

med Draft WMC6300 Wireless Modem Card User's Guide

(Windows 2000)

Foreword

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Table of Contents

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	Introduction	1
	System Requirements	1
	General System Requirements	1
	What's in the Box	2
	Approved Antennas Options for WMC6300	2
	WMC6300 External Connections and Lights	3
INS	TALLING THE SOFTWARE	4
	Installing Med Software (Windows 2000 Clients Only)	4
	Configuring the DNS Address	8
	Connect the Antenna Assembly (Laptop Computer)	9
	Connect the Magnetic Antenna Assembly (Optional)	.10
	Insert the WMC6300 Wireless Modem Card	.11
	Uninstalling Application Software	.14
OVI	ERVIEW OF MESHNETWORKS' MESHTRAY	.15
	MeshTray™	.15
	MeshTray Status	.16
	Starting MeshTray	.16
	Terminating MeshTray	.16
CUS	STOMER SERVICE INFORMATION	.17
LIC	ENSE AND WARRANTY INFORMATION	.18
	Important Information	.18
RE	GULATORY INFORMATION	.20

FCC Information	20
FCC RF Radiation Exposure Statement	20
Safety Information for the Med wmc6300	21
Safety Certification	22

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Introduction

Thank you for purchasing the WMC6300 Wireless Modem Card. Please install the $\square \overline{\Theta}$ C Application Software and Drivers before inserting the Wireless Modem Card in your system. To get started proceed to the *Installing the Software* section of this document.

 $\overline{\mathbb{M}} \ominus \mathbb{C}$ is a wireless communication system capable of supporting high data rate mobile communication at vehicular speeds. The $\overline{\mathbb{M}} \ominus \mathbb{C}$ system is designed to allow standard client hosts with a PCMCIA interface to have a mobile broadband Ethernet connection. The $\overline{\mathbb{M}} \ominus \mathbb{C}$ system works transparently to the client host in a manner similar to an Ethernet connection. $\overline{\mathbb{M}} \ominus \mathbb{C}$ provides Internet Protocol based data and location services. Its geolocation accuracy and availability is better than ± 10 meters within 1 second. It is capable of supporting subscribers traveling up to 100 miles per hour.



Figure 1. MeshLAN WMC6300 Wireless Modem Card

The $M\overline{\Theta}Q$ system provides a secure and reliable transport for the client host. The client host may still require configuration and authentication before it will be allowed to access services on the core network. Access to the core network is controlled by the network administrator according to current operating practice. This document provides detailed installation and configuration instructions for use when installing the $M\overline{\Theta}Q$ WMC6300 Wireless Modem Card and its Software.

System Requirements

General System Requirements

For best results, ensure the computers meet the following minimum requirements:

- Intel based Laptop or Notebook PC running the Microsoft Windows 2000 operating systems
- 5 MB of available hard disk storage
- Keyboard
- Mouse
- CD-ROM drive or DVD drive
- Available Type II PCMCIA card slot in the Host device

What's in the Box

Each Mea WMC6300 Wireless Modem Card is a full-featured wireless networking interface. The following is a list of the items provided with each WMC6300 card:

- mēd WMC6300 Wireless Modem Card
- Antenna with a MMCX connector
- med WMC6300 Software and Documentation CD

The $M\overline{\ominus}G$ CD contains an on-line version of the $M\overline{\ominus}G$ WMC6300 User's Guide in Adobe PDF format. If required, the CD also contains an installation executable to load the Adobe Acrobat Reader software.

Note: For best results, the Mea WMC6300 software should be installed before you insert the Mea WMC6300 card into the device.

Approved Antennas Options for WMC6300

Manufacturer	Part Number	Gain	Useage
Centurion	CAF28863	1.5 dBi	Laptop/PDA
Maxrad	BMMG2400ML195MS	0 dBi	Mobile
Antennax	TRA24003	3 dBi	Mobile

WMC6300 External Connections and Lights

The WMC6300 Wireless Modem Card is designed for insertion into an industry-standard Type II PCMCIA card slot located in a Host device. The WMC6300 has an antenna port to connect the external antenna and two LED Indicators. The Red LED is the transmit indicator and the Green LED is the receive indicator as shown in Figure 3.

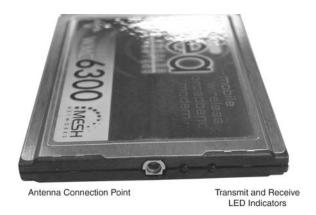


Figure 2. WMC6300 Antenna Port and LED Indicators

Installing the Software

Installing Mē□ Software (Windows 2000 Clients Only)

Note: Install the Mēa Software before inserting the WMC6300 card.

Complete the following procedure to install the Mēa Software:

- 1. Insert the Med Software Installation CD into the computers' CDROM drive.
- 2. The mea Setup program will be displayed as shown in Figure 3.

Note: If the installation program does not start automatically, open the Windows **Start** menu, click on **Run**, and then type **d:setup.exe** (where **d** is the letter of the CD-ROM drive) and click the "**OK**" button.

3. Click the "Next" button to continue the installation process.

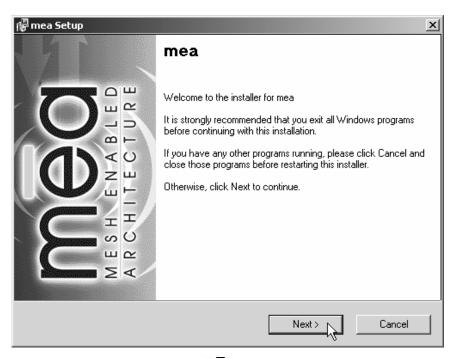


Figure 3. Mea Installation Welcome Window

- 4. The "License Agreement" window will be displayed. Please review the End User License Agreement. Use the scroll bar located at the right side of the window to display the complete text message. Note: If you do not agree with the terms of the license agreement, click on "Cancel" and the installation will be terminated.
- 5. To continue with the installation process, click on the "YES" button as shown in Figure 4 and then click on "Next" to continue the installation.



Figure 4. Agree with License Agreement Window

6. The "Startup Options" window will be displayed as shown in Figure 5. The user can modify the default installation configuration by checking or un-checking the boxes on this installation window. Click on "Next" to continue the installation process.

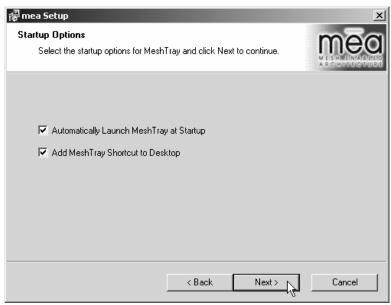


Figure 5. Ready to Install Window

7. The "Ready to Install mea Window" will be displayed as shown in Figure 6. This window displays the Install Folder location and the Shortcut Folder name that will be used to install the mea software. Click on "Next" to proceed with the installation process.

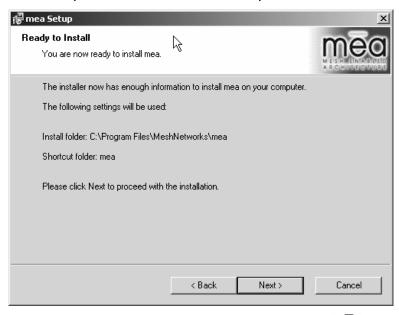


Figure 6. Ready to Install Mē□ Window

8. During the installation process, the "Performing Setup Actions" window displays a status bar that indicates the progress of the installation. When the file transfer is complete, a window will be displayed as shown in Figure 7 that allows the user to view the "ReadMe" file for late breaking release information. It also allows the user to immediately run MeshTray. Click on "Next" to proceed with the installation process.

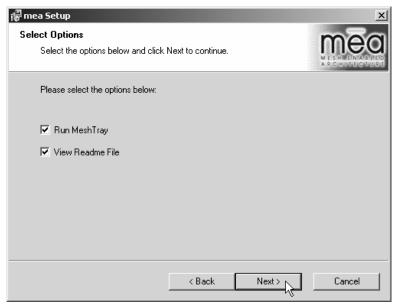


Figure 7. Select Options Window

- 9. If selected, the "ReadMe" file will be displayed. Review the contents of the file and then close the dialog window by clicking on the "X" located in the upper-right corner of the window.
- 10. The "mea Installed Successfully" dialog window will appear as shown in Figure 8. Click on "Finish" to complete the installation process.

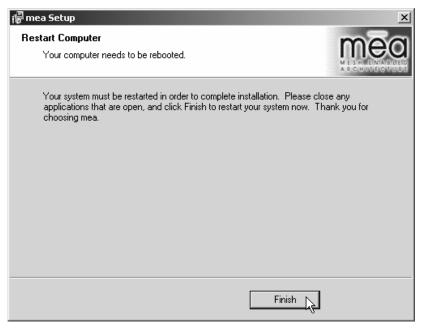


Figure 8. Finished Popup Window

Configuring the DNS Address

The Network Operator must supply the DNS IP address for an Internet connection. This address must be manually configured in order for web URLs such as www.meshnetworks.com to be resolved. Complete the following procedure to configure the address:

- Click on Start/Settings/Network and Dial-up Connections/Local Area Connection
- 2. Right click on the Local Area Connection Corresponding to the Wireless Modem Card and select "Properties" from the pop up menu.
- 3. Highlight "Internet Protocol (TCP/IP)" in the Components window.
- 4. Click on the "Properties" button.
- 5. Click on the "Advanced" button.
- 6. Click on the "DNS" tab
- 7. Click on the DNS "Add" button.
- 8. Enter the "DNS Server IP Address" provided by the network administrator and then click the "Add" button.
- 9. Click the "OK" button to close the Advanced TCP/IP Settings windows.
- 10. Click the "OK" button to close the Internet Protocol (TCP/IP) Properties windows.
- 11. Click the "OK" button to close the Local Area Connection Properties windows.
- 12. Click the "Close" button to close the Local Area Connection Status window.

This configuration should remain in the Windows 2000 host.

Connect the Antenna Assembly (Laptop Computer)

Complete the following procedure to connect the Antenna Assembly to the WMC6300, for use in a standard laptop computer.

Warning

Always eject card when not in use.

1. Locate the Antenna and insert the connector into the WMC6300 antenna port as shown in Figure 9.

Note: The connector will "snap" into place when fully inserted.



Figure 9. Attach Antenna to the WMC6300

Warning

Use only the MeshNetworks supplied antenna.

Use of another antenna is prohibited and violates FCC regulations. Never use the WMC6300 with the Antenna disconnected from the Card.

Connect the Magnetic Antenna Assembly (Optional)

Complete the following procedure to install the Magnetic Mount Antenna on the rooftop of a vehicle. (The cable length of the Antenna is approximately 12-feet.)

- 1. Attach the Magnetic Antenna to the metal rooftop of the vehicle so that the antenna is in a vertical orientation.
 - **Caution:** The base of the antenna contains a powerful magnet that secures the antenna to the rooftop. Use care when attaching the antenna
- 2. Route the remaining 12-foot cable as required to arrive at the Host Computer.

Warning.

Never use the WMC6300 with the Antenna removed from the rooftop. Never use the WMC6300 with the Antenna disconnected from the Card.

3. Insert the Antenna Cable Connector into the WMC6300 antenna port as shown in Figure 10. **Note:** The connector will "snap" into place when fully inserted.

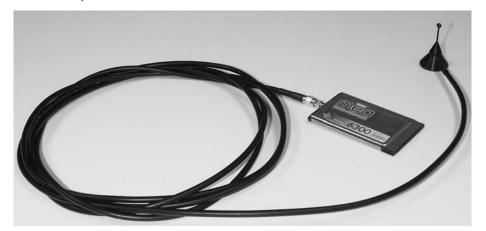
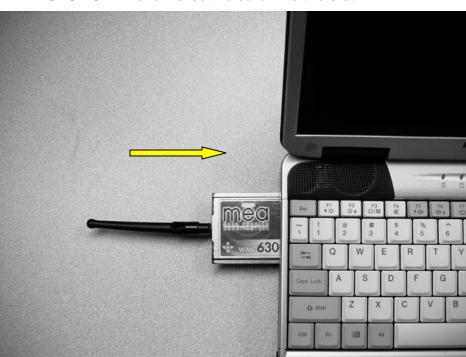


Figure 10. Attach Magnetic Mount Antenna to the WMC6300

Insert the WMC6300 Wireless Modem Card

Complete the following procedure to install the WMC6300 Wireless Modem Card in the computer.

- 1. Locate an available Type II PCMCIA card slot in the computer. If necessary, remove the slot dust cover from the slot.
- 2. To ensure the correct orientation of the card, insert the WMC6300 Wireless Modem Card into the computer's PCMCIA card slot with the label side up as shown in Figure 11.



CAUTION - Never force the card into the slot.

Figure 11. Installing the WMC6300 Wireless Modem Card

3. The antenna position must be vertically orientated when the laptop is in use as shown in Figure 12



Figure 12. Proper Orientation of Antenna

Removing the WMC6300 Wireless Modem Card

The WMC6300 should be ejected using the following procedure to ensure that power to the card is disabled prior to removal.

Warning

Always eject card when not in use.

- 1. Click on the Unplug or Eject Hardware icon in the system task bar.
- 2. Select "Stop mea PC Card" from the popup menu as shown in Figure 13.



Figure 13. Eject the Hardware

3. Wait for a message that indicates that the device may be safely removed from the system as shown in Figure 14.



Figure 14. Safe to Remove the WMC6300 Card

4. Remove the WMC6300 from the PCMCIA slot as shown in Figure 15.



Figure 15. Removing the WMC6300 from the PCMCIA slot

Uninstalling Application Software

Complete the following procedure to "Uninstall" the Mēa Ad Hoc Routing Software:

- From the Start menu, select Program Files→Mēa→Uninstall Mēa.
 Note: The Mēa software can also be uninstalled using "Add/Remove Programs" located in the Control Panel.
- 2. The Uninstall program will ask, "Are you sure you want to remove MeshNetworks Software..." as shown in Figure 16. Click on "Yes" to continue.

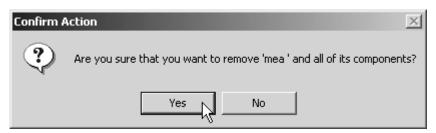


Figure 16. Confirm Uninstall

3. The "Removing Programs From Your Computer" window will be displayed while the Mea software is uninstalled as shown in Figure 17. When the Uninstalling Software Process is complete, click on the "Close" button.

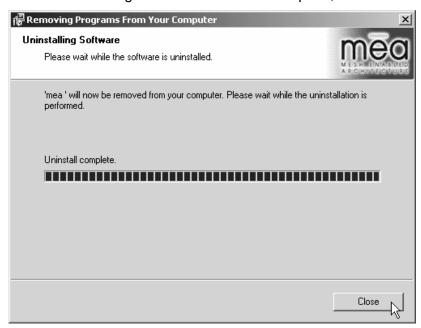


Figure 17. Removing Programs From Your Computer Window

Overview of MeshNetworks' MeshTray

MeshTray™

MeshTray is a status application that reports vital and statistical information about the $\overline{\text{MEO}}$ card. Because MeshTray is a "tray" application, it stays in the desktop system status tray when it is minimized as shown in Figure 18 and Figure 19. The MeshTray icon changes to indication of the state of the wireless interface. In Figure 18 the MeshTray icon is in an inactive or disconnected state.



Figure 18. Inactive MeshTray Icon

The MeshTray icon shown in Figure 19 is currently associated with an AP400. The MeshTray icon displays the Link Strength to the associated IAP as color-coded bars. (More bars indicate greater Link Quality.)



Figure 19. MeshTray Link Strength Indicator

Clicking on the MeshTray icon restores the application to a property sheet interface as shown in Figure 20.

MeshTray Status

When the utility is launched, MeshTray displays useful system information such as a description of the device, the MAC address of the node, the IP address of the currently associated IAP, and the type of device (i.e., Subscriber Device, Wireless Router or IAP). The Driver and Firmware version and the IAP Address are also displayed.

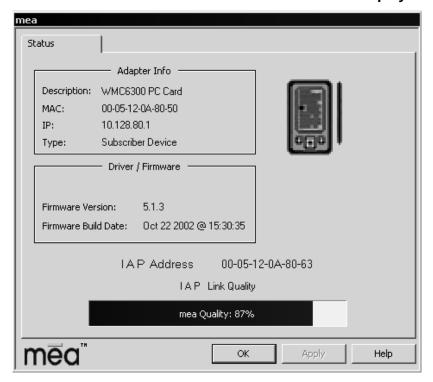


Figure 20. MeshTray Status Page

Starting MeshTray

During the software installation process, a MeshTray shortcut icon is installed on the users' desktop. To start the MeshTray application, double-click on the MeshTray icon.

Terminating MeshTray

If desired, the MeshTray application may be terminated by positioning the curser over the MeshTray icon that is located in the Toolbar. Then, right-click on the MeshTray icon and select "Exit" as shown in Figure 21. The task is terminated and the icon is removed until the application is started again from the Start menu.

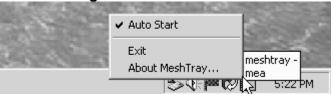


Figure 21. Exit MeshTray

Customer Service Information

For information about solving difficulties in setting up your mea WMC6300, please see the Frequently Asked Questions in the support page at http://www.meshnetworks.com/.

If you have read this document, reviewed the FAQ, and made every effort to resolve installation or operation issues and require assistance, please contact your $M\overline{\Theta}Q$ WMC6300 supplier.

License and Warranty Information

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EXPORT COMPLIANCE

You agree and certify that the Product will be utilized only in the United States of America or in compliance with 22CFR125.4(b)(9).

GOVERNING LAW

This License Agreement & Limited Warranty will be governed by the laws of the state of Florida, U.S.A., and by the laws of the United States, excluding their conflicts of laws principles. Both the Uniform Computer Information Transactions Act and the United Nations Convention on Contracts for the International Sale of Goods are hereby excluded in their entirety from application to this License Agreement & Limited Warranty.

Regulatory Information

FCC Information

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.

Federal Communications Commission (FCC) 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 an 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 or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the WMC6300 and radio or television receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the supplier of the WMC6300 or an experienced radio/TV technician for help.

FCC RF Radiation Exposure Statement

- 1. **CAUTION:** This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.
- 2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Although this device complies with the FCC RF Exposure limits in multiple configurations of the antenna, we suggest that the antenna be positioned away from the body when transmitting in order to minimize the level of RF Exposure.

Safety Information for the Mē□ WMC6300

The Federal Communications Commission (FCC) with its action in ET Docket 96-8 has adopted a safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC certified equipment. MeshNetworks' Mea0 products meet the uncontrolled environmental limits found in OET-65 and ANSI C95.1, 1991. Proper operation of this radio according to the instructions found in this manual and the hardware and software guides on the Mea0 CD will result in user exposure that is substantially below the FCC recommended limits.

- Do not touch or move the antenna(s) while the unit is transmitting or receiving.
- Do not hold any component containing a radio such that the antenna is very close to or touching any exposed parts of the body, especially the face or eyes, while transmitting.
- Do not operate a portable transmitter near unshielded blasting caps or in an explosive environment unless it is a type especially qualified for such use.
- Do not operate the radio or attempt to transmit data unless the antenna is connected; otherwise, the radio may be damaged.

WARNING

Use the antenna supplied by MeshNetworks.
Use of other antennas is prohibited may violate FCC regulations.

NOTE: The manufacturer is not responsible for any unauthorized modifications to this equipment. Unauthorized modifications could void user's authority to operate device.

Safety Certification



Conforms to UL STD ANSI/UL 60950 3rd Edition
Certified to CAN/CSA C22.2 NO. 60950-00
Equipment shall be suitable for use in Air pressure: 86kPa to106kPa.