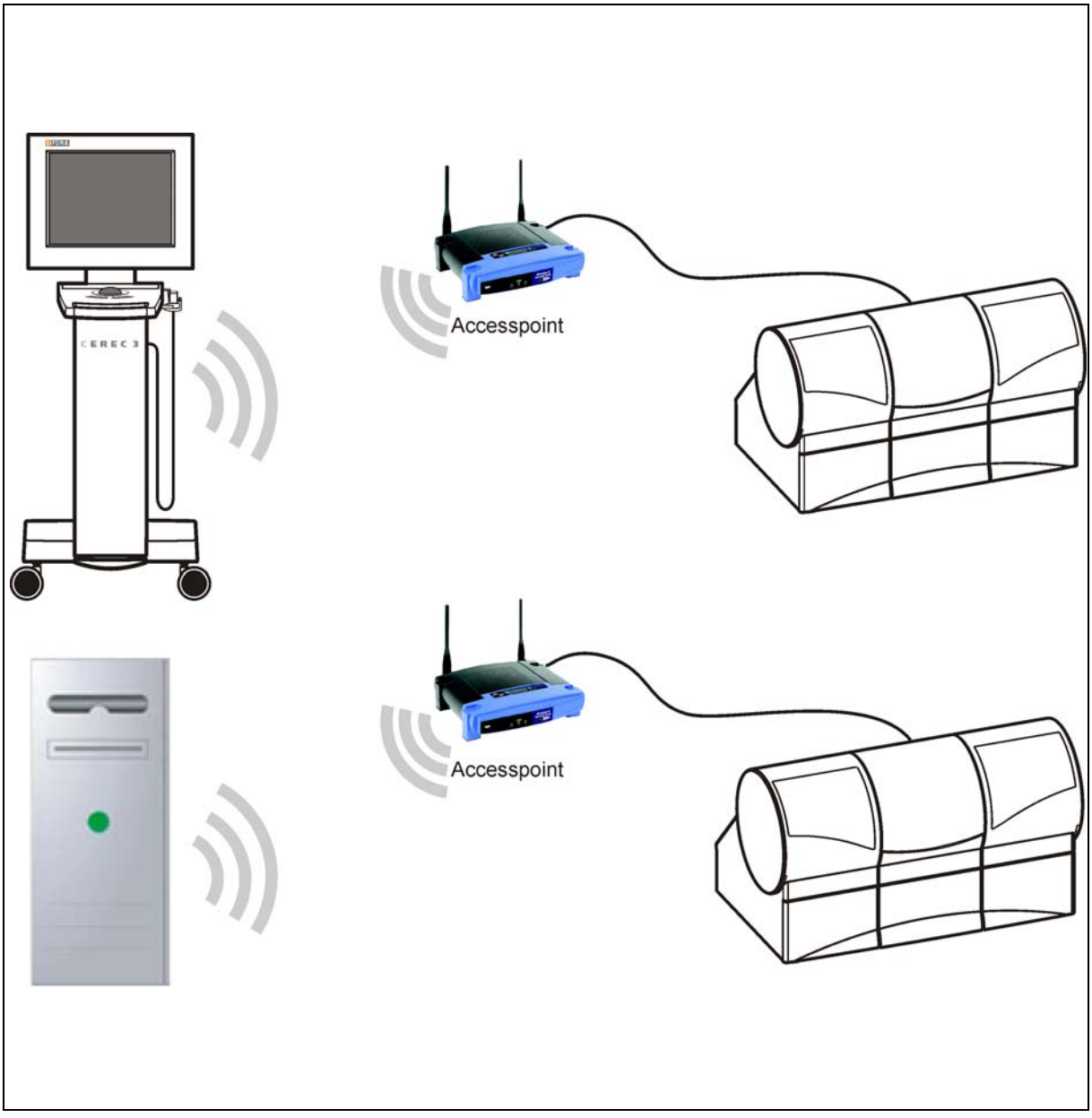
New as of: 04.2008

sirona
The Dental Company

CEREC / inLab MC XL

Operating MC XL via WLAN in infrastructure mode
Restoring default settings

English



Contents

1 General information

Note on wireless communication

The data communication between the CEREC 3 acquisition unit and the CEREC MC XL milling unit should preferably be implemented via WLAN. As for all wireless connections (e.g. mobile telephones) heavy utilization of the available radio channels or shielding caused by building installations (e.g. metal-shielded X-ray enclosures) may impair the quality of the connection. This may become noticeable through a reduction in range and/or a slower data transmission rate. In extreme cases, it will be impossible to establish a wireless connection.

Sirona has selected the best possible configuration for data communication via WLAN, which generally provides perfect functioning of this connection. However, in individual cases unrestricted wireless data communication may be impossible for the reasons mentioned above and/or due to local circumstances. In such cases, a cable LAN connection should be selected to ensure uninterrupted operation.

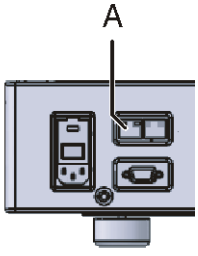
PC designation

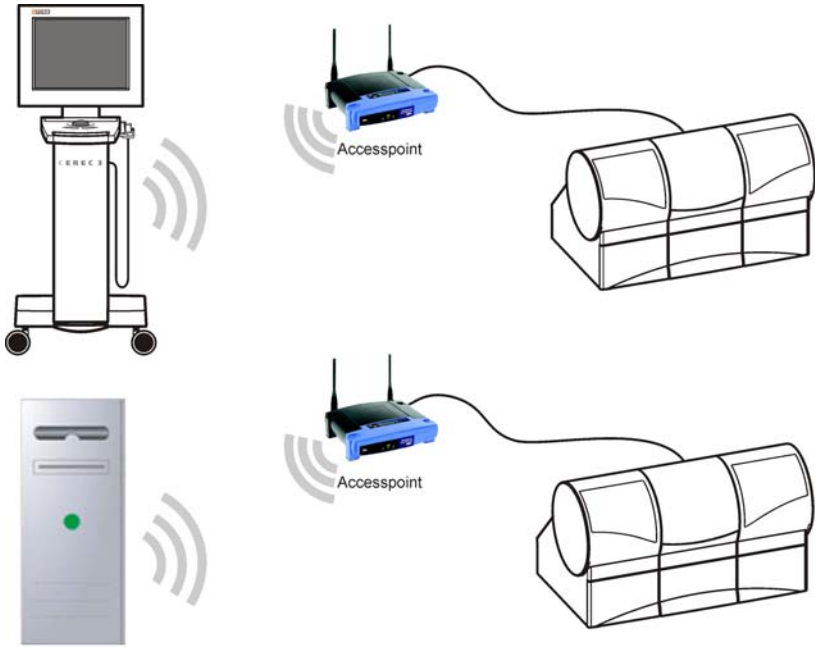
In the following text, the acquisition unit and the InLab system PC are both referred to as "PC".

Communication in the infrastructure mode

The milling unit communicates with the PC via WLAN in the Infrastructure mode. The data is transmitted via an intermediate station or access point. The best possible data communication takes place when the access point and milling unit are interconnected via the included 1:1 network cable (10 m, Order No. 61 51 521).

The network cable must be connected to the milling unit at the LAN port (**A**).





WLAN connection of the PC to the milling unit in the infrastructure mode; Top: acquisition unit; Bottom: InLab System PC.

2 Preparations

The CEREC system PC can be equipped with different operating systems.

Go on to the following pages depending on the operating system actually installed:

Go on to the chapter “Preparations for Windows XP (up to HW Gx)“ [🗎 4]

Go on to the chapter “Preparations for Windows Vista (as from HW Gx)“ [🗎 8]

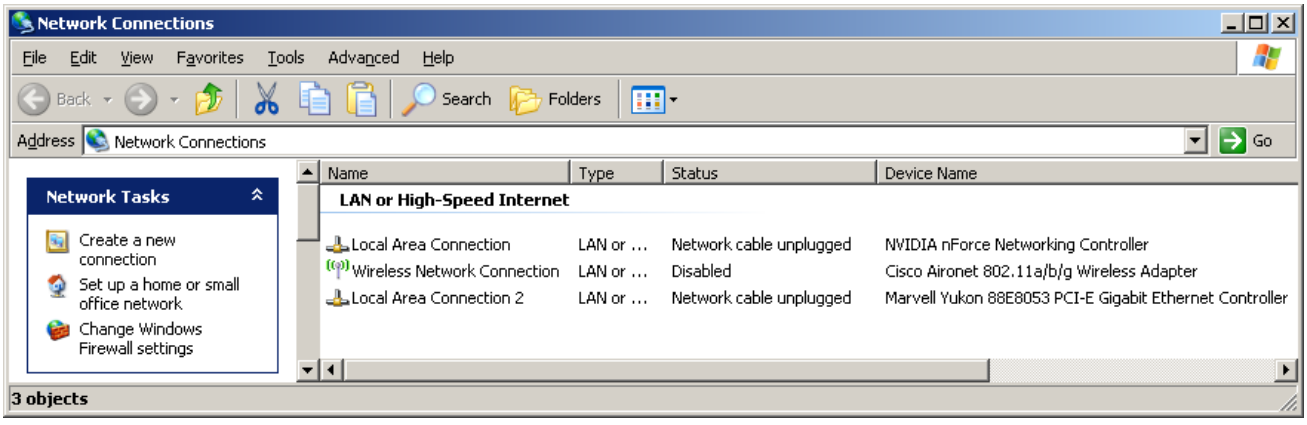
2.1 Preparations for Windows XP (up to HW Gx)

2.1.1 Deactivating the WLAN_card

Opening network connections

1. Click "Start" / "Settings" / "Control panel" in the task bar.
2. Double-click the "Network Connections" icon in the "Control panel" window.

   ↳ The "Network Connections" window then opens.



Deactivating the WLAN card

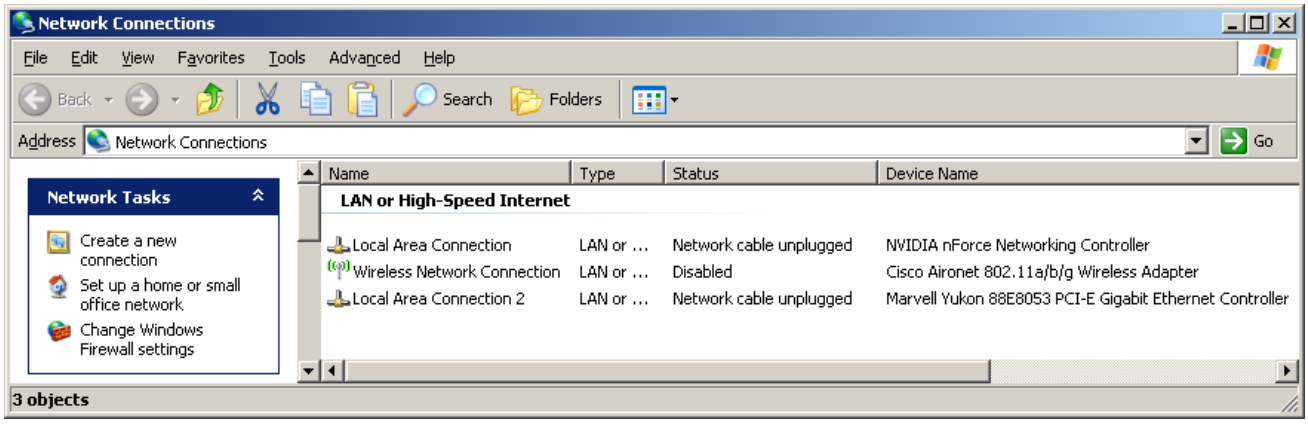
1. Click the "Wireless Network Connection" with the device name **Cisco Aironet 02.11a/b/g Wireless Adapter** or **... Wireless-G PCI …** with the right mouse button.
2. Select "deactivate".

2.1.2 Configuring the network properties of the LAN card

Opening network connections

1. Click "Start" / "Settings" / "Control panel" in the task bar.
2. Double-click the "Network Connections" icon in the "Control panel" window.

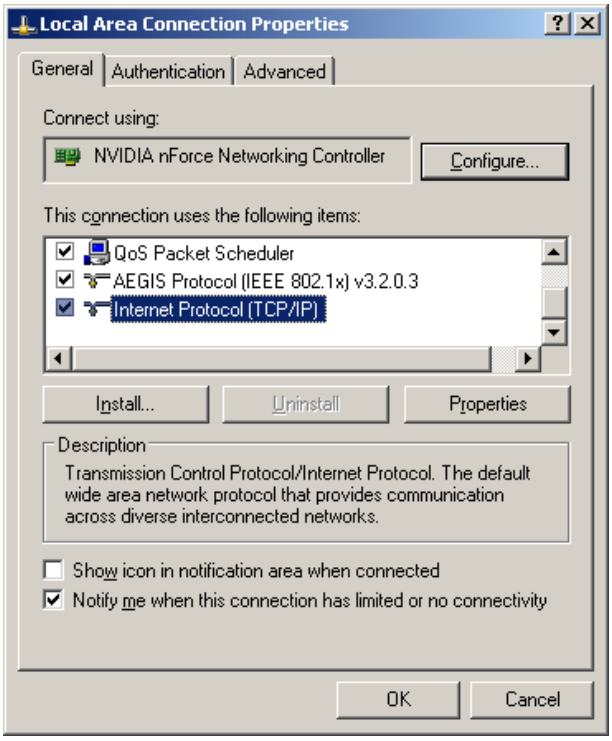
   ↳ The "Network Connections" window then opens.



Configuring the network properties of the LAN card

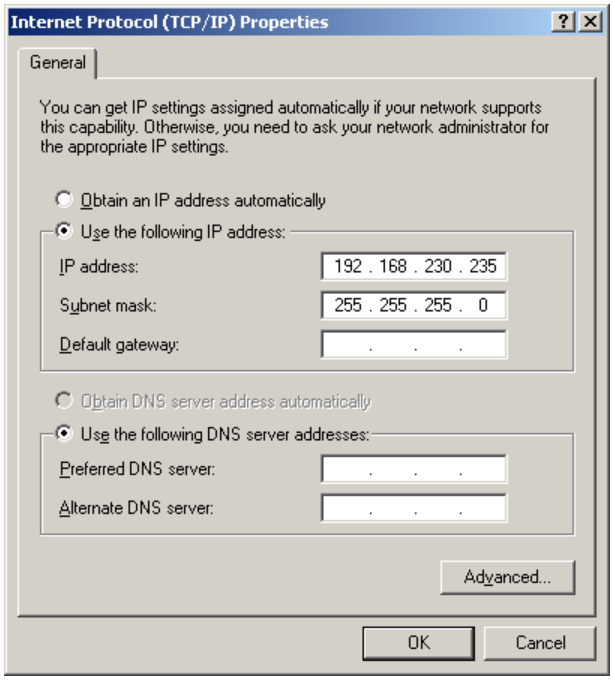
1. Click "LAN connection" with the right mouse button and select "Properties" from the context menu.

   ↳ The window with the Network Properties then opens.



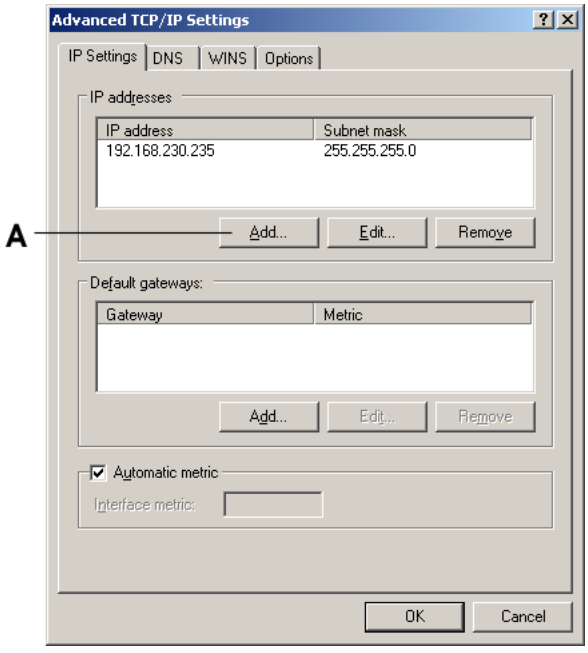
2. Double-click on the "Internet Protocol (TCP/IP)" window.

   ↳ The window with the TCP/IP settings then appears.



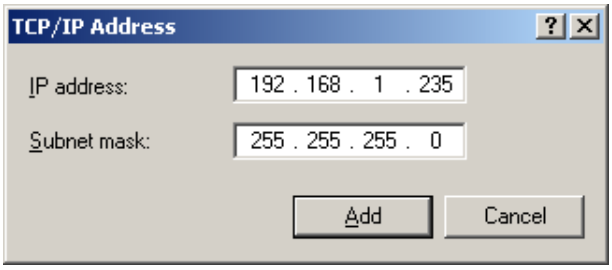
3. Change these settings as shown in the screenshot and confirm with the "Advanced" button.

   ↳ The window for advanced settings appears.



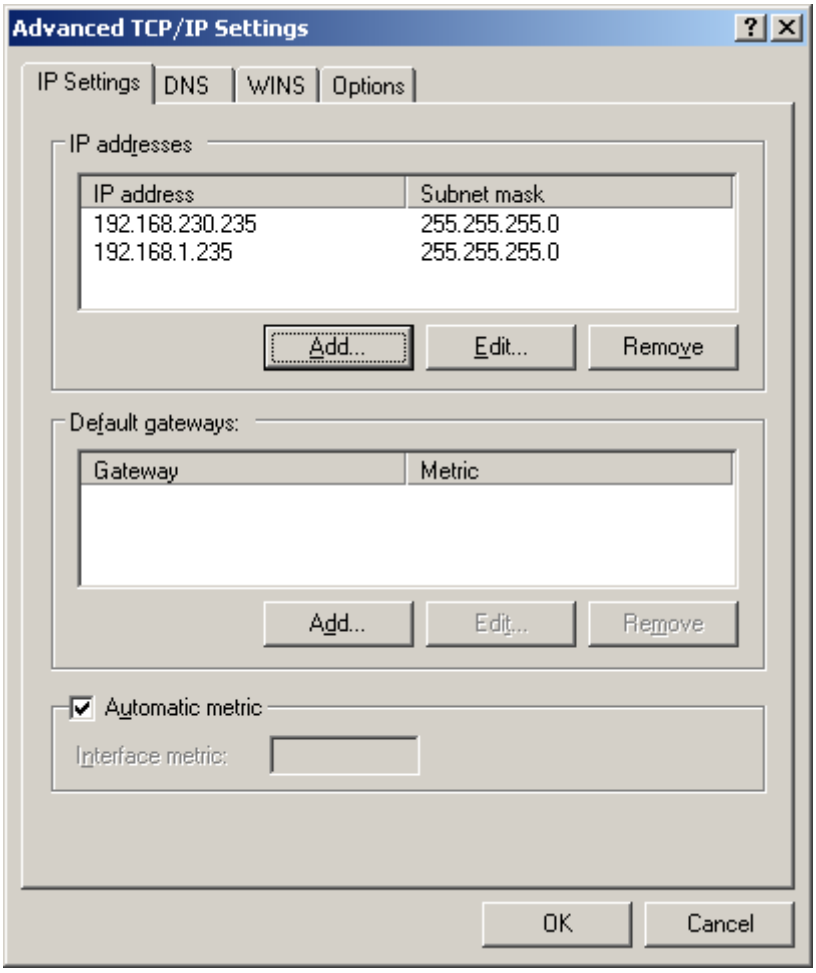
4. Click the "Add" button **(A)**.

   ↳ The following window appears.



5. Change these settings as shown in the screenshot and confirm with the "Add" button.

   ↳ The following window appears.



6. Confirm this window with "OK".
7. Confirm each of the two open windows with "OK".

↳ The LAN card is configured.

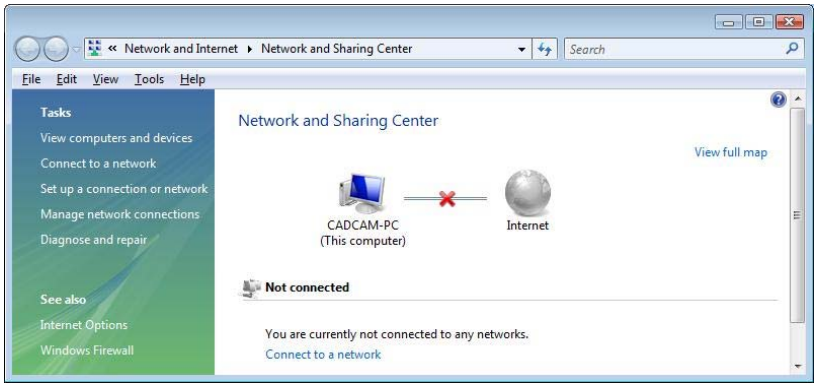
Go on to the chapter entitled “Configuring the access point“.

2.2 Preparations for Windows Vista (as from HW Hx)

2.2.1 Deactivating the WLAN card

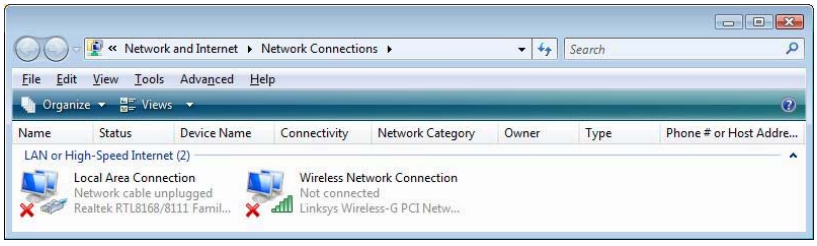
Opening network connections

1. Right click the network icon in the task bar and select "Network and Sharing Center".



2. Go to the "Network and Sharing Center" window and click "Manage network connections".

   ↳ The window with the network connections then opens.



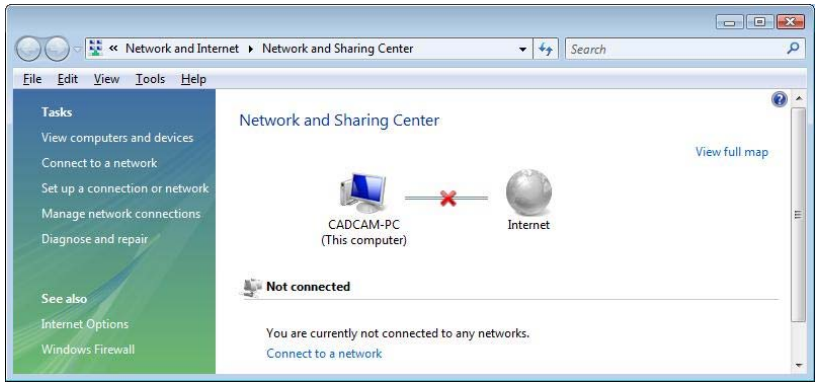
Deactivating the WLAN card

1. Right click "Wireless Network Connection".
2. Select "deactivate".

2.2.2 Configuring the network properties of the LAN card

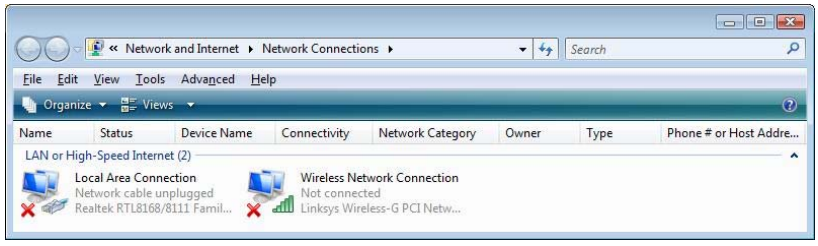
Opening network connections

1. Right click the network icon in the task bar and select "Network and Sharing Center".



2. Go to the "Network and Sharing Center" window and click "Manage network connections".

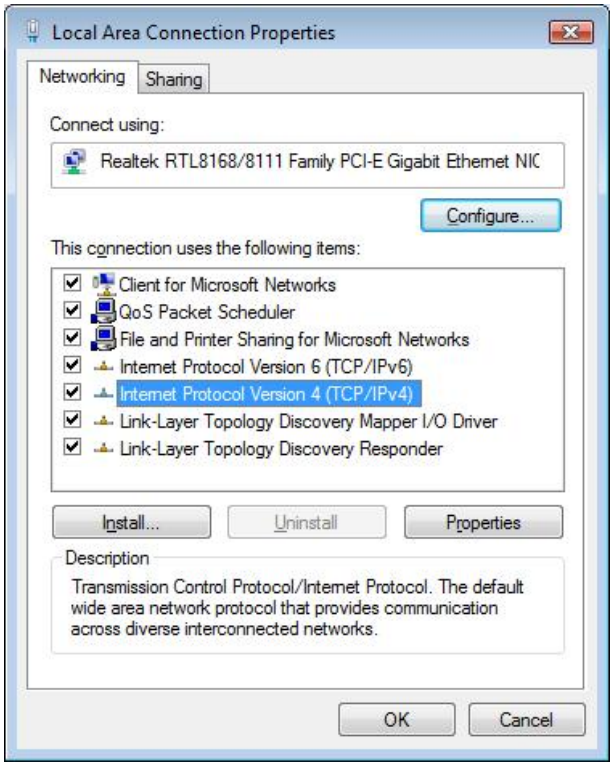
   ↳ The window with the network connections then opens.



Configuring the network properties of the LAN card

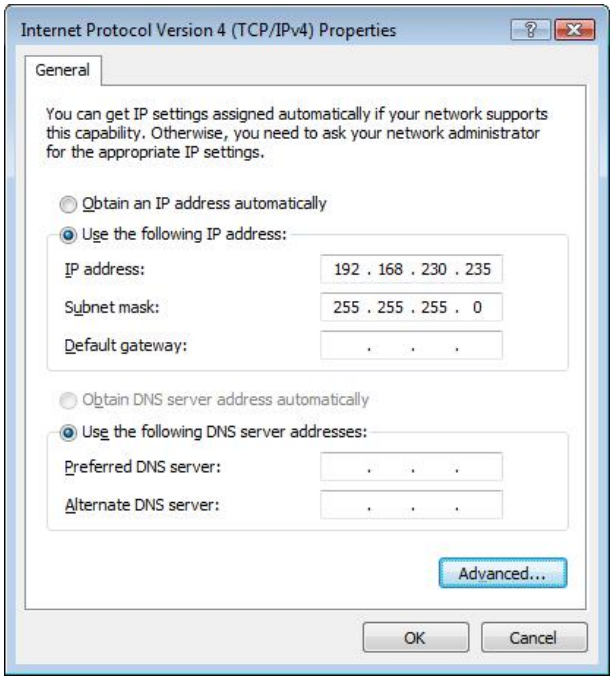
1. Click "LAN connection" with the right mouse button and select "Properties" from the context menu.

   ↳ The window with the Network Properties then opens.



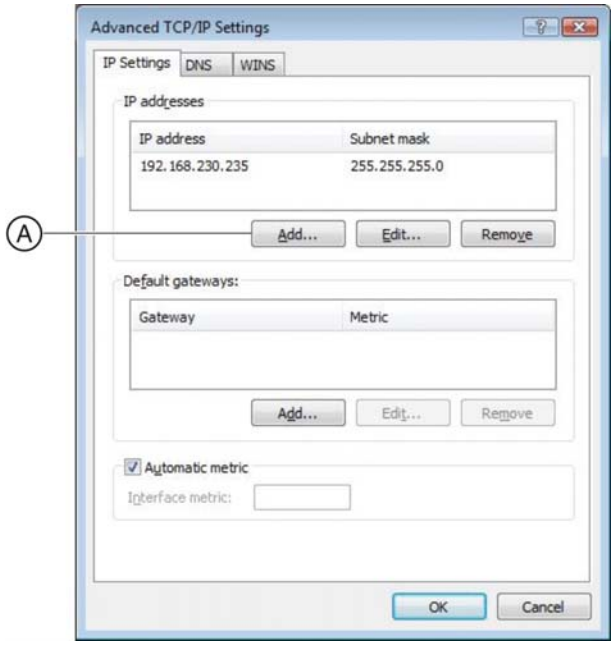
2. Double-click "`Internet Protocol Version 4 (TCP/IPv4)`".

   ↳ The window with the TCP/IPv4 settings then appears.



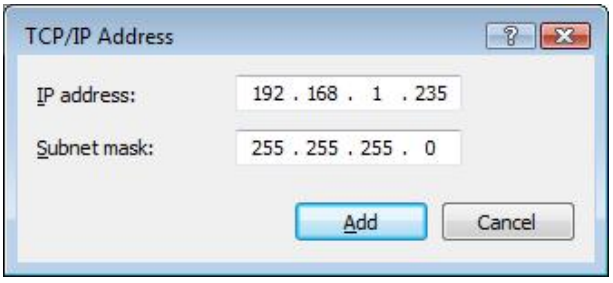
3. Change these settings as shown in the screenshot and confirm with the "`Advanced`" button.

   ↳ The window for advanced settings appears.



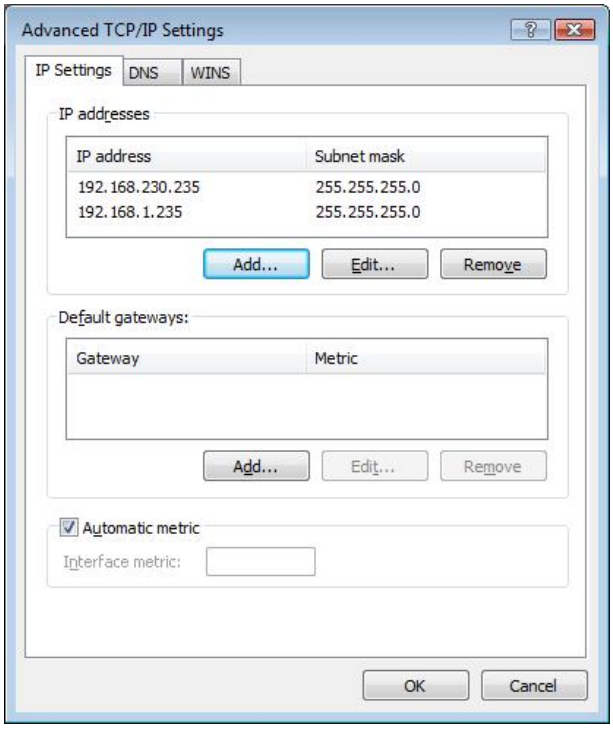
4. Click the "Add" button **(A)**.

   ↳ The following window appears.



5. Change these settings as shown in the screenshot and confirm with the "Add" button.

   ↳ The following window appears.



6. Confirm this window with "OK".
7. Confirm each of the two open windows with "OK".

↳ The LAN card is configured.

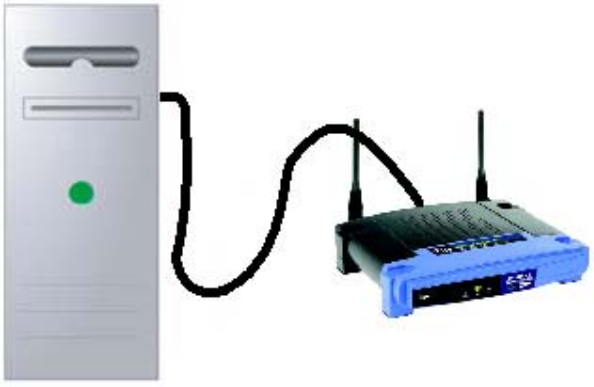
Go on to the chapter entitled “Configuring the access point“ [🗎 13].

3 Configuring the access point

NOTE: Access point configured at factory
The access point is configured at the factory. This chapter assists in restoring the default settings in the event of an error (e.g. access point was reconfigured).

You will need a **1:1 network cable** to configure access point WAP54G. This cable is supplied with the access point.

National versions of access point	Part Number
WLAN access point, (EU, CH)	61 51 232
WLAN access point, USA	61 51 240
WLAN access point, GB	61 51 257
WLAN access point, AUS/NZ	61 51 281
WLAN access point, Japan	61 51 299



Connect access point

1. Connect the LAN port of the access point to a LAN port of the PC via a 1:1 network cable.
2. Connect the access point to the power supply.

3. Press the Reset button on the access point for 10 seconds.

Opening the Internet Explorer

➢ Click "Start" / "Programs" / "Internet Explorer".

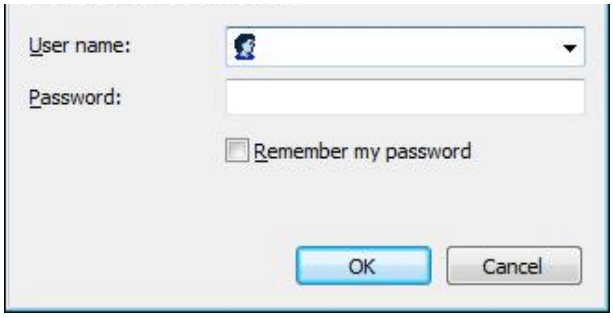
↳ The Internet Explorer window opens.

Log in at the access point

1. Enter the following IP address in the Internet Explorer address line: **192.168.1.245**

2. Press the Enter key on the keyboard.

   ↳ The login window of the access point opens.
   If this window does not open, check to see if the PC has another LAN port. If so, plug the network cable into this LAN port. After that, reenter the IP address in the Internet Explorer address line and confirm by pressing enter.



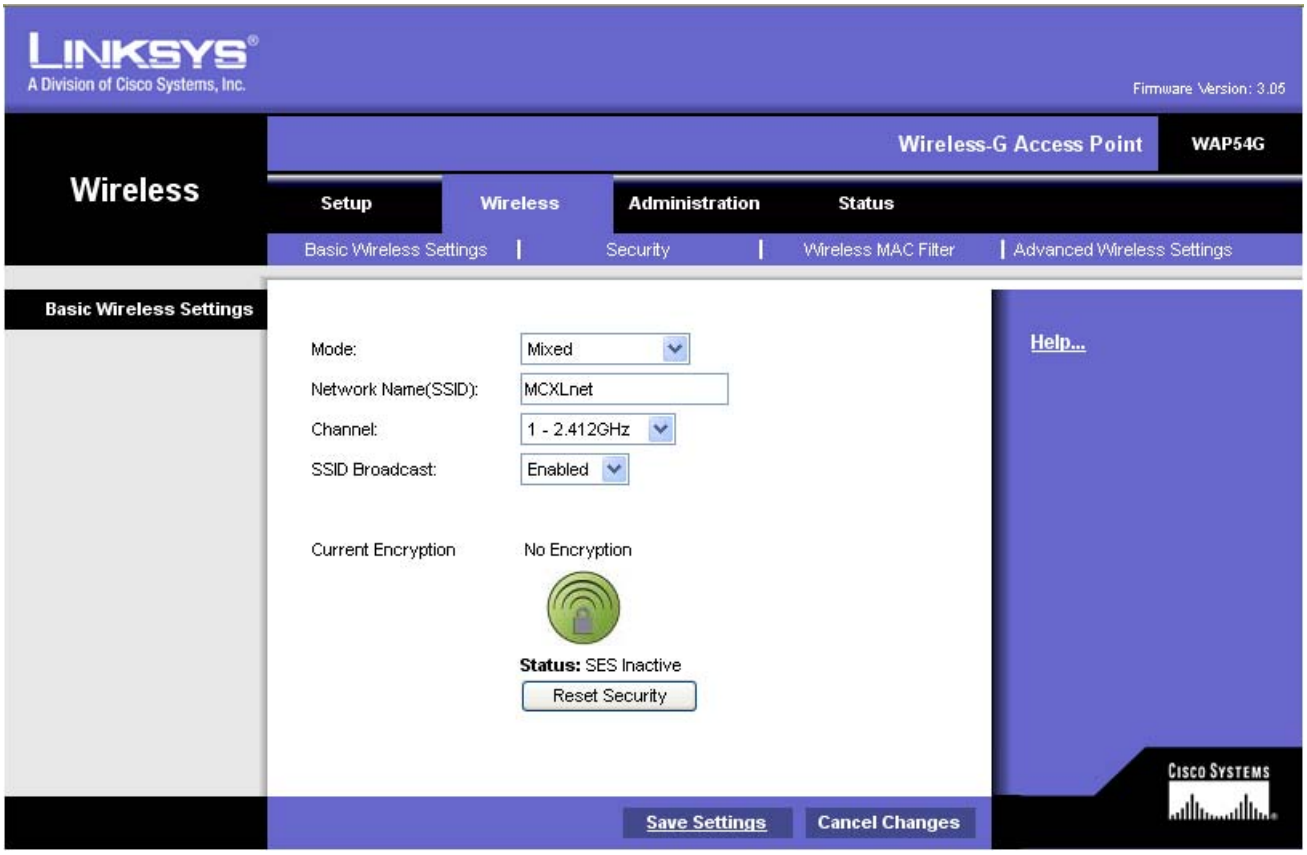
3. Leave the input box "`User name`" **empty** and enter the text "**admin**" in the input box "`Password`". Make sure to use lower case.
4. Confirm with the "`OK`" button.

   ↳ The access point setup menu appears.

Configuring the access point

1. Select the "`Wireless`" tab.

   ↳ The Wireless menu appears.



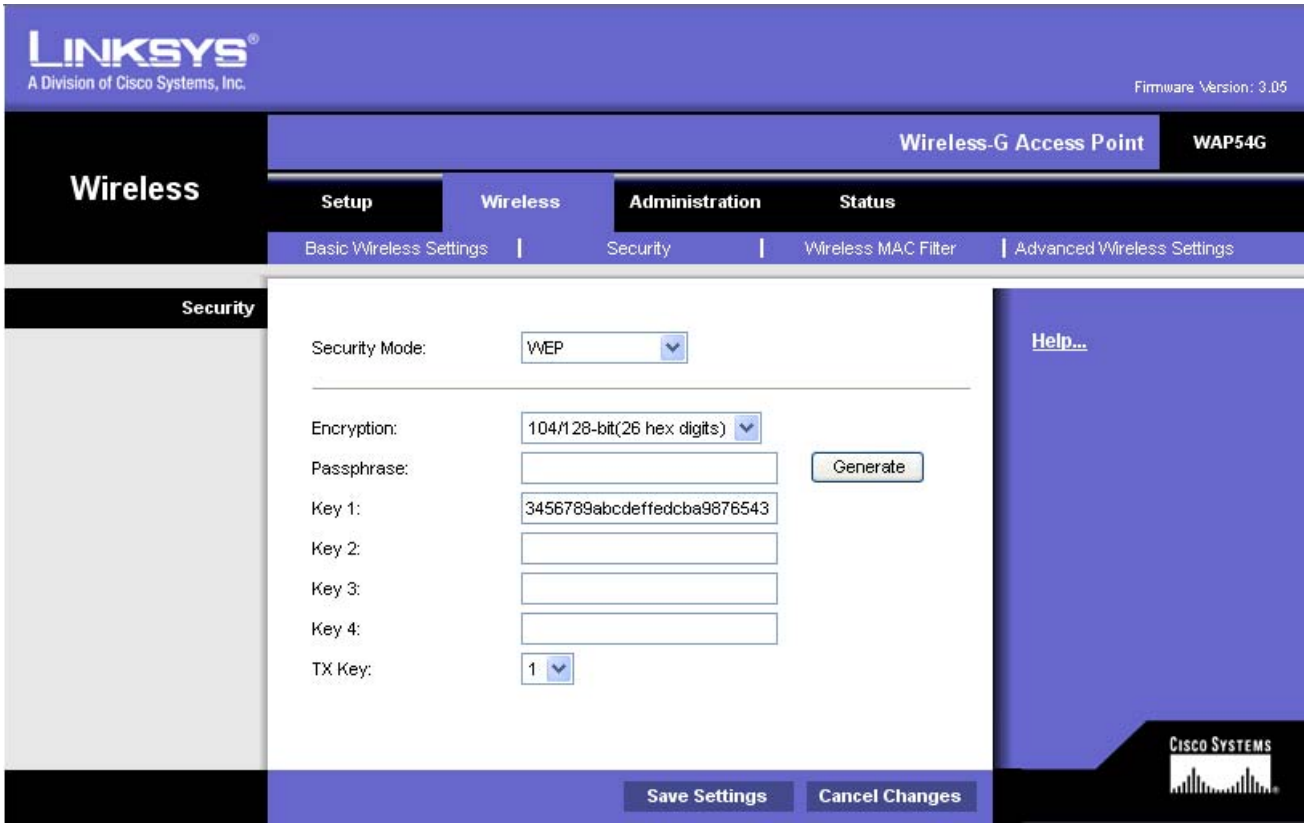
Linksys basic settings

2. Change the settings as shown in the screenshot and then click the "Save Settings" button.

   ↳ A message appears stating that your changes have been saved.

3. Click the "Continue" button.
4. Select the "Security" tab.

   ↳ The window with the WLAN security settings appears.

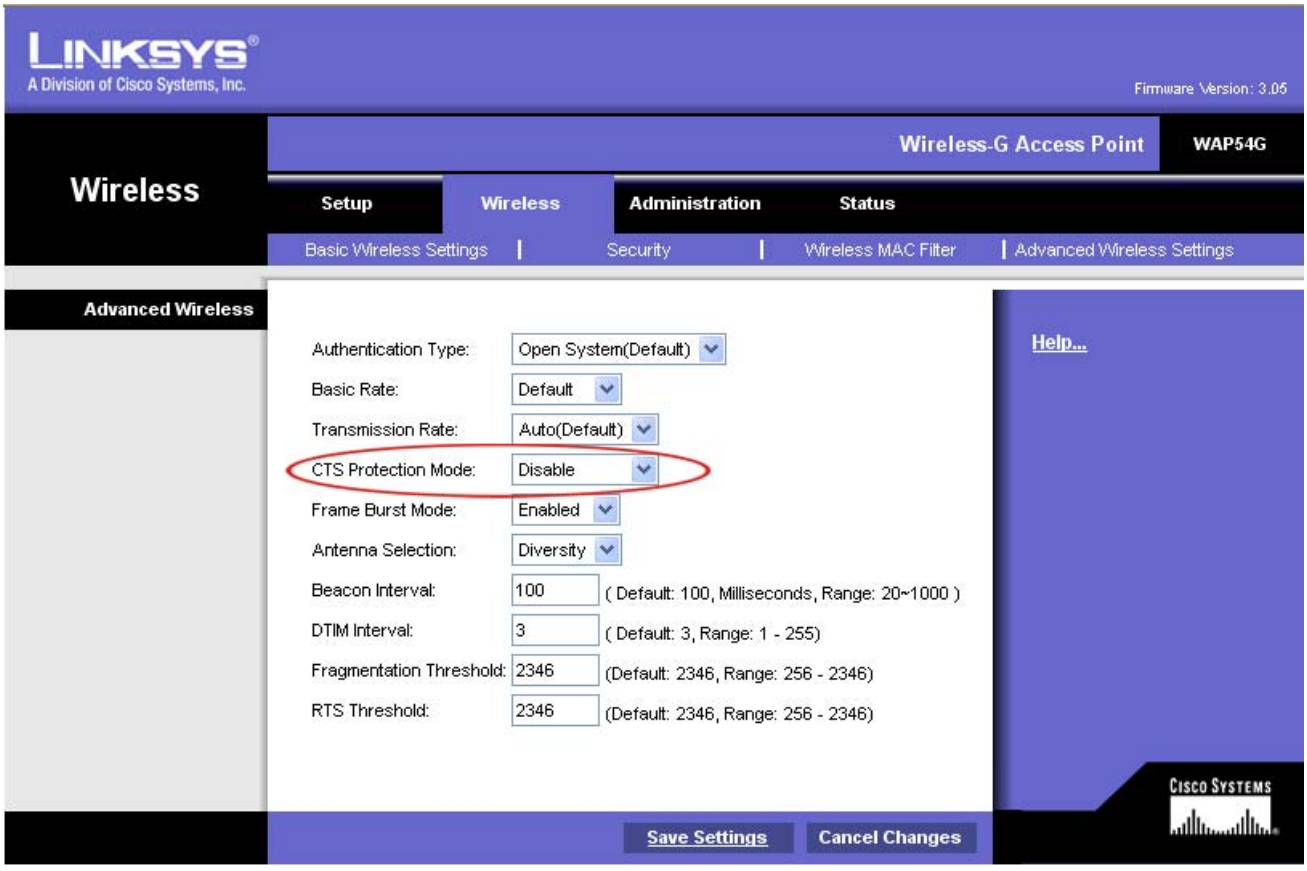


WEP encryption

5. Change the settings as shown in the screenshot and then click the "Save Settings" button.

   ↳ A message appears stating that your changes have been saved.

6. Click the "Continue" button.
7. Select the "Advanced Wireless Settings" tab.

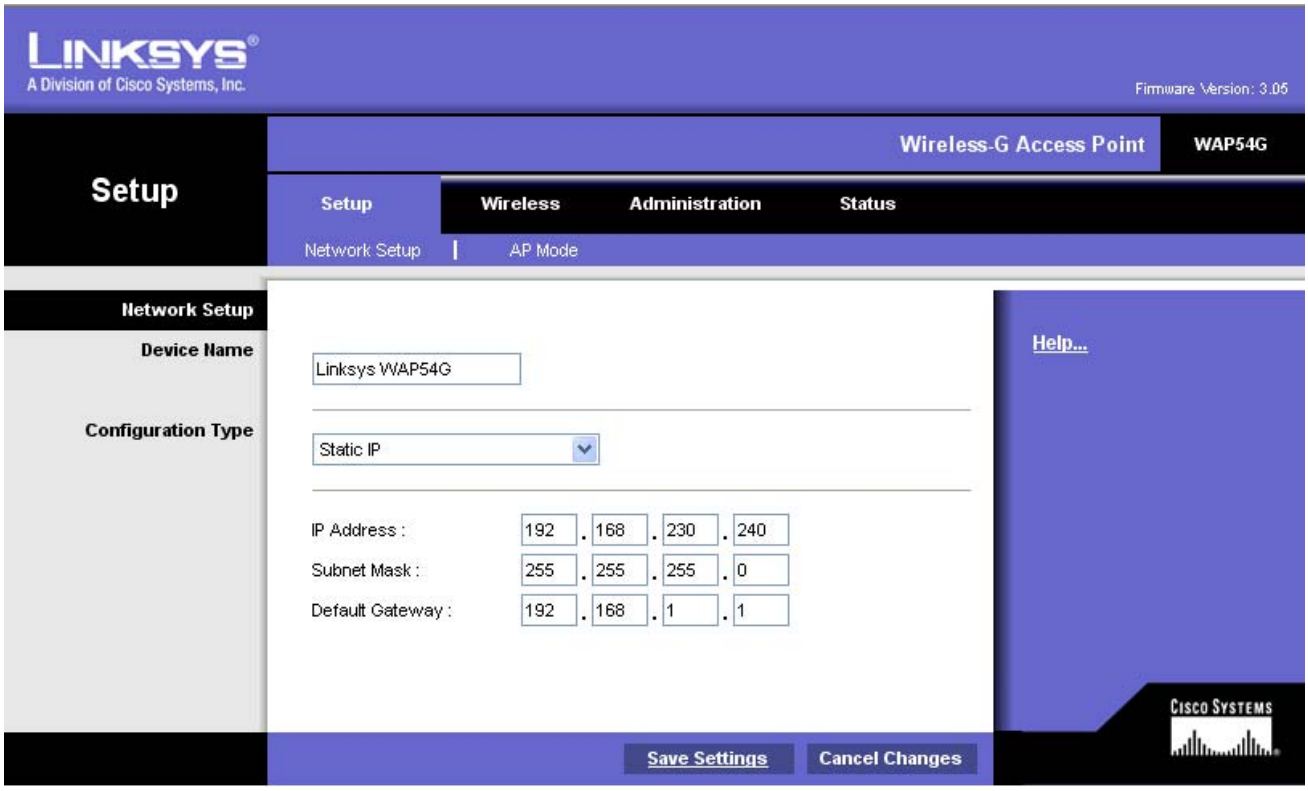


Linksys advanced settings

8. Change "`CTS Protection Mode`" to "`Disable`" and then click the "`Save Settings`" button.

   ↳ A message appears stating that your changes have been saved.

9. Click the "`Continue`" button.
10. Select the "`Setup`" tab.



Setup menu

11. Change the settings as shown in the screenshot and then click the "`Save Settings`" button.

    ↳ A message appears stating that your changes have been saved.

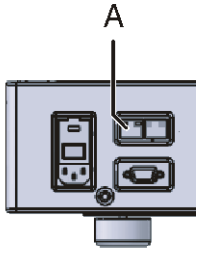
12. Click the "`Continue`" button.

    ↳ The login window of the access point opens.

13. Close this window without making any changes.
14. Close the Internet Explorer window.

    ↳ The configuration of the access point is now completed.

Connecting the access point to the milling unit



➢ Unplug the network cable from the PC and plug it into LAN port **A** of the milling unit.

4 Configuring the WLAN card of the PC

The CEREC system PC can be equipped with different operating systems.

Go on to the following pages depending on the operating system actually installed:

Go on to the chapter on "Configuring the PC in the infrastructure mode (Windows XP up to HW Gx)" [🗎 18]

Go on to the chapter on "Configuring the PC in the infrastructure mode (Windows Vista as from HW Hx)" [🗎 26]

4.1 PC in the infrastructure mode (Windows XP up to HW Gx)

The acquisition units are equipped with two different WLAN cards.

You can see which WLAN card is installed by checking the manufacturer icon at the bottom right in the task bar.

Go on to the chapter entitled "Configuring the CISCO WLAN card" [🗎 18].

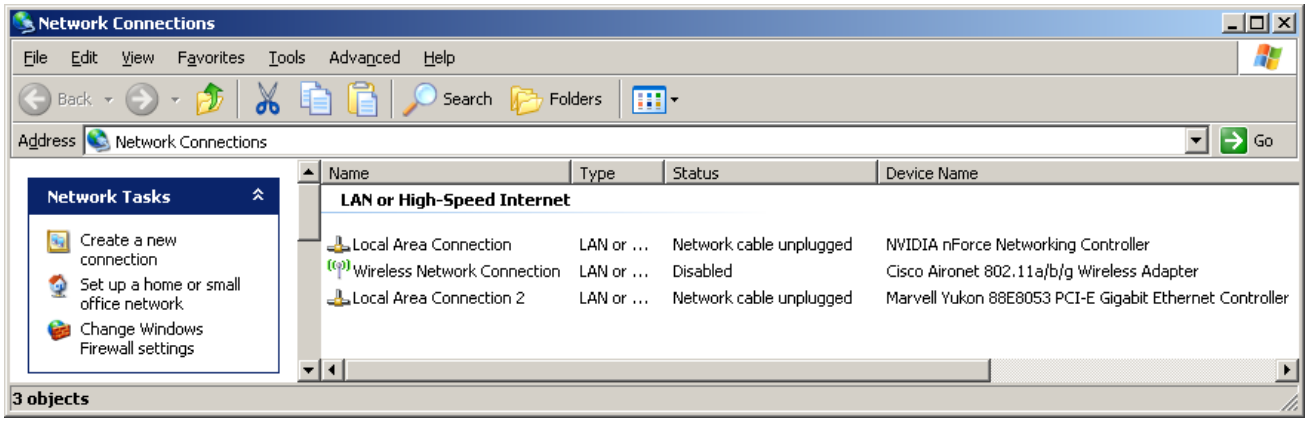
Go on to the chapter entitled "Configuring the LINKSYS WLAN card" [🗎 24].

4.1.1 Configuring the Cisco WLAN card

Opening network connections

1. Click "Start" / "Settings" / "Control panel" in the task bar.
2. Double-click the "Network Connections" icon in the "Control panel" window.

   ↳ The "Network Connections" window then opens.



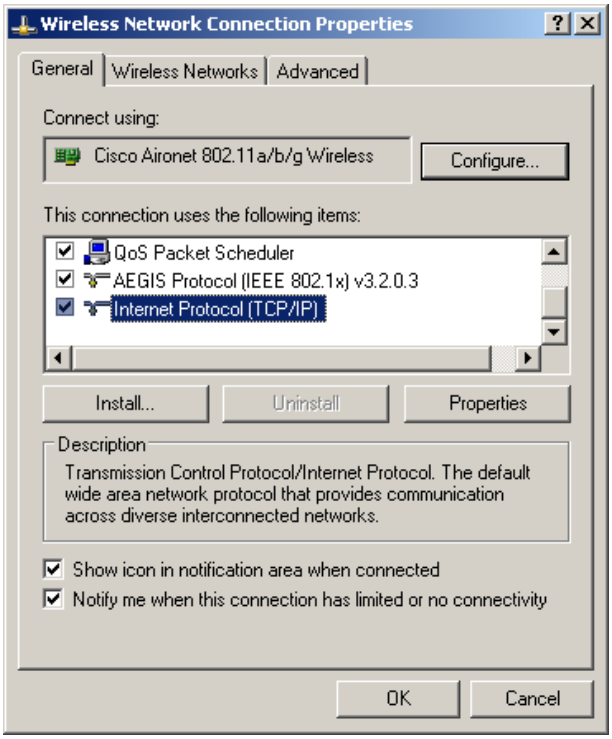
Activating the WLAN card

1. Right-click the "`Wireless Network Connection`" with the device name **Cisco Aironet 02.11a/b/g Wireless Adapter**.
2. Select "`activate`".

Configuring the network properties of the WLAN card

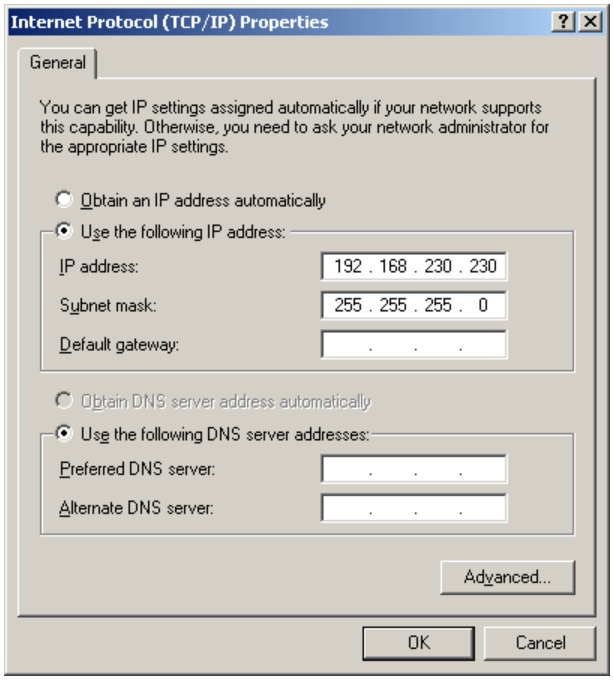
1. Right-click the "`Wireless Network Connection`" with the device name **Cisco Aironet 02.11a/b/g Wireless Adapter**.
2. Select "`Properties`".

   ↳ The window with the Network Properties then opens.



3. Double-click on the "`Internet Protocol (TCP/IP)`" window.

   ↳ The window with the TCP/IP settings then appears.



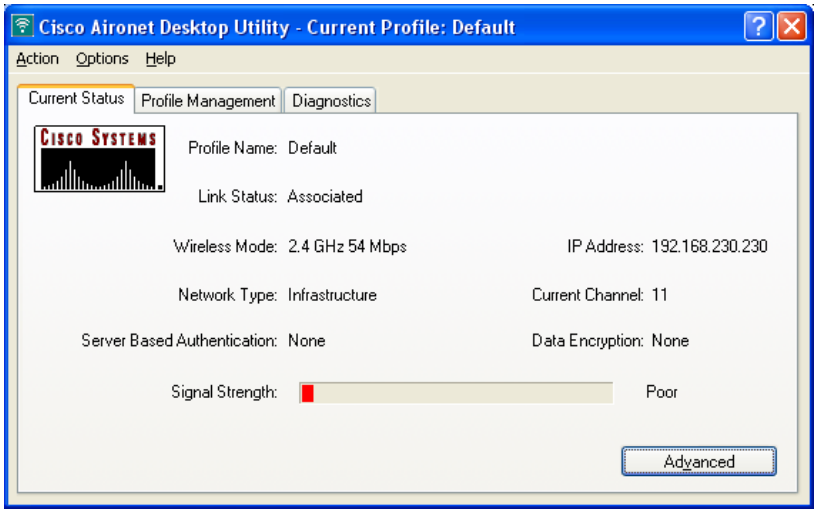
4. Change these settings as shown in the screenshot.
5. Confirm each of the two open windows with "OK".

   ↳ The network properties of the WLAN card are configured.

Configuring the WLAN card

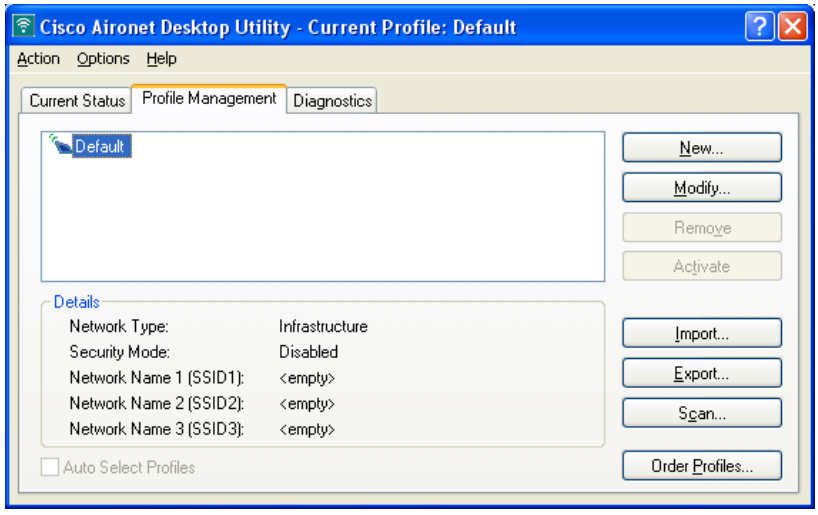
1. Click "Start"/"Programs"/"Cisco Aironet"/"Aironet Desktop Utility".

   ↳ The following window appears:



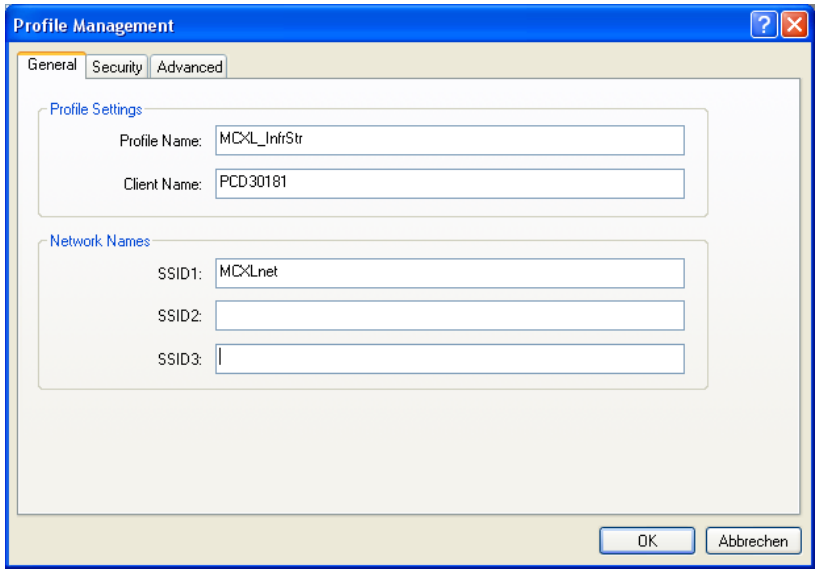
2. Select the "Profile Management" tab.

   ↳ The following window appears:



3. Click the "New" button.

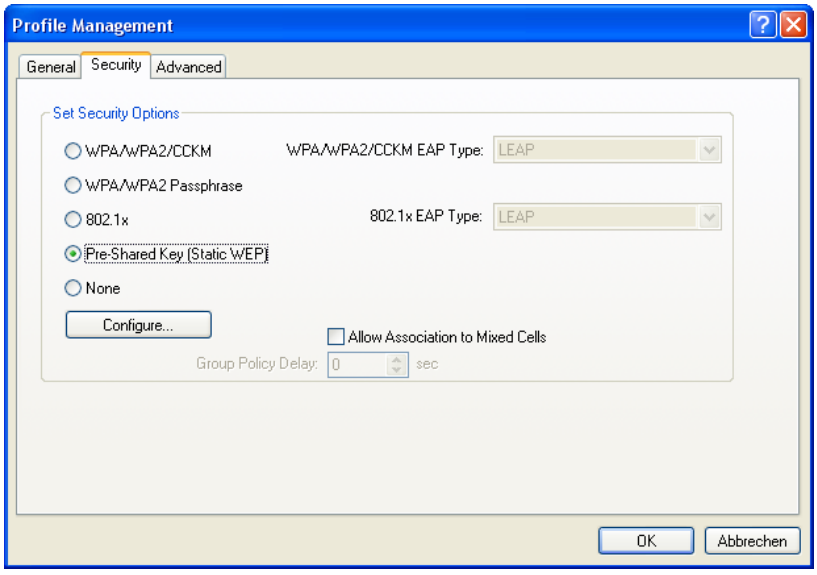
   ↳ The window for general configuration settings appears.



Configuring the infrastructure mode

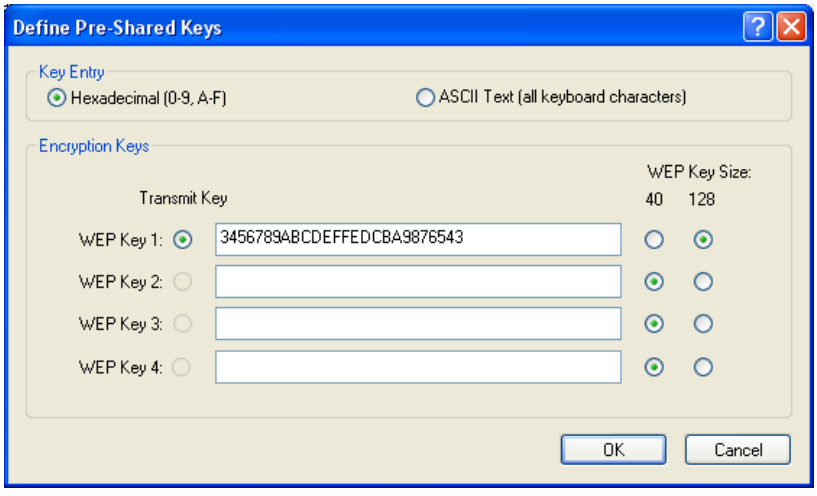
4. Enter the following text:
   "Profile Name" field: "MCXL_InfrStr"
   "SSID1" field:"MCXLnet".
5. Select the "Security" tab.

   ↳ The window for security settings appears.



6. Click the "Pre-Shared Key (Static WEP)" option button and then the "Configure" button.

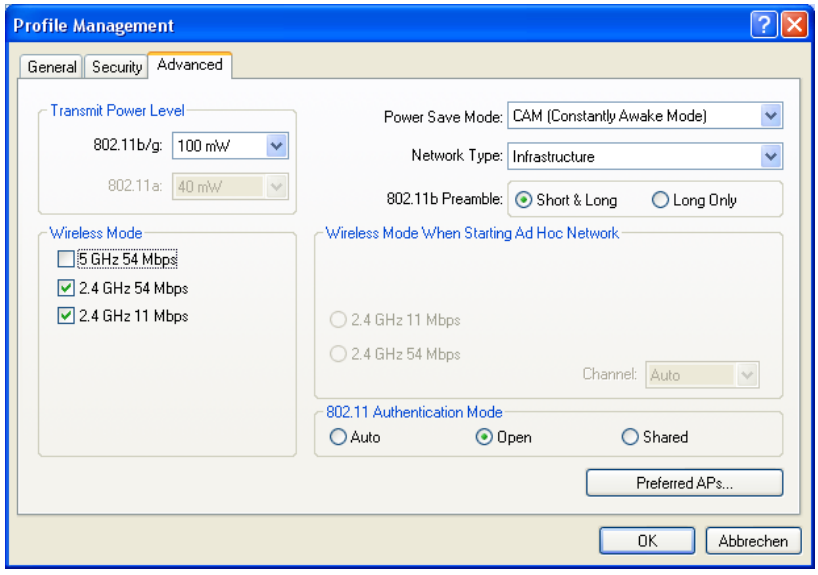
   ↳ The WLAN encryption window then appears.



WLAN encryption in the infrastructure mode

7. Change the settings as shown in the screenshot and confirm with "OK".
8. Select the "Advanced" tab.

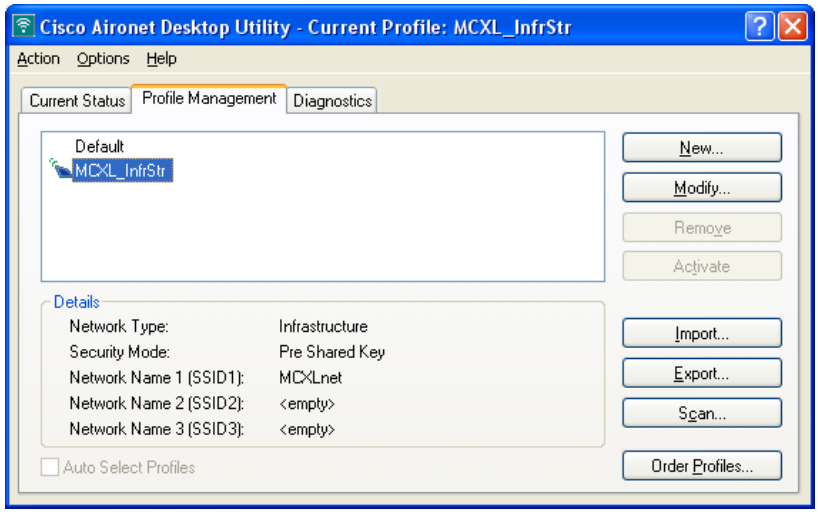
   ↳ The window for the advanced settings appears.



Advanced settings in the infrastructure mode

9. Change the settings as shown in the screenshot and confirm with "`OK`".

↳ The following window appears.



Activating profile in the infrastructure mode

10. Select the "`MCXL_InfrStr`" profile.

11. Click the "`Activate`" button.

12. Close all open windows.

↳ The configuration of the WLAN card is now completed. If the configuration was successful, a green CISCO icon appears in the toolbar.

If the milling unit is equipped with an **access point**, go on to: "Final work" [🗎 37]

NOTE: Milling unit with an internal WLAN module

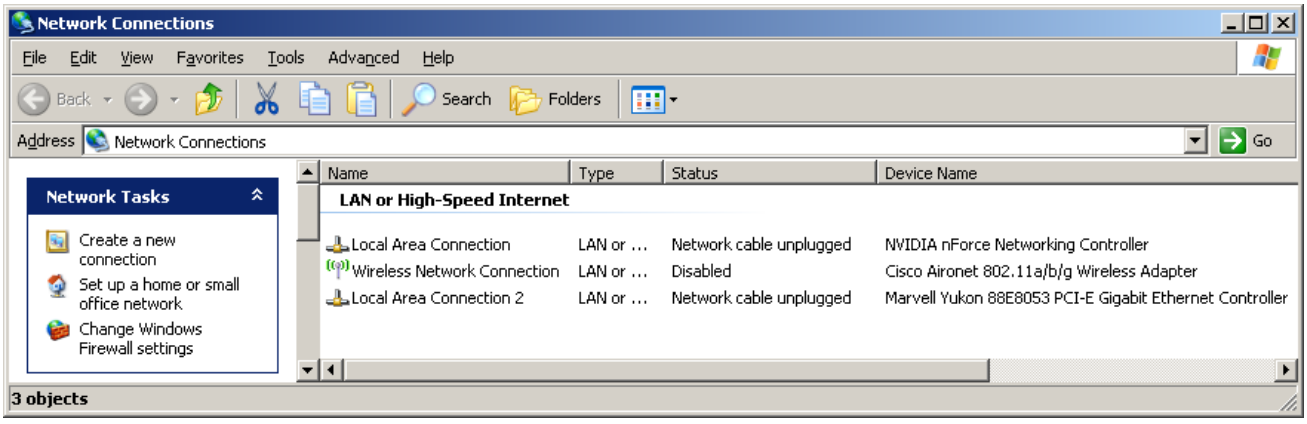
If the milling unit is equipped with an internal WLAN module, go on to: "Configuring the WLAN module of the milling unit (if installed)" [🗎 30]

4.1.2 Configuring the Linksys WLAN card

Opening network connections

1. Click "Start" / "Settings" / "Control panel" in the task bar.
2. Double-click the "Network Connections" icon in the "Control panel" window.

   ↳ The "Network Connections" window then opens.



Activating the WLAN card

1. Right-click the "Wireless Network Connection" with the device name **... Wireless-G PCI ...**.
2. Select "activate".

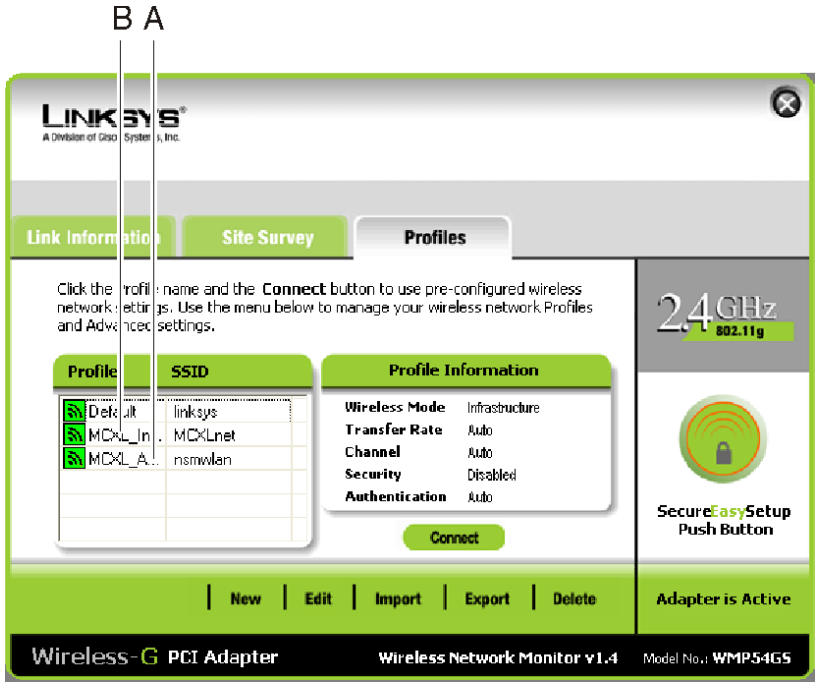
Configuring the WLAN card

1. Double-click the Linksys icon in the toolbar.

   ↳ The following window appears. Its contents may vary depending on the preconfiguration and/or the hardware version of the PC.

2. Select the "Profiles" tab.

   ↳ The following window appears.



3. Select the "MCXL_InfrStr" profile **(B)**.

NOTE: If the profile is not available
If you cannot find the "MCXL_InfrStr" profile, click "Import". A file selection dialog box then appears. Change to the directory "c:\sirona\drivers\wlanlinksys" and double-click the file "MCXL_InfrStr.cfg".

4. Click the "Connect" button.
5. Following a successful connection, a window opens. If necessary, click "Link Information" to view the window shown below.

6. Make no changes and close the window.

   ↳ The configuration of the WLAN card is now completed.

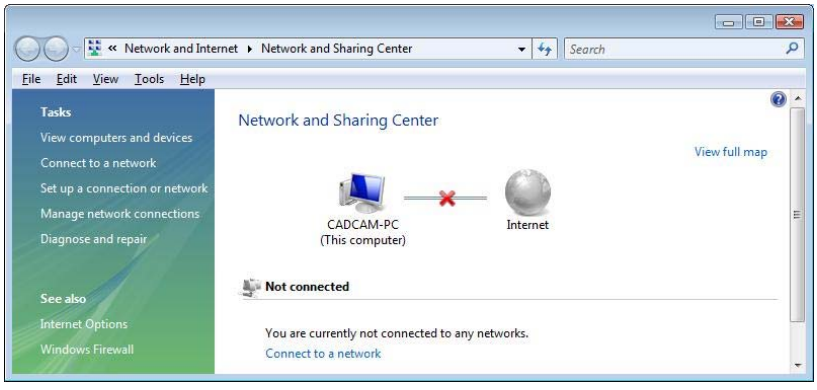
If the milling unit is equipped with an **access point**, go on to: “Final work“ [🗎 37]

NOTE: Milling unit with an internal WLAN module
If the milling unit is equipped with an internal WLAN module, go on to: Configuring the WLAN module of the milling unit (if present) [🗎 30]

4.2 Configuring the PC in the infrastructure mode (Windows Vista as from HW Hx)

Opening network connections

1. Right click the network icon in the task bar and select "`Network and Sharing Center`".



2. Go to the "`Network and Sharing Center`" window and click "`Manage network connections`".

   ↳ The window with the network connections then opens.

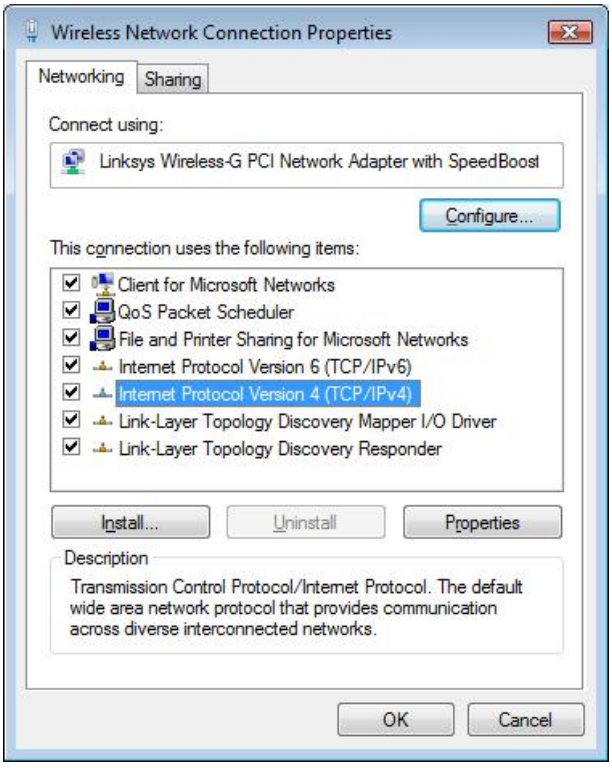
Deactivating the WLAN card

1. Right click "`Wireless Network Connection`".
2. Select "`activate`".

Configuring the network properties of the WLAN card

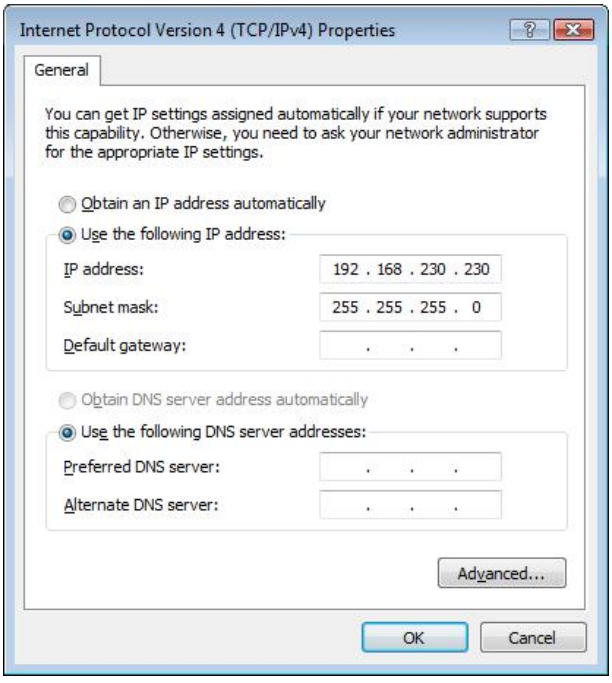
1. Right click "`Wireless Network Connection`" and select "`Properties`" from the context menu.

   ↳ The window with the Network Properties then opens.



2. Double-click "`Internet Protocol Version 4 (TCP/IPv4)`".

   ↳ The window with the TCP/IPv4 settings then appears.



3. Change the settings as shown in the screenshot.
4. Confirm each of the two open windows with "`OK`".

   ↳ The network properties of the WLAN card are configured.

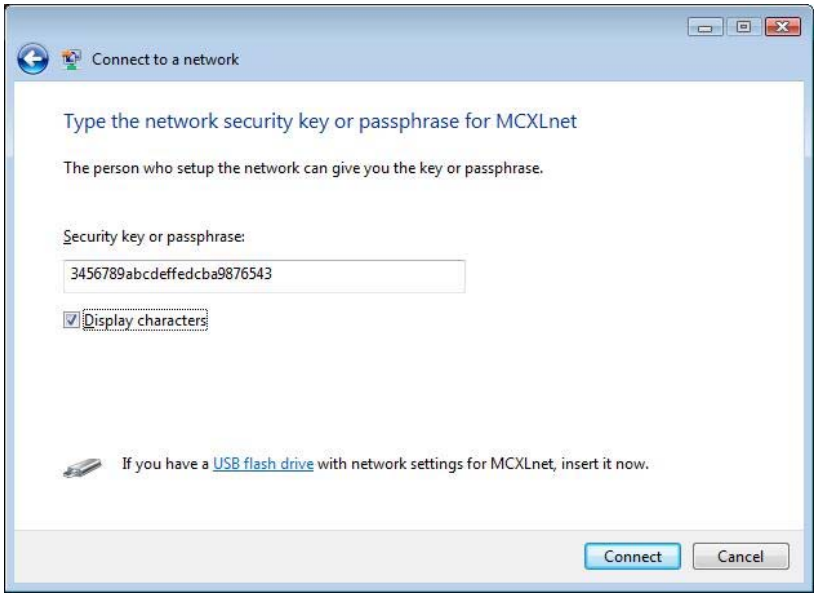
Configuring the WLAN card

1. Right click the network icon in the task bar and select "Connect to a network".

   ↳ The window with the WLAN networks located nearby then opens.

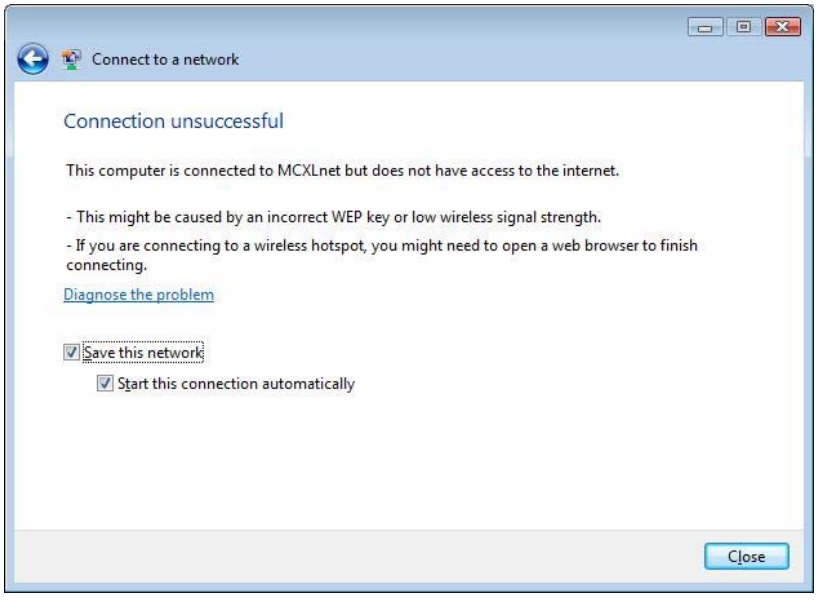
2. Click the "MCXLnet" WLAN network; then click the "Connect" button.

   ↳ A window with the message "Connecting to MCXLnet" briefly opens. The window for entering the encryption key then appears.



3. Change the settings as shown in the screenshot. Click the "Connect" button.

   ↳ A window with the message "Connecting to MCXLnet" briefly opens. The following window then appears.



NOTE: No internet connection

The message "Connection unsuccessful" only means that no internet connection is available. The connection to the access point is established.

↳ After a successful connection, the red "x" on the network icon disappears. You can ignore the yellow warning triangle on the network icon.

4. Click the "Close" button.

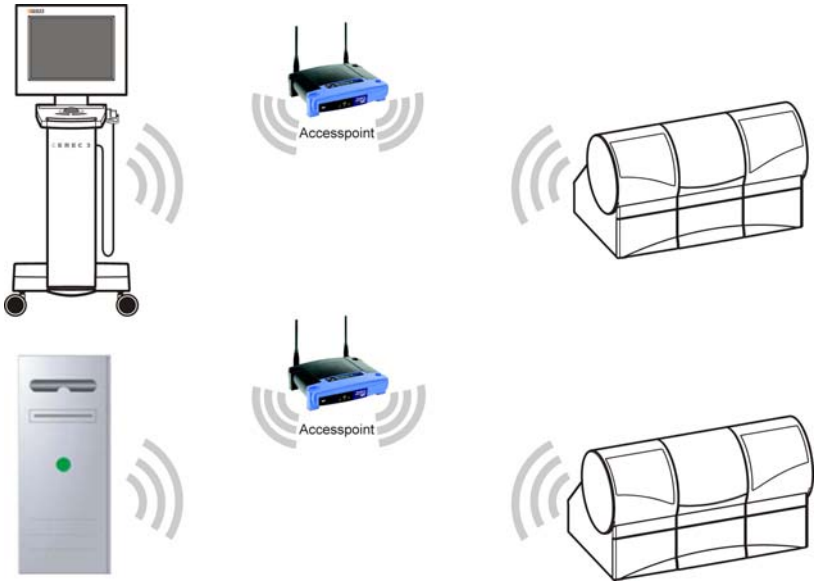
If the milling unit is equipped with an **access point**, go on to: "Final work" [🗎 37]

NOTE: Milling unit with an internal WLAN module

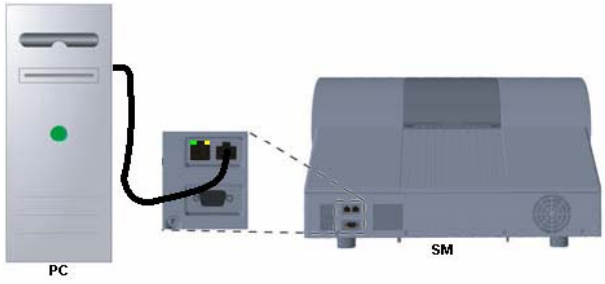
If the milling unit is equipped with an internal WLAN module, go on to: "Configuring the WLAN module of the milling unit (if installed)" [🗎 30]

5 Configuring the WLAN module of the milling unit (if present)

NOTE:
The configuration described below is only possible with milling units with an internal WLAN module. Sirona generally recommends connecting the access point to the milling unit via the network cable.



Connecting the PC to the milling unit



Connection between a PC and a milling unit.

➢ Connect the WLAN port of the milling unit to the LAN port of a PC via a **crossover network cable** (Order no. 60 06 626).

NOTE: Connection via a network cable
Use the **WLAN configuration cable** included in the scope of supply (Order no. 61 50 994) for milling units up to and including serial number **103000**.

Opening the Internet Explorer

➢ Click "Start" / "Programs" / "Internet Explorer".

↳ The Internet Explorer window opens.

IP address of the milling unit WLAN module

The IP address of the milling unit WLAN module is the sum of the milling unit IP address plus 100.

The IP address of the milling unit appears on the display after you switch the milling unit on by pressing the "Config" button.

Example:

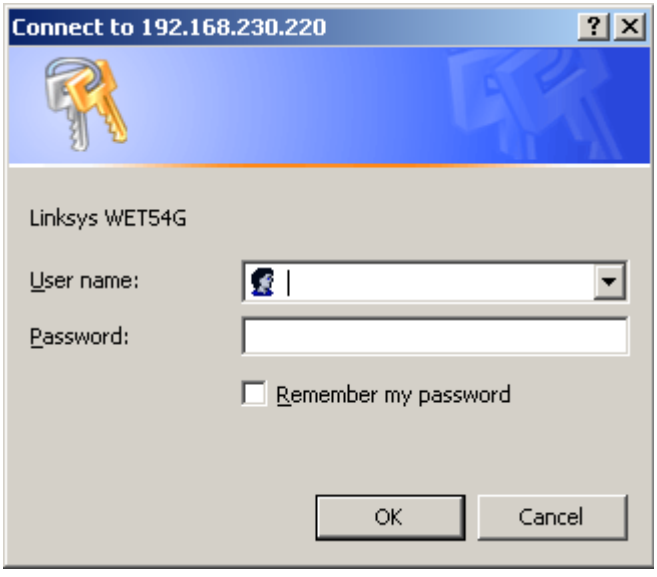
IP address of milling unit	192.168.230	.120
		+100
IP address of WLAN module	**192.168.230**	**.220**

NOTE: New WLAN module or reset performed
After installing a new WLAN module or resetting the WLAN module, you must use the following IP address: **192.168.1.226**

Login of the milling unit WLAN module

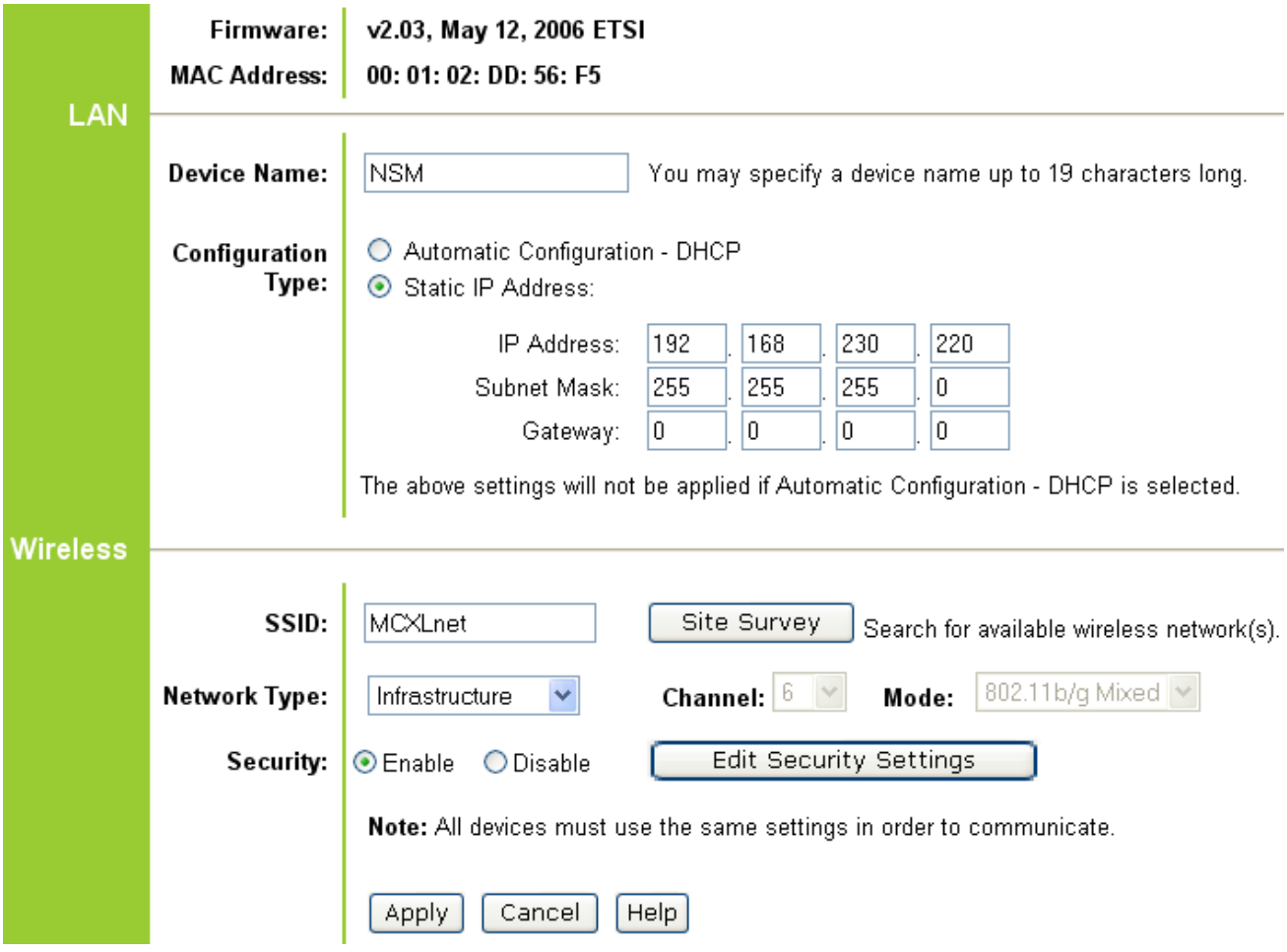
1. Enter the IP address of the milling unit WLAN module in the address line of the Internet Explorer window.
2. Press the Enter key on the keyboard.

   ↳ The login window of the milling unit WLAN module then opens. If this window does not open, check to see if the PC has another LAN port. If so, plug the network cable into this LAN port. After that, reenter the IP address in the Internet Explorer address line and confirm by pressing enter.



3. Enter "admin" both as the user name and as the password.
4. Confirm with the "OK" button.

   ↳ The following window appears.



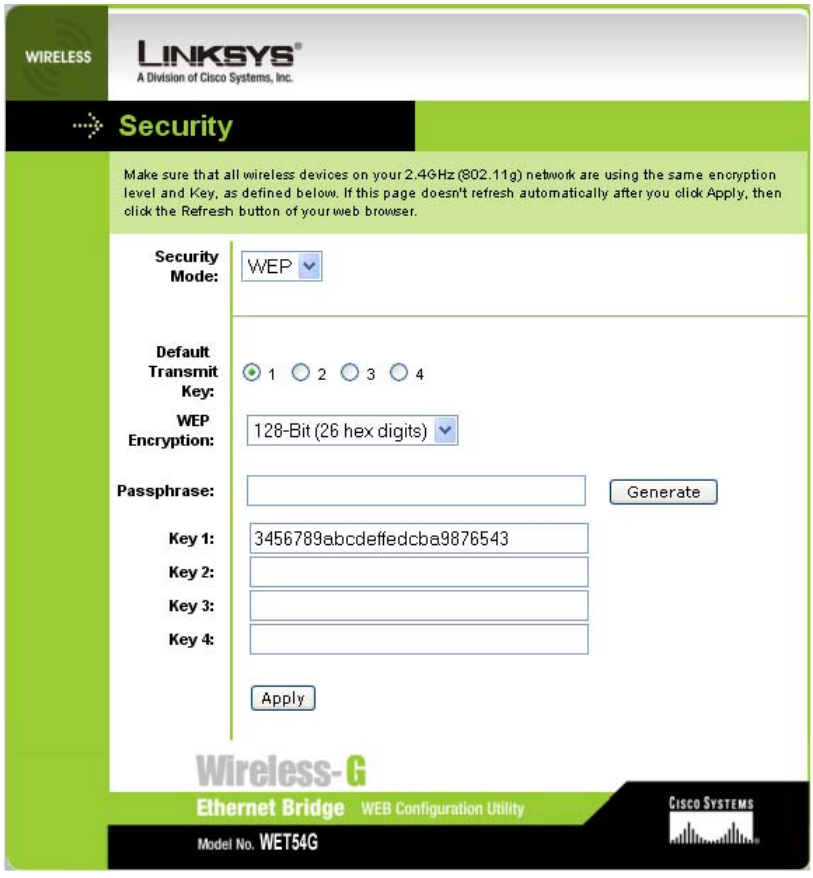
Linksys setup infrastructure mode

Configuring the WLAN module

✓ The login for configuration of the milling unit was successful and the Setup window shown above appears. Its contents may vary from one configuration to another.

1. Click the "`Edit Security Settings`" button.

   ↳ The "`Security`" window appears.

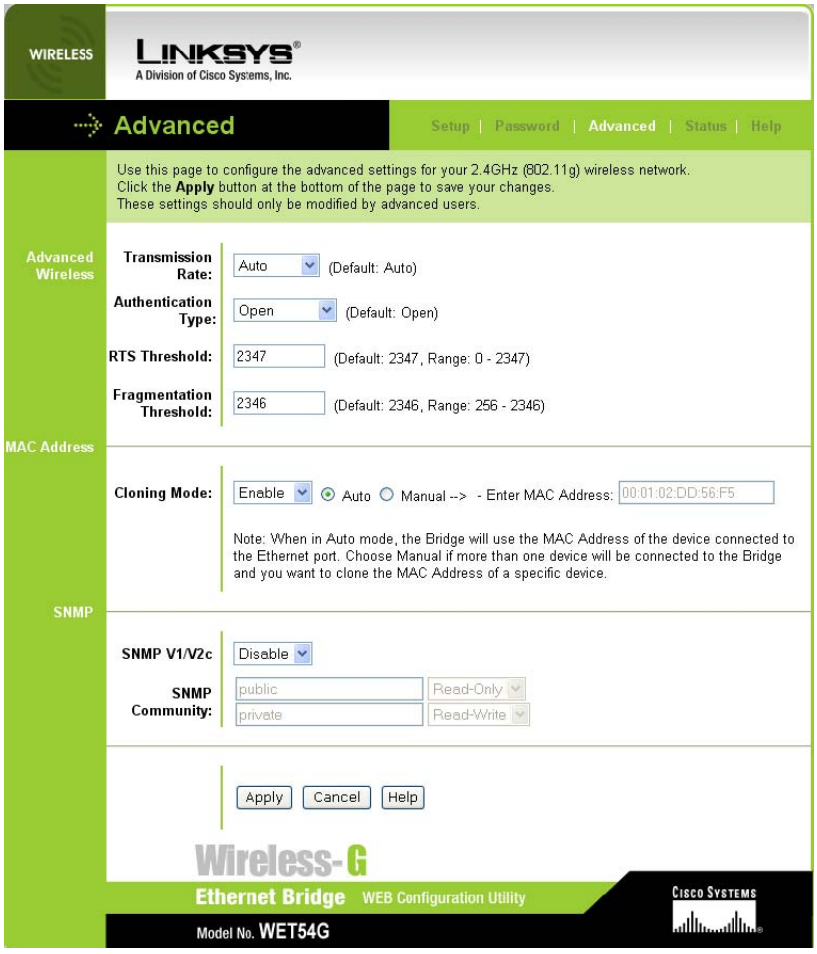


Linksys security infrastructure mode

2. Change the settings for the infrastructure mode as shown in the screenshot.
3. Confirm with the "Apply" button.

   ↳ The settings are stored by the WLAN module.
4. Close the window at the end of the waiting period.
5. Select the "Advanced" tab.

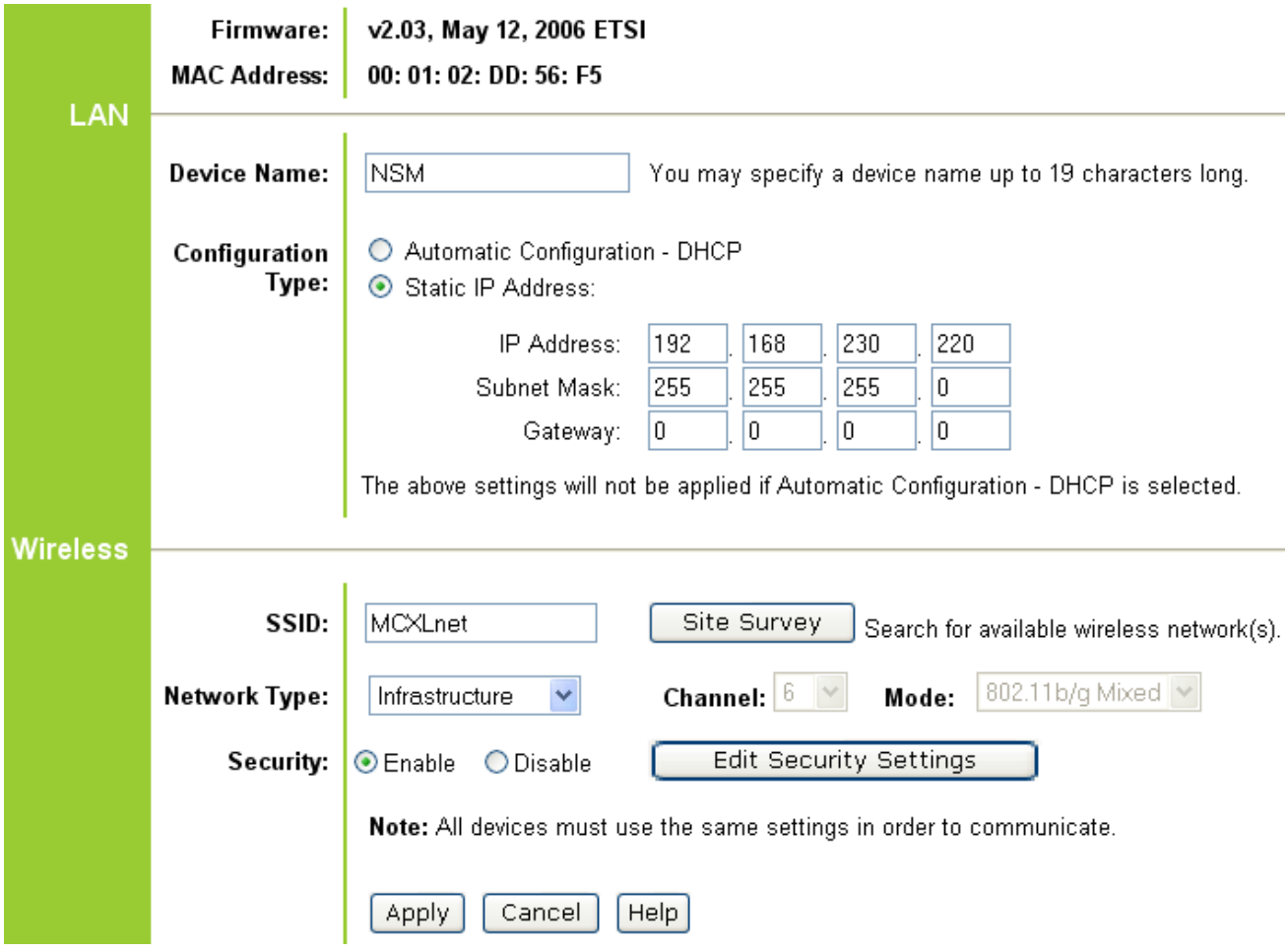
   ↳ The "Advanced" window appears.



Advanced window

6. Change the settings as shown in the screenshot.
7. Confirm with the "`Apply`" button.

   ↳ The settings are stored by the WLAN module.
8. Select the "`Setup`" tab.



Linksys setup infrastructure mode

⚠CAUTION: Change the IP address only in the following cases:
new WLAN module or reset performed
After installing a new WLAN module or resetting the WLAN module, you must determine the IP address and enter it into the fields `"IP Address:"`.
The IP address of the milling unit WLAN module is the sum of the milling unit IP address plus 100.
The IP address of the milling unit appears on the display after you switch the milling unit on by pressing the `"Config"` button.
Example:
IP address of milling unit: 192.168.230.**120**
IP address of WLAN module: 192.168.230.**220**

9. Change the remaining settings as shown in the screenshot.
10. Click the `"Apply"` button.
11. Close all open windows at the end of the waiting period.
    ↳ The configuration is now completed.
12. Remove the LAN cable.
13. Connect the LAN port to the WLAN port via a **1:1 network cable** (Order no. 61 17 563).

14. Switch the milling unit off and on again.

6 Final work

6.1 Switching the units off and on again

1. Shut down the PC and switch it off.
2. Switch the milling unit and the access point off.
3. Switch the PC, milling unit and access point back on.

The configuration of the PC and the milling unit in the infrastructure mode is completed.

6.2 Connection test via ping command

The CEREC system PC can be equipped with different operating systems.

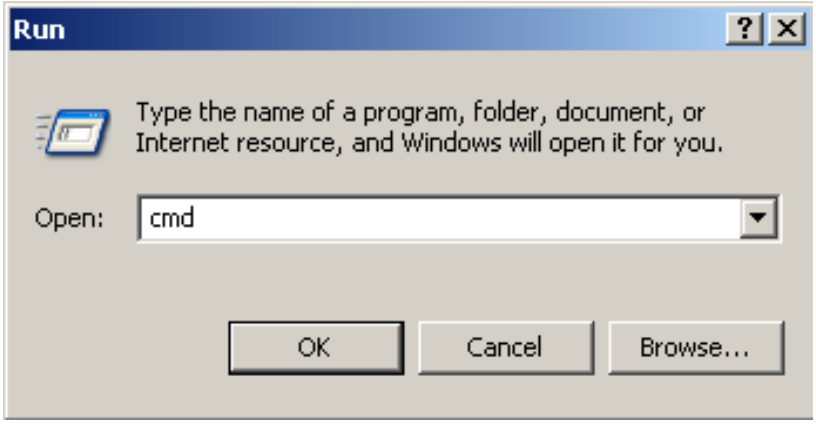
Go on to the following pages depending on the operating system actually installed:

Go on to the chapter on "Connection test via ping command (Windows XP up to HW Gx)"

Go on to the chapter on "Connection test via ping command (Windows Vista as from HW Hx)"

6.2.1 Connection test via ping command (Windows XP up to HW Gx)

1. Click "Start" / "Run" in the task bar.



DOS prompt

2. Enter "cmd" in the following window.
3. Confirm with "OK".

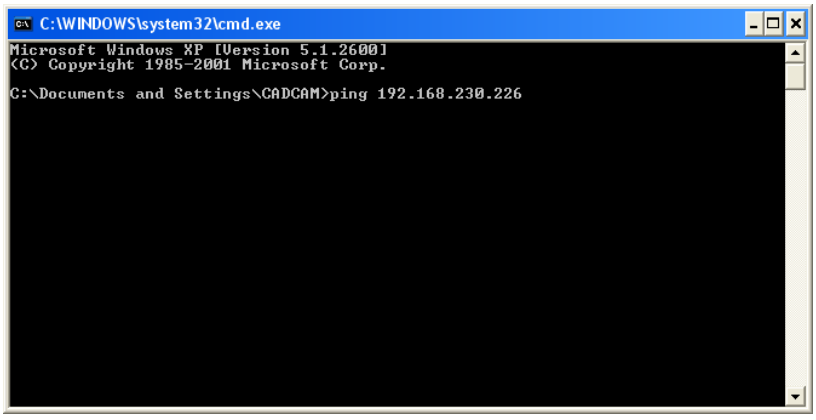
   ↳ The DOS prompt window then opens.

CAUTION: The IP address is only an example

The IP address in the next screenshot is only an example.

The IP address of the milling unit appears on the milling unit display when, after turning the unit on, you press the "Config" key.

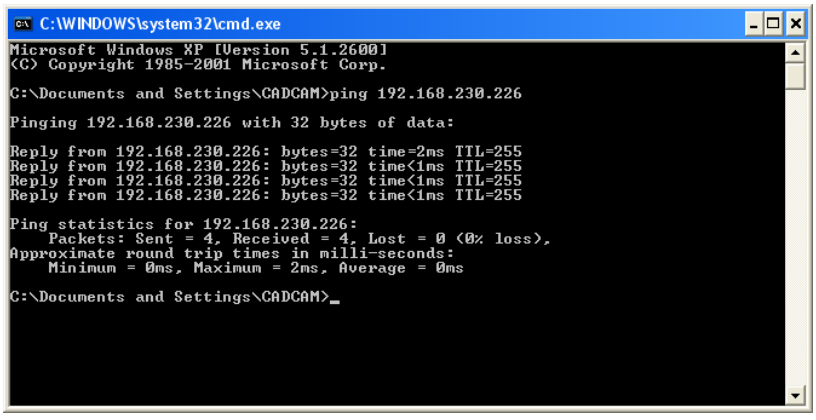
4. Enter the command "ping", followed by a space and the IP address of the milling unit.



Example ping command

5. Press the Enter key.

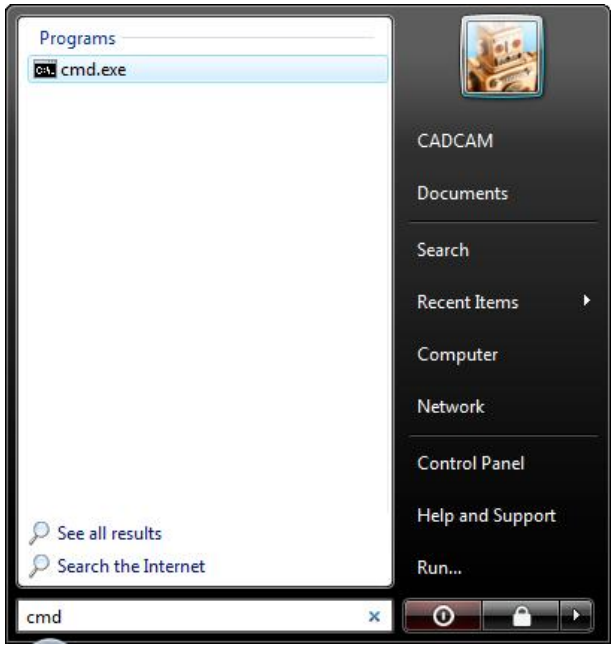
   ↳ If the connection is intact, the display should have the following contents.



6. Close the DOS prompt window.
7. Go on to the chapter entitled "Analyzing the connection quality in infrastructure mode" [📄 40].

6.2.2 Connection test via ping command (Windows Vista as from HW Hx)

1. Click "Start" in the task bar and enter the command "cmd".



2. Confirm with the "Enter" key.

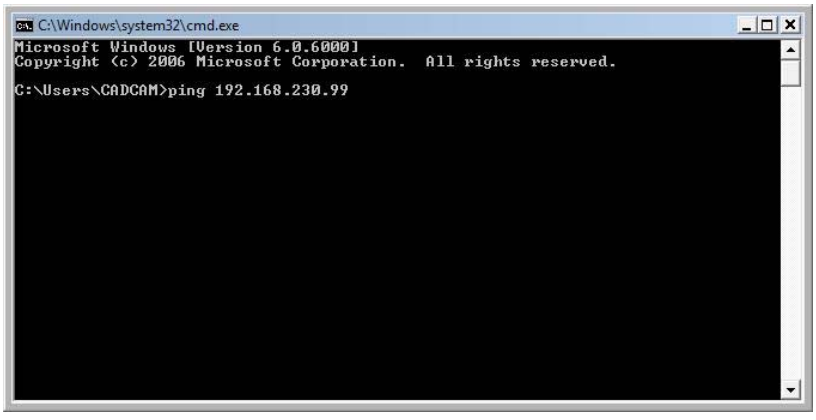
   ↳ The DOS prompt window then opens.

⚠CAUTION: The IP address is only an example

The IP address in the next screenshot is only an example.

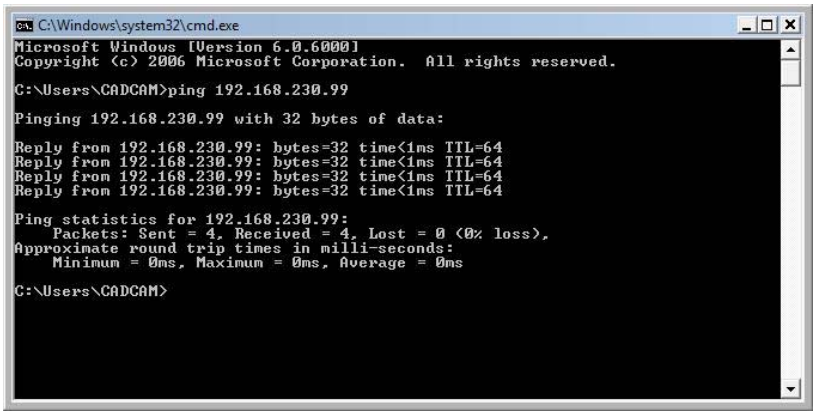
The IP address of the milling unit appears on the milling unit display when, after turning the unit on, you press the "Config" key.

3. Enter the command "ping", followed by a space and the IP address of the milling unit.



4. Press the Enter key.

   ↳ If the connection is intact, the display should have the following contents.



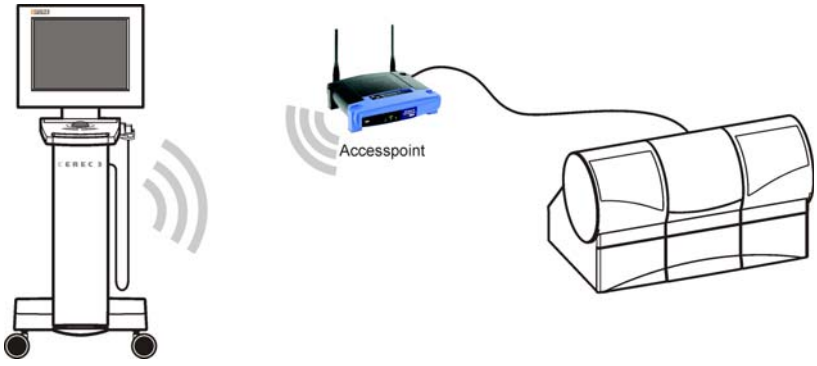
5. Close the DOS prompt window.
6. Go on to the chapter entitled "Analyzing the connection quality in infrastructure mode" [🗎 40].

6.3 Analyzing the connection quality in Infrastructure Mode

Analyzing the WLAN connection quality is essential for the optimal wireless operation of the CEREC system. Merely observing the WLAN signal strength using appropriate software tools is not enough to provide information concerning the connection quality. In particular, the utilization of the set WLAN channel is critical here.

The occurrence of weak communications despite good signal strength points to an overloaded WLAN channel.

✓ Switch off the PC, access point and the milling unit.



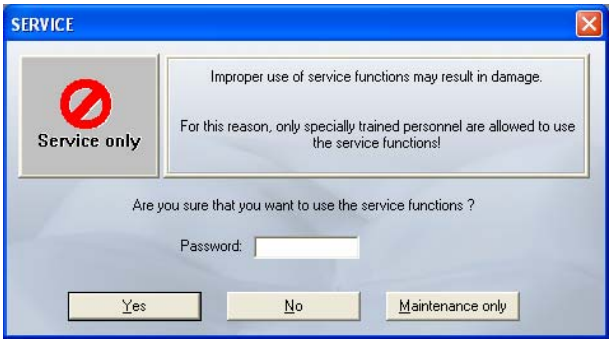
1. Position the PC near the access point (1-2 m away).
2. Switch the PC, access point and the milling unit on.

Performing the communication test

⚠CAUTION: Use only the test `"Serial communication"`
The service software is intended as a resource for the service engineer. Without service engineer training, you should use only the described test for serial communication.

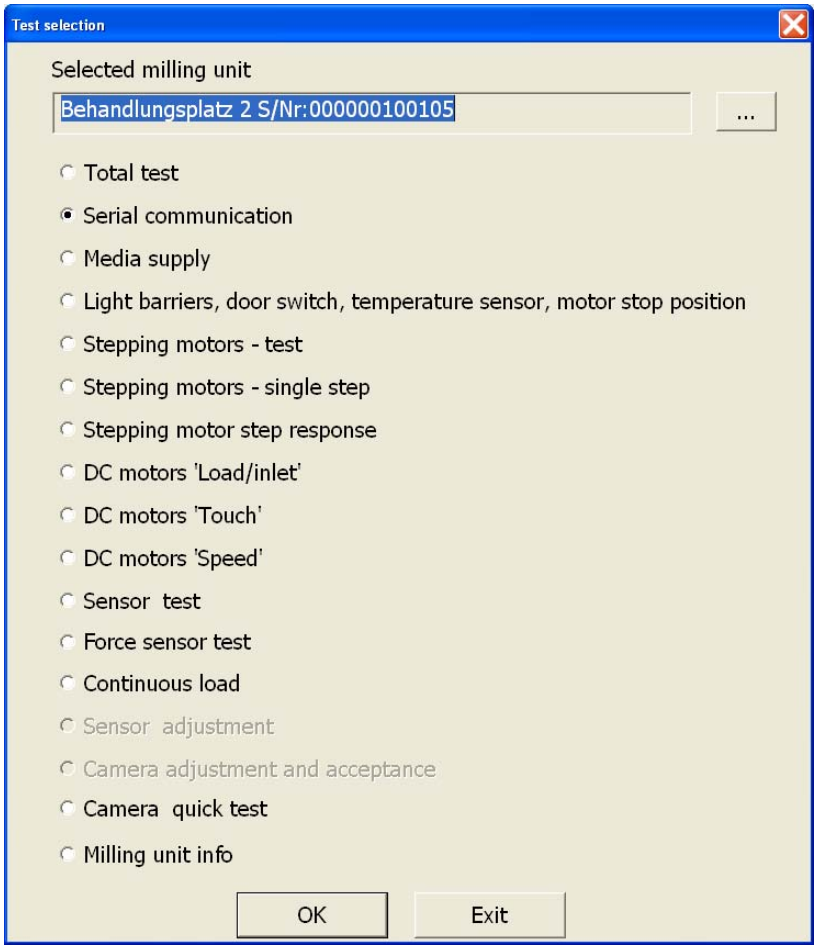
1. Open the Service menu as follows.
   CEREC MC XL:
   "Start"/"Programs"/"CEREC"/"Service"
   inLab MC XL:
   "Start"/"Programs"/"inLab"/"Service"

   ↳ The Service Login dialog box then opens for password entry.



2. Enter the current month and day in reverse order in the "Password" box. Example: 24.05 => **5042**
3. Confirm your selection with the "Yes" button.
4. If several milling units are connected, a dialog box will appear. Select the language you prefer and confirm your choice with "OK".

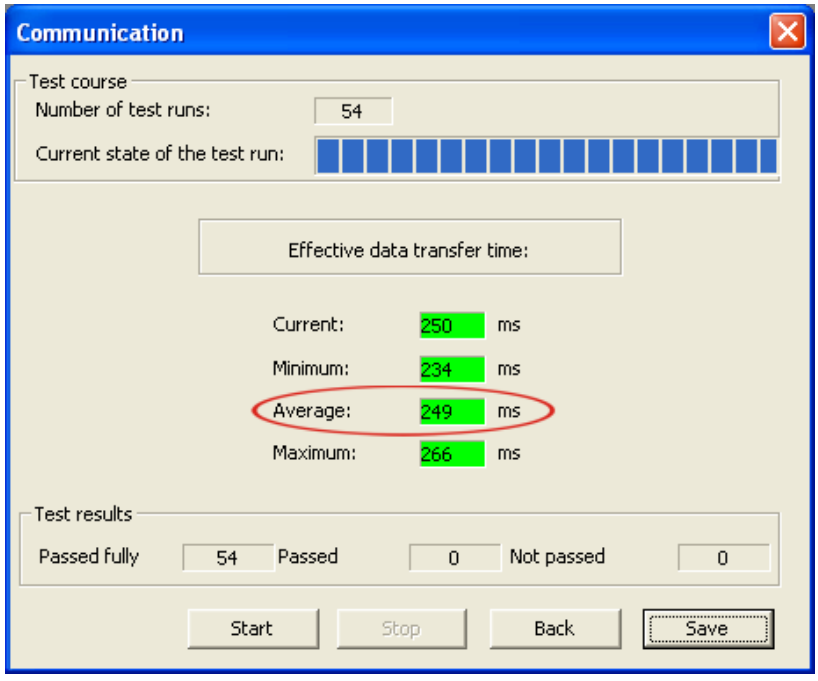
   ↳ The "Test selection" dialog box appears.



Test selection

5. Click the "`Serial communication`" button and confirm with "`OK`".

↳ The Communication Test window opens.

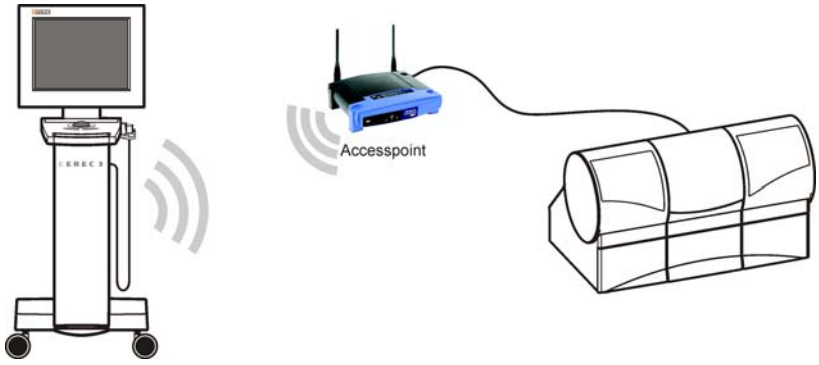


Communication

6. Click the "Start" button.
7. Stop the test after approx. 50 test runs. Click the "Stop" button.

The average data transmission time should be less than 500ms; otherwise you must change channels (see "Changing channels in the Infrastructure mode" [🗎 43]).

6.4 Changing channels in the infrastructure mode



Changing channels is performed centrally at the access point in the Infrastructure mode. The acquisition unit and the milling unit then automatically obtain the current channel from the access point.

Opening the Internet Explorer

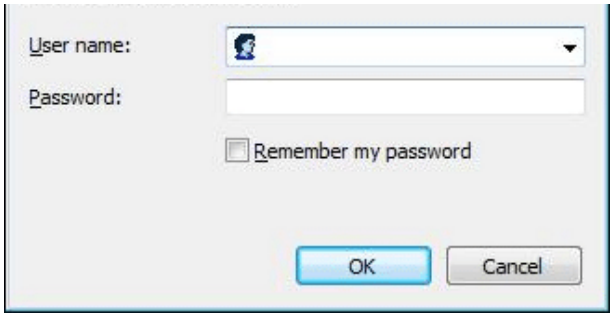
➢ Click "Start" / "Programs" / "Internet Explorer".

↳ The Internet Explorer window opens.

Log in at the access point

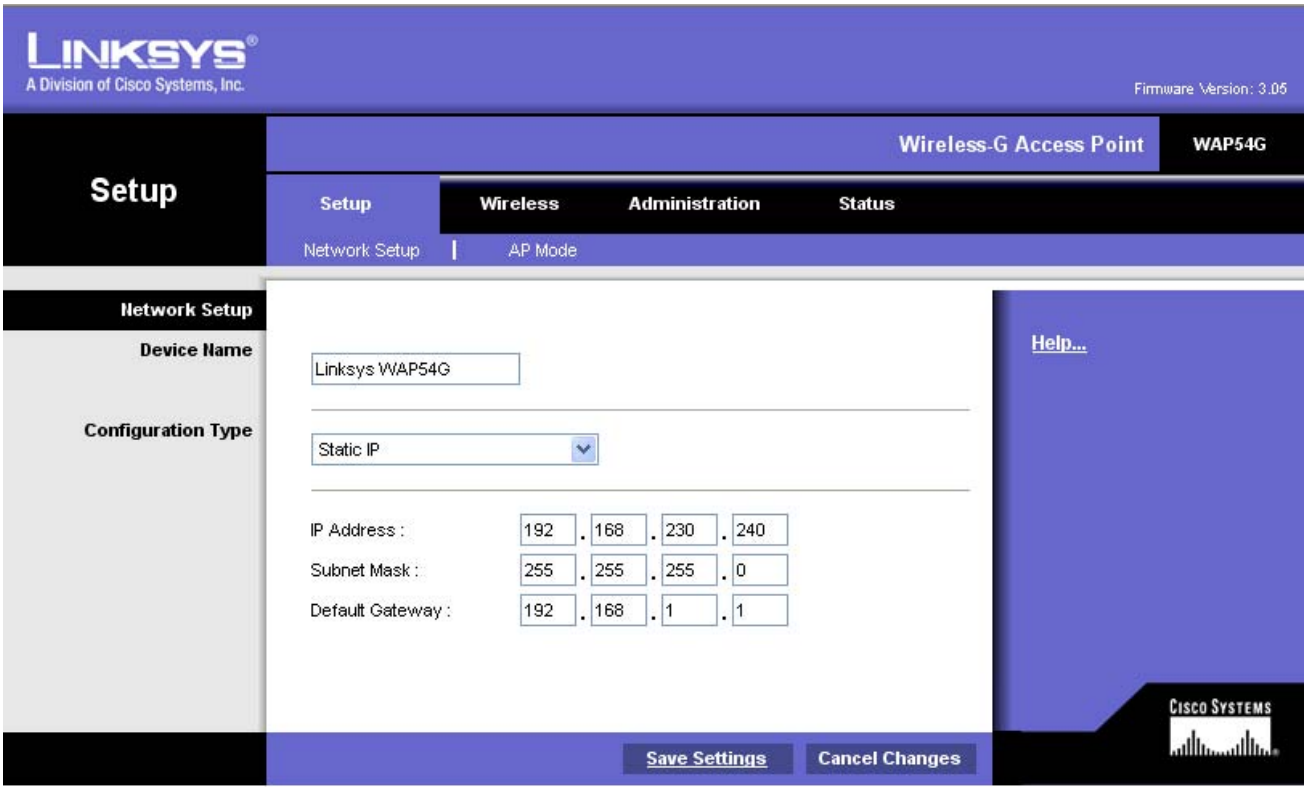
1. Enter the following IP address in the Internet Explorer address line: **192.168.230.240**.

   ↳ The login window of the access point opens.



2. Leave the input box "`Benutzername:`" **empty** and enter the text "**admin**" in the input box "`Kennwort:`". Make sure to use lower case.
3. Confirm with the "`OK`" button.

   ↳ The access point setup menu appears.

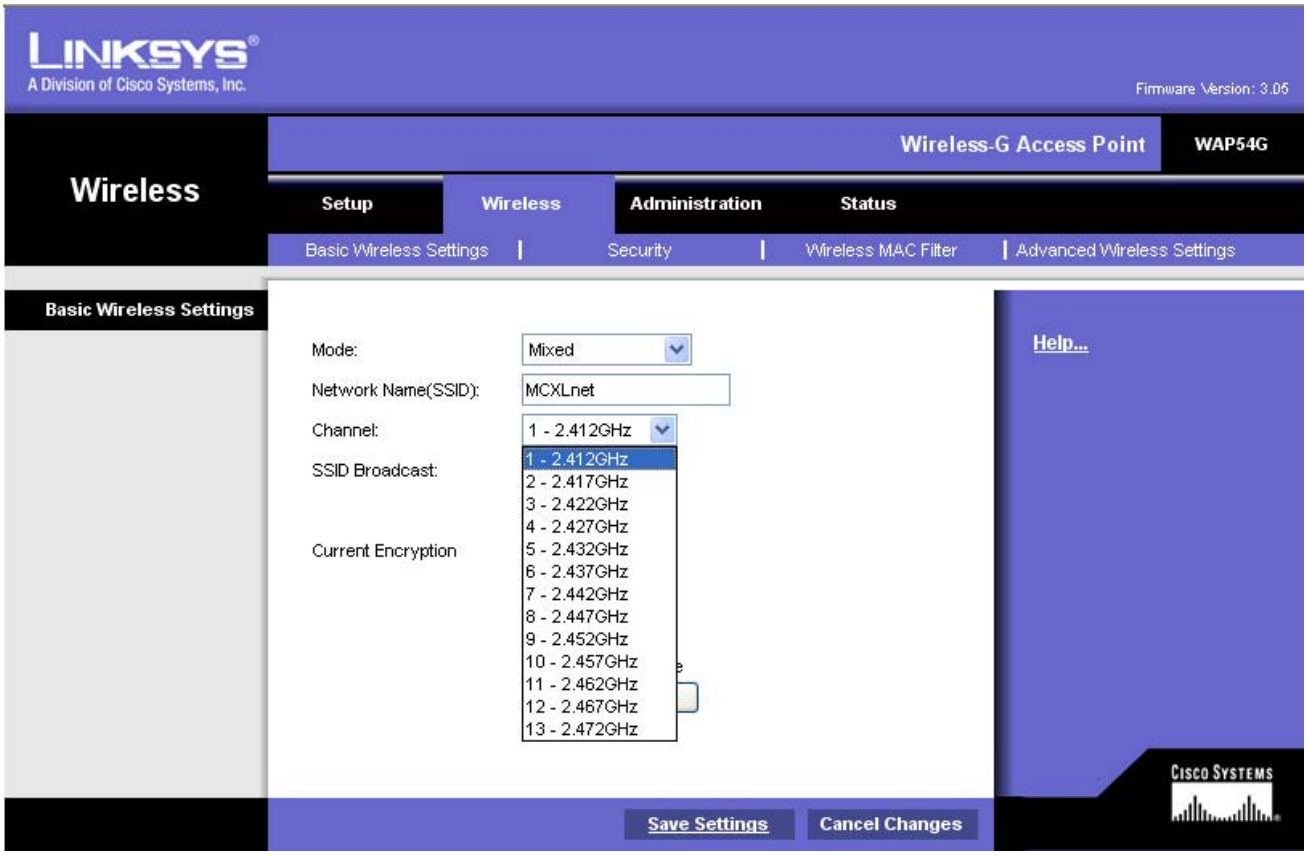


Setup menu

Changing channels

1. Select the "`Wireless`" tab.

   ↳ The Wireless menu appears.



Changing channels

NOTE: Country-specific channel change
The number of channels available is country-specific.

2. Change to a new channel and then click the button "`Save Settings`"
   ↳ Another dialog box opens.
3. Click the "`Continue`" button.
   ↳ The channel change is now completed.
4. Analyze the connection quality with the newly set up WLAN channel as described in the section "Analyzing the connection quality in Infrastructure Mode" [🗎 40].

We reserve the right to make any alterations which may be required due to technical improvements.

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Sirona Dental Systems GmbH

Fabrikstraße 31
64625 Bensheim
Germany
www.sirona.com

in the USA:

Sirona Dental Systems LLC
4835 Sirona Drive, Suite 100
Charlotte, NC 28273
USA

Order No **61 90 560 D 3439**