

# Setup of the UNIBZ Wireless LAN for Linux WPA

Security used within the WLAN Network:	WPA/WPA2 + PEAP + MSCHAPv2
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- Wireless Network SSID: **ScientificNetworkSouthTyrol**
- Security: **WPA/WPA 2 Enterprise**
- Authentication: **Protected EAP (PEAP)**
- Inner Authentication: **MSCHAPv2**
- Certificate: **NONE**
- Username: **<unibz-login>**
- Password: **<unibz-password>**
- IP Address: **Automatic (DHCP)**


## Pre-requisites

- Drivers for your Wireless Adapter and Requirements, installed and configured.
1. Intel PRO/Wireless 2100 802.11b (Centrino) <http://ipw2100.sourceforge.net/>
  2. Intel PRO/Wireless 2200 802.11g and 2915 802.11ag (Centrino) <http://ipw2200.sourceforge.net/>
  3. Intersil PrismII driver with HostAP mode <http://hostap.epitest.fi/>
  4. Atheros MADWiFi driver (most cards with 802.11a or 108 Mb/s) <http://madwifi.org/>
  5. WLAN Cards using ndiswrapper  
[http://ndiswrapper.sourceforge.net/mediawiki/index.php/Main\\_Page](http://ndiswrapper.sourceforge.net/mediawiki/index.php/Main_Page)
- Linux Software for the Authentication: [wpa\\_supplicant](#). It is a WPA Supplicant with support for WPA and WPA2 (IEEE 802.11i/RSN)
  - A good Networkanager GUI and front-end of wpa\_supplicant is [NetworkManager](#). A list of [Supported Wireless Cards & Drivers](#) is also available. A wiki about NetworkManager can be found in section [Using NetworkManager](#)

Other Wireless LAN resources for Linux can be found here

[http://www.hpl.hp.com/personal/Jean\\_Tourrilhes/Linux/](http://www.hpl.hp.com/personal/Jean_Tourrilhes/Linux/)

(K)(X)Ubuntu 9.10 Using NetworkManager

 Connection name:

☒ Connect automatically

☐ System connection

Wireless

Wireless Security

IP Address

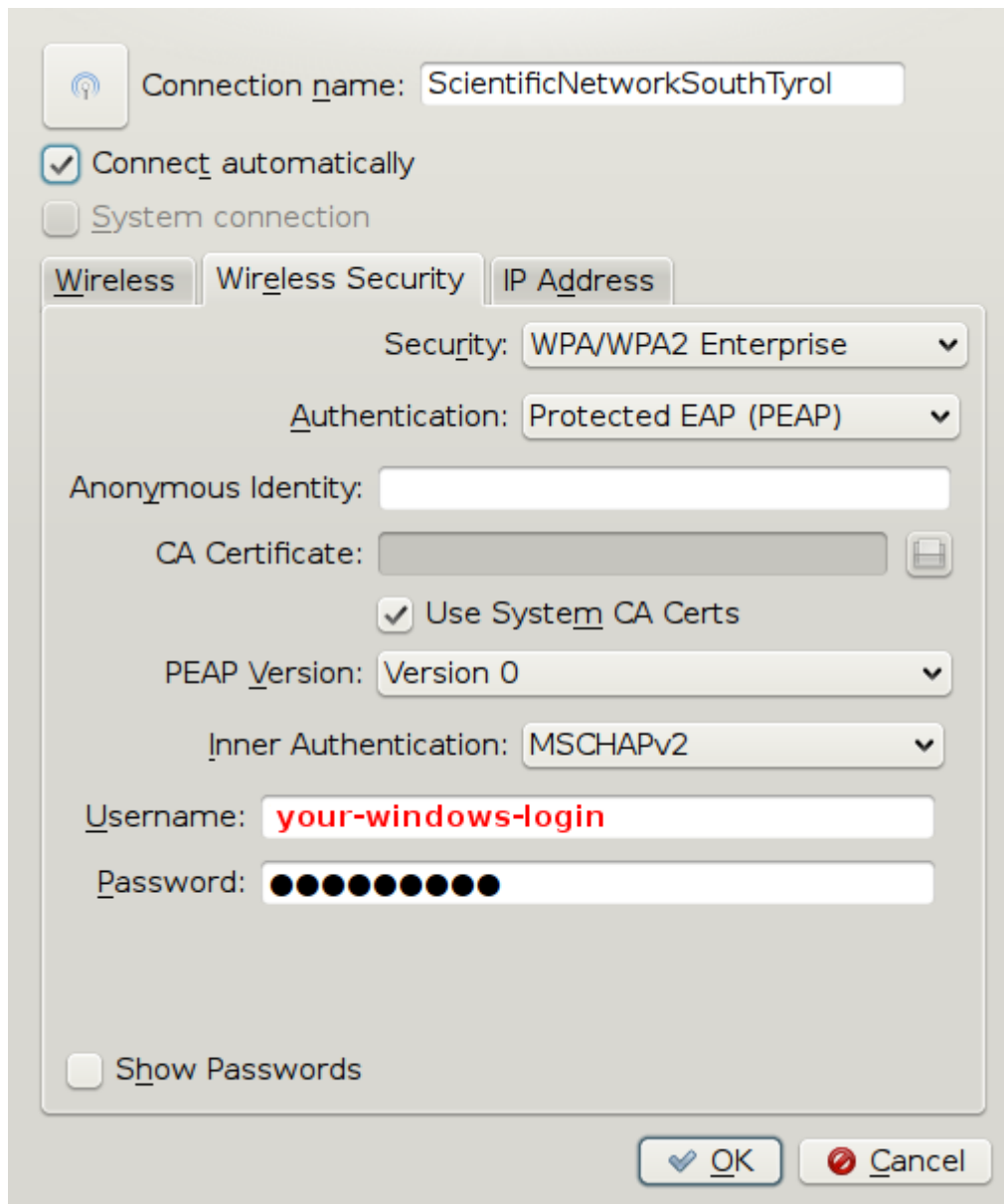
SSID:

Mode:  ▼

BSSID:

Restrict To Interface:  ▼

MTU:  ▲▼



The image shows a 'Wireless Network Setup' dialog box. At the top, there is a wireless icon and a text field for 'Connection name' containing 'ScientificNetworkSouthTyrol'. Below this, there are two checkboxes: 'Connect automatically' (checked) and 'System connection' (unchecked). There are three tabs: 'Wireless' (selected), 'Wireless Security', and 'IP Address'. The 'Wireless Security' section contains several settings: 'Security' is set to 'WPA/WPA2 Enterprise', 'Authentication' is set to 'Protected EAP (PEAP)', 'Anonymous Identity' is an empty text field, 'CA Certificate' is an empty text field with a file icon to its right, 'Use System CA Certs' is checked, 'PEAP Version' is set to 'Version 0', and 'Inner Authentication' is set to 'MSCHAPv2'. At the bottom of this section, there are fields for 'Username' (containing 'your-windows-login' in red) and 'Password' (masked with black dots). A 'Show Passwords' checkbox is at the bottom left of the security section. At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

Connection name: ScientificNetworkSouthTyrol

☒ Connect automatically

☐ System connection

Wireless Wireless Security IP Address

Security: WPA/WPA2 Enterprise

Authentication: Protected EAP (PEAP)

Anonymous Identity:

CA Certificate:

☒ Use System CA Certs

PEAP Version: Version 0

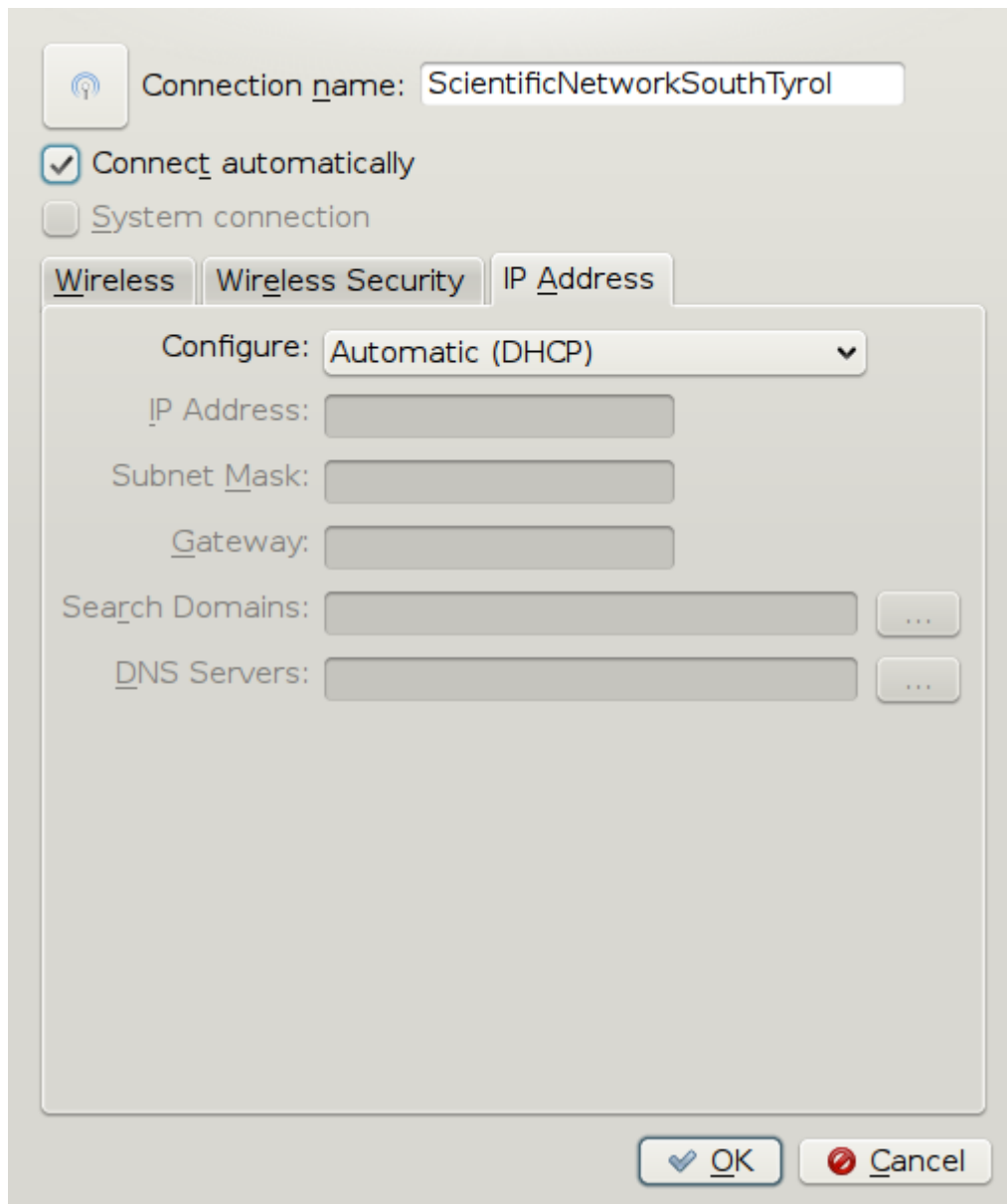
Inner Authentication: MSCHAPv2

Username: your-windows-login

Password:

☐ Show Passwords

OK Cancel



The image shows a NetworkManager configuration window for a connection named "ScientificNetworkSouthTyrol". The window has three tabs: "Wireless", "Wireless Security", and "IP Address". The "IP Address" tab is currently selected. In this tab, the "Configure:" dropdown is set to "Automatic (DHCP)". Below this, there are input fields for "IP Address:", "Subnet Mask:", "Gateway:", "Search Domains:", and "DNS Servers:". The "Search Domains:" and "DNS Servers:" fields have small "..." buttons to their right. At the bottom right of the window are "OK" and "Cancel" buttons.

Links:

[NetworkManager Howto](#)

= (K)(X)Ubuntu < 9.10 Manually

## Installing wpa\_supplicant

1. apt-get install wpa\_supplicant
2. Configure /etc/wpa\_supplicant.conf

Download [AddTrust\\_External\\_Root.pem](#) Certificate if you do not have it!

less /etc/wpa\_supplicant.conf

```
ctrl_interface=/var/run/wpa_supplicant
```

```
ctrl_interface_group=0
eapol_version=1
ap_scan=1
fast_reauth=1

network={
    disabled=0
    ssid="ScientificNetworkSouthTyrol"
    proto=WPA
    key_mgmt=WPA-EAP
    auth_alg=OPEN
    eap=PEAP
    identity="unibzlogin@unibz.it"
    password="unibzpassword"
    ca_cert="/etc/ssl/certs/AddTrust_External_Root.pem"
    phase1="peaplabel=0 peapver=0"
    phase2="auth=MSCHAPV2"
    priority=10
}
```

3. Bring Interface (eth1/wlan, etc.) up

```
sudo ifconfig eth1 up
```

4. Start wpa\_supplicant

```
sudo wpa_supplicant -D wext -i eth1 -c /etc/wpa_supplicant.conf
```

5. Get an IP Address

```
sudo dhclient3 eth1
```

## Configuration for Wired Authentication 802.1x (Cable)

This is the same Authentication Method as Wireless, but here we use an Ethernet cable.

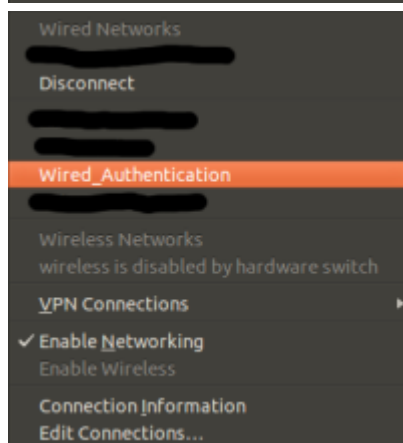
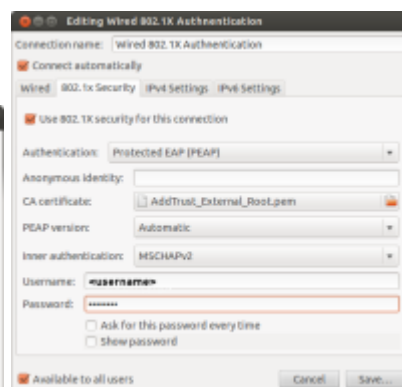
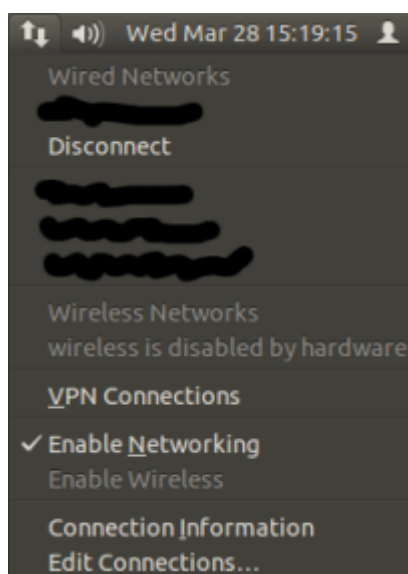
### Using Network Manager

Try this first if you are using a Ubuntu ⇒ 11.10.

Network Manager has the ability to be configured for 802.1x Authentication.

Basic steps:

- Click on the Network Symbol (2 Arrows) in the upper right task-bar (either with left/right mouse click)
- Edit Connections... in Network Manager
- In the first Tab: Wired press Add Button
- Fill out Connection name: <hostel>
- Go to 2nd tab 802.1X Security, tick: Use 802.1X security for this connection
- Authentication: Protected EAP (PEAP)
- CA certificate: AddTrust\_External\_Root.pem (located in /etc/ssl/certs/AddTrust\_External\_Root.pem)
- PEAP version: Automatic
- Inner authentication: MSCHAPv2
- Username: <your-unibz-login>
- Password: <your-unibz-password>
- Save...
- Click again on the Network Symbol and select the newly create Connection



## Manual Configuration

For the more “experienced” users!!

Make sure you have installed wpasupplicant and wpaui

```
sudo apt-get install wpa_supplicant wpa_gui
```

Edit the configuration file: /etc/wpa\_supplicant/wpa\_supplicant.conf

```
vi /etc/wpa_supplicant/wpa_supplicant.conf
```

```
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
eapol_version=1
ap_scan=0
fast_reauth=1

network={
    eap=PEAP
    eapol_flags=0
    phase1="peaplabel=0"
    phase2="auth=MSCHAPV2"
    priority=10
    key_mgmt=IEEE8021X
    auth_alg=OPEN
}
```

Now execute the following commands:

Starts wpa\_supplicant with wired driver (-D wired) and in daemon mode (-B)

- `sudo wpa_supplicant -D wired -c /etc/wpa_supplicant/wpa_supplicant.conf -i eth0 -B`

Start wpa\_gui to enter username and password

- `sudo wpa_gui`
- Login with username@unibz.it and password

Get an IP Address

- `sudo dhclient3 eth0`

— *kohofer* 2010/02/22 14:38

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<https://wiki.inf.unibz.it/> - **Engineering-Tech Wiki**

Permanent link:

[https://wiki.inf.unibz.it/doku.php?id=public:wireless\\_lan\\_using\\_linux](https://wiki.inf.unibz.it/doku.php?id=public:wireless_lan_using_linux)

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