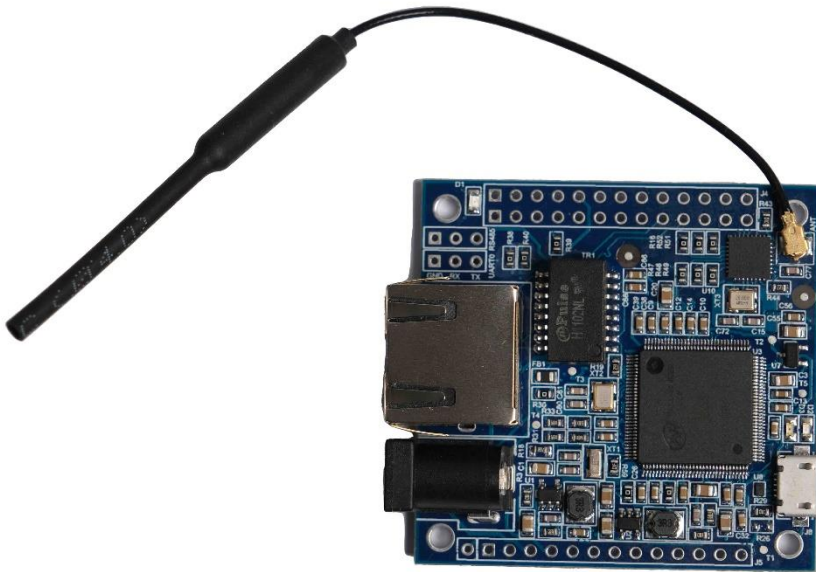


Crocus PI Zero

User Manual

V1.0



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1. Introduction

1.1. What is Crocus PI Zero?

Crocus PI Zero is mini single board computer(SBC). Based on Linux Operating Systems.It has 64MB(512 Mbit) SDRAM.

1.2. What Can I do with Crocus PI Zero?

You can use Crocus PI Zero to build...

- A computer
- Wireless Server
- Game Console
- Muzik Player
- Programming
-



Internet of Things(IoT)



Programming



Smart Home Applications



Signal Processing

1.3. Whom is it for?

Crocus PI Zero, anyone who interest with technology. You can create with technology. You can realize your projects in your mind. You can use it in many fields such as robotics, IoT etc.


1.4. Hardware Specifications

Hardware	
CPU	ARM Cortex-A7 CPU, 1.2GHz
RAM	64MB (512Mbit DDR2)
Storage	TF card (up to 32GB)
Ethernet	100M/10M
WIFI	ESP8266EX, IEEE 802.11 b/g/n
Antenna	Var (2.4 Ghz wifi)
USB	1x USB 2.0, OTG
Sound	No need extension board. Audio output can be taken directly.
Video	H.264, MPEG decoding
Power Supply	5V 1A, POE (need extension board)
GPIO	26 pin + 14 pin header
Peripherals	3 x UART(with console) , 1 x SPI, 2x I2C, 2x PWM, 1x RS485
LED	Power Led & 2 x User LED
Operating Systems	Mainline Linux, Debian, Android, RT-Thread RTOS
Interface definition	
Dimensions	48,5 x 47mm
Weight	33 gr

1.5. GPIO Specifications




26 pin GPIO header, compatible with Rasperry PI Model A, Model B, Orange PI Zero.

		Crocus PI Zero			
J5 – P01	Vrtc	J4 – P01	PE10	GND	J4 – P02
J5 – P02	5V	J4 – P03	SPI0_CS/PC2	SPI0_CLK/PC1	J4 – P04
J5 – P03	GND	J4 – P05	UART2_RTS/PB_EINT2	SPI0_MISO/PC0	J4 – P06
J5 – P04	Vdd_PoE_Rx	J4 – P07	GND	SPI0_MOSI/PC3	J4 – P08
J5 – P05	Vdd_PoE_Tx	J4 – P09	PE16	3V3B	J4 – P10
J5 – P06	Vdd_PoE+	J4 – P11	PWM0/PB_EINT4	UART2_CTS/PB_EINT3	J4 – P12
J5 – P07	GND	J4 – P13	GND	UART2_TX/PB_EINT0	J4 – P14
J5 – P08	HPOUTL	J4 – P15	PE07	UART2_RX/PB_EINT1	J4 – P16
J5 – P09	HPOUTR	J4 – P17	UART1_RX/TW11_SDA	GND	J4 – P18
J5 – P10	HPCOM	J4 – P19	UART1_TX/TW11_SCK	PWM1/PB_EINT5	J4 – P20
J5 – P11	HBIAS	J4 – P21	GND	TW10_SCK/PB_EINT6	J4 – P22
J5 – P12	MICIN1P	J4 – P23	5V	TW10_SDA/PB7	J4 – P24
J5 – P13	MICIN1N	J4 – P25	5V	3V3B	J4 – P26
J5 – P14	HPCOMFB				



2. Setup

2.1. Accessories Needed

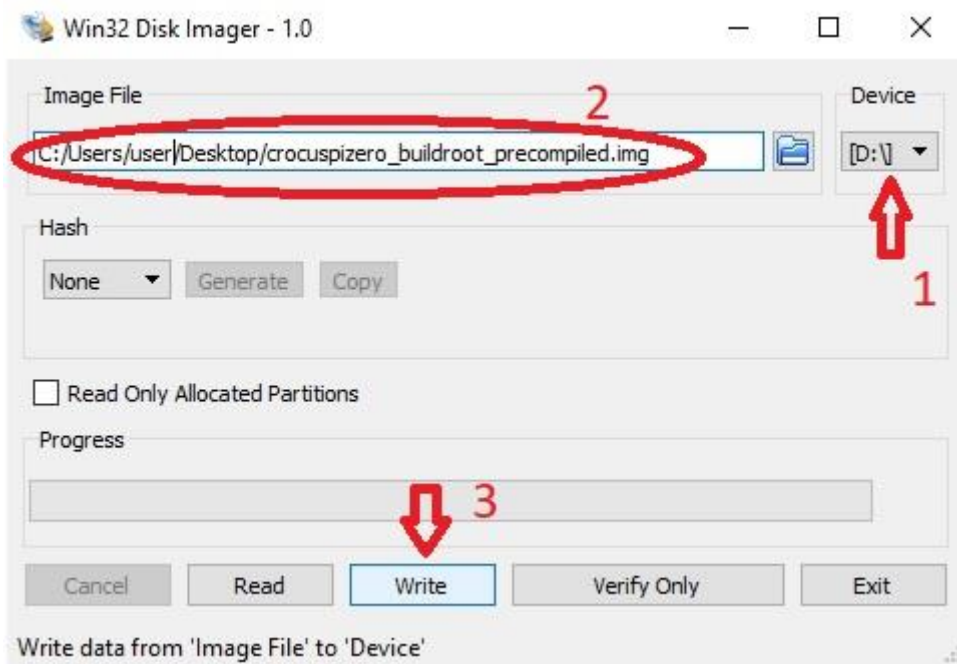
 <p>5V 2A veyra 1A Adapter</p>	 <p>MikroSD (class 10) card</p>	 <p>MikroSD card reader</p>
 <p>USB-Serial converter</p>	 <p>Windows Operating System</p>  <p>W32diskimager Application</p>	 <p>Ubuntu Linux Operating System</p>  <p>VirtualBox Application</p>

2.2. Running Crocus PI

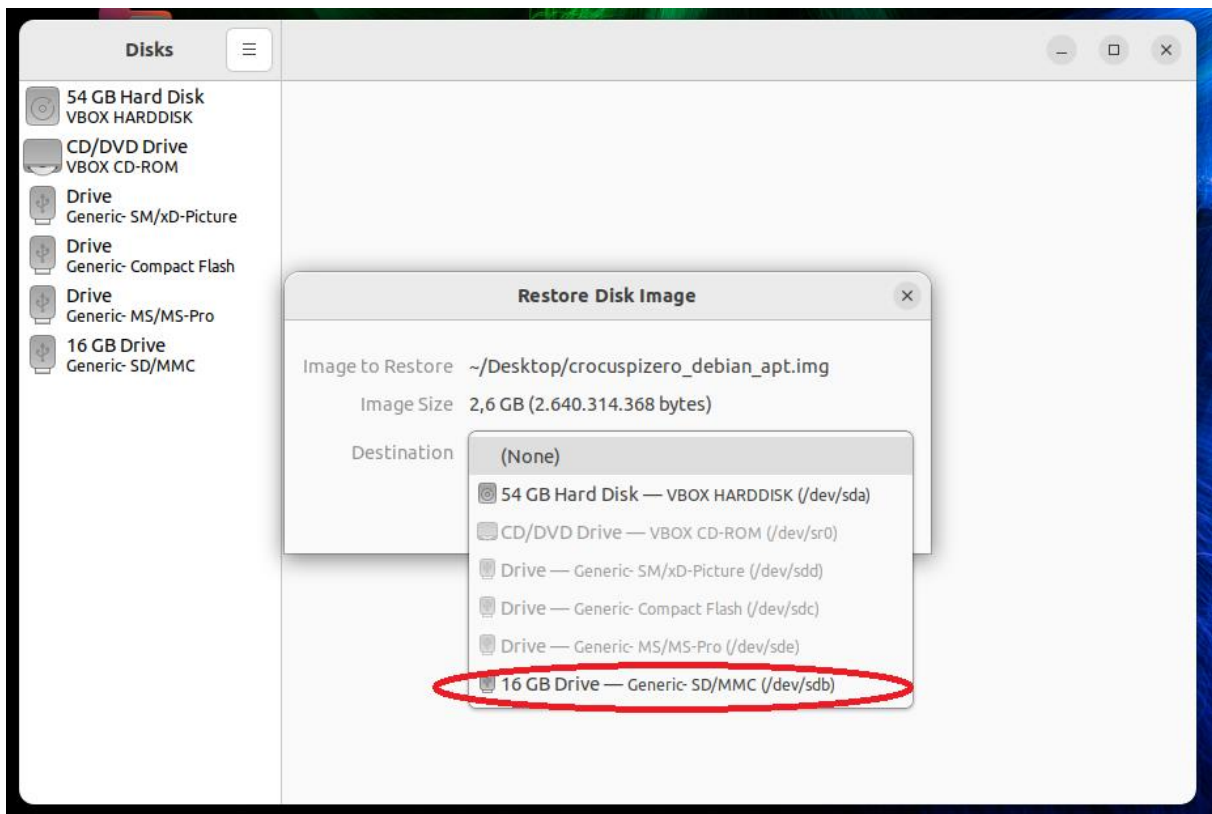
2.2.1. Preparing Operating System

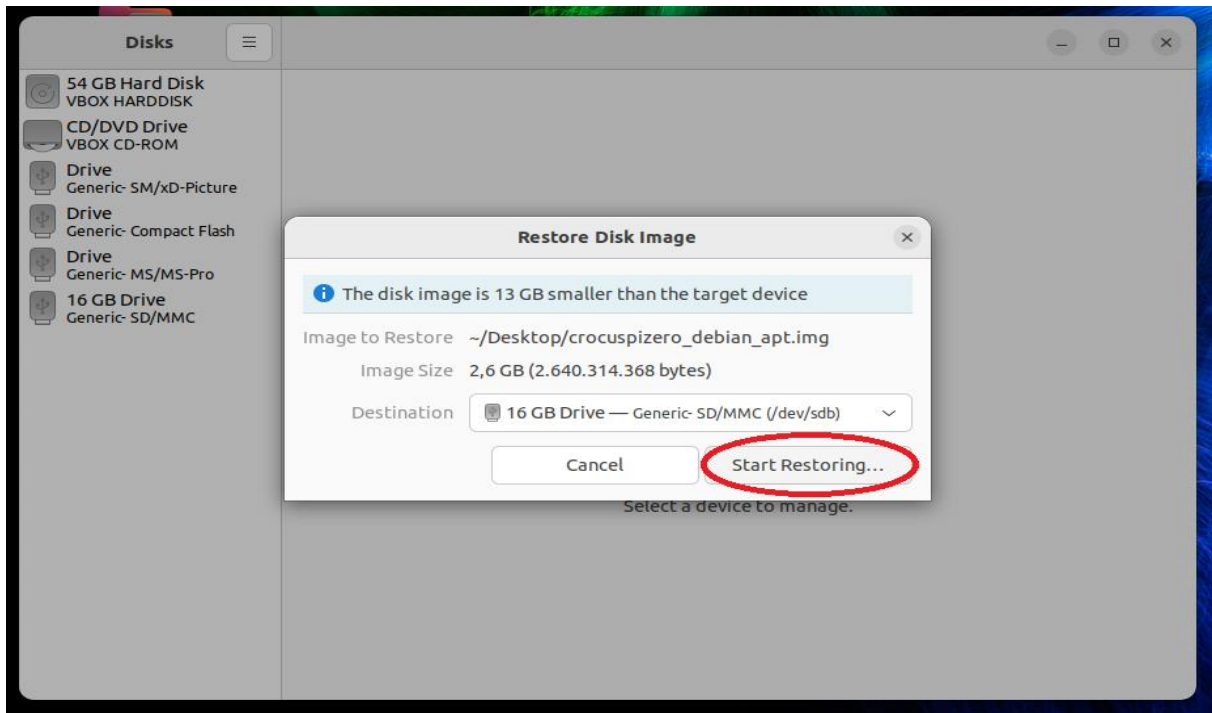
You can download the appropriate operating system precompiled image file and applications for Crocus PI from the [link](#). For detailed installation, you can review the [developer installation guide](#).

- 1- Insert your microSD card into the microSD card reader and connect it to your computer..
- 2- Download image file.
- 3- Open W32DiskImager application.



In **Ubuntu 22.04 LTS** operating system, you can open the downloaded image file with the "Disks" software, select the microsd card drive as the target drive, and load it to your sd card with the "Start Restoring..." option.





4- Insert the image loaded Microsd card into CrocusPI.

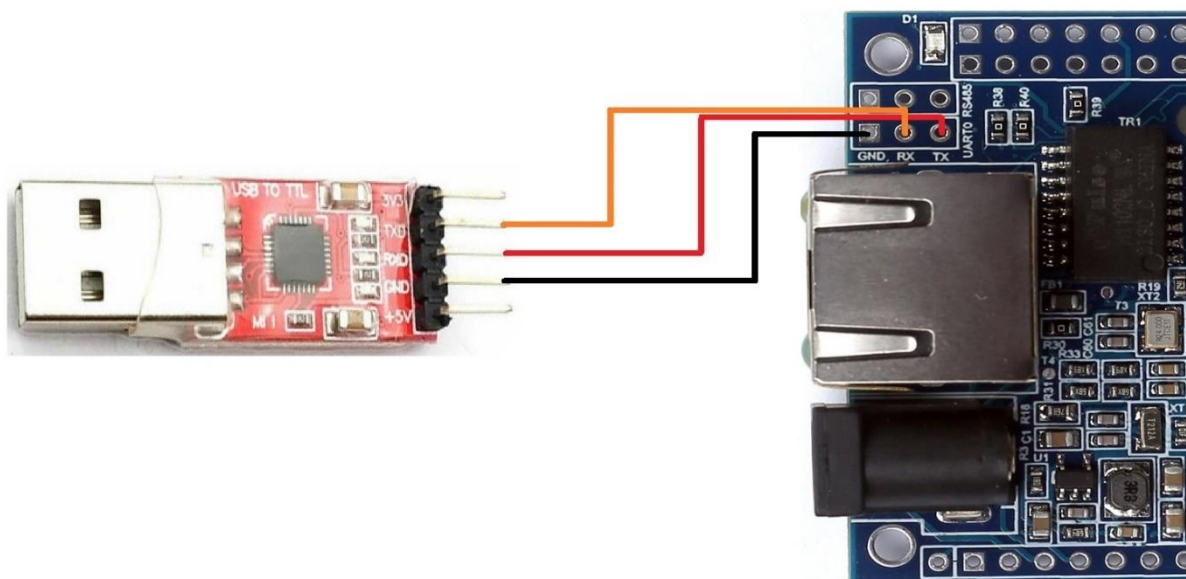
2.2.2. Power Up

You can energize and run the CrocusPI Zero in three ways.

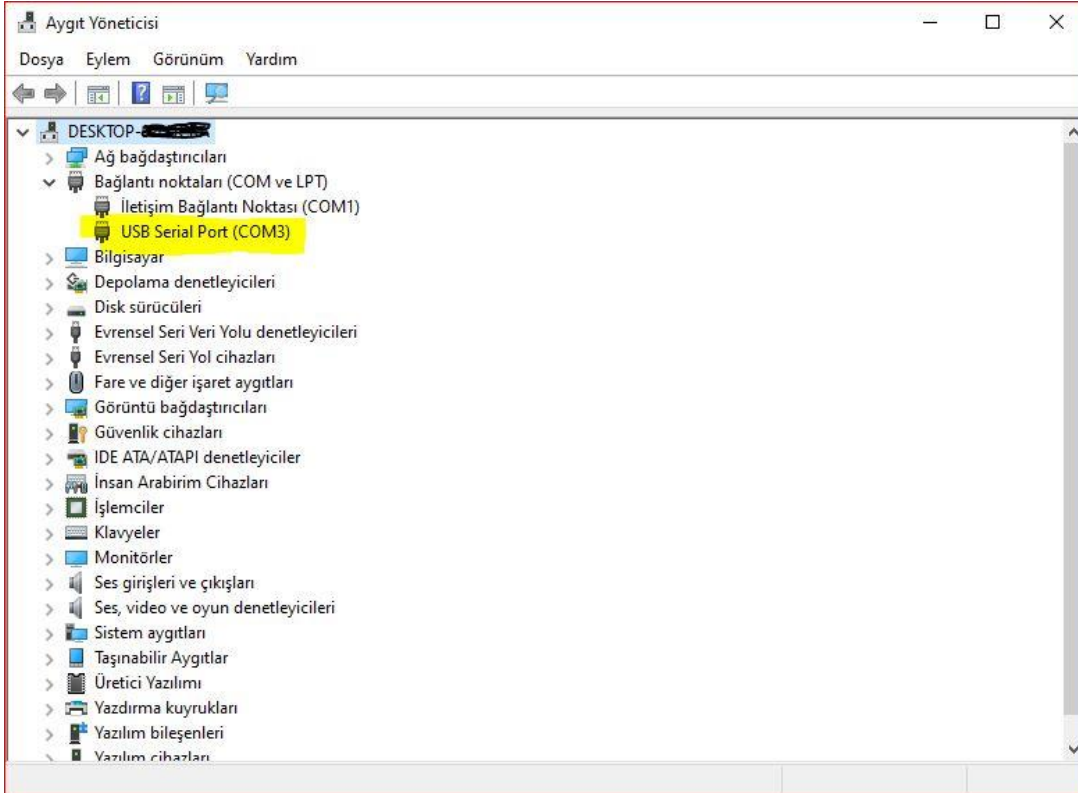
- 1- Power Jack (if another device is to be energized with the board, then an adapter with a suitable capacity that can give higher current should be used).
- 2- Using PIN Header (J5 – P02 and J5-P03)
- 3- Using the Ethernet port (PoE) (With an external voltage converter board using J5 -P02 ,J5 -P03 , J5 -P04, J5 -P05, J5 -P06)

2.2.3. Console Connection

Connect the USB-Serial converter to CrocusPI as follows and connect the converter to your computer.

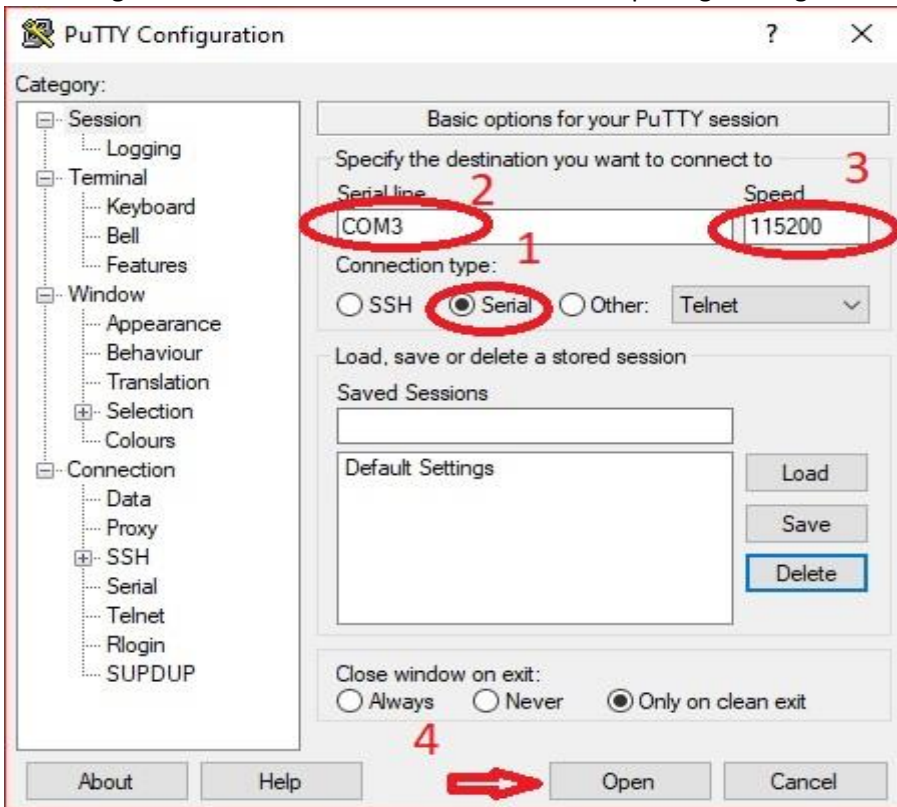


For Windows, you can find the corresponding COM port using Device Manager.



You can download Putty from the CrocusPI applications [folder](#) or from <https://www.putty.org>.

After selecting 115200 as the baudrate and specifying the relevant COM port, open the connection and energize the CrocusPI. You will start to see the opening messages on the console.




```
COM3 - PuTTY
[ 9.593646] mmc1: queuing unknown CIS tuple 0x1a [01 01 00 02 07] (5 bytes)
[ 9.695347] mmc1: queuing unknown CIS tuple 0x1b [c1 41 30 30 ff ff ff ff] (8
bytes)
[ 9.784161] mmc1: new high speed SDIO card at address 0001
[ 10.564913] random: crng init done
[ 10.569756] random: 52 urandom warning(s) missed due to ratelimiting
[ 11.541592] esp_host:bdf5087c3deb
[ 11.541592] esp_target: e826c2b3c9fd 57 18202
[ 11.541592]
[ 17.886578] esp_op_add_interface STA
[ 19.185836] dwmac-sun8i 1c30000.ethernet eth0: PHY [0.1:01] driver [Generic P
HY] (irq=POLL)
[ 19.235256] dwmac-sun8i 1c30000.ethernet eth0: Register MEM_TYPE_PAGE_POOL Rx
Q-0
[ 19.246005] dwmac-sun8i 1c30000.ethernet eth0: No Safety Features support fou
nd
[ 19.255014] dwmac-sun8i 1c30000.ethernet eth0: No MAC Management Counters ava
ilable
[ 19.264323] dwmac-sun8i 1c30000.ethernet eth0: PTP not supported by HW
[ 19.273327] dwmac-sun8i 1c30000.ethernet eth0: configuring for phy/mii link m
ode
[ 19.402592] sip_parse_data_rx_info no mem for rskb
[ 20.510010] wlan0: authenticate with b8:69:f4:9e:2c:b9
[ 20.516974] wlan0: send auth to b8:69:f4:9e:2c:b9 (try 1/3)
[ 20.527272] wlan0: authenticated
[ 20.544919] wlan0: associate with b8:69:f4:9e:2c:b9 (try 1/3)
[ 20.558899] wlan0: RX AssocResp from b8:69:f4:9e:2c:b9 (capab=0x431 status=0
aid=2)
[ 20.569043] wlan0: associated

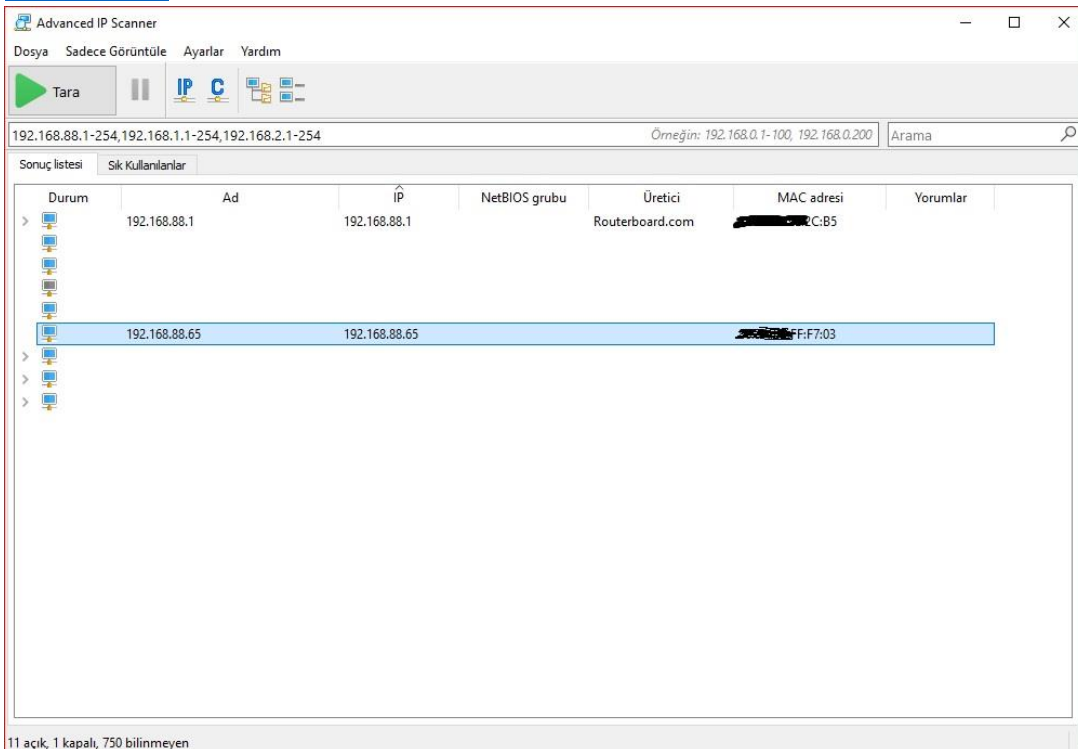
Debian GNU/Linux 11 CrocusPI ttyS0

CrocusPI login: █
```

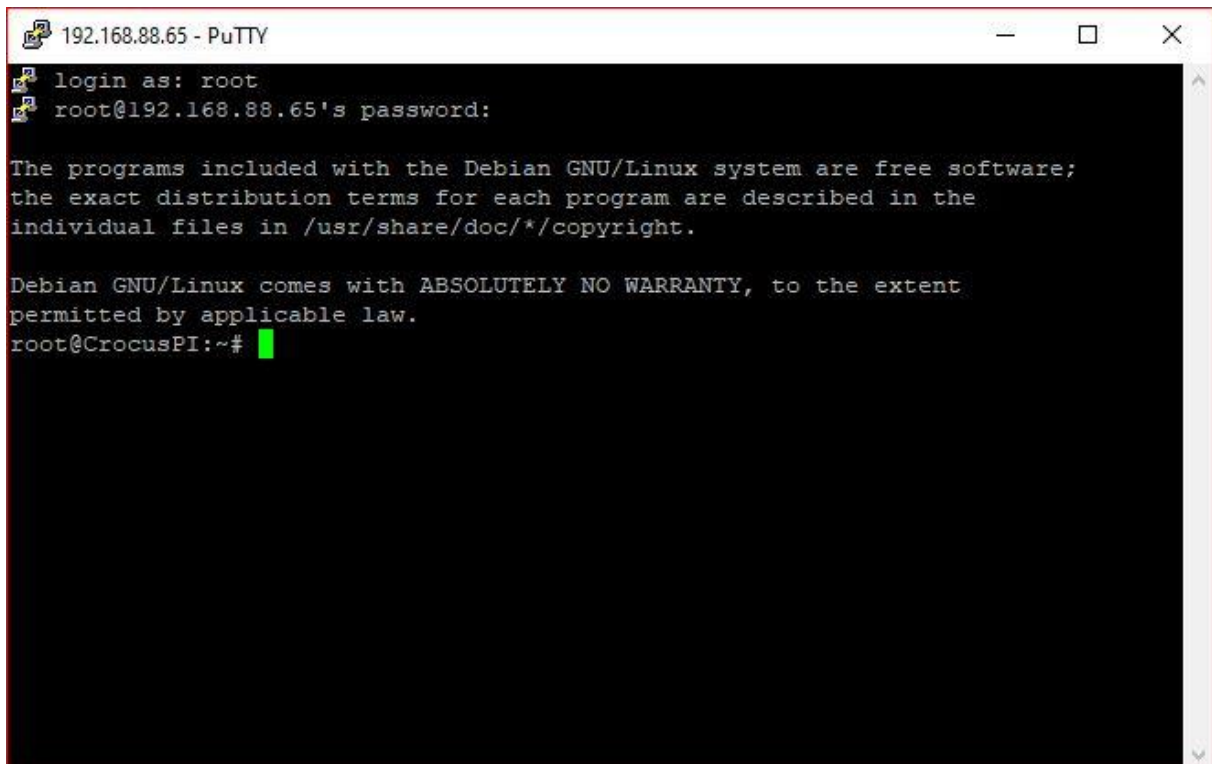
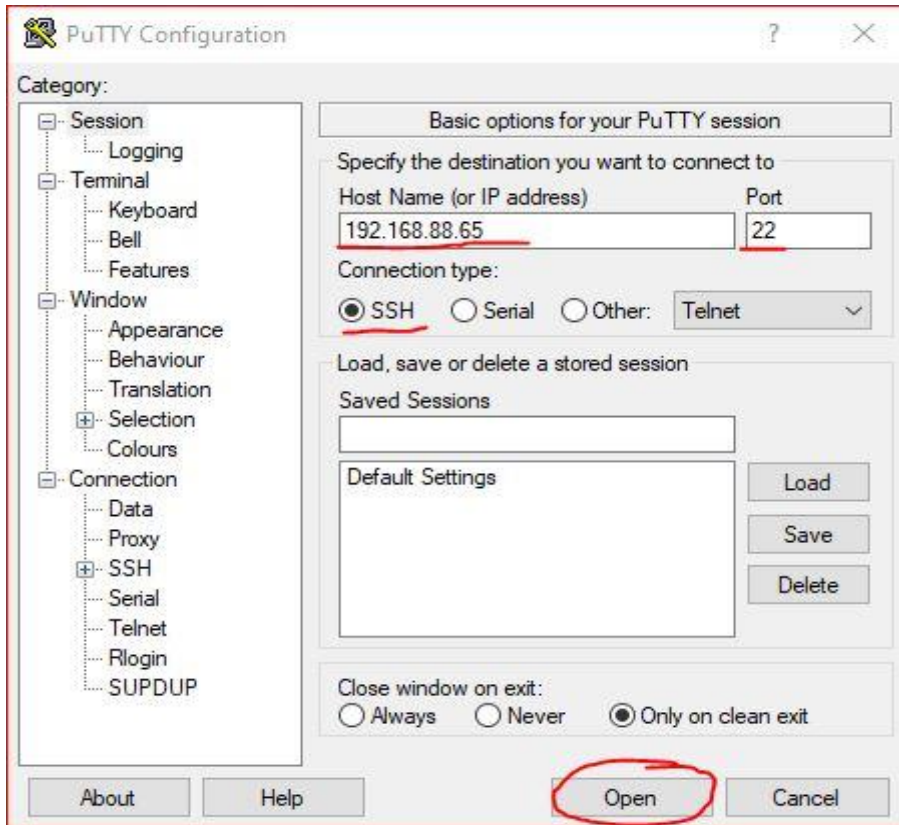
User name : **root** password: **root**

2.2.4. Access Without Console (via Network)

While Ethernet is connected, start your device and get IP automatically. Scan your network with an IP scanning software on the network. You can download the IP scanner from <https://www.advanced-ip-scanner.com/>.



Make an SSH connection over the detected ip.



2.3. Shutdown Crocus PI

You can turn off CrocusPI by entering the "halt" command.

```
COM3 - PuTTY
root@CrocusPI:~# halt
[ 398.697725] wlan0: deauthenticating from b8:69:f4:9e:2c:b9 by local choice (Reason: 3=DEAUTH_LEAVING)
[ 400.997290] dwmac-sun8i lc30000.ethernet eth0: Link is Down
[ 401.456991] systemd-shutdown[1]: Syncing filesystems and block devices.
[ 401.679145] systemd-shutdown[1]: Sending SIGTERM to remaining processes...
[ 401.701602] systemd-journald[100]: Received SIGTERM from PID 1 (systemd-shutdown).
[ 401.760917] systemd-shutdown[1]: Sending SIGKILL to remaining processes...
[ 401.781412] systemd-shutdown[1]: Unmounting file systems.
[ 401.793011] [731]: Remounting '/' read-only in with options '(null)'.
[ 401.827617] EXT4-fs (mmcblk0p2): re-mounted. Opts: (null). Quota mode: disabled.
[ 401.843436] systemd-shutdown[1]: All filesystems unmounted.
[ 401.851574] systemd-shutdown[1]: Deactivating swaps.
[ 401.858949] systemd-shutdown[1]: All swaps deactivated.
[ 401.866010] systemd-shutdown[1]: Detaching loop devices.
[ 401.874157] systemd-shutdown[1]: All loop devices detached.
[ 401.882373] systemd-shutdown[1]: Stopping MD devices.
[ 401.889964] systemd-shutdown[1]: All MD devices stopped.
[ 401.897124] systemd-shutdown[1]: Detaching DM devices.
[ 401.904748] systemd-shutdown[1]: All DM devices detached.
[ 401.912281] systemd-shutdown[1]: All filesystems, swaps, loop devices, MD devices and DM devices detached.
[ 401.942678] systemd-shutdown[1]: Syncing filesystems and block devices.
[ 401.954116] systemd-shutdown[1]: Halting system.
[ 401.964039] reboot: System halted
```

2.4. Other Configurations

2.4.1. Ethernet Connection

When your ethernet cable is plugged in, it will automatically get an ip. You can use "dhclient eth0" or "udhcpd -i eth0" to get ip from dhcp server manually.

```
root@CrocusPI:~# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.88.65 netmask 255.255.255.0 broadcast 192.168.88.255
    ether 86:3a:b5:ff:f7:03 txqueuelen 1000 (Ethernet)
    RX packets 71 bytes 8789 (8.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 83 bytes 12232 (11.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
    device interrupt 47

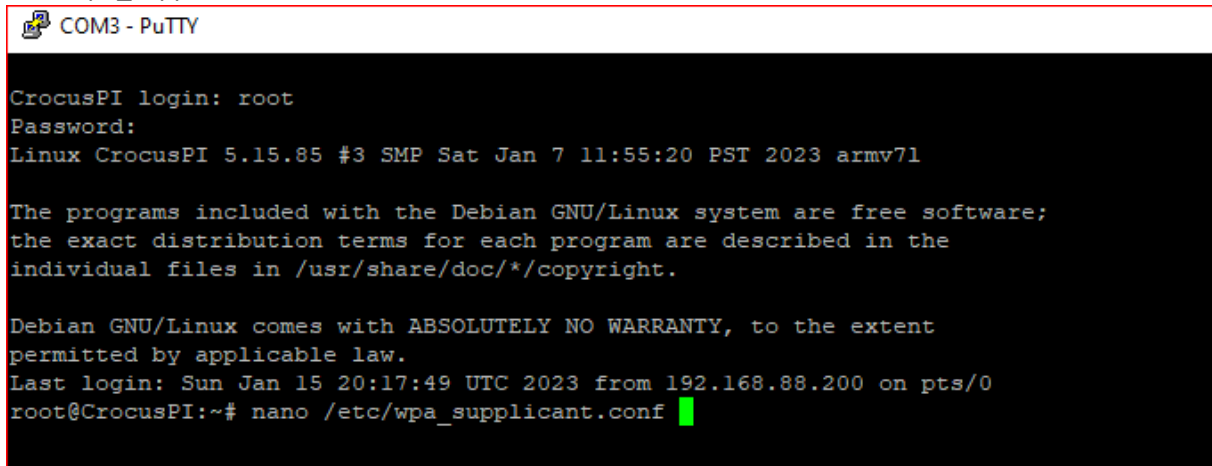
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.88.45 netmask 255.255.255.0 broadcast 192.168.88.255
    ether 18:fe:34:60:26:20 txqueuelen 1000 (Ethernet)
    RX packets 138 bytes 15922 (15.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 6 bytes 1438 (1.4 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@CrocusPI:~#
```

2.4.2. Wifi Connection

For wifi connection, wifi ssid and password information must be entered in the file “/etc/wpa_supplicant.conf”. Open the editing screen with the command “nano /etc/wpa_supplicant.conf”.

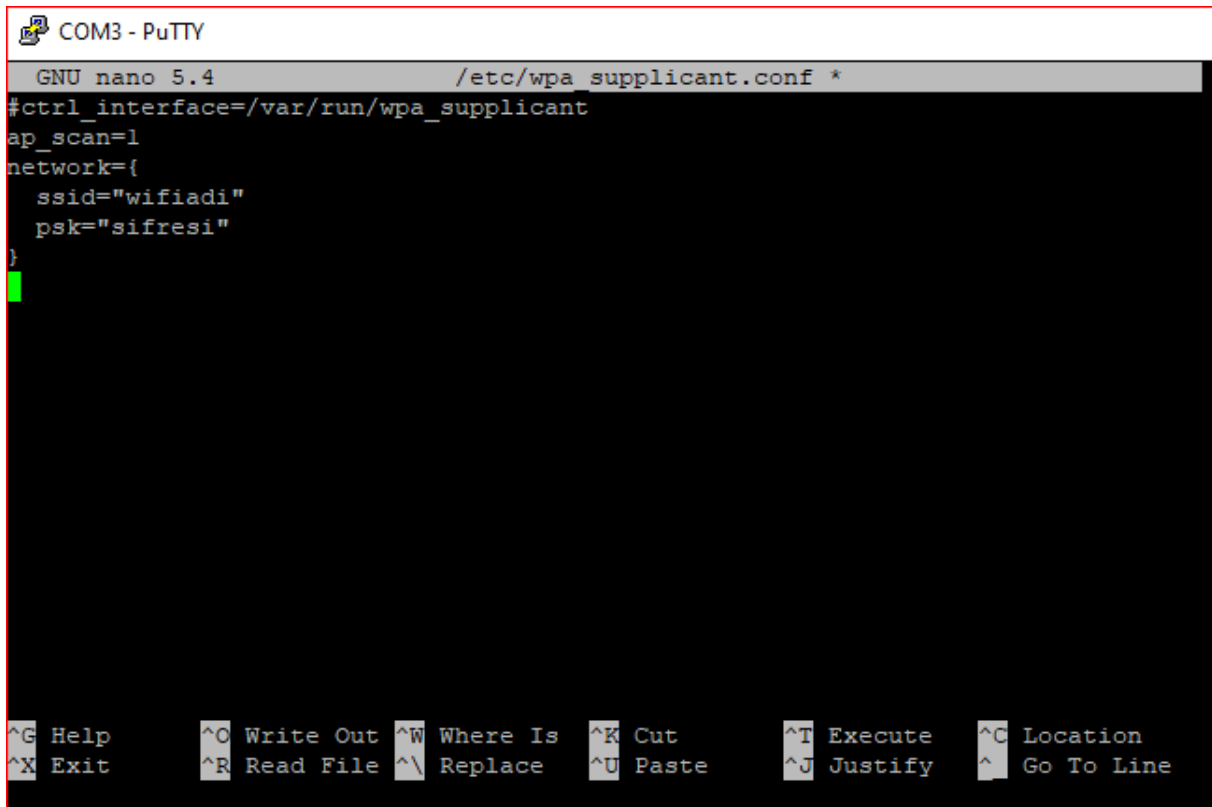


```
COM3 - PuTTY

CrocusPI login: root
Password:
Linux CrocusPI 5.15.85 #3 SMP Sat Jan 7 11:55:20 PST 2023 armv7l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Sun Jan 15 20:17:49 UTC 2023 from 192.168.88.200 on pts/0
root@CrocusPI:~# nano /etc/wpa_supplicant.conf
```



```
COM3 - PuTTY

GNU nano 5.4 /etc/wpa_supplicant.conf *
#ctrl_interface=/var/run/wpa_supplicant
ap_scan=1
network={
    ssid="wifiadi"
    psk="sifresi"
}

^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location
^X Exit      ^R Read File  ^\ Replace    ^U Paste      ^J Justify    ^_ Go To Line
```

After the information is entered, you can save (Ctrl+O) and exit (Ctrl+X). When CrocusPI restarts, it will automatically connect to your wifi network.