



KODO Controller

Remote Access

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Introduction

The Kodo Controller provides basic input and output via its main graphical display and touchscreen. A standard PC mouse and/or keyboard can be attached by plugging into the USB ports, though these are generally not needed for normal operation.

For more convenient remote operation, the Kodo controller allows a remote device (PC, Chromebook, tablet, smart phone) to be connected via an ethernet cable or Wi-Fi.

Wi-Fi Connection

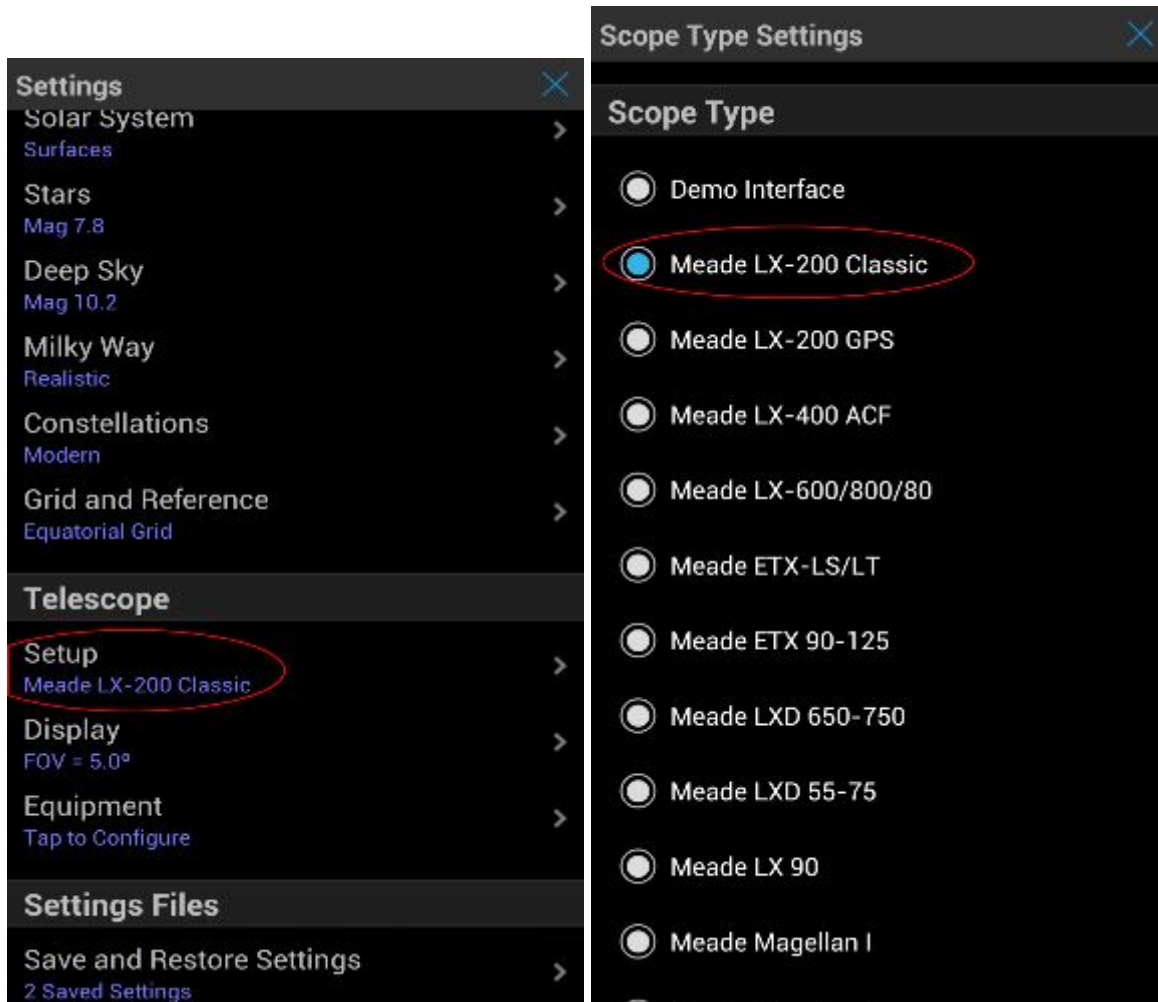
For short-range, wireless connection, the Kodo provides its own Wi-Fi hotspot if a compatible wi-fi USB device is connected before power-up. A VNC-type program on the remote device is also required. These VNC-type programs will display the Kodo screen remotely and allow touch or mouse clicks to be forwarded to the Kodo. The connection information required is as follows:

- Wi-Fi SSID: ssoneguider
- IP Address: 192.168.2.102:5900
- User: pi
- Password: ssone123

For security reasons, if Wi-Fi is not in use, disconnect the USB Wi-Fi device. Otherwise change the password (described later in this manual) before using the Kodo remotely (e.g. star party). To prevent conflicts with other nearby Kodo units, change the SSID as described in the Kodo Introduction manual. After changing the SSID, reboot the Kodo to activate the new SSID.

Wi-Fi Connection to Safari App

An example of a third-party cell-phone app which may be connected to the Kodo controller is Safari. To configure Safari to connect to the Kodo controller for go-to operation, select [Setup] from the main screen and Telescope [Setup]. Set the scope type to Meade LX-200 Classic protocol:



Also under the Telescope Setup Communication Settings, select [Connect via WiFi] and type in the Kodo IP address and port number in the Safari setup screen shown at right.. The Kodo address info is:

- IP address: 192.168.2.102
- Port: 4001

If you have not already done so, connect the cell-phone to the Kodo's Wi-Fi network. Once this is done, in the main Safari menu, select [Scope] and [Connect].

Additional Sky Safari tips:

- Set your coordinates to "Equatorial"

Scope Setup Settings

Equipment Selection

Scope Type -- Meade LX-200 Classic

Mount Type -- Equatorial GoTo (German)

Communication Settings

☒ Connect via Bluetooth

☒ Connect via WiFi

☐ Auto-Detect SkyFi

IP Address 1.2.3.5

Port Number 2000

SkyFi Settings Web Page

Common Settings

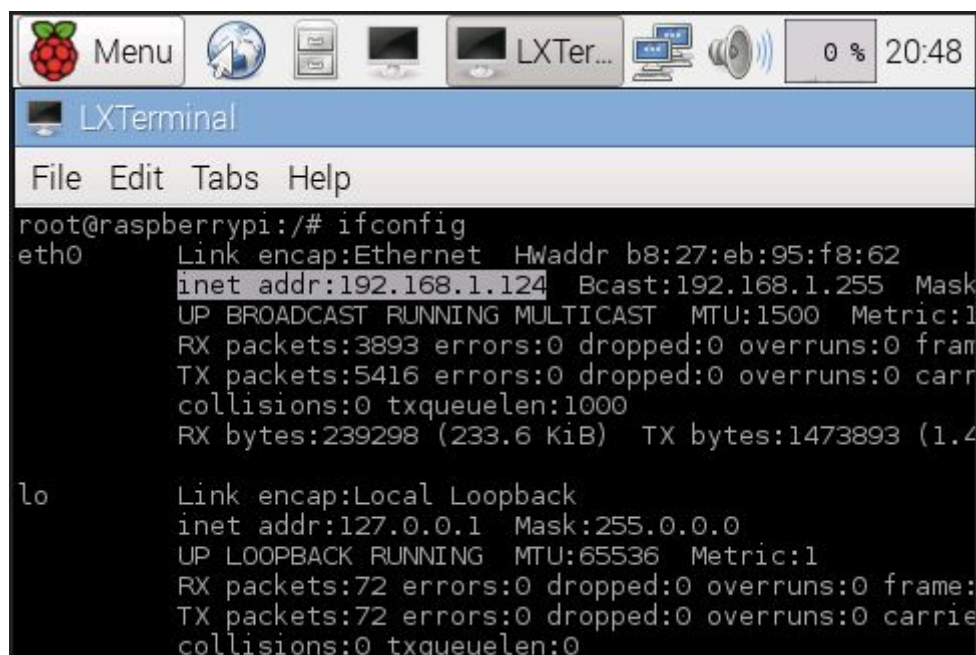
☐ Set Time & Location

Ethernet Connection

The following information is provided for advanced users. Some experience with the Linux operating system is suggested.

For longer and/or more reliable connection, connect the Kodo to an established ethernet network (router must exist in the network). Connecting the Kodo to the network with an ethernet cable will cause the Kodo to request an IP (internet protocol) address from the router. Note that this router does NOT need an actual connection to the internet.

To remotely access the Kodo, you will need to find out what IP address was assigned to the Kodo. To do this, use a PC to go to the IP address assignment table in the router (varies by brand of router). Alternatively, temporarily connect a USB keyboard and mouse to the Kodo controller and from the main Kodo screen, select [Shutdown], and then [System] to exit to the Raspberry Pi Linux OS desktop. From the Raspberry Pi Menu (top left of screen), select [Accessories] and [Terminal] and type the command “ifconfig” into the terminal window:



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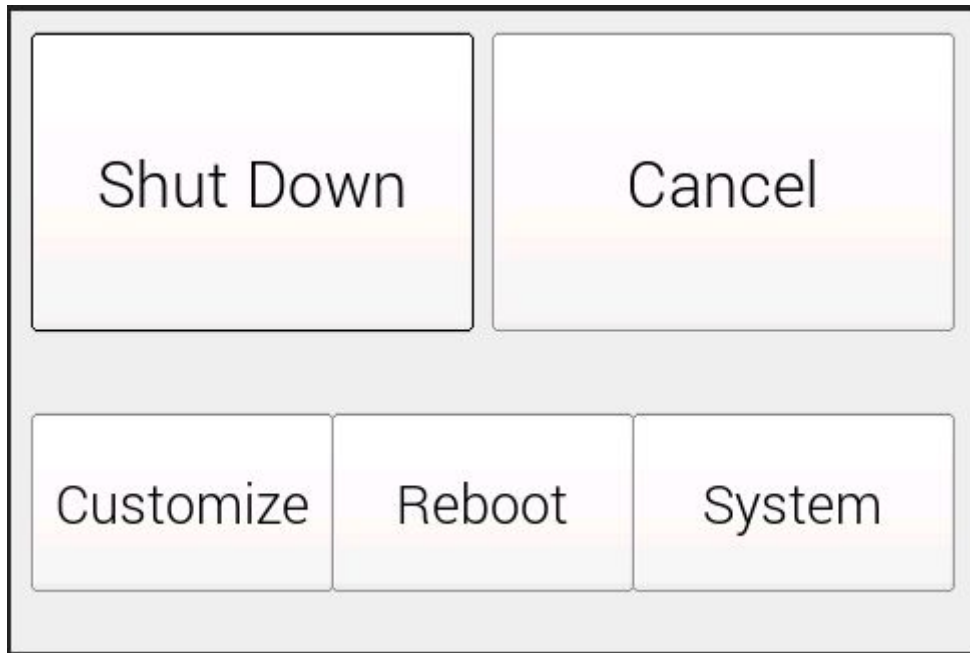
root@raspberrypi:/# ifconfig
eth0      Link encap:Ethernet  HWaddr b8:27:eb:95:f8:62
          inet addr:192.168.1.124  Bcast:192.168.1.255  Mask:
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:3893 errors:0 dropped:0 overruns:0 frame:
          TX packets:5416 errors:0 dropped:0 overruns:0 carrier:
          collisions:0 txqueuelen:1000
          RX bytes:239298 (233.6 KiB)  TX bytes:1473893 (1.4
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:72 errors:0 dropped:0 overruns:0 frame:
          TX packets:72 errors:0 dropped:0 overruns:0 carrier:
          collisions:0 txqueuelen:0

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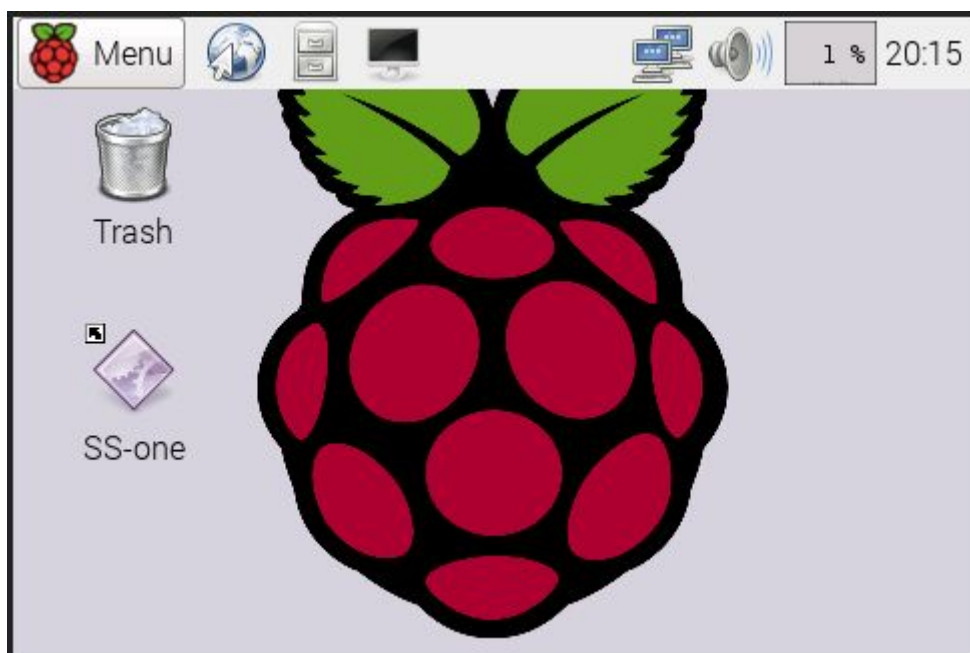
The IP address will be displayed as: “inet addr:192.168.1.124” or something similar. This is highlighted in the screen shot above. Record this IP address for use with the remote access program. Note that this address will change if the Kodo has not been kept connected to the network. However, over a short session, the router will generally assign the same IP address to the Kodo system, so rebooting the Kodo should not cause an address change. On some routers, the IP address can be “locked” to the Kodo so that the IP address is reserved for exclusive use by the Kodo.

Changing the Kodo Password

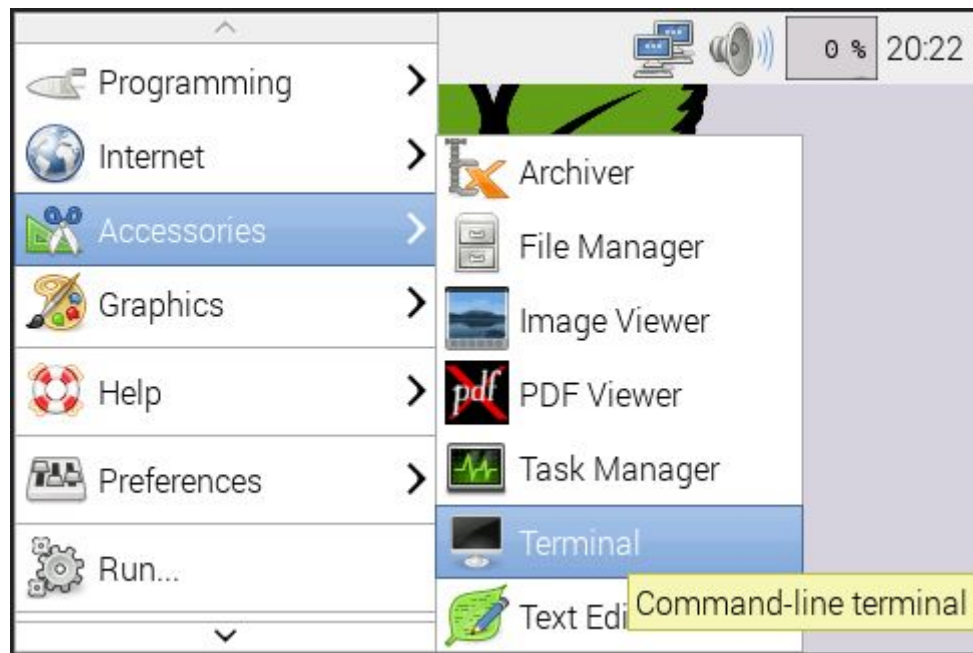
To change the password, a keyboard and mouse should be temporarily connected. Press the [Shutdown] button on the Kodo main screen. From the screen below, select [System]:



The [System] button will open the Raspberry Pi desktop. From here, select the Pi main menu [Menu] at the upper left of the system screen.



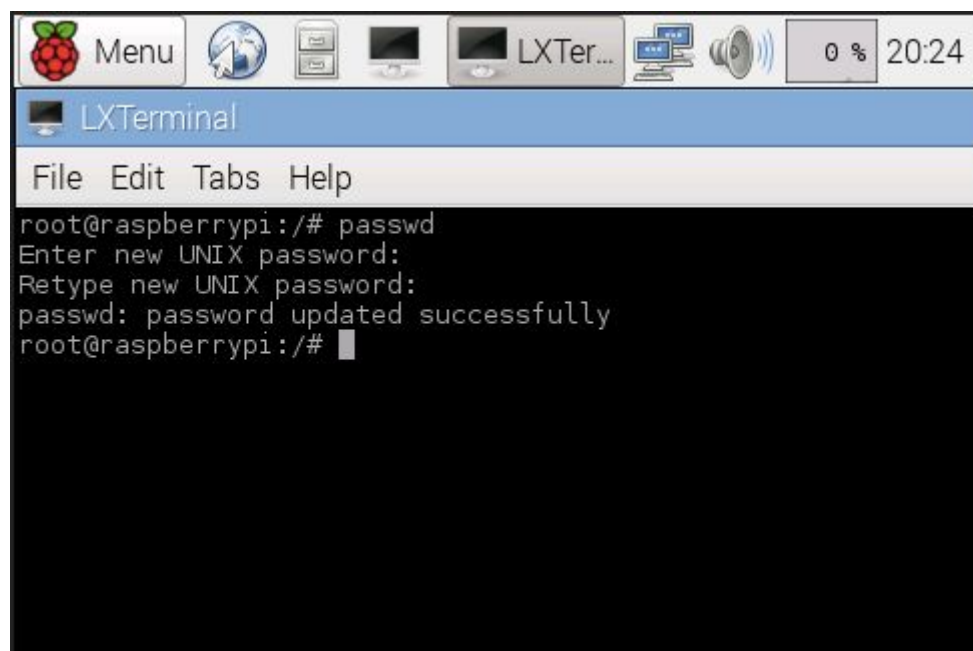
From this menu, select [Accessories] and [Terminal].



This opens a Linux command window. In the command window, type:

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passwd
```

You will then be prompted to enter a new password twice. The password will not appear on-screen for security. Typing it in twice insures that there was no mis-typed character the first time.



When the above has been completed, pull down the [Menu] and go to the Shutdown option at the bottom of the list, select the Reboot option and press OK to restart the system.

