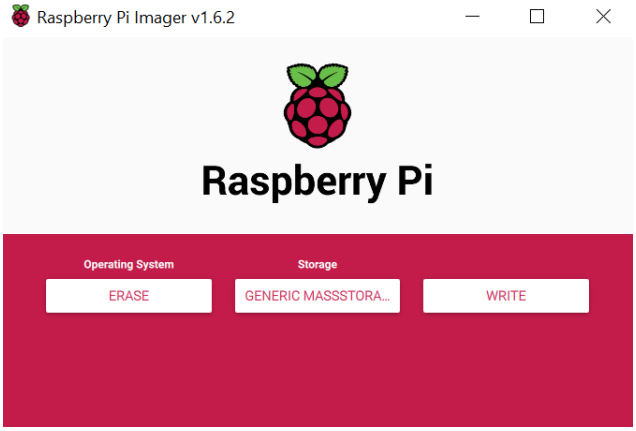
Setup of Kali on Raspberry Pi 400 with Pi Imager

These directions are how the Kali OS were configured for the Raspberry Pi 400.

1. Download and installed the Raspberry Pi Imager at https://www.raspberrypi.org/downloads.../. Chose the correct OS for your host system. I worked from Windows.
2. Download the 32-bit version of Kali for the RPi 400 under ARM images. https://www.offensive-security.com/kali-linux-arm-images/. If you are not sure which processor you have, run the "uname -m" command and it should show you this information. When I ran it on my RPi 400, it returns:
    1. pi@Pi400SB:~ $ uname -m
    2. armv7l

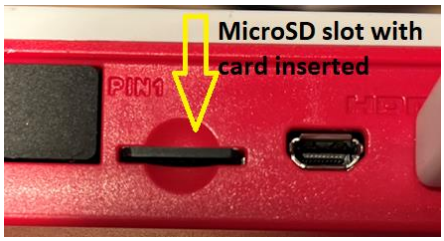
    More information about choosing the correct Kali Linux download is at https://www.kali.org/docs/introduction/download-official-kali-linux-images/.

3. Open the Raspberry Pi Imager from the Windows host machine (or other OS you are using).
4. Chose "Erase" - Selected memory card - Clicked on Write - took a few minutes to erase. Note: don't skip this step–it can cause problems later.

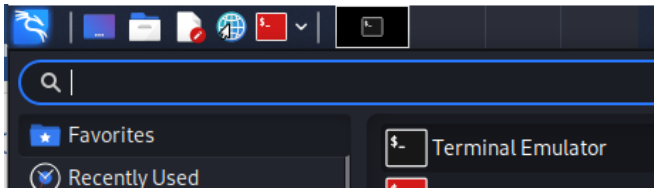


5. From the RPi Imager on the Windows host machine:
    1. Chose "Custom" and select downloaded Kali image for ARM image (kali-linux-…-armhf.img.xz) downloaded in Step 2.
    2. Under "Storage," select the memory card to write to.
    3. Click on Write. This can take about 10 minutes or longer to write the Kali image to the card.

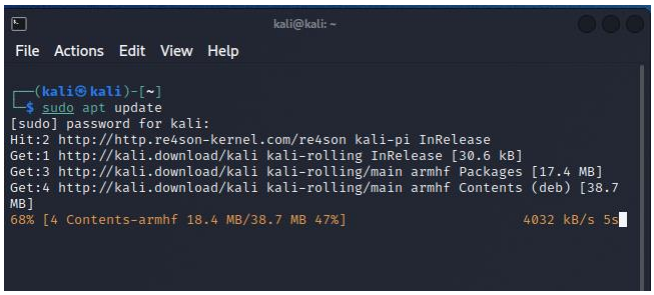
6. Insert memory card into the back of the RPi 400. If there is a memory card already inserted, remove other memory card by pushing in and popping out the microSD card. Push this written microSD memory card in until the card “locks” in.



7. Plug in the RPi 400 into a monitor using the included MicroHDMI cable.
8. Plug in the mouse into any of the USB slots.
9. Last, plug in the USB-C power into the power slot (has on/off power logo above it).
10. Watch Kali boot and a lot of text will go by. This is normal.
11. When the login screen comes up log in:
    1. username: kali
    2. password: kali
12. Setup network: connect an Ethernet cable or select the Wi-Fi signal in the upper right corner near the clock. For wi-fi: Choose the appropriate network and login credentials to get online.
13. Update the system files and programs. Note: this can take 20 minutes or more.
    1. Open a terminal window:



    2. sudo apt update



3. sudo apt upgrade

   Note: If prompted for the password, use "kali".

14. Run through the "**sudo apt update**" and the "**sudo apt upgrade**" 2-3 times.
15. Run "**sudo apt autoremove**" to cleanup unneeded program files.
16. (Optional) For remote access, run the commands to enable remote desktop access (a "headless" node), run the following commands:
    1. sudo apt install xrdp
    2. sudo systemctl enable xrdp
    3. sudo systemctl start xrdp
17. (Optional) Now is a good time to back up MicroSD card onto the host computer if 32GB is available. Make a full bitwise image of the card using the Win32DiskImager program (https://sourceforge.net/projects/win32diskimager/) following the directions at https://www.howtogeek.com/341944/how-to-clone-your-raspberry-pi-sd-card-for-foolproof-backup/. This can also be accomplished using the "dd" command on a Linux, RPi OS, or Mac host system or with Balena Etcher https://www.balena.io/etcher/.

Remote Access to RPi

For remote access and to run a "headless" RPi – no monitor directly hooked up to the RPi and access via the network:

Getting the RPi IP Address:

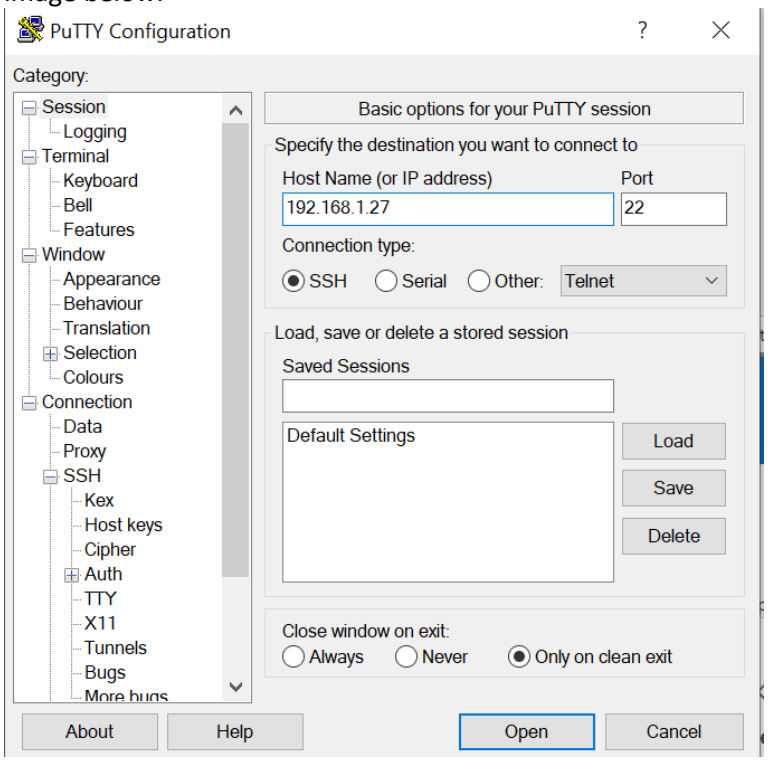
1. Log into the RPi at least once with a monitor connected.
2. Run "ifconfig" and look for the wired (eth0) IP address if you plugged in a cable or the wireless network (wlan) if you are running via wi-fi.
3. Copy down the IP address associated with the network interface from the step above.

Terminal text-only connection

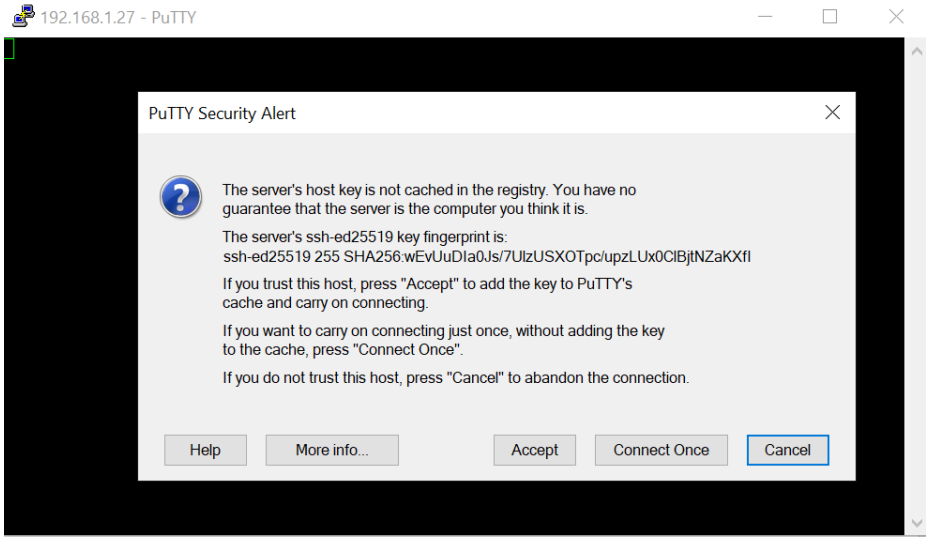
Connecting the RPI **from a host on the same network:**

1. Download and install Putty for remote shell (ssh) access to RPi. https://www.puttygen.com/download-putty
2. Click on "**Session**" in the Category menu.

3. Enter the Raspberry Pi's IP address in the Host Name box that you determined through the ifconfig command on the RPi from above. Your address will differ from the one seen in the image below.



4. Click "**Open**" when you are ready to connect to your RPi. This must be on the same network that your host computer you are logging into is sitting on.
5. On the first connection, you will receive a warning:



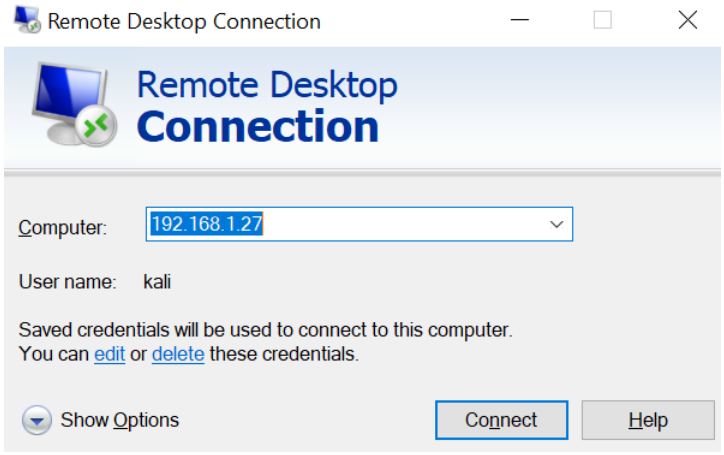
6. Click "**Accept**" to continue.
7. Login for Kali: **user "kali", password "kali"**

Graphical Interface Remote Desktop

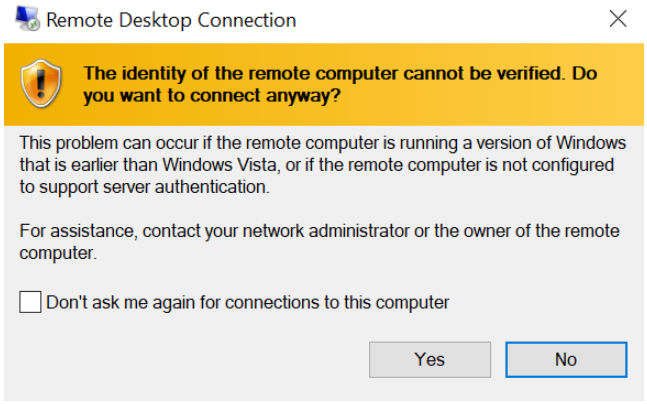
You now have a full remote text terminal through the secure shell (ssh). This is helpful to install packages (software) and start services. Wouldn't it be nice to run a graphical program or see a desktop?

You can use Remote Desktop (RDP) for this! Windows comes with RDP built-in and it's also available on Mac OS. Again, for non-routable addresses (such as those that start with 192.168 and 10.), you must be on the same network for the connection to work.

1. To connect to the graphical desktop, start the "**Remote Desktop Connection**" program.
2. Enter the IP address of the RPi and the username (default is "kali").

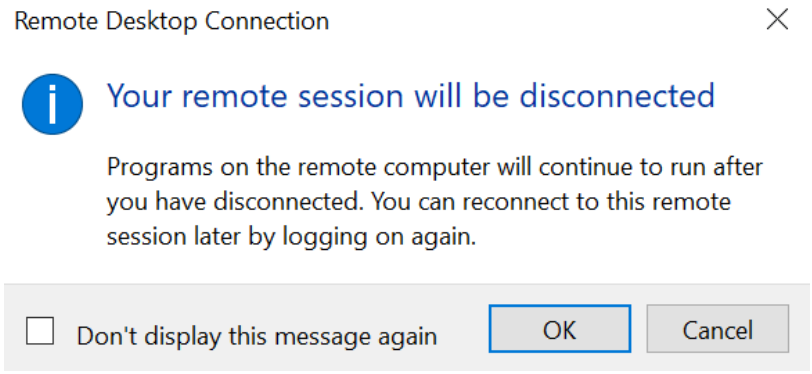


3. Click "**Connect**".
4. You might get an error, click "**Yes**" to continue.

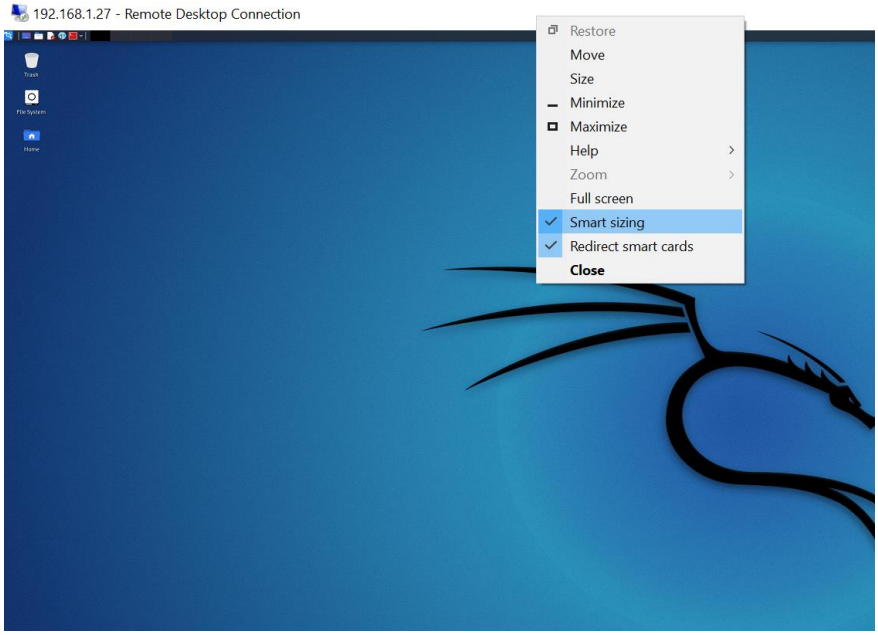


5. After a few moments, the desktop should appear. If you are going to be running smaller than full screen, you might want to enable the "Smart sizing."

6. When you disconnect any session without closing down the system, you will see the message. Click on “OK” to proceed and close the RDP connection.



Tips: Only one desktop session can be active at a time. If you are logged in directly on the RPi, you will not be able to connect through the remote desktop (RDP) program. **Be sure to log out of any direct connection before connecting through RDP.**



Input from the article “Enable Remote Desktop with XRDP on Kali Linux”
https://stealthm0de.medium.com/enable-xrdp-on-kali-linux-506980a29d1d

Resources:

- https://howchoo.com/pi/install-kali-linux-raspberry-pi
- https://www.offensive-security.com/kali-linux-arm-images/
- https://www.kali.org/docs/introduction/download-official-kali-linux-images/

- https://www.howtogeek.com/341944/how-to-clone-your-raspberry-pi-sd-card-for-foolproof-backup/
- https://sourceforge.net/projects/win32diskimager/
- https://www.balena.io/etcher/
- https://www.puttygen.com/download-putty
- https://stealthm0de.medium.com/enable-xrdp-on-kali-linux-506980a29d1d