

SDRconnect

Raspberry Pi Tips & Tricks

(Including Remote Controlling a Pi Server)

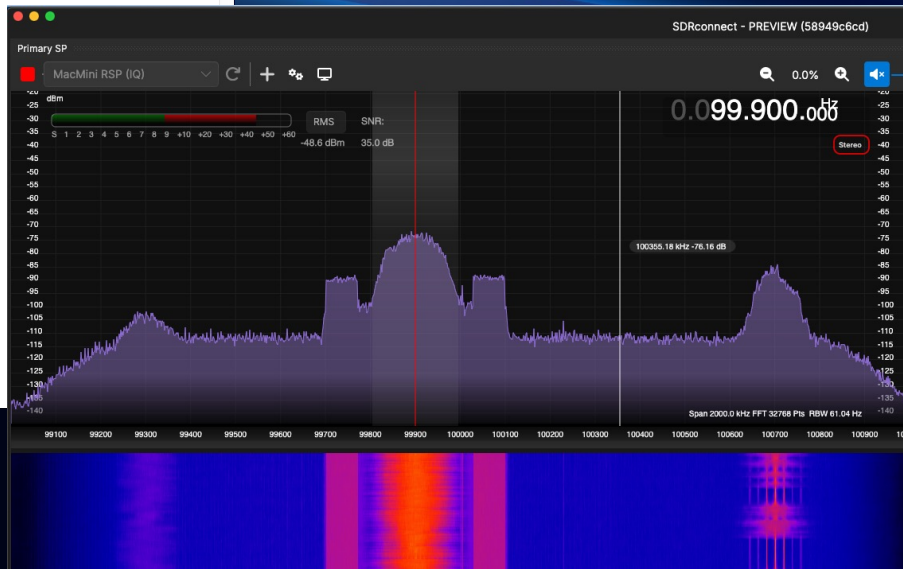
```
MacOS — SDRconnect — SDRconnect --server --105x32
Last login: Tue Aug 1 15:47:28 on console
steve@StevesMini MacOS % /Applications/SDRconnect.app/Contents/MacOS/SDRconnect --server
WARNING: Logging before InitGoogleLogging() is written to STDERR
ignore SIGPIPE
SDRconnect Network Server (58949c6cd)

Listening on IP address: 0.0.0.0 (Any)
Listening on Port: 50000

Found 1 device
Opened device S/N: 1700001190

Sample Rate: 2 MSPS
Center Frequency: 100 MHz
IF Gain Reduction: 40 dB
LNA State: 0
IFAGC Mode: Enabled
IFAGC SetPoint: -30 dBFS
IFAGC Attack: 500 ms
IFAGC Decay: 500 ms
IFAGC Decay Delay: 200 ms
IFAGC Decay Threshold: 5 dB
Bias-T Disabled
Antenna: 0
RF Notch Disabled
DAB Notch Disabled
Hardware Control: 1st Client can control the hardware
Maximum number of clients: 8

Server started
Press CTRL-C to stop the server
```



(VID668)

Overview

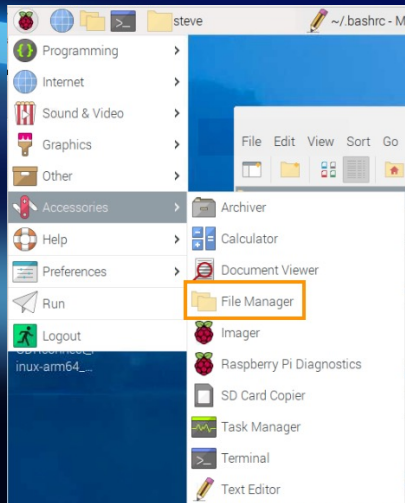
- Setting up a PATH
 - Simplified Terminal commands
- Remote Login via SSH
 - Starting & Stopping the server remotely
- Updating Applications Menu items
 - Starting the server without using Terminal



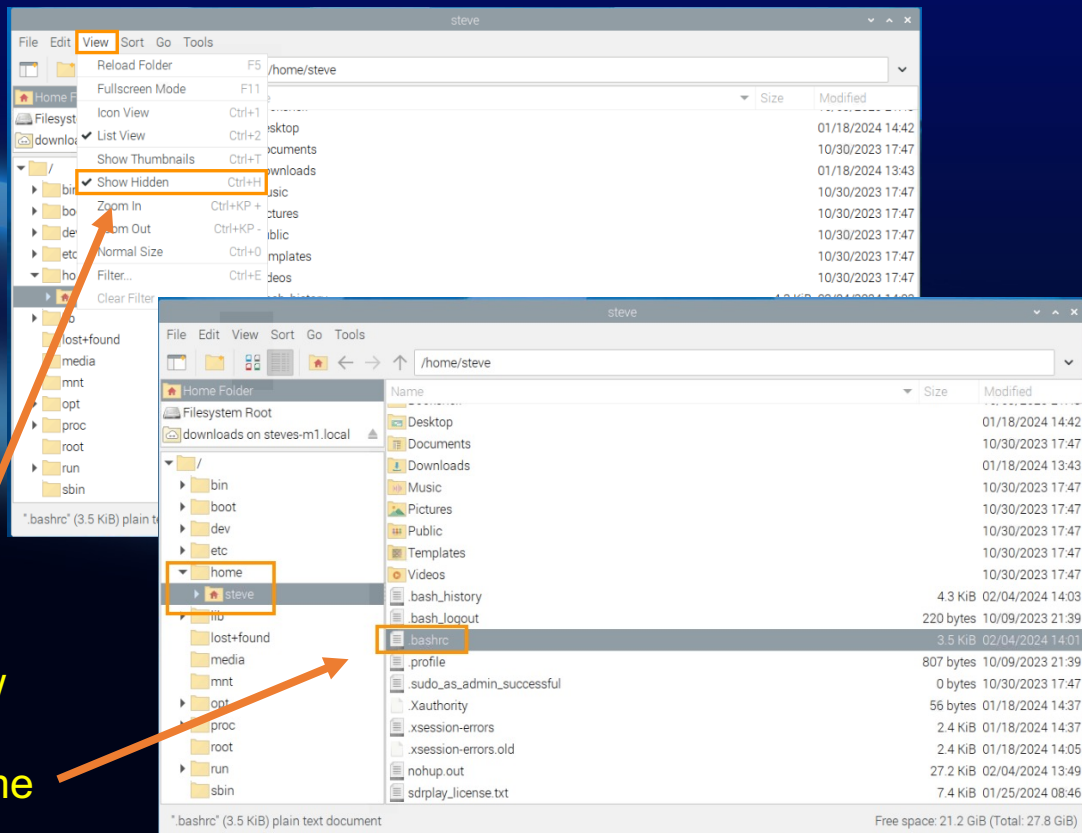
Setting up \$PATH



Setting up a path

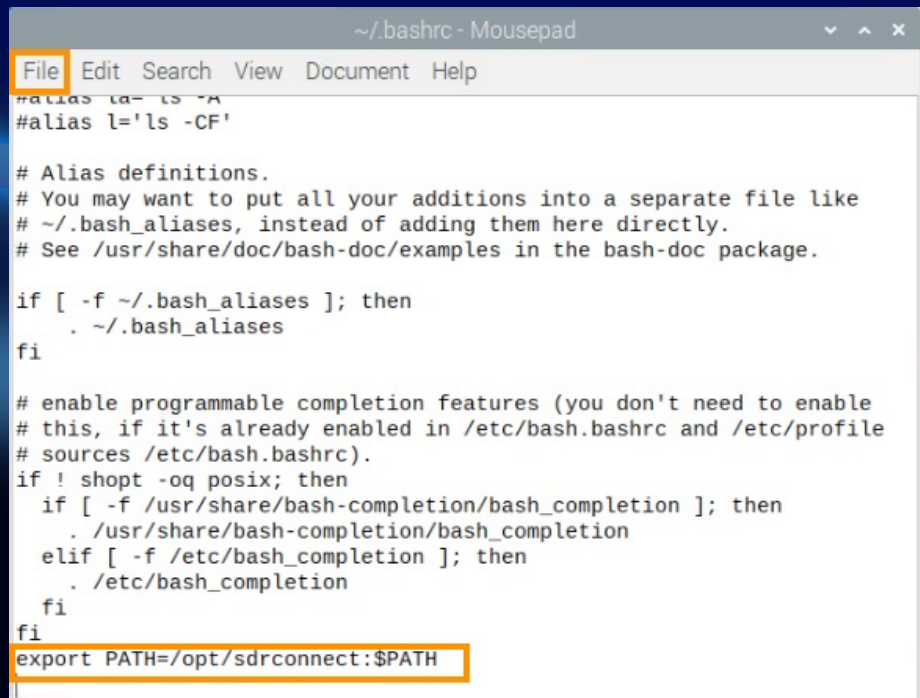


- Open the File Manager
- From the View menu select "Show Hidden"
- Locate the file `.bashrc` in your home directory
- Double click on the file to open it



Setting up a path

- Scroll down to the bottom of the file
- Type this at the very bottom:
`export PATH=/opt/sdrconnect:$PATH`
- From the File Menu, click on “Save”
- Log out and log back in, or reboot, for the changes to take effect



```
~/bashrc - Mousepad
File Edit Search View Document Help
#alias la='ls -lA'
#alias l='ls -CF'

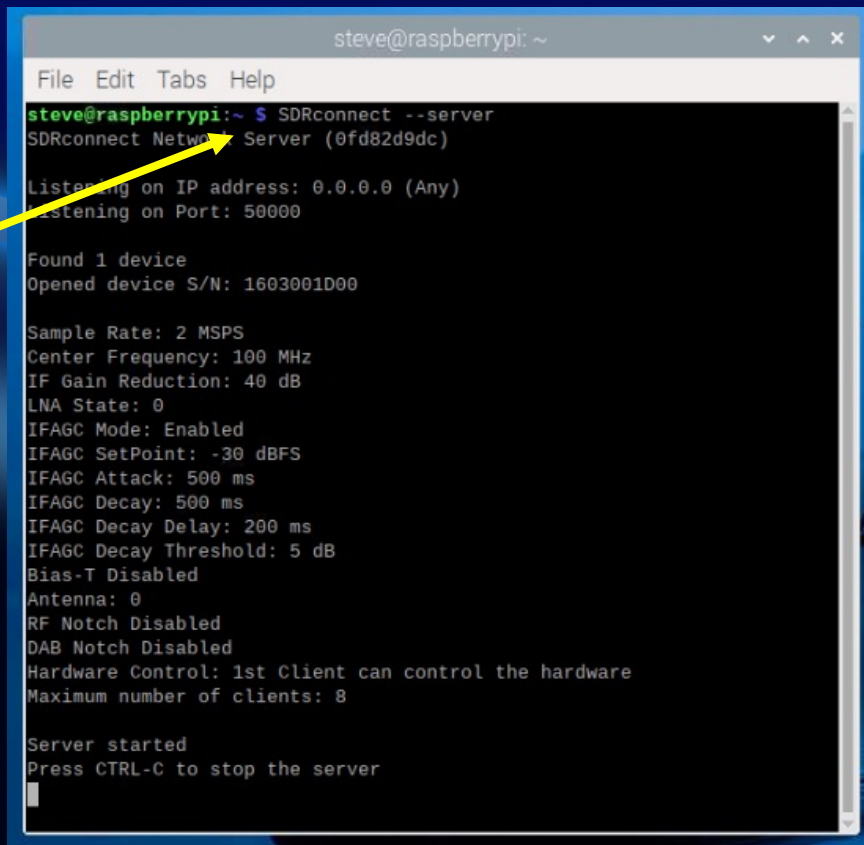
# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi
export PATH=/opt/sdrconnect:$PATH
```

Running SDRconnect

- SDRconnect / server can now be started from any terminal prompt (no cd or full pathname needed!)
 - SDRconnect
 - SDRconnect --server
- Persistent update, no need to redo after a reboot



```
steve@raspberrypi: ~  
File Edit Tabs Help  
steve@raspberrypi:~ $ SDRconnect --server  
SDRconnect Network Server (0fd82d9dc)  
  
Listening on IP address: 0.0.0.0 (Any)  
Listening on Port: 50000  
  
Found 1 device  
Opened device S/N: 1603001D00  
  
Sample Rate: 2 MSPS  
Center Frequency: 100 MHz  
IF Gain Reduction: 40 dB  
LNA State: 0  
IFAGC Mode: Enabled  
IFAGC SetPoint: -30 dBFS  
IFAGC Attack: 500 ms  
IFAGC Decay: 500 ms  
IFAGC Decay Delay: 200 ms  
IFAGC Decay Threshold: 5 dB  
Bias-T Disabled  
Antenna: 0  
RF Notch Disabled  
DAB Notch Disabled  
Hardware Control: 1st Client can control the hardware  
Maximum number of clients: 8  
  
Server started  
Press CTRL-C to stop the server
```

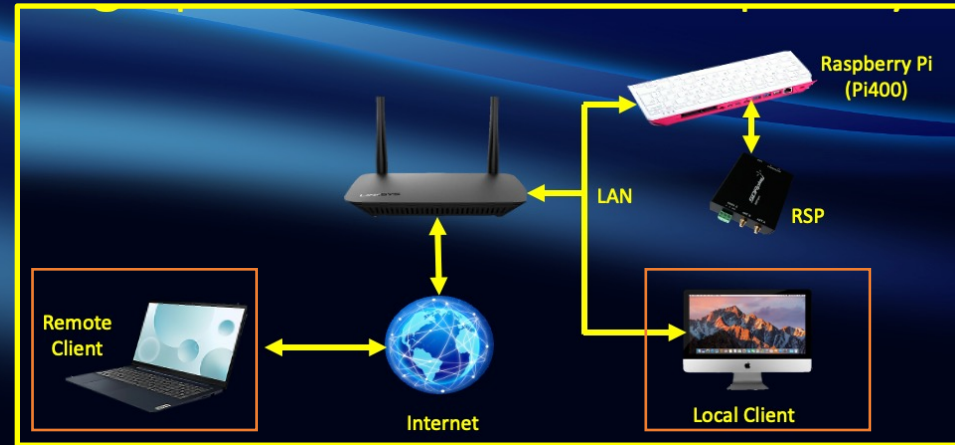

Remote Control the Server



Remote Controlling an SDRconnect Pi Server

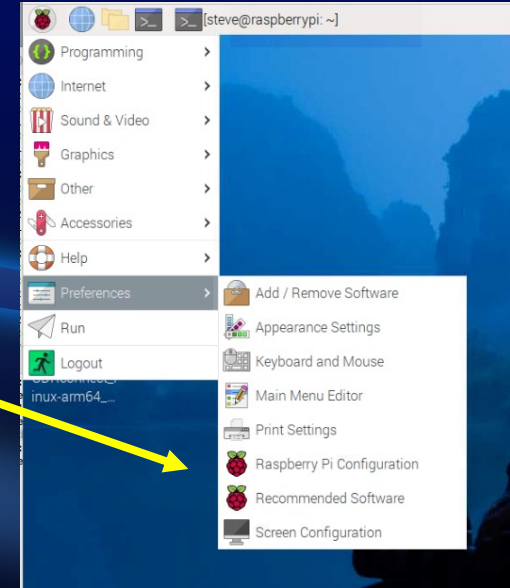
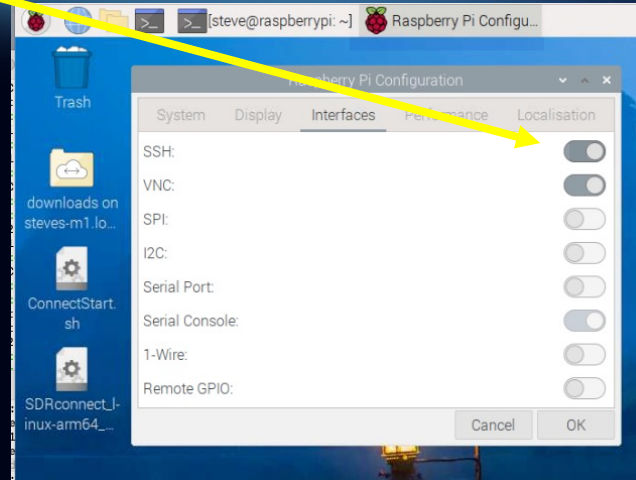
Steps:

- Enable SSH on your Pi
- If outside home network set up Port Forwarding
- Login via SSH
- Navigate to /opt/connect
- Start the server
 - You will see server status information
- Start SDRconnect and select the server from Device dropdown as before
 - Or setup server parameters if not already done
- Close using CTRL-C as before



Enabling SSH

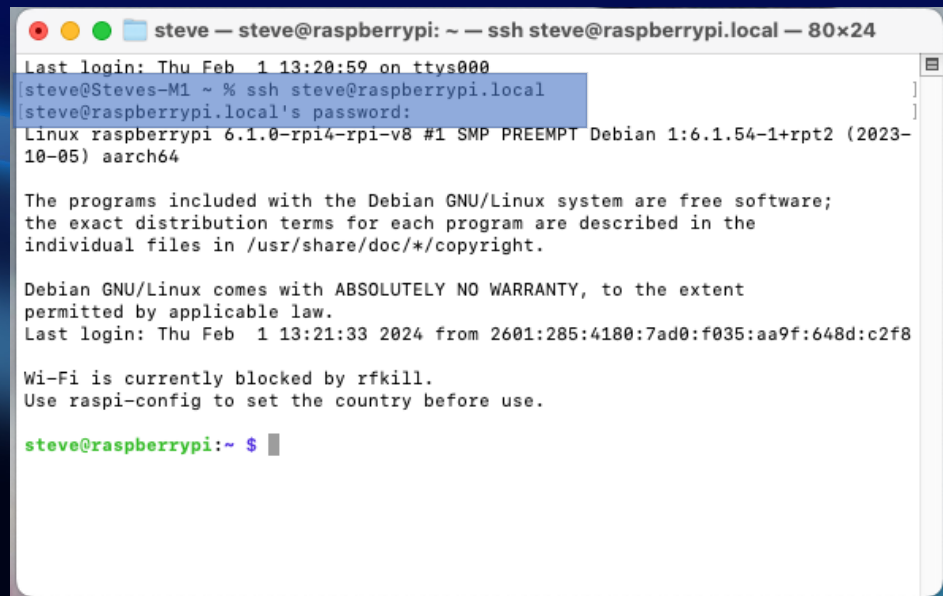
- Select Raspberry Pi Configuration from the menu
- Turn on the SSH toggle on the Services tab
- Click OK



Logging in with SSH – local LAN

On your local LAN:

- Open up a Terminal Window / Command Prompt / Shell Window
- Type `ssh <username>@raspberrypi.local`
 - Use login username for Pi
 - Use either `raspberrypi.local` (default), or,
 - Use local IP address
- Enter password when prompted



```
steve — steve@raspberrypi: ~ — ssh steve@raspberrypi.local — 80x24
Last login: Thu Feb  1 13:20:59 on ttys000
steve@Steves-M1 ~ % ssh steve@raspberrypi.local
steve@raspberrypi.local's password:
Linux raspberrypi 6.1.0-rpi4-rpi-v8 #1 SMP PREEMPT Debian 1:6.1.54-1+rpt2 (2023-10-05) aarch64

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: Thu Feb  1 13:21:33 2024 from 2601:285:4180:7ad0:f035:aa9f:648d:c2f8

Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.

steve@raspberrypi:~ $
```

Logging in with SSH – Over the internet

Over the internet:

- Add Port 22 to your Port Forwarding
- Open up a Terminal Window / Command Prompt / Shell Window
- Type `ssh <username>@<WAN IP or Hostname>`
 - Use login username for Pi
 - Use either Hostname (with DNS server), or,
 - Use WAN IP address
- Enter password when prompted

Notes: Port Forwarding / WAN IP use covered in the “Setting up a Server on the Raspberry Pi” video (VID640)

Any time you open up external ports to the internet there is an element of risk, please act accordingly. SDRplay cannot accept any responsibility.

For SDRconnect

For SSH

13:39

< Port Forwarding

Steves-M1 [Edit](#)

Reserved IP Address: 10.0.0.211

[Show Port Forwards](#)

raspberrypi [Edit](#)

Reserved IP Address: 10.0.0.120

[Hide Port Forwards](#)

Port Number 50000

Protocol TCP/UDP

Port Number 22

Protocol TCP

[Add Port Forward](#)

Starting the server

Same as starting it on the Pi itself:

- Open up a Terminal:
 `cd /opt/sdrconnect`
 `SDRconnect --server --<options>`
- Or, if you implemented the path, just this:
 `SDRconnect --server --<options>`
- You will now see the server window remotely!

Note: Optional Server port specified. if no options are input the port will default to 50000

```
steve — steve@raspberrypi: ~ — ssh steve@raspberrypi.local — 80x29
steve@raspberrypi:~ $ SDRconnect --server --port=50001
SDRconnect Network Server (0fd82d9dc)

Listening on IP address: 0.0.0.0 (Any)
Listening on Port: 50001

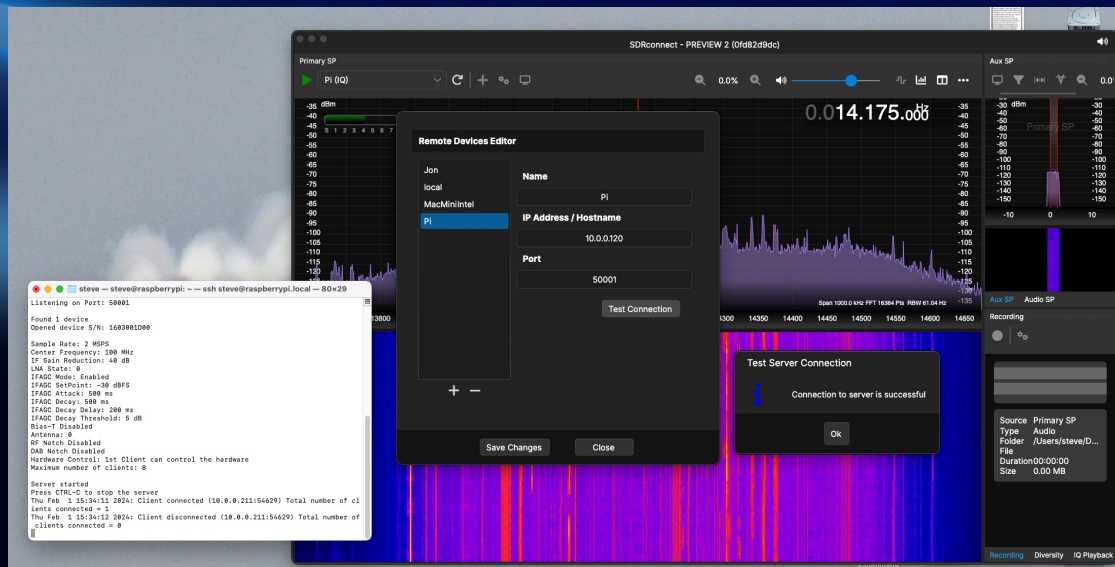
Found 1 device
Opened device S/N: 1603001D00

Sample Rate: 2 MSPS
Center Frequency: 100 MHz
IF Gain Reduction: 40 dB
LNA State: 0
IFAGC Mode: Enabled
IFAGC SetPoint: -30 dBFS
IFAGC Attack: 500 ms
IFAGC Decay: 500 ms
IFAGC Decay Delay: 200 ms
IFAGC Decay Threshold: 5 dB
Bias-T Disabled
Antenna: 0
RF Notch Disabled
DAB Notch Disabled
Hardware Control: 1st Client can control the hardware
Maximum number of clients: 8

Server started
Press CTRL-C to stop the server
```

Remote Control using SDRconnect

- Start SDRconnect
- If not already done, update Remote Devices Editor to match your server
- Select the Server from the Device dropdown
- Click on Play icon
 - Use IQ for local LAN
 - Use Audio for internet connection



Note: It is assumed you have already set up Port Forwarding if using the client over the internet

Stopping the server

Same as stopping it on the Pi itself:

- Press CTRL-C

```
steve — steve@raspberrypi: ~ — ssh steve@raspberrypi.local — 80x29
steve@raspberrypi:~ $ SDRconnect --server --port=50001
SDRconnect Network Server (0fd82d9dc)

Listening on IP address: 0.0.0.0 (Any)
Listening on Port: 50001

Found 1 device
Opened device S/N: 1603001D00

Sample Rate: 2 MSPS
Center Frequency: 100 MHz
IF Gain Reduction: 40 dB
LNA State: 0
IFAGC Mode: Enabled
IFAGC SetPoint: -30 dBFS
IFAGC Attack: 500 ms
IFAGC Decay: 500 ms
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Bias-T Disabled
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RF Notch Disabled
DAB Notch Disabled
Hardware Control: 1st Client can control the hardware
Maximum number of clients: 8

Server started
Press CTRL-C to stop the server
```

*Note: If you close the SSH connection, the server will also stop. So leave the SSH connection open for as long as you wish to connect to the server.
Or see following slide...*



Keep the server running after SSH closed

Use this modified command at the prompt:

- `nohup /opt/sdrconnect/SDRconnect --server &`

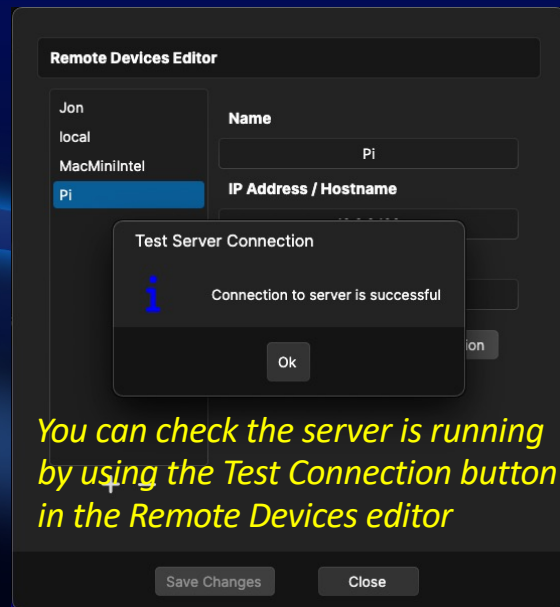
```
steve — steve@raspberrypi: ~ — ssh steve@raspberrypi.local — 80x22
Last login: Thu Feb  1 13:21:45 on ttys000
[steve@Steves-M1 ~ % ssh steve@raspberrypi.local
[steve@raspberrypi.local's password:
Linux raspberrypi 6.1.0-rpi4-rpi-v8 #1 SMP PREEMPT Debian 1:6.1.54-1+rpt2 (2023-10-05) aarch64

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Last login: Thu Feb  1 13:22:09 2024 from 2601:285:4180:7ad0:f035:aa9f:648d:c2f8

Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.

[steve@raspberrypi:~ $ nohup /opt/sdrconnect/SDRconnect --server &
[1] 247437
steve@raspberrypi:~ $ nohup: ignoring input and appending output to 'nohup.out'
steve@raspberrypi:~ $
```



You can check the server is running by using the Test Connection button in the Remote Devices editor

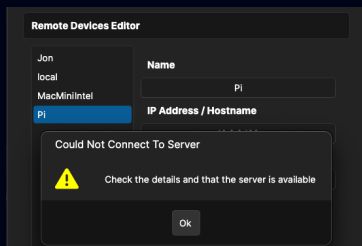
Process ID



Stopping the server

Since there is no local window to view, CTRL-C cannot be used. Instead, you must kill the process:

- First find the process ID:
`ps aux | grep -i SDRconnect`
(the process ID, 309295, appears on the first line)
- Then issue the kill command:
`kill -9 309295`
- Again, you can verify the server is stopped by using Test Connection button in the Remote Devices editor:



```
steve — steve@raspberrypi: ~ — ssh steve@raspberrypi.local — 80x24
10-05) aarch64

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Last login: Sun Feb  4 14:34:33 2024 from 2601:285:4180:7ad0:4d46:1beb:6537:80ab

Wi-Fi is currently blocked by rfkill.
Use raspi-config to set the country before use.

[steve@raspberrypi:~ $ nohup /opt/sdrconnect/SDRconnect --server &
[1] 309295
steve@raspberrypi:~ $ nohup: ignoring input and appending output to 'nohup.out'

steve@raspberrypi:~ $ ps aux | grep -i SDRconnect
steve  309295  1.7  1.1 1622980 45156 pts/0    Sl   14:37   0:02 /opt/sdrconne
ct/SDRconnect --server
steve  309379  0.0  0.0   3796  1828 pts/0    S+   14:40   0:00 grep --color=
auto -i SDRconnect
steve@raspberrypi:~ $ kill -9 309295
steve@raspberrypi:~ $
```

Note: this technique can be used to remotely stop/restart the remote server if it ceases to respond

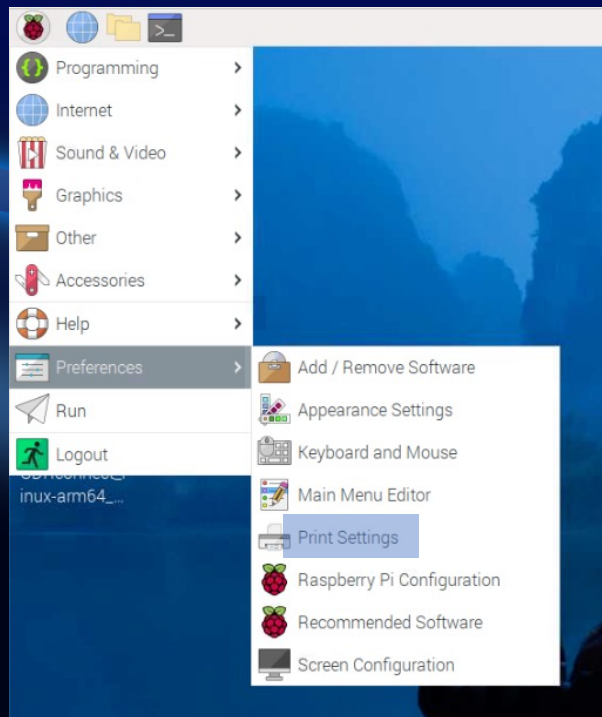
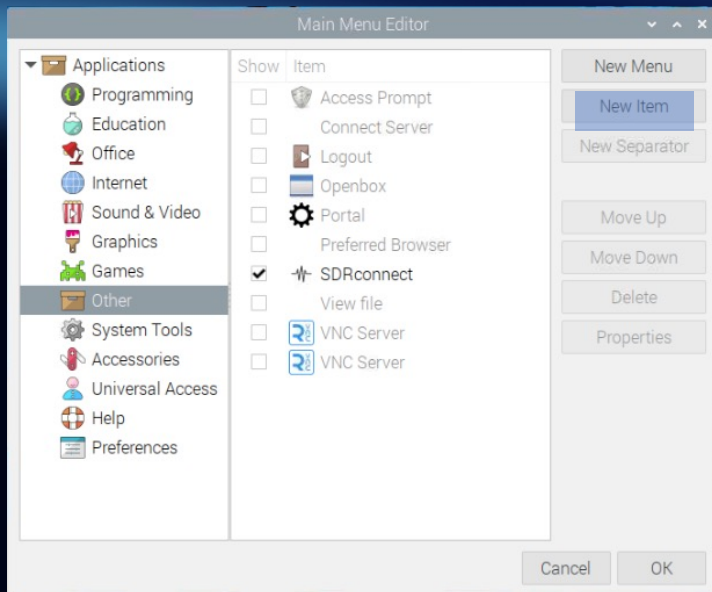


Adding the Server to the Menu



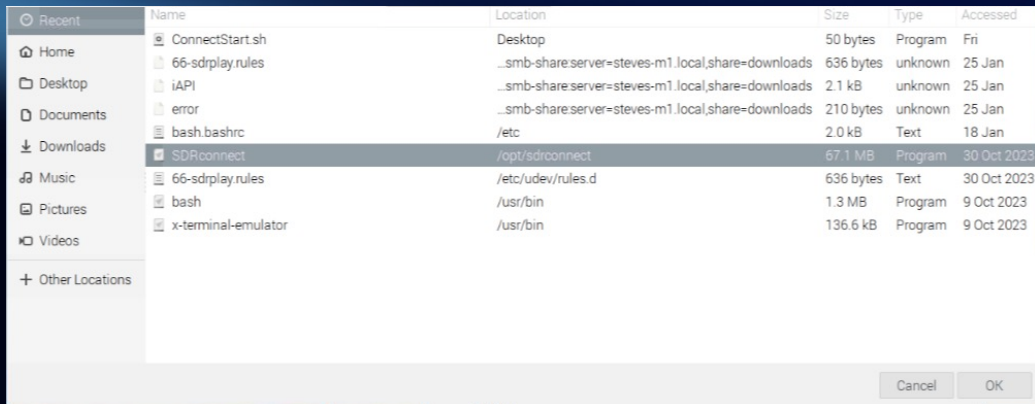
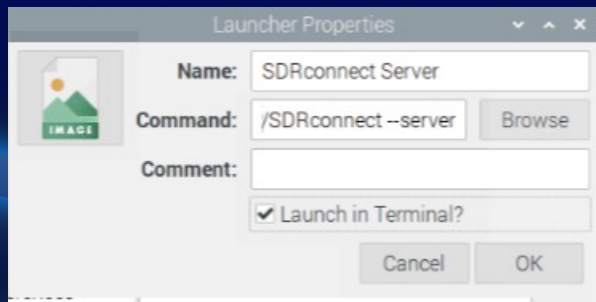
Updating the Applications Menu to start the server (1)

- Click on the Pi icon and select Preferences / Main Menu Editor
- Then click Other and select New Item:



Updating the Applications Menu to start the server (2)

- Type in a name, e.g. SDRconnect Server
- Click the Browse button and select “SDRconnect”
- Click OK
- Click in the “Command” box and space right to the end. Type a space and then --server (and any other options you want)
- Click the “Launch in Terminal” box
- Click OK

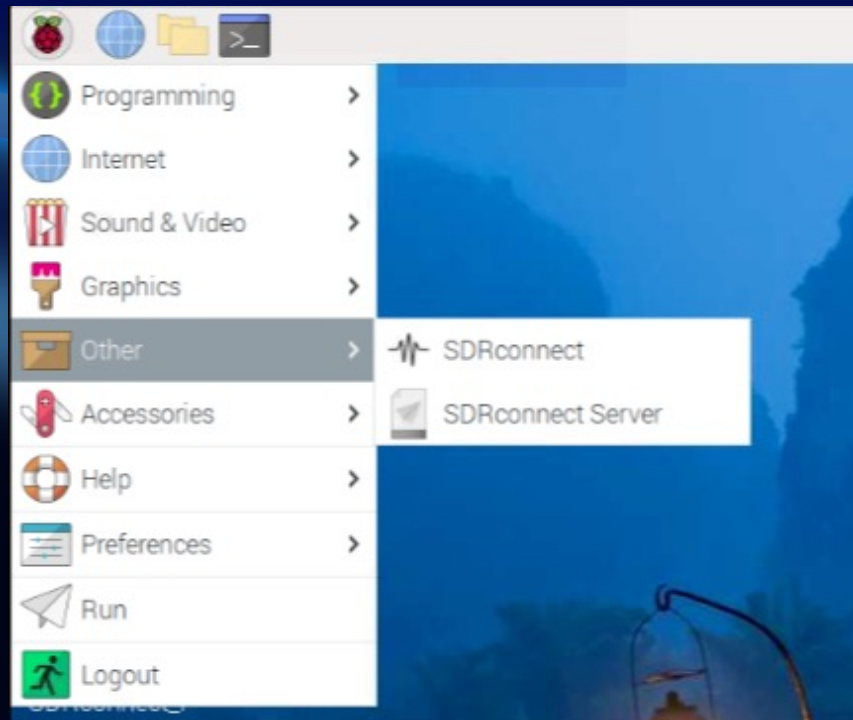


Note: If SDRconnect does not appear in the Recents list you must navigate to Other Locations, then Computer, then opt, then sdrconnect



Starting the Server from the Applications Menu

- Click on the Raspberry Pi and click on “Other”
- You will now see two items:
 - SDRconnect (the client)
 - SDRconnect Server
- Click on SDRconnect Server and the server will start



Thank you for watching

For further information please visit our website:

www.sdrplay.com/sdrconnect

