

12 Networks and Internet Connections

1.12.1 Introduction

For internet connections, antiX provides a number of tools that can be accessed through:

Control Center → Networks tab



Internet connection is usually automatic when using a wired connection (ethernet).

For wireless, you will have to configure your network connection, for this purpose antiX provides several tools, among them the most practical, for daily management of connections, Ethernet and wireless, is the graphical tool **ConnMan**.

For the same purpose is provided a semi-graphic tool, **Ceni**, lightweight, fast, and very effective in identifying the network cards and connect. A real resource if there are difficulties in accessing the wireless card by ConnMan. In these cases, once recognized the card and activated the wireless connection with Ceni, then more easily you can activate the more practical ConnMan. To pass the connection management from Ceni to ConnMan you have to use the "**Select Wifi Application**" tool.

If you need to configure an ADSL or PPPoE connection you can use ConnMan or the semi-graphical tool "**Configure ADSL/PPPoE**". For a dialup connection (in many parts of the world they only have dialup) **Gnome-ppp** is provided, which is lightweight and easy to configure.

The sharing of network resources can be achieved through the tools accessible through the **Control Center** → **Sharing tab** that provides **ConnectShare** and **Droopy**.

2.12.2 ConnMan



[antiX 19.2 - Connect to WI-FI using Connman](#) by Xecure



[Set up your wireless connection on antiX 19](#) by Runwituthedolphin

Connection Manager (ConnMan) is currently the new default network manager in antiX-full and antiX-base, designed to be lean and use few resources. It supports wireless and wired connections.

It is a fully modular system that can be extended through plugins. It could handle bluetooth and vpn connections by downloading packages for related plugins. In antiX bluetooth is already effectively handled by Bluetooth Manager (BlueZ) and so no plugin is needed.

3. 12.2.1 Activating the wireless connection

You can open Connman from the Control Center, but generally it will be more convenient to click on its applet-icon (one of the 3-4 black squares on the right of the panel) in the panel notification area to launch the Connman management window/panel by left-clicking, and to enable or disable WiFi and Ethernet functionality by right-clicking.



Figure: Ethernet card enabled, WiFi disabled.

Before starting ConnMan for the first connection, right-click on this black icon to check that the WiFi interface is enabled.

Once opened, ConnMan presents itself with a tabbed framework/window.

Opening the **Status tab**, you can see if the ethernet and wireless functionality are recognized, in fact if recognized they will show a green dot. By clicking on the green dot you can disable a feature and the dot will turn red. However, the fact that there is a green dot does not mean that the card is active, and the network is visible and configurable because the card is activated from the menu that appears by right-clicking on the black applet-icon on the notification area of the panel (see the first figure).

There should be a small square next to the card's interface designation. The Connman status tab may show a green dot for wireless but be disabled at the network interface menu level of the applet icon.

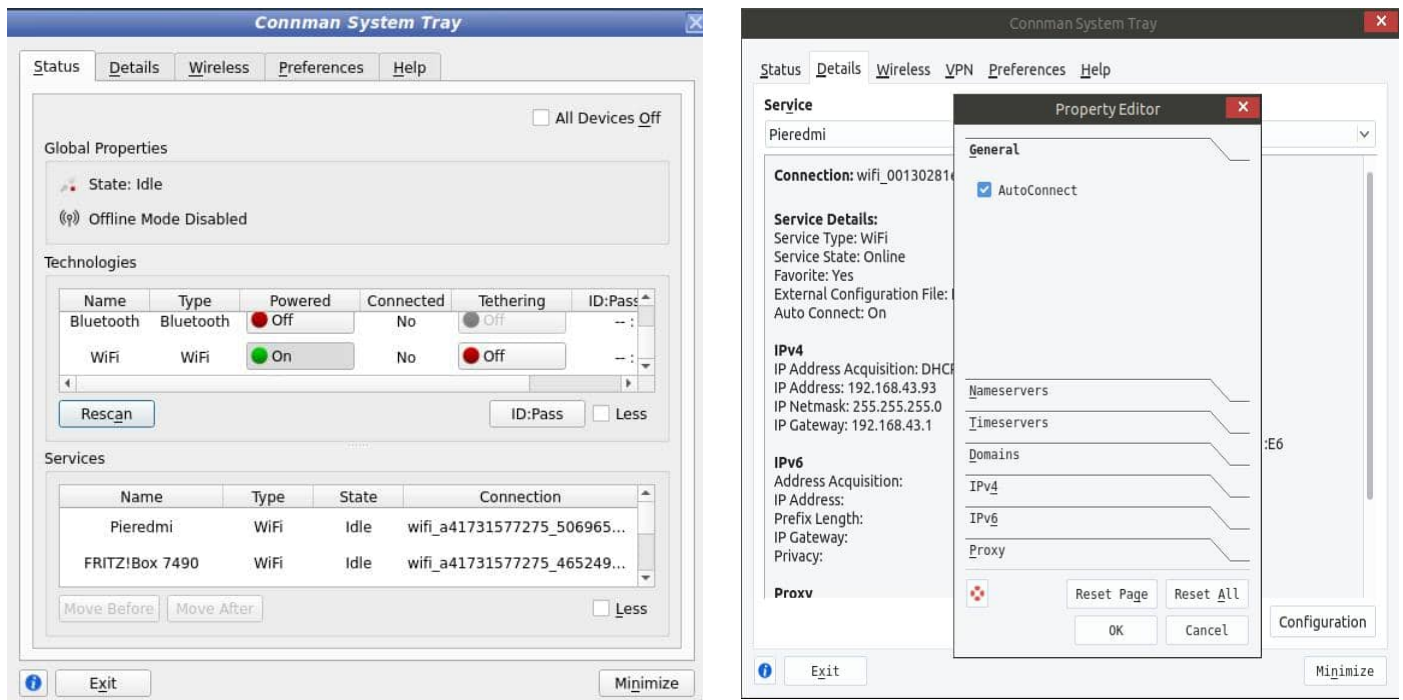


Figure left: Status tab, Figure right: Details tab with configuration window superimposed



Figure: wireless card

To activate WiFi for the first time go to the **Status tab** and first of all it's better to **disable** the **ethernet** connection and possibly **bluetooth**, clicking on the green dot, if it was green, to turn it red.

Then you go on the **Wireless tab** and, on the list of detected networks you highlight the one you are interested in, and then you press the button at the top "Connect" will appear a window where to enter the password.

Phones with a hotspot/tethering function are also typically connected in this way like any WiFi network.

Note. After entering the password you have to confirm on the "OK" button at the bottom, but it may happen that the window does not fit on the screen and the "OK" button is hidden so the password is not recorded.

In this case, use the management menu obtained by right-clicking on the ConnMan icon. See "operating difficulties" point 2.

If you want to see and configure many more aspects of the networks you can go to the **Details tab** where, after selecting the network of interest, Ethernet or wireless, you will see many parameters that can be configured using the button at the bottom "Configuration". The window that opens, divided into sectors, can be used for "special" configurations, but can also simply be used, going to the "General" sector to insert (or to disable) the **auto connection** on restart. In general, once a network is configured and started, there will be automatic access to that network every time antiX is started. It will be considered "preferred" and a heart symbol will appear on that network in the list of detected networks.

4. 12.2.2 Operating difficulties

1) In case of difficulty in connecting with ConnMan watch the **Xecure [video](#)** mentioned at the beginning of this paragraph, if you have not already done so. It is very useful and easy to follow even for those who are not native English speakers.

2) It may happen that the ConnMan management window at the wireless card level is blocked. Clicking on a button, the window does not respond interactively, but is presented as a still image, so you can not start the search for networks in the vicinity, nor anything else.

Open a terminal and type:

```
sudo service connman restart
```

You should see a small icon in the panel tray a little to the left of the black icon you saw earlier (if you have localized the system and have the flag of your language on the panel, then the ConnMan icon appears to the left of the flag.

If it does not appear re-start ConnMan. If it still does not appear insist, alternating the command given to the terminal and then restarting ConnMan (it starts from the Control Center, from the menu or from the terminal with the command `connman-ui-gtk`).

Appeared the icon right click on it, a menu will open. From here you can manage ConnMan more effectively than from the window.



Figure: ConnMan icon with management menu.

3) It is possible to verify the blocking of the interfaces through the terminal.

You can use **rfkill** to list all wireless interfaces and their status:

```
sudo rfkill list all
```

You should get a response like that:

```
0: hci0: Bluetooth Soft blocked: no Hard blocked: no
```

```
1: phy0: Wireless LAN
```

```
Soft blocked: no
```

```
Hard blocked: no
```

If rfkill reports a *soft* lock, you can unlock it with:

```
sudo rfkill unblock (device number)
```

i.e.

```
sudo rfkill unblock 1
```

or you can unlock all the devices:

```
sudo rfkill unblock all
```

You can tell if the unlock command worked by typing the rfkill command again.

If rfkill reports a *hard* lockout it means there is a lockout at the physical switch level or there is a problem at the hardware level (PCI bus, BIOS, etc).

Check that there is no physical switch that blocks. Often there are switches that you can turn on or off with the Fn keys.

4) You can try using ConnMan from the **terminal** through the **connmanctl** commands:

Before these commands you might want to know what the interface of your wireless card is called, (usually wlan0 but not necessarily). You can check this with the command:

```
inxi -Nxxxxz (or inxi -n)
```

With that done, to try to enable WiFi, you can give the terminal:

```
ip link set <interface> up (for example: ip link set wlan0 up) or even
```

```
connmanctl enable wifi
```

When the interface is enabled, you can proceed with network configuration through the connmanctl command(s).

The connmanctl command can be run in interactive mode. To start interactive mode, type:

```
connmanctl
```

Then interactive controls can be used:

```
connmanctl> scan wifi
```

```
connmanctl> services
connmanctl> agent on
```

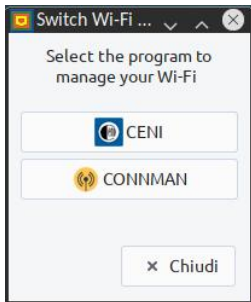
See:

- <https://wiki.archlinux.org/title/ConnMan>
- Anti-X Forum, Semicynic's post: [Connman-Comand-Line](#)
- "[Connman to connect to Wifi from shell](#)" (video by M. Lo Nobile).

5) If the wireless card is recognized, there are no blocks, but ConnMan does not work or works badly, it may have problems with that wireless chip/device, **try then to use Ceni**.

Ceni is very effective and simple, but spartan. Once you have configured your network with Ceni you may wish to switch to ConnMan which is more practical to use in day to day management, however you cannot simply switch from one manager to another because they, particularly ConnMan, insert their own configurations, in the configuration files of the interfaces and DNS services, which will interfere with the alternative manager.

antiX allows you to switch from one manager to another, without having to intervene on system files, through the graphical tool Select WiFi **Application** in the Control Center.



After selecting the WiFi Manager you want to use as an alternative, a small window will appear with a message: *WLAN entries have been found (or no WLAN entries have been found) in /etc/network/interfaces. ...Edit the file ?*

Answer **OK**

Note. If you are using antiX in Live mode, ConnMan may have difficulty connecting, which then may not show up on the system is installed. Ceni is less affected by *Live mode/installed system*, so if in a live system, the wireless card is recognized, there are no blocks, Ceni connects but ConnMan does not, it is not to be excluded that ConnMan can connect on the installed system.

If the problems persist, you can either use Ceni permanently with the help of solutions that make it more usable, or you can switch to using Wicd, as we'll see in the next paragraphs.

<https://www.antixforum.com/forums/topic/ceni-instead-of-connman/>

5.12.3 Ceni

Ceni is the default network manager used in antiX-core and antiX-net. It is an application that allows users to configure `/etc/network/interfaces` via a command line interface (CLI). It supports wired and wireless connections.

It opens through the Control Center.

antiX Control Center -> Network -> Manage Network Interfaces (ceni)

A terminal window opens where questions are asked and options are presented.

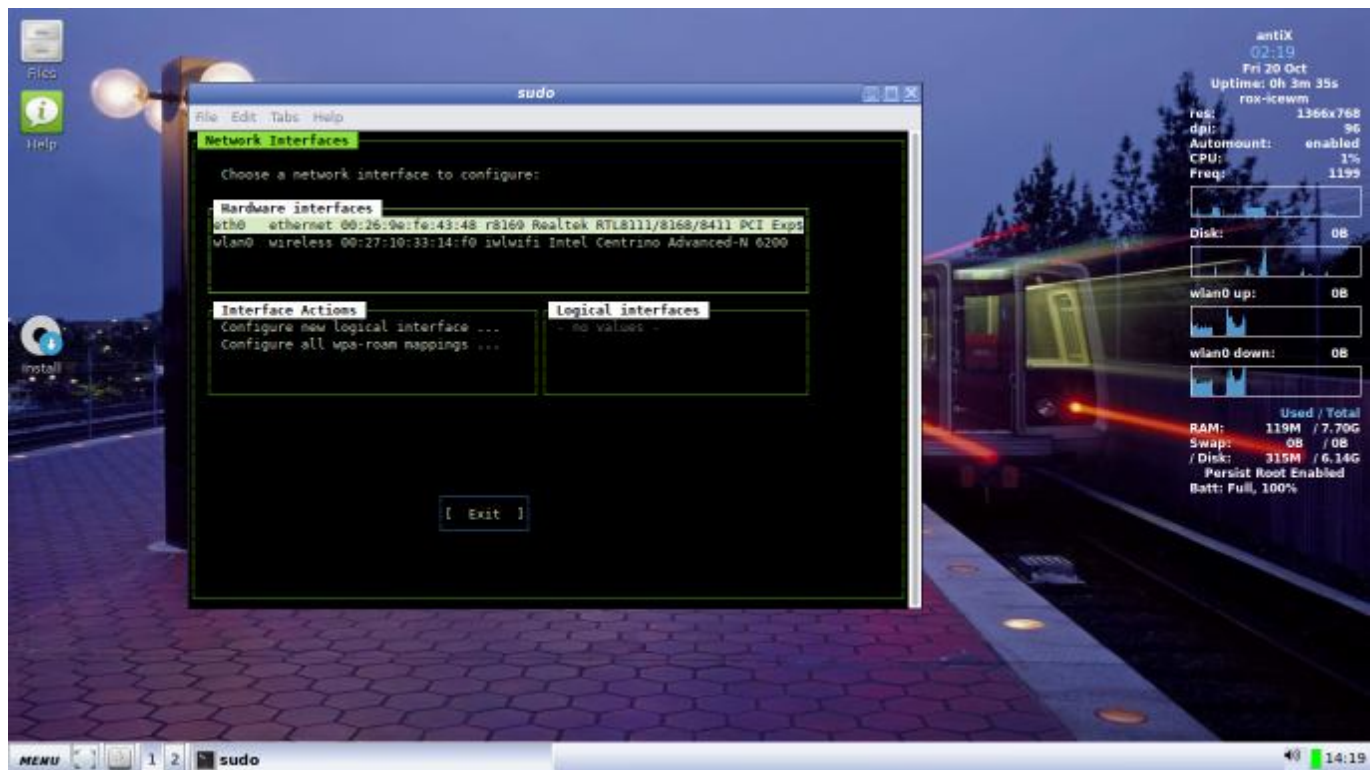
You answer by using the Up and Down arrows and placing the mouse cursor on the options you want among those presented.

Wired **network:**

When you open Ceni in the terminal/konsole, in the window that appears, in the *Hardware interfaces* section at the top, click on the Ethernet tab, which will look like this:

```
Eth0 Ethernet 00:26:C5:1a:43:48 Realtek 8111/8168/8411 PCI
```

With this simple step you should already be connected.



NOTE: If you have the broadcom BCM 4401-B0 ethernet card and it does not work, try opening as root the file: `/etc/modprobe.d/b43.conf`

and comment on these lines:

```
ssb true b44 true
```

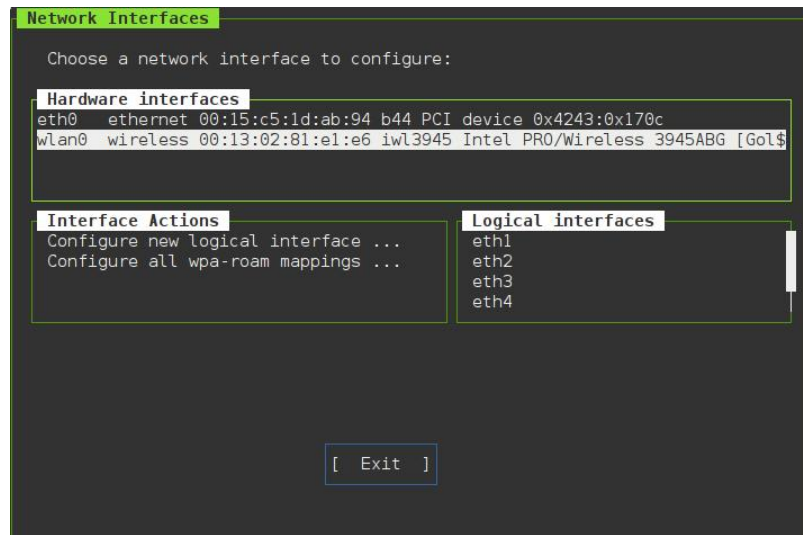
```
modprobe ssb && modprobe b44
```

then restart Ceni.

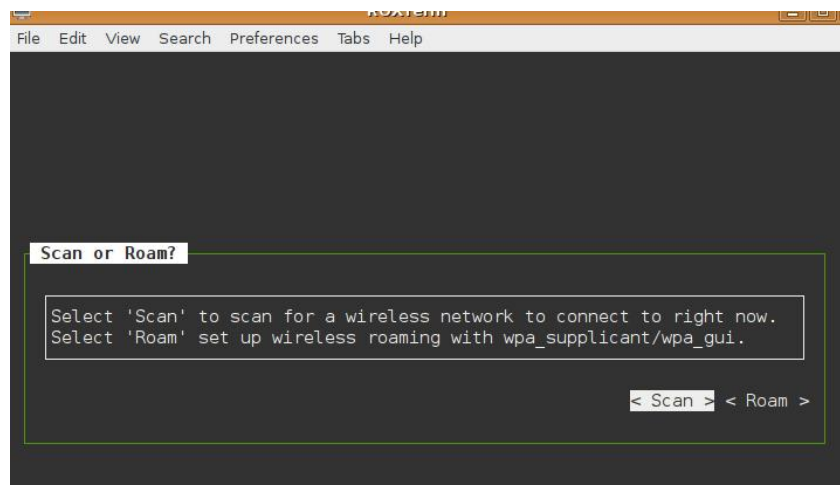
Wireless:

When you open Ceni in the terminal, in the window that appears, in the *Hardware interfaces* section at the top, click on the wireless tab, which will look like this:

```
wlan0 wireless 00:13:02:81:e1:e6 ipw220 INTEL PRO 2915ABG
```

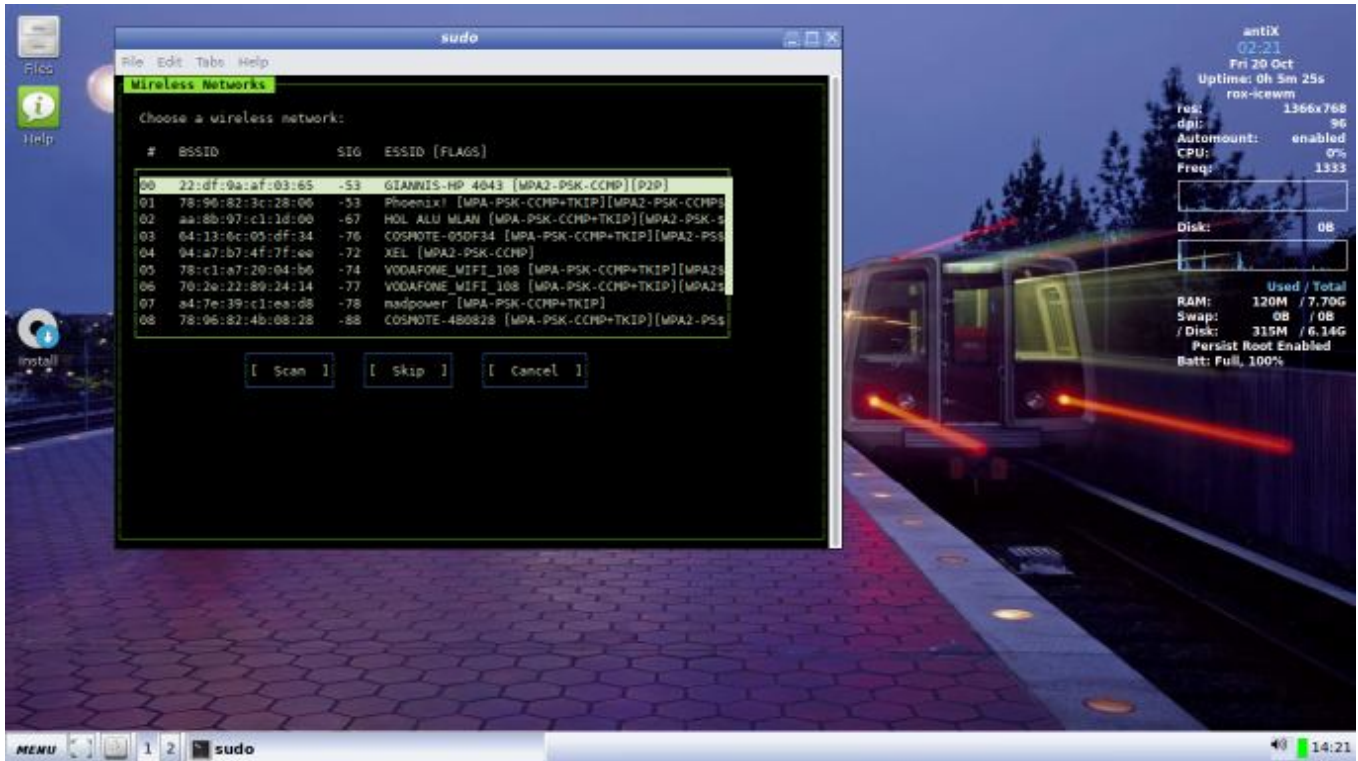


Click on the wireless tab to open the next window:



Click on: Scan

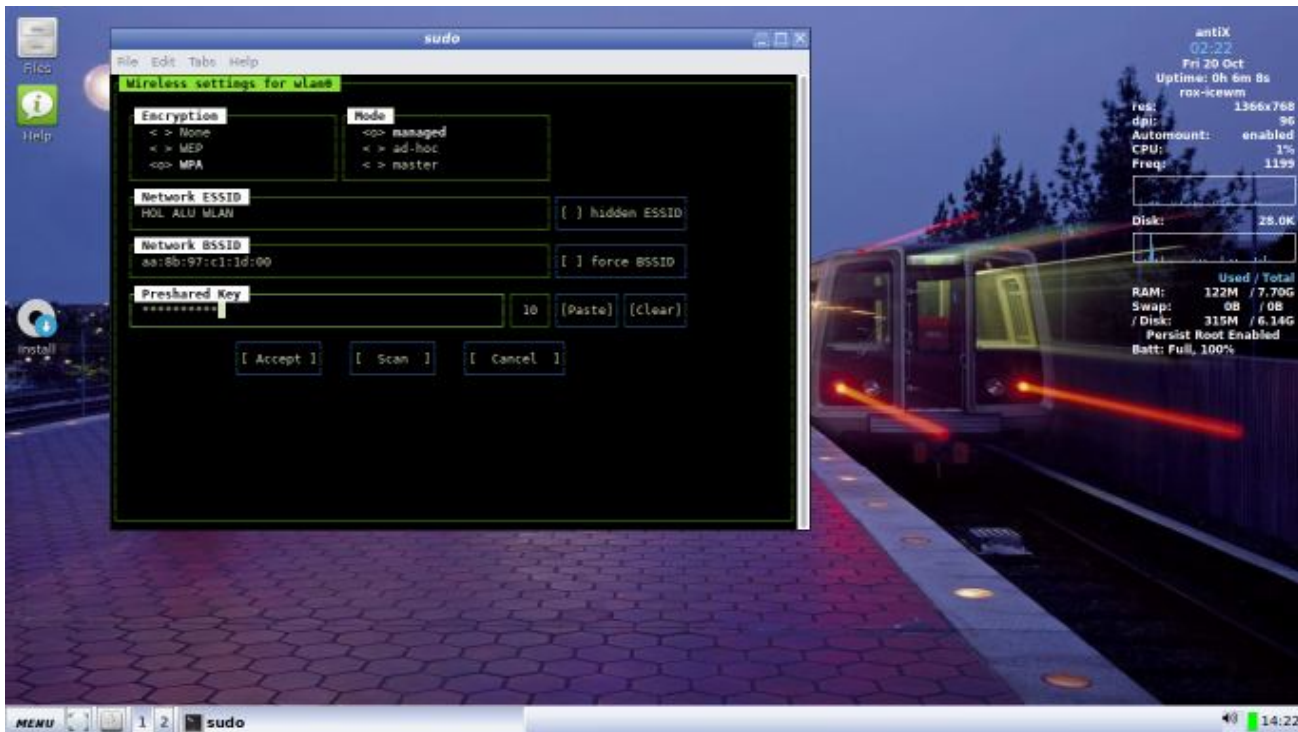
You will be presented with a list of wireless networks picked up in the surrounding area:



Click on the network you are interested in. Then the window below will open.

In the *Encryption* area choose the type of encryption, (normally WPA) or none, if there is no password.

In the *Preshared Key* area at the bottom of the window, enter the password for the network you want to connect to.



then click Accept.

At this point a terminal screen appears where you are again asked to enter your password.

After inserting it, the window below will appear with some preconfigured parameters where, at the top left, in the "*Method*" area you can decide whether the DNS management system should be dynamic-DHCP or static.

At the top right is an area called "*Class*" where you can choose between three options: *allow-hotplug*, *auto* and *manual*.

The choice is preconfigured for "allow-hotplug".

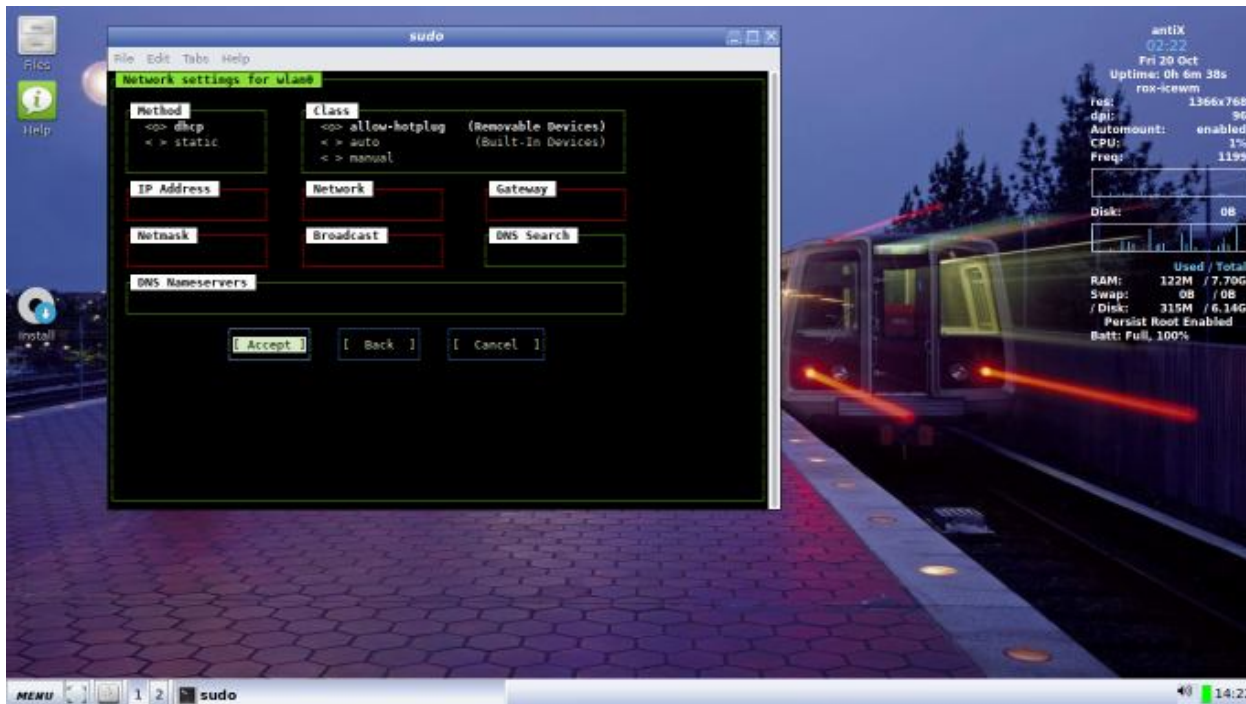
If you clicked on "auto", the radio button would move there. This choice would cause the connection to be started at every reboot during system loading, so that when you open the Desktop after logging in, the connection is already active with the preconfigured network.

Note. This step could be done manually by opening, with a text editor, the file `/etc/network/interfaces`, with super-user rights given by *sudo*, where, opened a terminal you should type:

```
sudo geany /etc/network/interfaces    Looking for the line where it says
allow-hotplug wlan0    and replacing it with
auto wlan0
```

(assuming your wireless interface is named wlan0, but not necessarily)

In any case, in this screen the default parameters are generally fine, so leave everything as it is and accept with [Enter] or by clicking on [Accept].



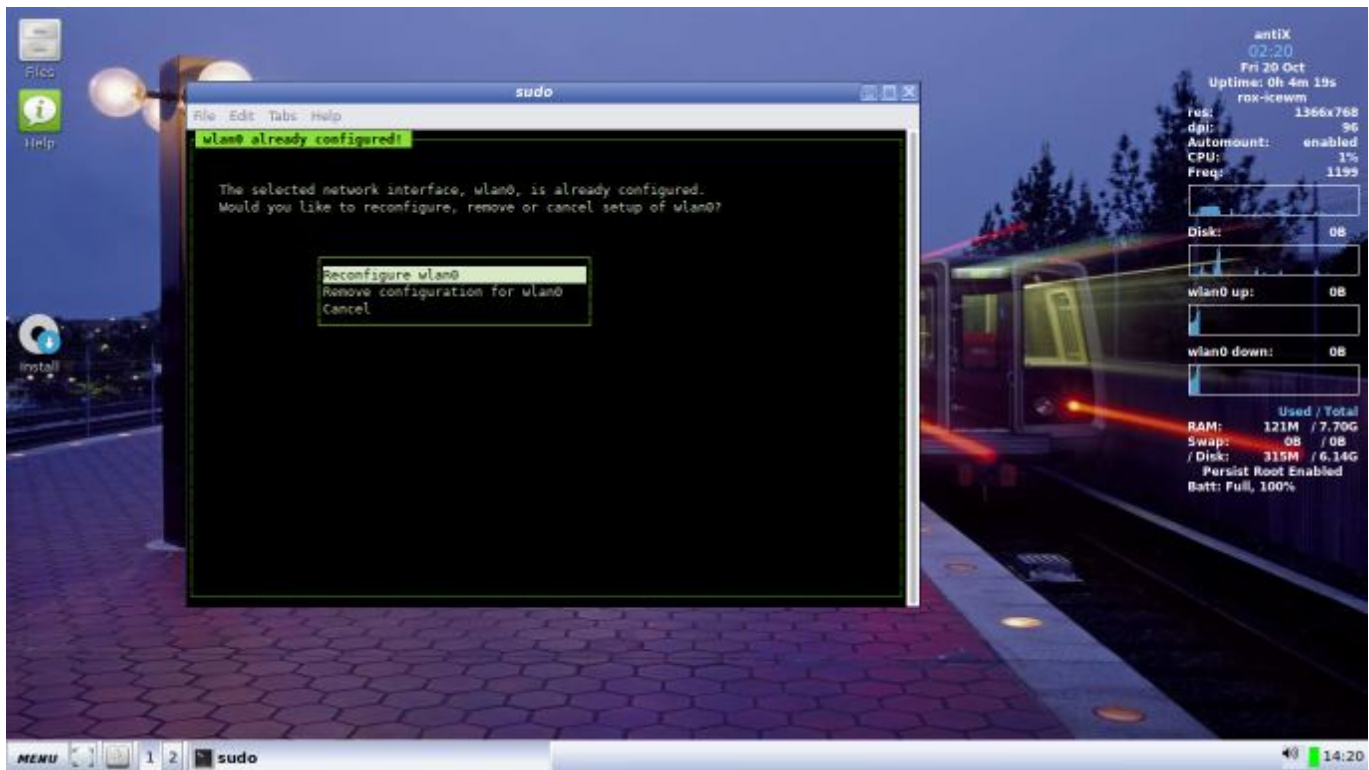
Another terminal screen will open where you will see the scrolling of the lines of the various operations in progress, until you are asked to press a key to continue, press [Enter].

Next you are asked if you want to leave, answer yes.

At this point the connection should start.

If something doesn't work, repeat the steps. In particular, after selecting the network card that interests you, that is, the one that does not work, such as the wireless card, choose at first *reconfigure wlan* (or whatever

your type of card: ath0, ra0, etc.), if it still does not work try to choose "Remove configuration for Wlan0" and then, again, "Reconfigure Wlan0".



Note. Ceni is very effective to connect but it has a disadvantage: at each re-boot it would seem that you have to repeat the configuration procedure (we'll see that it's not exactly like that), this leads many users to prefer more comfortable handlers (actually Ceni can be sufficiently comfortable with the appropriate precautions).

After you have managed to connect to the internet through Ceni, in order to use ConnMan (perhaps more convenient for normal use) it is useful to use the graphical tool Select WiFi **Application:** Control Center. → Networks → Select WiFi Application.

Alternatively, if ConnMan still doesn't work you can delete it and install Wicd instead (see below how to do that) or you can try to make Ceni comfortable enough, avoiding having to start the reconfiguration procedure at every re-boot. You can do this (assuming *wlan0* is your interface, but to be sure give the terminal `inxi -n`):

1. **Set up the connection to the network** you want to connect to using Ceni's configuration procedure
2. It will close the connection with: `sudo ifdown wlan0`
3. You can restart the connection with the command: `sudo ifup wlan0`

You can reboot the pre-configured connection with this command but after shutting down the PC, when opening the desktop, after re-booting the command will not work. To get it to work you must first run the *Select WiFi Application* tool.

4. **After the re-boot** you have to start **Select WiFi Application**.

In the window that opens, choose Ceni, and close this tool. Closing *Select WiFi Application* will automatically launch the window with the Ceni configuration procedure. Close the window, Ceni does not need to be reconfigured.

5. Start the connection with the command: `sudo ifup wlan0`

So, as long as you don't reboot you can turn off and restart the connection as many times as you want with just the `ifup/ifdown` commands, seen above, instead after the reboot you must first start *Select WiFi Application* and then `sudo ifup wlan0`

Note. The **ifup/ifdown commands** should be given to the terminal, but it may be practical to **start them via two icons** on the panel or two icons on the desktop.

The command to enter in the icon/launcher configuration will be: `rosterm -e sudo ifup wlan0` to start and `rosterm -e sudo ifdown wlan0` to close.

Just click on them to start and close. Obviously `wlan0` should be replaced with your interface.

In IceWM the insertion of icons in the panel can be done graphically using the appropriate tools, provided by antiX. For JWM and Fluxbox you have to do it manually, to do it you can see the indications given in the respective chapters of this guide.

Also for the *Select WiFi Application* tool it will be more convenient to have an icon on the panel to start it. With these three icons, managing connections with Ceni will be convenient enough.



Figure: **Ceni startup and shutdown icons** on the IceWM panel.
The **yellow icon** starts **Select WiFi Application**

Note. The connection to a network with Ceni could be pre-configured to start automatically, by choosing "*auto*" in the "Class" area as mentioned above, but the procedure described above using **Select WiFi Application** would not change. On re-boot after the desktop open screen the internet connection will be already started, and the connection to the preconfigured network will be already done, as you can see from Conky and the black icon on the panel. However, you will not be able to browse the Internet until you click on *Select WiFi Application*.

Although the procedure remains the same, choosing "**auto**" **mode allows for a faster connection** to your network **upon re-boot**.

If instead of connecting to the preconfigured network, you want to **connect to another network**, just start Ceni, and follow the configuration procedure. On the initial screen you will choose "**Reconfigure Wlan0**".

You will choose the network you are interested in from those that Ceni detects in the area, provide the Network Password, and this will become the new pre-configured network.

Note. If the configuration process aborts producing a message like this:

"Failed to initialize control interface /run/wpa_supplicant" then on the home screen try choosing *"Remove configuration for Wlan0"* instead of "Reconfigure Wlan0".

6.12.4 Wired connection

antiX will usually detect wired internet connections at boot without any problems. If a particular Broadcom driver is needed (which is rare), use Network Assistant:

Control Center → Maintenance tab → Network problems.

Ethernet and Cable

antiX comes pre-configured for a standard LAN (Local Area Network) that uses DHCP (Dynamic Host Configuration Protocol) to assign IP addresses and DNS (Domain Name System) to resolve domains. This will work in most cases as is. However, you can change the configuration graphically through ConnMan or manually as explained below.

When starting antiX, network adapters are given a short interface name by udev, the kernel manager for devices. For normal wired adapters this is usually eth0 (later adapters will be eth1, eth2, eth3, etc). In antiX, USB adapters are often identified as the eth0 interface, but the interface name may also depend on the chipset of the card. For example, Atheros cards are usually identified as ath0, while Ralink USB adapters might be identified as rausb0. For a detailed list of all available network interfaces, open a terminal, become root and type:

```
ifconfig -a
```

It's a good thing to connect to the internet through a router, as almost all wired routers have firewalls if you want. In addition, routers use NAT (Network Address Translation) to translate large internet addresses into local IP addresses. This offers an additional layer of protection. Connect directly to the router, or via a hub or switch, and the computer should self-configure via DHCP.

ADSL or PPPoE

You can use the semi-graphic tool "**Configure ADSL/PPPOE**".

NOTE: If you experience problems when using a USB device to connect, connect the unit to your computer, open a terminal, and type:

```
dmesg | tail
```

Post a message on the forum with the terminal output for help in finding the necessary driver.

Dial-up

You use **Gnome-ppp**. In the device tab you need to set the serial information. Accepting the default /dev/modem may work, but you may need to try another interface. These are the Linux equivalents of the COM ports in MS-DOS and MS Windows:

Table 3: Linux equivalent ports to Windows COM ports

<i>Door</i>	<i>Equivalent</i>
COM 1	/dev/ttyS0
COM 2	/dev/ttyS1
COM 3	/dev/ttyS2
COM 4	/dev/ttyS3

7.12.5 Troubleshooting

Ethernet connection problems are rare. Usually if there are problems they concern the Wireless functionality, so let's look at problems with this type of connection. The analysis and solutions will also help in case of problems with the ethernet card.

8. 12.5.1 Wireless connection

antiX is pre-configured to automatically detect a Wi-Fi card, and in most cases the card will be found and set up automatically. There are two standard ways in which a wireless card can be supported in antiX:

- With a native driver that comes as part of the Linux kernel (for example: ipw3945 for Intel).
- With a Windows driver, using the Ndiswrapper application (available in the repositories), which "embeds" the Windows driver so that it can be used in a Linux system (for example: **bcmwl5** for some Broadcom chipsets). See below for info.

Sometimes both a native Linux driver and a Windows driver are available. You may want to compare them to evaluate speed and connectivity, and you may need to remove, or blacklist, the one you don't use to avoid a conflict. The easiest way to **blacklist** a **driver** is to use **Network Assistant "Linux Driver"** tab.

Wireless cards can be either internal or external. USB modems (wireless dongles) usually appear with the **wlan** interface, but if not then check the others on the list.

NOTE: Which method will be successful varies from user to user due to the complex interactions between the Linux kernel, the wireless tools, and the chipset of the wireless card and router you have.

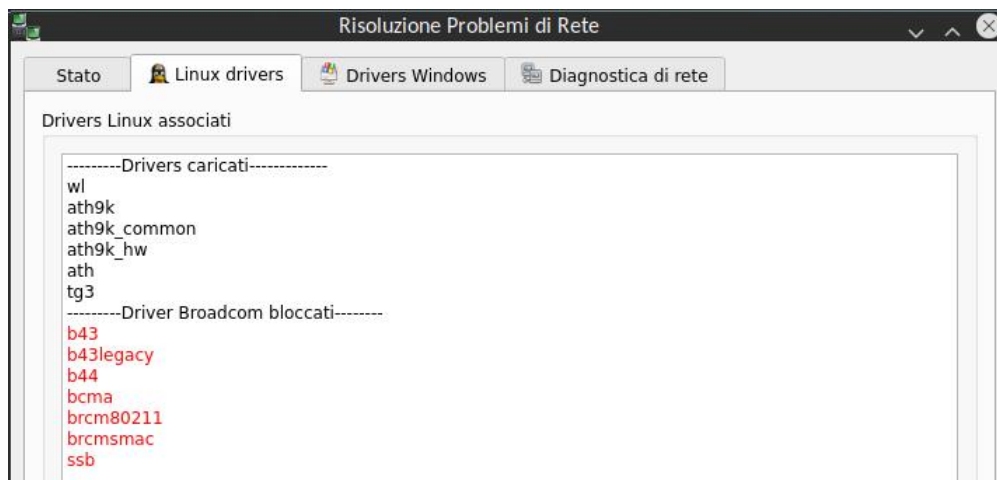


Figure: Network Assistant "Linux Driver" tab

ANALYSIS OF CONNECTION PROBLEMS

If trying an antiX Live stick, or after an installation, you are unable to connect via wireless, one of these 2 situations may arise.

- Network is detected but does not work

If the networks in the area are seen but you cannot connect, it means that:

- a) the wireless card is correctly managed by the module containing its suitable driver but you may have problems with the connection to the modem/router, firewall problems, problems with the provider, DNS problems, etc.
- b) the wireless card is handled abnormally, because the driver is not the most suitable for that card or because of conflict problems with another driver.

In this case, it's best to gather information about your wireless card to see if the drivers that manage it may have problems, and then try to test the network with a variety of diagnostic tools.

- Find the basic information by opening a terminal and entering one at a time:

```
inxi -Nxxxz
lsusb | grep -i net
lspci | grep -i net
```

Become root, still in the terminal you have open, and type:

```
iwconfig
```

The output of the first three commands will give you the name, model and version (if any) of your wireless card (example below), as well as the associated driver and MAC address of the wireless card; with the fourth command, we get the name and MAC of the access point (AP) you connected to and other connection information. Example output of the `inxi -Nxxxz` command:

```
Network
```

```
Card-2: Qualcomm Atheros AR9462 Wireless Network Adapter
driver: ath9k v: kernel port: 3040 bus ID: 03:00.0 chip ID:
168c:0034
```

- With this information we can find out the chipset id. and therefore the suitable driver. With chip ID: `168c:0034` the chip is precisely identified, `68c` (or better `0x168c`) identifies the manufacturer Atheros, while with: `0x168c 0x0034` we have the precise identification of the product. We can also see that the driver is `ath9k` and is present in the kernel.
The identification `0x168c 0x0034` allows us, through some specific sites to trace the manufacturer, see the availability of the driver, and possibly if there are problems.
- Use the information you have obtained in one of the following ways:
 - Do a web search using that information.
Here are some examples using the output of the commands seen above:
 - 1) linux Qualcomm Atheros AR9462
 - 2) 0x168c 0x0034 linux
 - 3) debian stable 0x168c 0x0034

- Check out the Linux Wireless, and Linux Wireless LAN Support sites linked below, to find out what driver your chipset needs, what conflicts might arise, and whether you need to install certain firmware separately. Post the information on the Forum and ask for help.
 - Try testing your router and your network. **Disable the firewall**, if any, until the computer and router are recognized. Reboot the router. Try connecting to a different router than the one you are having difficulty with, for example connect to a smartphone using its wifi hotspot function. A less empirical way is to use the **Diagnostic** Section of **Network Assistant** with which you can ping the IP address of your router that you can find in its user manual. Then you can do the ping to any site such as Google and do the operation of [traceroute](#). If you can ping a site using its IP (you can find some of them with a web search, e.g. ip of www.google.it is 64.233.167.99), but you can't reach it with its domain name, then the problem could be hiding in the DNS configuration. If you don't know how to use Network Assistant's diagnostic tab, read [the wiki](#). If you don't know how to interpret ping and traceroute results, do a web search or post the results in the forum. Network Assistant could also be used to replace a native Linux driver with its Windows counterpart thanks to Ndiswrapper, or to blacklist a driver that interferes with the one managing your card. About Ndiswrapper you can see more details below.
 - Sometimes using the **Ceni** terminal application (available in the repositories) can reveal hidden access points and other problematic elements.
NOTE: Using Ceni to configure the network interface, will interfere with and/or disable ConnMan's handling of that interface by default.
The same is true for ConnMan with respect to Ceni. Using one network manager to connect will interfere with the subsequent use of the other manager. To overcome this problem antiX provides the *Select WiFi Application* tool.
 - Post your information on the Forum to ask for help
- **No wireless interface is found.**
- Open a terminal and type the 4 commands seen in the previous point. Identify the card, chipset and driver you need by doing a web search and consulting the sites listed, following the procedure described in the previous point.
 - If you have an external WiFi device and no information about which network card it has, disconnect the device, wait a few seconds and then reconnect it. Open a terminal and type:
`dmesg | tail`
Examine the output for device information (such as MAC address) that can be used to troubleshoot the problem on the web or forum.
 - Probably the most common example where this kind of situation arises is with **Broadcom wireless chipsets** ; see [MX/antiX Wiki](#).
 - If the driver for our card is not present in the installed **kernel**, we can try to install another one. The easiest way to do this is to use **Install Programs** in the Control Center. (See instructions in the chapter "Under the hood" paragraph "The kernel").

Firmware

For some boards you need to install the relative firmware (for example, **firmware-ti-connectivity** for Texas Instruments WL1251). antiX has a good number of firmwares, already installed or present in the repos, but you may need to find some not present for a particular need. In this case, you can always look for it thanks to the LinuxWireless site (see link below) or search or ask for help in the forum

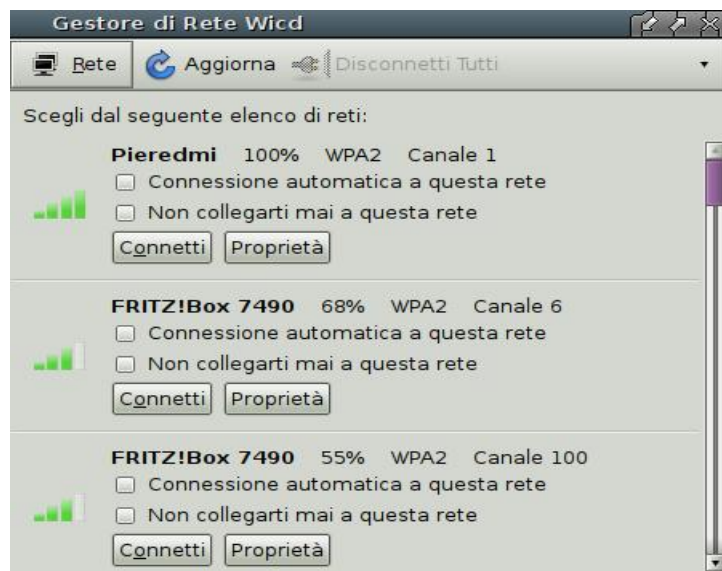
Ndiswrapper

[Ndiswrapper](#) is an open-source software that works as a driver wrapper allowing the use of Windows drivers for wireless network devices in Linux. It is not pre-installed in antiX, but is present in the repositories.

NOTE : *the Windows driver you want to use must match the architecture of the operating system (for example, for 32-bit antiX edition you will need a 32-bit Windows driver). Generally, Windows XP drivers are used.*

The easiest way to handle Ndiswrapper is to use Network **Troubleshooter** (Network Assistant). See the information in the [MX/antiX Wiki](#).

9. 12.5.2 Replace ConnMan with Wicd



It may happen that the wireless card is detected correctly but, despite all attempts, you have problems using ConnMan. One solution is to remove ConnMan and use Ceni for connections. However, Ceni may not satisfy some users because it is too spartan and not practical enough in certain situations. Then it may be an idea to replace ConnMan with Wicd.

Wicd, unlike ConnMan, is no longer actively developed, however it still works very effectively.

The steps to be taken for replacement are:

- Make sure you can connect to the network via ethernet, (or with Ceni) and **install Wicd** through Install Programs (Control Center → Software → Install Programs).

The installed packages (in antiX19 - Debian Buster) are: wicd, wicd-curses, wicd-daemon, wicd-gtk
For the moment wait to start Wicd, it won't work.

- If you have not already done so, open **Select WiFi Application** (Control Center → Networks → Select WiFi Application) and select Ceni

- **Remove ConnMan.** Open a terminal and type:

```
sudo apt-get remove --purge connman cmst connman-bluetooth-firmware-antix  
connman-vpn
```

- Open Control Center → Session tab → **Startup** tab/file. Here put a comment # in front of the line: `network-check-antix &` and remove the comment from the line: `wicd-client -t &`
- Reboot. When you reopen Wicd in the top bar there is a triangle / arrow on the right, from there drops a menu and you can go to *Preferences* and then *Settings*. Be sure to **set** the same **wireless interface** that is reported to you by opening the terminal and giving the command: `inxi -n`

10.12.5.3 DNS Services

You may have connection problems, related to the DNS services of the providers that supply the internet/telephone line. These are generally slowdowns in navigation due to slow services in translating your requests, or there may be difficulties in reaching the server, or there may be a block on access to certain sites, peer to peer filters, etc..

You may need to change them.

DNS stands for Domain Name System. The system is, in a sense, a "web address book" that organises and identifies domains. The DNS translates a web address such as "https://www.un.org/" into the physical IP address, such as "20.73.224.178", of the server hosting that site.

By typing a URL, the browser calls the DNS service set in the TCP-IP Protocol to translate it into an IP that is used to reach the target computer.

Here are some **DNS** provided by **alternative** services to your provider's.

OpenDns	Google	Cloudflare
IPV4		
208.67.222.222	8.8.8.8	1.1.1.1
208.67.222.220	8.8.4.4	1.0.0.1
IPV6		
2620:119:35::35	2001:4860:4860::8888	2606:4700:4700::1111
2620:119:53::53	2001:4860:4860::8844	2606:4700:4700::1001

There are many more just do a web search.

The DNS change can be:

Individual: You will change the settings for an individual user.

You can act at the level of the connection manager configurations, or at the level of files, present on your system, for the configuration of the connection interfaces.

Total or System: The change will affect all users using the computer or using a particular router.

You can either just act on your operating system's configuration files at the system file level so that the changes apply to all users on that system, or at the router level, where the changes will apply to all computers and devices accessing the network routed by that router.

Modify DNS **graphically through ConnMan - individual** modification

The easiest way to set up DNS in Connman is:

1. Open Connman and go to the second tab from the left: "Details". Select at the top, in the "Service" field, the network you are connecting to. It will show your connection parameters.
3. Press the button in the lower right corner "Configuration".
4. Choose the "Name Server" tab.

In the input field, type your *name servers* (separated by a space) for example:

8.8.8.8, 8.8.4.4

then click OK before exiting.

Note. On the "IPv6" tab under "Details", you can choose "Off" in the "Method" field.

This can be useful in some cases where the system decides to use the provider's DNS for IPv6 (even if others are set on IPv4), inhibiting access to certain resources.

Graphically through Wicd - individual editing

1. Locate the network you are connecting to and press the "properties" button.
- 2 In the configuration window that opens, check the box "Use Static DNS" and in the field "DNS Server 1" enter the first "name server", e.g.

8.8.8.8

in "DNS Server 2" enter for example 8.8.4.4

then click OK before exiting.

Manually - individual modification

You must act on the file `/etc/dhcp/dhclient.conf` with super-user privileges provided by *sudo*

Open the terminal and type:

```
sudo geany /etc/dhcp/dhclient.conf
```

Search for the line

```
#prepend domain-name-servers x.x.x (e.g. 127.0.0.1)
```

Replace it with

```
prepend domain-name-servers <primary DNS IP>, <secondary DNS IP>;
```

for example: `prepend domain-name-servers 8.8.8, 8.8.4.4;`

Note. There must **not** be a **# symbol** at the beginning of the line

Save and restart your PC.

After rebooting, the DNS should be set correctly and the connection managers should not overwrite them.

Manually for all system users

There is an option to put your DNS servers in */etc/resolv.conf*. Your changes in this file, which is a symbolic link, will normally be overwritten.

So you will first have to delete the */etc/resolv.conf* symbolic link, then create your own */etc/resolv.conf*, finally make it read-only and with the last command make it immutable and not overwritable.

Warning. It is a solution that is more resistant to overwriting than the previous methods, however it is a non-canonical solution, not recommended, to be implemented only if necessary, if the normal management of the network does not allow another satisfactory way and if you know what you are doing.

Open the terminal and type:

```
sudo rm /etc/resolv.conf
sudo nano /etc/resolv.conf
```

Now you have to write your *nameservers* inside the file created with nano. For example:

```
nameserver 8.8.8
nameservers 8.8.4.4
```

then save with the Control key accompanied by the or key (Ctrl+o) then press the [Enter] key, finally exit with Ctrl+x. After that, still in the terminal, type:

```
sudo chmod 444 /etc/resolv.conf
sudo chattr +i /etc/resolv.conf
```

Notes:

0. The Nano text editor was used, because it is a command line editor that allows you to create a file, write inside, and then continue the sequence of commands, without opening and closing the terminal. It's a text editor pre-installed in antiX, which you can invoke through the terminal. If you prefer, you can use some other editor, e.g. Geany.

1. This procedure can completely cut off your internet access if you do it wrong.
2. Before deleting the symbolic/etc/resolv.conf link make sure you know how to restore it to its original state if you change your mind.

3. To restore */etc/resolv.conf* to its original state, delete the file:

```
sudo rm /etc/resolv.conf
```

so recreate it:

```
sudo ln -s /etc/resolvconf/run/resolv.conf /etc/resolv.conf
```

The recreated file will no longer be "read-only" so it will not be immutable.

4. Some providers do not allow you to use DNS servers other than their own, this may prevent your connection from reaching the web.

5. If you are not sure, read Note 1

Globally through the Router

You can make the DNS change, which applies to anyone using the router, using a browser.

You'll need it:

- IP address of the router ([here is](#) the list if you have forgotten it)
- The login and password to access the router.

Typically the default credentials on routers are *admin/admin* or *admin/password*, if you haven't reset them, or look in the user manual .

You will need to find, and then change, the DNS services at the router's configuration panel/window level, following the directions for your particular router ([here is](#) a list of several guides).

Tip. Before each change, take a screenshot of the configuration window for possible restoration.

Note. On the configuration panels of many routers supplied directly by the Internet/telephone line providers, it is not possible to change the default DNS servers.

IPv6

Sometimes web access problems can occur caused, indirectly, by the IPv6 protocol.

The new version of the Internet Protocol (IP), IP vers.6, solves the problem of the amount of available IP addresses, which in version 4, IPv4, had become insufficient for current and future needs. In addition, IPv6 introduces more security features, but the new version of the Internet Protocol (IP) is not without its problems. It is not yet widespread and some providers (ISP) do not support it, but the most frequent problems are with providers of virtual private networks (VPN), since many of them are not able to manage IPv6 traffic. This lack of management risks creating security problems so some VPN providers tell their users to disable IPv6 traffic.

You can disable it (only IPv4 will work), either graphically through the connection manager, as has been said about ConnMan, or manually by opening, with a text editor as root, the file `/etc/sysctl.conf` commenting these lines (inserting the **symbol # in front of** the lines.):

```
net.ipv6.conf.all.disable_ipv6 = 1
net.ipv6.conf.default.disable_ipv6 = 1
net.ipv6.conf.lo.disable_ipv6 = 1
```

If the problem is not resolved, it is quick to restore the previous configuration.

Static DNS

Sometimes it is desirable to change the configuration of the Internet from the automatic [DNS](#) (Dynamic Name Service) provided by default to a configuration with manual static DNS. Reasons for doing this may include increased stability, better speed, parental controls, etc. You can make this change on the entire system or on individual devices. In either case, before you begin you will need to find out the parameters of the static DNS you intend to use, for example those of OpenDNS, Google Public DNS, etc.,.

Also in this case the changes can be made, in a similar way to what we have seen for the change of DNS, at the level of graphical configuration of the connection managers, at the manual level, or at the level of the router.

Verification of DNS name-server changes

Internet service providers (ISPs) do not like their DNS being bypassed, so they try to prevent the practice of name-server switching by measures that restore the original nameservers.

So it is not a given that your intervention to replace them will be successful.

You can verify that you have indeed succeeded in replacing the DNS servers, if you see that the ones you chose are present in the `/etc/resolv.conf` file.

This file is a link, if the name-servers were written directly here they would be overwritten, so the methods described above must be used.

To get more detailed information you can download the package `dnsutils` (to the terminal as root: `apt install dnsutils`), then to the terminal you give the command `nslookup` accompanied by the address of a site. The output will be the ip address of that site, but in the initial part, at the level of the *server* entry we will have the indication of the name-server:

```
$ nslookup google.com
Server: 8.8.8
Address: 8.8.8#53
Non authoritative answer: google.com address: 172.217.22.174
```

Some sites allow a test to check your connection mode, e.g. :

<https://www.dnsleaktest.com/>
<http://www.test-ipv6.com/>

link

<https://www.antixforum.com/forums/topic/set-default-dns-for-all-users-ethernet-wifi-connections/>
<https://www.aranzulla.it/come-impostare-dns-19767.html>

11.12.5.4 Firewall

A firewall is a hardware or software component that prevents unwanted, potentially harmful external access to your computer via your Internet connection.

There are two basic types of firewalls: hardware-based and software-based. It is recommended that you implement both. This will establish the hardware firewall as the first line of defense against unauthorized intrusion into the system, while the software firewall acts as a backup in case the hardware firewall is compromised.

The software firewall provided by default by antiX is **GUFW**. Gufw, is a GUI, a graphical user interface, of **UFW**.

Go to Control Center → Network → Firewall Configuration.
GUFW is installed, but not enabled.

As long as you are connected to the internet, you can check the effectiveness of your firewall configuration by visiting one of the many online firewall testing websites.

One of the most widely used is ShieldsUP! Which you can find at www.grc.com.

To start the test, click on the Services menu on the home page of www.grc.com and select ShieldsUP! ShieldsUP! will explore each port on your computer to see if there is a response. If you are not running any web services (such as a web server), all of your ports should be closed (that is, none of your ports should respond to a ShieldsUP! connection request). In website jargon, if all your ports are closed, you'll get a full invisibility rating.

Note: If your system has a hardware firewall, you will not be able to test the effectiveness of your software firewall with an online testing website like ShieldsUP! Such sites only test the first firewall encountered, which will be the hardware firewall.

Link

<https://mxlinux.org/wiki/networking/firewalls/>
<https://www.cloud.it/tutorial/come-installare-e-configurare-ufw-firewall-su-ubuntu-18-04.aspx>
<https://wiki.ubuntu-it.org/Sicurezza/Ufw>
<https://campagnano-rap.blogspot.com/2016/02/gufw-graphic-uncomplicated-firewall.html>

12.12.5.5 Command Line Utilities

Command line utilities are useful for finding detailed information, and are commonly used in troubleshooting. Detailed documentation is available on the man pages. The most common ones are listed below. **They must be run as root.**

Table 4: Wireless utilities

Command	Comment
ifconfig	Main configuration utility for network interfaces.

ifup <interface>	Opens the specified interface. For example: ifup eth0 , activates the Ethernet interface eth0.
ifdown <interface>	The opposite of ifup, i.e. disable the specified interface.
iwconfig	Wireless connection utility. Used alone, it displays the wireless status. Can be applied to a specific interface, e.g. to select a particular access point.
rftkill	Disable wireless network interfaces (e.g., WLAN) by acting at both the software and hardware level.
depmod -a	Probe all modules and, if they have changed, enable a new configuration.

13.

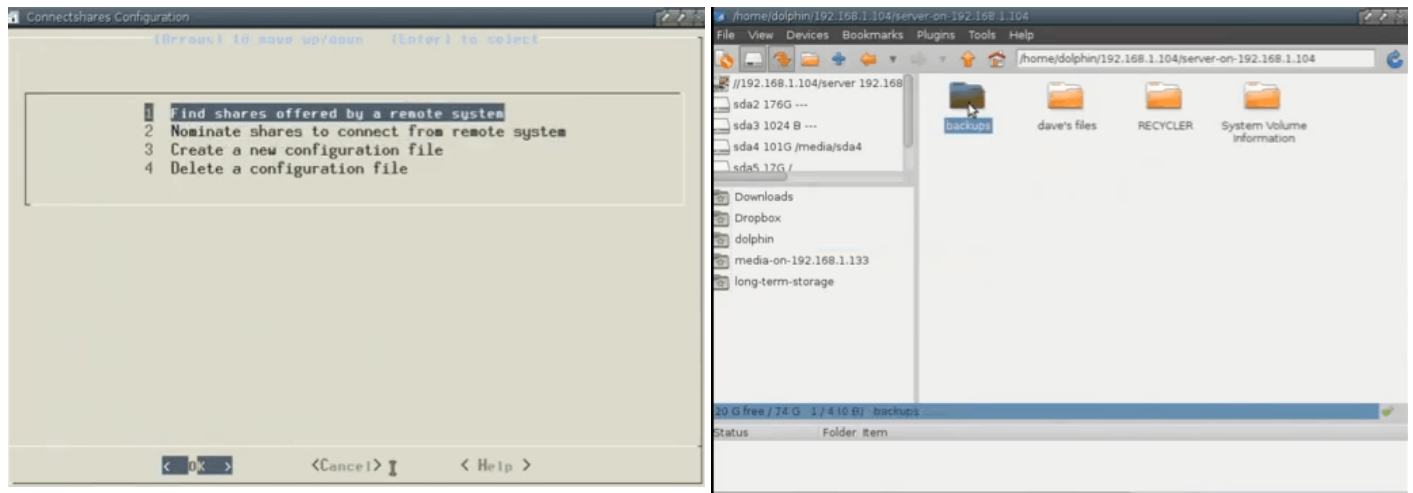
14.12.6 Sharing

By default, to share resources on the network antiX provides the Connect-Share and Droopy tools which are located in the Control Center → Sharing tab.

15.12.6.1 ConnectShare

It is a simple way to connect the antiX operating system on your computer to directories shared by a remote system on a local area network (LAN).

- It allows you to connect to and reach resources (directories, printers, etc.) offered for sharing by Windows and Linux systems (via Samba or NFS).
- Connections to multiple remote shared resources can be established simultaneously in a group action.
- Connections to shares can be made automatically to start each time you log in. Alternatively, connections can be made on demand via the normal start menu (or if you prefer via a desktop shortcut icon) or the antiX Control Center.
- All configuration and information about detected shared resources is done via a pseudo GUI (graphical user interface). It works both in CLI version (without the graphical X server) and in GUI environments.



See the dedicated chapter in this guide.

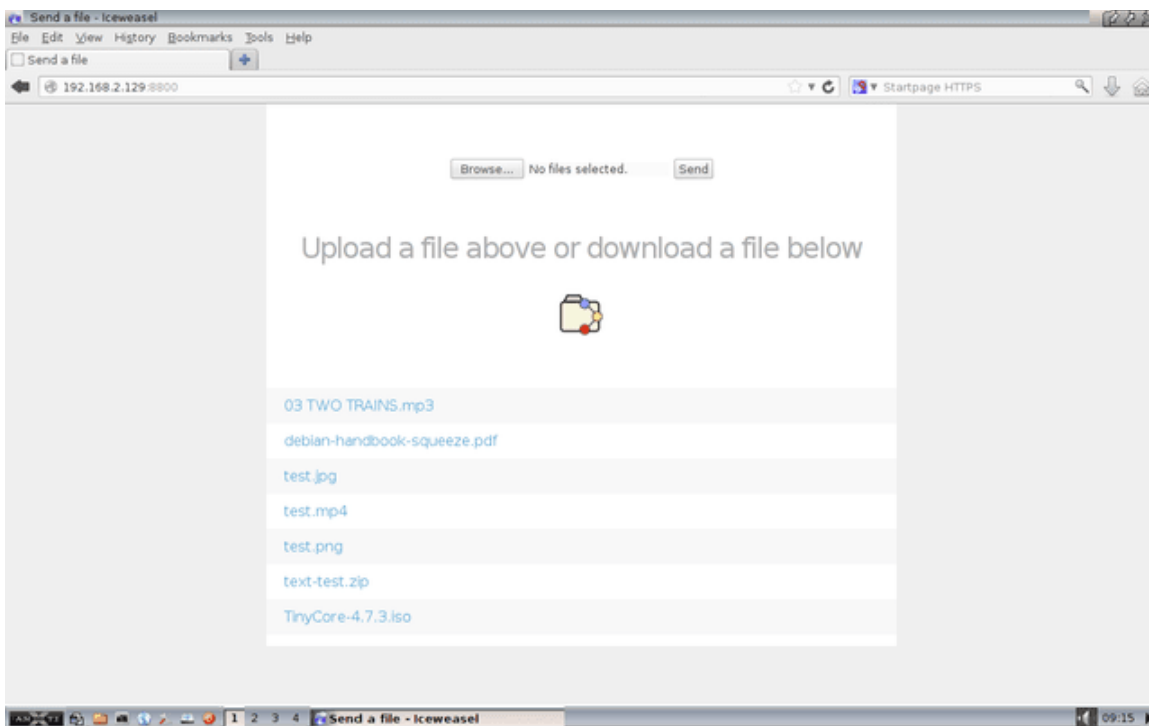
16.12.6.2 Droopy

It is an easy way to create a folder in your local antiX system available to other systems using a network connection.

The remote system can upload and/or download files to, and from, the folder. Files can be transferred to and from a PC, laptop, smartphone etc.

If connected to the internet you can access the folder via a browser.

The remote system can be Linux, Mac, Windows, etc.



Iceweasel shows the page served by Droopy

See the dedicated chapter in this guide.

17.12.6.3 Other resources

Lightweight but very powerful resources built specifically for distribution. Available in the repositories.

- 1-to-1-voice-antix Voice Chat between two PCs, with conversation encryption
- **1-to-1-assistance-antix** help application with remote computer access
- **ssh-conduit** access to resources remotely via an encrypted ssh connection

There is a dedicated chapter in this guide for each of these software.

18.12.7 Links

Version ITA 01 of 16/09/21 on:

antiX 19 Faq Chapter Internet ENG Version: 0.2.0 Last updated 2019-11-07 for the paragraph on Ceni, with several changes, and on:

MX 19 User Manual - Chap. 3 Configuration paragraph Network -,duly modified.

<https://mxlinux.org/manuals/>