

WU211

IEEE802.16E WIMAX USB DONGLE

USER GUIDE

MAY 7, 2009

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

The information presented is subject to change without notice.

Conformance statements

Industry Canada Notice:

This device complies with RSS-210 of the Industry Canada 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:

Radiation Exposure Statement:

This equipment complies with IC 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 IC RF exposure compliance requirements, please follow operation instruction as documented in this manual.

EU Compliance

This product has been tested in accordance to, and complies with the European Low Voltage Directive (73/23/EEC) and European EMC

Directive (89/336/EEC). Copies of the Declaration of Compliance and installation information in accordance with the requirements in accordance with EU directives can be obtained from the local Alcatel-Lucent representative or by contacting the Local Alcatel-Lucent Office.

Declaration of RoHS Compliance

This product has been designed and manufactured in compliance with Directive 2002/95/EC of the European Parliament and the Council on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive) and is deemed to comply with the maximum concentration values issued by the European Technical Adaptation Committee (TAC) as shown below:

Substance	Proposed Maximum Concentration	Actual Concentration
Lead (Pb)	0.1%	< 0.1%
Mercury (Hg)	0.1%	< 0.1%
Cadmium (Cd)	0.01%	< 0.01%
Hexavalent Chromium (Cr ⁶⁺)	0.1%	< 0.1%
Polybrominated biphenyls (PBB)	0.1%	< 0.1%
Polybrominated diphenyl ethers (PBDE)	0.1%	< 0.1%

Certain components of products as stated above are exempted under the Annex of the RoHS Directives as noted below:

Examples of exempted components are:

- (1) Mercury in compact fluorescent lamps not exceeding 5 mg per lamp and in other lamps not specifically mentioned in the Annex of RoHS Directive.
- (2) Lead in glass of cathode ray tubes, electronic components, fluorescent tubes, and electronic ceramic parts (e.g. piezoelectric devices).
- (3) Lead in high temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).
- (4) Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminium containing up to 0.4% lead by weight and as a copper alloy containing up to 4% lead by weight.

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-transmitting with any other antenna or transmitter.

SAR compliance has been established in typical laptop computer(s) with USB slot, and product could be used in typical laptop computer with USB slot. Other application like handheld PC or similar device has not been verified and may not compliance with related RF exposure rule and such use shall be prohibited.

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About this document

How to use this document

This User Guide describes the safety information, features, software and hardware installation as well as the operation of WU211.


Safety information

If not used for long periods of time, disconnect your device from your computer, store in a cool and dry environment.

Do not pour water on your device; protect it from dust and any substance potentially harmful to electronic components.

Conventions used

This guide uses the following typographical conventions:

Appearance	Description
<i>Italicized text</i>	<ul style="list-style-type: none">• File and directory names• Emphasized information
 warning	Warning or important information

Technical support

Please contact your service provider customer care as indicated on the Support & Warranty card provided with your device package.

1 Getting started

System Requirements

- PC with available USB slot
- Microsoft® XP or Microsoft Windows® Vista® operating system
- CD-ROM drive
- 180 MB hard disk space

Application and utility overview

Your MIMO USB Dongle IEEE 802.16e-2005 comes equipped with state of the art Scalable OFDMA based technology. It provides unrivaled, seamless, wireless connectivity through a user-friendly graphical interface, Wireless Connection Manager (WCM).

The easy-to-use Windows XP / Windows Vista based utility provides the graphic interface for system/link status, configuration and firmware updates.

The following is an overview of the WCM included with your MIMO USB Dongle.

Device specifications

- MIMO USB Dongle
- Reference standard: IEEE 802.16e-2005
- Radio Access Method: TDD
- Frequency:
2.496-2.69 GHz
- Channel Bandwidth / FFT size: 5/10MHz
- Central frequency resolution: 200/250kHz
- Modulation: S-OFDMA, MIMO
- FEC: CC (Convolutional Coding), CTC (Convolutional Turbo Code)
- Maximum output power at antenna port: 23dBm \pm 0.5dB
- Antenna:
2.8dBi (2.5GHz) peak gain x 2 printed antennas
-4.5dBi average gain

- QoS management based on classification
- Security: EAP-TTLS/CHAP-based user authentication, CMAC message authentication, CCM mode 128-bit AES data ciphering
- Max power consumption: < 2.5W

Hardware Specifications

- USB 2.0
- 2 LEDs: Power indication and WiMAX connection status

Physical Specifications

- Dimension: 58 (W) x 10 (D) x 125 (H) mm
- Weight: 85g

Environmental Specifications

- Operation Temperature: 0°C ~ 45°C
- Operation Humidity: 10% ~ 90% (non-condensing)
- Storage Temperature: -25°C ~ 55°C
- Storage Humidity: 10% ~ 95% (non- condensing)

Certification

- FCC

Hardware Overview

LED function:

LED Function	LED 1	LED 2 (DL and UL Traffic)
Driver initialized	RED (solid)	OFF
Firmware download	RED (flashing)	OFF
Download complete	RED	OFF
No connection	RED	OFF
Normal Operation	OFF	Flashing

2 Installation

Overview

Before you can use your new MIMO USB Dongle, your computer must have the proper software drivers installed. Do not install your USB Dongle until prompted to do so during the software installation procedure.



Before installing your USB Dongle, first install the software found in the Installation CD.

Hardware and Software installation

Overview

The following section will guide you through the MIMO USB Dongle hardware and software installation.

Only plug in your USB Dongle after being prompted to do so. If you have problems to find this slot, have a look at your computer's user manual or consult the manufacturer of your computer. Plug in the USB Dongle carefully into the slot, making sure that the USB Dongle is firmly seated in the slot. The MIMO USB Dongle software installs drivers on your laptop that allows you to use the USB Dongle just like a regular modem.



The following example screens are for reference only. Software version and MAC address are subject to change.

Related information

This document describes how to install your MIMO USB Dongle in a Windows XP or Windows Vista operating system. Please note that the screen shots are taken using a Windows Vista operating system and may differ slightly from a Windows XP environment. However the functionality is the same.



Windows Vista users must install under *Administrator* mode for installation to be complete.

Before you begin

Before installation, make sure you have a computer with the following:

- A minimum of 180 MB available hard disk space
- A CD-ROM drive
- An available USB slot
- Windows XP or Windows Vista operating system



Do not install your USB Dongle at this time.

Procedure

1. Place the installation CD in the CD ROM drive. The installation program will automatically run. If it does not, locate and double-click on *setup.exe* found in the installation CD.
 2. The *Choose Setup Language* screen displays. Choose your desired language and click **OK**.
-
3. WCM setup prepares the InstallShield Wizard, which will guide you through the installation process.
Click the **Next** button to continue installation.

- The installation wizard is ready to install.
Click the **Install** button to begin the installation.



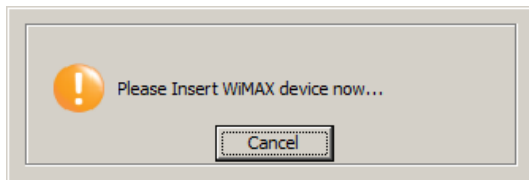
To review or make changes at this time, click the **Back** button. To cancel the installation process, click **Cancel**.

- The utility and drivers are automatically installed and may take several minutes.



Windows Vista users, a security screen may prompt you to identify the WCM program. To continue installation, click **Allow**.

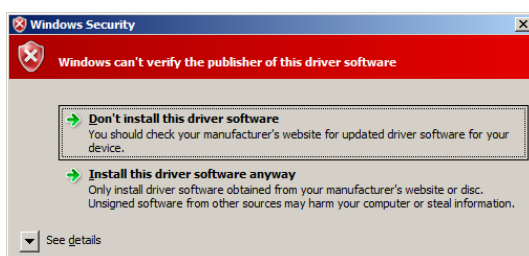
- You are prompted to insert your USB Dongle.



- With the LEDs facing up and the connectors facing the slot, slide the MIMO USB Dongle into the slot.
The LED 1 indicator turns on if it is properly inserted.



- The wizard automatically continues the installation process.
- The Windows Security screen displays. Click *Install this driver software anyway* to continue the installation.



10. Installation is complete. Click **Finish**.

11. After installing the WCM, the following icon displays in your System Tray.

12. The Connection Manager main window opens automatically.

Software uninstallation

Overview

The following section will guide you through the MIMO USB Dongle software uninstallation procedure.

Before you begin

Before proceeding, ensure that your Wireless Connection Manager is closed to facilitate an easy uninstallation procedure.



A reboot will be required after uninstalling the Wireless Connection Manager.

Procedure

Windows Vista Users:

1. Navigate to *Start->All Programs->Alcatel-Lucent 9777->WCM* and click *Uninstall*.
 2. You are prompted to verify the process. Click **Yes** to proceed.
 3. The Windows Installer removes the WCM software from your system.
-

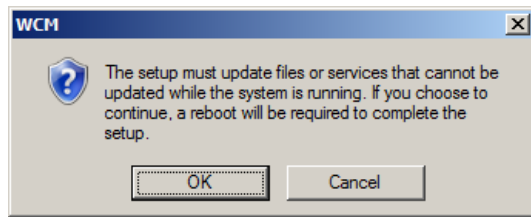
Windows XP Users:

1. Navigate to *Start->Programs->Alcatel-Lucent 9777->WCM* and click *Uninstall*.
2. You are prompted to verify the process. Click **Yes** to proceed.

The Windows Installer removes the WCM software from your system.

Or:

3. Place the installation CD in the CD ROM drive.
4. You are prompted to verify the uninstallation process. Click **Yes**.
5. The following screen displays.
Click the **OK** button to continue or **Cancel** to stop at this time.



3 Operation and use

Overview

Your MIMO USB Dongle comes with an easy-to-use graphic user interface. The following chapter provides information for login in and connecting to your WiMAX account.



Menu screens are subject to change and may differ from the actual working sample.

Before you begin




Before you can connect to your network, make sure you have the following:

- WiMAX account information as supplied by your service provider.

Identifying your WCM

The following screen shows the various elements found on the WCM menu screen.



Information Pane:	Displays current status information related to the WiMAX connection. <i>Status line</i> (first line of the information pane): indicates the connection status <i>BSID</i> : gives the identifier of the BS your device is connected to <i>Operator Name</i> : name of the operator you subscribed to <i>IP Address</i> : network address assigned to your device by the operator <i>Device status</i> : status of your device
Connect:	Click to establish connection to your WiMAX account. See troubleshooting for further information.
Signal Strength	WiMAX signal strength
Link Quality	WiMAX signal quality
Advanced	Settings shall be done only by the service provider, and are accessible only by password.  Unauthorized modification of any Advanced parameters may cause damage to your system, software or device.
Info	Displays driver, firmware, library, package version, MAC address, and access to the software upgrade.
Account	Click to set your WiMAX account login information.  Your WiMAX account login information shall be entered before trying to connect.
Network	Displays information regarding the connected network  Network option is not available in this version.

Info Mode

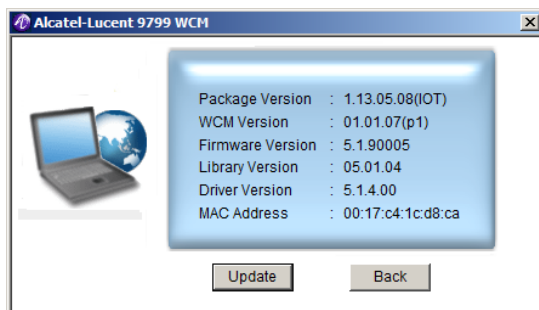
The following section describes the information menu in your WCM.

Procedure

1. Locate the following icon in your System Tray.
2. Double-click on the icon to open the WCM main menu.
3. The main menu displays. Click the **Info** button.



4. The Info screen displays the Package, WCM, Firmware, Library and Driver version and MAC address of your WCM.



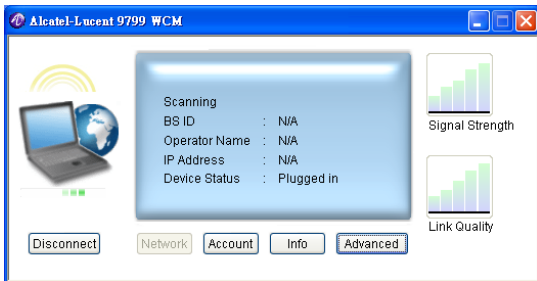
Connecting to your WiMAX network

Overview

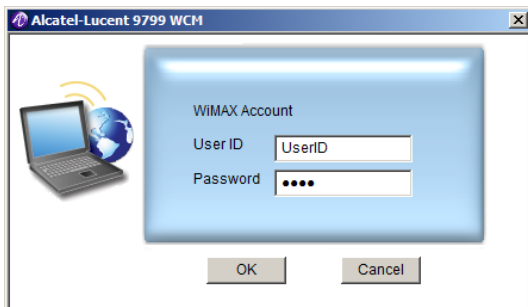
The following section will guide you through the necessary steps in order to connect and login to your WiMAX account.

Procedure

1. Locate the following icon in your System Tray.
2. Double-click on the icon to open the WCM main menu.
3. Click Account to enter the WiMAX Account screen.

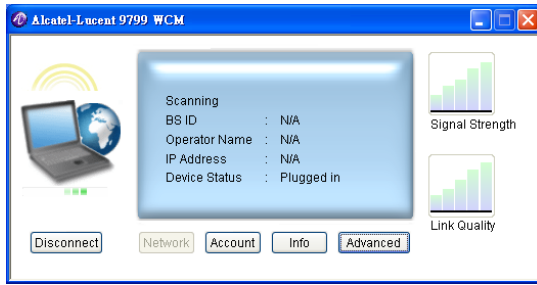


4. Enter the User ID and Password as provided by your service provider.



5. Click OK to continue

6. Click the **Connect** button to connect to your WiMAX network



After establishing a connection, information displaying the signal strength, link quality and network status is shown in the main menu.



In order to enhance the signal strength and link quality, you may have to shift the laptop your device is plugged in, e.g. shift your laptop near a window.

7. Click the **Disconnect** button to disconnect your WiMAX network.

Software upgrade

Overview

This section will show you how to update your wireless connection manager, as well as restore the factory default settings to your MIMO USB Dongle.



Software upgrade availability is dependent on your service provider.

Procedure



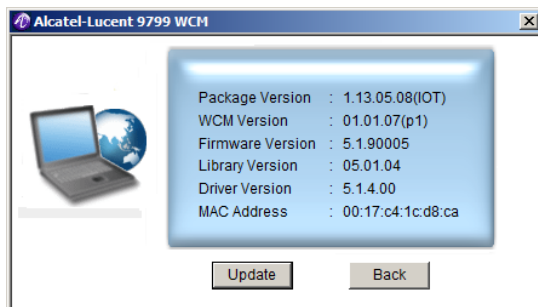
Before you begin, read section 3 *Operation and use* before starting the SW upgrade procedure.

The following section will guide you through the upgrade procedure for the software found in your MIMO USB Dongle.

1. Double-click on the icon in your system tray.
2. The main menu displays. Click the **Info** button.

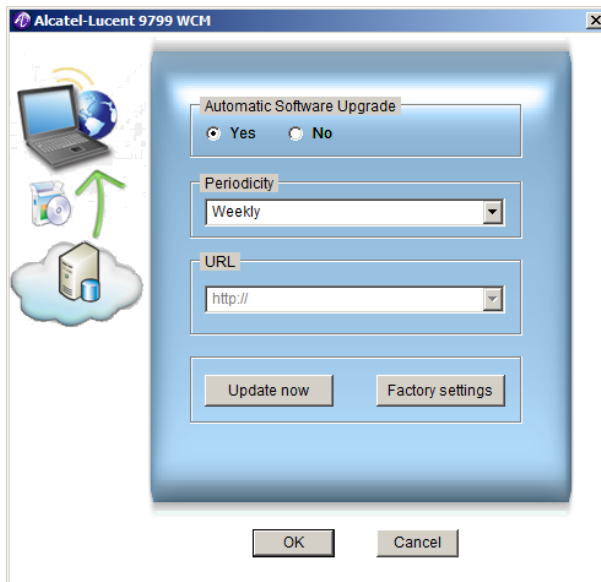


3. Click the **Update** button to display the *Update* screen.

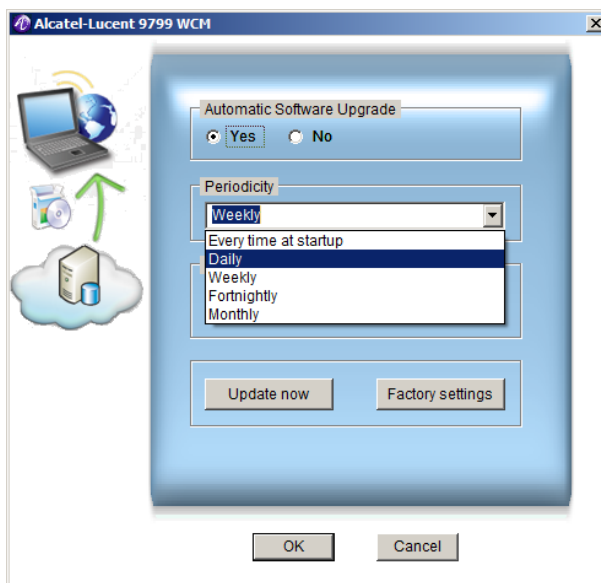


Updating automatically

1. In the *Update* screen, select **Yes** to enable Automatic Software Upgrade.
By selecting **Yes**, WCM is setup to automatically receive important software updates.



2. Click on the *Periodicity* drop-down box and select an update schedule



Every time at startup: Automatically checks for updates at startup.

Daily: Automatically checks for updates every day.

Weekly: Automatically checks for updates every week.

Fortnightly: Automatically checks for updates every two weeks.

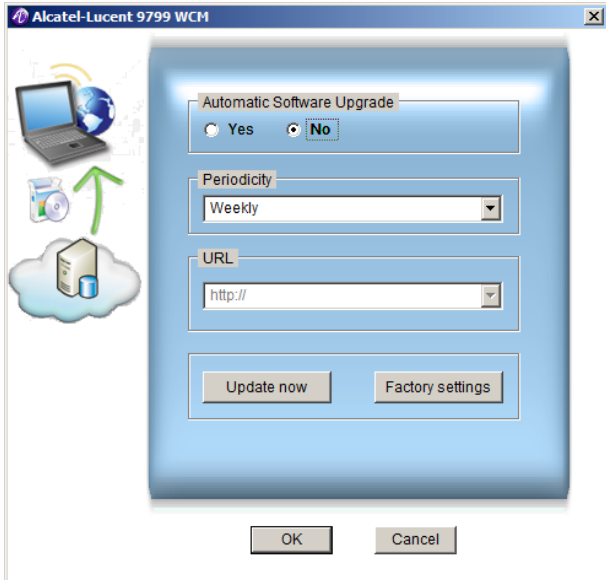
Monthly: Automatically checks for updates every month.

3. Click **OK** to continue.

If automatic upgrade is selected and you log in to your WiMAX account, the wireless connection manager checks for updates during the selected schedule frequency.

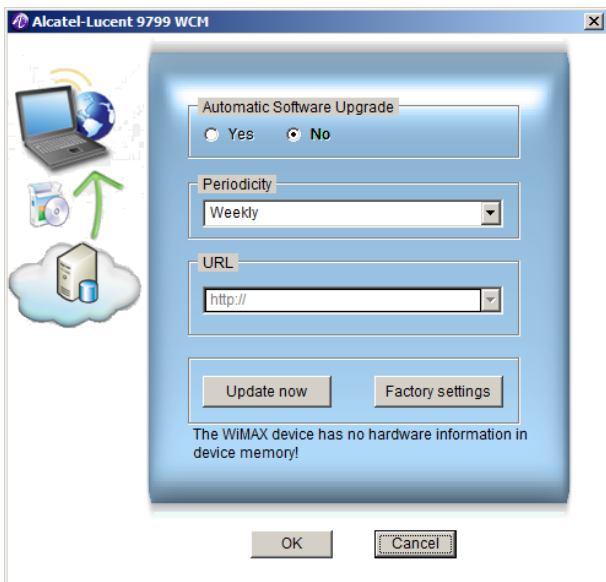
Updating manually

1. In the *Update* screen, select **No** to manually update your software.
2. Ensure you are connected to the Internet, and click on the **Update now** button.



3. Click **Finish** when prompted to complete the software updates.

If Internet access is not available, a *Can not get the software update information at the server* screen appears.



4. Click **Cancel**, and try manually updating again.

5. Updating may take several minutes to complete. Click **Finish** when prompted.

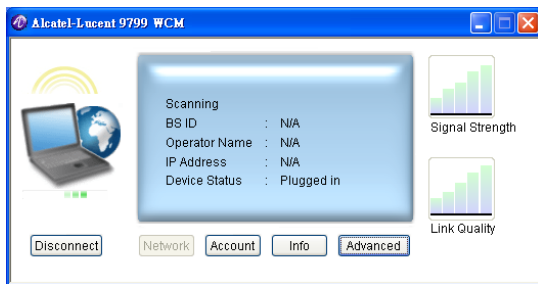
6. Click **OK** to continue.

Factory settings mode

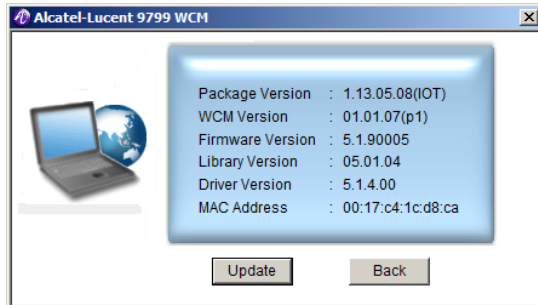
The following section describes the *Factory Settings* mode, which allows for the restoring of factory default settings.

Procedure

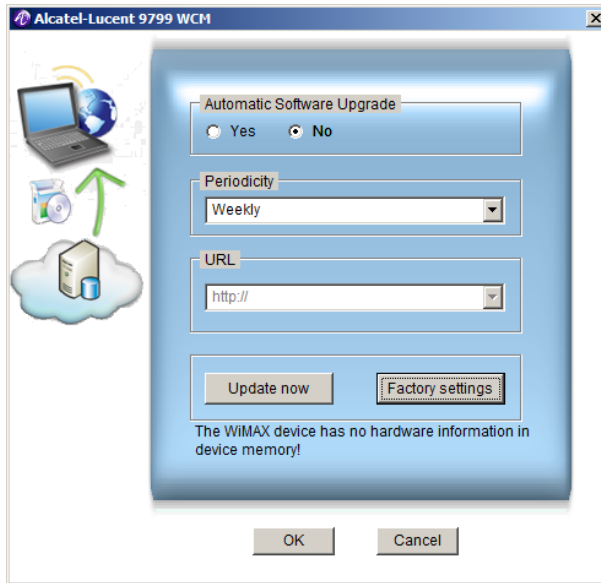
1. Locate the following icon in your System Tray.
2. Double-click on the icon to open the WCM main menu.
3. The main menu displays. Click the **Info** button.



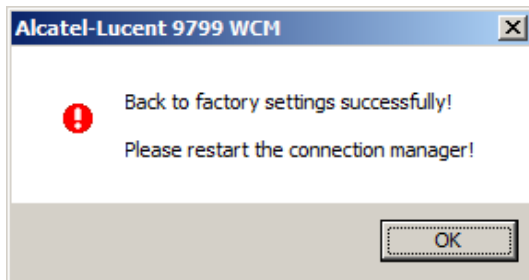
4. Click the **Update** button to display the Update screen.



5. In the Update screen, click the **Factory Settings** button.



6. At the prompt, click **Yes** to reset the WCM settings.
7. Click OK to restart the connection manger.



4 Maintenance and troubleshooting

Overview

The following section provides information for hardware and software related questions or troubleshooting issues.

Q: Are there any special requirements for laptops?

A: Yes, there are two special requirements for laptops:

- An available USB slot is required.
- Power supply support of $5V\pm 5\%$ is required.

Q: What's the correct way to install the client software?

A: To install the client software perform the following steps:

- Install the client utility first, and then plug in your USB Dongle.
- The operating system detects the new hardware and guides you to install the new driver step by step.

Q: Why does it take a long time to install the client utility in Windows XP?

A: Please do NOT choose the option "search driver on networks" during installation as your computer may do a complete driver search and cause a delay in the installation process.

Q: I installed the client utility then plugged in the USB Dongle, however I still can't install the driver?

A: Perform the following:

- Take out the USB Dongle, and plug it in again.
- Your computer detects the new hardware and guides you to install the appropriate driver.
- If you still can't install the driver successfully, check your device by installing the drivers on another computer.

Q: Can I take out the USB Dongle without removing it through the operating system?

A: Although the USB Dongle device supports hot swap, please remove it by undocking it through your operating system first.

Q: Do I need to install .NetFrameWork?

A: No, you do not need to install .NetFrameWork. The client utility detects if .NetFrameWork is installed on your system. If it is not detected, the utility installs .NetFrameWork automatically.

Q: I removed .NetFrameWork do I need it to run the client utility?

A: Yes, .NetFrameWork is necessary for the client to operate properly. You must install the client software once again. See Hardware and Software installation.

Q: What operating system does the client utility support?

A: The client utility currently supports Windows XP and Windows Vista.

Q: Why does a Windows message displaying *Cannot remove the hardware now* pop up when I run the auto-uninstall?

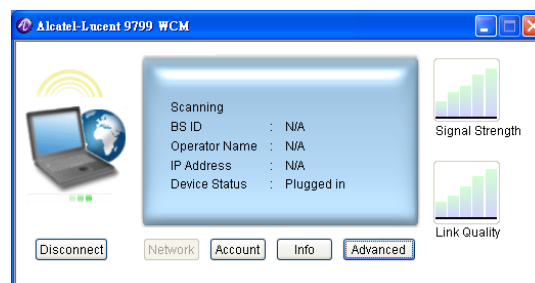
A: Please exit the client utility first, and restart your operating system if necessary.

If the problem still persists, a third party application may be using the USB Dongle device. Please close the application and try again.

Q: My device failed to connect after I inserted my USB Dongle. What can I do at this time?

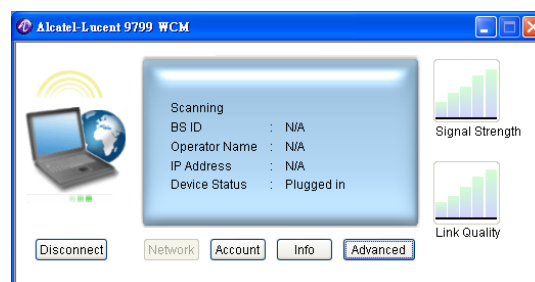
A: Take out the USB Dongle at this time and reinsert it in the USB slot.

Please note when your device is not detected the following screen appears.

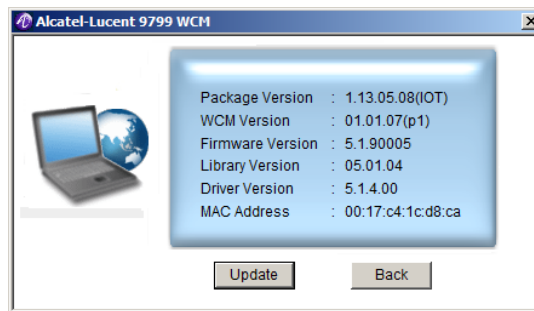


Q: How can I get information on my USB Dongle device?

A: Please plug in the USB Dongle device. Then, open the client utility and click the **Info** button.



The following information is displayed: Software Version, Firmware Version, and Driver Version.



Q: I have followed the procedures in the user manual, however I still can't access the Internet?

A: Please make sure the USB Dongle has been activated successfully. In addition, contact your operator for detailed settings.

Q: I click connect but I cannot log in to my account?

A: Please verify your account UserID and Password and ensure they are correct. Enter the account information and try again.

Q: My account information is correct, but I'm still not able to log in?

A: Signal reception might be a factor. Situate your computer in a location with good air link quality, and attempt to connect again.

Q: What does the LED activity mean?

The different state information for the USB Dongle is as follows:

LED function:

LED Function	LED 1	LED 2 (DL and UL Traffic)
Driver initialized	RED (solid)	OFF
Firmware download	RED (flashing)	OFF
Download complete	RED	OFF
No connection	RED	OFF
Normal Operation	OFF	Flashing

Glossary

B

BSID
Base Station IDentifier

C

CD
Compact Disc

CE
Mark that demonstrates compliance with European Union (EU) laws

D

DL
DownLink

E

EMC
ElectroMagnetic Compatibility

G

GHz
GigaHertz

I

IEEE
Institute of Electrical and Electronic Engineers

IC
Integrated circuit

L

LED
Light-emitting diode

M

MAC address
Media Access Control address

MB
MegaByte

MIMO
Multiple-Input/Multiple-Output

O

OFDMA
Orthogonal Frequency-Division Multiple Access

R

RoHS
Restriction of Hazardous Substances

S

SW
Software

U

UL
UpLink

USB
Universal serial bus

User ID (and password)
The identifier (and password) of your WiMAX account as provided by your service provider

W

WCM
Wireless connection manager

WiMAX
Worldwide Interoperability for Microwave Access