



Nyos Evo Quick Start Guide

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About this document

Overview and Purpose

This document describes how to use the Option XYfi (engineering name 'Nyos Evo') during testing. The first 3 parts explain how to install the drivers and make the different driver interfaces visible in the device manager, so that AT commands can be send. The 4th part explains how to use the web browser, to control settings of the WLAN access point (hotspot). For some tests it might be required that the device has some 'client' functions, e.g. switch WLAN on/off, change data rates or channel. These items are explained in the last part.

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Version History

Date	Vers ion	Author(s)	Revision(s)	Remarks
June 16, 2011	v01	E. Vanderoey		Initial version
June 17, 2011	v02	E. Vanderoey	J. Willems	Added hot-spot configuration
June 22, 2011	v03	E. Vanderoey	J. Willems	Added network hotfix and WLAN control
July 14, 2011	v04	E. Vanderoey		Added controlling the WLAN transmitter
July 27, 2011	v05	E. Vanderoey		Added use of the XYfi with a battery pack

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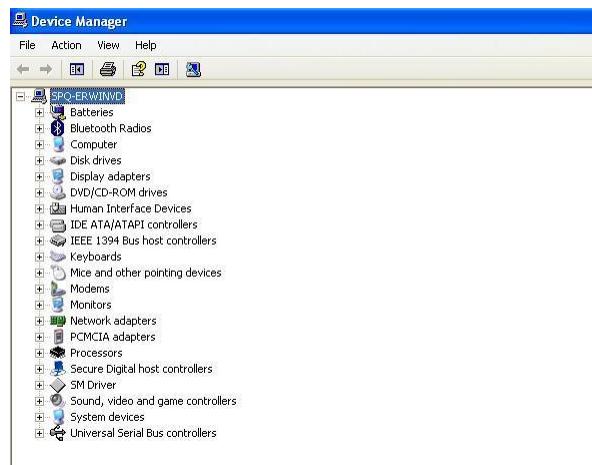
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1 DRIVER INSTALLATION

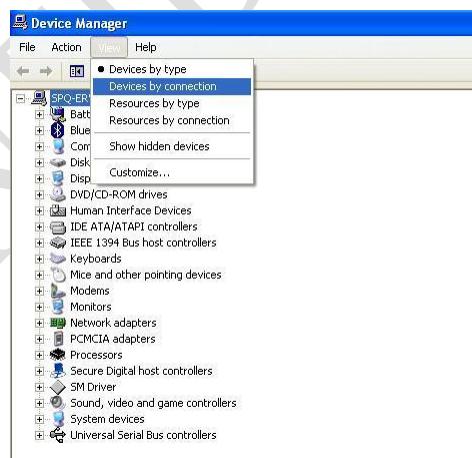
This part will explain how to install the drivers, chapter 3 will explain how to make them visible in the device manager. The initial version of this document is based on driver version 6.0.9.2, but in the future this driver version can increase.

To install the drivers follow the steps explained below.

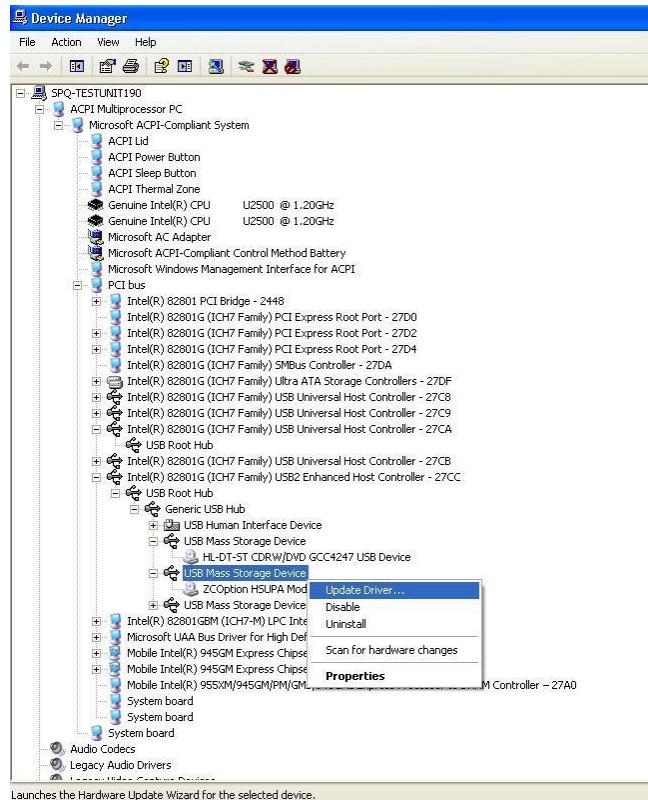
- Go to Control Panel → System → Hardware → Device Manager.



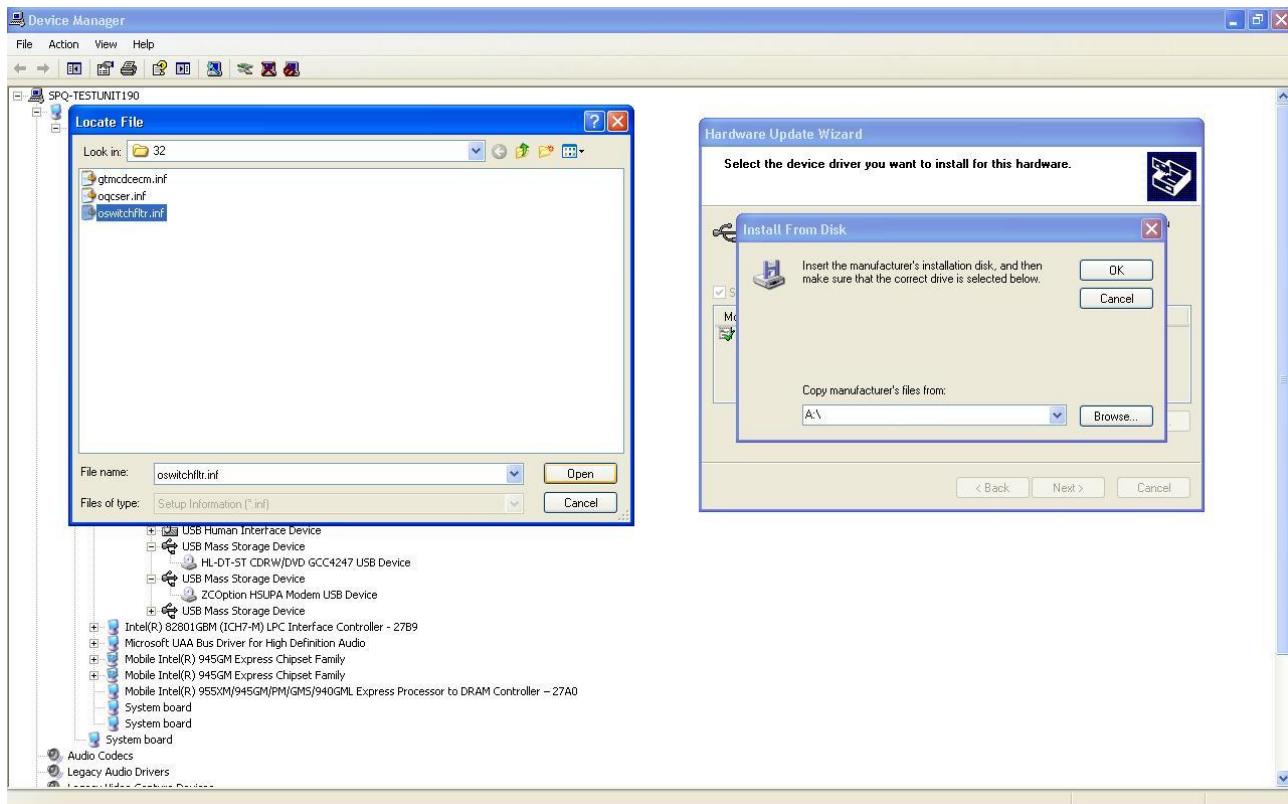
- Click on "Devices by connection" in the menu "View".



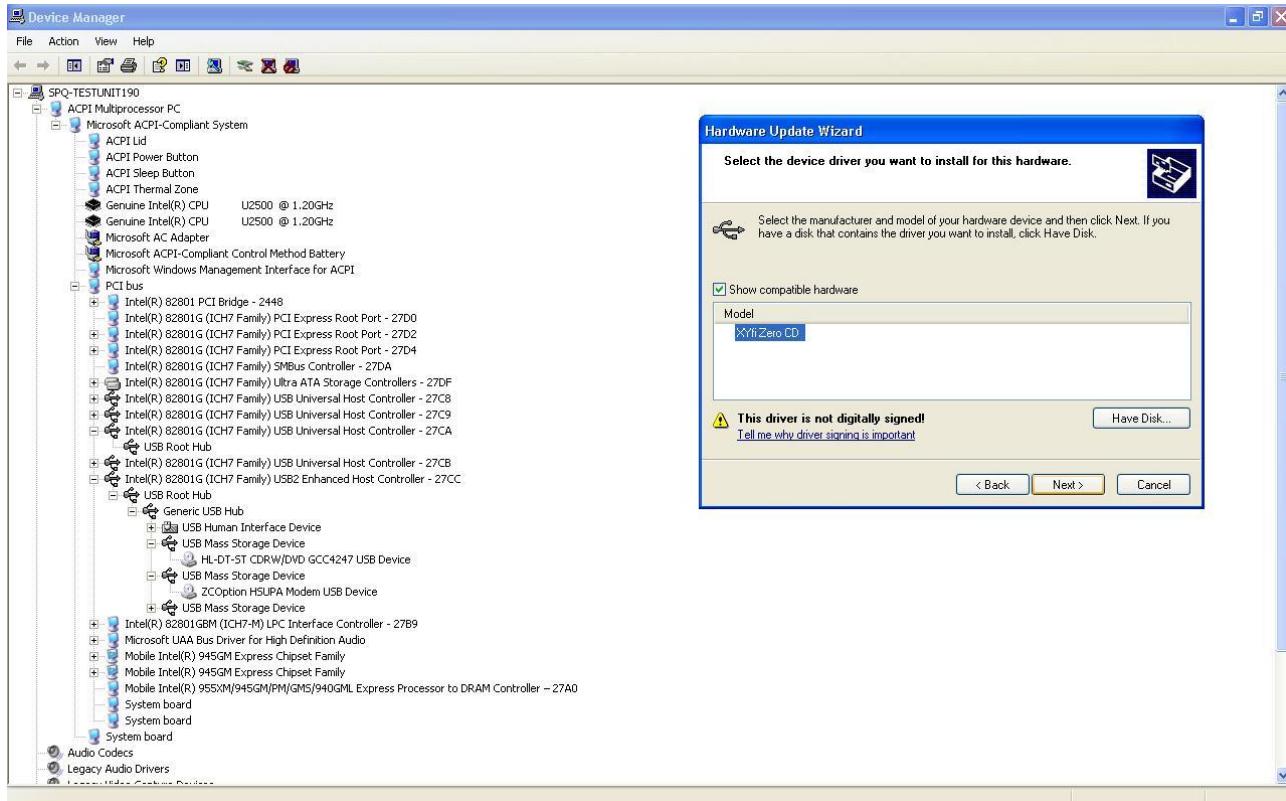
c. In the list you can find "ZCOption HSUPA Modem" (see picture).
 Right click on "USB Mass Storage Device" and select "Update Driver...".
 Make sure you right click "USB Mass Storage Device" and NOT "ZCOption HSUPA Modem".



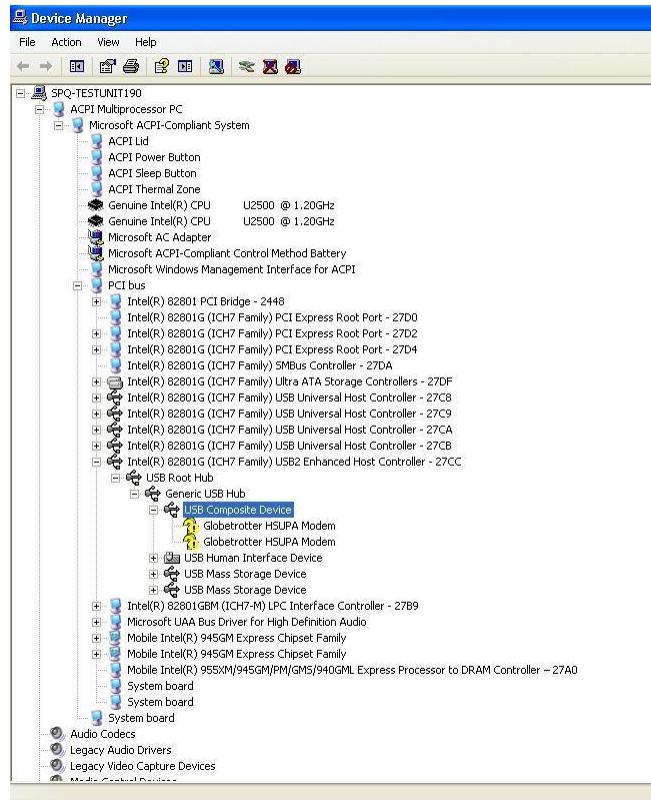
d. At the “Hardware Update Wizard” select consecutively “No, not this time” → “Install from a list or specific location” → “Don’t search. I will choose the driver to install” → “Have Disk”.
 Then browse to the location with the drivers (6.0.9.2) and select “oswitchfltr.inf”.



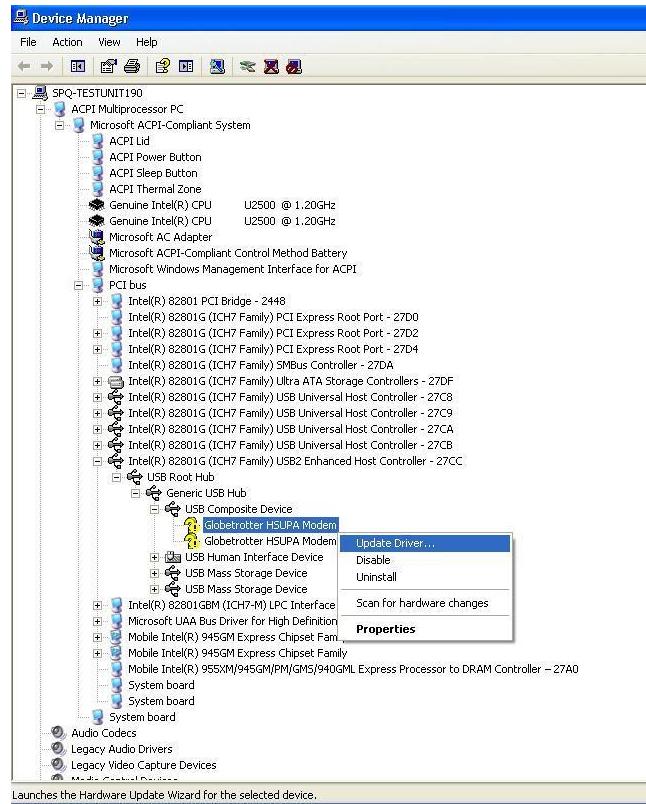
e. You can now install 'XYfi Zero CD'. After this select "Next" → "Continue Anyway" → Finish.



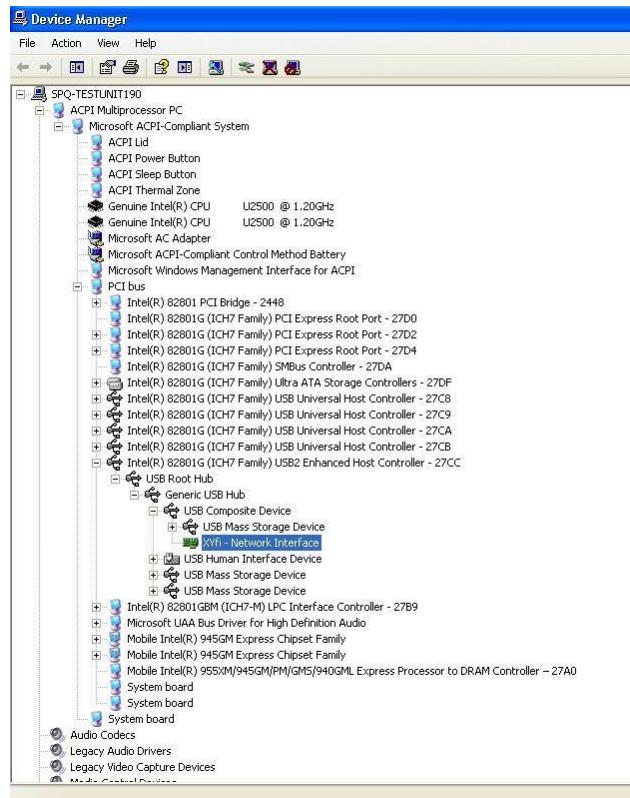
f. Two “Globetrotter HSUPA Modem” items should be visible.
 If this is not the case, remove the device and re-insert.



g. Right click on "Globetrotter HSUPA Modem" and select "Update Driver...".
 Select consecutively "No, not this time" → "Install from a list of specific location".
 Browse to the location of the drivers and press "Next".



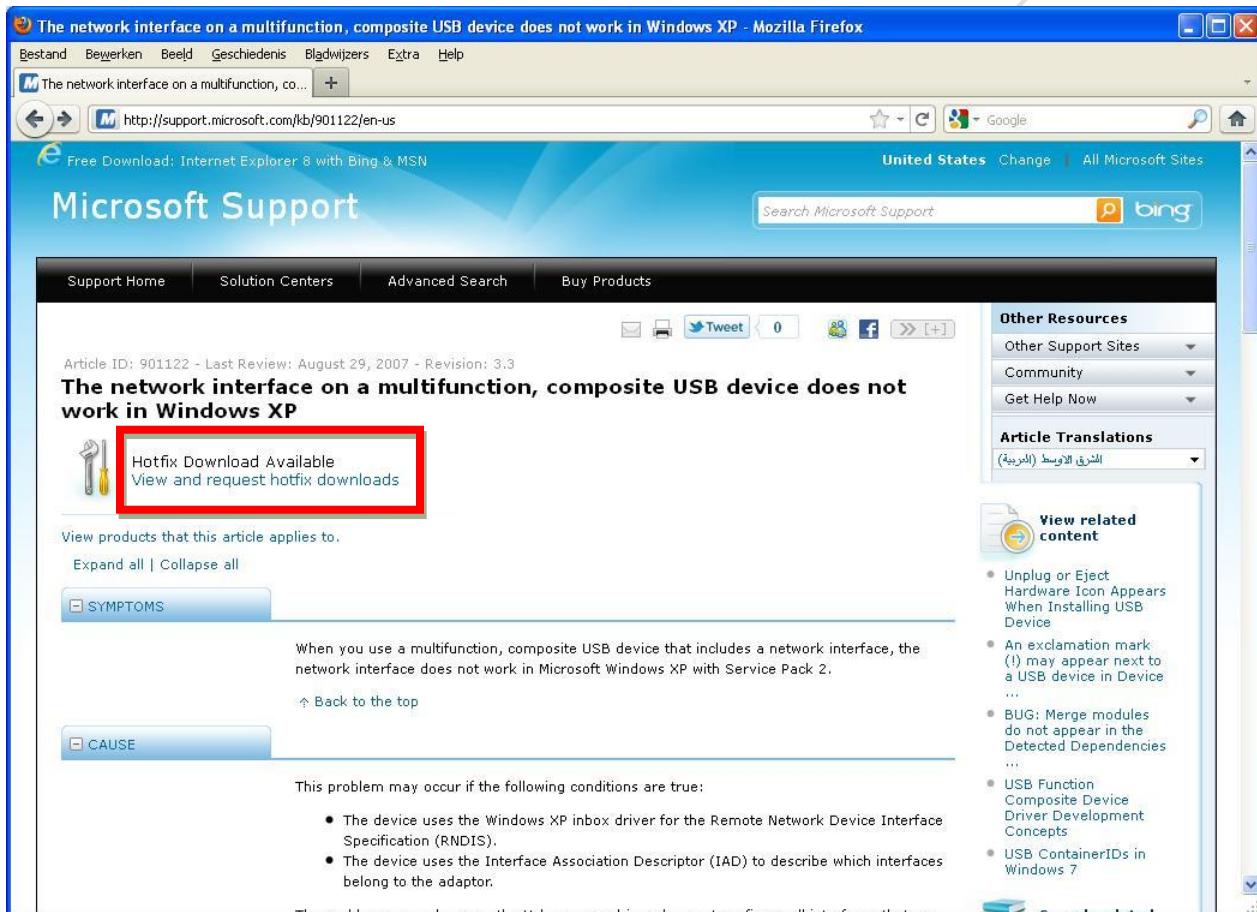
h. The drivers are now installed



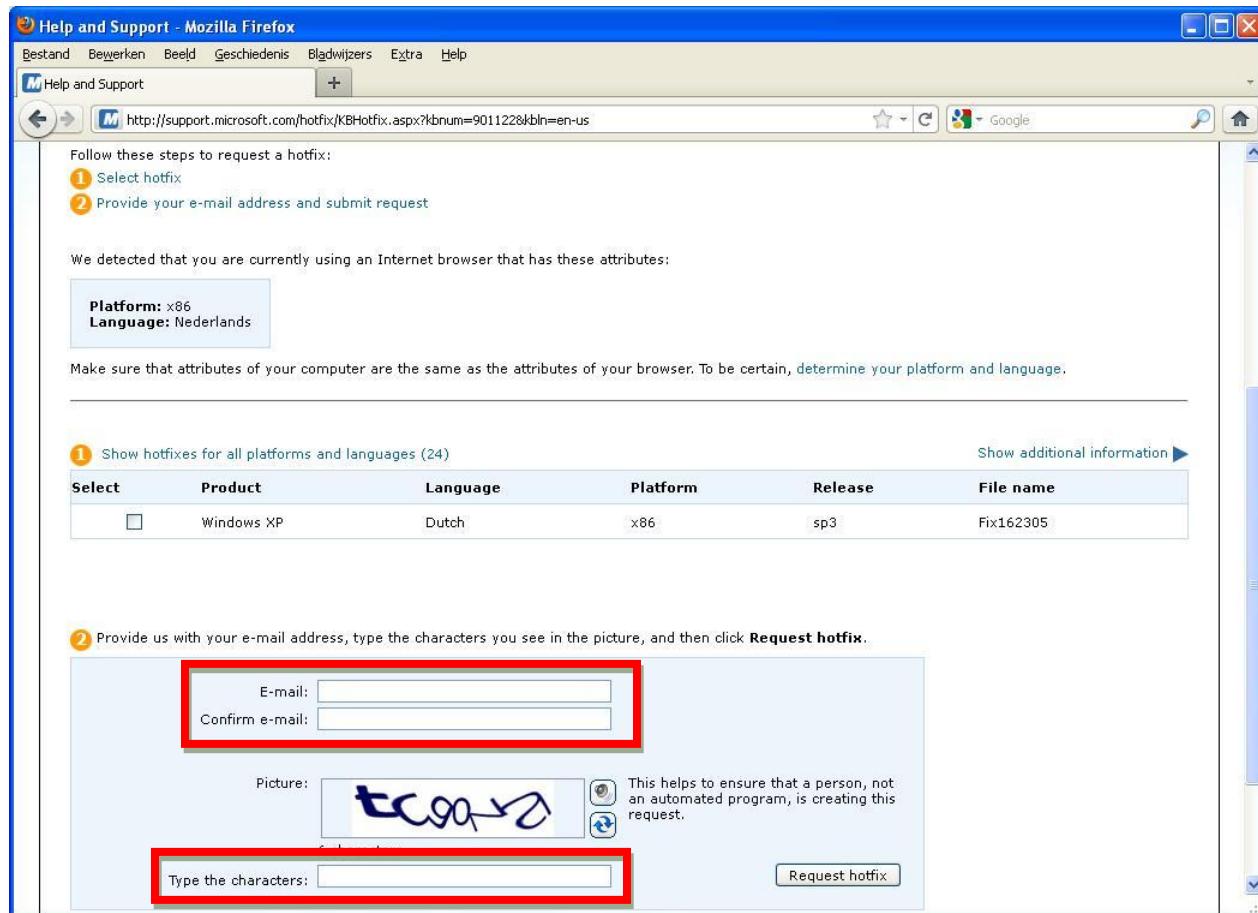
2 NETWORK INTERFACE HOTFIX

Sometimes, after installation of the drivers, the device manager shows an exclamation mark next to the "XYfi – Network Interface". If the device mentions a code 10 error, there is a hotfix available for download to correct this. The problem can occur when you install the drivers on Windows XP with Service Pack 2.

- a. Open your internet explorer and go to: <http://support.microsoft.com/kb/901122/en-us>
- b. Click on "View and request hotfix downloads".


 A screenshot of a Microsoft Support article page. The title is "The network interface on a multifunction, composite USB device does not work in Windows XP". A red box highlights the "Hotfix Download Available" link and the "View and request hotfix downloads" button. The page includes sections for "SYMPTOMS" and "CAUSE", and a sidebar with "Other Resources" and "Article Translations".

- c. By step 1, check the hotfix with filename "Fix162305".
 By step 2, enter your mail and the security code.
 Click "Request hotfix".



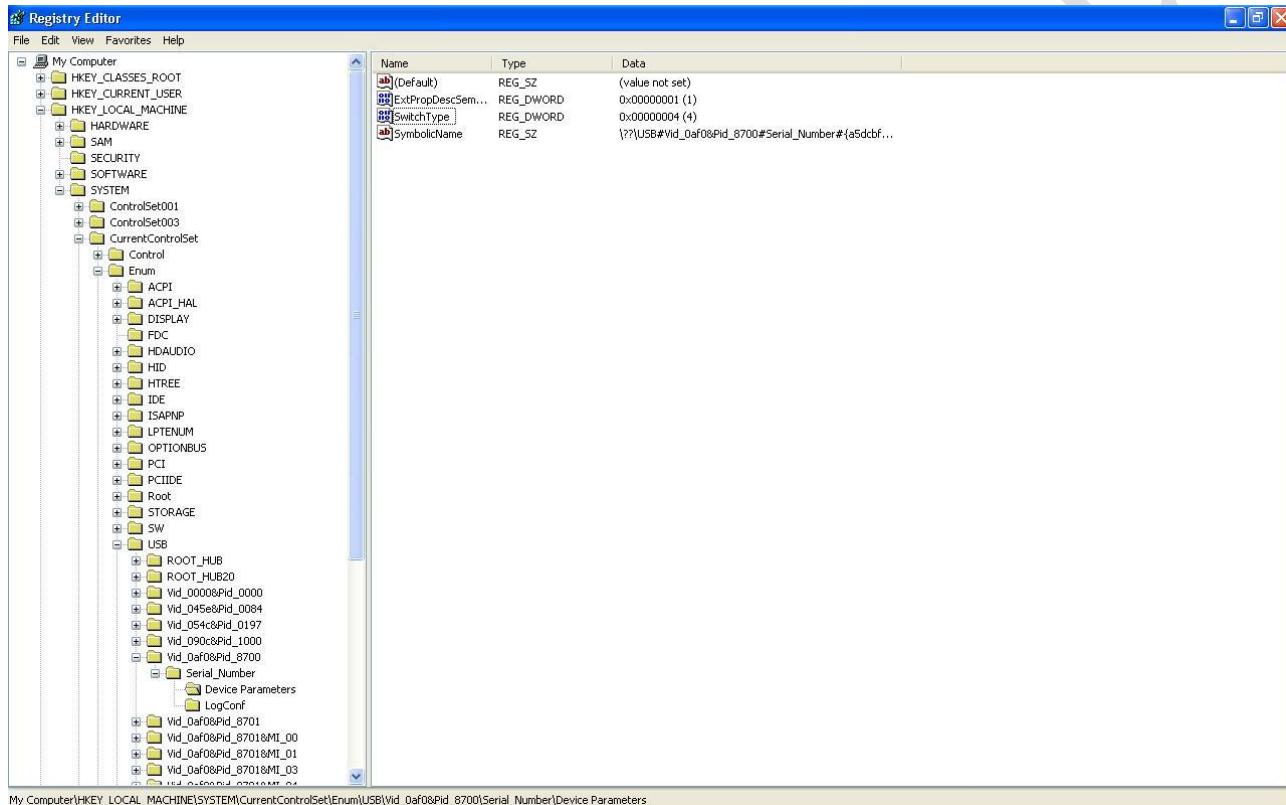
- d. Microsoft will send an e-mail to the given address.
 At the bottom of the mail, there is a link to the executable of the hotfix.
- e. Install the hotfix.

3 MAKING THE SERIAL INTERFACE PORTS VISIBLE

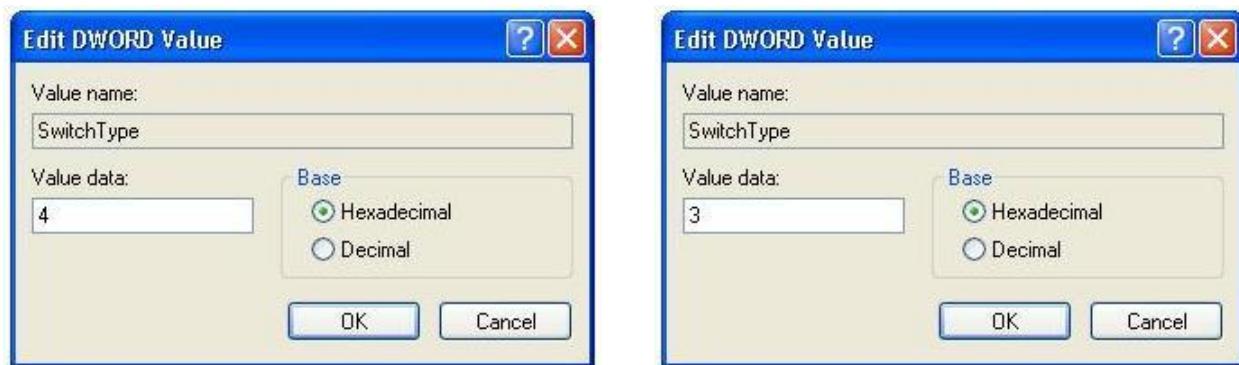
When the Nyos Evo is inserted in a host, the device manager will not show the application, diagnostics, or any other interface. Since driver interfaces will be required for sending AT commands or logging via QXDM, this needs to be configured on the host device used for testing.

Follow the steps below to make the drivers visible.

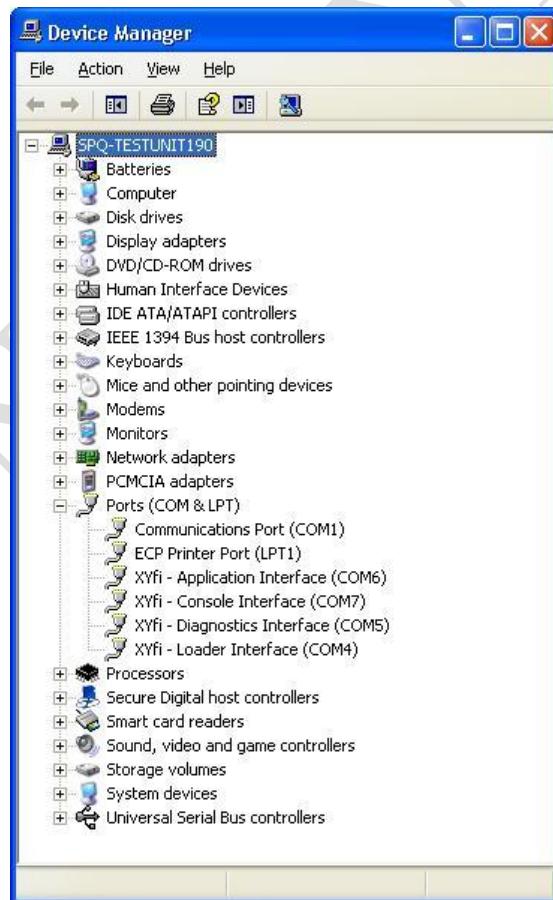
- a. Go to "Start" → "Run..." → Type "regedit" and press "OK".
- b. Open, on the left, the folder: [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\USB\Vid_0af0&Pid_8700\Serial_Number\Device Parameters]



- c. Double click on "SwitchType" and change the value from "4" to "3".

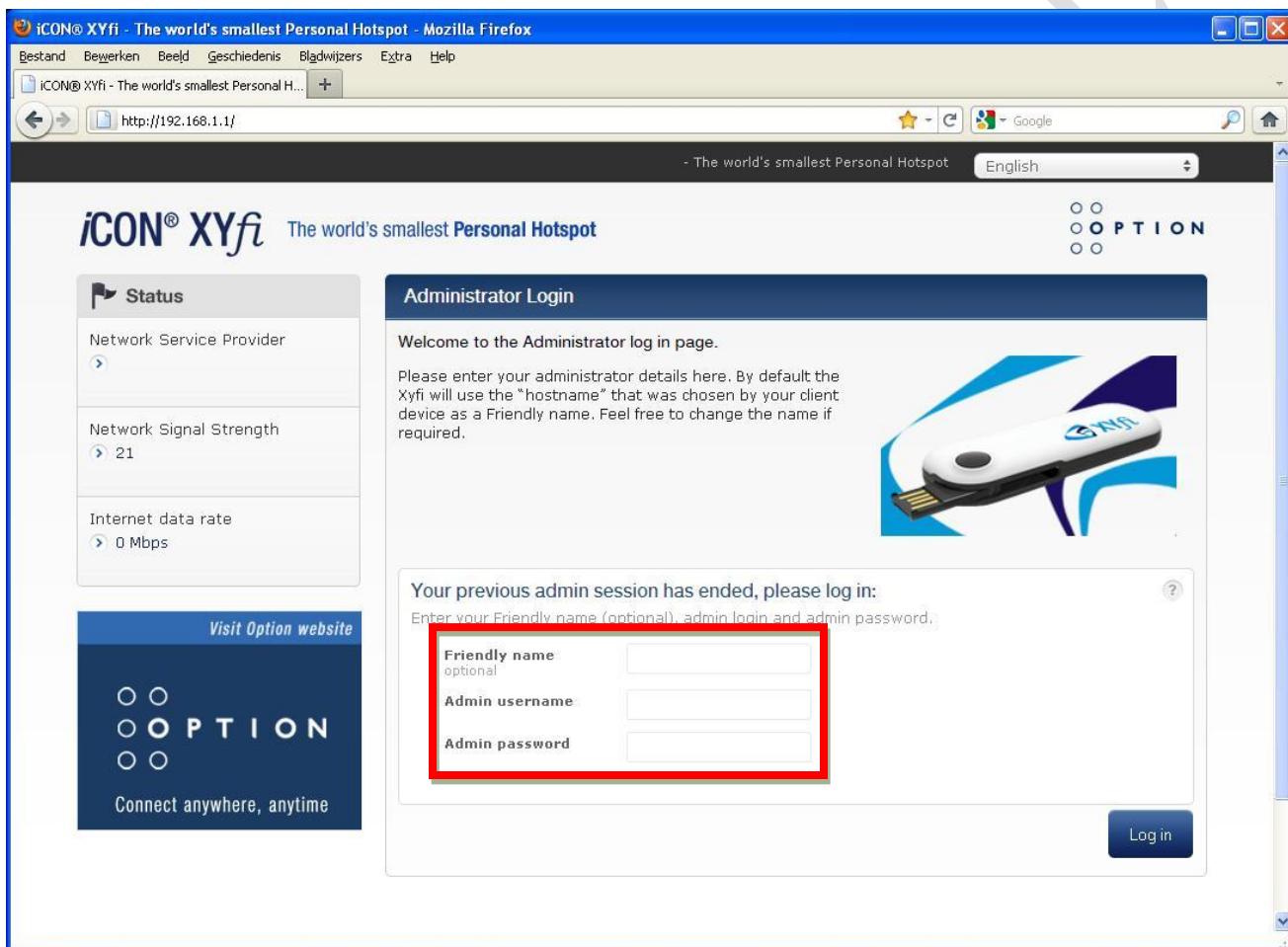


- d. Re-insert the device, the other interfaces will be enumerated now.
- e. Install the remaining drivers for the other device interfaces, using the 6.0.9.2 package.
- f. The interface ports will now be visible.



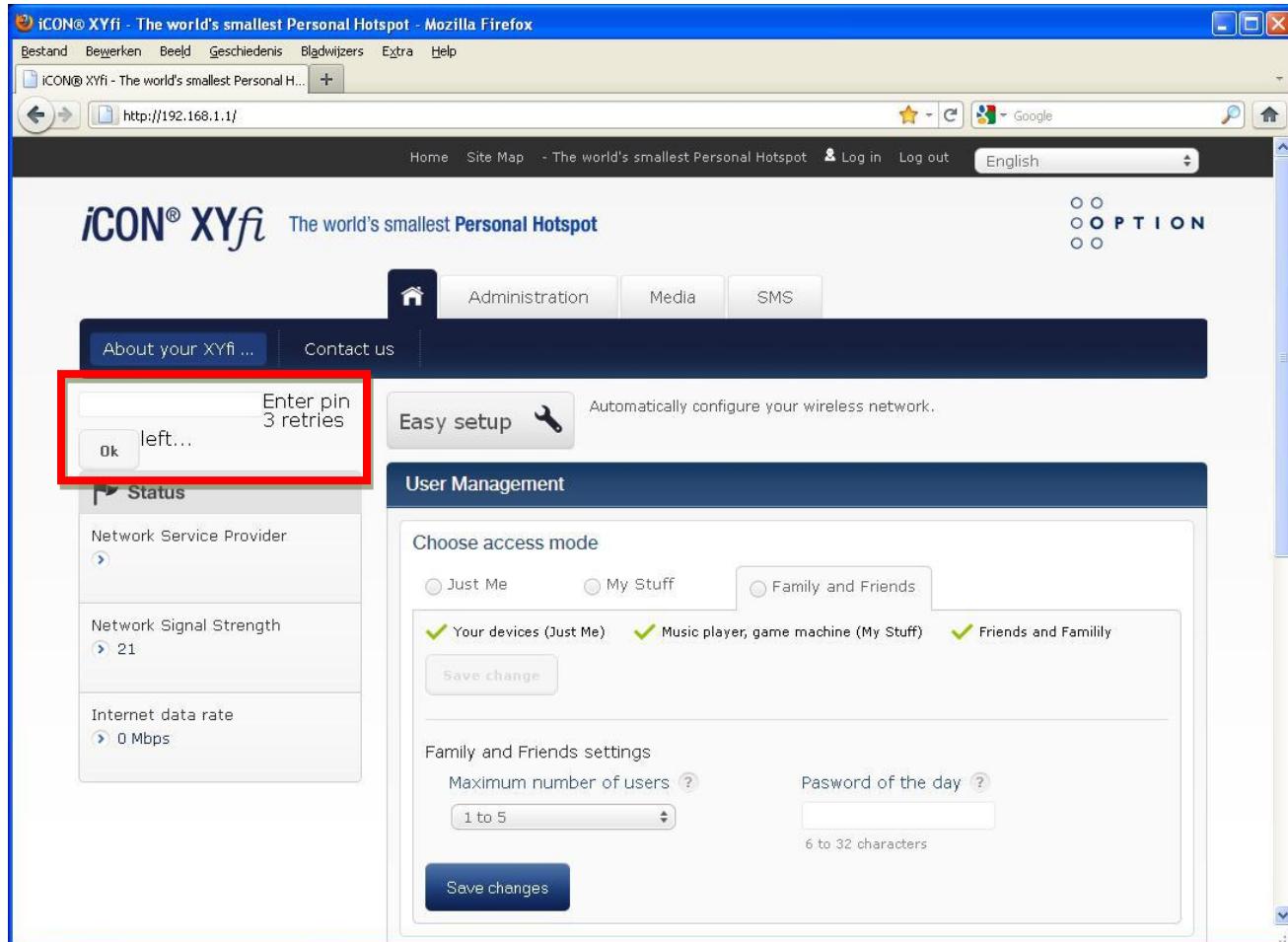
4 CONFIGURING THE WI-FI HOTSPOT

- a. Open an internet explorer.
- b. In the address bar, type <http://192.168.1.1> and press enter.
- c. The login data:
 - Friendly name: test
 - Admin username: test
 - Admin password: test\$test

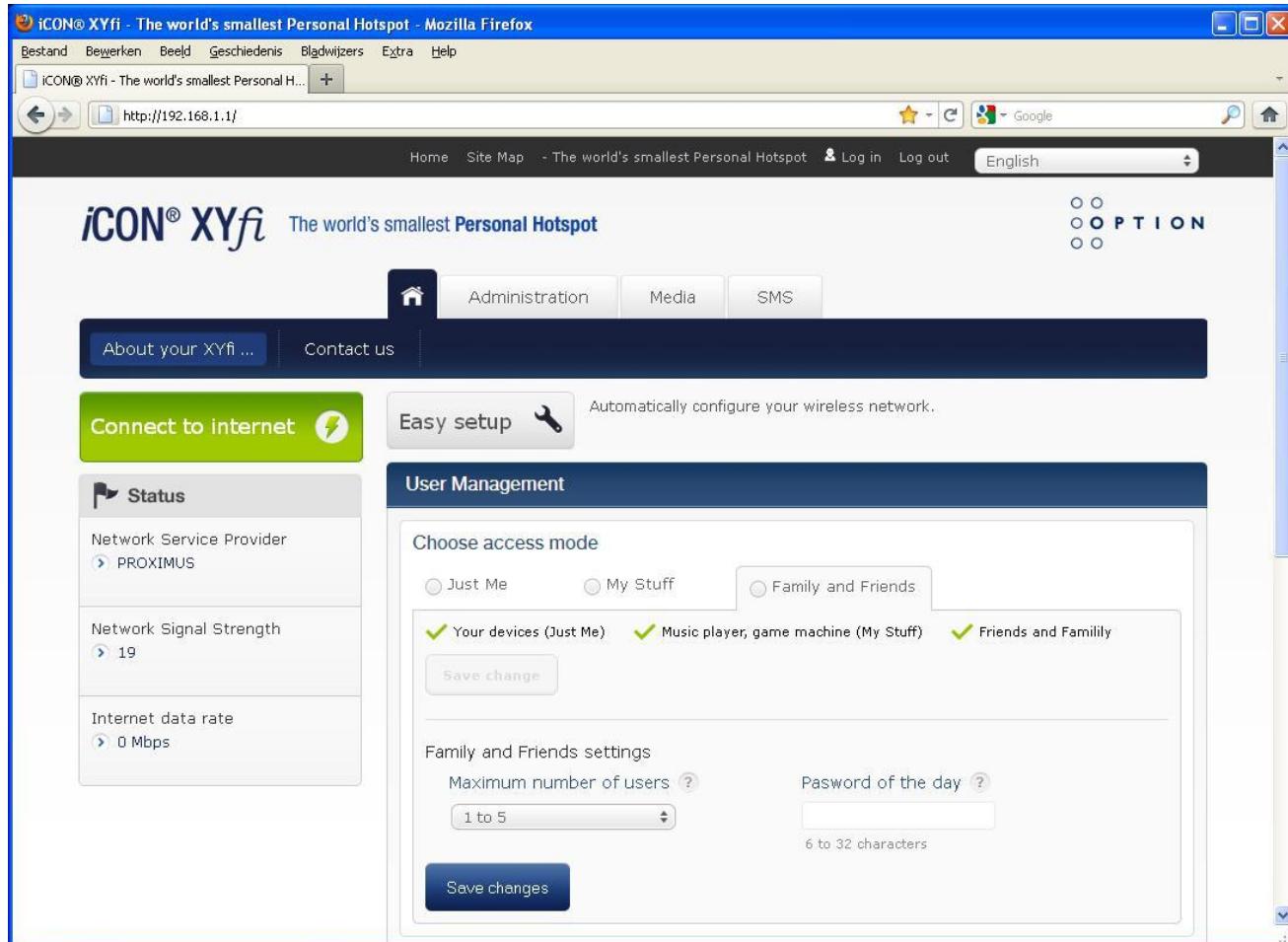


- d. Press "Log in".

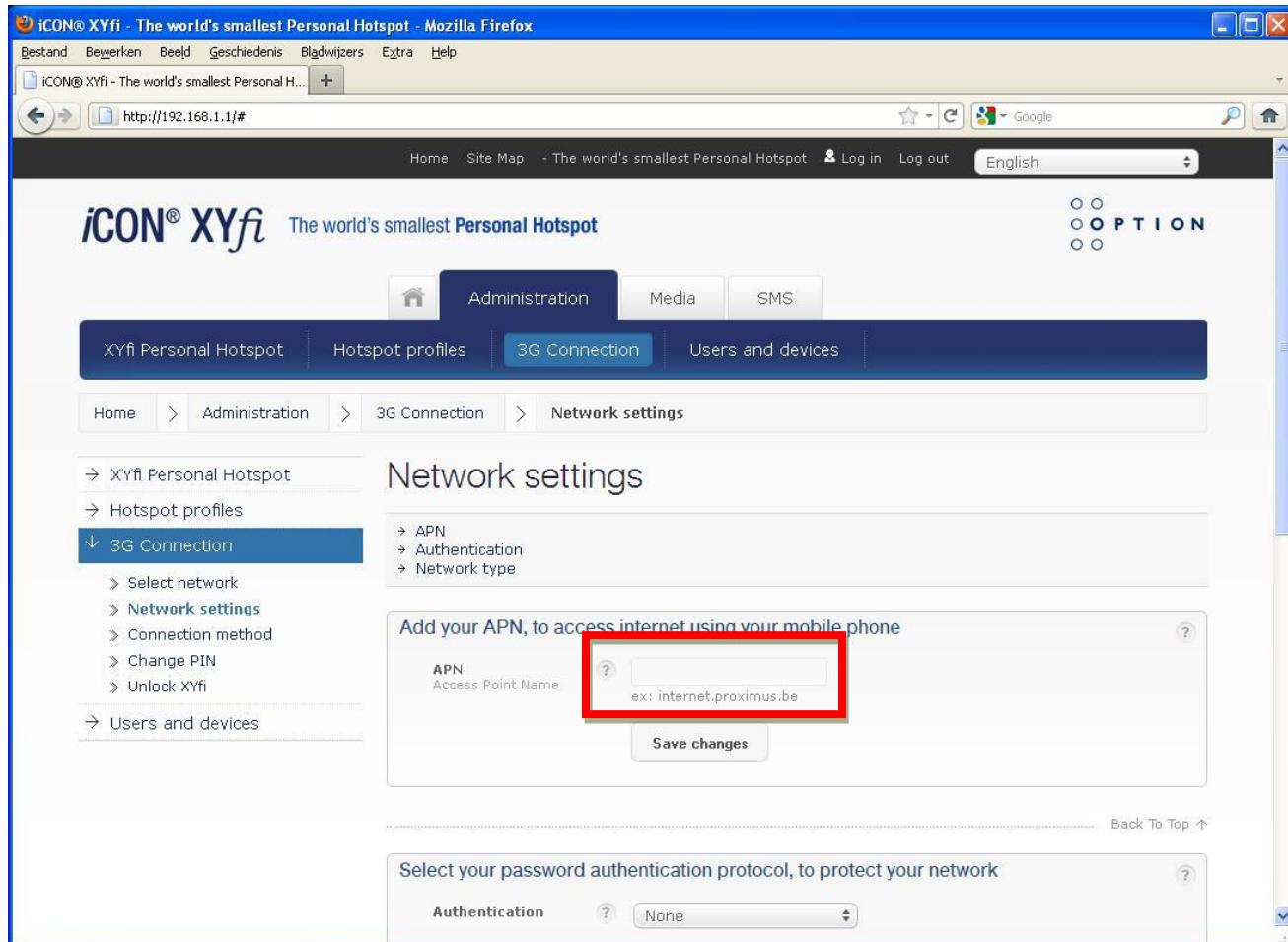
e. On the left side, enter the PIN of your SIM card and press "Ok".



f. The name of the network service provider and a button "Connect to internet" will appear.

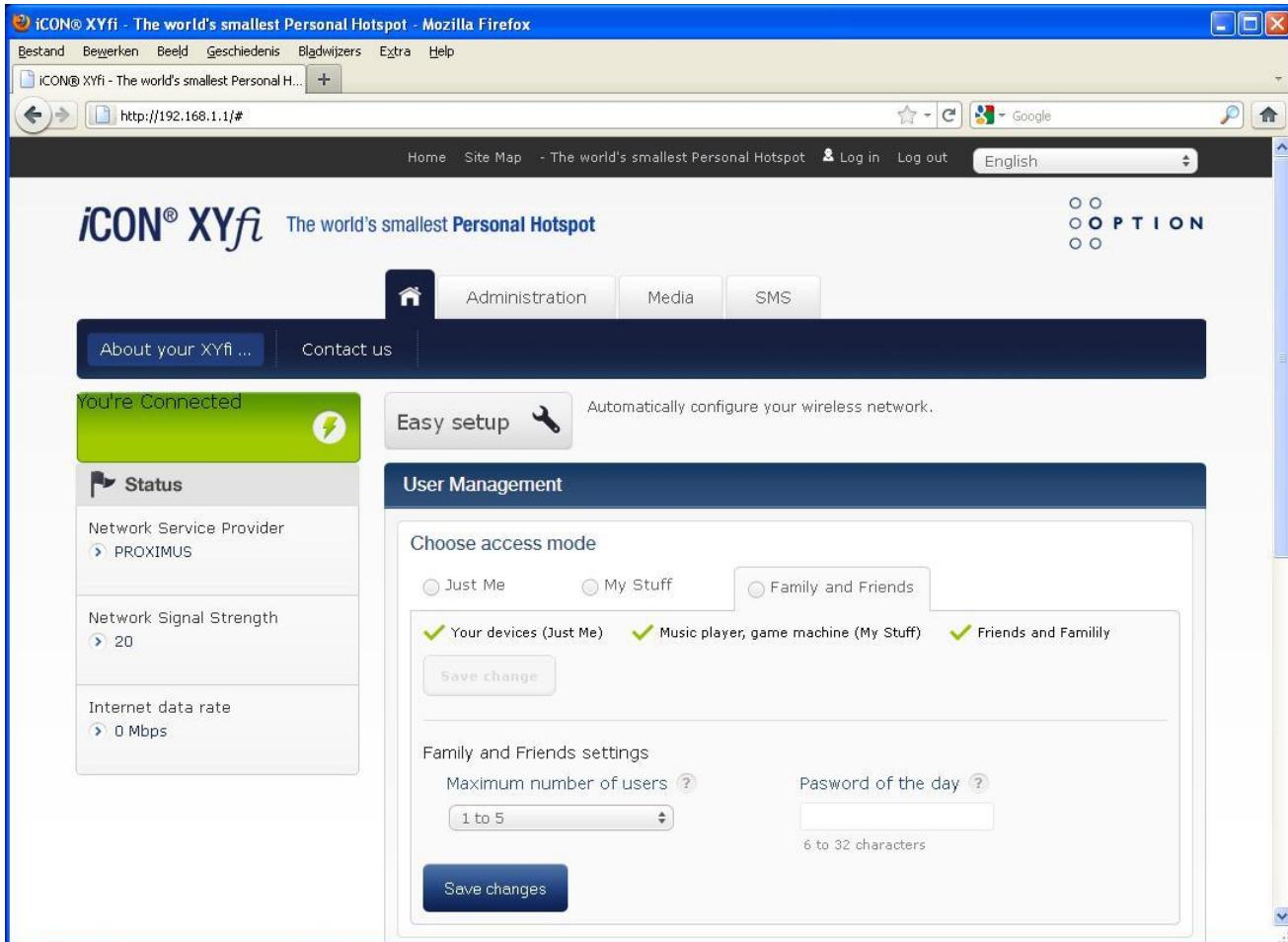

 A screenshot of a web browser displaying the iCON XYfi configuration interface. The URL in the address bar is "http://192.168.1.1/". The page title is "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The main content area shows the "User Management" section. On the left, there is a sidebar with "Status" information: Network Service Provider (PROXIMUS), Network Signal Strength (19), and Internet data rate (0 Mbps). In the center, there is a "Choose access mode" section with three radio buttons: "Just Me" (selected), "My Stuff", and "Family and Friends". Under "Just Me", the options "Your devices (Just Me)", "Music player, game machine (My Stuff)", and "Friends and Family" are checked. Below this is a "Save change" button. Further down, there are "Family and Friends settings" with "Maximum number of users" set to "1 to 5" and "Password of the day" (6 to 32 characters). A "Save changes" button is at the bottom. A large, semi-transparent watermark reading "CON" is overlaid on the bottom left of the screenshot.

- g. Now, press on the tab "Administration" and next "3G connection" (under the tab "Administration"). On the left, click on "Network settings".
- h. Fill in the name of the APN of your provider and click "Save changes".

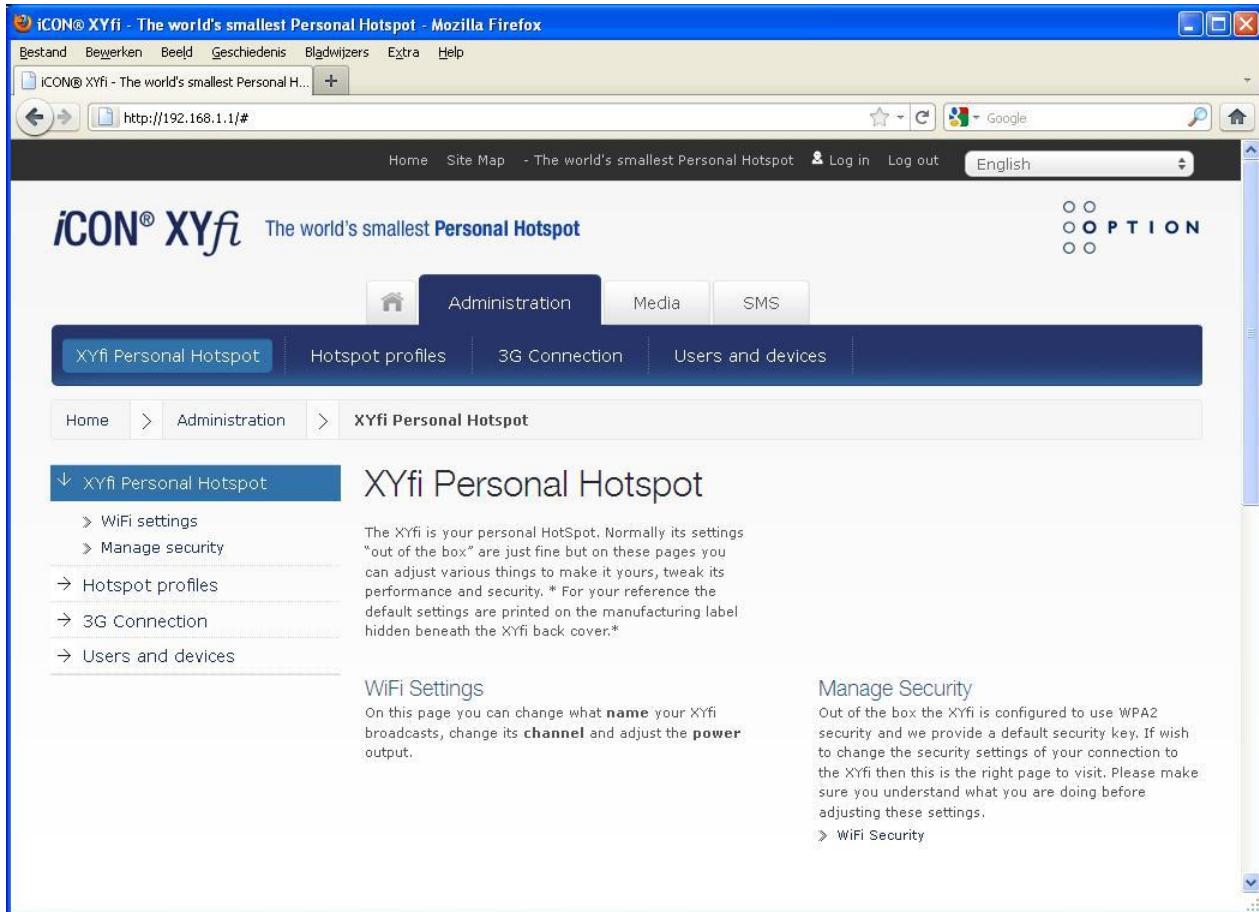

 A screenshot of a Mozilla Firefox browser window showing the iCON XYfi web interface. The URL in the address bar is "http://192.168.1.1/#". The page title is "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The main content area shows the "Network settings" page under the "3G Connection" tab. On the left, a sidebar lists navigation options: "XYfi Personal Hotspot", "Hotspot profiles", "3G Connection" (which is selected and highlighted in blue), "Connection method", "Change PIN", "Unlock XYfi", and "Users and devices". The main content area has a heading "Network settings" and a sub-section "Add your APN, to access internet using your mobile phone". A red box highlights the "APN" input field, which contains the placeholder "ex: internet.proximus.be". Below the input field is a "Save changes" button. At the bottom of the page, there is a section for "Select your password authentication protocol, to protect your network" with an "Authentication" dropdown set to "None".

- i. Press on the tab "Home" (the one with the image of a house).

j. Click on the button “Connect to internet”.
A message will appear that “You’re Connected”.

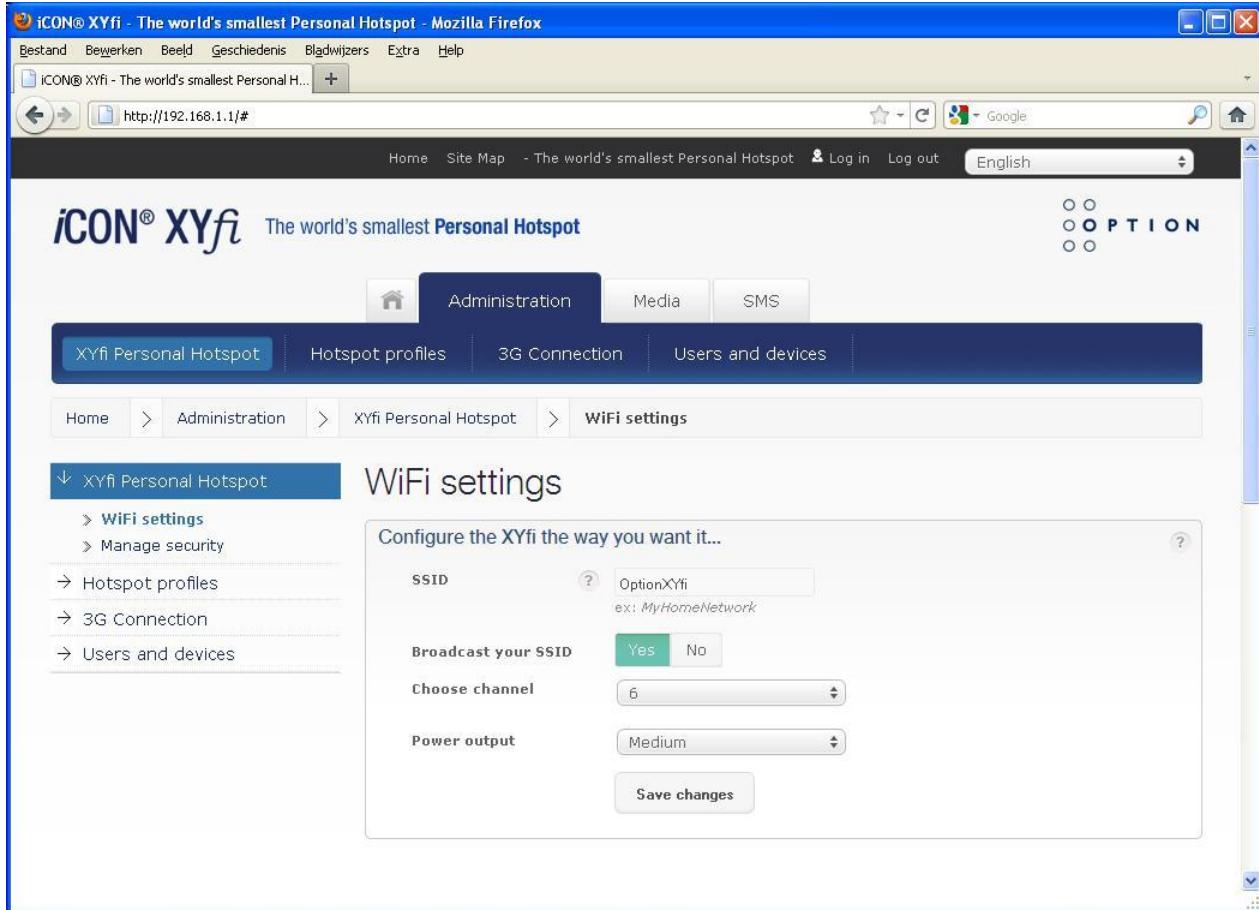


k. Go back to the tab “Administration” and choose “XYfi Personal Hotspot”.
Here you can configure your own personal hotspot.



The screenshot shows a Mozilla Firefox browser window with the title "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The address bar shows "http://192.168.1.1/#". The page content is the "XYfi Personal Hotspot" configuration page. The top navigation bar includes "Home", "Site Map", "Log in", "Log out", and "English". The main navigation menu has tabs for "Administration", "Media", and "SMS", with "Administration" being the active tab. Below this is a sub-menu for "XYfi Personal Hotspot" with options: "WiFi settings", "Manage security", "Hotspot profiles" (which is selected and highlighted in blue), "3G Connection", and "Users and devices". The main content area is titled "XYfi Personal Hotspot" and contains a text block about the XYfi's WiFi settings. To the right, there is a "Manage Security" section with a note about WPA2 security and a link to "WiFi Security".

- I. By "WiFi settings" you can enter a name that you want to give to your hotspot and if you want to broadcast it or not.

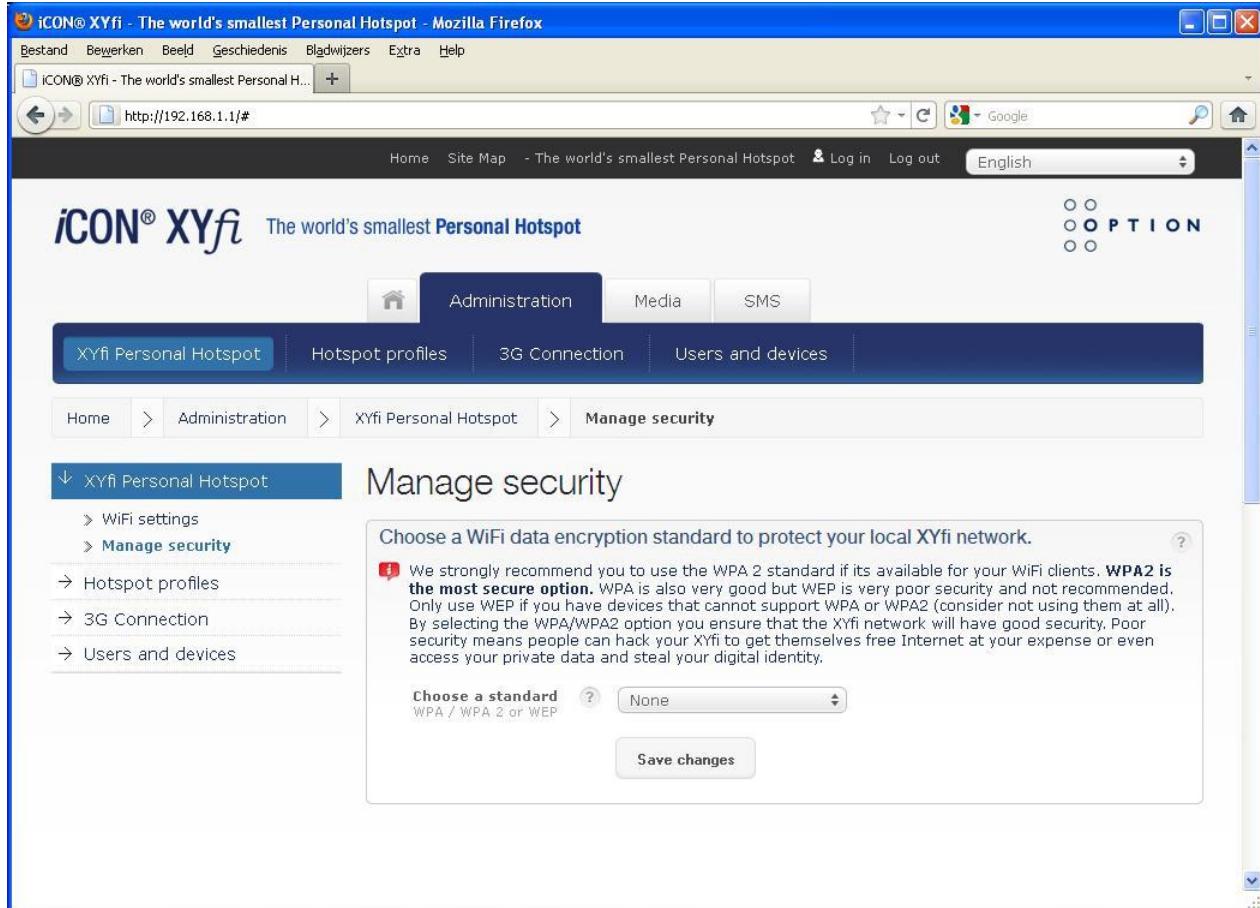


The screenshot shows the iCON XYfi administration interface in Mozilla Firefox. The URL in the address bar is <http://192.168.1.1/>. The page title is "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The main navigation menu includes "Administration", "Media", and "SMS". Below this is a sub-navigation menu with "XYfi Personal Hotspot" (selected), "Hotspot profiles", "3G Connection", and "Users and devices". The current page is "WiFi settings". On the left, a sidebar shows a tree structure with "XYfi Personal Hotspot" expanded, showing "WiFi settings" (selected), "Manage security", "Hotspot profiles", "3G Connection", and "Users and devices". The main content area is titled "WiFi settings" and contains the following configuration fields:

- SSID: OptionXYfi (example: MyHomeNetwork)
- Broadcast your SSID: Yes (selected)
- Choose channel: 6
- Power output: Medium

A "Save changes" button is at the bottom of the form.

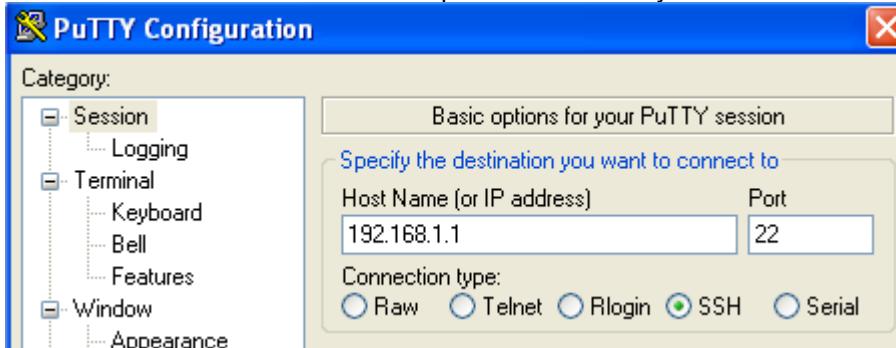
m. By "Manage security" you can choose the standard you want for security. (WEP & WPA/WPA2)


 A screenshot of a web browser window showing the iCON XYfi administration interface. The URL in the address bar is "http://192.168.1.1/#". The page title is "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The main navigation menu at the top includes "Bestand", "Bewerken", "Beeld", "Geschiedenis", "Bladwijzers", "Extra", and "Help". Below the menu is a sub-navigation bar with links for "Home", "Site Map", "Log in", "Log out", and "English". The main content area has a header "iCON® XYfi The world's smallest Personal Hotspot" and a logo for "OPTION WIRELESS TECHNOLOGY". A secondary navigation bar below the header includes "Administration", "Media", and "SMS". The main navigation bar for the current page includes "XYfi Personal Hotspot", "Hotspot profiles", "3G Connection", and "Users and devices". The current page is "Manage security". On the left, a sidebar menu shows "XYfi Personal Hotspot" with "WiFi settings" and "Manage security" (which is selected and highlighted in blue). Other options in the sidebar are "Hotspot profiles", "3G Connection", and "Users and devices". The main content area for "Manage security" has a sub-header "Choose a WiFi data encryption standard to protect your local XYfi network." It includes a warning message: "We strongly recommend you to use the WPA 2 standard if its available for your WiFi clients. **WPA2 is the most secure option.** WPA is also very good but WEP is very poor security and not recommended. Only use WEP if you have devices that cannot support WPA or WPA2 (consider not using them at all). By selecting the WPA/WPA2 option you ensure that the XYfi network will have good security. Poor security means people can hack your XYfi to get themselves free Internet at your expense or even access your private data and steal your digital identity." Below the message is a dropdown menu labeled "Choose a standard" with options "WPA / WPA 2 or WEP" and "None". A "Save changes" button is at the bottom of the form.

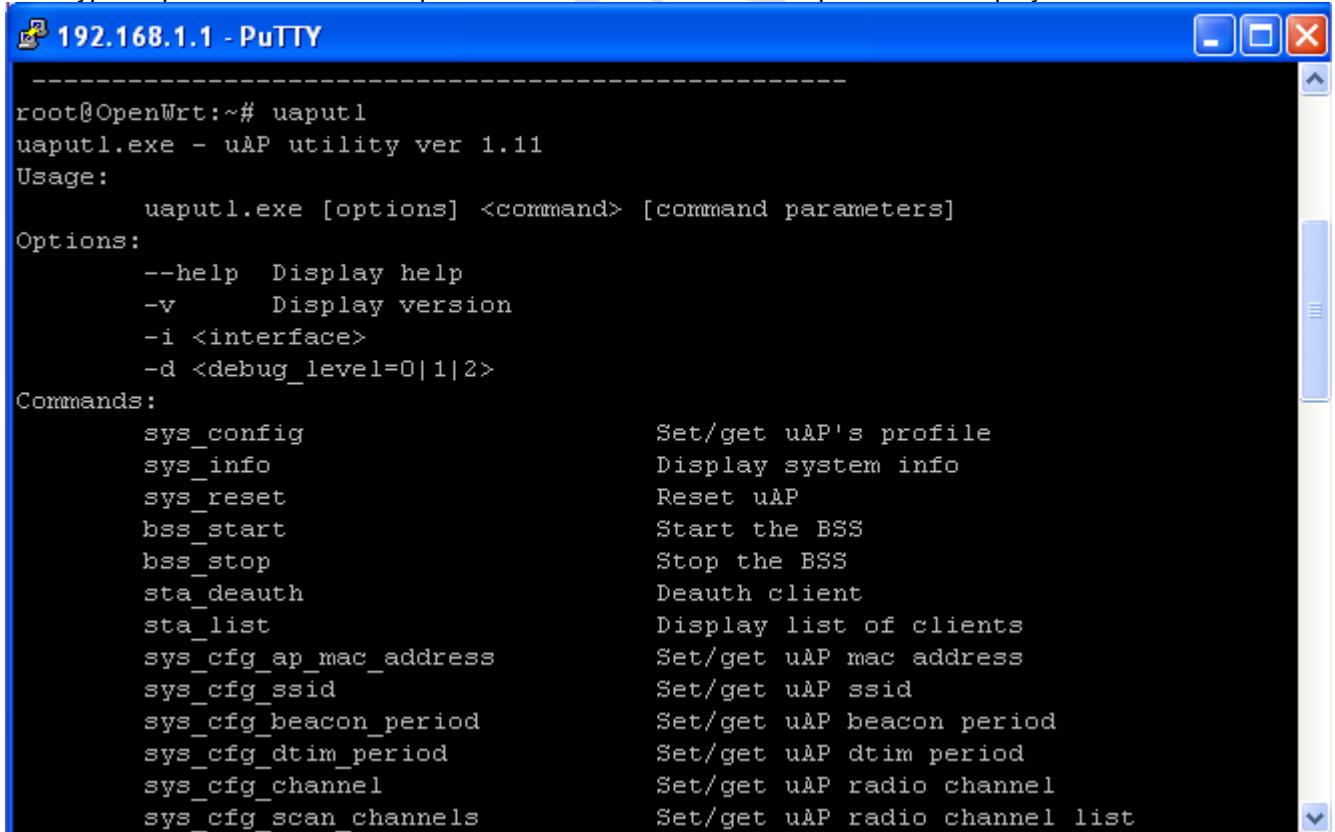
5 OTHER WLAN FUNCTIONS

In the first phase it's not possible yet to use the Nyos Evo as WiFi client. For some testing it might be required to switch the wireless LAN on/off, or to change the channel or data rates. How to do this is explained in the next steps:

- Download a telnet/SSH client. We used PuTTY (freely available) for this document.
- Plug in the Nyos Evo and wait until the WLAN connection is established.
- Connect to 192.168.1.1. In our example we used PuTTY and chose connection type 'SSH'.



- Login as 'root', password 'a'.
- Then type 'uaputl'. Now a list of all possible commands with some explanation is displayed:


 A screenshot of a PuTTY terminal window titled '192.168.1.1 - PuTTY'. The terminal displays the output of the 'uaputl' command. It shows the usage information and a detailed list of commands with their descriptions:


```

root@OpenWrt:~# uaputl
uaputl.exe - uAP utility ver 1.11
Usage:
    uaputl.exe [options] <command> [command parameters]
Options:
    --help  Display help
    -v      Display version
    -i <interface>
    -d <debug_level=0|1|2>
Commands:
    sys_config                      Set/get uAP's profile
    sys_info                         Display system info
    sys_reset                        Reset uAP
    bss_start                         Start the BSS
    bss_stop                          Stop the BSS
    sta_deauth                       Deauth client
    sta_list                          Display list of clients
    sys_cfg_ap_mac_address           Set/get uAP mac address
    sys_cfg_ssid                      Set/get uAP ssid
    sys_cfg_beacon_period            Set/get uAP beacon period
    sys_cfg_dtim_period              Set/get uAP dtim period
    sys_cfg_channel                  Set/get uAP radio channel
    sys_cfg_scan_channels            Set/get uAP radio channel list
  
```

- When making changes to the settings it's best to stop the WLAN device, with the command
uaputl bss_stop

This command can thus be used to stop the WLAN transmission.

Author:	E. Vanderoey	Version:	v02
Creation Date:	June 17, 2011	Page:	22 of 28
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g. Some basic commands to change different settings are listed here. Typing the command below followed by –help will display more information about the command.

sys_cfg_channel

```
uaputl sys_cfg_channel
    Can be used to read out the current channel
uaputl sys_cfg_channel 1
    To change channel to 1.
```

sys_cfg_tx_data_rate

```
uaputl sys_cfg_tx_data_rate
    to see the current data rate

uaputl sys_cfg_tx_data_rate --help
    to get an overview of the different possible data rates

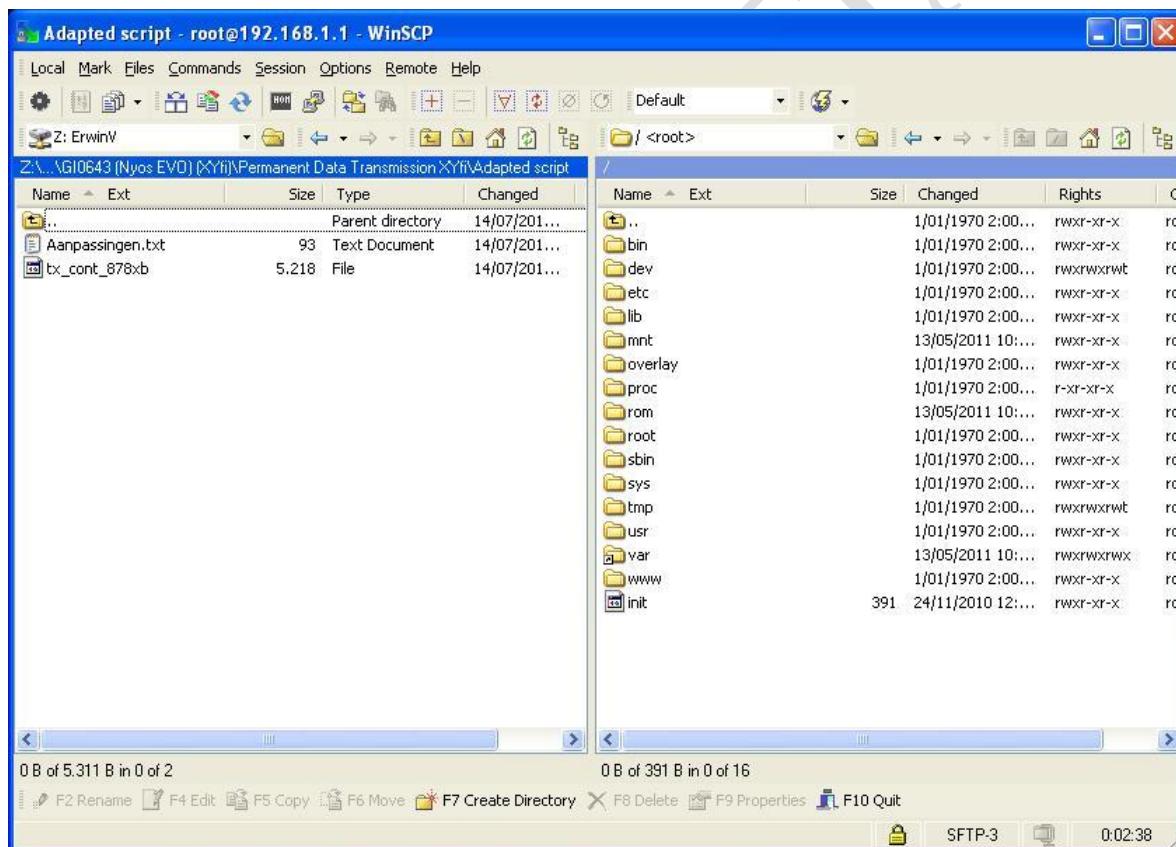
uaputl sys_cfg_tx_data_rate 11
    to set the current data rate to 5.5Mbps (=500Kbps * 11)
```

h. After the settings have been configured, don't forget to start the WLAN chip again.

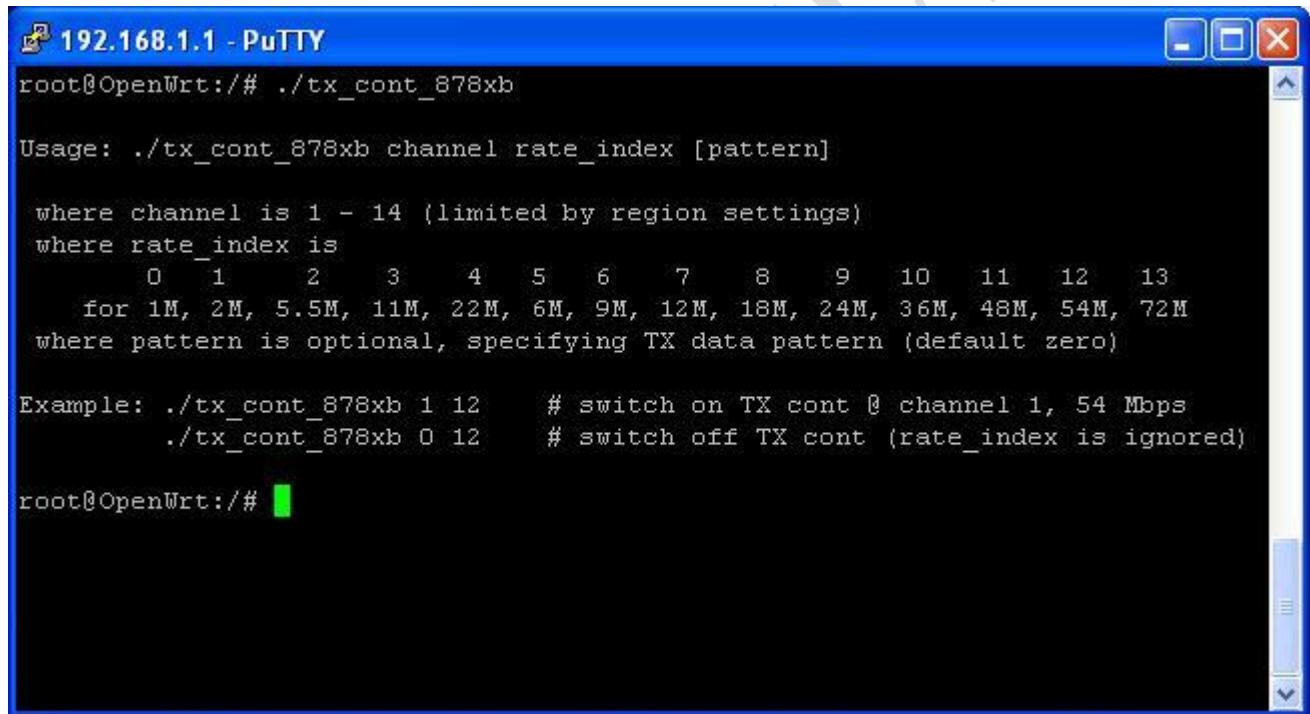
uaputl bss_start

6 CONTROLLING THE WLAN TRANSMITTER

- a. When we want to directly control the WLAN transmitter, we have to upload a script to the XYfi. To put files on the device, you need some special software. In this case, we use WinSCP. You can download it from www.winscp.net.
- b. Start WinSCP and fill in:
 - Host name: 192.168.1.1
 - User name: root
 - Password: a
 Click on "Login".
- c. Go to the root of the device, so you can see the directories in the right window, like on the screenshot below.
In the left window, browse to the file you want to copy to the device. (tx_cont_878xb)



- d. Click on the file and drag it from the left to the right window.
You get a dialog box. Click "copy" and the file will be placed on the XYfi.
Note: if you remove the device from the computer, the file will be erased!!!
- e. Go to "Session" in the menu and choose "Disconnect".
Note: otherwise it's not possible to login with Putty.
- f. Run Putty and login as done in chapter 5, step a to d.
- g. Use the following commands:
`cd ..`
`chmod +x tx_cont_878xb`
The script is now ready to be used.
- h. To see the possible parameters, run the script by using "./tx_cont_878xb"


 A screenshot of a PuTTY terminal window titled "192.168.1.1 - PuTTY". The window shows a command-line interface with the following text:


```
root@OpenWrt:/# ./tx_cont_878xb
Usage: ./tx_cont_878xb channel rate_index [pattern]
where channel is 1 - 14 (limited by region settings)
where rate_index is
      0   1   2   3   4   5   6   7   8   9   10  11  12  13
      for 1M, 2M, 5.5M, 11M, 22M, 6M, 9M, 12M, 18M, 24M, 36M, 48M, 54M, 72M
where pattern is optional, specifying TX data pattern (default zero)

Example: ./tx_cont_878xb 1 12      # switch on TX cont 0 channel 1, 54 Mbps
          ./tx_cont_878xb 0 12      # switch off TX cont (rate_index is ignored)

root@OpenWrt:/#
```

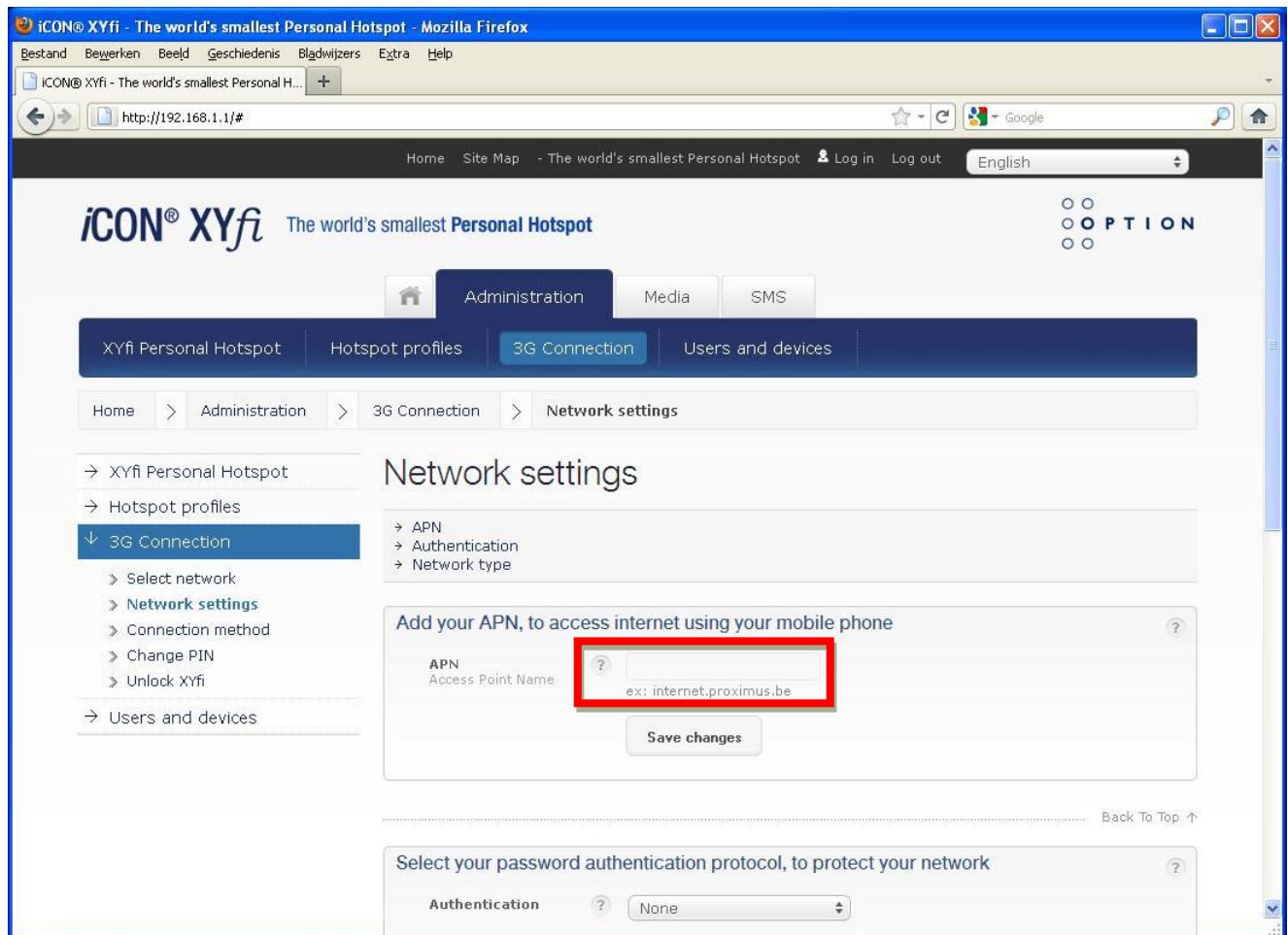
- i. To configure the WLAN transmitter, use the script with the desired parameters.
`./tx_cont_878xb "channel" "data rate"`
Note: the data rate is represented by the number above it.

Example:

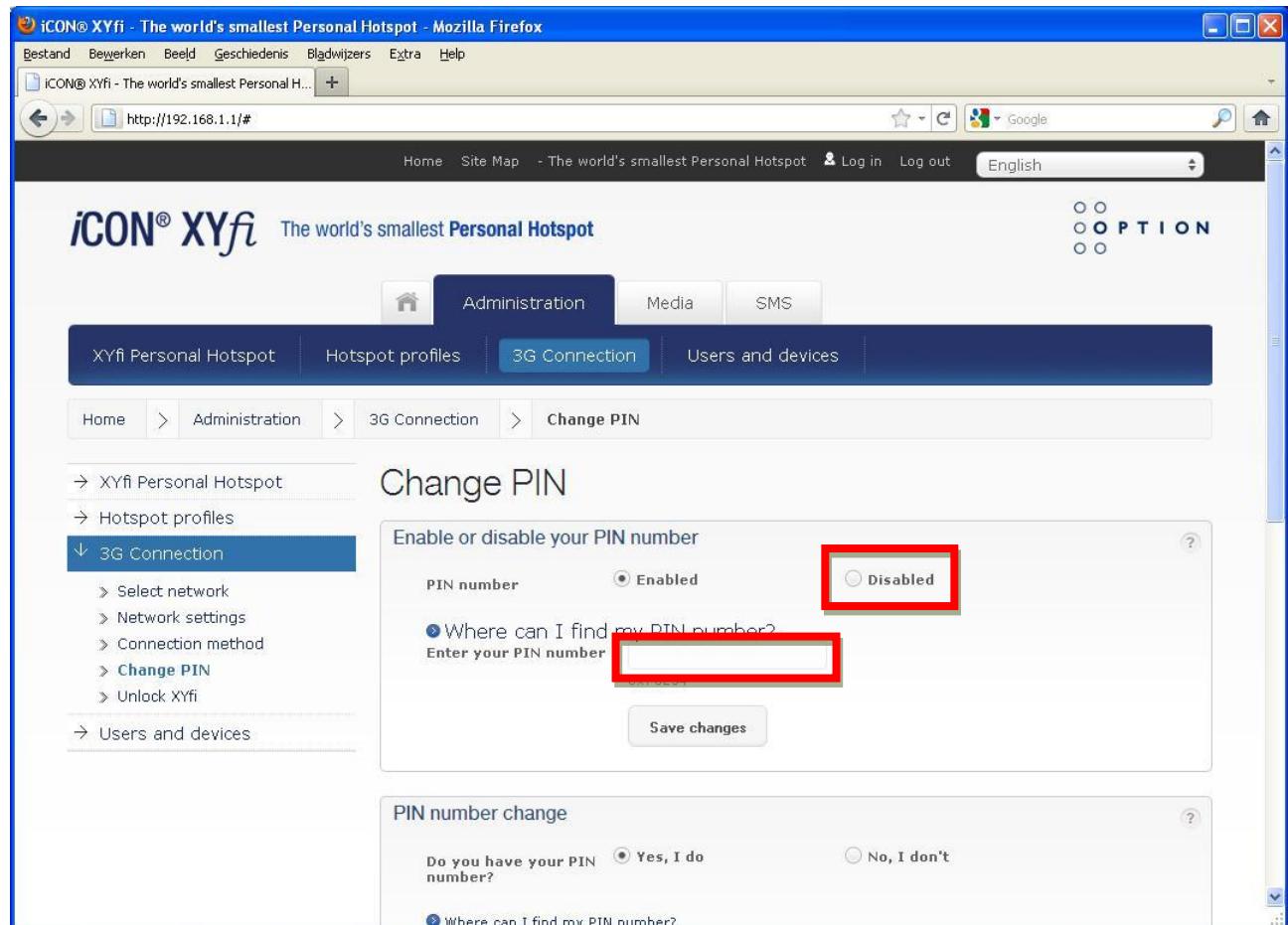
`./tx_cont_878xb 4 9` : transmit on channel 4 with a data rate of 24 Mbps.
`./tx_cont_878xb 12 3` : transmit on channel 12 with a data rate of 11 Mbps.

7 USE OF THE XYFI WITH A BATTERY PACK

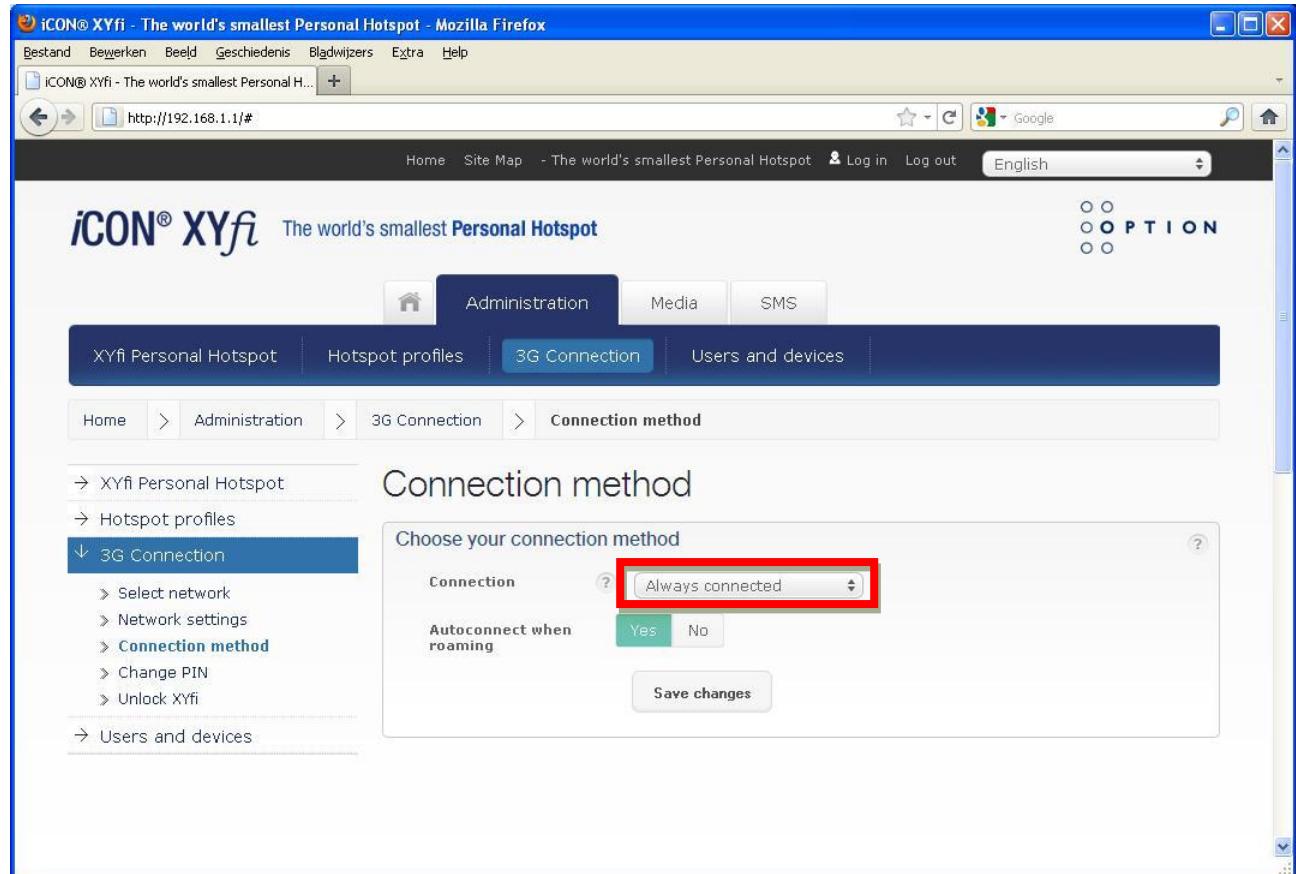
- a. Access the web interface of the device as shown in chapter 4.
- b. Be sure to fill in the right APN. (Administration → 3G Connection → Network Settings)


 A screenshot of the iCON XYfi web interface in Mozilla Firefox. The title bar says "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The address bar shows "http://192.168.1.1/#". The main content area shows the "Network settings" page. On the left, a sidebar menu is open, showing "3G Connection" is selected. The main content area has a heading "Network settings" and a sub-section "Add your APN, to access internet using your mobile phone". A red box highlights the "Access Point Name" input field, which contains "internet.proximus.be". Below it is a "Save changes" button. At the bottom, there is a section for "Select your password authentication protocol, to protect your network" with an "Authentication" dropdown set to "None".

c. Disable the PIN. (Administration → 3G Connection → Change PIN)
 Check "Disabled", enter the PIN and save the changes.


 A screenshot of a web browser displaying the iCON XYfi administration interface. The URL in the address bar is "http://192.168.1.1/#". The main navigation menu at the top includes "Administration", "Media", and "SMS". Below this, a secondary navigation bar shows "3G Connection" as the active tab. The main content area is titled "Change PIN". It contains a form for enabling or disabling the PIN number. The "PIN number" field is set to "Enabled" (radio button selected). The "Disabled" radio button is highlighted with a red box. Below this, a question "Where can I find my PIN number?" is followed by a text input field, also highlighted with a red box. A "Save changes" button is at the bottom of this section. Below this, another section titled "PIN number change" asks "Do you have your PIN" with two radio button options: "Yes, I do" (selected) and "No, I don't". A question "Where can I find my PIN number?" is also present here.

d. Set connection method to “Always connected”. (Administration → 3G Connection → Connection method)



The screenshot shows the iCON XYfi web interface. The URL in the address bar is <http://192.168.1.1/>. The page title is "iCON® XYfi - The world's smallest Personal Hotspot - Mozilla Firefox". The main navigation menu includes "Administration", "Media", and "SMS". Below the menu, there are tabs for "XYfi Personal Hotspot", "Hotspot profiles", "3G Connection" (which is selected and highlighted in blue), and "Users and devices". The breadcrumb navigation shows: Home > Administration > 3G Connection > Connection method. The left sidebar has a tree view with "XYfi Personal Hotspot" expanded, showing "Hotspot profiles", "3G Connection" (selected and highlighted in blue), and "Users and devices". Under "3G Connection", there are sub-options: "Select network", "Network settings", "Connection method" (selected and highlighted in blue), "Change PIN", and "Unlock XYfi". The main content area is titled "Connection method" and contains a form titled "Choose your connection method". The "Connection" dropdown is set to "Always connected" (highlighted with a red box). Below the dropdown are "Autoconnect when roaming" buttons for "Yes" and "No". A "Save changes" button is at the bottom of the form.