

# Setup of the UNIBZ Wireless LAN for Linux WPA

|                                        |                            |
|----------------------------------------|----------------------------|
| Security used within the WLAN Network: | WPA/WPA2 + PEAP + MSCHAPv2 |
|----------------------------------------|----------------------------|

- 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

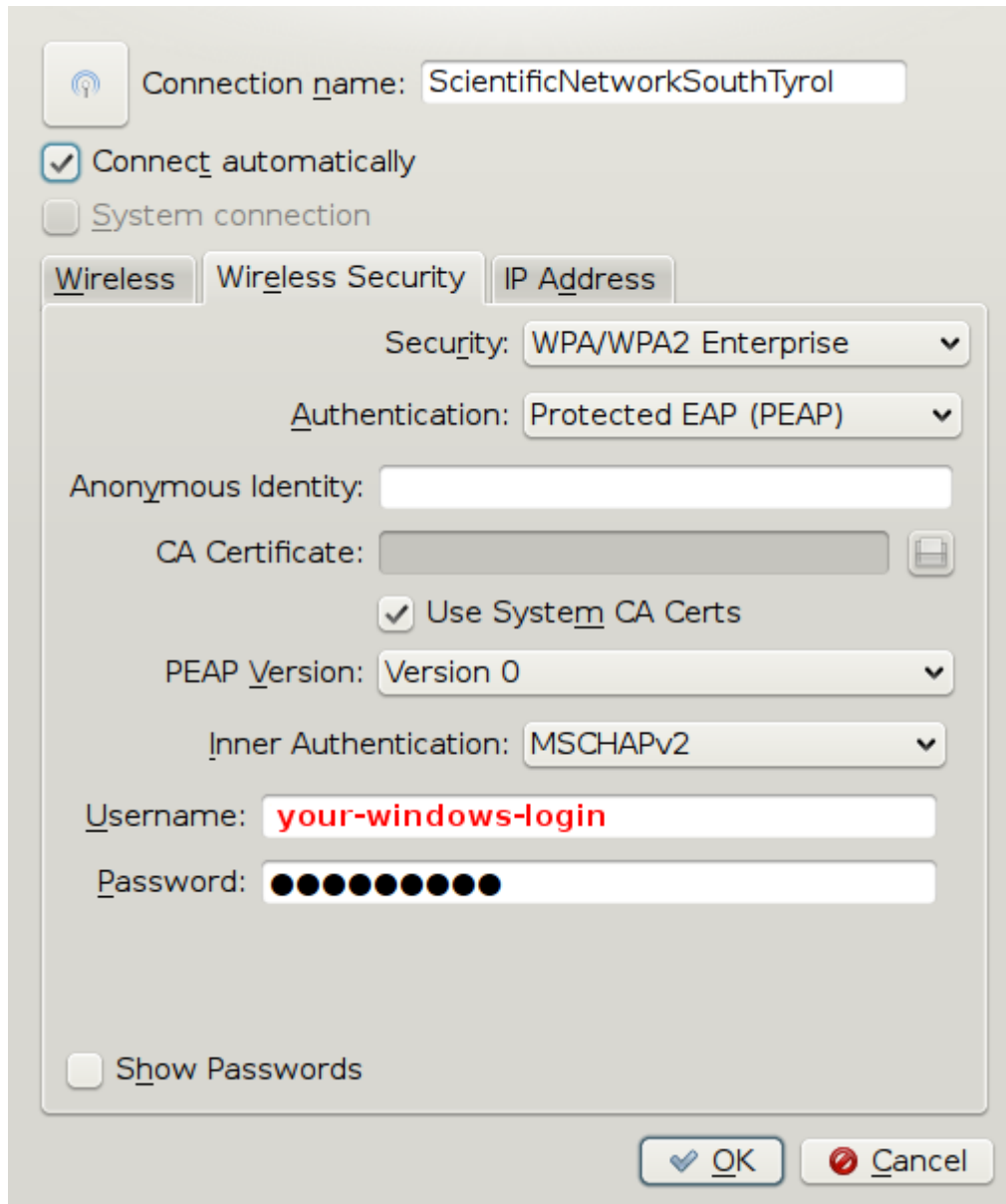
SSID:

Mode:  ▼

BSSID:

Restrict To Interface:  ▼

MTU:  ▲▼



The image shows a 'Wireless Security' configuration window. At the top, there is a 'Connection name' field with the value 'ScientificNetworkSouthTyrol'. Below it, there are two checkboxes: 'Connect automatically' (checked) and 'System connection' (unchecked). The 'Wireless Security' tab is selected, showing settings for 'Security' (WPA/WPA2 Enterprise), 'Authentication' (Protected EAP (PEAP)), 'Anonymous Identity' (empty), 'CA Certificate' (empty with a file icon), 'Use System CA Certs' (checked), 'PEAP Version' (Version 0), 'Inner Authentication' (MSCHAPv2), 'Username' (your-windows-login), and 'Password' (masked with dots). There is also a 'Show Passwords' checkbox at the bottom left. At the bottom right, there 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 connection configuration window. At the top, there is a connection icon and the name '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 'IP Address' tab is active, showing a 'Configure:' dropdown set to 'Automatic (DHCP)'. Below this are input fields for 'IP Address:', 'Subnet Mask:', 'Gateway:', 'Search Domains:', and 'DNS Servers:'. Each of these fields has a corresponding '...' button to its 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.

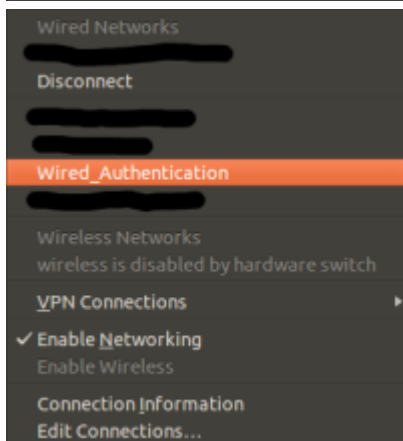
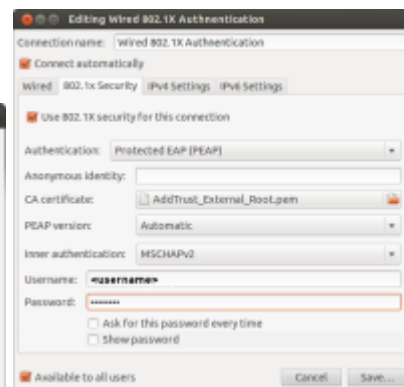
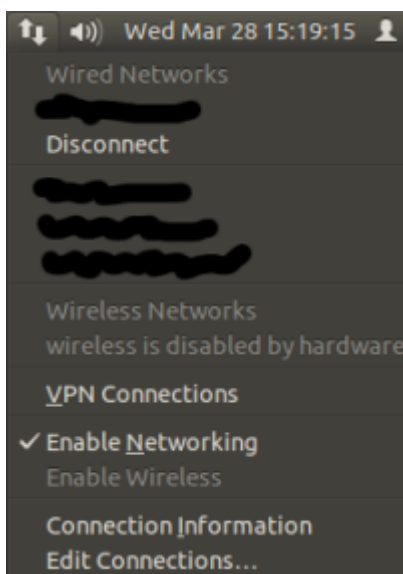
### Using Network Manager

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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