address as the below procedures.

3. Open Windows **Start** menu.

4. Open **Control Panel**.

5. Classic view: **Open Network Connections**
Category view: Select **Network and Internet Connections**, and then **Network Connections**.

6. Double-click on your active **LAN or Internet connection**.

7. Click **Properties**.

8. In the **General** tab, highlight the **Internet Protocol (TCP/IP)** item, and click **Properties**.

This opens the Local Area Connections Properties window

9. In the General tab, click "**Use the following IP address**" and input as below:

   - IP address: The static IP address you want to assign to computer (192.168.0.200)

   - Subnet mask: 255.255.255.0

   - Default gateway: skip.

10. In **"Use the following DNS server addresses"**, skip.

11. Click **OK**.

12. Click **OK** to close each window.
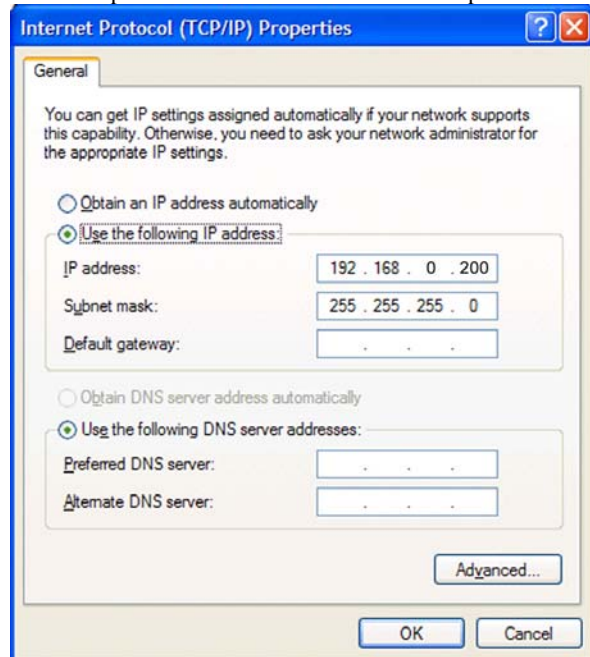
FCC STATEMENT FOR PORTABLE DEVICE

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.   These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.   However, there is no guarantee that interference will not occur in a particular installation.   If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. To maintain compliance with FCC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CE STATEMENT FOR PORTABLE DEVICE

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC

EN 60950-1: 2001
Safety of Information Technology Equipment

EN 301 489-1 V1.6.1: (2005-09)
Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical Requirements

EN 301 489-4 V1.3.1: (2002-08)
Electromagnetic compatibility and radio spectrum matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part 4: Specific conditions for fixed radio links and ancillary equipment and services

EN50392: (2004-01)
Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)

ETSI EN 302 326-2 V1.2.2: (2007-06)

Fixed Radio Systems; Multipoint Equipment and Antennas; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive for Digital Multipoint Radio Equipment

ETSI EN 302 326-3 V1.2.2: (2007-06)

Fixed Radio Systems; Multipoint Equipment and Antennas; Part 3: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive for Multipoint Radio Antennas

CE0560①

Česky [Czech]	*[Jméno výrobce]* tímto prohlašuje, že tento *[typ zařízení]* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede *[fabrikantens navn]* erklærer herved, at følgende udstyr *[udstyrets typebetegnelse]* overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erklärt *[Name des Herstellers]*, dass sich das Gerät *[Gerätetyp]* in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab *[tootja nimi = name of manufacturer]* seadme *[seadme tüüp = type of equipment]* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, *[name of manufacturer]*, declares that this *[type of equipment]* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente *[nombre del fabricante]* declara que el *[clase de equipo]* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ *[name of manufacturer]* ΔΗΛΩΝΕΙ ΟΤΙ *[type of equipment]* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]	Par la présente *[nom du fabricant]* déclare que l'appareil *[type d'appareil]* est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente *[nome del costruttore]* dichiara che questo *[tipo di apparecchio]* è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo *[name of manufacturer / izgatavotāja nosaukums]* deklarē, ka *[type of equipment / iekārtas tips]* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo *[manufacturer name]* deklaruoja, kad šis *[equipment type]* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart *[naam van de fabrikant]* dat het toestel *[type van toestel]* in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, *[isem tal-manifattur]*, jiddikjara li dan *[il-mudel tal-prodott]* jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, *[gyártó neve]* nyilatkozom, hogy a *[... típus]* megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Polski [Polish]	Niniejszym *[nazwa producenta]* oświadcza, że *[nazwa wyrobu]* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	*[Nome do fabricante]* declara que este *[tipo de equipamento]* está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.

Slovensko [Slovenian]	*[Ime proizvajalca]* izjavlja, da je ta *[tip opreme]* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	*[Meno výrobcu]* týmto vyhlasuje, že *[typ zariadenia]* spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	*[Valmistaja = manufacturer]* vakuuttaa täten että *[type of equipment = laitteen tyyppimerkintä]* tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar *[företag]* att denna *[utrustningstyp]* står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.