MOTOMESH 4.0
Wireless Modem Card
Users Guide

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Chapter

1

Chapter 1: Introduction

This guide will assist you with the use, installation, and configuration of the WMC6300 and the WMC7300 Wireless Modem Card (WMC). Due to the physical similarities of the two WMC cards, many of the explanations and procedures described in this manual apply to both cards except where expressly noted.

In addition, a section describing the MeshTray application, which is used for direct user interface with the Wireless Modem Card, is also included.

General System Requirements

Host computers must comply with the following minimum requirements to ensure optimal performance of the WMC6300 and the WMC7300.

Windows XP Minimum System Requirements

- Laptop or Notebook PC running the Microsoft Windows XP (Service Pack 1) operating system
- 500 MHz Processor
- 10 MB of available hard disk storage
- Keyboard, Mouse, CD-ROM drive or DVD drive
- Available Type II PCMCIA card slot in the Host device

Windows 2000 Minimum System Requirements

- Laptop or Notebook PC running Microsoft Windows 2000
- (Service Pack 3) operating system
- 500 MHz Processor
- 10 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 and WMC7300 (Wireless Modem Card) is a full-featured wireless networking interface. The following is a list of the items provided with each Wireless Modem Card:

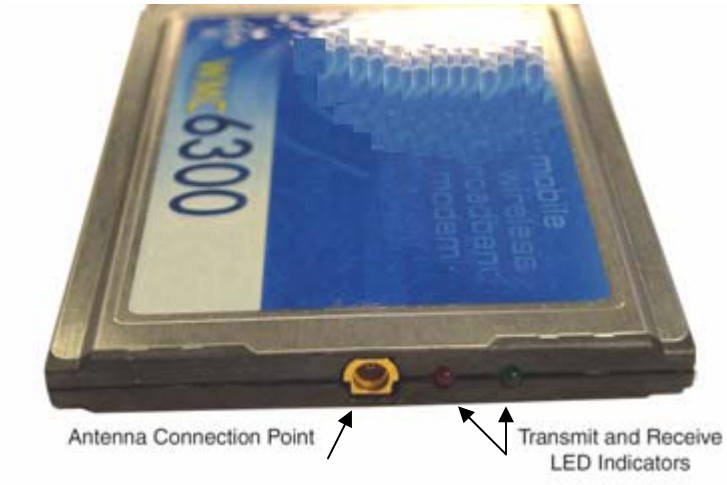
- WMC6300 or a WMC7300 Wireless Modem Card
- Antenna with a MMCX connector
- Wireless Modem Card Software and Documentation CD ROM

The CD ROM contains a PDF version of the Wireless Modem Card User's Guide. The CD also contains an installation executable to load Adobe Acrobat Reader software if it is not already resident on your computer.

External Connections and LED Indicators

The WMC6300 and the WMC7300 Wireless Modem Card is designed for insertion into an industry-standard Type II PCMCIA card slot located in a Host device. The Wireless Modem Cards have an antenna port to connect the external antenna and two LED Indicators. As shown in Figure 1-1 the red LED is the transmit indicator and the green LED is the receive indicator.

Figure 1-1 WMC showing Antenna Port and LED Indicators



Chapter

2

Chapter 2: Software Installation

This chapter will assist you with the Software installation portion of the process and is further separated into two main sections: *Installing MOTOMESH Client Software on Windows XP* and *Installing MOTOMESH Client Software on Windows 2000*.

Installing MOTOMESH Client Software on Windows XP

The following procedure outlines the installation of the MOTOMESH client software on a typical Windows XP platform. Some of the steps may vary slightly based on the configuration of the individual computers.

CAUTION

If you are running Windows XP Service Pack 2 (SP2), Windows Firewall is turned on by default. It is recommended that you disable the firewall when using your Wireless Modem Card.

Procedure 2-1 MOTOMESH Client Software Installation on Windows XP

1	Close and exit any existing MOTOMESH applications running on the computer prior to installation.
2	Insert the Software and Documentation CD into the CD-ROM drive.
3	If the installation program does not start automatically, open the Windows **Start** menu. Click on **Run** then type the following into the dialog box: **d:\setupmotomeshclient.exe** where **d:** specifies the CD-ROM drive and click the **OK** button.
4	Click the **Next** button to continue the installation process.
5	The *MOTOMESH Setup* dialog box will be displayed as shown in Figure 2-1.

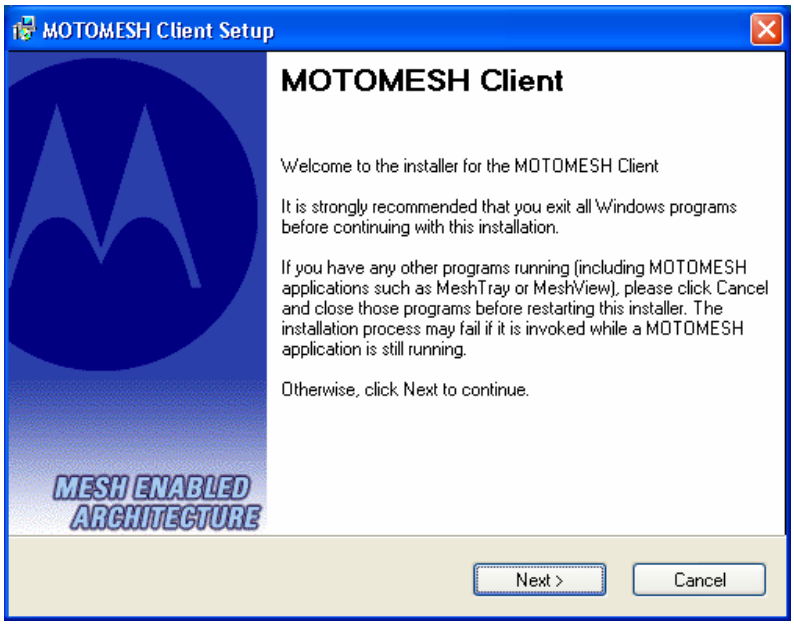
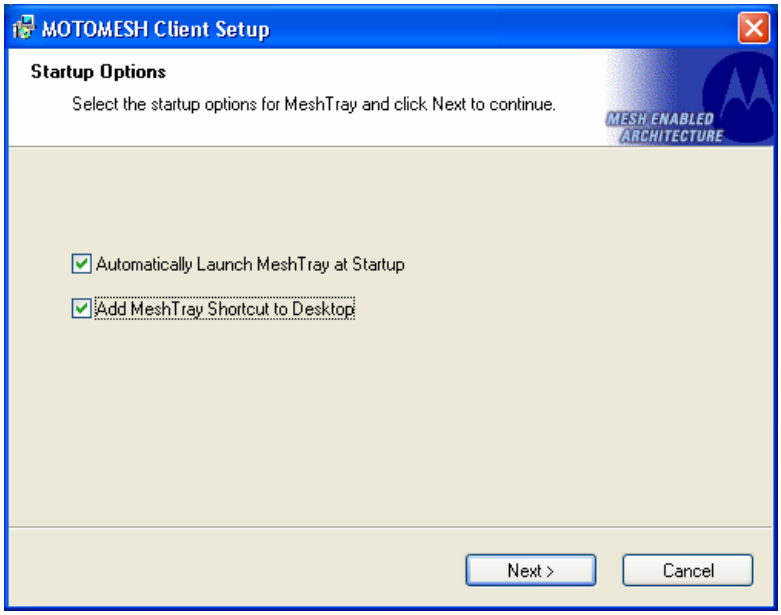
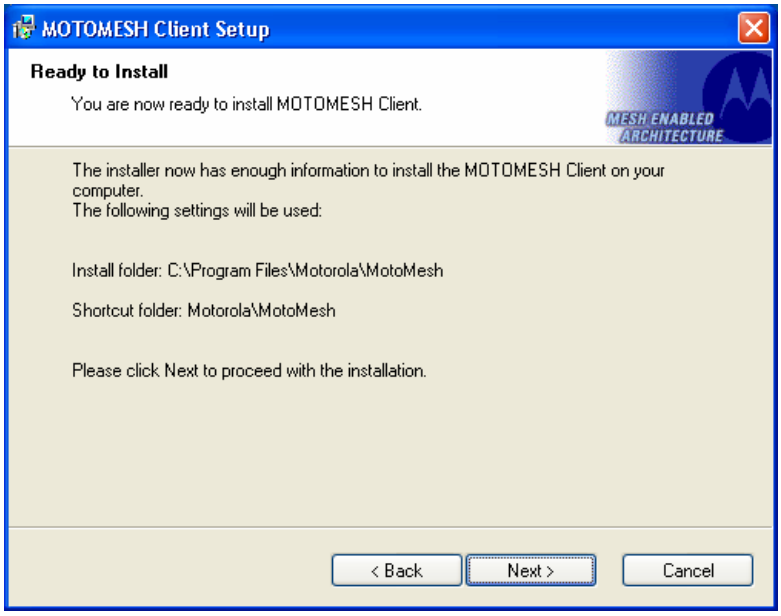
6	Click the **Next** button to continue the installation process. **Figure 2-1 MOTOMESH Setup - Welcome Dialog (XP)** 
7	In the *Startup Options* dialog make your selection by checking or un-checking the available options. Click on the **Next** button to continue the installation process. It is recommended that the "Automatically Launch MeshTray at Startup" checkbox is selected; allowing MeshTray to be available each time the computer is restarted and whenever a Wireless Modem Card (WMC) is inserted. **Figure 2-2 MOTOMESH Setup – Startup Options (XP)** 
8	The *Ready to Install* dialog displays the **Install Folder** location and the **Shortcut Folder** name that will be used to install the MOTOMESH software. Click on the **Next** button to proceed with the installation process.

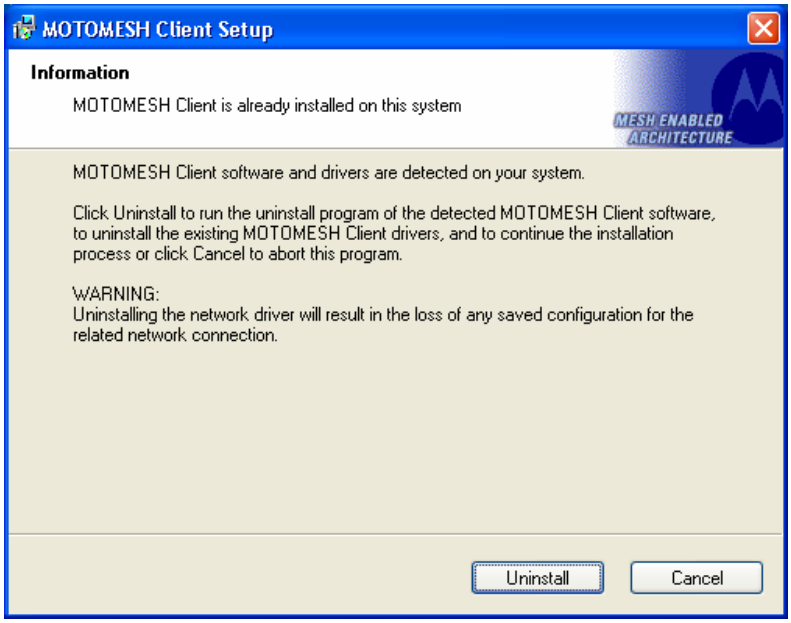
Figure 2-3 MOTOMESH Setup - Ready to Install (XP)

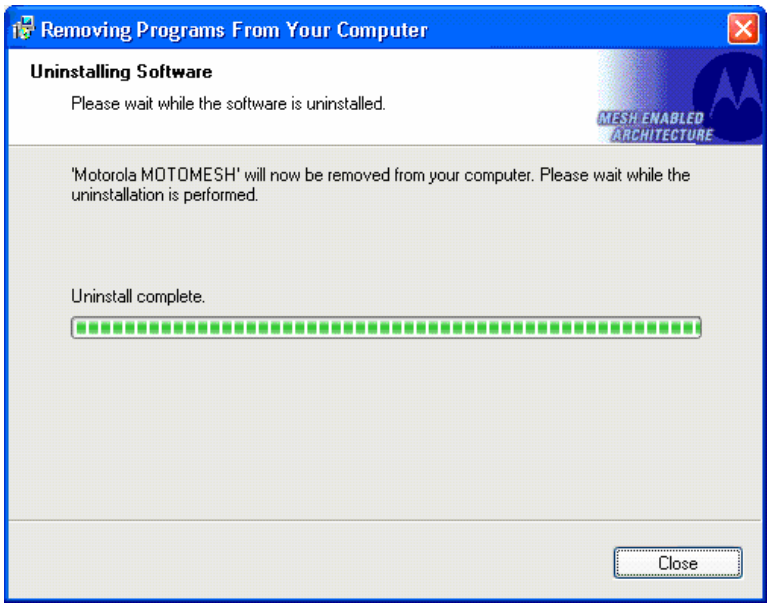
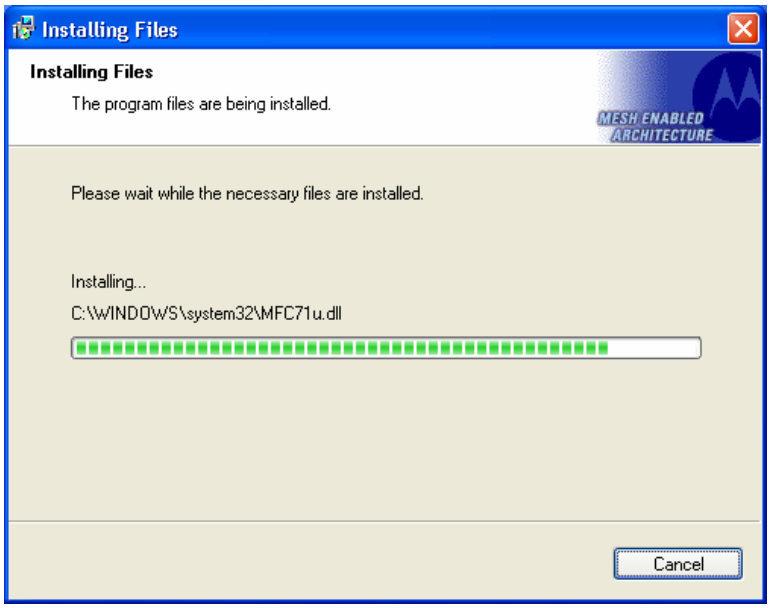


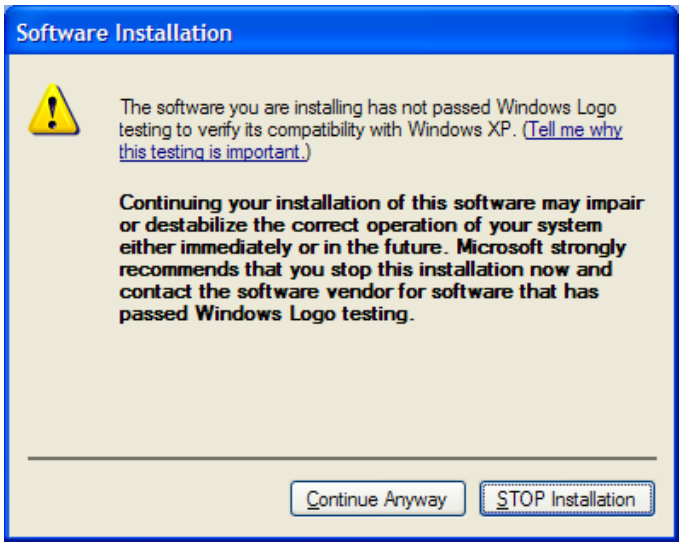
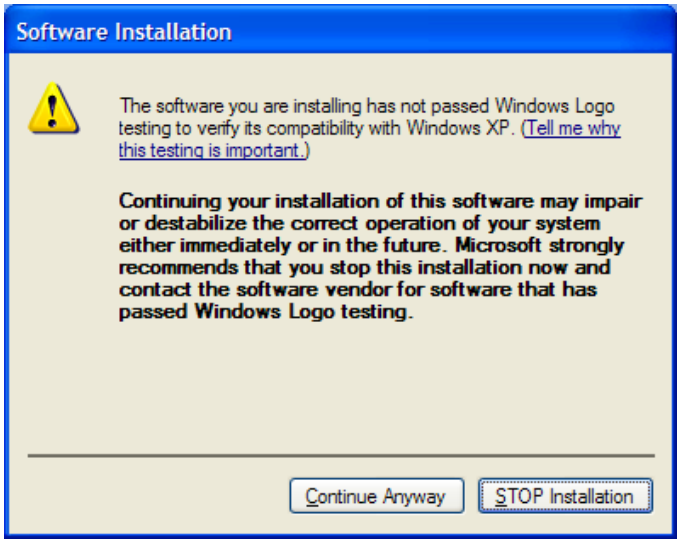
9 If MOTOMESH has been previously installed on your computer, the *Information* dialog box will be displayed as shown in Figure 2-4.

Select the **Uninstall** button to remove the existing MOTOMESH drivers and continue the installation process. If you choose not to continue, click the **Cancel** button.

Figure 2-4 MOTOMESH Setup - Previously Installed Software Detected (XP)



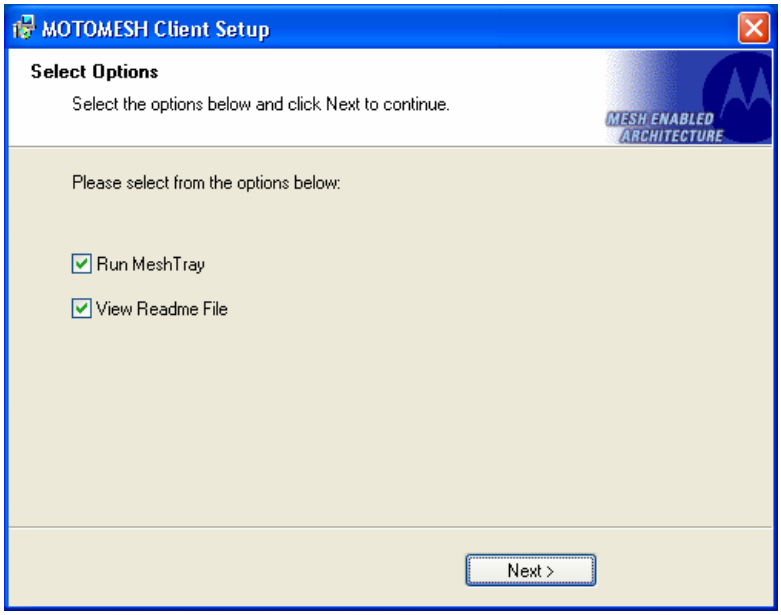
10	If you choose to continue with the installation, the *Removing Programs From Your Computer* dialog will be displayed to indicate the progress of the uninstall operation. When the operation has completed, click on the **Close** button to dismiss the dialog. **Figure 2-5 MOTOMESH Setup - Uninstalling Software (XP)** 
11	The *Installing Files* window will be automatically dismissed as soon as file installation has completed. **Figure 2-6 MOTOMESH Setup - Installing Files Window (XP)** 
12	The *Performing Setup Actions* dialog displays a status bar to indicate the progress of the installation.

13	A *Software Installation* dialog indicates that the software is not Windows Logo tested, select the **Continue Anyway** button to complete the installation process. **Figure 2-7 Software Installation Dialog Box** 
14	If a second *Software Installation* dialog box is displayed as shown in Figure 2-8. Click on the **Continue Anyway** button to complete the installation process. **Figure 2-8 Software Installation Dialog Box** 
15	Select the **Continue Anyway** button if additional windows display on the screen containing the same screen contents as in the step above.

16

The *Select Options* dialog box will be displayed as shown in Figure 2-9. This installation screen allows the user to view the *ReadMe* file during the installation and to run MeshTray immediately following installation. Click on the **Next** button to proceed with the installation process.

Figure 2-9 Software Installation Dialog Box



17

If selected, the *ReadMe* file will be displayed. Review the contents of the file and then dismiss the dialog box by clicking on the **X** located in the upper right corner of the dialog.

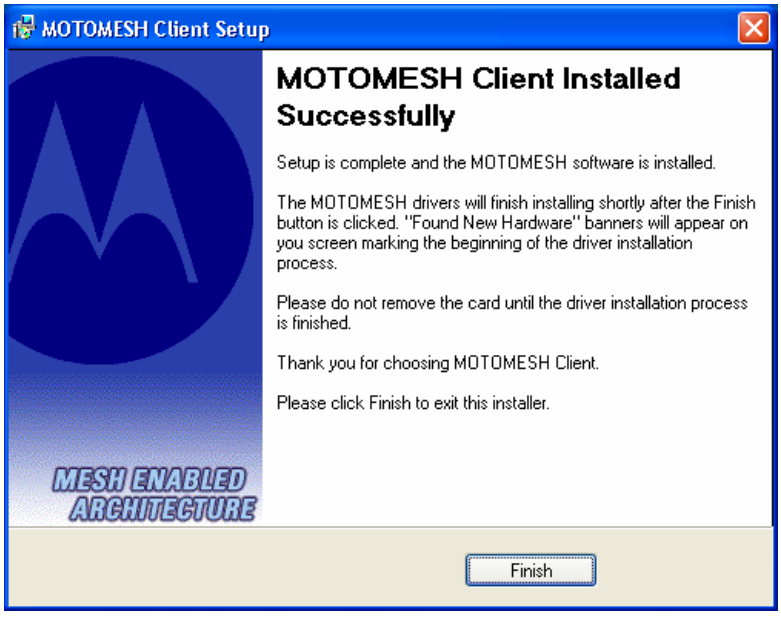
You MUST close the *ReadMe* file to complete the installation.

18

From the *MOTOMESH Installed Successfully* dialog click on the **Finish** button to exit.

Be sure to close the *ReadMe* file (if you elected to view it in the earlier steps), otherwise the dialog shown below will not be displayed.

Figure 2-10 MOTOMESH Setup - MOTOMESH Installed Successfully (XP)

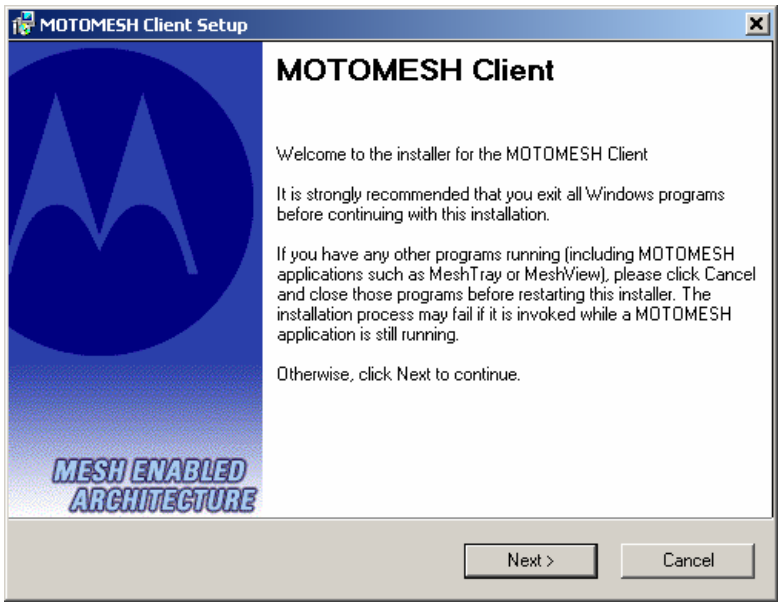


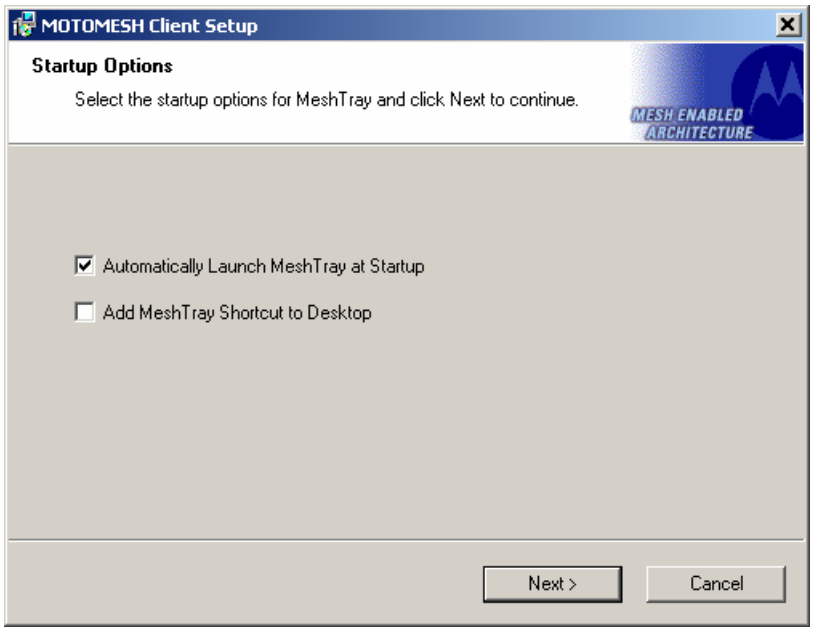
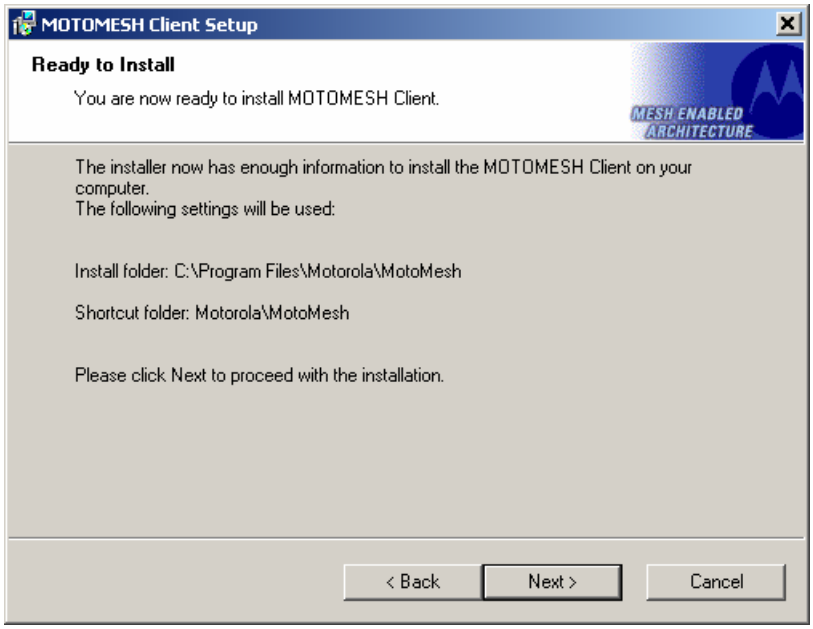
Installing MOTOMESH Client Software on Windows 2000

The following procedure outlines the installation of MOTOMESH client software on a typical Windows 2000 platform. Some of the steps may vary slightly based on the configuration of an individual computer.

Complete the following procedure to install the MOTOMESH client software:

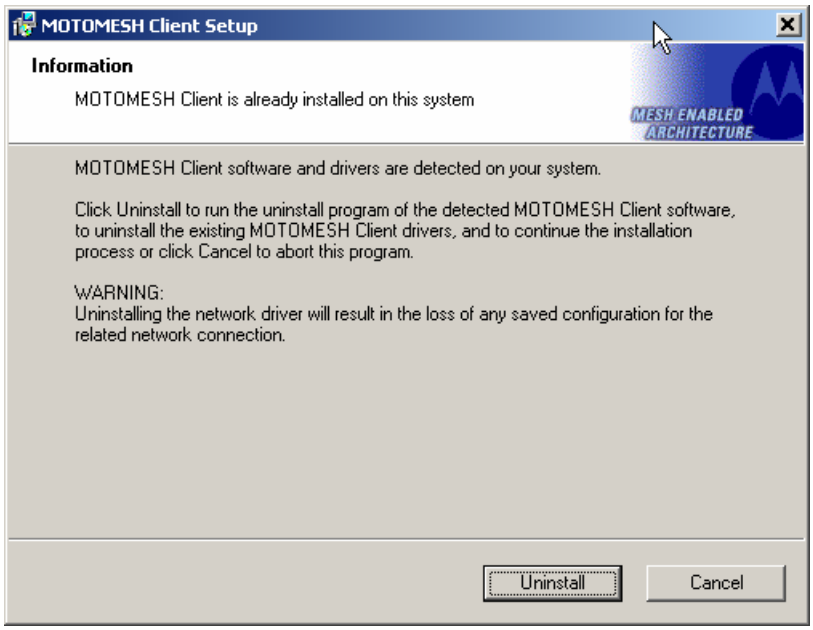
Procedure 2-2 MOTOMESH Client Software Installation on Windows 2000

1	Close and exit any existing MOTOMESH applications running on the computer prior to installation.
2	Insert the MOTOMESH Software and Documentation CD into the CD-ROM drive. The installation should begin automatically.
3	If the installation program does not start automatically, select **Start** | **Run** then type **d:\setupmotomeshclient.exe** (where **d:** specifies the CD-ROM drive) Click the **OK** button.
4	The MOTOMESH Setup program will be displayed as shown in Figure 2-11, select the **Next** button to continue the installation process. **Figure 2-11 MOTOMESH Setup - Installer Setup Dialog Box (W2K))** 

5	In the *Startup Options* dialog make your selection by checking or un-checking the available options. Click on the **Next** button to continue the installation process. It is recommended that the "Automatically Launch MeshTray at Startup" checkbox is selected; allowing MeshTray to be available each time the computer is restarted. **Figure 2-12 MOTOMESH Setup – Startup Options Dialog Box (W2K)** 
6	The *Ready to Install* dialog box will be displayed as shown in Figure 2-13. This dialog box displays the *Install Folder* location and the *Shortcut Folder* name that will be used to install the MOTOMESH software. Click on **Next** to proceed with the installation process. **Figure 2-13 MOTOMESH Setup - Ready to Install (W2K)** 
7	If MOTOMESH was previously installed on your computer, the *Information* dialog box will be displayed as shown in Figure 2-14.

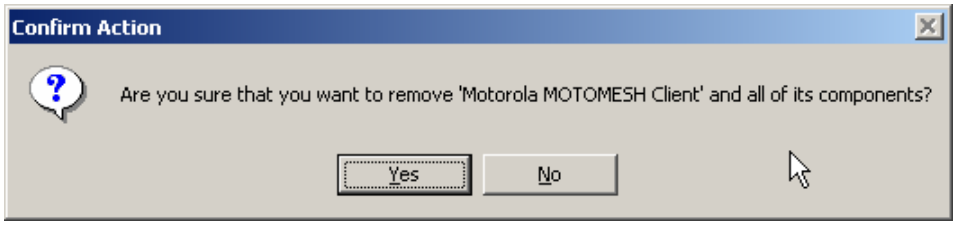
Select the **Uninstall** button to continue with the removal process or select the **Cancel** button.

Figure 2-14 MOTOMESH Setup - Software Previously Installed (W2K)



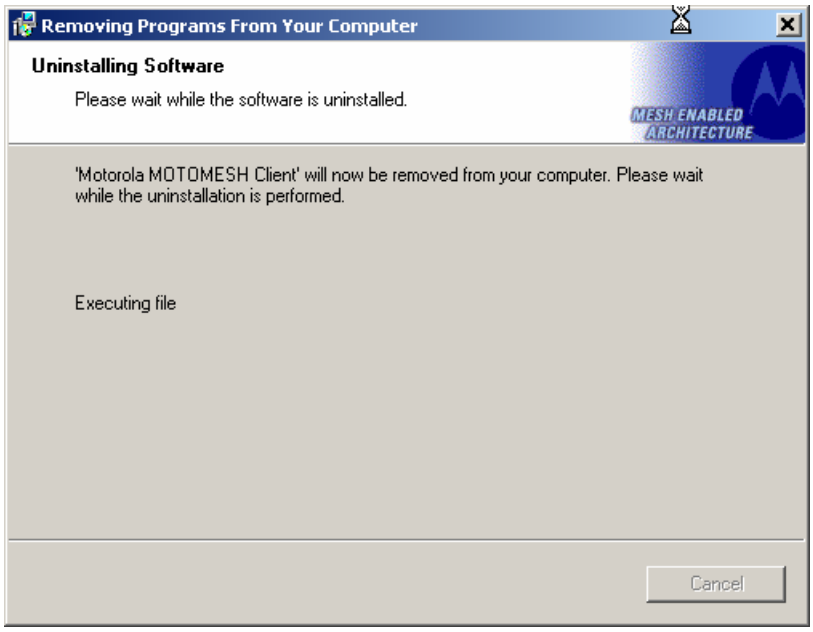
8 From the *Confirm Action* dialog select the **Yes** button to remove all of the previously installed components. If you do not want to continue, click on the **No** button.

Figure 2-15 Confirm Action – Remove Existing Components



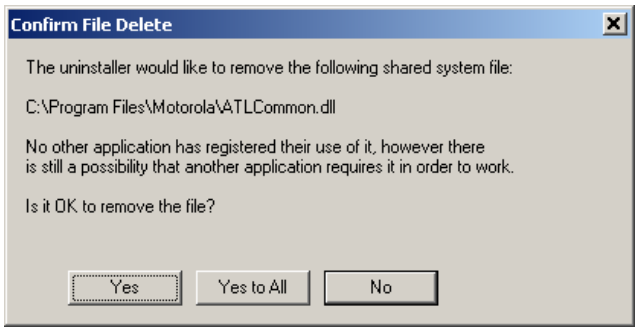
9 The *Uninstalling Software* dialog will display the un-installation status.

Figure 2-16 Removing Previous Software From Your Computer (W2K)



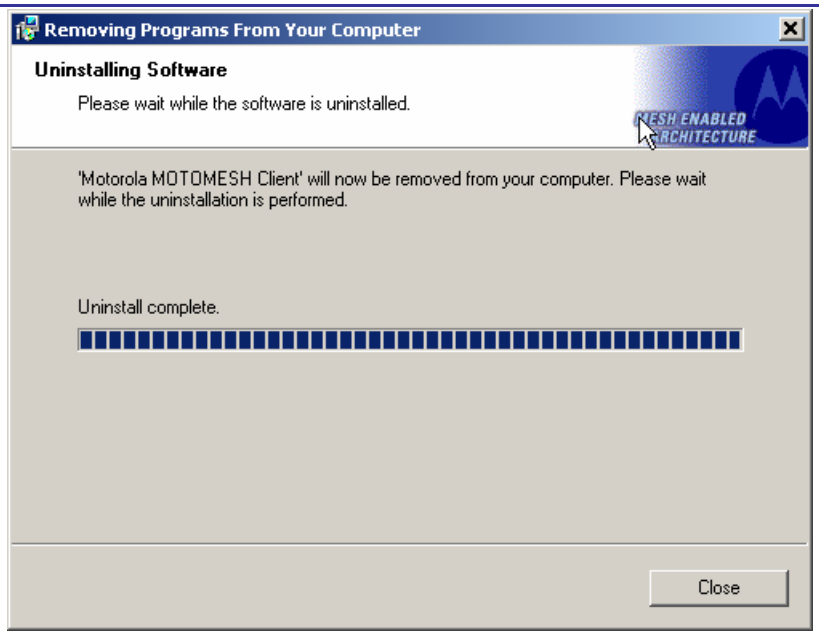
10 If the *Confirm File Delete* dialog displays on the screen, select the **Yes to All** button.

Figure 2-17 Confirm File Deletion (W2K)



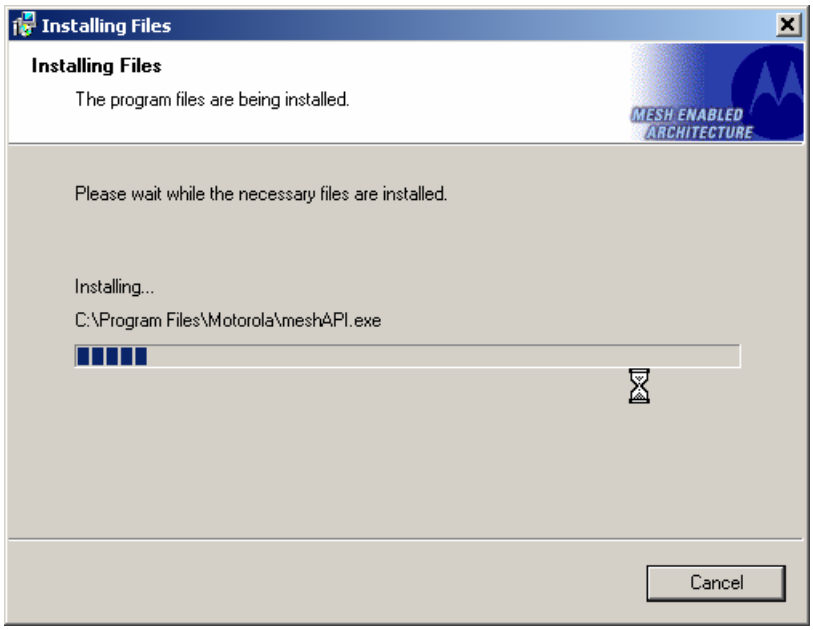
11 The *Uninstalling Software* dialog will display the deleting file status, select **Close** when done.

Figure 2-18 Uninstalling Software – Deleting Files (W2K)



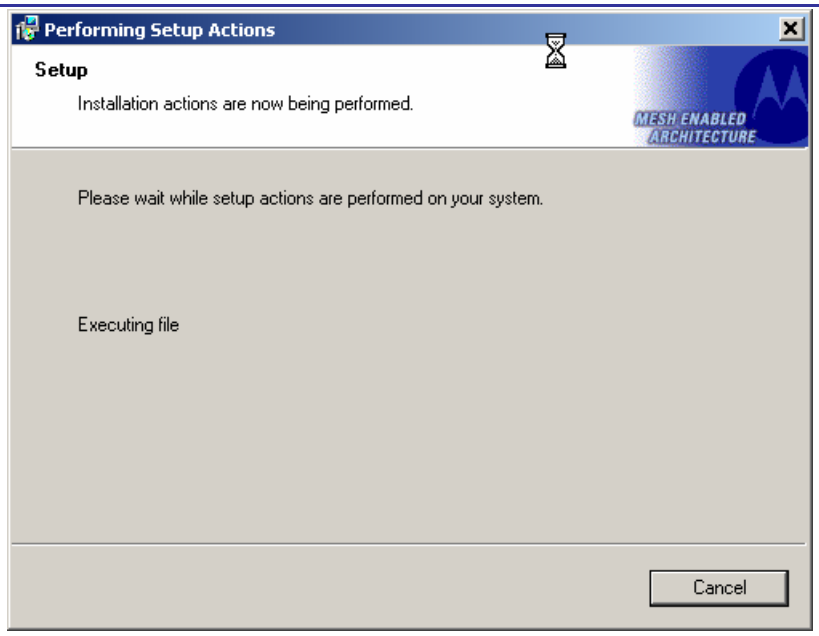
12 The *Installing Files* window will be dismissed as soon as the installation of the files is complete.

Figure 2-19 Installing Files Window (W2K)



13 During the Setup process, the *Performing Setup Actions* dialog box displays a status bar that indicates the progress of the installation.

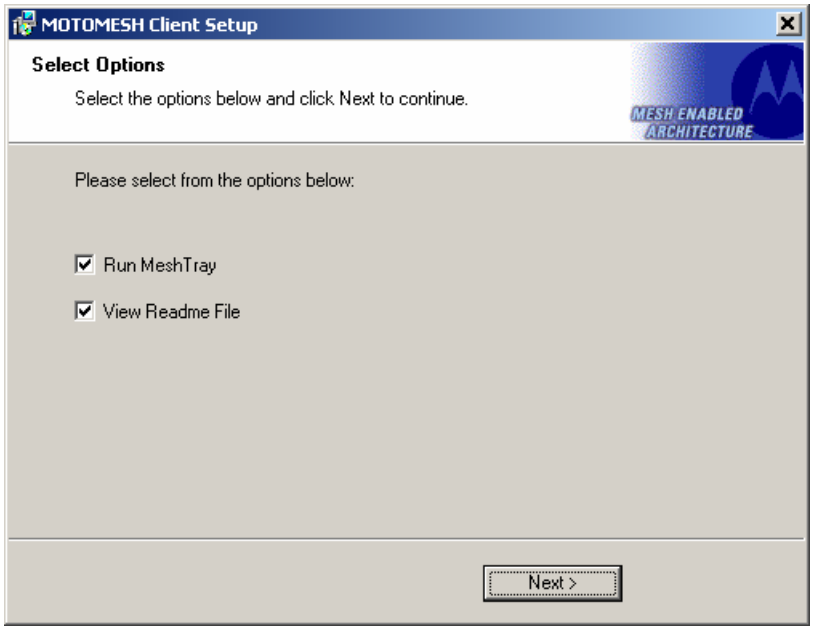
Figure 2-20 Performing Setup Actions (W2K)



14 The *Select Options* dialog box will be displayed as shown in Figure 2-21. This installation screen allows the user to view the *ReadMe* file during the installation and to run MeshTray immediately following installation.

Click on the **Next** button to proceed with the installation process.

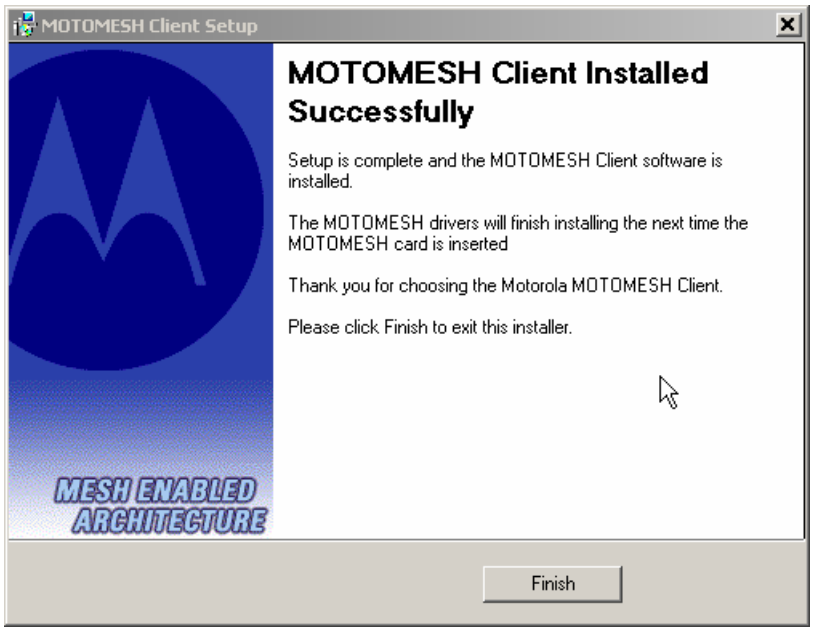
Figure 2-21 MOTOMESH Setup - Select Options Dialog Box



15 If selected, the *ReadMe* file will be displayed. Review the contents of the file and then dismiss the dialog box by clicking on the **X** located in the upper-right corner of the dialog box.

16	The *MOTOMESH Installed Successfully* dialog will appear as shown in Figure 2-22. Click on the **Finish** button to exit.

Figure 2-22 MOTOMESH Installed Successfully (W2K)



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Chapter

3

Chapter 3: Wireless Modem Card Installation

This chapter will assist you with the physical installation and configuration of the Wireless Modem Card.

Prerequisite Installation Information

The previous chapter's installation instructions must be completed before following the procedures outlined in this chapter.

Working with the Antenna

The following sections will focus on the proper handling and usage of antennas when using a wireless modem card.

Connecting the Antenna Assembly

Complete the following procedure to connect the Antenna Assembly (Knuckle or Pigtail type) to the Wireless Modem Card for use in a standard laptop computer.

WARNING

Always eject card when not in use.

Procedure 3-1 Connecting the Antenna Assembly

1	Locate the Antenna and insert the connector into the WMC6300 or the WMC7300 antenna port, as shown in Figure 3-1. **Figure 3-1 Attach the Antenna to the WMC6300 or the WMC7300** **NOTE** The connector will snap into place when fully inserted.
2	**WARNING** ***Use only FCC approved antennas.*** ***Never use the WMC6300 or the WMC7300 with the Antenna disconnected from the Card.***

Disconnecting a Pigtail Antenna Assembly

Complete care should be taken when disconnecting an antenna from the WMC6300 or the WMC7300 card. Follow the procedure below for correct antenna disconnection instructions:

Procedure 3-2 Disconnecting the Antenna Assembly

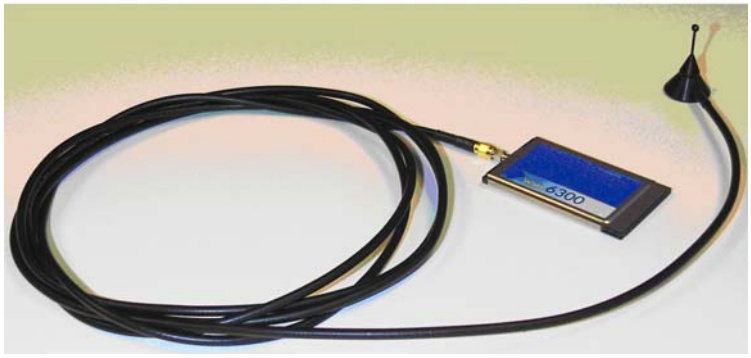
1	When disconnecting a pigtail antenna from the Wireless Modem Card use caution not to damage the card, connector, or cable. **CAUTION** ***Applying force in any direction other than parallel to the card may***

	result in excess pressure being applied to the connection between the WMC connector and the board, which could crack or otherwise damage a solder joint. .
2	Pull straight out at the connector to avoid damaging the card, connector or cable.

Connecting the Magnetic Antenna Assembly (Optional)

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

Procedure 3-3 Installing the Magnetic Mount Antenna Assembly

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 or the WMC7300 with the Antenna removed from the rooftop, or with the Antenna disconnected from the Card.***
3	Insert the Antenna Cable Connector into the WMC6300 antenna port as shown in Figure 3-2 . **NOTE** The connector will snap into place when fully inserted. **Figure 3-2 Attach Magnetic Mount Antenna to the WMC6300** 

Handling the WMC6300 and the WMC7300

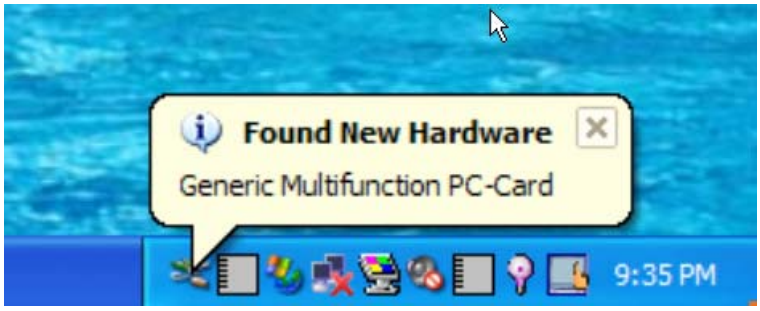
The following sections will describe the proper installation and removal of the WMC6300 and the WMC7300 wireless modem cards.

Installing the Wireless Modem Card

Complete the following procedure to install the WMC6300 and the WMC7300 wireless modem cards. The same installation procedure applies to both wireless modem card model numbers.

Procedure 3-4 Installing the Wireless Modem Card

1	Locate an available Type II PCMCIA card slot in the computer. If necessary, remove the slot dust cover from the slot.
2	To insure the correct orientation, insert the Wireless Modem Card into the computer's PCMCIA card slot with the label side up as shown in Figure 3-3. **CAUTION** *Never force the card into the slot.* **Figure 3-3 Installing the Wireless Modem Card**

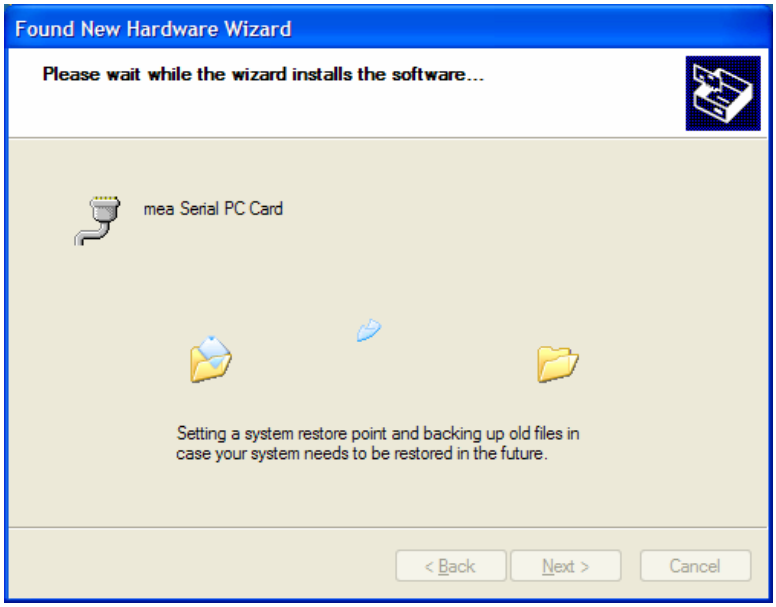
3	The antenna must be attached using the clip and vertically oriented when the laptop is in use as shown in Figure 3-4. **Figure 3-4 Proper Orientation of Antenna**
4	The first time that the card is inserted, a message will be displayed indicating that the PC card has been found as shown in Figure 3-5 **Figure 3-5 Found New Hardware Popup Dialog box** 

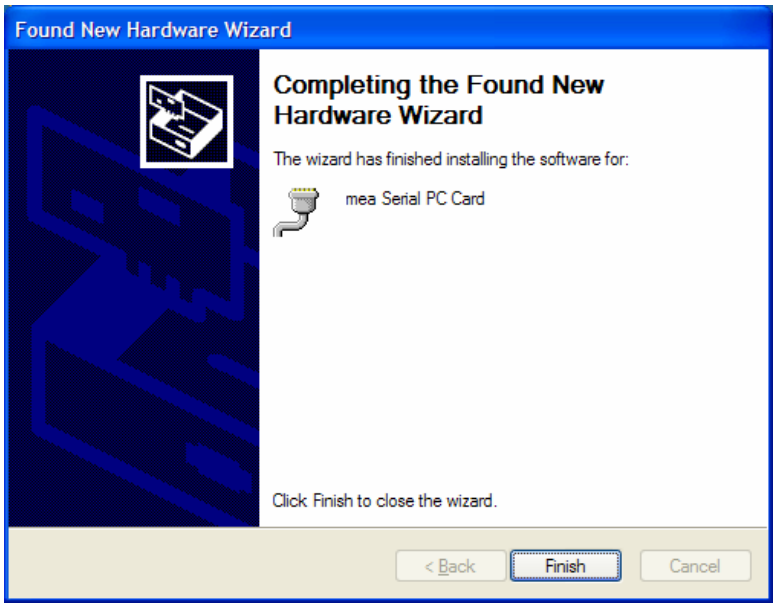
5	The Windows *Found New Hardware Wizard* for the Serial PC Card will start as shown in Figure 3-6. Verify that the "Install the software automatically (Recommended)" radio button is selected, and then click on the **Next** button.

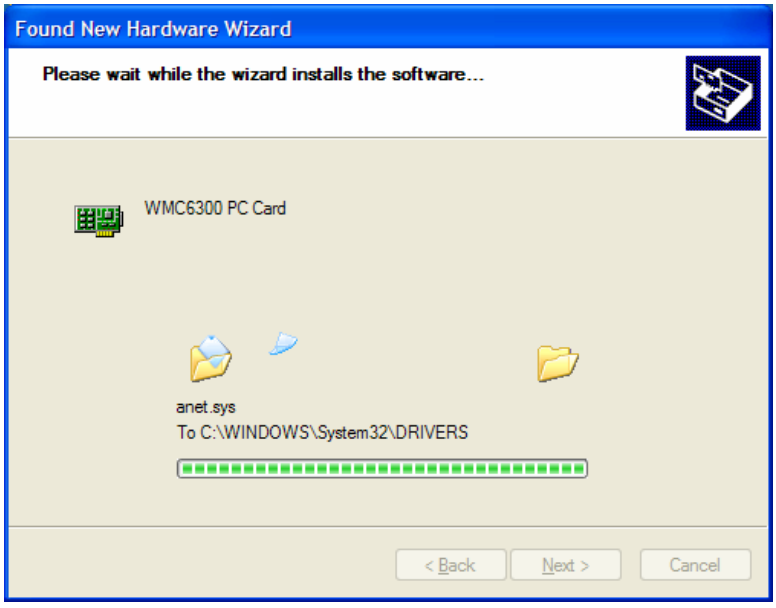
Figure 3-6 Found New Hardware Wizard – Serial PC Card

6	The *Found New Hardware* dialog will display the progress information for establishing the restore point and backing up old files as shown in Figure 3-7.

Figure 3-7 Found New Hardware Wizard - Loading Files



7	As soon as the above step is complete, the *Hardware Installation* dialog box shown in Figure 3-8 will be displayed. Click on the **Continue Anyway** button in the *Hardware Installation* dialog box. **Figure 3-8 Hardware Installation Dialog Box**
8	The Found New Hardware Wizard Complete dialog box will appear as shown in Figure 3-9. Click on the **Finish** button. **Figure 3-9 Found New Hardware Wizard – Complete** 

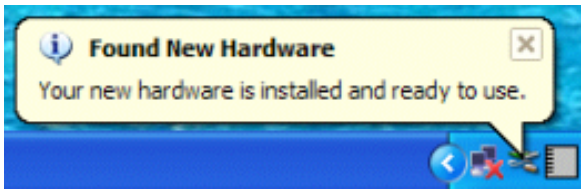
9	An additional Found New Hardware Wizard will be displayed as shown in Figure 3-10. Verify that the *Install the software automatically (Recommended)* radio button is selected, and then click on the **Next** button. **Figure 3-10 Found New Hardware Wizard**
10	A *Loading Files* dialog box will appear as shown in Figure 3-11. Go on to the next step. **Figure 3-11 Found New Hardware Wizard Loading Files** 

11 From the *Hardware Installation* dialog box, Figure 3-12, click on the **Continue Anyway** button.

Figure 3-12 Hardware Installation Dialog Box - WMC6300 PC Card

12 The Found *New Hardware Wizard Complete* dialog box will be displayed as shown in Figure 3-13. Click on the **Finish** button.

Figure 3-13 Found New Hardware Wizard Complete

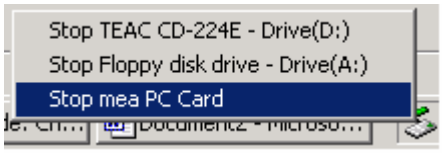
13	The *Found New Hardware* pop-up window will appear confirming that the driver installation is complete and the hardware is ready to use. **Figure 3-14 Found New Hardware - Wizard Complete** 

Removing the Wireless Modem Card

This section details specific Wireless Modem Card removal instruction to ensure that power to the card is disabled prior to removal.

Complete the following procedure prior to ejecting the Wireless Modem Card from the computer.

Procedure 3-5 Removing the Wireless Modem Card

1	Click on the Unplug or Eject Hardware icon in the system task bar. Select "**Safely remove Generic Multifunction PC-Card**" from the popup menu as shown in Figure 3-15. **Figure 3-15 Unplug or Eject Hardware Icon** 
2	Wait for a message that indicates that the device may be safely removed from the system as shown in Figure 3-16. **Figure 3-16 Safe to Remove Hardware - WMC6300 Card**

3	Eject the WMC6300 from the PCMCIA slot as shown in Figure 3-17. **Figure 3-17 Removing the WMC6300 from the PCMCIA slot**

Chapter

4

Chapter 4: MeshTray

MeshTray™ is a status and configuration application that reports vital and statistical information about the Wireless Modem Card (WMC). Because MeshTray is a “tray” application, it stays in the desktop system status tray when it is minimized.

In this chapter you will learn about the available MeshTray features, the different ways to start MeshTray, and how to remove the application from your computer.

MeshTray System Tray Icon Status

The MeshTray icon resides in the System Tray and indicates the current mode of operation as well as the state of the wireless interface.

There are two main modes of operation: *Infrastructure* or *Peer-to-Peer*. In *infrastructure* mode the device is able to associate with an IAP, while in *peer-to-peer* mode, IAP association is not possible (intentionally or unintentionally), and a wireless mesh network is automatically accessed with the use of any available peer devices instead.

The table below describes all the possible states that the MeshTray icon will exhibit in the Windows system tray.

Table 4-1 MeshTray Icon States

Icon State	Explanation
Peer to Peer with Neighbors	The icon indicates that the device is running in peer-to-peer mode; the MeshTray icon displays the Link Quality to the associated IAP as color-coded bars. The greater the number of bars, the better the Link Quality.
Peer to Peer without Neighbors	The icon indicates that the IP address has not yet been acquired from the DHCP server. When this happens, the IP field in the Status Tab displays a flashing “X” or “0” IP.
Inactive or Disconnected	The inactive state applies when a WMC is not inserted. The disconnected state applies if a card is inserted but is not yet associated with an IAP.

Excellent IAP Association (Infrastructure mode)	When the WMC is associated with an IAP (not peer-to-peer), the MeshTray icon displays the Link Quality to the associated IAP as color-coded bars. The greater the number of bars, the better the Link Quality.
Very Good IAP Association	Same explanation as listed for the *Excellent IAP* icon, except that the IAP link quality is measured to be Very Good.
Medium IAP Association	Same explanation as listed for the *Excellent IAP* icon, except that the IAP link quality is measured to be Medium.
Poor IAP Association	Same explanation as listed for the *Excellent IAP* icon, except that the IAP link quality is measured to be Poor
Very Poor IAP Association	Same explanation as listed for the *Excellent IAP* icon, except that the IAP link quality is measured to be Very Poor.

Starting MeshTray

During the software installation process, you can choose to run MeshTray immediately upon completion of the installation process.

Procedure 4-1 Starting MeshTray

1	To start the MeshTray application, double-click on the MeshTray icon located on the desktop. The icon will be available on the desktop only if the election to place it on the desktop has been selected at the time of MeshTray installation.
2	As an alternative to the above step, you can also: Click on **Start | Programs | Motorola | MotoMesh | MeshTray.exe.**
3	As an alternative to the previous steps, you can also: Click on the MeshTray icon in the Windows System Tray to restore the application to a property sheet (tab-style) interface as shown in Figure 4-1

MeshTray Tab Contents

The following sections will describe the contents of all the available tabs within the MeshTray application, and their respective functionality.

Status Tab

Figure 4-1 MeshTray Status Tab

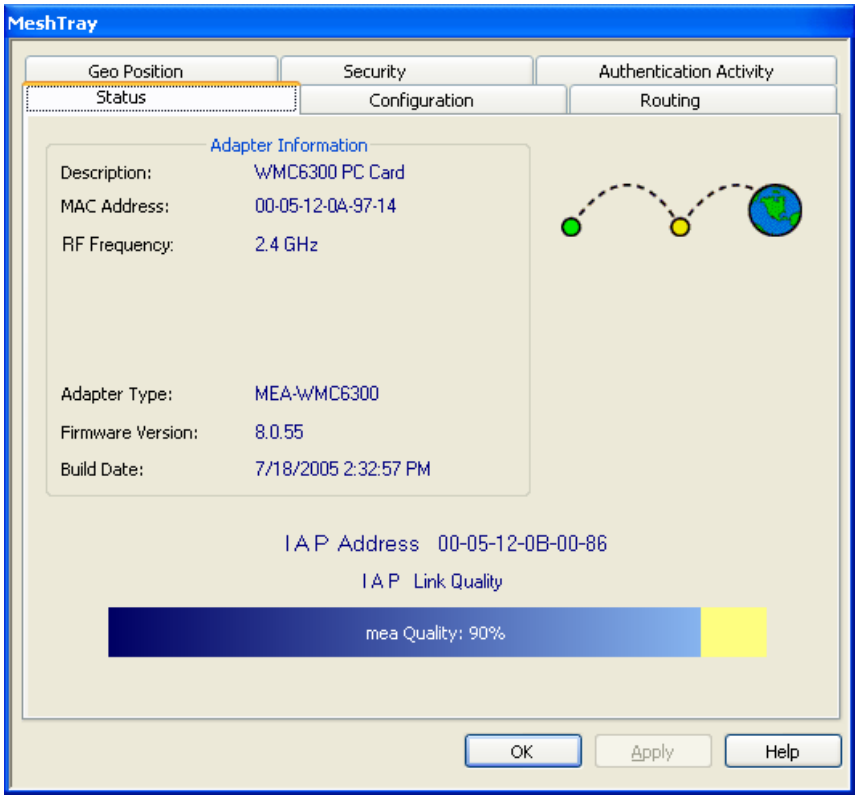
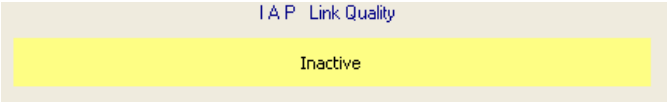


Table 4-2 Status Tab - Adapter Information Section

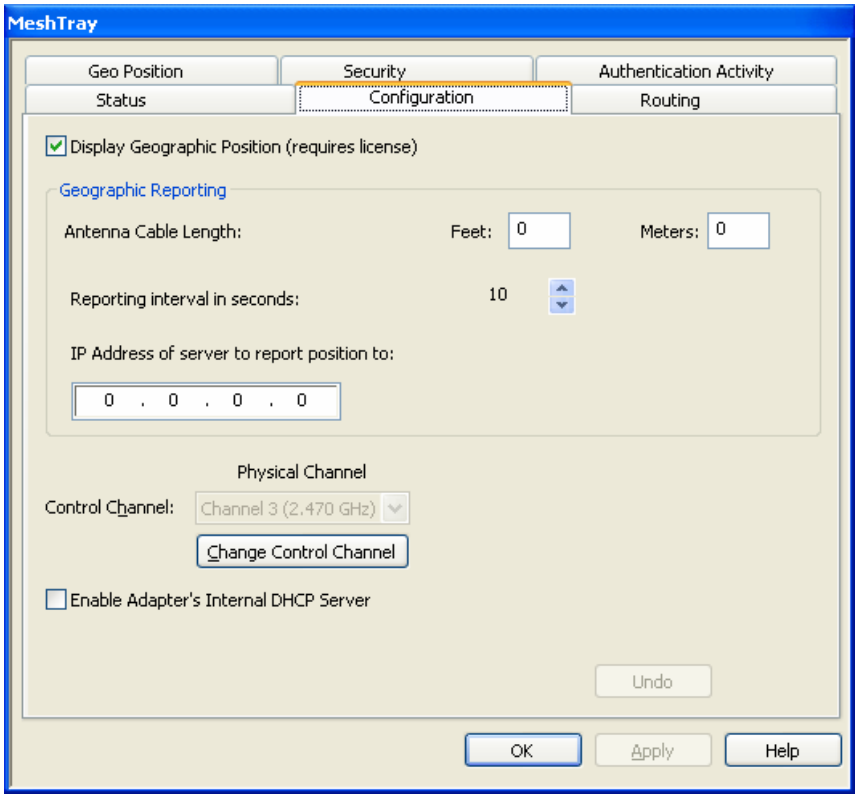
Status Tab Item	Explanation
Description	Indicates the device type and model number.
MAC Address	Displays the MAC Address assigned to the Wireless Modem Card on the current computer being viewed through MeshTray.
RF Frequency	Displays either 2.4 or 4.9 GHz RF operating frequency.
Adapter Type	Describes the type of adapter.
Firmware Version	Current version of the firmware version running on the device.
Build Date	Current Build Date of the firmware version running on the device.
IAP Address	The IAP Address of the Access Point linked to by the device. If the device is operating in Peer-to-Peer mode, the IP address will be shown as all zeros.

IAP Link Quality Infrastructure Mode (%)  Peer-to-Peer Mode (IAP link inactive)	The Access Point link quality is represented as a percentage bar. A link quality of 100% is considered Excellent. It is also an indication that the device is running in Infrastructure mode as opposed to Peer-to-Peer. A device that is running in Peer-to-Peer mode will display a yellow percentage bar along with the word “inactive”.
 Operating Mode Graphic - *Infrastructure*	The two modes that a MOTOMESH or a MEA wireless device operates in is: *Infrastructure* or *Peer-to-Peer*. Within the MeshTray **Status** tab, the graphic mode automatically adjusts to the operating mode. The *Infrastructure* mode is intuitively represented by two hops and a globe connected with a dotted links.
 Operating Mode Graphic - *Peer-to-Peer*	The *Peer-to-Peer* mode is represented by three hops connected with dotted links. See explanation for the previous *mode* graphic for more details.

Configuration Tab

The contents of the MeshTray **Configuration** tab are described in the following sections and tables.

Figure 4-2 MeshTray Configuration Tab



Geographic Position

The **Display Geographic Position** option is selectable and the user may configure the reporting interval as shown in Figure 4-2, if the license for this licensed feature has been purchased and enabled on the network. Another indicator that this feature is enabled is that the **Geo Position** tab is viewable; otherwise the Geo Position tab would not be shown. For additional information about the **Geo Position** tab and its use, please see the *Geo Position tab* section of this documentation.

If the **Display Geographic Position** checkbox is grayed out, and a license has been purchased, check with your company's Network Administrator about enabling this option from within the MOTOMESH MeshManager application.

Geographic Reporting

The Geographic Reporting feature becomes enabled when the Geographic Position checkbox is both enabled (licensed, not grayed out) and contains a check mark.

Table 4-3 Geographic Reporting section

Section Item	Explanation
Antenna Cable Length	To ensure a detailed Geographic Positioning calculation, the length of the antenna needs to be entered in feet or meters. Only whole numbers can be used in these entry fields.

	IMPORTANT *Do not enter decimal point values as they will be dropped after, the "Apply" button is selected.*
Reporting Interval in seconds	The reporting interval must be entered in seconds (up to a maximum of 180 seconds) and is used for updating the *Geo Position* tab data contents for longitude and latitude or X, Y, Z positions for the Spherical Coordinate Use the Up arrow to set the number of seconds.
IP Address of server to report position to	This is the IP Address where the geo position is forwarded or reported to. Typically, this is a centralized server that displays the position of all devices on the network.

Control Channel Configuration

There are four channels available for 2.4 GHz network communications. The Network Administrator can map the four available Physical channels to three Data channels and one Control channel. The Data channels will be used for data transmission between subscriber devices, infrastructure devices, and the network. When the using the 2.4 GHz Wireless Modem Card (WMC), the Control channel is designated for internal MEA communication. By default, it is set to the physical channel 3 (2.47 GHz).

When working with the 4.9 GHz WMC the available channels are 4.950, 4.955, 4.960, and 4.965.

Changing the Control Channel

A user should never change the channel mappings unless specifically instructed to do so by the Network Administrator.

Procedure 4-1 Changing the Control Channel

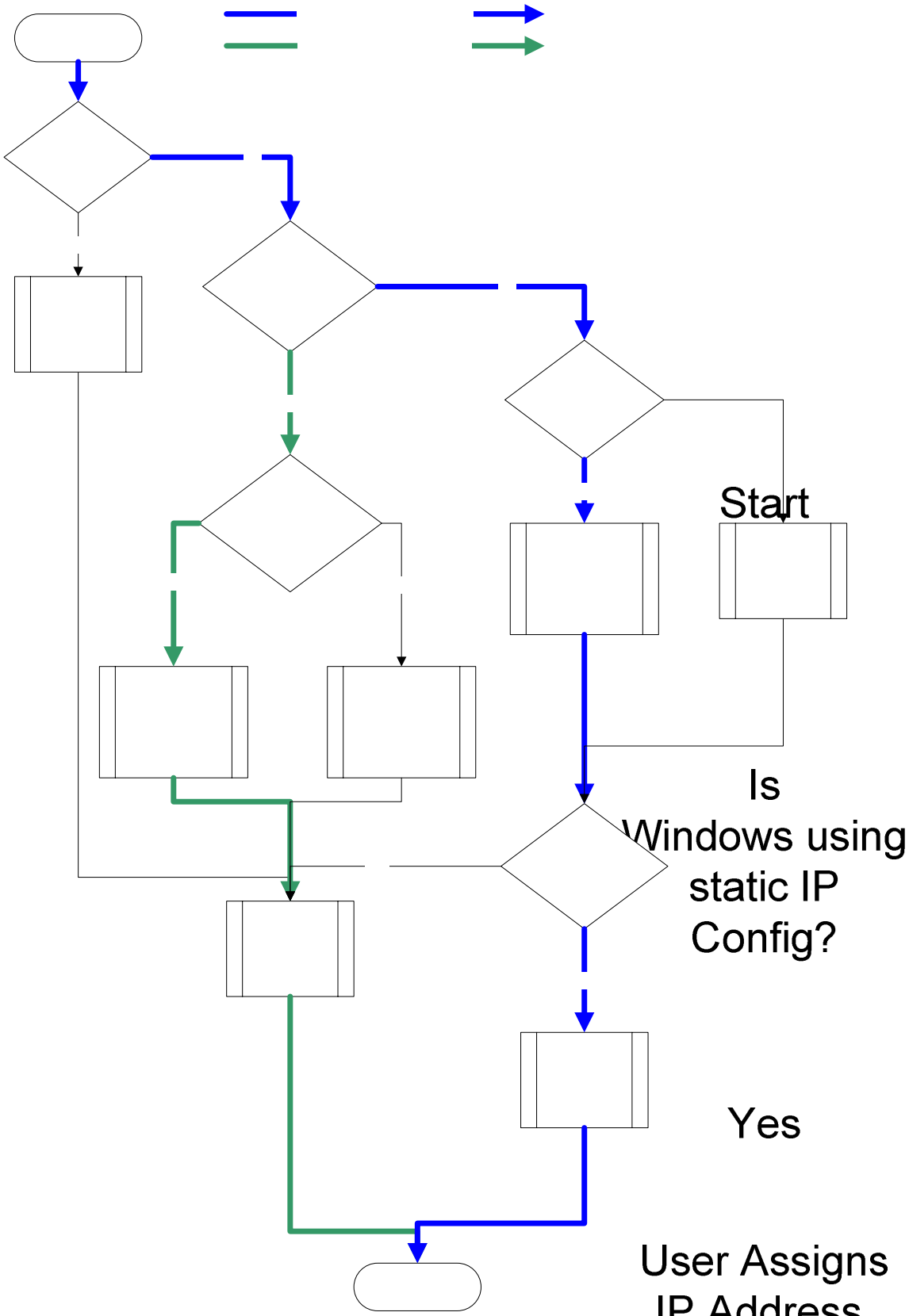
1	Click on the **Change Control Channel** button located on the **Configuration** tab, if you are required to change the control channel at the request of a Network Administrator. A *Password* window will display. **Figure 4-3 Password Protection Panel**
2	Enter the password provided by your network administrator and then select the **OK** button.
3	Click on the newly enabled **Control Channel** dropdown arrow and then select the Control Channel specified by your Network Administrator.
4	Select the **Apply** button located on the Configuration tab to finalize your selection. **WARNING** ***Any unauthorized change can cause the WMC6300 to stop communication with the network and other subscriber devices.***

Enabling the WMCs Internal DHCP Server Feature

If a DHCP server is not available on your network, you may choose to either provide a viable static IP address in Windows or select the **Enable Adapter's DHCP Server** checkbox. The two scenarios lead to several TCP/IP setting considerations which will be explored in the following sections, please see the figure below for a visual explanation.

When the **Enable Adapter's DHCP Server** checkbox is selected, an IP address will be provided to Windows by the adapter's internal DHCP server. A unique IP address will be created from the device's MAC address and a subnet mask will be available. To complete the configuration, the default gateway, and the DNS settings need to be provided in the *TCPIP Properties* window, as specified in the section Setting a User Supplied IP Address. See Figure 4-4 for a visual explanation of the available configurations.

Figure 4-4 MeshTray and Windows TCPIP, DHCP, and DNS Setting Options



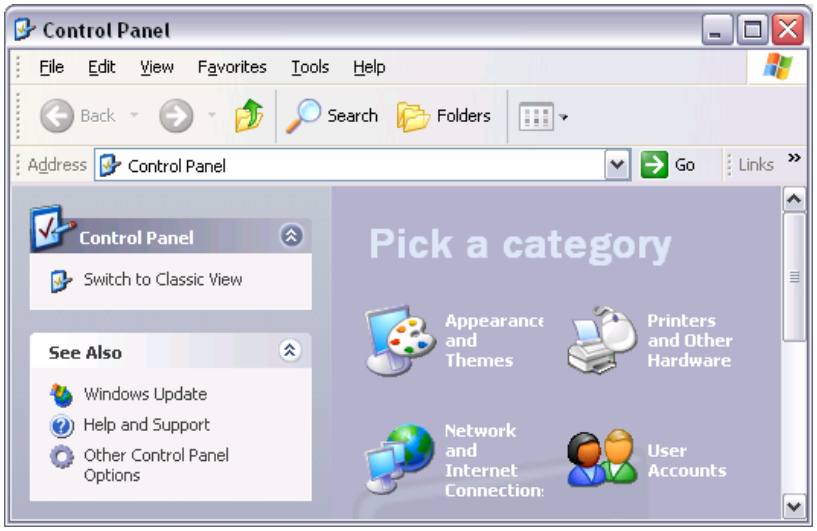
Setting a User Supplied IP Address

To setup a User Supplied IP address, first obtain a valid IP address from your Network Administrator. This is the IP address to be entered in the IP Address box on the *Internet Protocol (TCP/IP) Properties* dialog's *General* tab.

Procedure 4-2 Setting a User Supplied Address

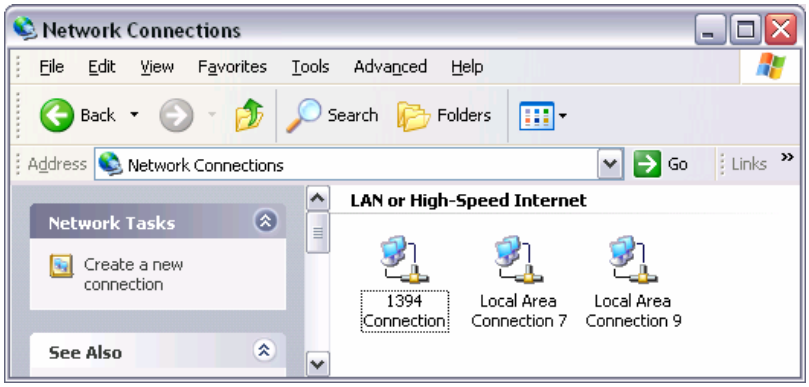
1 From the **Start** menu, select ***Settings → Control Panel***. Double click on the *Network and Dial-up Connections* icon.

Figure 4-5 Control Panel – Network and Internet Connections Icon



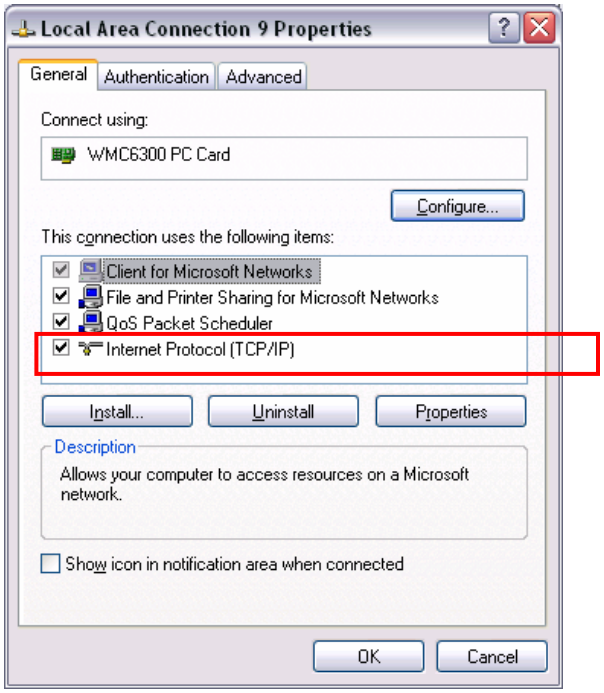
2 The *Network and Internet Connections* window will be displayed. Double-click on *Network and Internet Connections* then right-click on the *Local Area Connection* icon and select *Properties*.

Figure 4-6 Network and Dial-up Connections Window



3 On the *Local Area Connection Properties* dialog, select *Internet Protocol (TCP/IP)*, and then click on the **Properties** button.

Figure 4-7 Local Area Connection Properties Dialog Box

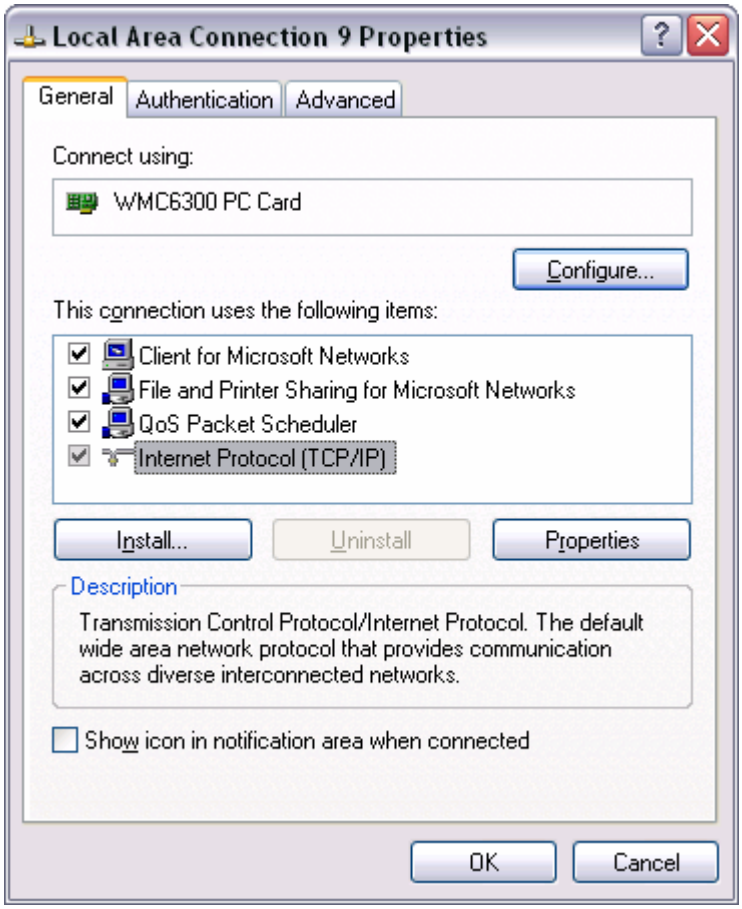


Configuring the DNS Address

Manual DNC configuration is only necessary when a DHCP server does not exist on the Network.

Procedure 4-3 Configuring the DNS Address

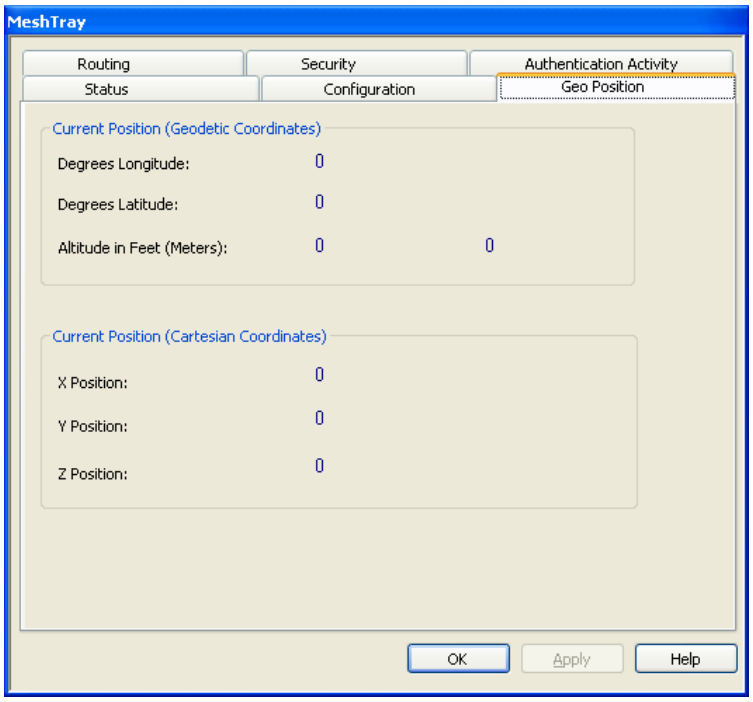
1	Select **Start | Control Panel** to display the Windows Control Panel.
2	On the Control Panel, double-click on the *Network and Internet Connections* icon, and then double-click on the *Network Connections* icon.

3	Right-click on the Local Area Connection corresponding to the Wireless Modem Card and select the **Properties** button. **Figure 4-8 Local Area Connection Properties Dialog Box** 
4	Highlight **Internet Protocol (TCP/IP)** in the *Components* dialog box as shown in Figure 4-8.
5	Click on the **Properties** button.
6	Click on the **Advanced** button.
7	Click on the DNS tab
8	Click on the DNS **Add** button.
9	Enter the *DNS Server IP Address* provided by the Network Administrator and then click the **Add** button.
10	Click on the **OK** button to close the *Advanced TCP/IP Settings* dialog box.
11	Click on the **OK** button to close the Internet Protocol (TCP/IP) Properties dialog box.
12	Click on the **OK** button to close the Local Area Connection Properties dialog box. This configuration should remain in the Windows XP host.

Geo Position Tab

If your Wireless Modem Card has been licensed for Geo-Location, an optional *Geo Position* tab will be displayed as shown in Figure 4-8. For the parameters to be enabled (not grayed-out), the **Display Geographic Position** checkbox needs to be selected in the *Configuration* tab.

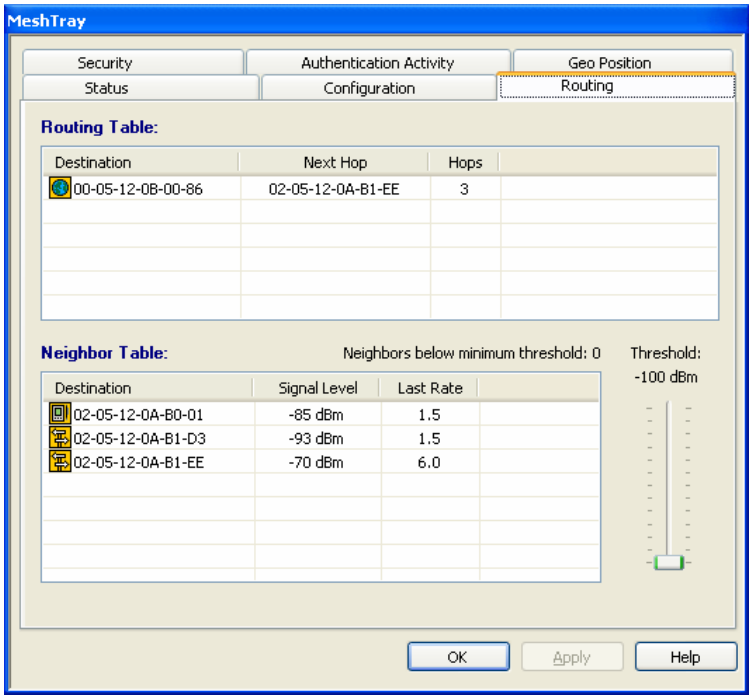
Figure 4-9 MeshTray Geo Position Tab



MeshTray Routing Tab

If your Wireless Modem Card has been licensed to display routing information, an optional tab will be displayed in MeshTray as shown in Figure 4-9.

Figure 4-10 MeshTray Routing Tab



Routing Table

The Routing Table displays the MAC address for the *Destination* node and the node to be utilized for the *Next Hop*, the number of *Hops* to the Destination node.

Neighbor Table

The Neighbor Table displays the MAC address and the *Signal Level* for the adjacent nodes that the WMC may route through, depending on the desired end node.

The *Last Rate* column displays the last data rate used to transmit user data to the neighbor destination.

Threshold

Adjusting the threshold control allows the user to view neighbors that have a signal level greater than or equal to the selected threshold level.

Routing Icons

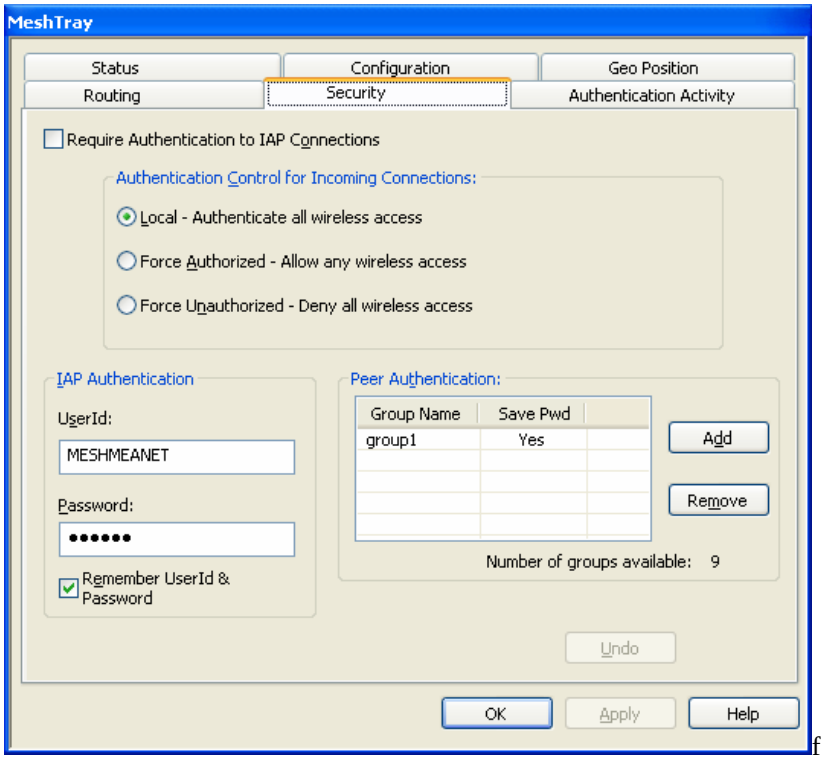
Table 4-4 Routing Tab Icons

Icon	Description
Unknown	Indicates a device type not known to MeshTray.
Subscriber Device (SD)	The Computer icon represents a Subscriber Device using a MEA Wireless Modem Card in the network.
Wireless Router	The Arrow icon represents a Wireless Router (WR), or Mesh Wireless Router (MWR) in the MEA network. The WR is an infrastructure device dedicated to routing data.
IAP	The Globe icon represents an Intelligent Access Point (IAP) in the MEA network. A MEA Intelligent Access Point is an infrastructure device that allows access to the wired network.

MeshTray Security Tab

The *Security* tab is used to set the *IAP* and *Peer Authentication* passwords to gain access to the network.

Figure 4-11 MeshTray Security Tab



Require Authentication to IAP Connections

When the *Require Authentication to IAP Connections* checkbox option is unchecked, it allows authentication of any device currently being monitored and authentication of devices added to the network configuration as they are discovered. Alternately, when the checkbox is selected, authentication to the IAP becomes a requirement.

Authentication Control for Incoming Connections

When in peer-to-peer mode, select one of the radio buttons to select the desired authentication option.

Table 4-5 Authentication Control Icons

Icon	Description
Local – Authenticate all wireless access	Authentication is based on Peer information. (See the *Peer Authentication* section in this chapter).
Force Authorized – Allow any wireless access	Allow all clients.

Force Unauthorized – Deny all wireless access	Deny all clients.

IAP Authentication

To gain access to the IAP, the user must enter a UserId and Password recognized by that IAP.

Note: This is only true when IAP is not set to Force Authorized.

Table 4-6 IAP Authentication Dialog

Parameter	Description
User ID	Will be used for authentication and authorization for network access.
Password	Will be used for authentication and authorization for network access.
Remember User ID and Password	Allows the encrypted form of the UserId and Password to be written to the registry for future reference. Selecting this option creates a potential weakness in network security since it will allow anyone who has access to the Windows user account

Peer Authentication

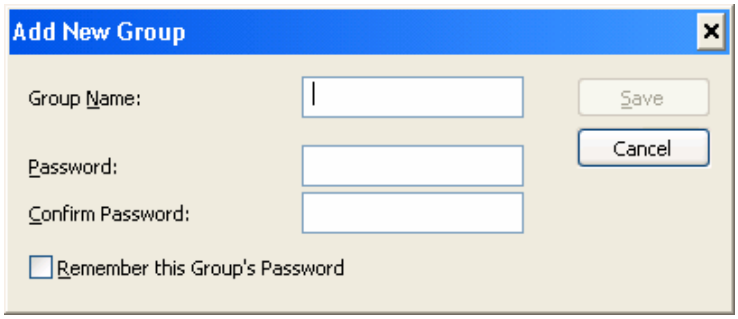
The Peer Authentication pane displays a table containing the *Group Name* and *Save Pwd* stats for all users within a Peer Authorization group, as shown in Figure 4-10.

In a Peer-to-Peer network, the user can specify a group name and password to gain access to all other devices associated as peers. The same group name and password must be specified on each node included in the group.

Clicking the **Add** button launches the *Add New Group* window for the user to add the *Group Name* and *Password*. The *Remember this Name and Password* checkbox provides the option to save the *Group Name* and *Password* settings.

Click on the **Remove** button, located on the Security tab, to remove all group names highlighted in the table as shown in Figure 4-10.

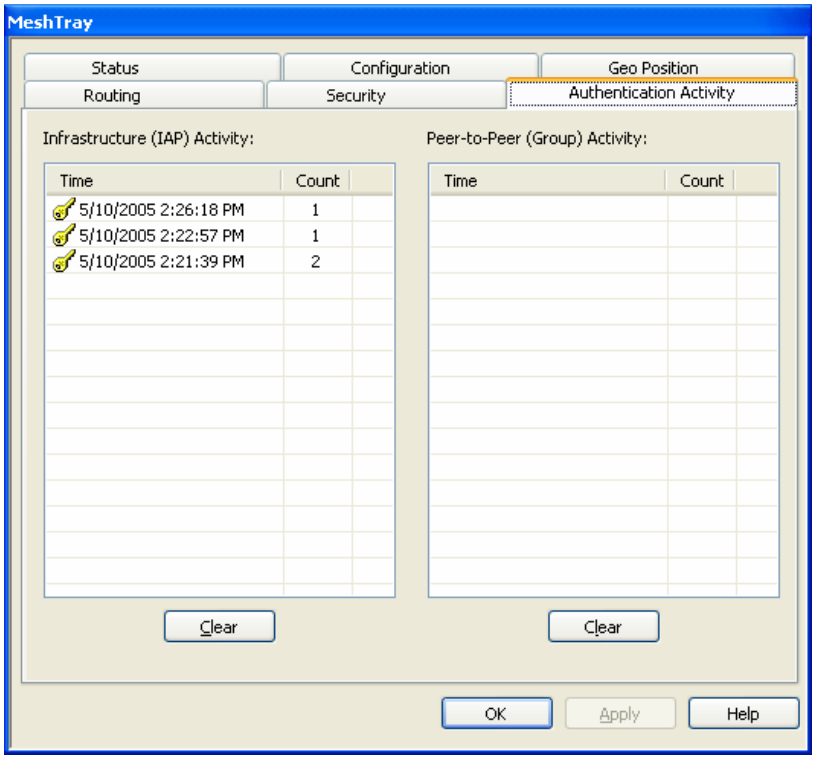
Figure 4-12 Peer Authentication – Add New Group



MeshTray Authentication Activity Tab

The Authentication Activity tab displays *Infrastructure (IAP) Activity* and *Peer-to-Peer (Group) Activity* with an associated *Time* stamp and *Count* for the number of attempted authentications. The icons displayed in the *Time* column identify whether attempted authentications were successful ( ) or failed ( ).

Figure 4-13 MeshTray Authentication Activity Tab



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Chapter

5

Chapter 5: Customer Information

This chapter lists the relevant FCC Certification and Product Safety Information for the MOTOMESH devices described in this manual.

Customer Service Information

If you have read this document and made every effort to resolve installation or operation issues yourself and still require help, please contact Motorola System Support Center (SSC) using the following contact information:

Hours of Operation

7 days a week, 24 hours

Technical Support: 800-221-7144 (USA)

Obtaining Support

Motorola provides technical support services for your system and recommends that you coordinate warranty and repair activities through the Motorola System Support Center (SSC). When you consult the Motorola SSC, you increase the likelihood that problems are rectified in a timely fashion and that warranty requirements are satisfied. Check your contract for specific warranty and service information.

System Information

To be provided with the best possible opportunity for support, collect the following system information and have it available when obtaining support.

- Location of the system
- Date the system was put into service
- Software or firmware version information for components of your system

- Serial number(s) of the device(s) or component(s) requiring support
- A written description of the symptom or observation of the problem:

  - When did it first appear?

  - Can it be reproduced?

  - What is the step-by-step procedure to cause it?
- Do other circumstances contribute to the problem? For example, changes in weather or other conditions?
- Maintenance action preceding problem:

  - Upgrade of software or equipment

  - Change in the hardware or software configuration

  - Software reload - from backup or from CD-ROM (note the version and date)

Return Material Request

After collecting system information, contact the Motorola System Support Center for assistance or to obtain a Return Material Authorization (RMA) number for faulty Field Replaceable Entities (FREs):

North America: 800-221-7144

Radio Products and Services Division

The Radio Products and Services Division is your source for manuals and replacement parts.

Radio Products and Services Division Telephone Numbers

The telephone numbers for ordering are: (800)-422-4210 (US and Canada orders)

The Fax numbers are: (800)-622–6210 (US and Canada orders)

The number for help identifying an item or part number is (800)-422-4210; select choice “3” from the menu

Returning System Components to Motorola

Motorola's service philosophy is based on field replaceable entities (FREs). FREs are system components identified by Motorola to be returned to Motorola for repair. In turn, Motorola sends you a replacement FRE component to help you maintain maximum operating performance for your system.

Returning FREs

Return faulty FREs to Motorola for repair. When you return an assembly for service, follow these best practices:

- Place any assembly containing CMOS devices in a static-proof bag or container for shipment.

- Obtain a return authorization (RA) number from the Motorola System Support Center.
- Include the warranty, model, kit numbers, and serial numbers on the job ticket, as necessary.
- If the warranty is out of date, you must have a purchase order.
- Print the return address clearly, in block letters.
- Provide a phone number where your repair technician can be reached.
- Include the contact person's name for return.
- Pack the assembly tightly and securely, preferably in its original shipping container.

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Chapter

6

Chapter 6: Certification and Safety Information

This chapter lists the relevant FCC Certification and Product Safety Information for the MOTOMESH devices described in this manual.

FCC 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 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 or more 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 RF Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Safety Information for the MEA WMC7300

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. MOTOROLA 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 MOTOMESH 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 Motorola.

Use of other antennas is prohibited and 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.

FCC RF Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 2 meters between the radiator and your body.

Safety Information for the MOTOMESH Products

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. Motorola MOTOMESH 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 MOTOMESH 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.

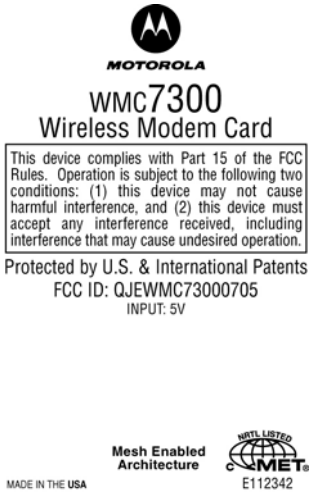
Safety Certification

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.

WMC7300 Product Label Example



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Glossary

IAP – Intelligent Access Point

MEA – Mesh Enabled Architecture

MiSC – Mobile Internet Switching Controller

MWR – Mesh Wireless Router

SBC – Single Board Computer

SD – Subscriber Device, a general description to a device type that is usually a WMC or a VMM.

VMM– Vehicle Mounted Modem

WMC – Wireless Modem Card, can apply to any model number

WR – Wireless Router same as MWR

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