Chapter 5

gnome tweak tool

A lot of personalized configuration settings do not appear on the settings menus. Instead, you have to launch a tool called either **gnome-tweak-tool** or **gnome-tweaks** depending on your Linux distribution. We have not really discussed working at the command line yet, but you can always launch a program such as this by doing **Alt-F2** and typing in the command. There are distributions which have a link to the tweaks menus in the settings.

Important things you can do with this tool include selecting a **theme**, configuring **extensions** which you can get from your distribution or download from the Internet, control fonts, and set which programs start when you login.

Display settings

Clicking on **Settings->Devices->Displays** will expose the most common settings for changing the desktop appearance. These settings function independently of the specific display drivers you are running. The exact appearance will depend on how many monitors you have and other factors, such as Linux distribution and particular version

If your system uses a proprietary video card driver (usually from **nVidia** or **AMD**), you will probably have a separate configuration program for that driver. This program may give more configuration options, but may also be more complicated, and might require sysadmin (root) access. If possible, you should configure the settings in the **Displays** panel rather than with the proprietary program.

The X server, which actually provides the GUI, uses **/etc/X11/xorg.conf** as its configuration file *if it exists*; In modern Linux distributions, this file is usually present only in unusual circumstances, such as when certain less

common graphic drivers are in use. Changing this configuration file directly is usually for more advanced users.

Setting Resolution and Configuring Multiple Screens

You can accomplish this using the *Displays* panel. The switch to the new resolution will be effective when you click *Apply*, and then confirm that the resolution is working. In case the selected resolution fails to work or you are just not happy with the appearance, the system will switch back to the original resolution after a short timeout. Once again, the exact appearance of the configuration screen will vary a lot between distributions and versions, but usually is rather intuitive and easy, once you find the configuration menus.

In most cases, the configuration for multiple displays is set up automatically as one big screen spanning all monitors, using a reasonable guess for screen layout. If the screen layout is not as desired, a check box can turn on mirrored mode, where the same display is seen on all monitors. Clicking on a particular monitor image lets you configure the resolution of each one, and whether they make one big screen, or mirror the same video, etc.

Date and Time Settings

By default, Linux always uses Coordinated Universal Time (UTC) for its own internal timekeeping. Displayed or stored time values rely on the system time zone setting to get the proper time. UTC is similar to, but more accurate than, Greenwich Mean Time (GMT).

If you click on the time displayed on the top panel, you can adjust the format with which the date and time is shown; on some distributions, you can also alter the values.

The more detailed date and time settings can from the **System Settings->Details->Date & Time** window.

Network Time Protocol

The **N**etwork **T**ime **P**rotocol (**NTP**) is the most popular and reliable protocol for setting the local time by consulting established Internet servers. Linux distributions always come with a working NTP setup, which refers to specific time servers run or relied on by the distribution. This means that no

setup, beyond "on" or "off", is required for network time synchronization. If desired, more detailed configuration is possible by editing the standard NTP configuration file (**/etc/ntp.conf**) for Linux NTP utilities.

To find the current screen resolution of desktop:

$ xdpyinfo | grep dim

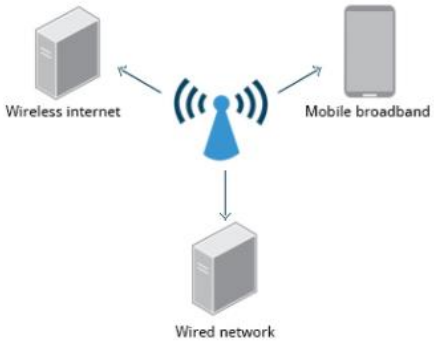
OR

Click either the username or gear or tool icon in the top right corner, depending on your distribution, and select **System Settings**.

Click **Devices -> Displays**. The resolution drop down should be evident and inutitive to use.

Network Configuration

All Linux distributions have network configuration files, but file formats and locations can differ from one distribution to another. Hand editing of these files can handle quite complicated setups, but is not very dynamic or easy to learn and use. **Network Manager** was developed to make things easier and more uniform across distributions. It can list all available networks (both wired and wireless), allow the choice of a wired, wireless, or mobile broadband network, handle passwords, and set up Virtual Private Networks (VPNs). Except for unusual situations, it is generally best to let Network Manager establish your connections and keep track of your settings.



Wired and Wireless Connections

Wired connections usually do not require complicated or manual configuration. The hardware interface and signal presence are automatically detected, and then Network Manager sets the actual network settings via **D**ynamic **H**ost **C**onfiguration **P**rotocol (DHCP).

For **static** configurations that do not use DHCP, manual setup can also be done easily through Network Manager. You can also change the Ethernet **M**edia **A**ccess **C**ontrol (MAC) address if your hardware supports it. The MAC address is a unique hexadecimal number of your network card.

Wireless networks are usually not connected by default. You can view the list of available wireless networks and see which one (if any) you are currently connected to by using Network Manager. You can then add, edit, or remove known wireless networks, and also specify which ones you want connected by default when present.

Configuring Wireless Connections

To configure a wireless network in any recent GNOME-based distribution:

Click on the upper right corner of the top panel, which brings up a settings and/or network window. While the exact appearance will depend on Linux distribution and version, it will always be possible to click on a **Wi-Fi** submenu, as long as the hardware is present.

Select the wireless network you wish to connect to. If it is a secure network, the first time it will request that you enter the appropriate password. By default, the password will be saved for subsequent connections.

Mobile Broadband and connections

You can set up a mobile broadband connection with Network Manager, which will launch a wizard to set up the connection details for each connection.

Once the configuration is done, the network is configured automatically each time the broadband network is attached.

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Network Manager can also manage your VPN connections.

It supports many VPN technologies, such as native IPSec, Cisco OpenConnect (via either the Cisco client or a native open source client), Microsoft PPTP, and OpenVPN.

You might get support for VPN as a separate package from your distributor. You need to install this package if your preferred VPN is not supported.

Installing and updating software

Each package in a Linux distribution provides one piece of the system, such as the Linux kernel, the **C** compiler, the shared software code for interacting with USB devices, or the Firefox web browser.

Packages often depend on each other. For example, because Firefox can communicate using SSL/TLS, it will depend on a package which provides the ability to encrypt and decrypt SSL and TLS communication, and will not install unless that package is also installed at the same time.

All systems have a lower-level utility which handles the details of unpacking a package and putting the pieces in the right places. Most of the time, you will be working with a higher-level utility which knows how to download packages from the Internet and can manage dependencies and groups for you.

Debian packaging

dpkg is the underlying package manager for these systems. It can install, remove, and build packages. Unlike higher-level package management systems, it does not automatically download and install packages and satisfy their dependencies.

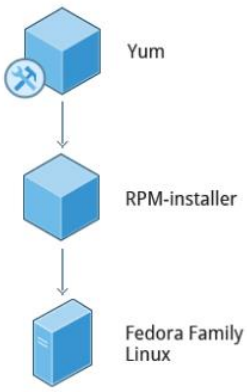
For Debian-based systems, the higher-level package management system is the **A**dvanced **P**ackage **T**ool (APT) system of utilities. Generally, while each distribution within the Debian family uses APT, it creates its own user interface on top of it (for example, apt, apt-get, aptitude, synaptic, Ubuntu Software Center, Update Manager, etc). Although apt repositories are

generally compatible with each other, the software they contain generally is not. Therefore, most repositories target a particular distribution (like Ubuntu), and often software distributors ship with multiple repositories to support multiple distributions.

Red Hat Package Manager

Red Hat Package Manager (RPM) is the other package management system popular on Linux distributions. It was developed by Red Hat, and adopted by a number of other distributions, including SUSE/penSUSE, Mageia, CentOS, Oracle Linux, and others.

The higher-level package manager differs between distributions: Red Hat family distributions historically used the repository format used by yum , however, RHEL/CentOS 8 and Fedora have moved over to using dnf, which is mostly backwards compatible with yum. SUSE family distributions also use RPM, but use the zypper interface. The GNOME project also uses PackageKit as a unified interface.



openSUSE's YaST Software Management

The **Y**et **a**nother **S**etup **T**ool (YaST) software manager is similar to other graphical package managers. It is an RPM-based application. You can add, remove, or update packages using this application very easily. To access the YaST software manager:

1. Click **Activities**
2. In the **Search** box, type **YaST**
3. Click the **YaST** icon

4. Click **Software Management**

openSUSE's YaST software management application is similar to the graphical package managers in other distributions.

Summary

- You can control basic configuration options and desktop settings through the *System Settings* panel.
- Linux always uses Coordinated Universal Time (UTC) for its own internal time-keeping. You can set the date and time settings from the *System Settings* window.
- The Network Time Protocol is the most popular and reliable protocol for setting the local time via Internet servers.
- The *Displays* panel allows you to change the resolution of your display and configure multiple screens.
- Network Manager can present available wireless networks, allow the choice of a wireless or mobile broadband network, handle passwords, and set up VPNs.
- **dpkg** and **RPM** are the most popular package management systems used on Linux distributions.
- Debian distributions use **dpkg** and **apt**-based utilities for package management.
- RPM was developed by Red Hat, and adopted by a number of other distributions, including the openSUSE, Mandriva, CentOS, Oracle Linux, and others.