PHILIPS

IEEE 802.11 a/b/g Wireless LAN Adapter Reference Design User Manual

**Philips
Semiconductors**

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802.11 a/b/g wireless LAN adapter
reference design

802.11 /a/b/g wireless adapter

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1   PCI/MINIPCI/CARDBUSADAPTER

The Philips 802.11a/g two-chip solution are designed to support Wireless LAN (WLAN) solutions in the 2.4 GHz and 5 GHz frequency bands. The combined Single Chip 802.11a/g Radio and Single Chip 802.11a/g Baseband makes for a solution that affords transparent connectivity, facilitating seamless roaming for the mobile user. Philips 802.11a/g two-chip solution enables WLAN communications at up to 54 Mbps according IEEE 802.11a and IEEE 802.11g , in addition to providing backward compatibility to an installed base of IEEE 802.11b-compliant systems.

2   SYSTEM REQUIREMENTS

2.1   Hardware

Intel based Windows or Linux PC platform with one free PCI/MiniPCI/Cardbus slot connector.

2.2   Software

The wireless adapter is designed for the Window Operating System Windows2000 and Windows XP adapter.

3   INSTALLING THE MINIPCI CARD
1. Switch off the computer
2. Plug the mPCI card into your systems mPCI slot. If a mPCI to PCI adapter is used plug the card into the adapter before plugging the adaptor into the PCI slot
3. Plug the two antennas into the mPCI cards antenna connectors
4. Turn on the PC

4   SOFTWARE INSTALLATION FOR WINDOWS 2000

### 4.1   Upgrade from an earlier Version of the Driver

Note: You can skip this Section and proceed with Section 4.2 "Driver Installation for Windows 2000" if this is the first time you are installing the driver for Windows 2000.

1. To upgrade from earlier versions of the driver you first have to de-install the existing driver. Please follow the instructions in Section 4.4 "Driver De-Installation for Windows 2000".
2. Install the new driver by following the instructions in Section 4.2 "Driver Installation for Windows 2000".

4.2   Driver Installation for Windows 2000

1. After plug-in the PCI/MiniPCI/CardBus Card Windows will automatically detect the PCI/MiniPCI/CardBus Card (follow the instructions in Section 3 "Hardware Installation") and start the FOUND NEW HARDWARE WIZARD.
2. If Windows does not automatically detect the newly installed PCI/MiniPCI/CardBus Card, please do the following:
    a) On the Windows task bar click START button.
    b) Select SETTINGS and then select CONTROL PANEL.
    c) On CONTROL PANEL window, double click on the SYSTEM icon to view the SYSTEM PROPERTIES.
    d) Click on HARDWARE tab.
    e) Click on DEVICE MANAGER.
    f) Right-mouse click on NETWORK ADAPTERS and select SCAN FOR HARDWARE CHANGES.

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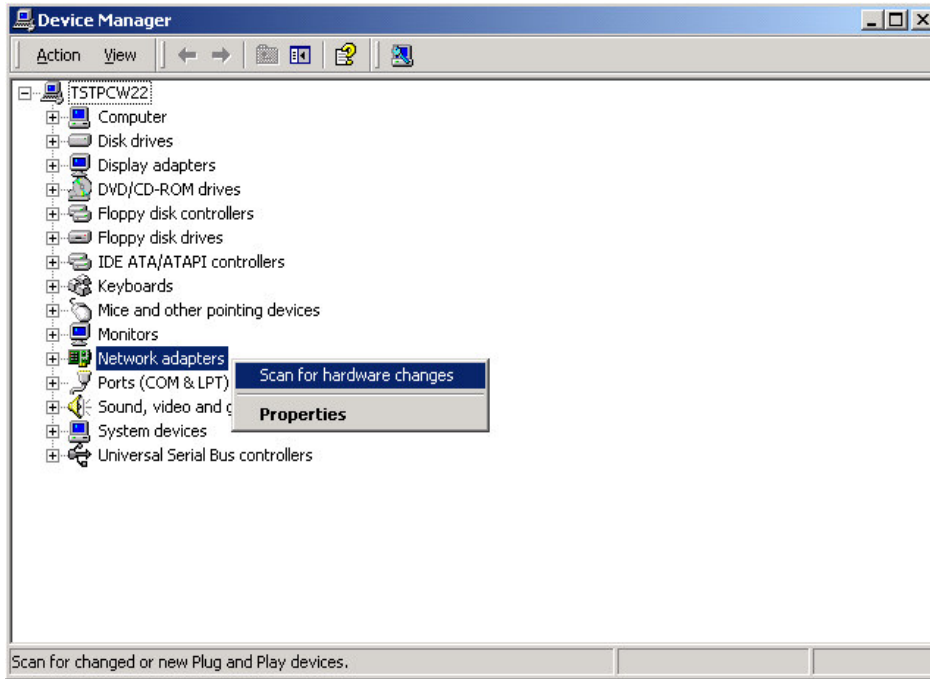
g) A window FOUND NEW HARDWARE WIZARD pops up. Follow the instructions below.

3. At FOUND NEW HARDWARE WIZARD and INSTALL HARDWARE DEVICE DRIVERS select SEARCH FOR A SUITABLE DRIVER FOR MY DEVICE [RECOMMENDED] and click NEXT.

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4. At FOUND NEW HARDWARE WIZARD and LOCATE DRIVER FILES select FLOPPY/CD ROM or SPECIFY A LOCATION of driver files and click NEXT.
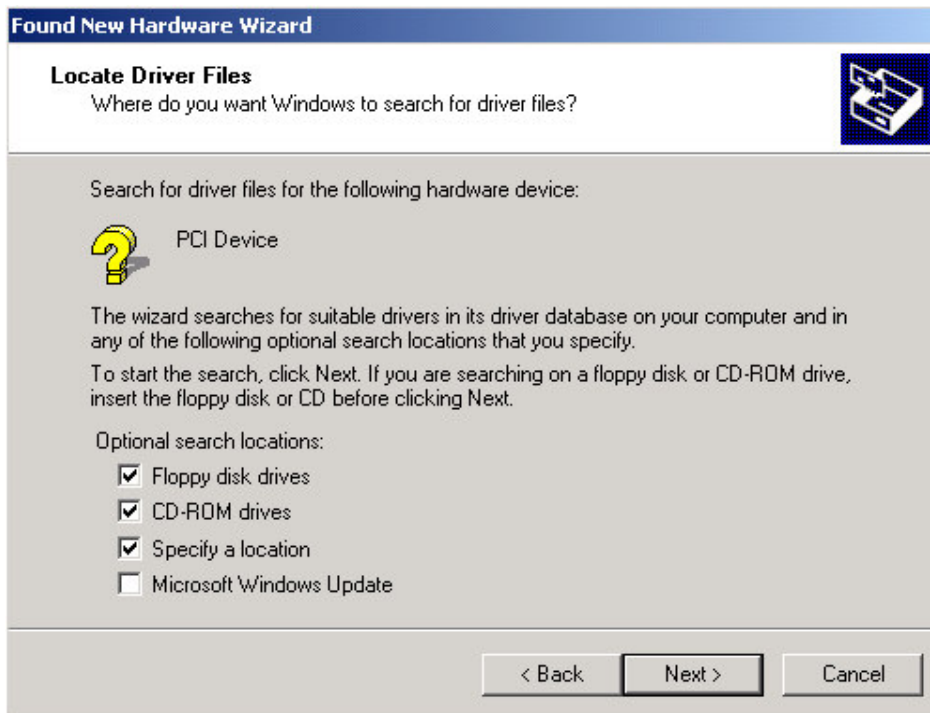
5. Navigate to the physical location of the driver's INF file and click OPEN. Typically, the drivers are located in */WindowsDisks* directory of the delivered software package with the default driver in the */WindowsDisks/ReleaseAll/* directory.
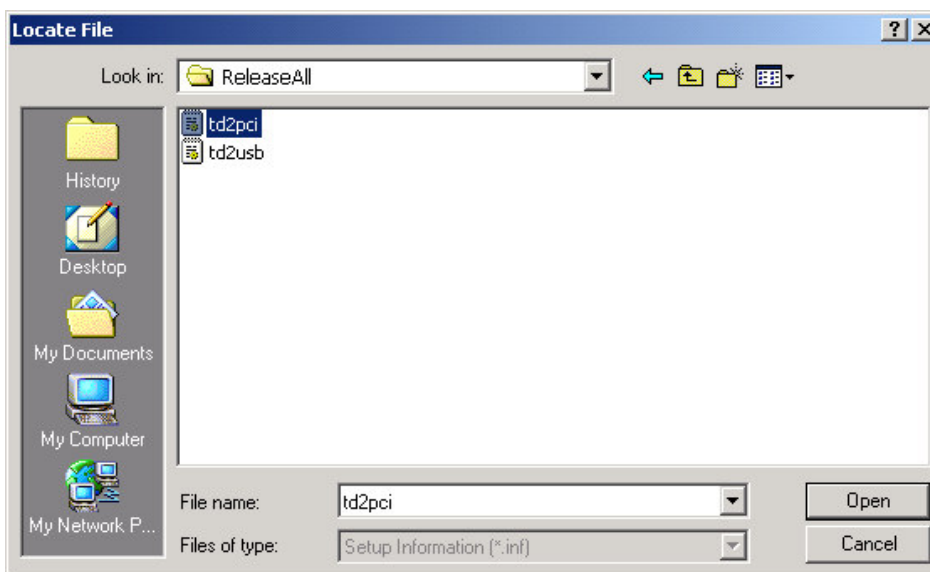
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6. Click NEXT to start the installation process.
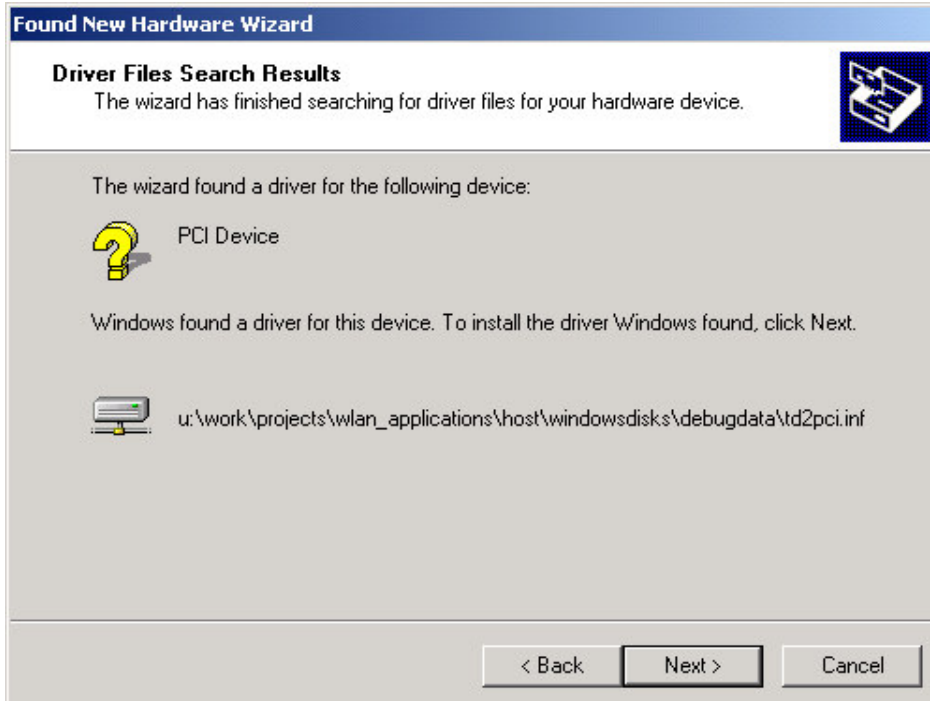
7. At DIGITAL SIGNATURE NOT FOUND dialog box click YES to proceed with installation process.
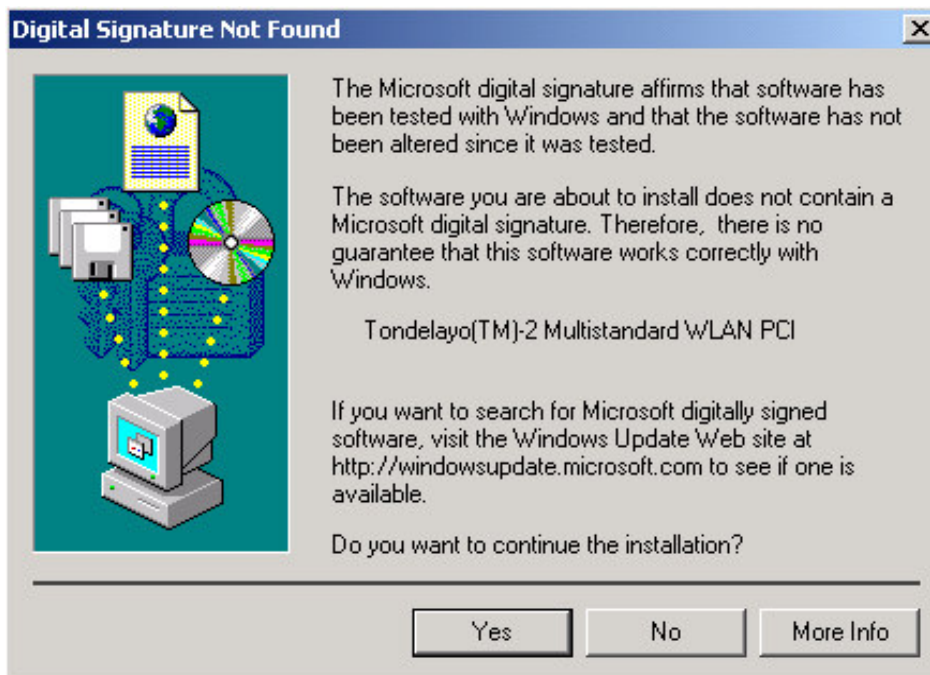
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8. Click FINISH to end the installation.
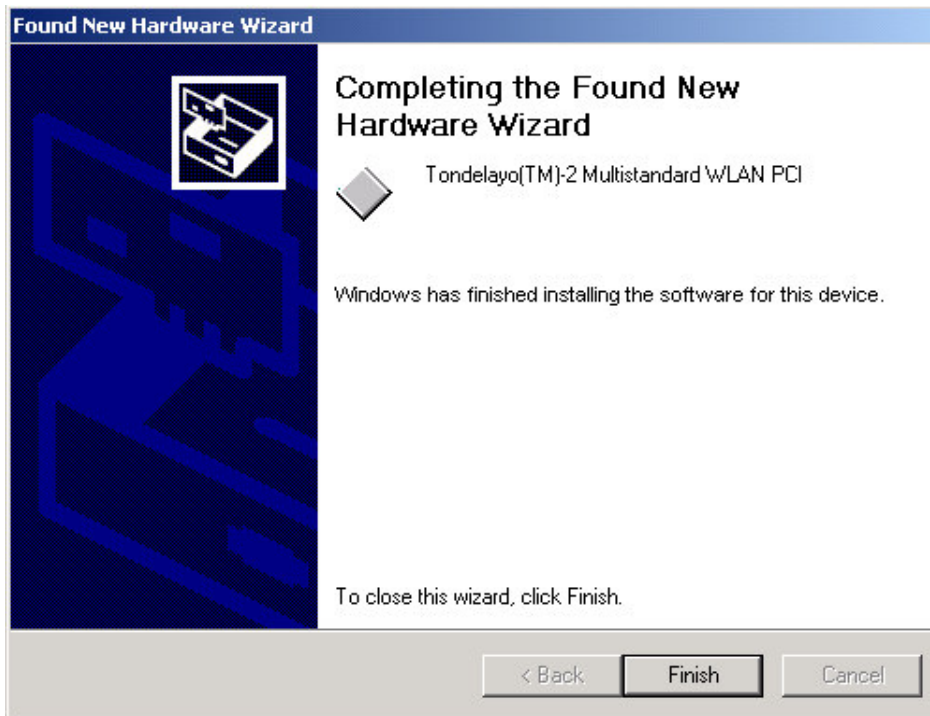
9. To verify if the installation of the driver was completed successfully make sure Multistandard WLAN PCI device is registered and clean (no exclamation mark) under NETWORK ADAPTERS in DEVICE MANAGER window. See Instructions 2.a - 2.e how to open the DEVICE MANAGER.
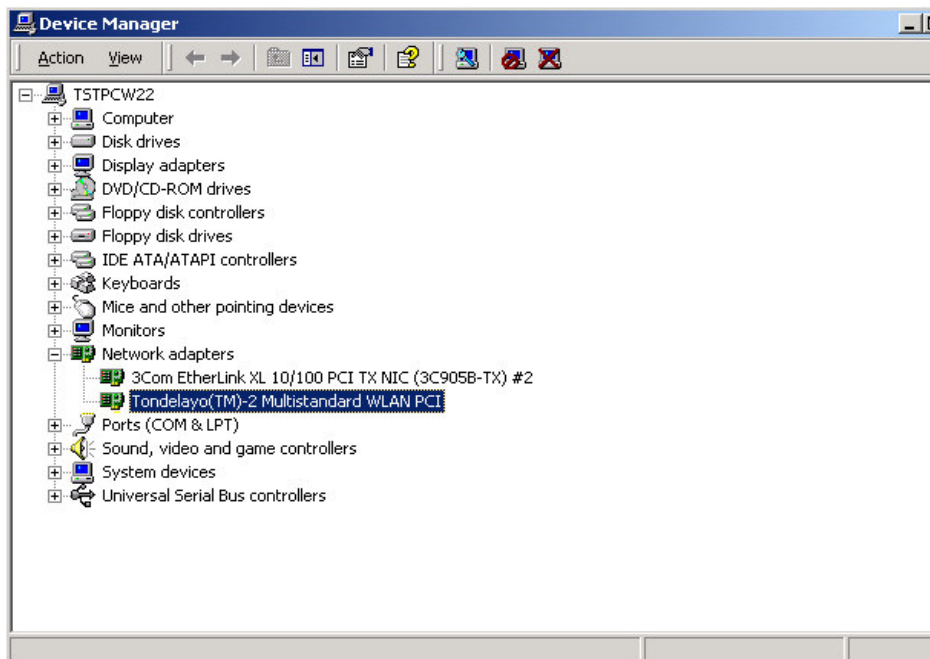
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4.3   Basic TCP/IP Configuration of the Network Device

Please follow the procedure below to configure the TCP/IP settings:

1. On the Windows task bar click the START button.
2. Select SETTINGS and then select CONTROL PANEL.
3. Double click on NETWORK AND DIAL-UP CONNECTIONS icon.
4. Right-mouse click on Multistandard WLAN PCI device LOCAL AREA CONNECTION icon and select PROPERTIES.
5. Double click on INTERNET PROTOCOL (TCP/IP).
6. Select USE THE FOLLOWING IP ADDRESS button.
7. Enter the IP ADDRESS (e.g. 10.0.0.1).
8. Enter the SUBNET MASK (e.g. 255.255.255.0) and click OK button.
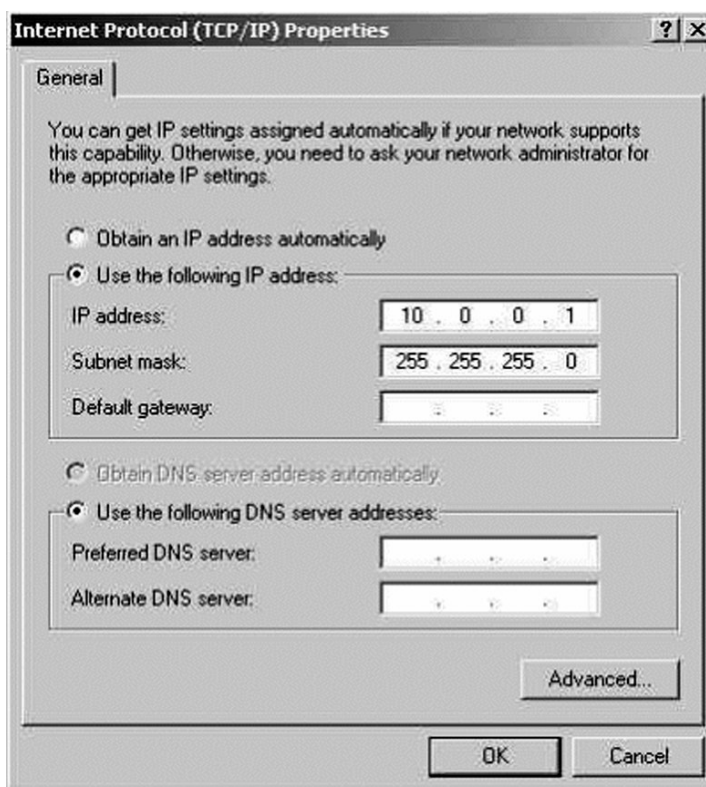
9. Configure the driver with the configuration Tool for MS-Windows (see Section 6 "Configuration Tool for Windows (2000 or XP)").

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4.4   Driver De-Installation for Windows 2000

For the driver de-installation you have to remove the existing network device and the driver entries from Windows registry.

1. Remove the network device.

    a) Turn on power of the computer and wait for Windows 2000 to load.

    b) On the Windows task bar click the START button.

    c) Select SETTINGS and then select CONTROL PANEL.

    d) On the CONTROL PANEL window, double click on the SYSTEM icon to view the SYSTEM PROPERTIES.

    e) Click on HARDWARE tab.

    f) Click on DEVICE MANAGER.

    g) Double click on NETWORK ADAPTERS.

    h) Right-mouse click on Multistandard WLAN PCI device and select UNINSTALL.

2. Remove the driver entries from Windows registry.

    a) Go to *../tools/WlanUninstall* directory in the delivered software package.

    b) Double click on *WlanUninstall.exe*

    c) from the pull down menu choose 'TD2 PCI'

    d) do Edit --> Find.

    e) do Edit --> Delete

3. Restart the computer.
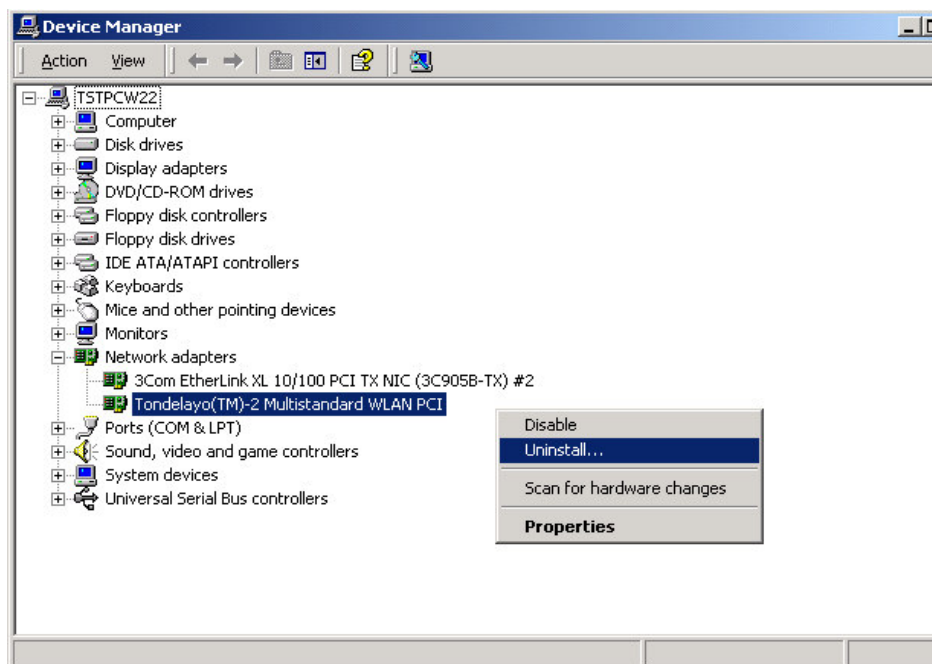
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5   SOFTWARE INSTALLATION FOR WINDOWS XP

### 5.1   Upgrade from an earlier Version of the Driver

Note: You can skip this Subsection and proceed with Section 5.2 "Driver Installation for Windows XP" if this is the first time you are installing the driver for Windows 2000.

1. To upgrade from earlier versions of the driver you first have to de-install the existing driver. Please follow the instructions in Section 5.4 "Driver De-Installation for Windows XP".

2. Install the new driver by following the instructions in Section 5.2 "Driver Installation for Windows XP".

5.2   Driver Installation for Windows XP

1. After plug-in the PCI/MiniPCI/CardBus Card the Windows XP operating system will automatically detect the PCI/MiniPCI/CardBus Card (follow the instructions in Section 3 "Hardware Installation") and start the FOUND NEW HARDWARE WIZARD.

2. If Windows does not automatically detect the newly installed PCI/MiniPCI/CardBus Card, please do the following:

    a) On the Windows task bar click START button.

    b) Select CONTROL PANEL.

    c) On CONTROL PANEL window, double click on the SYSTEM icon to view the SYSTEM PROPERTIES.

    d) Click on HARDWARE tab.

    e) Click on DEVICE MANAGER.

    f) Right-mouse click on NETWORK ADAPTERS and select SCAN FOR HARDWARE CHANGES.
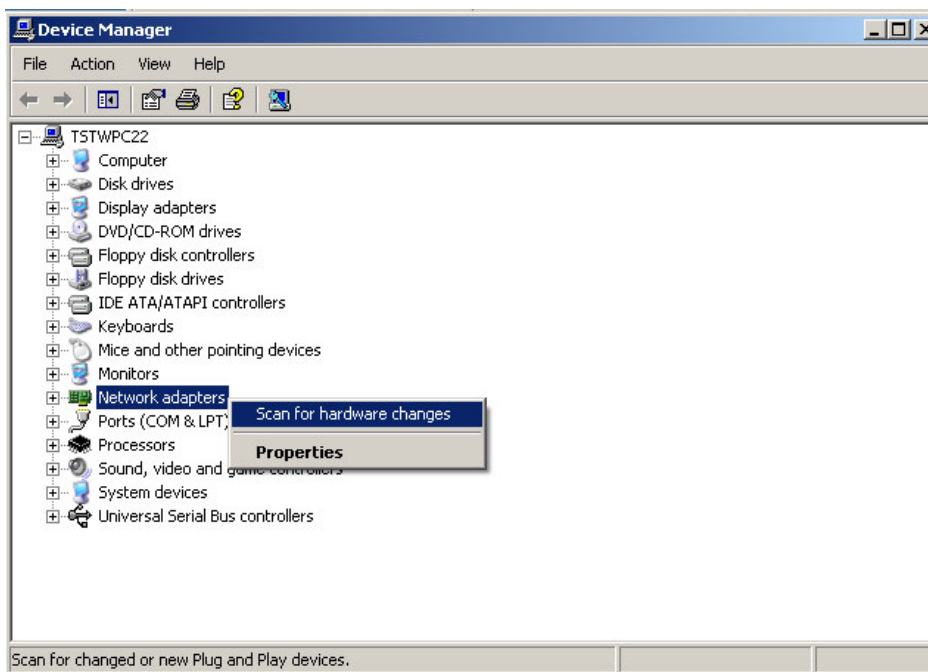
    g) A window FOUND NEW HARDWARE WIZARD pops up. Follow the instructions below.

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3. At FOUND NEW HARDWARE WIZARD select INSTALL FROM A LIST OR SPECIFIC LOCATION (ADVANCED) and click NEXT.

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4. At FOUND NEW HARDWARE WIZARD and PLEASE CHOOSE YOUR SEARCH AND INSTALLATION OPTIONS select SEARCH REMOVABLE MEDIA (FLOPPY, CD-ROM...) or INCLUDE THIS LOCATION IN THE SEARCH of driver files and click BROWSE.
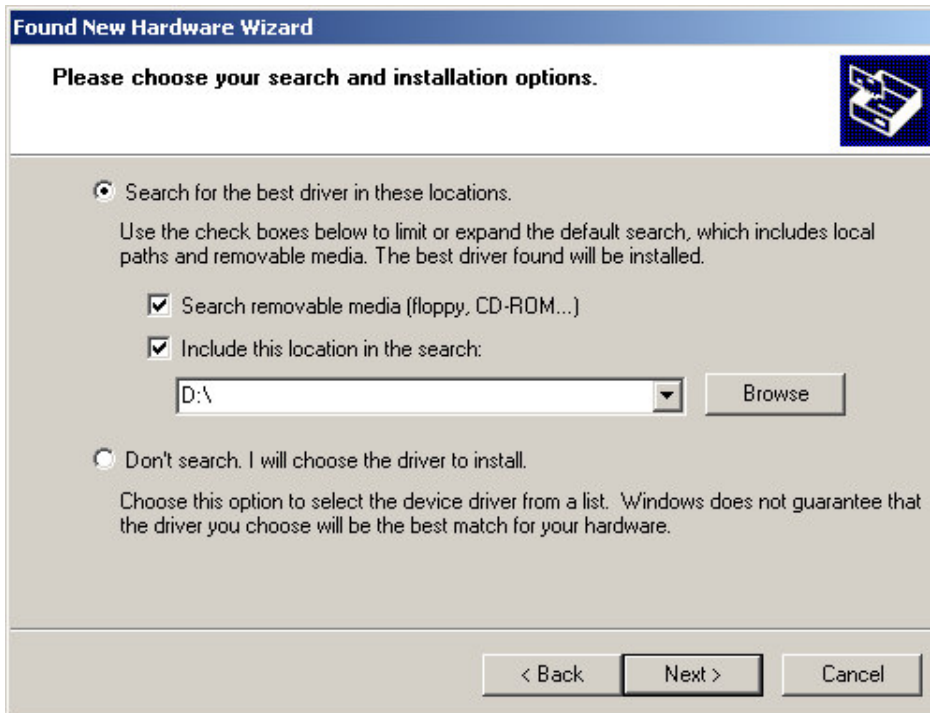
5. Navigate to the physical location of the driver's INF file and click OK. Normally, the drivers are located in /WindowsDisks directory of the delivered software package with the default driver in the /WindowsDisks/ReleaseAll/ directory.

6. Click NEXT to start the installation process.

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7. At HARDWARE INSTALLATION dialog box click CONTINUE ANYWAY to proceed with installation process.

8. Click FINISH to end the installation.
9. To verify if the installation of the driver was completed successfully make sure Multistandard WLAN PCI device is registered and clean (no exclamation mark) under NETWORK ADAPTERS in DEVICE MANAGER window. See instructions 2.a- 2.e how to open the DEVICE MANAGER.

5.3   Basic TCP/IP Configuration of the Network Device

Please follow the procedure below to configure the TCP/IP settings:

1. On the Windows task bar click the START button.
2. Select SETTINGS and then select CONTROL PANEL.
3. Double click on NETWORK CONNECTIONS icon.
4. Right-mouse click on Multistandard WLAN PCI device LOCAL AREA CONNECTION icon and select PROPERTIES.
5. Double click on INTERNET PROTOCOL (TCP/IP).
6. Select USE THE FOLLOWING IP ADDRESS button.
7. Enter the IP ADDRESS (e.g. 10.0.0.1).
8. Enter the SUBNET MASK (e.g. 255.255.255.0) and click OK button.

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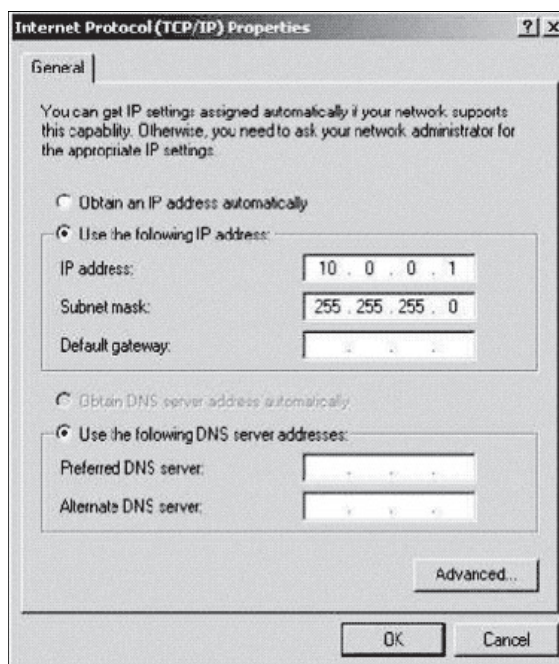
9. Configure the driver with the configuration Tool for MS-Windows (see Section 6 "Configuration Tool for Windows (2000 or XP)").

5.4   Driver De-Installation for Windows XP

For the driver de-installation you have to remove the existing network device and the driver entries from Windows registry.

1. Remove the network device.

    a) Turn on power of the computer and wait for Windows XP to load.

    b) On the Windows task bar click the START button.

    c) Select CONTROL PANEL.

    d) On the CONTROL PANEL window, double click on the SYSTEM icon to view the SYSTEM PROPERTIES.

    e) Click on HARDWARE tab.

    f) Click on DEVICE MANAGER.

    g) Double click on NETWORK ADAPTERS.

    h) Right-mouse click on Multistandard WLAN PCI device and select UNINSTALL.

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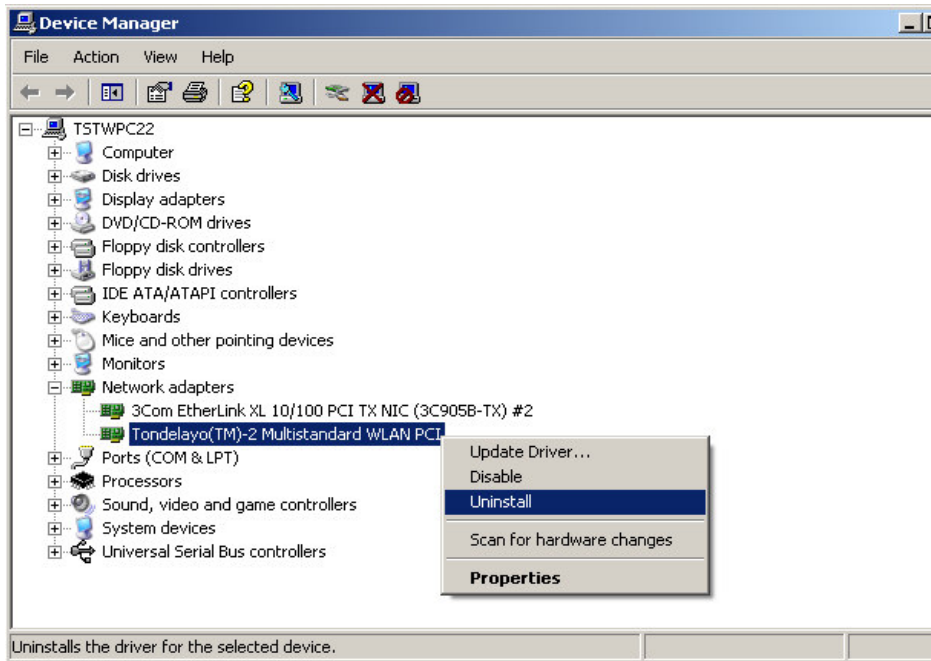
2. Remove the driver entries from Windows registry.

   a) Go to *../tools/WlanUninstall* directory in the delivered software package.

   b) Double click on *WlanUninstall.exe*

   c) from the pull down menu choose 'TD2 PCI'

   d) do Edit --> Find.

   e) do Edit --> Delete

3. Restart the computer.

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6 CONFIGURATION TOOL FOR WINDOWS (2000 OR XP)

After installing the driver and configuring the TCP/IP settings of the network device, you may make modifications to various driver settings:

1. Start the Windows EXPLORER and go to the locations of the Configuration Tool for Windows which is normally located in *../tools/gui/* of the delivered software package.

2. Double click on *WLANDeviceManagement.exe*.

3. Right-mouse click on TONDELAYO icon (red square) at the bottom right corner of Windows task bar and select OPEN PAD to open the Philips 802.11a/g two-chip solution WLAN - Dialog Box.

6.1 Philips 802.11a/g two-chip solution WLAN - Dialog Box
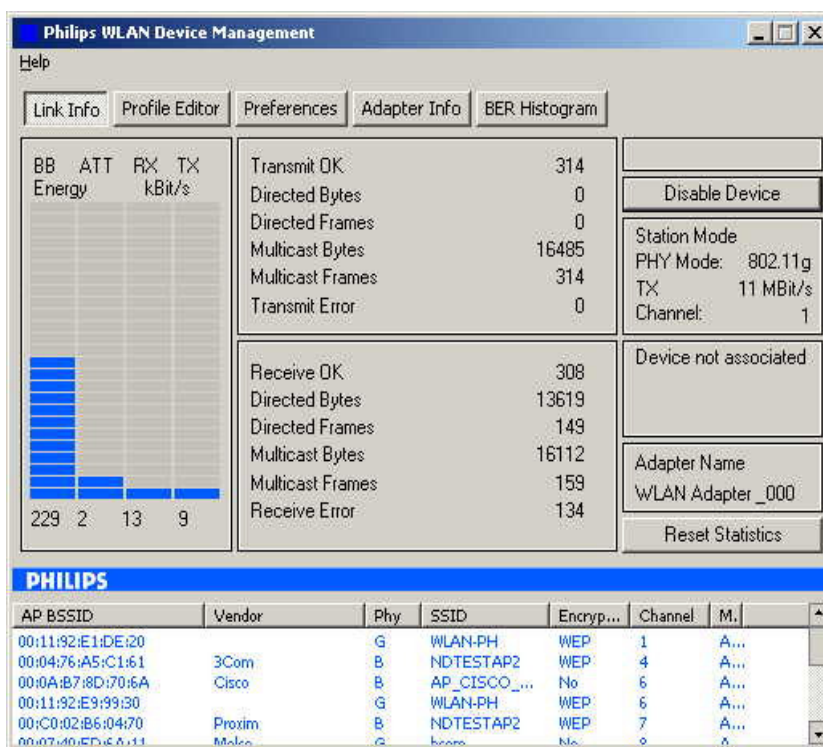
| Profile Editor	Select the desired profile.
Station Mode	Displays phy mode, channel and rate
RSSI	Indicates the received signal strength.
AGC	Indicates the automatic gain value.
Rx kB/s, Tx kB/s	Indicates the current physical receive/transmit data rate in kB/s.
Preferences	change preferences
Adaptor Info	shows MAC address and driver version
Transmit/Receive statistics	Displays statistics on frames sent (transmit and retries) and received (received and duplicated).

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6.2   Change Profile - Dialog Box

Change, edit user profiles.
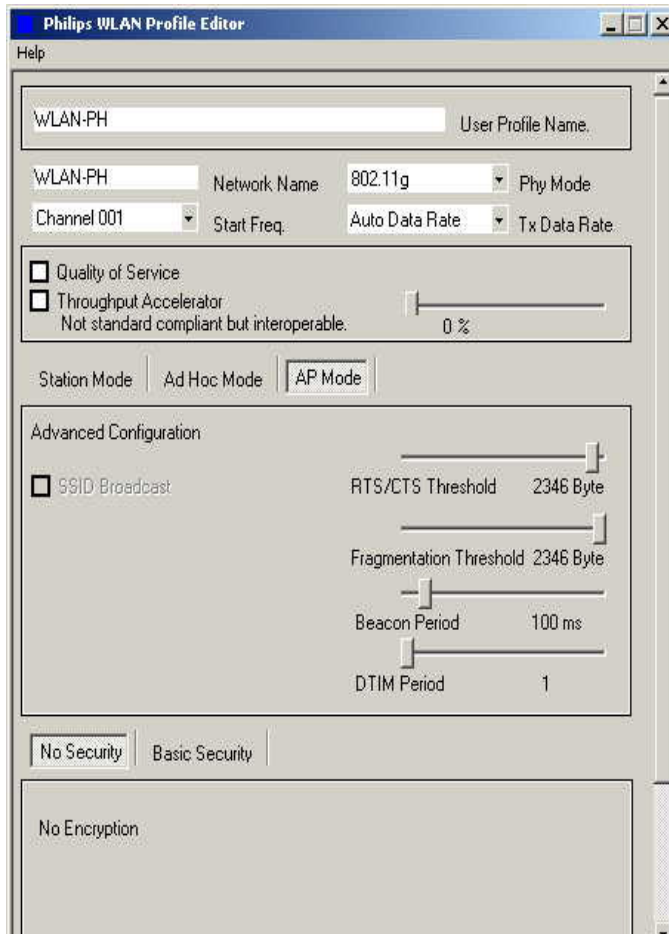
User Profile	Selected user profile name.
Network Name	Set the name of the wireless network.
RTS/CTS Threshold	Change the RTS/CTS Threshold.
Fragmentation Threshold	Change the Fragmentation Threshold.
Access Point	Enable/Disable Access Point (AP) mode.
Beacon Period	Change the AP beacon period.
Ad-hoc Mode	Enable/Disable ad-hoc mode.
ATIM Window	Change the ATIM window.
Start Frequency	Change the ad-hoc mode Rx/Tx frequency.
STORE Profile	Save current profile.
CANCEL	Close dialog box without changing.
OK	Close dialog box with changing.

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USA -FEDERAL COMMUNICATIONS COMMISSION (FCC)

These devices comply with Part 15 of the FCC Rules. Operation of the devices is subject to the following two conditions:

- l The devices may not cause harmful interference.
- l The devices must accept any interference that may cause undesired operation.

Modifications not expressly approved by this company could void the user's authorization to operate the device.

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. If the equipment is not installed and used in accordance with the instructions, the equipment may cause harmful interference to radio communications. There is no guarantee, however, that such 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 taking one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the distance between the equipment and the receiver.

- Connect the equipment to 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.

NOTE: The Philips WLAN adapter must be installed and used in strict accordance with the Philips instructions as described in the user documentation that comes with the product. Any other installation or use will violate FCC Part 15 regulations. Modifications not expressly approved by Philips could void the user's authority to operate the equipment.

Radio Frequency Interference Requirements

This device is restricted to indoor use due to its operation in the 5.15 to 5.25 GHz frequency range. FCC requires this product to be used indoors for the frequency range 5.15 to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

High power radars are allocated as primary users of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with and / or damage this device.

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RF Exposure

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Radio approvals

To determine whether you are allowed to use your wireless network device in a specific country, please check to see if the radio type number that is printed on the identification label of your device is listed on the radio approval list posted on the general Philips site at www.philips.com.

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IREVISION HISTORY

DATE	REVISION	DESCRIPTION
2003 Dec10th	0.1	initial version
2004 Nov 3rd	0.2	Changes for SA5252

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