

Black Lab Enterprise Linux uses NetworkManager to manage wired, wireless, mobile broadband, VPN and DSL connections. NetworkManager also keeps passwords secure by utilizing the user's keyring to store passphrases.

NetworkManager is one of the little icons in the panel on the bottom right of your screen. When not connected, the icon shows a head with a red X. When you are connected, the icon is different depending on the network type in use.

## **Network connections**

### *Connecting and disconnecting*

NetworkManager will automatically use a wired network, if one is available.

To see all available connections, click the NetworkManager icon. To connect to a network, click the network name.

#### **[Note]**

If you are connecting to a wireless network for the first time, security details may be needed, a dialog box will open when required. In most cases, the security type will be detected automatically. If not, select the security type from the Wi-Fi Security drop-down box, enter the authentication details and press Connect.

To disconnect from a network, click the NetworkManager icon, and select Disconnect under the appropriate connection type. To disable (and re-enable) wired and/or wireless connections all together, click the NetworkManager icon, select Enable Networking and Enable Wi-Fi. These choices are toggles. Their enabled/disabled status is indicated by the presence/absence of a check mark.

### *Configuring connections*

If you need to configure your connections, click the NetworkManager icon and select Edit. In the dialog, you will see expandable rows for each connection type. Select the appropriate network and press Edit or press Add to set up new networks.

#### **[Note]**

To be able to connect to certain networks you might need connection details which you will get from your network administrator or your Internet Service Provider.

## *Connection information*

To see the connection information, click the NetworkManager icon and select Connection Information. Your active network connections will be displayed in the Active Connections dialog, each in a separate tab.

## *Sharing your connection to another computer*

You can share your connection to another computer using an Ethernet cable. This can be carried out by clicking the NetworkManager icon, selecting Edit, and then adding a new wireless connection (or editing the existing one). In the connection properties window, select IPv4 Settings, and change Method to Shared to other computers from the drop-down list.

## *Dialup modems*

Unfortunately, dialup modems are not supported by NetworkManager. To connect via modem use the GNOME PPP utility located in Internet section of the Start menu

## **Network troubleshooting**

Before attempting any troubleshooting, ensure that the network connections are enabled:

Click the NetworkManager icon in the notification area

Check Enable Networking

Check Enable Wi-Fi

If your network connection still doesn't work:

For wired (Ethernet) connections, please see General troubleshooting

For wireless connections, please see both General troubleshooting and Wireless troubleshooting

If your network connection problems are still not resolved, see Advanced troubleshooting

## **General troubleshooting**

If your network connection is not working properly, there are a few tools that can be used to help diagnose the problem.

## **Get information about the current connection**

To get information about your network connection and network devices, you have two options:

Using NetworkManager

Click on the NetworkManager icon

Select Connection Information. If this is disabled, it is likely there is no active connection. Try using `ifconfig` to find out more.

Each active connection will have its own tab where you can find relevant connection information

Using `ifconfig`

Open a terminal ( → Accessories → Terminal Emulator), type the command `ifconfig` then press the Enter key.

`ifconfig` will show you extensive information about your connection, including logical or connection name(s) (e.g. `enp3s0`) in the left column, IP address in the `inet addr` column and the MAC address for your device in the `HWaddr` column

## **Check if a connection is working properly**

A reliable method to check if a connection is working properly is to ping another computer on the network or the Internet.

To check if your computer is connected to the Internet, open a terminal ( → Accessories → Terminal Emulator), type the command `ping -c 3 www.Black Lab Enterprise Linuxlinux.com` then press the Enter key.

The computer will then attempt to contact `www.Black Lab Enterprise Linuxlinux.com` three times and display the results. The ping statistics display the number of packets transmitted, how many packets were received, the percentage of packet loss, and the total time spent.

0% packet loss indicates that your computer is connected to the Internet

Greater than 0% but less than 100% packet loss indicates that your computer has a poor connection to the Internet or a poor wireless signal

100% packet loss indicates that your computer has a very bad

connection, or is connected to an access point or router that is not connected to the Internet

If you get an error message that says "www.Black Lab Enterprise Linuxlinux.com can not be found" or "unknown host", then your computer is probably not connected to the Internet or is unable to reach a Domain Name System (DNS) server.

## **Wireless troubleshooting**

This section covers some common problems faced with wireless support. There is much more information available in the Community Help Wiki.

[Note]

Please note that the steps in this troubleshooting guide are designed to be carried out in the order shown, unless you are pointed to a different subsection.

### **Check that the device is turned on**

Many wireless network devices can be turned on or off. Check for a hardware switch or a keyboard function key to turn the wireless device on.

If the device is turned on, continue to the next topic.

Check if the device is recognized

Open a terminal ( → Accessories → Terminal Emulator), type the command `sudo lshw -C network`, then press the Enter key. You will see some output, along with the words CLAIMED, UNCLAIMED, ENABLED or DISABLED.

CLAIMED indicates that a driver is loaded but not functioning. Continue to Using Windows wireless drivers.

UNCLAIMED indicates that there is no driver loaded. Continue to Using Windows wireless drivers.

ENABLED indicates that the driver is installed and working. Continue to section Checking for a connection to the router.

DISABLED indicates the driver is installed, but disabled. Continue to Check that the device is turned on.

### **Using Windows wireless drivers**

Black Lab Enterprise Linux supports a system known as NDISWrapper. This allows you to use a Windows wireless device driver under Black Lab Enterprise Linux. To start using NDISWrapper:

Obtain the Windows driver for your network device and locate the file that ends with `.inf`

Install the `ndisgtk` package

Go to → Settings Manager → Windows Wireless Drivers

Select Install new driver

Choose the location of your Windows `.inf` file and click Install

Click OK

Checking for a connection to the router

Open a terminal ( → Accessories → Terminal Emulator), type the command `iwconfig` then press the Enter key.

If the ESSID for your router is displayed, there may be a problem with ACPI support. Boot Black Lab Enterprise Linux with the `pci=noacpi` option.

### **Advanced troubleshooting**

The following troubleshooting methods are a bit more technical. Please try these methods only if the above methods failed.

#### *Checking IP assignment*

Open a terminal ( → Accessories → Terminal Emulator), type the command `ifconfig` then press the Enter key. If there is an IP address displayed, continue to Check Domain Name Servers (DNS).

From the terminal enter the following command, replacing `enp3s0` with the name of the connection shown in the output from the `ifconfig` command: `sudo dhclient enp3s0`

If you receive a message that says bound to `xxx.xxx.xxx.xxx` continue to Check Domain Name Servers (DNS)

If not, reboot the system

#### *Check Domain Name Servers (DNS)*

Open a terminal ( → Accessories → Terminal Emulator), type the command `nmcli device show` then press the Enter key. Look for the entries under `IP4.DNS`

To check if the listed DNS works, open a terminal ( → Accessories → Terminal Emulator), type the command `dig Black Lab Enterprise Linux.org` then press the Enter key. If you see the word `NOERROR` in the header section of the output, your DNS is working.

If there are no DNS settings listed, contact your Internet Service Provider (ISP), and find out your primary and secondary domain name servers. Once you have this information, continue to Connecting and disconnecting and Configuring connections if needed.

## **Connecting to servers**

To connect to various types of servers, you can use → System → Gigolo. To connect to a server, follow the steps below:

Go to Actions → Connect

Select the appropriate Service type and insert connection information

Click Connect; if you are attempting to connect to a server that requires you to log in, you will be prompted to enter a password

Upon successfully connecting to the server, an icon labeled with connection details will appear in the Gigolo window. To bookmark connections, right-click on a connection and select Create Bookmark. In the Edit Bookmarks dialog, you can name the bookmark and set other options, including the option to auto-connect. Once you are done, click OK to create the bookmark.

### **[Tip]**

The Windows Share username should be in the format `DOMAIN\username`

### **[Note]**

In order to connect to Samba networks (Windows shares) using the Thunar File Manager, you will need to have the package `gvfs-backends` installed.