Ultimate64 Elite 2

Quick Start Manual





Notice:

This document is not the official documentation. Written by and many thanks to Bart E.

Currently under review; contents may be incomplete or incorrect. Nonetheless, because of its value, it has been made public.

Ultimate64 Elite 2

Quick Start Manual

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Installing the PCB

The PCB has holes to mount the PCB into old (breadbin and new (C64c) enclosures.

C64c

For the C64c additional keyboard riser brackets are required to mount the keyboard.

These can be purchased at icomp.de, for example.

https://icomp.de/shop-icomp/index.php/en/shop/product/c64c-key-mount-kit.html

The left keyboard riser also includes a rubber ring to insulate the PCB from the bracket.

To mount the right keyboard riser, a small corner of approximately 5 x 5 mm needs to be filed off, otherwise it wouldn't fit or would short-circuit the Control Port 1 (see image)



Preparation

ROMs and firmware

Before you power up, we need to create an SD card with the latest firmware, C64 ROMs and, if required, cartridge images and software.

- Download the C64 ROMs and store them on the Micro-SD-Card.
 Required files:
 - o basic-901226-01.bin
 - o chargen-901225-01.bin
 - o kernal-901227-03.bin

You can download these from several websites, like this one:

https://www.commodore.ca/manuals/funet/cbm/firmware/computers/c64/index-t.html or by installing VICE on a computer and copying the ROMs from the VICE C64-

subdirectory:

Name	Date modified	Туре	Size
₩ basic-901226-01.bin	2023-12-24 18:42	BIN File	8 KB
™ chargen-901225-01.bin	2023-12-24 18:42	BIN File	4 KB
™ chargen-906143-02.bin	2023-12-24 18:42	BIN File	4 KB
₩ kernal-251104-04.bin	2023-12-24 18:42	BIN File	8 KB
₩ kernal-390852-01.bin	2023-12-24 18:42	BIN File	8 KB
₩ kernal-901227-01.bin	2023-12-24 18:42	BIN File	8 KB
₩ kernal-901227-02.bin	2023-12-24 18:42	BIN File	8 KB
₩ kernal-901227-03.bin	2023-12-24 18:42	BIN File	8 KB
₩ kernal-901246-01.bin	2023-12-24 18:42	BIN File	8 KB
₩ kernal-906145-02.bin	2023-12-24 18:42	BIN File	8 KB
_			

- Make sure to have the latest firmware stored on a Micro-SD-Card:
 - Download the current firmware file from GitHub (currently 3.12a from 2025-06-19):

https://github.com/GideonZ/ultimate_releases/raw/master/ultimate_3.12a.zip Check this directory for releases:

https://github.com/GideonZ/ultimate_releases

 Unarchive the file for the Ultimate Elite 2 (extension: .ue2) and copy it to the Micro-SD-Card (current file: update_v3.12a-15.ue2) In this example, I created an SD cart with the following folders and data:

- C64c ROM
 - o basic-901226-01.bin
 - o chargen-901225-01.bin
 - o kernal-901227-03.bin
- Cartridges
- Firmware
 - o **3.12**
 - Update_3.12.ue2
 - o **3.12-34**
 - Update_3.12-34.ue2
 - o 3.12a-15
 - Update_3.12a-15.ue2
- Games

Once the SD-card is prepared, it can be inserted into the Ultimate64 Elite 2 PCB.

The SD card slot is located in the lower left corner of the PCB.



Power LED

The Power LED is connected to the 4-pin connector in the middle of the board, right of the FPGA-controller board. Currently, the first 3 pins can be used, the 4th may be enabled in a later firmware release.

 Connect a 3 or 4 pin 20-30 cm long cable with a DuPont connector to the UE2 board, like shown here:



• Get a 2-color LED (red and green)

Clip the legs shorter, so that it matches the DuPont connector on the other end of the cable.

Pin-out:

Red: longer outside leg

o Green: shorter outside leg

o Ground: middle leg



Insert the LED into the DuPont connector.
 Make sure pay attention to the wire colors.



• Insert the LED into the enclosure,



Once you can turn on the C64, you can configure the LED activity.
 See chapter "Power up the first time – Configurer the Power LED behavior" for more details.

Additional buttons

On the Ultimate64 board there are 4-pins, labeled

- Right
- Menu
- Left
- GND



You can attach momentary switches to these.

Always connect between one of the three pins and the ground.

The buttons can be used to freeze a cartridge, quickly open the menu and reset the C64.

- Switch "Freeze"
 - o PIN 1 (Right)
 - o PIN 4 (Gnd)
- Switch "Menu"
 - o PIN 2 (Menu)
 - o PIN 4 (Gnd)
- Switch "Reset"
 - o PIN 3 (Left)
 - o PIN 4 (Gnd)

Power Supply Unit

The Ultimate64 Elite II requires a USB-C PD compliant Power Supply Unit that is able to deliver at least 9V, preferably 12V.

When real SID chips are used, the PSU must deliver 12V.

The Ultimate64 Elite II will NOT work with a regular 5V PSU.

There are several PSUs available.

Some PSUs that seem to work well are:

- Anker 735 Nano II
- Raspberry Pi 5 PSU

Power Button and Navigation

The Ultimate64 Elite II comes with three-position power switch.

- Power on: flip the switch either upwards or downwards
- Power off: hold the switch downwards for more than 4 seconds
- Freeze: hold the switch downwards for a second
- Menu: hold the switch upwards for a second

When the menu is activated, navigation on the C64 is as follows:

- Enter: enter the menu item
- CRSR up/down: move through the menu items
- CRSR left: go back
- RUN/STOP: go back / leave menu

There are more options, which will be handled later in this document.

When the menu button is pressed, the storage and network connections are displayed.

```
### Ultimate 64-II (V1.45) 3.12a ###

SD SdCard Ready
Flash Flash Disk Ready
Temp RAM Disk Ready
Net0 IP: 192.168.178.64 Link Up
WiFi IP: 192.168.178.65 Link Up
```

From here, there are two other menus that can be opened:

• F2: Setup menu

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
UltiSID Configuration
SID Addressing
U64 Specific Settings
C64 and Cartridge Settings
WiFi settings
SoftIEC Drive Settings
Printer Settings
Modem Settings
User Interface Settings
Tape Settings
Drive A Settings
Drive B Settings
```

• F5: Action menu

```
Assembly 64
Create
C64 Machine
Drive A
Drive B
Software IEC
UltiCopy
Tape
Printer
Configuration
Streams
Developer
```

Also, once configuration changes have been made, don't forget to go back until you're prompted to save the changes to the flash drive:





Power up the first time

When you power up the first time, you'll see the following screen:

```
Welcome to the Ultimate-64 Elite-II!

To avoid any potential legal issues, the Ultimate-64 is shipped without System ROMs. You can obtain these ROMs from an original Commodore C64 machine, or download them from the internet.

Once you have the ROMs on a USB stick, you can save them into the Ultimate 64:

1) Toggle the power button up briefly to enter the Ultimate Browser Menu.

2) Browse to the folder with the ROMs.

3) For Basic, Kernal and Character ROMs, repeat:

- Select ROM file (.bin or .rom) and press RETURN. Choose 'Set as...'

4) Reboot, and have fun! :-)
```

The Ultimate64 board is not shipped with C64 ROMs, so you'll need to download these and provide them to the system, But first, make sure that the currently installed firmware is up-to-date.

Flashing the firmware

You can access the ROMs stored on the SD card or USB stick by pressing the menu (Power Button UP or pressing the additional menu button).

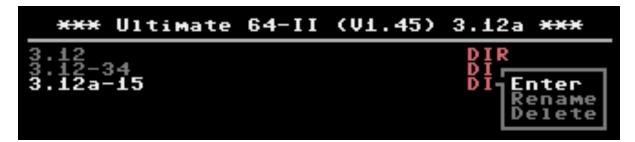
Go to the place where you stored the ROMs and firmware (SD or USB drive):

```
SD SdCard Re Enter RAM Disk ReMP Het0 IP: 192.168.178.187 Link Up ESP32 WiFi Bridge V1.3 Disabled
```

Enter the firmware folder



Enter the 3.12a-15 folder



Press enter on the firmware file and press enter again to run the update

```
*** Ultimate 64-II (V1.45) 3.12a ***

update_v3.12a-15.ue2

Run Update
Rename
Delete
```

After a few seconds, the following screen appears:

Press "Yes" to reformat the Flash Disk.

```
64 Elite-II
    Ultimate
                                   Updater **
             ne 27, 2025 10:45:20
Flash: Winbond W25Q128
FPGA Type: 5CEBA4.
ision: U64E V2.1 (Null Series)
 riday June
 etected
etected
        Revision:
Board
             chec
of F
                   ksums of l
PGA image:
Checking
                                loaded images..
 hecksum
                 Application:
                                      ŌK!
Checksum
             o f
                Reformat Flash
                                      Disk?
                       Yes
                               No
2952 Flash Blocks Free
```

Press enter again to continue the update

```
64
                                                ××
    Ultimate
                       Elite-II
                                    Updater
             ne 27,
Flash:
FPGA Ty
                        2025 10:45:20
Winbond W25Q128
Pe:_5CEBA4...
          June
 etected
                                        (Null Series)
             checksums of loaded images..
of FPGA image: OK!
Checking
Checksum
                                       ŏŔ!
Checksum
             0 f
                  Application:
            About to update.
                                      Continue?
                         Yes
                                 No
 952 Flash
ormatting.
041 Flash
                Blocks
                           Free
                Biocks Free
```

The update will show the progress:

```
Ultimate 64 Elite-II
                               Updater **
               lash/roms
reating
               lash/car
    ting
                               OK
    ting
    ing
                COM
                      to
    ing
                rom
                      to
         snds1541
snds1571
snds1581
                     bin
                           to
    ing
                           to
    ing
                     bin
                           to
    ing
 iting
         index.html
                                       OK
            Runtime
g 1119
                        PGA.
 ashing
rogramming
```

```
** Ultimate 64 Elite-II Updater **
                lash/roms
  `eating
  eating
eating
                lash/car
                lash/html
                                 0
     ing
ing
                       to
                   ď
                       to
                              las
     ing
                              las
                       to
     ing
                             to
          snd
          sndsi
                             to
     ing
          snds1581.
                       ь
                            to
                                   lash
    ting
                         TO /
PGA.
Appl
    ting
           index.html
                                 lash:
              Runtime
Ultimat
g 11423
  ashing
                               ication..
 lashing
  ogramming
```

Press enter to reset the configuration

```
** Ultimate 64 Elite-II Updater
                                                 ××
                  lash/roms'
lash/carts
lash/html'
                                     OK
                                     Ö
OK
 reating
reating
    ting
ting
                              /f
                          to
                  . rom
                                   as
                                      h
                                  īās
                  . rom
                          to
                                f
                                      h
                                 iash
o /f
            1541.rom to
snds1541.bin
snds1571.bin
    ting
                                f
    ting
                                to
                                         as
      ing
                                to
                                        lash
      Reset Configuration?
                                      (Recommended)
   ø
                        Yes
                                 Νo
  0
 onfiguring one!
                  Flash
                           write protection..
```

Press enter to update the WiFi Module firmware:

```
Ultimate 64 Elite-II
                                Updater
                                           ××
Creating
Creating
Creating
                lash/roms
                lash/car
                                OK
                       to
                                     öŔ
ok
                       to
                            flash
     ing
                       to
          1541.
sndsi
          snds1541
snds1571
                                   1
                            to
     ing
    ting
                      bin
                            to
                                   lash
      Want
             to
                 update the
                                WiFi
                                       Module?
 las
                      Yes
 las
                             Νo
 rog
      guring Flash write protection..
 on f
 one
iFi
1.3
                                            Bridge
      module
                             ESP32
                                     WiFi
               detected:
```



Press enter to finalize the update

```
** Ultimate 64 Elite-II Updater **
                   /flash/roms':
                                              OK!
OK!
OK!
Creating
               /flash/coms

//flash/carts

//flash/html/

1581.rom to /f

1571.rom to /f

1541.rom to /f

snds1541.bin t
Creating
Creating
Writing
Writing
Writing
Writing
Writing
Writing
Writing
                                                      0K
0K
0K
                                 to /flash:
                                          lash:
                                      /flash: OK

/flash: to /flash
                                                          •
                                              /flash:
                                        to
                 Flashing ESP32 Success!
  lashing
                                   0k
  lashing
Programm
Configuring Flash write protection..
Done!
WiFi module detected: ESP32 WiFi Bri
V1.3
         module detected: ESP32 WiFi Bridge
```

```
Ultimate 64 Elite-II
                                         Updater **
                //flash/roms':
                                         OK!
OK!
OK!
Creating
Creating
               //flash/carts
             '/flash/html
1581.rom to /
1571.rom to /
Creating
                                                OK
OK
OK
 riting
riting
                                  /f
                   i.rom
                             to
                                  /flash
             1541.rom to
snds1541.bin
snds1571.bin
snds1581.bin
   iting
                                  /flash
                                        /flash
/flash
   iting
                                    to
   iting
                                    to
   iting
                                         /flash
                                    to
             index.html to /flash: OK!
Runtime FPGA..
Ultimate Application..
ing 12461
ing Flash write protection..
Writing
 lashing
 lashing
Programming
Configuring
Done!
Wifi module
V1.3
        module detected: ESP32 WiFi Bridge
Turning OFF machine in 5 seconds....
```

Turn the machine on again.

```
Welcome to the Ultimate-64 Elite-II!

To avoid any potential legal issues, the Ultimate-64 is shipped without System ROMs. You can obtain these ROMs from an original Commodore C64 machine, or download them from the internet.

Once you have the ROMs on a USB stick, you can save them into the Ultimate 64:

1) Toggle the power button up briefly to enter the Ultimate Browser Menu.

2) Browse to the folder with the ROMs.

3) For Basic, Kernal and Character ROMs, repeat:

- Select ROM file (.bin or .rom) and press RETURN. Choose 'Set as...'
```

Enter the menu to confirm the firmware has been updated.

The firmware version is visible in the top of the menu.

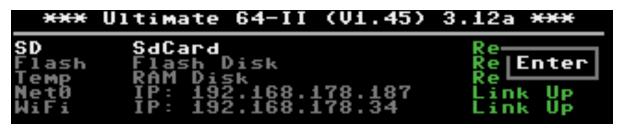
Installing the C64 ROMs

Now that the firmware is up to date, we can now set the C64 ROMs.

Open the menu.

```
(V1.45)
                                             3.12a
  ***
         Ultimate
                       64-II
                                                      ***
SD
            SdCard
                                                Ready
            Flash Disk
RAM Disk
                                                Ready
 lash
                  Disk
192.
192.
                                                Ready
 emp
et0
                       .168.178.
.168.178.
                                                   nk
                                                        UÞ
```

Open the SD card again.



Open the folder with the C64 ROMs



On each of the ROM files, press enter and select which type of ROM it is (look closely at the names):



```
*** Ultimate 64-II (V1.45) 3.12a ***
basic-901226-01.bin
chargen-901225-01.bin
kernal-901227-03.bin
Rename
Delete
```

```
*** Ultimate 64-II (V1.45) 3.12a ***

basic-901226-01.bin BIN 8K
chargen-901225-01.bin Set as Kernal ROM
kernal-901227-03.bin Set as Basic ROM
Load Kernal View
Rename Delete
```

Press F5 and go to Configuration

```
Assembly 64
Create
C64 Machine
Drive A
Drive B
Software IEC
UltiCopy
Tape
Printer
Configuration
Streams
Developer
```

Save to Flash





Press F5 again and go to C64 Machine

```
Assembly 64
Create
C64 Machine
Drive A
Drive B
Software IEC
UltiCopy
Tape
Printer
Configuration
Streams
Developer
```

Reset the C64

```
Reset C64
Reboot C64
Reboot (C1r Mem)
Power OFF
Power Cycle
Save C64 Memory
Save REU Memory
```

And we're ready to get started:

```
**** COMMODORE 64 BASIC V2 ****
64K RAM SYSTEM 38911 BASIC BYTES FREE
READY.
```

Configure the Power LED behavior

If you installed a dual color LED, you can configure how the LED lights up during certain conditions.

Go to the menu

```
*** Ultimate 64-II (V1.45) 3.12a ***

SD SdCard Ready
Flash Flash Disk Ready
Temp RAM Disk Ready
Net0 IP: 192.168.178.187 Link Up
WiFi IP: 192.168.178.34 Link Up
```

Press F2 and go to U64 Specific Settings

```
Network Settings
Ethernet Settings
LED Strip Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
UltiSID Configuration
SID Addressing
U64 Specific Settings
C64 and Cartridge Settings
WiFi settings
SoftIEC Drive Settings
Printer Settings
Printer Settings
User Interface Settings
Drive A Settings
Drive B Settings
Drive B Settings
```

I installed a dual color LED, which is a LED enclosure with 2 LEDs inside:

- LED 1: red
- LED 2: green

The C64c has a red power LED, so in my configuration, I set the red LED to always on, except when there is drive activity.

The drive activity is assigned to the green LED.

If I would keep the red LED always on, like a regular power LED, the LED would light yellowish orange when there is drive activity, since then both red and green lights will be on.

So,

- the red LED is set NOT to light when there is drive activity on drive 8 and 9.
- the green LED is set to light when there is drive activity on drive 8 and 9.

```
System Mode
Joystick Swapper
UserPort Power Enable
Palette Definition
Adjust Color Clock
Analog Video Mode
HDMI Scan lines
Serial Bus Mode
SpeedDOS Parallel Cable
Burst Mode Patch
LED Select Top
LED Select Top
Select Bot
SID Player Autoconfig
Allow Autoconfig uses UltiSid
Turbo Control
CPU Speed
Badline Timing
SuperCPU Detect (DØBC)

-F3=Help-
```

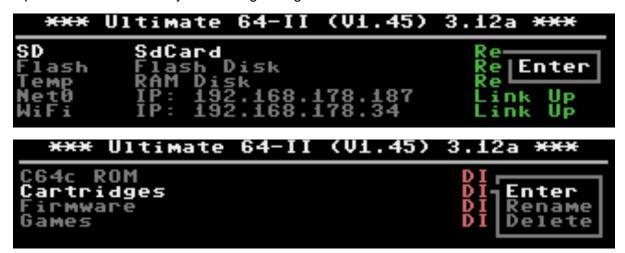
This behavior is a bit like the Commodore Amiga 500, but using a single LED unit:



Mounting cartridges

Copy cartridges to Flash Memory

Open the location where your cartridge image is stored



Select the cartridge you want to use and press enter.

Select "copy to flash" and press enter.

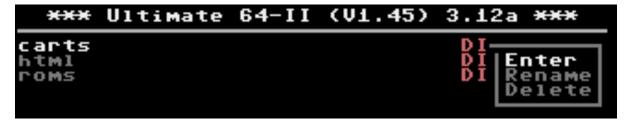
Mount the cartridge

Open the flash disk

```
*** Ultimate 64-II (V1.45) 3.12a ***

SD SdCard
Flash Flash Disk
Temp RAM Disk
Net0 IP: 192.168.178.187
HiFi IP: 192.168.178.34
```

Go to carts



Select the cartridge image and press enter.

Select "Run Cart" and press enter.

```
action_replay_6.crt
final_cartridge.crt
final_cartridge_3_101_per
KCS_Power_Cartridge_1989.
Super_Snapshot_5_NTSC_198
Super_Snapshot_5_PAL_I989
Delete
```

The computer will now reset and the cartridge is mounted.

Pressing the power button down for a second will activate the cartridge freezer.

Alternatively, a separate button can be mounted to the PCB to activate the freezer. See the chapter "Preparation - Additional buttons".

To save the settings, open the menu, press F5 and go to Configuration.



```
Assembly 64
Create
C64 Machine
Drive A
Drive
         в
Software
 ltiCopy
              Save
                      to Flash
                       o File
from Flash
to Defaults
 ape
Tape
Printer |Reset
Configur Reset
               Save
                      to
                        Flash
                                 Config
Develope
```



Set the video output (PAL / NTSC)

By setting the video output, the internal speed of the system also changes.

There are a few additional modes, because of this:

Open the menu and press F2.

Go to U64 Specific Settings.

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
UltiSID Configuration
SID Addressing
U64 Specific Settings
C64 and Cartridge Settings
WiFi settings
SoftIEC Drive Settings
Printer Settings
Modem Settings
User Interface Settings
User Settings
Drive A Settings
Drive B Settings
```

Set the video output and speed to what's applicable:

- PAL
- NTSC
- PAL-60 (PAL at 60Hz)
- NTSC-50 (NTSC at 50 Hz)
- PAL-60/L (PAL at 60Hz)
- NTSC-50/L (NTSC at 50 Hz)

```
System Mode
Joystick Swapper
UserPort Power Enable
Palette Definition
Adjust Color Clock
Analog Video Mode
CV
PAL-60
PAL-60/L
Digital Video Mode
HDMI Scan lines
Serial Bus Mode
SpeedDOS Parallel Cable
Burst Mode Patch
LED Select Top
LED Select Top
LED Select Bot
SID Player Autoconfig
Allow Autoconfig uses UltiSid
Turbo Control
CPU Speed
Badline Timing
SuperCPU Detect (D0BC)

PAL-60
NTSC-50/L
N
```

Disk Drives

The Ultimate64 has the ability to use up to 2 virtual disk drives.

By default, only the first disk drive is attached as a 1541 (single-sided 51/4") floppy drive to bus ID 8, the other disk drive is not connected.

To reconfigure this, open the menu and press F2.

Then select either Drive A Settings or Drive B Settings, depending on which disk drive you want to configure.

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
UltiSID Configuration
SID Addressing
U64 Specific Settings
C64 and Cartridge Settings
WiFi settings
SoftIEC Drive Settings
Printer Settings
Printer Settings
Modem Settings
User Interface Settings
Tape Settings
Drive A Settings
Drive B Settings
```

In this menu, you can select the disk drive type (1541, 1571 or 1581) and the rom associated with it.

Note: the ROM versions are as follows:

- 1541.rom: dos1541-325302-01+901229-05.bin
- 1571.rom: dos1571-310654-05.bin
- 1581.rom: dos1581-318045-02.bin

Hint: it is possible to use the ROM file dos1541ii-251968-03.bin to simulate a 1541-II, but take caution, as some software, particularly games with speedloaders, may not work properly with this ROM.

Configure the sound output

By default, all sounds are set to output through the audio output and through the internal speaker.

Audio mixer

Open the menu and press F2, then go to Audio Mixer and set the decided volumes:

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
```

For the audio output, you could choose to output all but the drive and tape sounds:

```
Vol UltiSid 1

Vol UltiSid 2

Vol Socket 1

Vol Socket 2

Vol Sampler R

Vol Sampler R

Vol Drive 1

Vol Drive 2

Vol Tape Read

Vol Tape Write

Pan UltiSID 1

Pan Socket 1

Pan Socket 2

Pan Socket 2

Pan Sampler R

Pan Drive 1

Pan Drive 2

Pan Tape Read

Pan Tape Write

Center
```

Speaker mixer

Open the menu and press F2, then go to Speaker Mixer and set the decided volumes:

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
```

For the speaker, you could choose to just output the drive and tape sounds:

```
Speaker Enable
Vol UltiSid 1
Vol UltiSid 2
Vol Socket 1
Vol Socket 2
Vol Sampler L
Vol Sampler R
Vol Sampler R
Vol Drive 1
Vol Drive 2
Vol Tape Read
Vol Tape Write
Enabled
OFF
OFF
OFF
OFF
OFF
-4 dB
-36 dB
```

Save changes

After making changes, don't forget to go back and save the changes to the flash drive:



Configure the Network Connection

Network settings

Open the menu

If the network interfaces are not connected, the MAC address instead of the IP address is displayed. Make note of these MAC addresses.

```
### Ultimate 64-II (V1.45) 3.12a ###

SD SdCard Ready
Flash Flash Disk Ready
Temp RAM Disk Ready
Net0 IP: 192.168.178.64 Link Up
WiFi IP: 192.168.178.65 Link Up
```

Press F2 to open the configuration menu.

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
UltiSID Configuration
SID Addressing
U64 Specific Settings
C64 and Cartridge Settings
WiFi settings
SoftIEC Drive Settings
Printer Settings
Modem Settings
User Interface Settings
Tape Settings
Drive B Settings
```

There are four options for the network settings here:

- Network Settings
- Ethernet Settings
- Data Streams
- WiFi Settings

Network Settings

```
Name
    assword
                Service
```

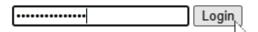
Host Name

The name of the C64 on your network: other systems can use this name to connect to it, instead of the IP address

- **Network Password**
 - The password you need to use to connect to the C64 remotely, like when using FTP
- Unique ID
- Ultimate Ident Service
- Ultimate DMA Service
- Telnet Remote Menu Service
- FTP File Service
 - Allows you to transfer files to the C64, using the FTP protocol
- Web Remote Control Service

You can manage the SidPlayer from here, for example

Password required



Ultimate 64-II HTTP Server

- <u>Home</u>
- SidPlayer Execute PRG / CRT
- **BASIC Editor**
- **Reset Machine**
- Reboot Machine Menu Button
- **API Documentation**
- Firmware Releases
- Logout

Welcome to your Ultimate product!

This site serves as the dedicated web server for the Ultimate 64 and Ultimate cartridge systems. It offers a comprehensive suite of APIs, designed to enable the development of advanced integrations and remote access

Ν

You can find out more by visiting the official Ultimate 64 website, or by joining our Facebook group.

Thank you for joining and contributing to the Ultimate family of products.

Gideon Z.

- Log on to Syslog Server
- **SNTP Enable**

- TimeZone
- Time Server 1
- Time Server 2
- Time Server 3

You can leave most settings as they are, but it's recommended to set the Host Name and Network Password.

Ethernet Settings

```
### Ultimate 64-II (V1.45) 3.12a ###

Use DHCP
Static IP
Static Netmask
Static Gateway
Static DNS

#### Ultimate 64-II (V1.45) 3.12a ###

Enabled
192.168.178.64
255.255.255.255.0
8.8.8.8
```

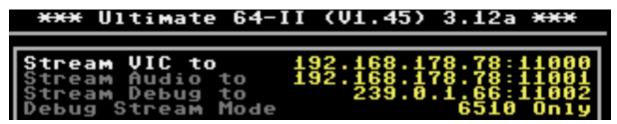
Use DHCP

This will use the DHCP service of your router to automatically assign an IP address, subnet mark, gateway IP address and DNS server.

- Static IP
- Static Netmask
- Static Gateway
- Static DNS

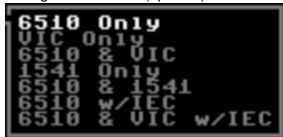
Set the static values to correct values for your network, in case the DHCP service in your network fails.

Data Streams

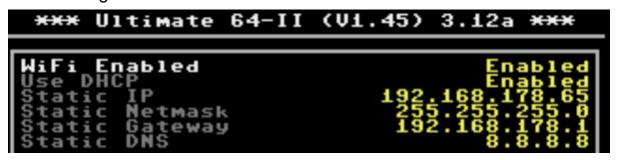


- Stream VIC to
 - Assign an IP-address or host name and a port (default: 11000) on your local network to stream the video signal of the VIC chip to
- Stream Audio to
 - Assign an IP-address or host name and a port (default: 11001) on your local network to stream the audio signal of the SID chip to
- Stream Debug to (optional)

• Debug Stream Mode (optional)



WiFi Settings



These settings are similar to the Ethernet Settings, with the additional option of turning the WiFi on or off (WiFi Enabled).

LAN

Once the network settings are complete, simply connect a LAN cable to the C64 and it should work as expected.

As long as the LAN network interface doesn't have a connection, the menu will show the MAC address instead of an IP address. It's sometimes necessary to enter the MAC address on a router to allow network access or to assign a fixed IP address.

WiFi

To configure the WiFi connection, go to the main menu, select the WiFi adapter and press enter.

```
SD SdCard Ready
Flash Flash Disk Ready
Temp RAM Disk Ready
Net0 IP: 192.168.178.64
WiFi ESP32 WiFi Bridge V1.3 DEnable
```

Select Rescan Aps (rescan access points) and press enter.

```
Show APs..
Connect
Connect to..
Rescan APs
Forget APs
Disable
```

Now click on Show APs.. to connect to the AP you want to use.

Keep in mind that the Ultimate64 board only supports 2.4 GHz WiFi signals.

```
Show APs..
Connect
Connect to..
Rescan APs
Forget APs
Disable
```

Select the Access Point and press enter, Then press enter again to connect.

```
*** Ultimate 64-II (V1.45) 3.12a ***

-33

Connect

-74

-89
```

Enter the passkay

There is no confirmation.

Go back and check if the link is up and an IP address has been assigned:

```
*** Ultimate 64-II (V1.45) 3.12a ***

SD SdCard Ready
Flash Flash Disk Ready
Temp RAM Disk Ready
Net0 IP: 192.168.178.64 Link Up
WiFi IP: 192.168.178.65 Link Up
```

Data Streams

Data Streams allow video and audio output to be streamed to a remote computer within the LAN.

Currently it only works over a LAN connection, not a WiFi connection.

Once the network settings, including the Data Stream IP-address have been configured, the Data Streams can be activated.

To do this, press the F5 button.

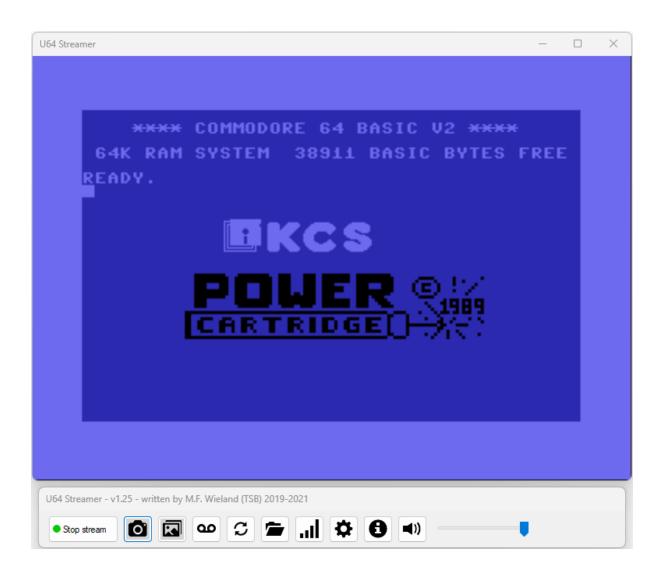
Go to Streams and press enter.

```
Assembly 64
Create
C64 Machine
Drive A
Drive B
Software IEC
UltiCopy
Tape
Printer
Configuration
Streams
Developer
```

Enable the Streams you want to use.

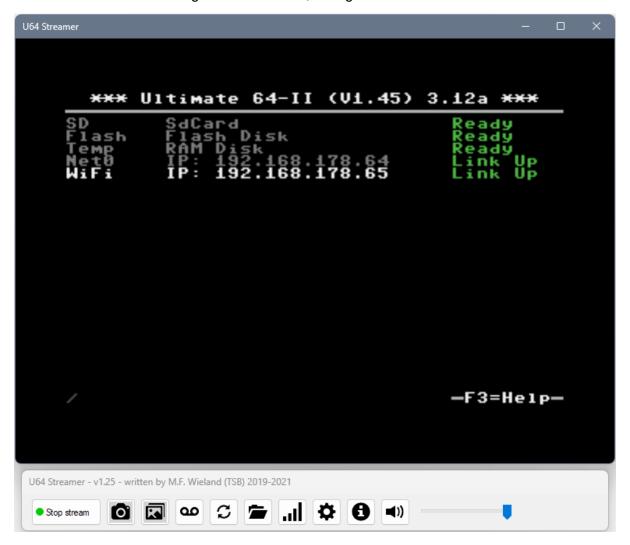


To see/hear the data streams, use a client, like the U64 Streamer.



The C64 sends audio and video signal to the configured IP-address and port.

To also see the menu through a Data Stream, configure this in the menu:



Press F2 to open the Action menu, then go to User Interface Settings

```
Network Settings
Ethernet Settings
LED Strip Settings
Data Streams
Audio Mixer
Speaker Mixer
SID Sockets Configuration
UltiSID Configuration
SID Addressing
U64 Specific Settings
C64 and Cartridge Settings
WiFi settings
SoftIEC Drive Settings
Printer Settings
Printer Settings
Modem Settings
User Interface Settings
Tape Settings
Drive A Settings
Drive B Settings
```

Go to Interface Type and set it to Freeze.



Overlay on HDMI creates a separate menu next to the C64 windows, but this is only visible on wide screen displays and not in a Data Stream.

Menu structure

F2 menu

- Network Settings
- Ethernet Settings
- LED Strip Settings
- Data Streams
- Audio Mixer
- Speaker Mixer
- SID Sockets Configuration
- UltiSID Configuration\
- SID Addressing
- U64 Specific Settings
- C64 and Cartridge Settings
- WiFi Settings
- SoftIEC Drive Settings
- Printer Settings
- Modem Settings
- User Interface Settings
- Tape Settings
- Drive A Settings
- Drive B Settings

F5 Menu

- Assembly 64
 - o New Search
- Create
- C64 Machine
- Drive A
- Drive B
- Software IEC
- UltiCopy
- Tape
- Printer
- Configuration
- Streams
 - VIC Stream (turn VIC Stream on/off)
 - Audio Stream (turn Audio Stream on/off)
- Developer
 - o Debug Stream
 - o Clear Debug Log
 - o Save Debug Log
 - o Save EDID to file