2 Installation

2.1 Introduction

An MX Linux LiveMedium (USB or DVD) boots your computer without accessing the hard disk. It copies a virtual file system into RAM that acts as the center of a temporary operating system for the computer. When you end your Live session, everything about your computer is back to the way it was, unchanged (contrast Section 6.6.1).
This provides a number of benefits:

- It enables you to run MX Linux on your computer without installing it.
- It allows you to determine whether MX Linux is compatible with your hardware.
- It helps you to get a feel for how MX Linux works and to explore some of its features.
- You can decide whether MX Linux is what you want without permanently affecting your current system.

Running from the LiveMedium also has some disadvantages if using a Live DVD:

- Because the entire system is operating from a combination of RAM and the medium, MX Linux will require more RAM and run more slowly than if it were installed on the hard drive.
- Some unusual hardware that requires specialized drivers or custom configuration may not work in a LiveMedium session where permanent files can't be installed. Installing and removing software is also not possible because the DVD is a read-only medium.

2.1.1 PAE or non-PAE?

MX Linux is available for two architectures: 32bit (PAE and non-PAE) and 64bit (PAE only) PAE stands for Physical Address Extension, a way of allowing 32 bit operating systems to access ram beyond around 4GB. It is possible to use a non-PAE version on a PAE system, but not vice versa. MX Linux non-PAE is exactly the same as MX Linux PAE except it uses the 486 kernel instead of the 686 one.
If unsure whether you need the PAE or non-PAE version, use the method below suitable for the OS you currently run.

- Linux. Open a terminal and enter this command (install **inxi** first if necessary): *inxi -f*. If the CPU Flags entry does not include PAE in the list, then you'll need the non-PAE version.
- Mac. Intel versions of OS X support PAE.
- Windows®
    - Windows2000 and earlier: non-PAE
    - Windows XP and Vista. Right click My Computer > Properties, General tab. If it says Physical Address Extension (=PAE) at the bottom, then PAE is the correct version to install.

- Windows 7. Open the Command Prompt window by clicking the Start button > All Programs > Accessories > Command Prompt. A terminal window will appear. Enter this code at the command prompt where the cursor is positioned:
  wmic os get PAEEnabled
  If PAE is enabled, you will get a return like this: *PAEEnabled.* That return may or may not be followed by the word TRUE.
- Windows 8 and later. PAE enabled by default.

2.1.2 32 or 64 bit?

What is the architecture of your cpu?

Follow the appropriate method below to find out whether your machine is 32- or 64-bit.*

- **Linux**. Open a terminal and enter the command ***lscpu***, then examine the first few lines for architecture, number of cores, etc.
- **Windows**. Consult this Microsoft document.
- **Apple**. Consult this Apple document.

*If you want to know the architecture of the OS instead, the command ***uname -m*** will probably work on all platforms.

How much memory (RAM) do you have?

- Linux. Open a terminal and enter the command ***free -h*** and look at the number in the Total column.
- Windows. Open the System window using whatever method is recommended for your version, and look for the entry “Installed memory (RAM).”
- Apple. Click the entry "About this Mac" in the Apple menu on Mac OS X and look for the RAM information.

MX Linux 64-bit users often report 2GB of RAM to be sufficient for general use, although at least 4GB RAM is recommended if you will be running processes (such as remastering) or applications (such as an audio or video editor) that are memory-intensive.

Which one should you choose?

- **Function**. In general, if you have a 64-bit cpu and the required RAM for your particular machine and processor, you should use the 64-bit version. This is because 64-bit is generally faster, though you may not actually notice the difference in daily use. In the long run, moreover, an increasing number of larger applications will likely be restricted to 64-bit versions.
- **Legacy**. A 32-bit application or OS can run on a 64-bit cpu, but the reverse is not true.

MORE: here

2.2 Creating a bootable medium

2.2.1 Obtain the ISO

MX Linux is distributed as an ISO, a disk image file in the ISO 9660 file system format. It is available in two formats off the Download page.

- The **original release** of a given version.
  - This is a *static* version that, once released, remains unaltered.
  - The longer the time since release, the less current it is.
- A **monthly update** of a given version. This monthly ISO is created from the original release using MX Snapshot (see Section 6.6.4).
  - It includes all upgrades since the original release, and thus removes the necessity of downloading a large number of files after installation.
  - It also enables users to run Live with the most recent version of the programs.
  - **Only available as direct download!**

 Create a MX live-usb from Windows (using a MX \

Purchase

It is possible to purchase a CD or USB (**original release only**) from OSDisk with the ISO already loaded and ready to use: use the links on the Download page. MX Linux receives a small amount back to help with ongoing costs from each purchase.

Download

MX Linux can be downloaded in two ways from the Download page.

- **Direct**. Click on the correct link for your architecture and mode, and save the ISO to your Hard Disk. If one source seems slow, try the other one. Available for both original release and monthly update.
- **Torrent**. BitTorrent file sharing provides an internet protocol for efficient mass transfer of data. It decentralizes the transfer in such a way as to utilize good bandwidth connections and to minimize strain on low-bandwidth connections. An added benefit is all BitTorrent clients perform error checking during the download process, so there is no need to do a separate md5sum check after your download is complete. It has already been done!
  The MX Linux Torrent Team maintains a seeded BitTorrent swarm of the latest MX Linux ISO (**original release only**), registered at LinuxTracker.org within 24 hours at the latest of its official release. Links to the torrents will be on the Download page.

 How to Create a Torrent

- Go to the Download page and click on the correct Torrent link for your architecture. Your browser should recognize that it is a torrent, and ask you how you want to handle it.
  If not, click on the “Stream” link on the MX Home page, which will open to a page in LinuxTracker where you will the two torrents available.
    - When the LinuxTracker page opens, find and click the download link for the torrent (e.g., **MX-17 386**), which is the dark green arrow in the lower right corner of the torrent you want.
    - Your torrent client (Transmission by default) will then show the torrent in its list; highlight it and click Start to begin the download process. If you have already downloaded the ISO, make sure that it is in the same folder as the torrent you just downloaded.

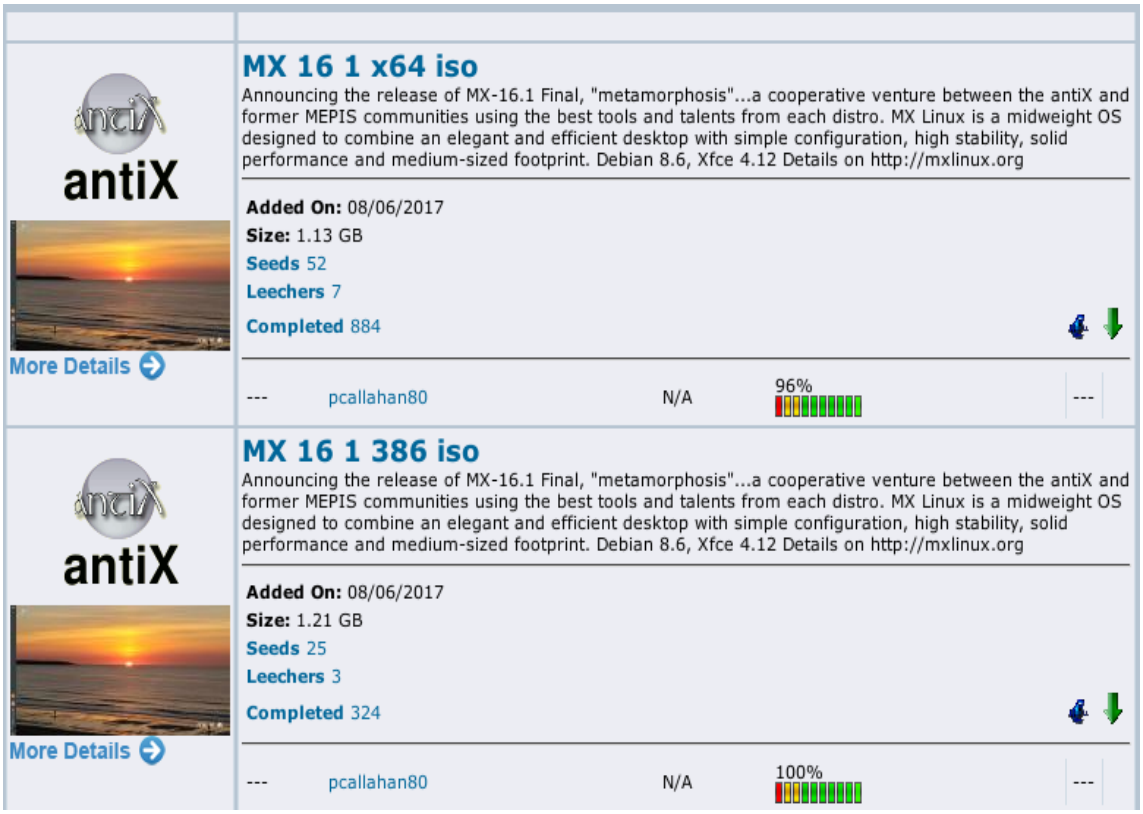


Figure 2-1: LinuxTracker with available MX-16 torrents.

2.2.2 Check validity of downloaded ISOs

After you have downloaded an ISO, the next step is to verify it. There are two methods available.

md5sum

Each ISO is accompanied by a matching md5sum file in the source, and you should check its **md5sum** against the official one. It will be identical to the official md5sum if your copy is authentic. The following steps will let you verify the integrity of the downloaded ISO on any OS platform.

- Windows

Users can check with a tool called WinMD5FREE. Download and unzip it, then put the exe file in any folder on your hard drive. It is ready to use, no installation required.

- Linux
  In MX Linux, navigate to the folder where you have downloaded the ISO and the md5sum file. Right-click the md5sum file > Check data integrity. A dialog box will pop up saying "<name of ISO>: OK" if the numbers are identical. You can also right-click the ISO > Compute md5sum and compare it with another source.
  For situations where that option is not available, open a terminal in the location where you downloaded the ISO, then type:
  ```
  md5sum filename.iso
  ```
  Be sure to replace "filename" with the actual filename (type in the first couple of letters then hit Tab and it will be filled in automatically). Compare the number obtained by this calculation with the md5sum file downloaded from official site. If they are identical, your copy is identical to the official release.
- Mac
  Mac users need to open up a console/terminal and change into the directory with the ISO and md5sum files. Then issue this command:
  ```
  md5 -c filename.md5sum
  ```
  Be sure to replace filename with the actual filename.

GPG signature

As of March 16, 2016, MX Linux ISO files to be downloaded have been signed by their developers (anticapitalista, Adrian or Stevo). This security method allows the user to be confident that the ISO is what is says it is: an official ISO from the developer. Detailed instructions about how to run this security check can be found in the MX/antiX Technical Wiki.

2.2.3 Create the LiveMedium

DVD

Burning an ISO to a DVD is easy, as long as you follow some important guidelines.

- Do not burn the ISO onto a blank CD/DVD as if it were a data file! An ISO is a formatted and bootable image of an OS. You need to choose **Burn disk image** or **Burn ISO** in the menu of your CD/DVD burning program. If you just drag and drop it into a file list and burn it as a regular file, you will not get a bootable LiveMedium.
- Use a good quality writable DVD-R with a 4.7 GB capacity.

USB

You can easily create a bootable USB that works on most systems. MX Linux includes the tools **Live-usb maker** (see Section 3.2.12) the cross-platform utility Unetbootin for this work.
Using Unetbootin:

- Plug in the USB stick you want to turn into a LiveUSB and use GParted to make the first partition less than 32 Gig in size and formatted with a FAT32 file system. On Windows, use the My Computer screen, right-click your USB device in the menu and select Format, then FAT 32.
- Start Unetbootin, and either download the ISO using the top radio button, or click on the button with the 3 dots to locate your ISO file.
- Make sure the device that is identified in the bottom line is what you want to use and that there are no files on it that you do not want destroyed.
- Click OK to create the files necessary (it will take some time) on the USB device.
- Either click to restart the system, or exit to reboot manually on a different machine or at another time.

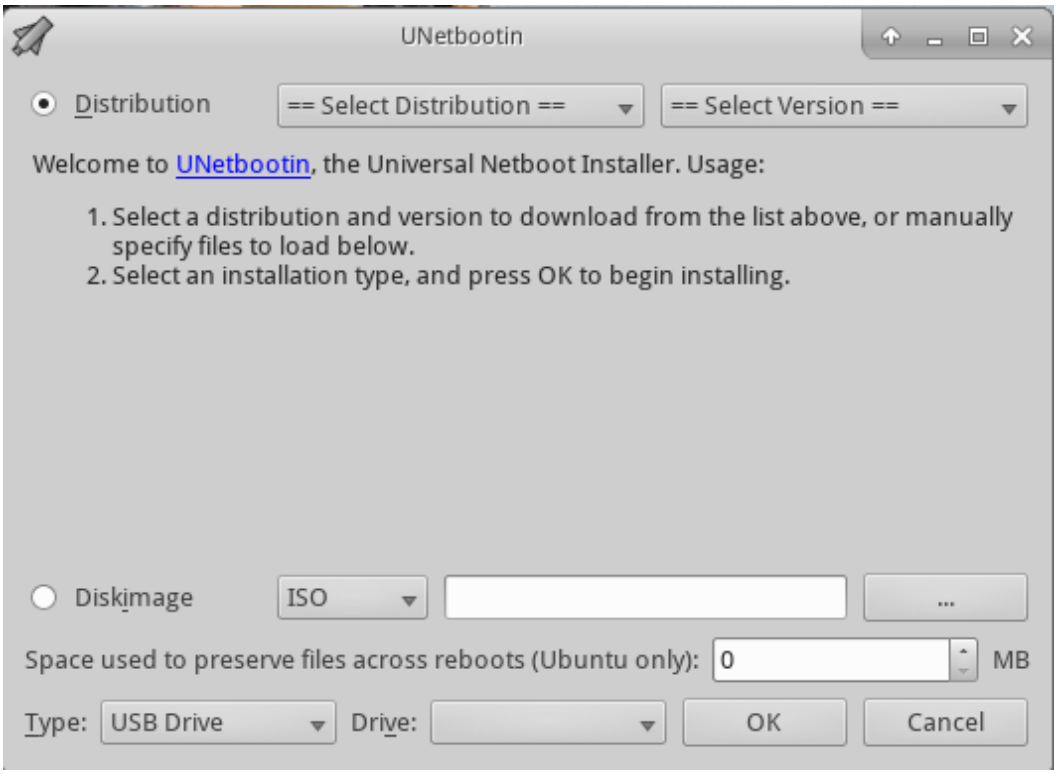


Figure 2-2: Unetbootin

NOTES:

- If you want to create a USB on a Windows base, we suggest you use Rufus, which supports our bootloader; recent Unetbootin versions (since 625) seem to be supporting it again.
- If on a Linux base, be sure to upgrade unetbootin, syslinux, and extlinux to the most recent versions.
- If your USB starts but leaves you with an error message: "gfxboot.c32: not a COM32R image," you should still be able to boot by typing "live" at the prompt in the next line. Reformatting the USB and reinstalling the ISO should remove the error.

- If the graphic USB creators fail, use one of the command line options below (now in Live-usb maker). Let us assume your USB is identified as *sde*, then copy and paste this line for the 32 bit kernels:
  ```
  dd bs=4M if=MX-17_386-mx.iso of=/dev/sde && sync
  ```
- and this one for the 64 bit one:
  ```
  dd bs=4M if=MX-17-b1_x64-mx.iso of=/dev/sde && sync
  ```
- Be sure to make changes in the above code as needed.
  - the version of MX-17 (e.g., MX-17-b1 to MX-17-rc1)
  - the identifier of your USB stick (e.g., sde to sdb)

2.3 Pre-Installation

2.3.1 Coming from Windows

If you are going to install MX Linux as a replacement for Microsoft Windows®, it is a good idea to consolidate and back up your files and other data currently stored in Windows. Even if you are planning to dual-boot, you should make a backup of this data in case of unforeseen problems during the install.

Backing up files

Locate all of your files, such as office documents, pictures, video, or music:

- Typically, most of these are located in My Documents folder.
- Search from the Windows start menu for various types of files to make sure you have found and saved them all.
- Once you have located all such files, burn them to a CD or DVD, or copy them to an external device such as a USB thumb drive.

Backing up email, calendar, and contact data
Depending on the email or calendar program you use, your email and calendar data may not be saved in an obvious location or under an obvious file name. Most email or scheduling applications (such as Microsoft Outlook®) are able to export this data in one or more file formats. Consult your application's help documentation to find out how to export the data.

- Email data: The safest format for email is plain text, since most mail programs support this feature; **be sure to zip the file** to ensure that its contents are included. If you are using Outlook Express, your mail is stored in a .dbx or .mbx file, either of which can be imported into Thunderbird (if installed) on MX Linux. Use the Windows search feature to locate this file and copy it to your backup. Outlook mail should be imported first into Outlook Express before being exported for use in MX Linux.
- Calendar data: export your calendar data to iCalendar or vCalendar format if you wish to use it in MX Linux.
- Contact data: the most universal formats are CSV (comma separated values) or vCard.

Accounts and passwords

Although not usually stored in readable files that can be backed up, it's important to remember to make note of various account information you may have saved in your computer. Your automatic log-in data for websites or services like your ISP will have to be entered in all over again, so make sure to store off disk the information you need to access these services again. Examples include:

- ISP login information: You will need at least your username and password for your internet service provider, and the phone number to connect if you are on dial-up or ISDN. Other details might include a dial out number, dialing type (pulse or tone), and authentication type (for dialup); IP address and subnet mask, DNS server, gateway IP address, DHCP server, VPI/VCI, MTU, Encapsulation type, or DHCP settings (for various forms of broadband). If you are not sure what you need, consult your ISP.
- Wireless networking: You will need your passkey or passphrase, and network name.
- Web passwords: You will need your passwords to various web forums, online stores, or other secured sites.
- Email account details: You will need your username and password, and the addresses or URLs of the mail servers. You may also need the authentication type. This information should be retrievable from the Account settings dialog of your email client.
- Instant messaging: Your username and password for your IM account(s), your buddy list, and the server connection information if necessary.
- Other: If you have a VPN connection (such as to your office), a proxy server, or other configured network service, make sure you find out what information is necessary to reconfigure it in the event that you need to.

Browser favorites

Web browser favorites (bookmarks) are often overlooked during a backup, and they are not usually stored in a conspicuous place. Most browsers contain a utility to export your bookmarks to a file, which can then be imported into the web browser of your choice in MX Linux. Here are some export methods for common web browsers:

- Internet Explorer®: click File > import and export, select export favorites, select the favorites folder (to export all favorites), select export to file or address and enter a filename for the favorites.
- Firefox® 3 and above: click Bookmarks > Organize Bookmarks or Show All Bookmarks, highlight the bookmark folder to backup, click Import and Backup - Export HTML..., enter a filename for the bookmarks.

Software licenses

Many proprietary programs for Windows are not installable without a license key or CD key. Unless you are set on doing away with Windows permanently, make sure you have a license key for any

program that requires it. If you do decide to reinstall Windows (or if dual-boot setup goes awry), you will be unable to reinstall these programs without the key.
If you can not find the paper license that came with your product, you may be able to locate it in the Windows registry, or use a keyfinder such as ProduKey. If all else fails, try contacting the computer's manufacture for help.

Running Windows programs

Windows programs will not run inside a Linux OS, and MX Linux users are encouraged to look for native equivalents (see Section 4). Applications that are critical for a user may run under Wine (see Section 6.1), though it varies somewhat.

2.3.2 Apple Intel computers

Installing MX Linux on Apple computers with Intel chips can beproblematic, though the situation varies to a certain degree with the exact hardware involved. Users interested in the question are advised to search consult Debian materials and forums for recent developments. A number of Apple users have installed it successfully, so you should have good luck if you post your questions on the MX Linux Forum.

Links

Installing Debian on Apple Computers:
Debian forums

2.3.3 Hard drive FAQs

Where should I install MX Linux?

Before starting the install, you need to decide where you are going to install MX Linux.

- Entire hard drive
- Existing partition on a hard drive
- New partition on a hard drive

You can simply select one of the first two during installation, but the third requires the creation of a new partition. You can do this during installation, but it is recommended that you do it before you start the installation. In Linux, you will usually be using **GParted**, a useful and very powerful tool.
A traditional installation format for Linux has three partitions, one each for root, home and Swap, as in the Figure below, and you should begin with this if you are new to Linux. Other partition arrangements are possible, for example some experienced users combine root and home, with a separate partition for data.

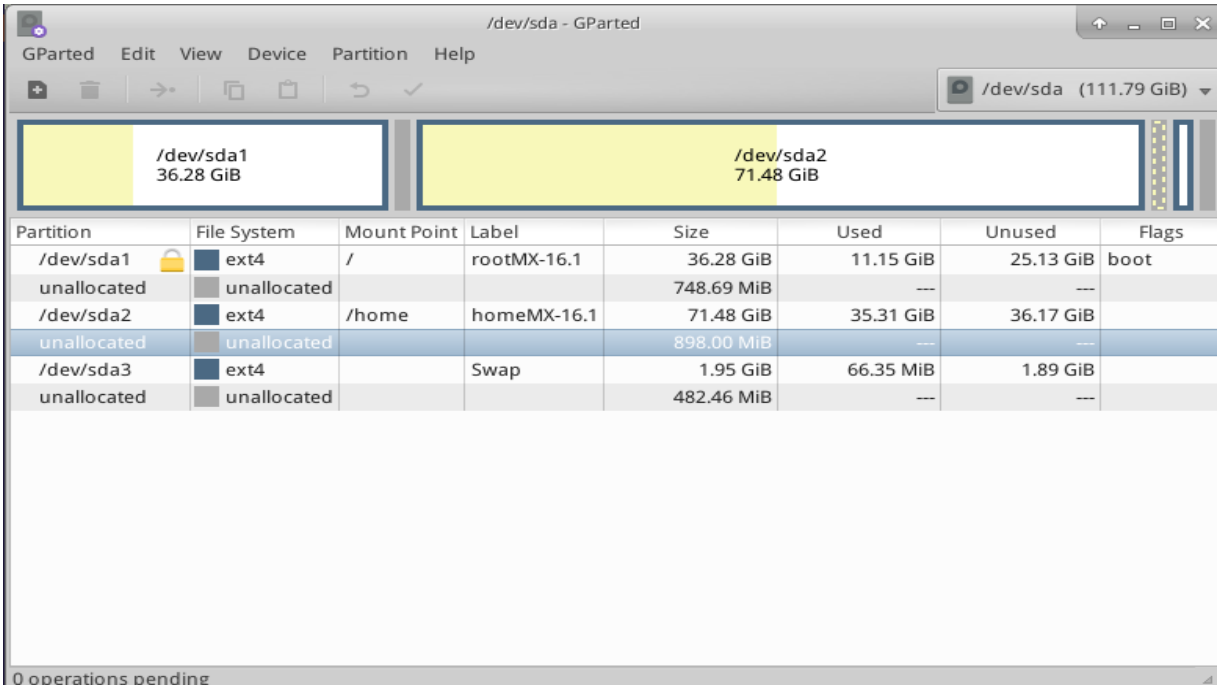


Figure 2-3: Gparted showing three partitions (sda1), (sda2) and swap (sda3). Note that the drive shown here is also used for testing so that the partitions are larger than are normally needed.

MORE: GParted Manual

Create a new partition with GParted

Partition a Multi-boot system

How can I edit partitions?

A very handy tool for such actions is **Start menu > System > Disk manager**. This utility provides a graphical presentation of all the partitions on the machine (excluding swap) with a simple interface for quickly and easily mounting, unmounting and editing some properties of disk partitions. Changes are automatically and immediately written to /etc/fstab and are thus preserved for the next boot.
Disk Manager automatically allocates mount points in /media, using /media/LABEL (e.g., /media/HomeData) if the partition is labeled or /media/DEVICE (e.g., /media/cdrom) if not. These mount points are created by DM when a partition is mounted, and removed immediately when a partition is unmounted.
HELP: Disk Manager help.

What are those other partitions on my Windows installation?

Recent home computers with Windows are sold with a diagnostic partition and restore partition, in addition to the one that contains the OS installation. If you see multiple partitions showing up in GParted that you were not aware of, they are probably those and should be left alone.

Should I create a separate Home?

You do not have to create a separate home, since the Installer will create a /home partition within / (root). But having it separate makes upgrades easier and protects against problems caused by users filling up the drive with a lot of pictures, music, or video data.

How big should / (root) be?

- The installed base size is a little under 2.5GB, so we recommend a minimum of 5GB to allow for basic functions.
- This minimum size will not allow you to install many programs, and may cause difficulty doing upgrades, running VirtualBox, etc. Recommended size for normal use is therefore 10 GB.
- If you have your Home (/home) located within the Root directory (/) and store a lot of big files, then you will need a larger root partition.
- Gamers playing big games (e.g., Wesnoth) should note that they will need a bigger / partition than usual for data, images, sound files; an alternative is to use a separate Data drive.

Do I need to create a SWAP file?

The Installer will create a SWAP file for you (see Section 2.5.1). If you intend to hibernate (and not just suspend) the system, swap may need to be something on the order of 2GB or else the hibernation will fail when the current memory use is more than 1GB. Users with an SSD often avoid setting up a SWAP file on the SSD to avoid slowing it down.

What do names like “sda” mean?

Before you begin installation, it is critical that you understand how Linux operating systems treat hard drives and their partitions.

- **Drive names**. Unlike Windows, which assigns a drive letter to each of your hard drive partitions, Linux assigns a short device name to each hard drive or other storage device on a system. The device names always start with **sd** plus a single letter. For instance, the first drive on your system will be sda, the second sdb, etc. There are also more advanced means of naming drives, the most common of which is the UUID (Universally Unique IDentifier), used to assign a permanent name that will not be changed by the addition or removal of equipment.
- **Partition names**. Within each drive every partition is referred to as a number appended to the device name. Thus, for instance, **sda1** would be the first partition on the first hard drive, while **sdb3** would be the third partition on the second drive.
- **Extended partitions**. PC hard disks were originally permitted only four partitions. These are called primary partitions in Linux and are numbered 1 to 4. You can increase the number by making one of the primary partitions into an extended partition, then dividing that into logical

partitions (limit 15) that are numbered from 5 onward. Linux can be installed into a primary or logical partition.

2.4 First look

Live Medium login

In case you want to log out and back in, install new packages, etc., here are the usernames and passwords:

- Regular user
  - name: demo
  - password: demo
- Superuser (Administrator)
  - name: root
  - password: root

2.4.1 Boot the LiveMedium

LiveCD/DVD

Simply place the DVD in the tray and reboot.

LiveUSB

You may need to take a few steps to get your computer to boot correctly using the USB.

- To boot with the USB Drive, many computers have special keys you can press during booting to select that device. Typical Boot Device Menu keys are Esc, one of the Function keys or the Shift key. Look carefully at the first screen that shows up when rebooting to find the correct key.
- Alternatively, You may have to go into the BIOS to change the boot device order:
  - Boot the computer, and hit the required key (e.g., F2, F10 or Esc) at the beginning to get into the BIOS
  - Click on (or arrow over to) the Boot tab
  - Identify and highlight your USB device (usually, USB HDD), then move it to the top of the list (or enter, if your system is set for that). Save and exit
  - If unsure or uncomfortable about changing the BIOS, ask for assistance in the Forums.
- On older computers without USB support in the BIOS, you can use the Plop Linux LiveCD that will load USB drivers and present you with a menu. See the website for details.

- Once your system is set to recognize the USB Drive during the boot process, just plug in the Drive and reboot the machine.

UEFI

 UEFI Boot Issues, and some settings to check!

If the machine already has Windows 8 or later installed, then special steps must be taken to deal with the presence of (U)EFI and Secure Boot. Unfortunately, the exact procedure varies by manufacturer:

> *Methods used for launching UEFI shell depend on the manufacturer and model of the system motherboard. Some of them already provide a direct option in firmware setup for launching, e.g. compiled x86-64 version of the shell needs to be made available as <EFI_SYSTEM_PARTITION>/SHELLX64.EFI. Some other systems have an already embedded UEFI shell which can be launched by appropriate key press combinations. For other systems, the solution is either creating an appropriate USB flash drive or adding manually (bcfg) a boot option associated with the compiled version of shell.*
> (Wikipedia, "Unified Extensible Firmware Interface", retrieved 10/29/15)

The UEFI booting function is restricted to 64bit machines. For details, please consult the MX/antiX Wiki, or ask on the Forum.

The Black Screen

Occasionally it may happen that when you boot up with the LiveMedium, you end up looking at an empty black screen that may have a blinking cursor in the corner. This represents a failure to start X, the windows system used by Linux, and is most often due to problems with the graphics driver being used.

Solution: reboot and select Safe Video or Failsafe boot options in the menu (F6); details on these boot codes in the Wiki. For permanent resolution of the problem, see Section 3.3.2.

2.4.2 The standard opening screen

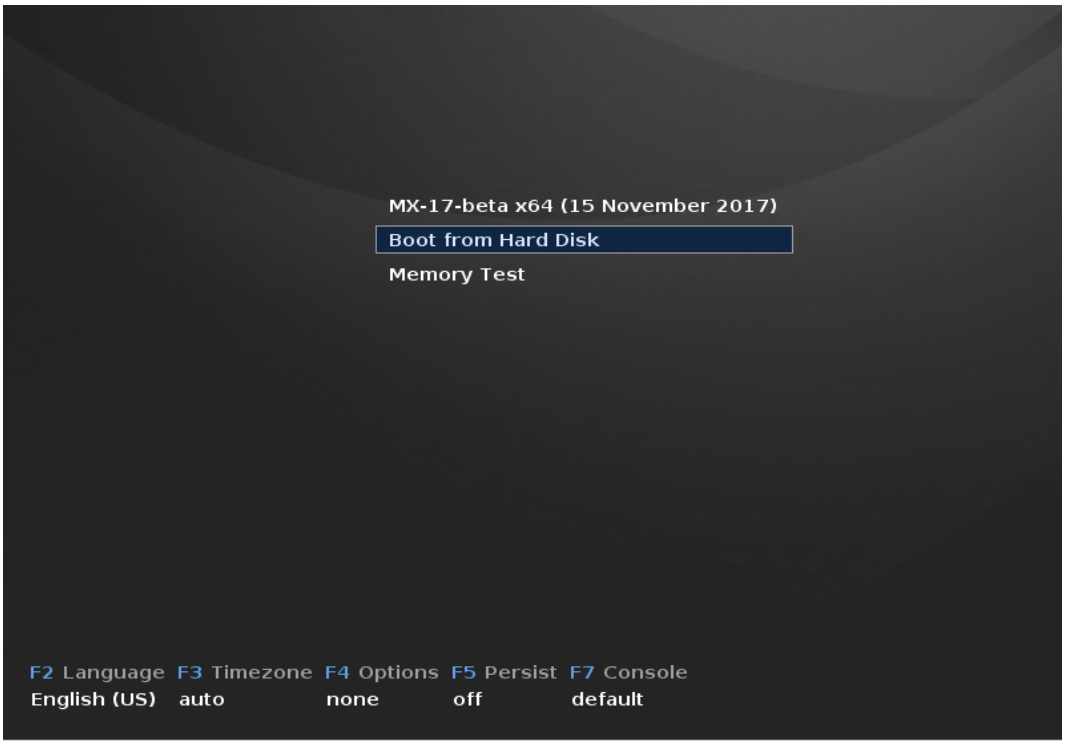


Figure 2-4: LiveMedium boot screen of x64 ISO

When the LiveMedium boots up, you will be presented with a screen similar to the Figure above; the *installed* screen looks quite different. (The 386 ISO offers both the pae and non-pae versions.) Custom entries may also appear in the main menu. Detailed Help on this screen can be found in this document.

Main Menu entries

Table 1: Menu entries in Live boot

Entry	Comment
MX-17 (<RELEASE DATE>)	This entry is selected by default, and is the standard way that most users will boot the Live system. Simply press Return to boot the system. On the 386 ISO two entries will appear, one for PAE (default) and the other for non-PAE.
Boot from Hard Disk	Allows for user to select a stored ISO to boot.
Memory Test	Runs a test to check RAM. If this test passes then there may still be a hardware problem or even a problem with RAM but if the test fails then you know something is wrong.

In the bottom row the screen displays a number of vertical entries, below which is a row of horizontal options; **press F1 when looking at that screen for details**.

Options

- **F1 Help**. Help system in English only. Contains much of the same information that is given here. Detailed help here [**ADD!**].
- **F2 Language**. Set the language for the bootloader and the MX system. This will automatically transfer to the hard drive when you install.
- **F3 Time Zone**. Set the timezone for the system. This will automatically transfer to the hard drive when you install.
- **F4 Options**. Options for checking and booting the Live system. Most of these options do not transfer to the hard drive when you install.
- **F5 Persist**. Options for retaining changes to the LiveUSB when the machine shuts down.
- **F6 Safeboot**. Safe Video forces the use of the generic video driver, useful to try if your first boot left you with a blank screen. Failsafe Loads all drivers early in the boot process, a good choice if the first boot does not work at all.
- **F7 Console**. Set resolution of virtual consoles. May conflict with Kernel Mode Setting. Can be useful if you are booting into Command Line Install or if you are trying to debug the early boot process. This option will transfer when you install.

Other cheat codes for LiveUSB can be found in the MX/antiX Wiki. The cheat codes for booting an installed system are different, and can be found in the same location.
MORE: Linux startup process

2.4.3 The UEFI opening screen

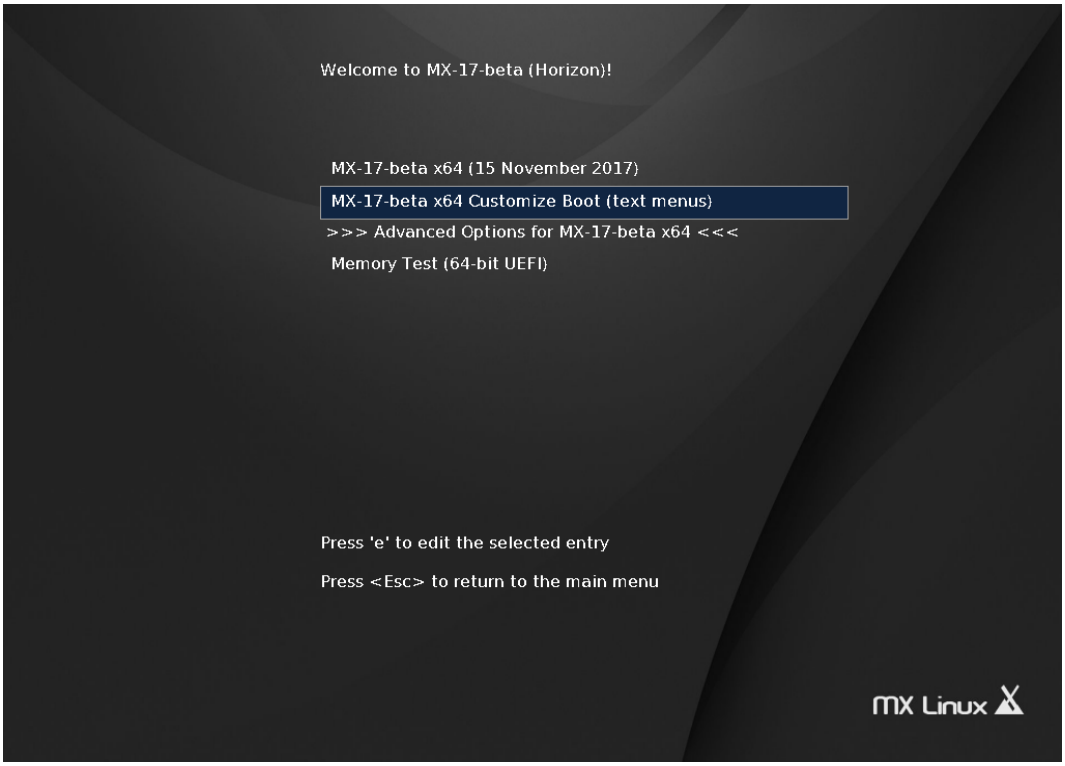


Figure 2-5: LiveMedium boot screen of x64 when UEFI detected

If the user is using a computer set for UEFI boot (see MX/antiX Wiki), the opening screen for UEFI Live boot will appear instead with 3 choices.

- MX-17x_x64
- Customize boot (with menus)

If you want localization or other options, choose "Customize boot." That will bring up as second screen of extensive menu options; just select what you want and follow the prompts.

2.4.4 Login screen

Figure 2-6: Login screen, with option buttons in the far upper right corner

The installed boot process finishes with the login screen; in a Live session only the background image is shown, but if you log out from the desktop you will see the complete screen as shown. On small screens, the image may appear zoomed; this is a property of the display manager lightdm that is used by MX Linux.

You can see three small icons at the right end of the top bar:

- The keyboard button at the edge allows the user to select the appropriate keyboard for the login screen
- The power button contains options to suspend, restart and shut down.
- The session button to the left of the power button allows you to choose which desktop manager you wish to use: Default Session, Xfce Session, followed by any other you may have installed (Section 6.3).

If you wish to avoid having to log in each time you boot up (not recommended for security reasons), you can change the behavior on the “options” tab of MX User Manager (Section 3.2.12).

2.4.5 The desktop

Xfce 4.12

MX-16 tour

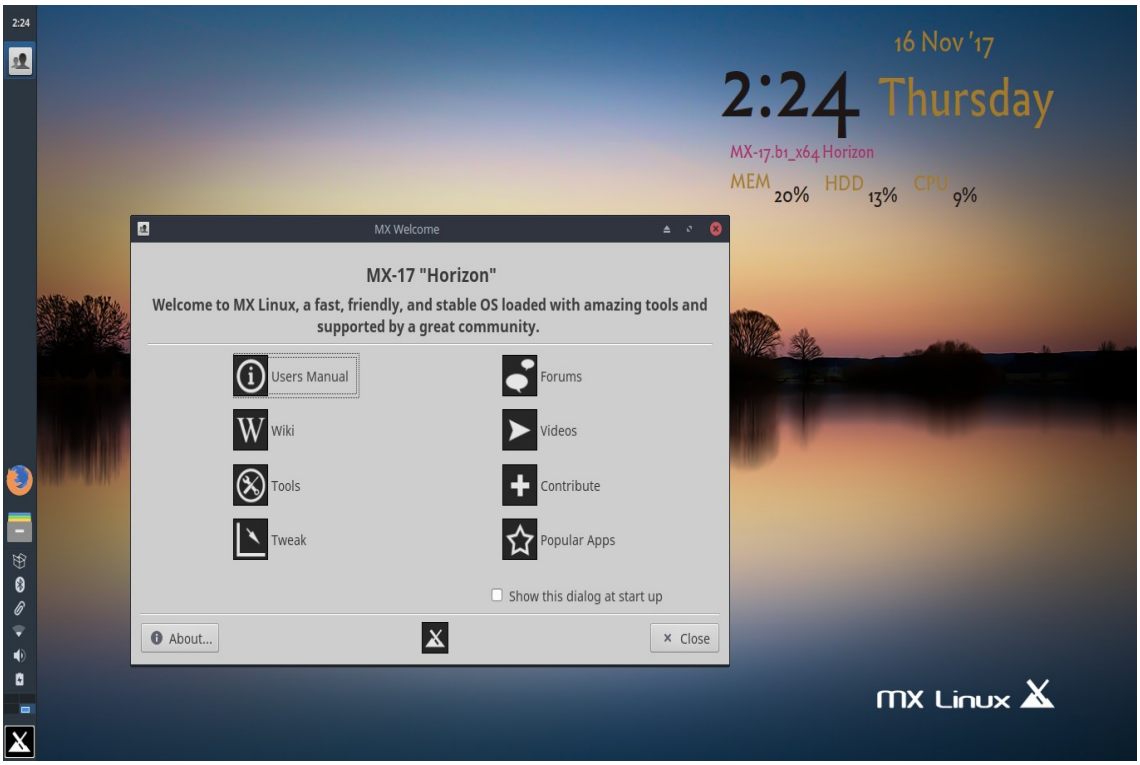


Figure 2-7: Default desktop with Welcome screen, using one of the supplied wallpapers

The desktop is created and managed by Xfce 4.12, though its appearance and arrangement have been heavily modified for MX Linux. Note the two dominant features of your first look: panel and Welcome screen.

Panel

The default desktop of MX Linux has a single vertical panel on the left side of the screen. A horizontal panel format is available by clicking **MX Tools > MX Tweak**.
Default panel elements from top to bottom:

- Clock in LCD format–click for a calendar
- Window Buttons: area where open applications are shown
- Firefox browser
- File manager (Thunar)

- Notification Area
    - Update manager
    - Clipboard manager
    - Network manager
    - Volume manager
    - Power manager
    - USB ejector
- Pager: displays available workspaces (by default 2, right-click to change)
- Start ("Whisker") menu
- Other applications (here: MX Welcome) may insert icons in the Panel or Notification Area when running.

To change the properties of the Panel, see Section 3.8.

Welcome screen

When the user boots up for the first time, a Welcome screen appears in the center of the screen that offers quick orientation and help links (Figure 2-7). When running Live, a small link to the Login info appears that provides the passwords for demo and root. Once closed, running live or installed, it can be displayed again using the menu or MX Tools.

Tips & Tricks

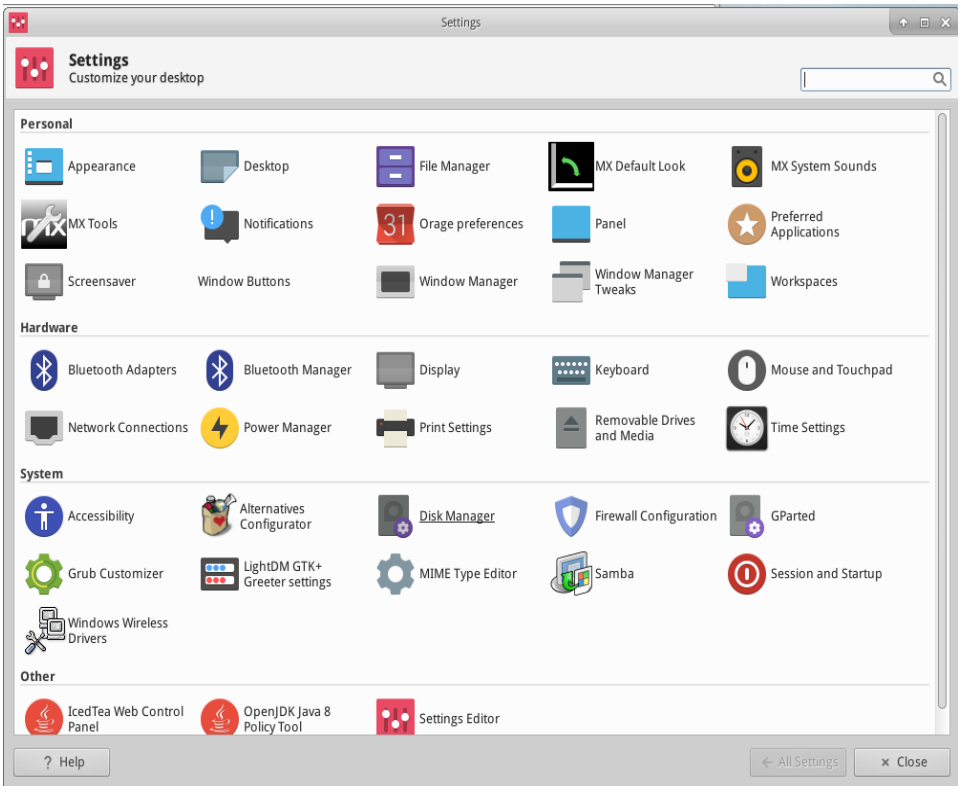


Figure 2-8: All Settings is your one-stop location to make changes. Contents vary.

Some handy things to know at the beginning:

- If you are having problems with sound, network, etc., see Configuration (Section 3).
- Adjust sound general loudness by scrolling with the cursor over the speaker icon, or by right-clicking speaker icon > Open Mixer.
- Set the system to your particular keyboard layout by clicking **Start menu > Settings > Keyboard**, Layout tab, and selecting the model with the pull-down menu. This is also where you can add other language keyboards.
- Adjust preferences for mouse or touchpad by clicking **Start menu > Settings > Mouse and Touchpad**.
- Trash can be easily managed in the File Manager (Thunar), where you will see its icon in the left pane. Right-click to empty. It can also be added to the Desktop or Panel. It is important to realize that using delete, whether by highlighting and hitting the delete button or via a context menu entry, removes the item forever and it will not be recoverable.
- Keep your system current by watching for the indicator (outlined box) of available updates on the Update Manager (Apt-Notifier) to turn green. See Section 3.2.1 for details.
- Handy key combinations (managed in All Settings > Keyboard > Application Shortcuts).

Table 2: Handy key combinations

Keystrokes	***Action***
F4	Drops a terminal down from top of screen
Windows key	Brings up the Whisker menu
Ctrl-Alt-Esc	Changes the cursor into a white x to kill any program
Ctrl-Alt-Bksp	Closes the session (without saving!) and returns you to the login screen
Ctrl-Alt-Del	Locks the desktop by calling xflock4
Ctrl-Alt-F1	Drops you out of your X session to a command line; use Ctrl-Alt-F7 to return.
Alt-F1	Opens this MX Linux Users Manual
Alt-F2	Brings up a dialog box to run an application
Alt-F3	Opens the Application Finder which also allows editing menu entries
Alt-F4	Closes an application that is in focus
PrtScr	Opens the Screenshooter for screen captures

Applications

Applications can be started in various ways.

- Click the Start menu (Whisker) icon, in lower left corner.
    - It opens to Favorites category, and you can hover mouse over other categories on right side to see contents in the left pane. You can reverse the contents and categories columns by right-clicking the menu icon (MX logo) > Properties.

- At the top is a powerful incremental search box: just type in a few letters to find any application without needing to know its category.

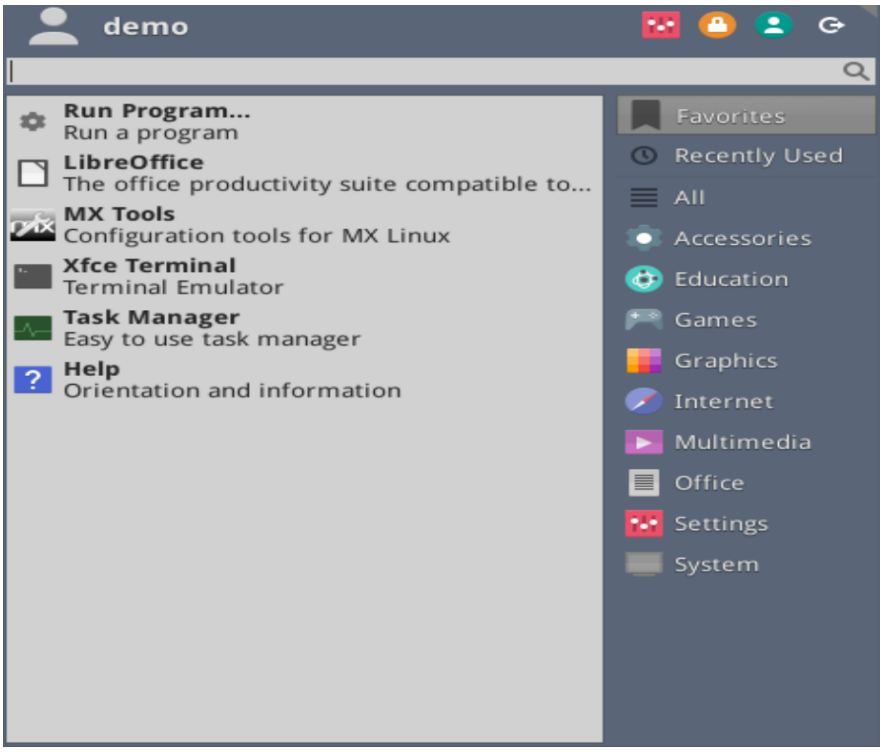


Figure 2-9: Whisker menu

- Right-click the desktop > Applications.
- If you know the name of the application, you can use Application Finder, started easily in one of two ways.
    - Right-click the desktop > Run command ...
    - Alt-F2
    - Alt-F3 brings up an advanced version that lets you check commands, locations, etc.

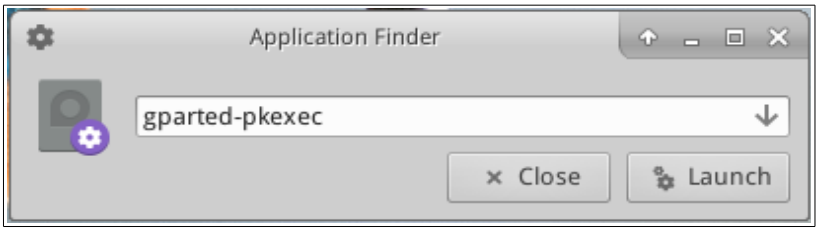


Figure 2-10: Application Finder identifying application

- Use a keystroke you have defined to open a favorite application. Click **Start menu > Settings**, then Keyboard, Application shortcuts tab.

Other

System information

- Click **Start menu > System > System Profiler and Benchmark** (hardinfo) for a nice graphic display
- Open a terminal and enter: *inxi -F*

Video and audio

- For basic monitor settings, click **Start menu> Settings > Display**
- Sound adjustment is done through **Start menu > Multimedia > PulseAudio Volume Control** (or right-click Volume manager icon)

NOTE: for troubleshooting areas such as display, sound or internet, consult Section 3: Configuration.
Links

- Xfce documentation
- Xfce FAQs

2.4.6 Exiting

When you open Whisker menu, you will see by default four command buttons in the upper right corner (change what shows with a right click on the menu icon > Properties, Commands tab). From left to right:

- All Settings (All Settings)
- Lock Screen
- Switch Users
- Log Out

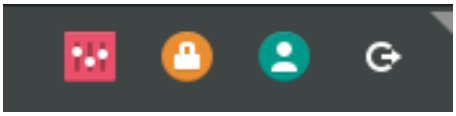


Figure 2-11: command buttons

It is important to exit MX Linux correctly when you have finished your session so that the system can be brought down in a secure way. All running programs are first notified that the system is going down, giving them the time to save any file being edited, exit from mail and news programs, etc. If you just turn the power off, you risk the possibilities of damaging the operating system.

Permanent

To leave a session for good, select one of the following on the Log Out dialog box:

- **Log out**. Choosing this will terminate everything you are doing, asking you about saving open work if you have not closed the files yourself, and bring you back to the login screen with the system still running.

    - The command at the bottom of the screen, “Save session for future logins,” is checked by default. Its task is to save the state of your desktop (opened applications and their location) and restore it during the next startup. If you have had problems with your desktop function, you can uncheck this to get a fresh start; if that does not solve the problem, click All Settings > Session and Startup, Session tab, and press the Clear saved sessions button.
- **Ctrl-Alt-Bksp** will return you to the login screen, but any open programs and processes will not be saved.
- **Restart** or **Shut Down**. Self-explanatory options that alter the system state itself. Also available using the icon in the upper right corner of the top bar on the login screen.

Temporary

You can temporarily leave your session in one of the following ways:

- **Lock screen**. This option is easily available from an icon in the top right corner of the Start menu. It protects your Desktop from unauthorized access while you are away by requiring your user password to return to the session.
- **Start a parallel session as a different user**. This is available from the Switch User command button in the top right corner of the Start menu. You choose this to leave your current session where it is and allows a session for a different user to be started.
- **Suspend** using Power Button. This option is available from the Log Out dialog box, and places your system into a low-power state. Information on system configuration, open applications, and active files is stored in main memory (RAM), while most of the system’s other components are turned off. It is very handy and generally works very well in MX Linux. Invoked by the Power Button, suspend works well for many users, though its success varies according to the complex interaction among a system’s components: kernel, display manager, video chip, etc. If you have problems, consider trying the following changes:
    - Switch graphical driver (e.g., from radeon to fglrx, or from nouveau to the proprietary Nvidia driver)
    - Adjust the settings in Start menu > Settings > Power Manager. For instance: on the System tab, try unchecking "Lock screen when system is going for sleep."
    - Click Start menu > Settings > Screensaver, and adjust the Display Power Management values on the Advanced tab.
    - AGP cards: add ***Option "NvAgp" "1"*** to the Device section of xorg.conf
- **Suspend** using laptop lid close. Some hardware configurations may experience trouble with this. Action on lid closing can be adjusted on the General tab of Power Manager, where “Switch off display” has proved reliable in MX users’ experience.
- **Hibernation.** The hibernation option was removed from MX Linux because it proved highly unreliable during testing. Users interested in restoring it should search the Forum for proposed methods (not officially recognized by MX Linux).

2.5 The Installation process

2.5.1 Detailed installation steps

Installing MX Linux

My Home Folder Setup (and Disk Manager)

To begin, boot to the LiveMedium, this will take a few minutes, and click on the Installer icon in the upper left corner. The installer will open in a two-pane format: installation steps to take in the right pane, Help in the left. The installer begins with a welcome and Terms of Use. Next, a sequence of detailed instructions, with some options. We suggest that newcomers to Linux should use the basic three partition installation, then later decide if you wish to make any changes.

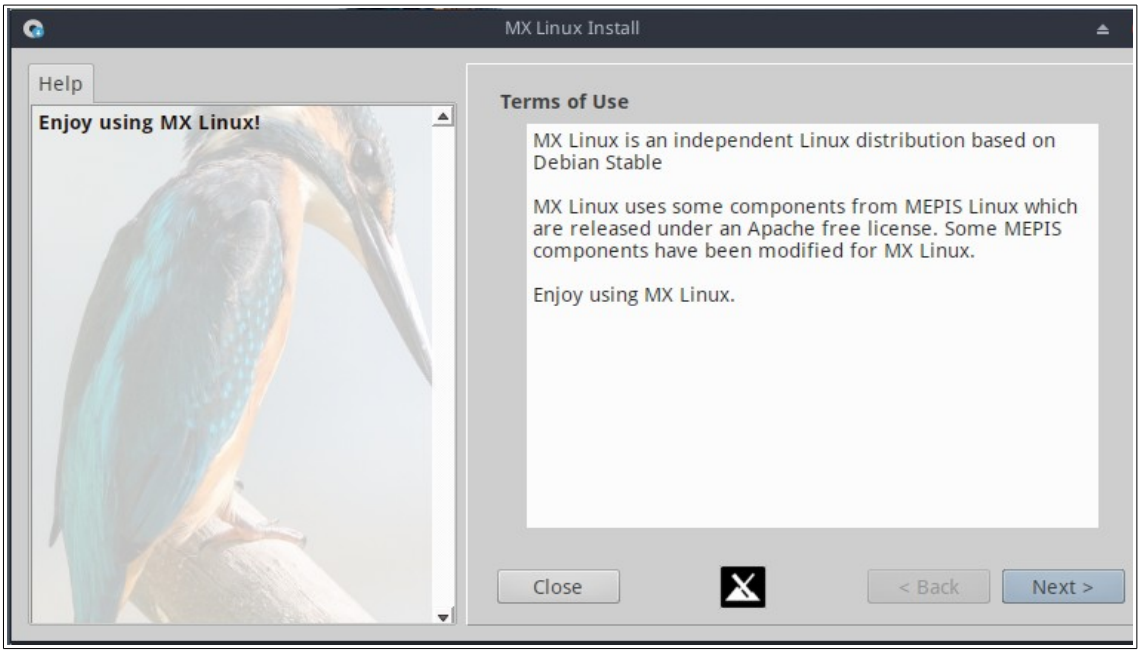


Figure 2-12: Installer Screen 1

Comments

- License information.

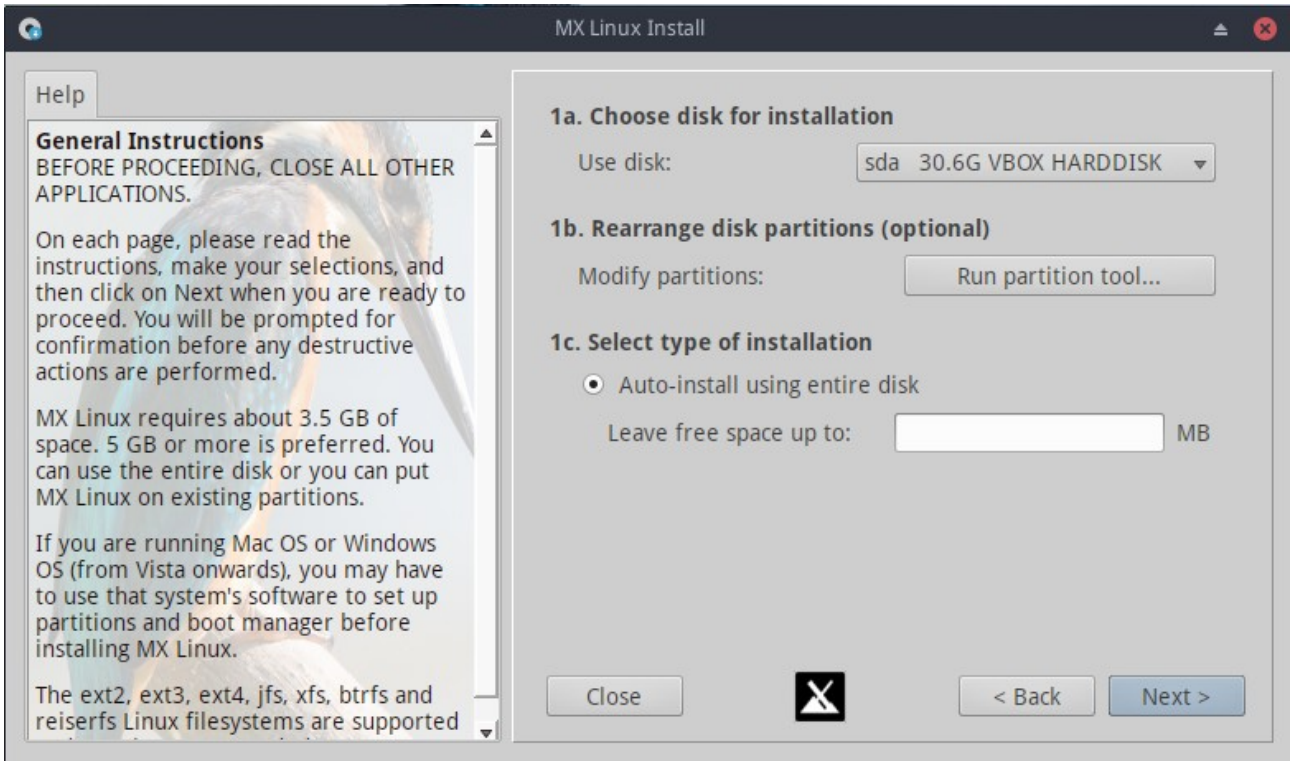


Figure 2-13 Installer Screen 2

Comments

- **Use disk**. If unsure which is the partition you want, use the names you see in GParted. The disk you select will be examined cursorily for reliability by SMART. If problems are detected, you will see a warning screen. You will need to decide whether to accept that risk and continue, select another disk or terminate the installation. For more information, click **Start menu > System > GSmartControl** and "Perform tests" on the drive.

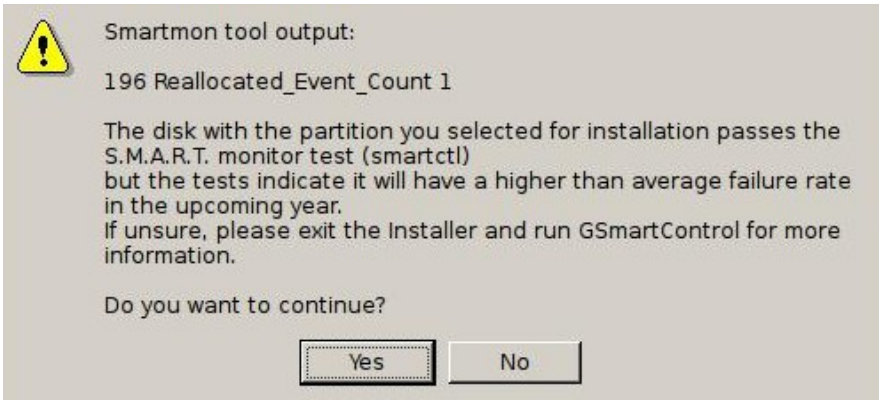


Figure 2-14: SMART warning of risk of failure

- **Auto-install using entire disk**. Select this option if you plan to use the entire hard drive for MX Linux and you aren't particular about how the partitions are set up. If you select this, the

installer will create a root and swap partition for you using the entire drive. You can optionally specify an amount of space to leave unused, if you plan to create more partitions afterward. **Make sure you understand that selecting this option will delete any existing partitions and data.** Only choose this if you are not going to keep anything on the selected hard drive.

- **Modify partitions**. Most users have concluded that it is better to carry out any such modifications before you start installation to avoid any problems — for instance newly created partitions may not show up in the drop-down menus. See Section 2.3.2. If you select this, the next step will use Gparted to make and size partitions, or if you have already created partitions on the chosen disk, these will be displayed. When Gparted is closed, Screen 2 will re-appear with another option, Custom Install. Choose this to move on to selecting partitions.

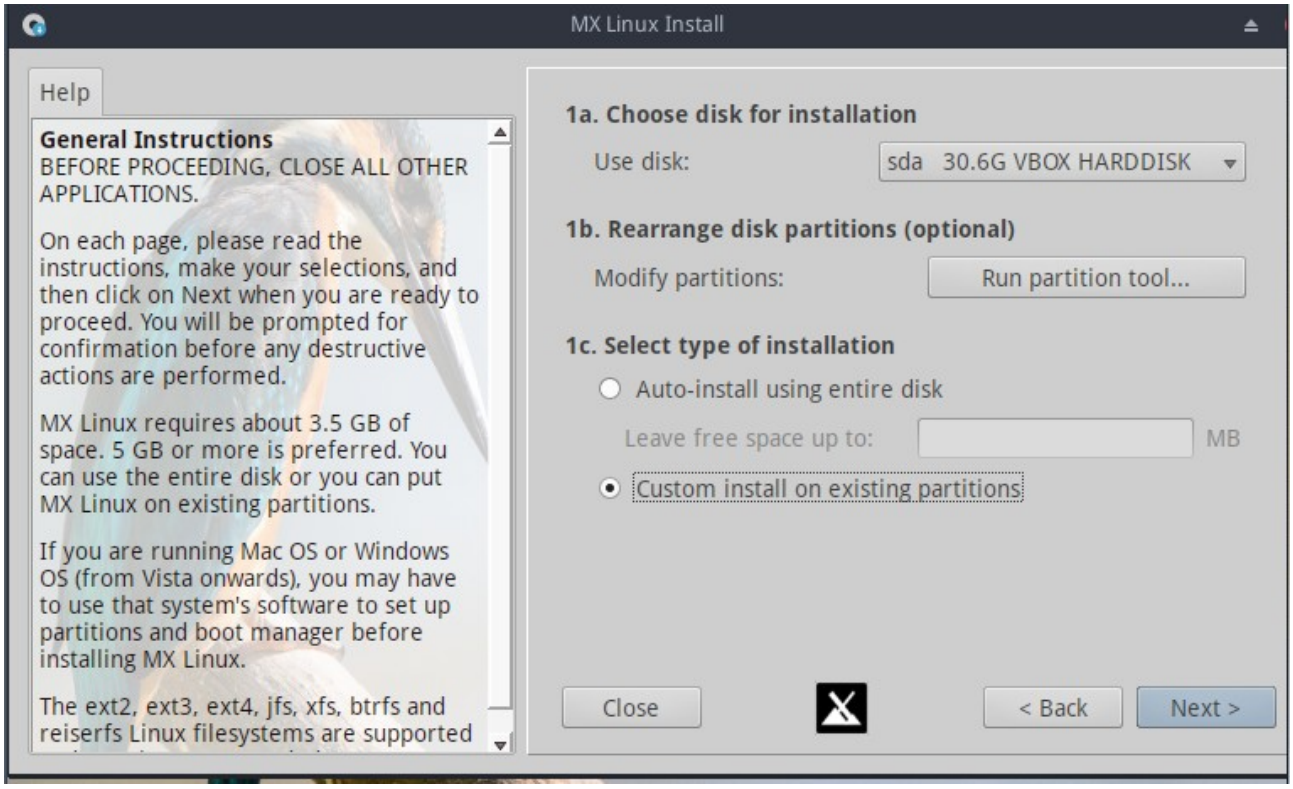


Image 2-15: Screen 2 (extra) Custom Install

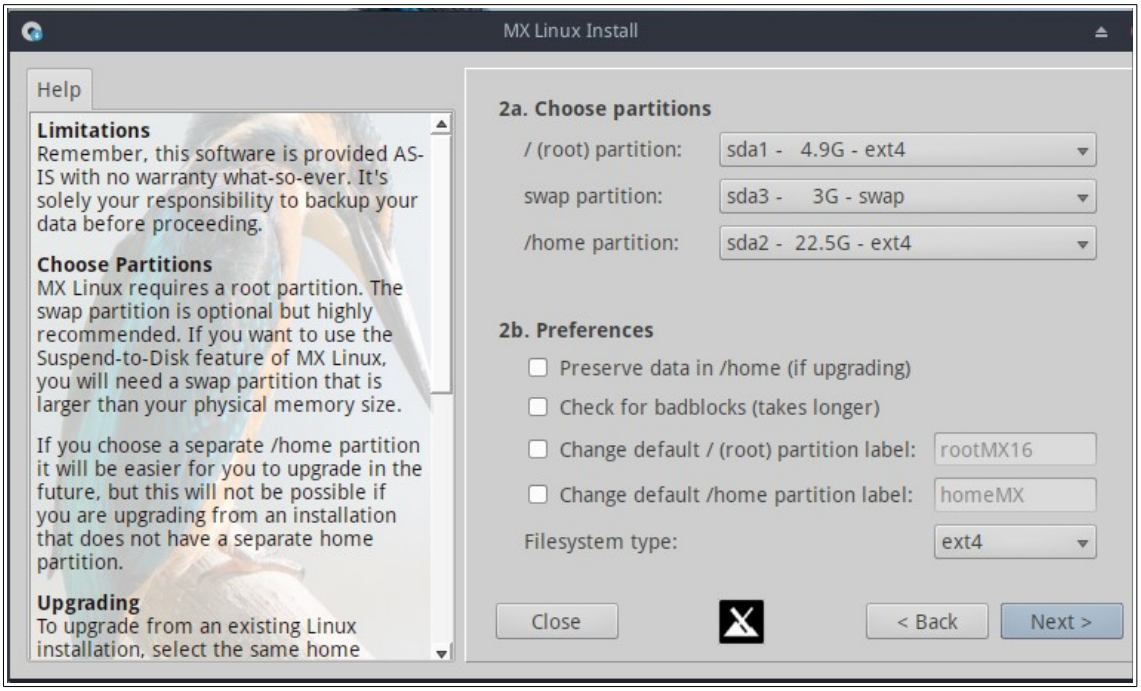


Figure 2-16: Installer Screen 3 Choose Partitions

Comments

(If you chose **Auto-install using entire disk** on Screen 1, you will not see this screen.)

- **Choose Partitions**. Specify the root and swap partitions you have set up previously; if you set up a separate partition for your home directory, specify it here, otherwise leave /home set to root.
    - Note that the /home partition being root means here that the user's /home folder will be inside the same (root) partition where MX is being installed
    - Many users prefer to locate their home directory in a different partition that that of / (root), so that any problem with — or even total replacement of — the installation partition will leave all the user's individual settings untouched.
- **Preferences**.
    - Check Preserve data in /home if you are doing an upgrade and already have data in an existing home partition. This option is not generally recommended because of the risk that old configurations will not match the new installation, but can be useful in specific situations, e.g. repairing an installation.
    - Select Check for bad blocks if you want to do a scan for physical defects on the hard drive during formatting. This is recommended for users with older drives.
    - You can change the label of the partition where you want to install (e.g., to "MX-17 Testing Installation")
    - Finally, you can optionally select the type of file system you want to use on the hard drive. If you don't know what to choose here, the default ext4 is recommended in MX Linux.

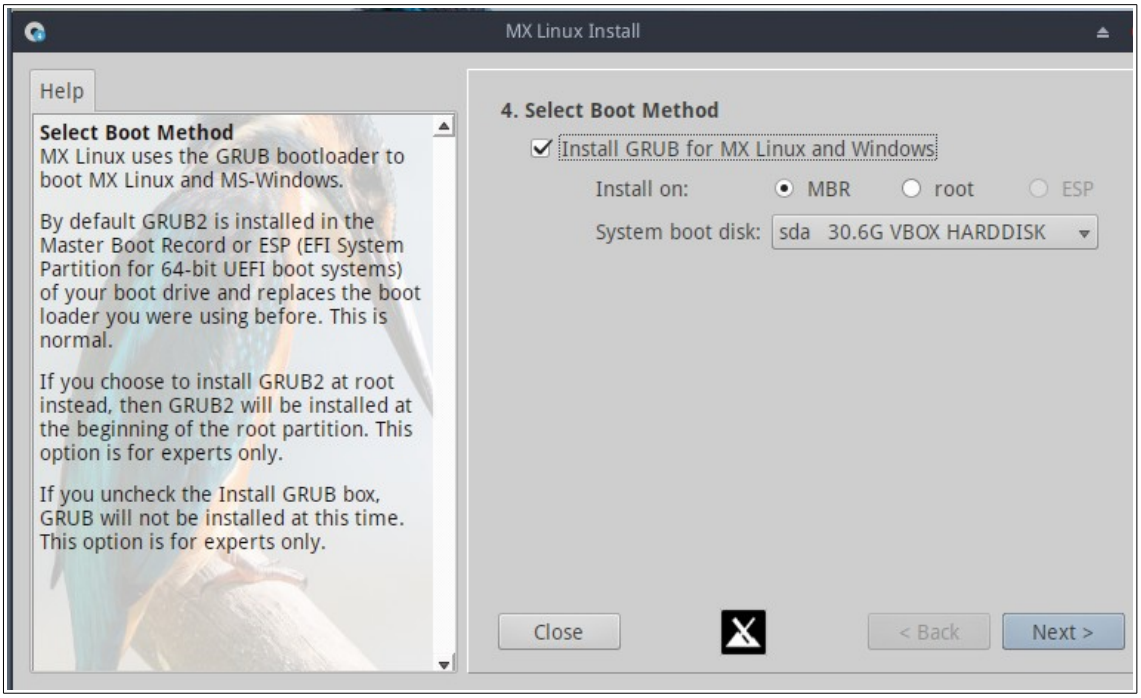


Figure 2-17: Installer Screen 4

Comments

- Most average users will accept the defaults here, which will install the bootloader into the very beginning of the disk. This is the usual location and will cause no harm.
- When you click Next, a pop-up message will check to see that you accept the location of the bootloader GRUB. Installing GRUB can take a few minutes in some situations.
- Note that the partition shown here (sda) is just an example; your particular selection of partition may well differ.

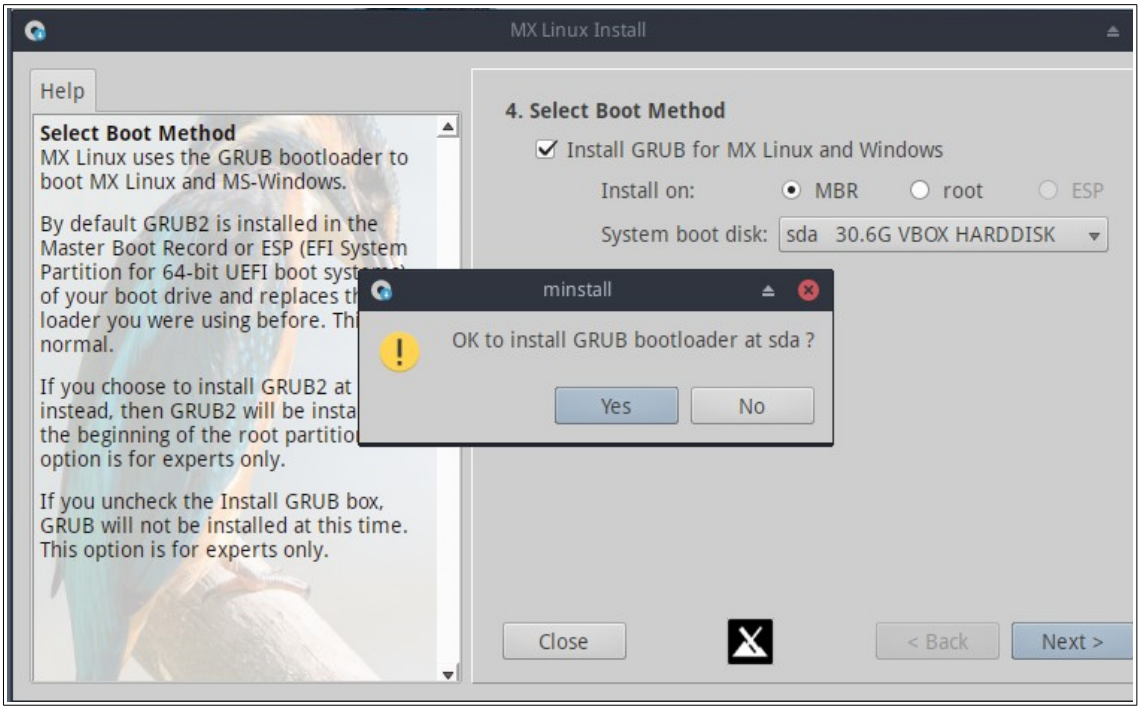


Figure 2-18: Installer Screen 4

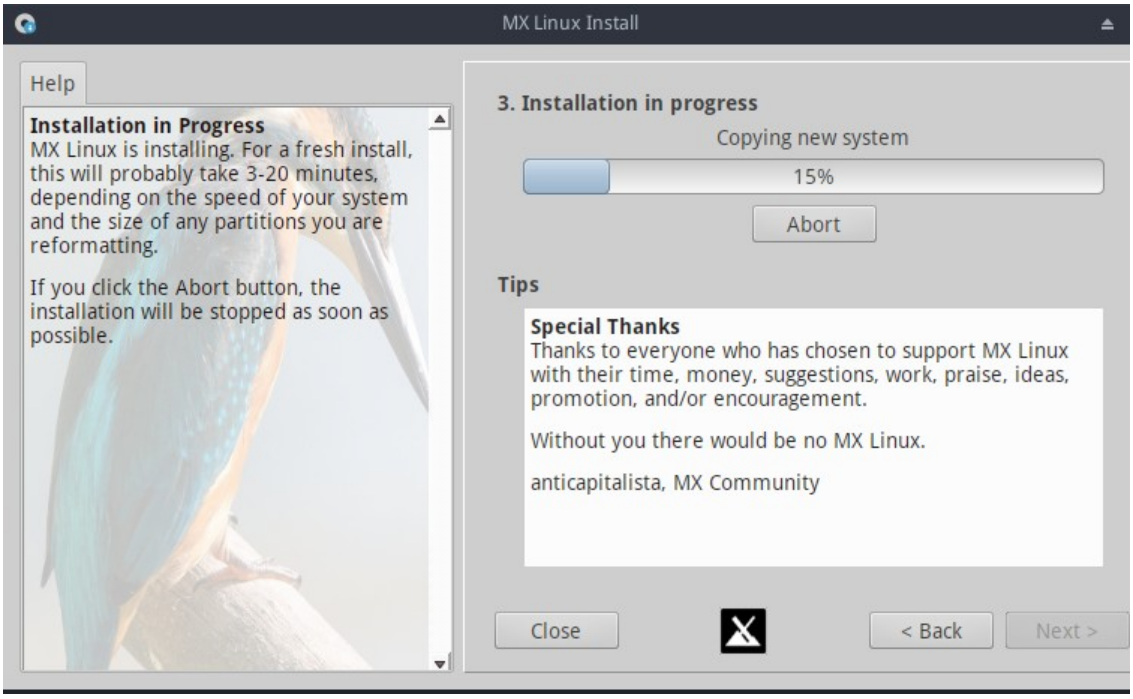


Figure 2-19: Screen 5 System Installation

Comments

- Several different tips are displayed during the copying.
- Note that copying may appear to stall at 95%, this is not a fault but a delay while the files are being configured.

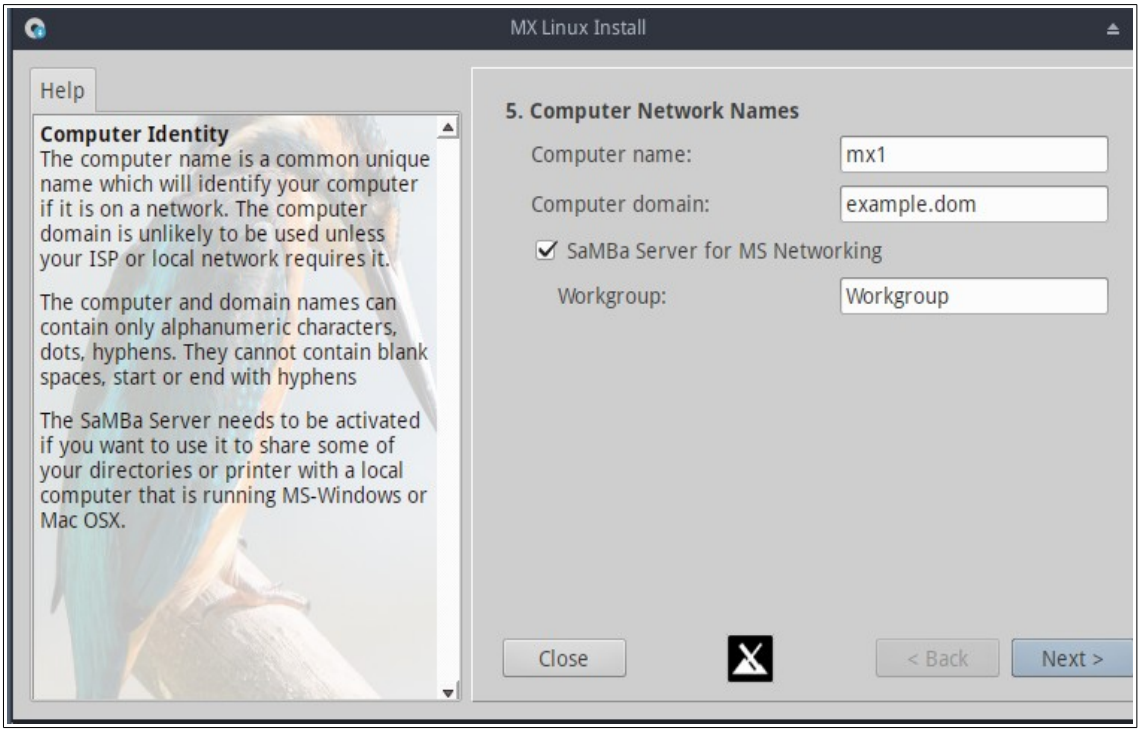


Figure 2-20: Installer Screen 6

Comments

- Many users choose a unique name for their computer: laptop1, MyBox, StudyDesktop, UTRA, etc. You may also just leave the default name as it is.
- You can just click Next here if you have no computer network.

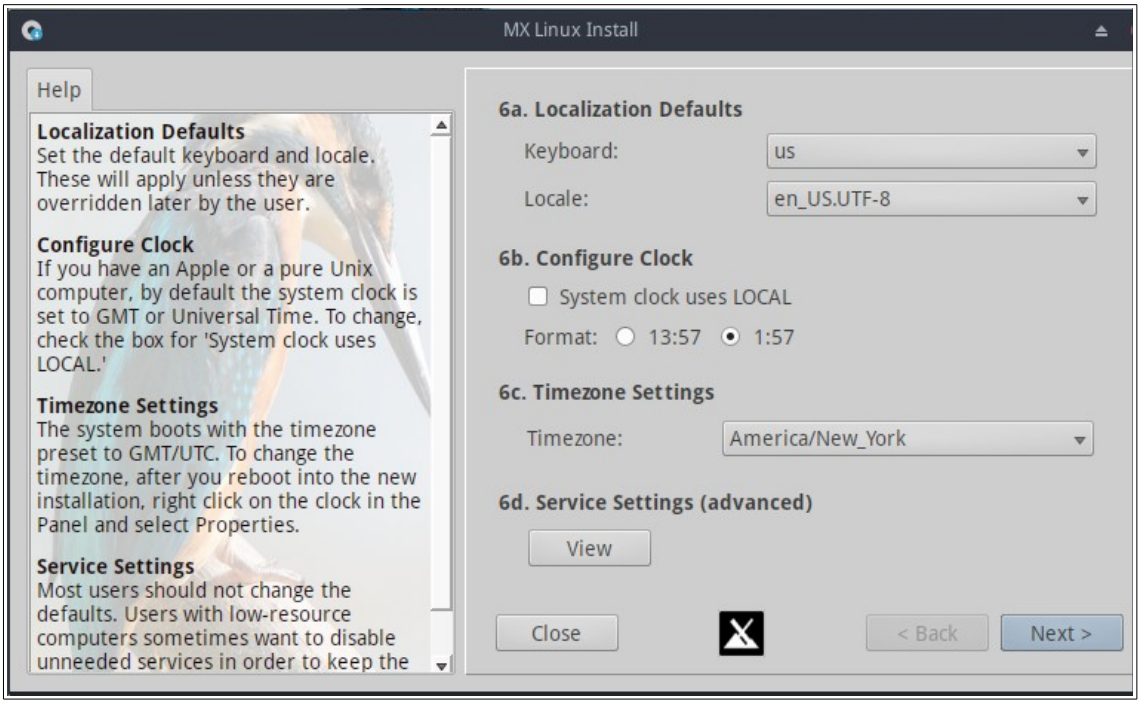


Figure 2-21: Installer Screen 7

Comments

- The default settings will usually be correct here, as long as you were careful to enter any exceptions at the LiveMedium boot screen.
- The settings can be changed again once you have booted into Xfce with Time Settings, Keyboard, etc.

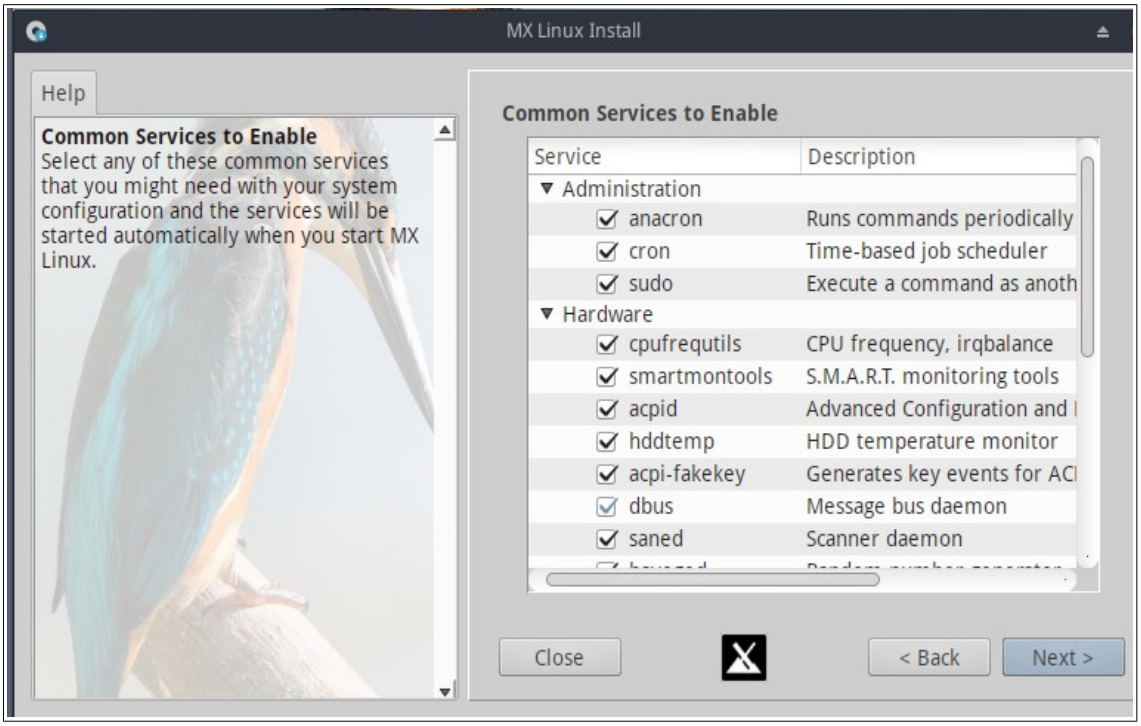


Figure 2-22: Installer Screen 7 (extra)

Comments

- This screen only shows if “View” was clicked at Screen 7, item d.
- Services are applications and functions associated with the kernel that provide capabilities for upper-level processes.
- These applications and functions require time and memory, so if you are concerned about the capacity of your computer, you can look at this list for items that you are sure you do not need. For instance, a user who has no need for Bluetooth (for a mouse or keyboard, for example) can comfortably uncheck that service.
- If you do not understand what a service is and does, you do best to leave it alone.
- If you later want to change or adjust the startup services you have two choices.
    - a command-line tool called **sysv-rc-conf** is installed by default and must be run as root.
    - a graphical tool called **Boot-Up Manager (BUM)** can be installed from the repos.

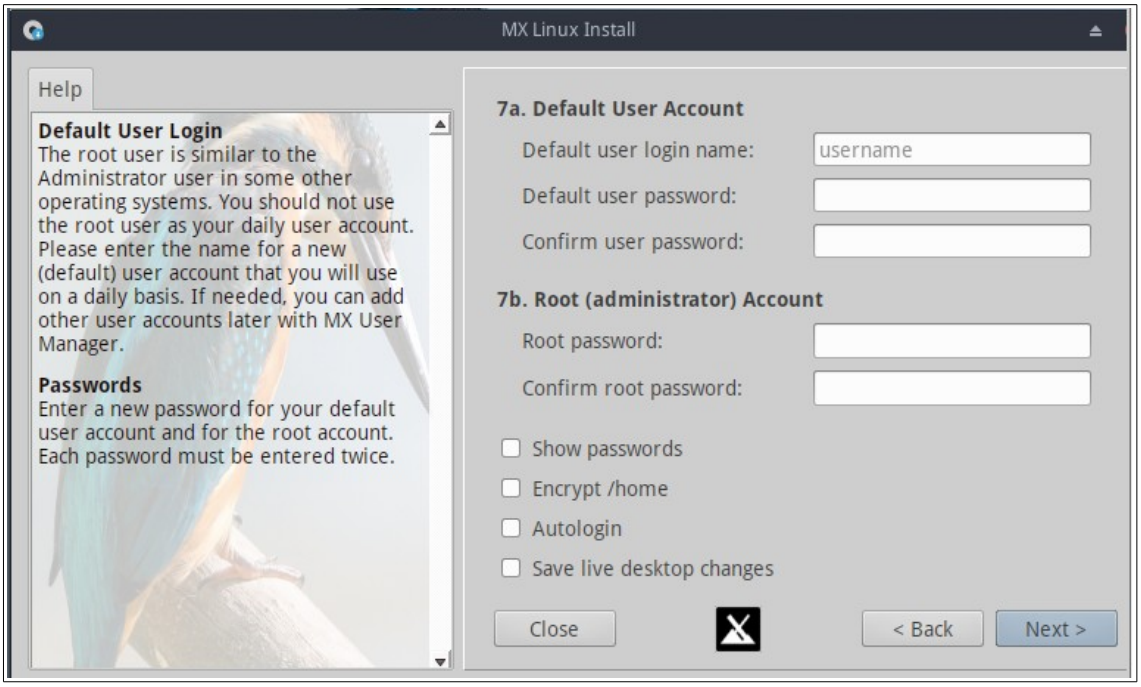
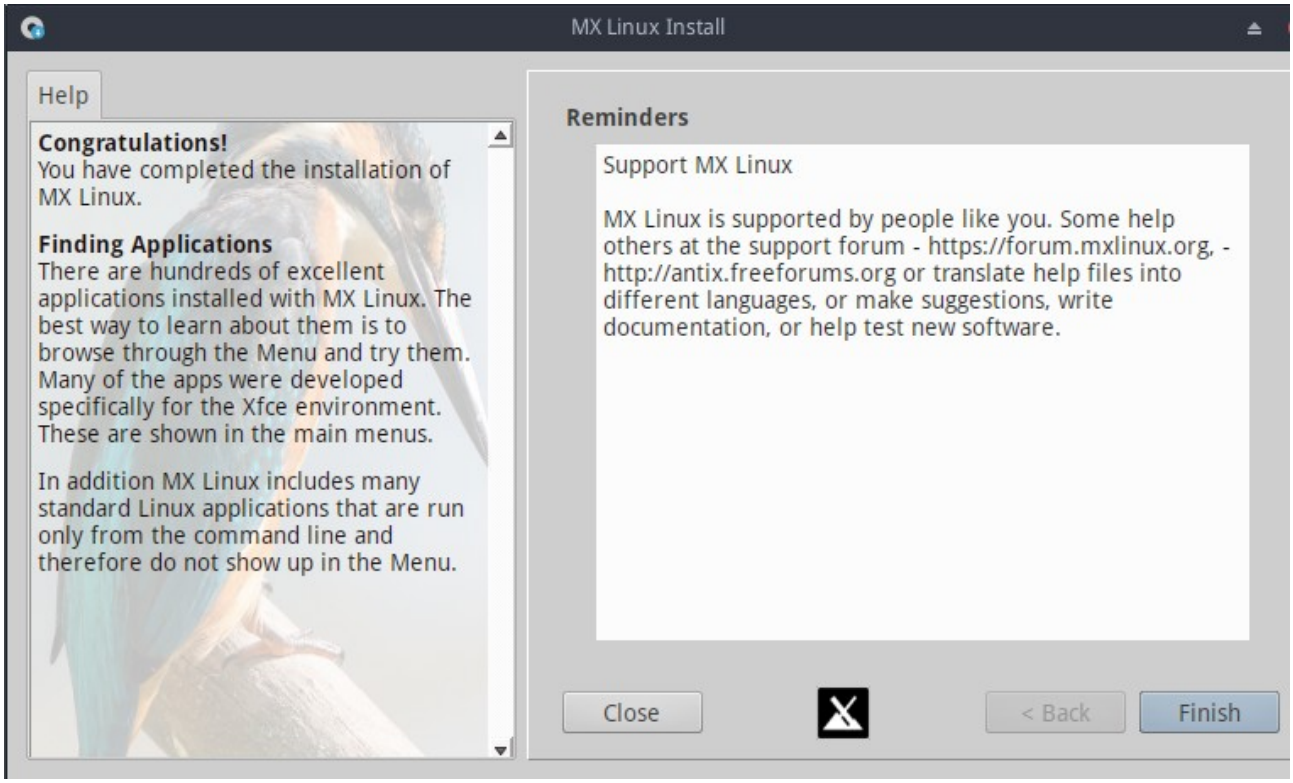


Figure 2-23: Installer Screen 7

Comments

- The level of security on the passwords you choose here will depend greatly on the setting of the actual computer. A home desktop is generally less likely to be broken into than a laptop or a computer in a public space.
- If you check Autologin, you will be able to bypass the login screen and speed up the boot process. The downside of that choice is that anyone with some kind of access to your computer would be able to log directly into your account. You can later change your autologin preferences on the “Options” tab of the MX User Manager.
- You can transfer any changes you make to your Live desktop to the HD installation by checking the last box. A small amount of critical information (e.g., the name of your wireless Access Point) will be translated automatically.

- Next and last, the Finish



2.6 Troubleshooting

2.6.1 No operating system found

When rebooting after an installation, it sometimes happens that your computer reports that no operating system or bootable disc was found. It also may not show another installed OS such as Windows. Usually, these problems mean that GRUB did not install properly, but that is easy to correct.

- If you can boot into at least one partition, open there a root terminal and run this command:
  update-grub
- Otherwise, proceed with MX Boot Repair.
  - Boot to the LiveMedium.
  - Launch **MX Tools > Boot Repair**.
  - Make sure that “Reinstall GRUB Bootloader” is selected, then click OK.
  - If this still does not fix it, you may have a faulty hard drive. Usually, you will have seen a SMART warning screen about it when you began your installation.

2.6.2 Data or other partition not accessible.

Partitions and drives other than the one designated as boot may not be booted or require root access after installation. There are a couple of ways to change this.

- **GUI**. Click Start menu > System > Disk Manager. Check anything you want mounted at boot and save; when you reboot it should be mounted and you will have access in Thunar. See HELP: Disk Manager for details.
- **CLI**. Open a root Thunar and navigate to the file /etc/fstab; click on it to open it in a text editor. Look for the line containing the partition or drive to which you want access (you may need to type *blkid* in a terminal to identify the UUID). Change it following this example for a data partition.
  UUID=9501<snip>912 /data ext4 users 0 2
  This entry will cause the partition to be automatically mounted at boot time, and also allow you to mount it and umount it as a normal user.This entry will also cause the file system to be checked periodically at boot time. If you don't want it mounted automatically at boot time then change the options field from "user" to "user,noauto".
    - If you don't want it checked regularly then change the final "2" to a "0". Since you have an ext4 filesystem it is suggested that you enable the automated checking.
    - If the item is mounted but not showing in Thunar, add an additional "comment=x-gvfs-show" to the line in your fstab file, which will force the mount to be visible. In the example above, the change would look like this:
      UUID=9501<snip>912 /data ext4 users,comment=x-gvfs-show 0 2

NOTE: neither of these procedures will change Linux permissions, which are enforced on the folder and file level. See Section 7.3.

2.6.3 Keyring problems

If you set a password the first time the GNOME Keyring dialog box appeared (usually when you set up Network Manager), then you will be obligated to reenter it every time you boot. There are two ways to change that:

- Click Start Menu > Accessories > **Passwords and Keys** (seahorse) from the repos. Open a root Terminal and enter the command *seahorse*, Right click on Default Keyring > Change Password. Replace the password for the "Default" keyring with an empty return. Details on use here.
- Navigate in Thunar to ~/.local/share/keyrings/ and delete the network password. The next time the dialog box appears asking for a new password, just hit return to store a blank password.

Note that if malevolent agents get physical access to your machine, using a blank password will make it easier to break into. But it seems pretty clear that if a malevolent agent has physical access to your machine it's all over anyway.

2.6.4 Locking up

If MX Linux is locking up during installation, it is usually due to a problem with faulty computer hardware, or a bad DVD. If you have determined that the DVD is not the problem, it may be due to faulty RAM, a faulty hard drive, or some other piece of faulty or incompatible hardware.

- Add one of the Boot Options using F4 at boot or consulting the (MX/antiX Wiki). The most common problem arises from the graphic driver .
- Your DVD drive may be having problems. If your system supports it, create an MX Linux bootable USB flash drive and install from that.
- Systems often lock up due to overheating. Open the computer's case and ensure that all the system's fans are running when it is turned on. If your BIOS supports it, check the CPU and Motherboard temperatures (enter **sensors** in a root terminal if possible) and compare them to the temperature specifications for your system.
- Shut down your computer and remove any non-essential hardware, then attempt the installation again. Non-essential hardware may include USB, serial, and parallel-port devices; removable PCI, AGP, PCIE, modem slot, or ISA expansion cards (excluding video, if you do not have onboard video); SCSI devices (unless you are installing to or from one); IDE or SATA devices that you are not installing to or from; joysticks, MIDI cables, audio cables, and any other external multimedia devices.