Here is my how to install a desktop server/client using Mx Linux.

Thanx to Sagewisdom's thread here as my basis. https://forums.sagetv.com/forums/sho...l+instructions

Mx Linux is a debian based distro that uses debian stretch stable as its base with a significant difference .. it's default boot init is the older SystVinit, long abandoned by the majority of distros in favour of Systemd. IT is a point of controversy & security for many, which I won't get into here. You can further research more about it online. Mx Linux has a work around ~ the use a systemd-shim that allows for all the necessary compatibility links since debian now uses systemd by default as well., since many packages have systemd dependence. That is key here since sagetv needs systemd mode to install it's packages.

For those new to linux, there is a handy Mx Linux Manual for Instructions & further reference on how to install & use this linux distro.)

 https://mxlinux.org/manuals/

This distro is more like a proper debian install in that it has proper root & user account logins.
(unlike Ubuntu & Linuxmint which use user logon for both user & root access)
root = administrator

Steps

1. Download & install Mx Linux via iso on usb or dvd.

NB. Please verify integrity of iso using GTK Hash application or similar on your current pc before creating an install medium.

https://mxlinux.org/blog/mx-18-3-refreshed-isos-now-available/

Once you have it installed & are ready to add packages do this,

In Mx Linux 18.3 the default kernel is 4.19 so you should be good to go. See note 2. further in doc. You can go with an older kernel if needed for your hardware. (your options are 4.9 or 4.15 in addition to 4.19 or 5 series which is the latest supported version for all those of you using new hardware. Just know that doing this may not guarantee the needed drivers/firmware will be present for your tuner on pre 4.19 series kernels. I am working specifically with Hauppauge pci cards WinTv-HVR-2255 & WinTV-HVR-Quad in my own setup.

Linux & hauppauge drivers as well as how to deal with live playback in linux
Issues with the drivers is the very reason I have gone with the 4.19 series kernels, as well as getting away from Ubuntu distro. The changes that Hauppauge made to the drivers have made their way into the newer mainline kernel. If you go with the older kernel you get buggy or missing driver/firmware. In the older kernel you had to use the ubuntu custom media kernel (before the changes made it into mainline kernel.

Having said that, the dual tuners are no longer supported only the quad in the newer kernels. To add that hardware you need to manually add it to the lib/firmware folder.

Hauppauge WinTV-HVR2255 atsc card firmware link

https://linuxtv.org/wiki/index.php/H...WinTV-HVR-2255

https://www.linuxtv.org/wiki/index.p...WinTV-HVR-2200

you need to install both for 2250/2255 cards

v4l-saa7164-1.0.3-3.fw
NXP7164-2010-03-10.1.fw

4.19 kernels have the required firmware for the Quad & other currently supported hardware models. This link on Hauppauge site lists the supported newer hardware models

http://www.hauppauge.com/pages/suppo...x.html?#tabs-1

You can check on your configuration to this point by typing dmesg in the terminal.

It will check if the firmware is installed upon booting into Mx Linux. Make note of any red notes you see in terminal. Those will be hardware issues that need to be troubleshooted. The most common issues are related to video drivers or keyboard & mouse drivers. Those can be easily addressed with a bit of detective work & installing any missing required drivers.

To prep for the sagetv install you want to ensure that you have the following packages installed:

1. java 8 which can be accessed under misc area of popular packages.
 Click & install.

Now Go to terminal & cut & paste this

```
echo "" >> .bashrc
echo "export JDK_HOME=/usr/lib/jvm/java-8-openjdk-amd64/" >> .bashrc
echo "export JAVA_ARCH=amd64" >> .bashrc
echo "" >> .bashrc
```

enter

Reboot computer

2. In the boot screen choose advanced options & pick & click on the 4.19.05 that has systemd listed behind it.
This will boot you in systemd boot mode so you wont have issues with installing sagetv.
* you can adjust grub with either Mx Linux boot options or installed grub customizer to comfigure boot menu to default to that kernel each time you boot up your pc other wise it will go to systVinit boot upon future boot ups.

3.Multimedia codecs which can be accessed by doing a search for codec on the "start" menu
 the search result will give you MX Codec Installer or under Mx Tools you can find it listed there as well. Basically just click on that & follow what it says to install the package. I think there is one dependent not already included that will be prompted to install.

Or if necessary you can manually install these dependents as mentioned in linux walkthrough on sagetv forum.

 install dependent files by entering the folowing into the terminal

sudo apt-get install libx11-dev libxt-dev libraw1394-dev libavc1394-dev
sudo apt-get install libiec61883-dev libfreetype6-dev yasm autoconf libtool
sudo apt-get install build-essential libaudio-dev libpulse-dev libasound-dev
sudo apt-get install madplay libasound2 xorg libfaad-dev

From the user account install both the sagetv-server.deb & sagetv-client.deb (especially if you have no other client to be able to configure sagetv.

They can be found here [Latest Linux install files](#)

Once downloaded just double click on file & it will initiate the deb installer.

If you have sussessfully installed the server & client proceed to opening the client to configure your setup.

Click on & open the client where it will ask you to connect to your server. Here you enter the ip for your pc. Most likely this will be a 192.168.1.x if you have a default intranet/ internal network setup at your location.

Once in the setup follow the setup instructions till you reach the add source for tuners. You will notice in the linux version there is no step to configure playback.

You will be unable to watch live shows from within Sagetv running on a Linux OS. That is related to the codecs & the mplayer in linux version of sagetv. In Win 10 you would have installed Lavfilters or

similiar to address the same issue. My work around is to install & use Kaffeine, which is a customized version of vlc (with vlc providing the codecs, aside from the media codec packages of the distro). So basically I use Sagetv as the Dvr, & Kaffeine for watching live when at the linux server./client pc. I have 8 tuners so I have 7 added to sagetv & save one for kaffeine. On my tv I have a win 10 client, where the live playback is included.

FYI VLC can also stream from tuners, but I like the refinements of Kaffeine & the ability to see epg taken from OTA tuning.

Here is a picture posted on Hauppauge company website that will give you an idea of how it looks & works. http://www.hauppauge.com/pages/suppo...html?#kaffeine

IF everything installed correctly you should now be able to record & view tv from your new Mx Linux media server. Happy viewing!

PS forgot to add the firewall rules.

Type in terminal

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 22

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 7760

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 7818

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 8018

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 8080

sudo ufw allow proto udp from 192.168.0.0/24 to any port 8271

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 31099

sudo ufw allow proto udp from 192.168.0.0/24 to any port 31100

sudo ufw allow proto tcp from 192.168.0.0/24 to any port 42024

sudo iptables -I INPUT -p udp -m udp --sport 65001 -j ACCEPT

sudo reboot