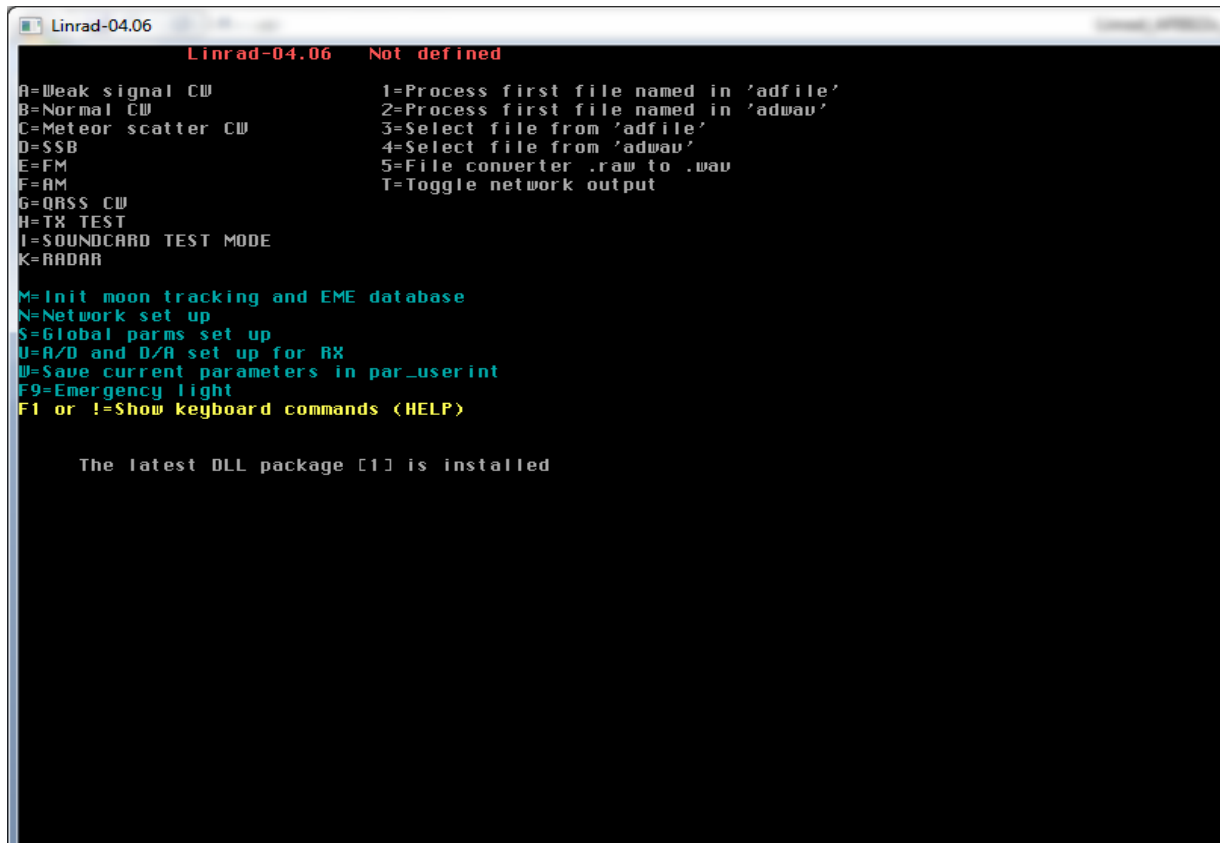


Linrad configuration for Dual Channel SDRs: AFE822x SDR-Net or AFEDRI SDR-Net x2



```
Linrad-04.06
Linrad-04.06  Not defined
A=Weak signal CW          1=Process first file named in 'adfile'
B=Normal CW              2=Process first file named in 'adwav'
C=Meteor scatter CW      3=Select file from 'adfile'
D=SSB                    4=Select file from 'adwav'
E=FM                     5=File converter .raw to .wav
F=AM                      T=Toggle network output
G=QRSS CW
H=TX TEST
I=SOUNDCARD TEST MODE
K=RADAR

M=Init moon tracking and EME database
N=Network set up
S=Global parms set up
U=A/D and D/A set up for RX
W=Save current parameters in par_userint
F9=Emergency light
F1 or !=Show keyboard commands (HELP)

The latest DLL package [1] is installed
```

1. Press «U» key – to enter the new screen to choose input/output device

```
Linrad-04.06
CURRENT R/D and D/A SETUP FOR RX
Linrad RX input from: NOT YET SELECTED (Select Menu Option 'R')
Linrad RX output to: NOT YET SELECTED: (Select input first.)

DMA rate   min=30   max=300

A = Change input settings and reset all other soundcard settings
    if a soundcard is selected as input.
B = Change the output soundcard settings.
C = Change min/max dma rate.
E = Enable/Disable frequency converter and set LO.
Z = Disable the output soundcard.
X = To main menu.
```

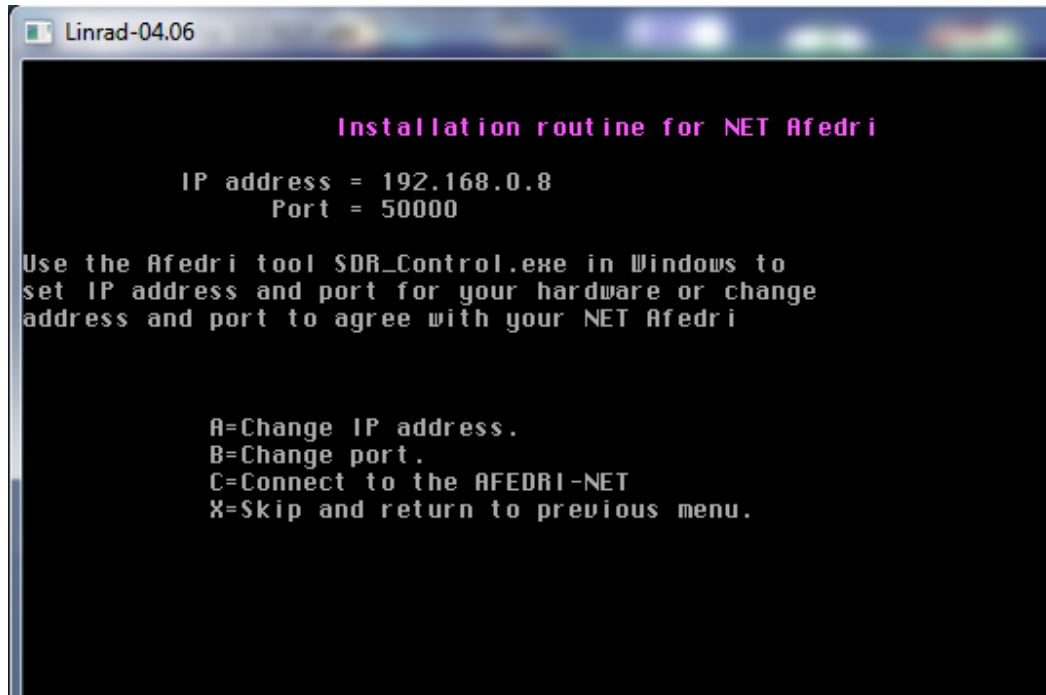
2. Press «A» key – for input device configuration.

```
Linrad-04.06

                SELECT HARDWARE FOR INPUT

A = Soundcard
B = SDR-14 or SDR-1Q
C = Perseus
D = SDR-1P
E = Excalibur
F = libExtIO hardwares
H = RTL2832 USB dongle
I = Mirics USB dongle
J = bladeRF
K = PCIe 9842
L = OpenHPSDR
M = Afedri-NET
O = Airspy
Y = Network
Z = Disable (Disk input allowed)
```

3. Press «M» key - and choose AFEDRI-Net



```
Linrad-04.06

Installation routine for NET Afedri

IP address = 192.168.0.8
Port = 50000

Use the Afedri tool SDR_Control.exe in Windows to
set IP address and port for your hardware or change
address and port to agree with your NET Afedri

A=Change IP address.
B=Change port.
C=Connect to the AFEDRI-NET
X=Skip and return to previous menu.
```

4. You will enter to the new menu , with configuration of SDR network parameters,
Correct IP address or/and IP port address to match you parameters.
5. If displayed network parameters are good for you, press «C» key, to establish connection with SDR.

If your parameters are OK, you will see soon the new screen:

```
Linrad-04.06

Installation routine for NET Afedri

IP address = 192.168.0.8
Port = 50000

Target Name = AFEDRI-SDR
Serial number = 32334335
Interface version = 2.570000
Boot code version = -1.280000
Firmware version = -1.280000
Hardware version = -1.280000
Product ID = SDR (= [83][68][82][3])
Max samp. rate = 2000000 Hz
ADC clock = 70656000 Hz

Use this hardware? (Y/N)
```

Press «Y» key to approve your choice.

```
Linrad-04.06

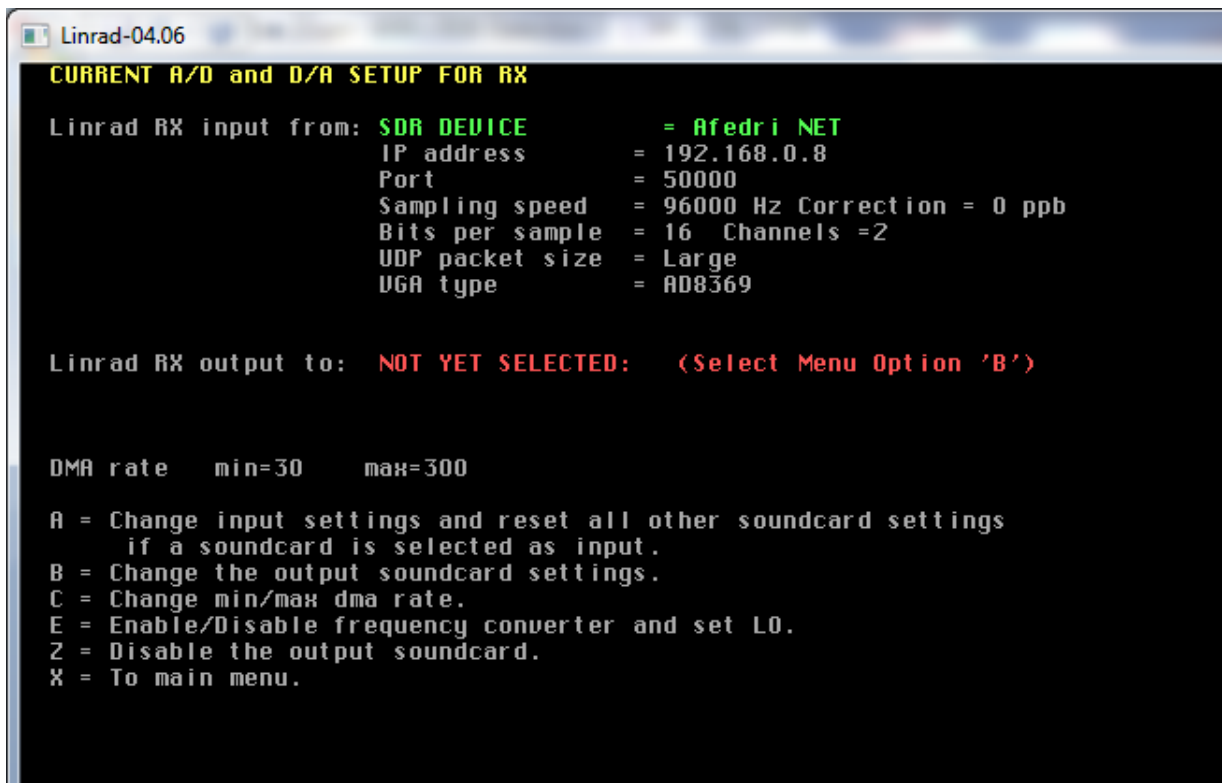
Installation routine for NET Afedri

IP address = 192.168.0.8
Port = 50000

Set global parameters for the NET-Afedri
A => Sampling rate = 96000 Hz)
B => Bits per sample = 16
C => UDP packet size = Large
D => UGA type = AD8369
E => No of RF channels = 2
F => Frequency correction = 0 ppm
X => Save settings in par_netafedri and exit
```

6. In the new menu you can configure desired SDR parameters according you need , replacing default value, on the screen shot you can see recommended value for Dual Channel SDR usage with MAP6:

7. Press «X» key to save your desired configuration.



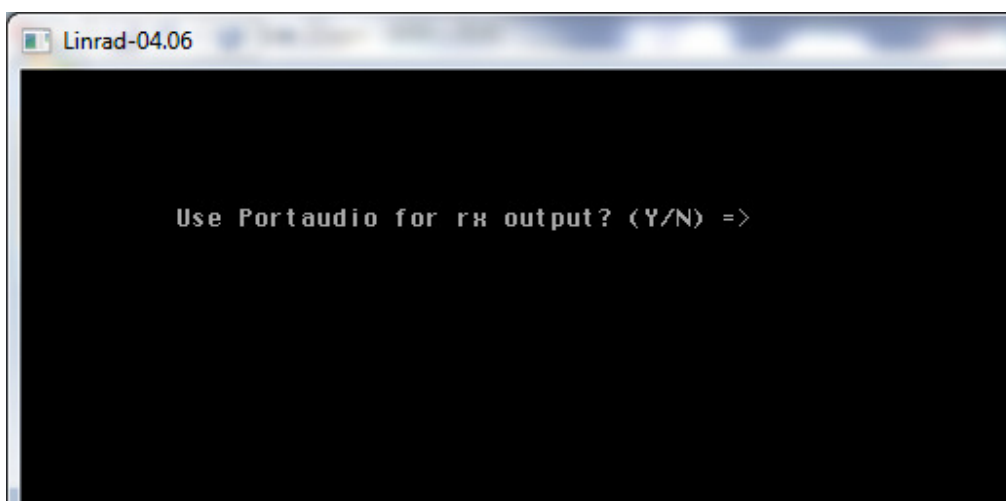
```
Linrad-04.06
CURRENT A/D and D/A SETUP FOR RX
Linrad RX input from: SDR DEVICE      = Afedri NET
                      IP address     = 192.168.0.8
                      Port           = 50000
                      Sampling speed = 96000 Hz Correction = 0 ppb
                      Bits per sample = 16 Channels = 2
                      UDP packet size = Large
                      UGA type       = AD8369

Linrad RX output to:  NOT YET SELECTED:  (Select Menu Option 'B')

DMA rate  min=30  max=300

A = Change input settings and reset all other soundcard settings
    if a soundcard is selected as input.
B = Change the output soundcard settings.
C = Change min/max dma rate.
E = Enable/Disable frequency converter and set LO.
Z = Disable the output soundcard.
X = To main menu.
```

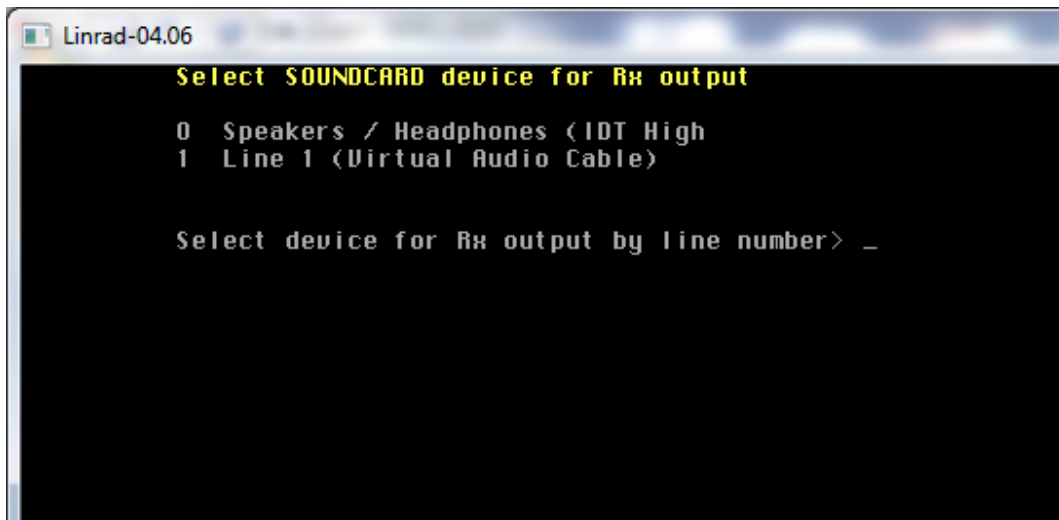
8. You will be returned to input/output device configuration screen
9. Press “B” key to configure output device



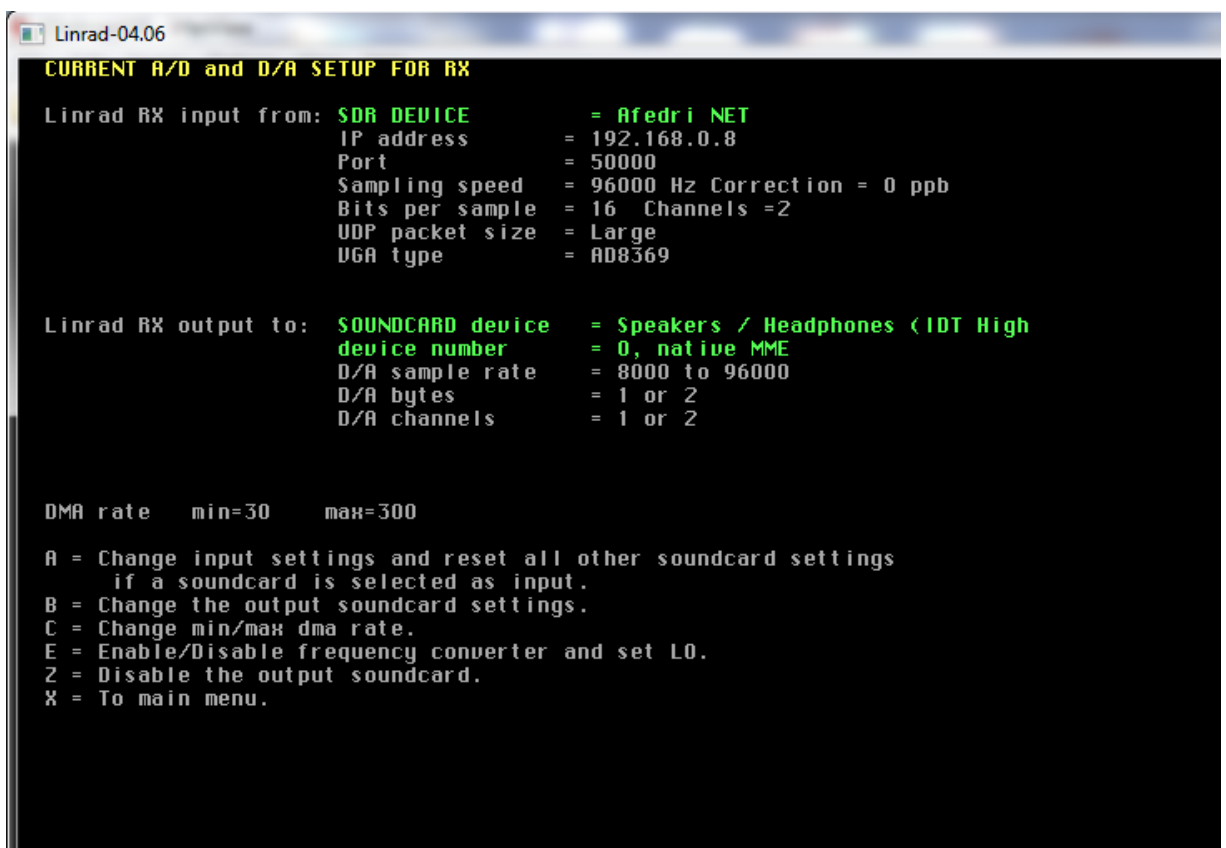
```
Linrad-04.06

Use Portaudio for rx output? (Y/N) =>
```

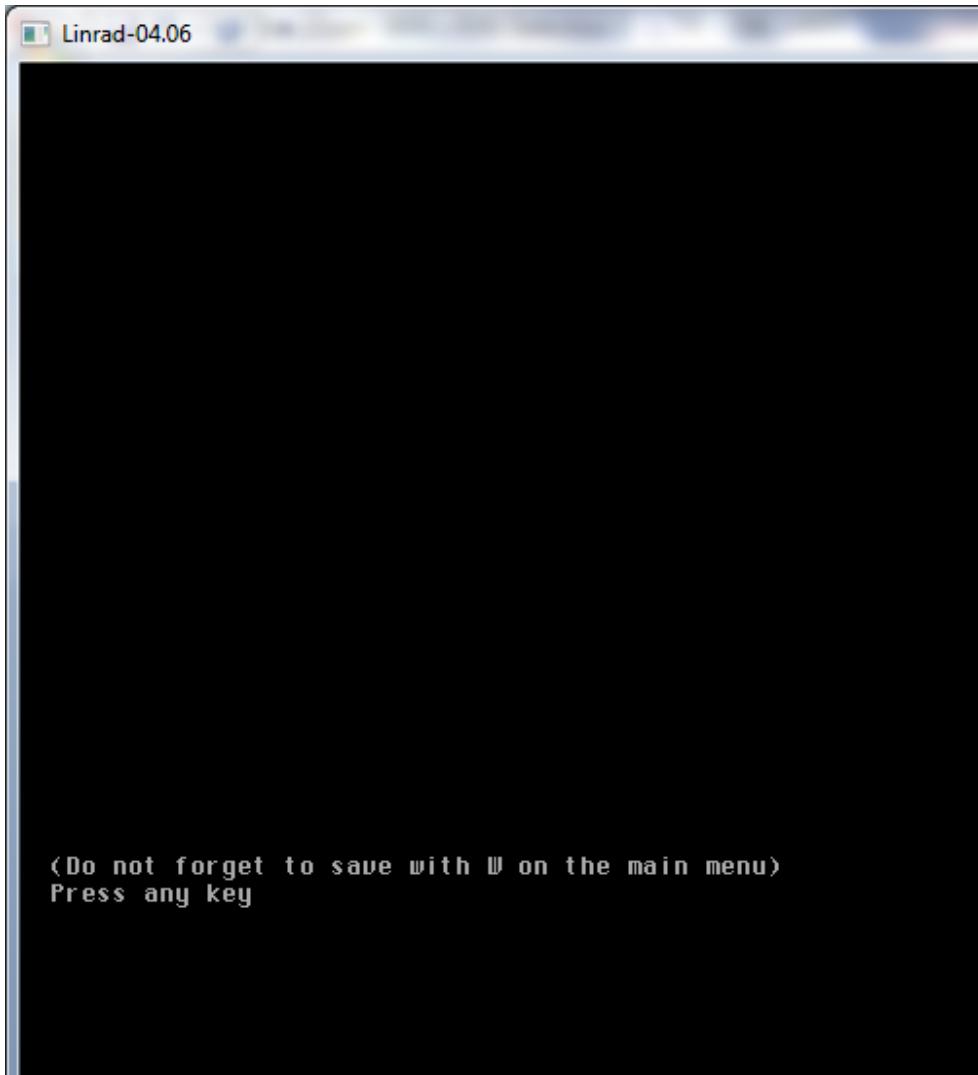
Press Y or N to choose you want to use Portaudio or not (I usually press “N”)



Choose desired audio output device, if everything gone OK, you will see final screen:



Press "X" key to return to main menu:



```

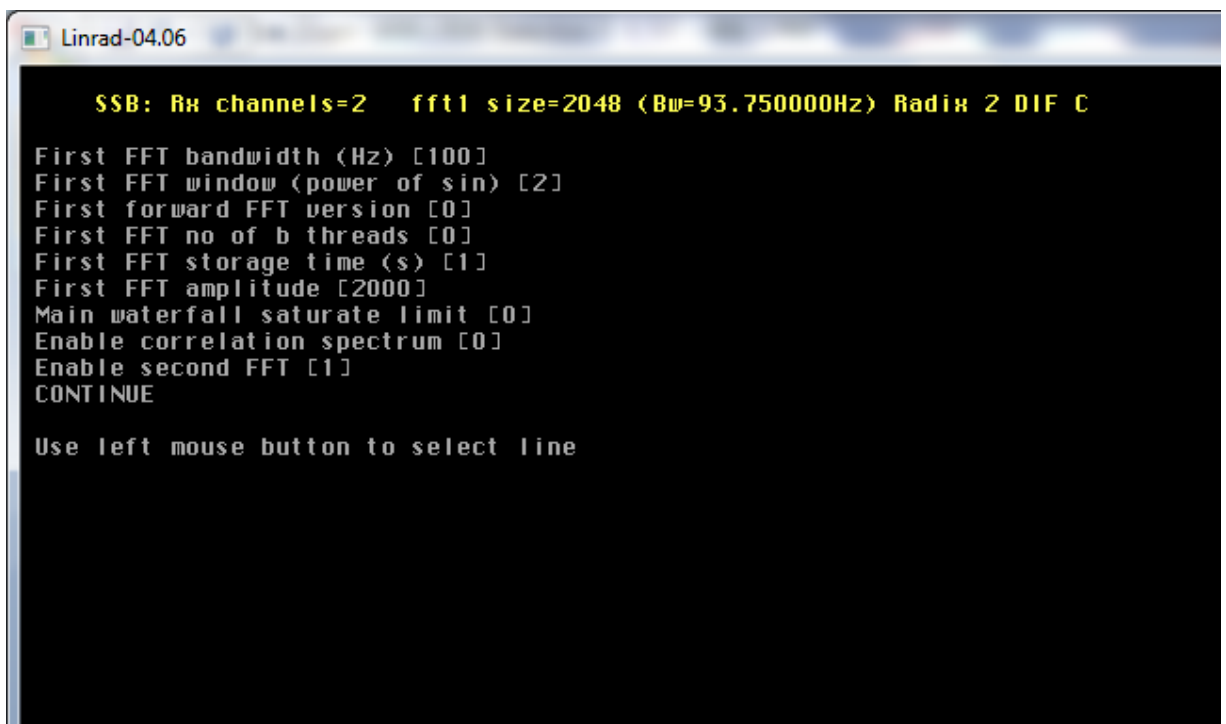
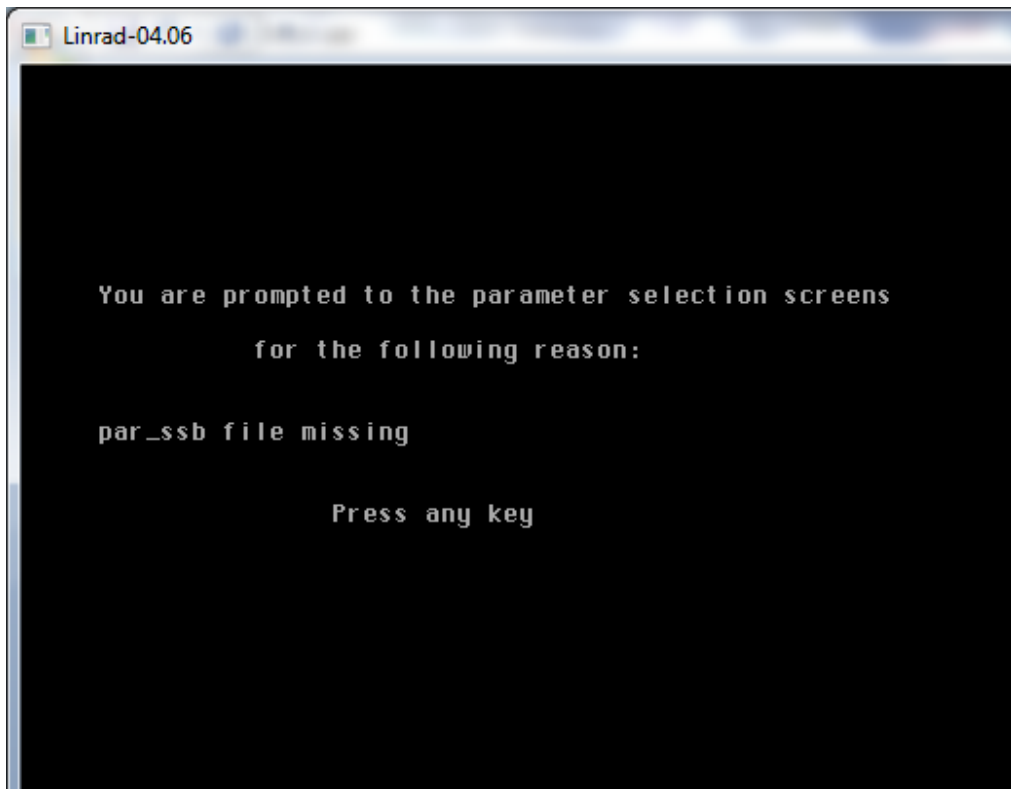
Linrad-04.06 Afedri NET
A=Weak signal CW          1=Process first file named in 'adfile'
B=Normal CW              2=Process first file named in 'adwav'
C=Meteor scatter CW      3=Select file from 'adfile'
D=SSB                    4=Select file from 'adwav'
E=FM                     5=File converter .raw to .wav
F=AM                     T=Toggle network output
G=QRSS CW
H=TX TEST
I=SOUNDCARD TEST MODE
K=RADAR

M=Init moon tracking and EME database
N=Network set up
S=Global parms set up
U=A/D and D/A set up for RX
W=Save current parameters in par_userint
F9=Emergency light
F1 or !=Show keyboard commands (HELP)

User interface setup saved
uga mode [12]
Screen width (%) [80]
font scale [2]
Max DMA rate [300]
Native ALSA [0]
Rx rf channels [2]
Rx ad speed [96000]
Rx ad mode [0]
Rx da device no [0]
Rx max da speed [96000]
Rx max da bytes [2]
Rx min da bytes [1]
Converter Hz [0]
Converter mode [0]
Tx ad speed [0]
Tx ad device no [-1]
Tx da channels [0]
Tx da bytes [0]
Tx enable [0]
Tx pilot microsec. [0]
Max blocked CPUs [0]
Autostart [0]
Rx da latency [0]
Tx da latency [0]
Min DMA rate [30]
ExtIO type [0]
shm mode [0]
Screen height (%) [80]
mouse speed [8]
Process priority [1]
Rx input mode [38]
Rx ad channels [4]
Rx ad device no [10010]
Rx da mode [0]
Rx min da speed [8000]
Rx max da channels [2]
Rx min da channels [1]
Soundcard Radio [0]
Converter MHz [0]
network flag [0]
Tx da speed [0]
Tx da device no [-1]
Tx ad channels [0]
Tx ad bytes [0]
Tx pilot tone dB [0]
Operator skill [2]
Timer resolution [0]
Rx ad latency [0]
Tx ad latency [0]
Sample shift [0]
Use ExtIO [0]
check [2230401]

```

10. When you will see again the main menu press «W» key to save current configuration
11. Restart Linrad.
12. To Start SSB mode reception press “D” key
13. When you do that for the first time (or after configuration changes) you will see the next configuration screen



Enable Second FFT!

```
Linrad-04.06  
  
SSB: Rx channels=2  fft2 size=8192 (Bw=23.437500Hz)  
  
First backward FFT version [0]  
Sellim maxlevel [12000]  
First backward FFT att. N [6]  
Second FFT bandwidth factor in powers of 2 [2]  
Second FFT window (power of sin) [2]  
Second forward FFT version [0]  
Second forward FFT att. N [7]  
Second FFT storage time (s) [5]  
CONTINUE  
  
Use left mouse button to select line
```

```
Linrad-04.06  
  
SSB: Rx channels=2  
  
Enable AFC/SPUR/DECODE (2=auto spur) [2]  
CONTINUE  
  
Use left mouse button to select line
```

```
Linrad-04.06  
  
SSB: Rx channels=2  
  
AFC lock range Hz [150]  
AFC max drift Hz/minute [100]  
Enable Morse decoding [0]  
Max no of spurs to cancel [0]  
Spur timeconstant (0.1sec) [5]  
CONTINUE  
  
Use left mouse button to select line
```

```
Linrad-04.06

SSB: Rx channels=2

First mixer bandwidth reduction in powers of 2 [4]
First mixer no of channels [1]
Third FFT window (power of sin) [2]
Baseband storage time (s) [2]
Output delay margin (ms) [100]
Output sampling speed (Hz) [48000]
Default output mode [1]
Audio expander exponent [3]
Baseband waterfall saturate limit [0]
CONTINUE

Use left mouse button to select line
```

```
Linrad-04.06

INIT POLARISATION PARAMETERS FOR TWO CHANNEL RADIO

A => Angle for channel 1 (0=Hor, 90=vert) 0
B => Toggle sign for channel 2           +
C => Toggle mode                         Auto
D => Toggle start polarization           H

S => Save to disk and exit
```

Choose Diversity reception parameters and press "S" key to save desired configuration

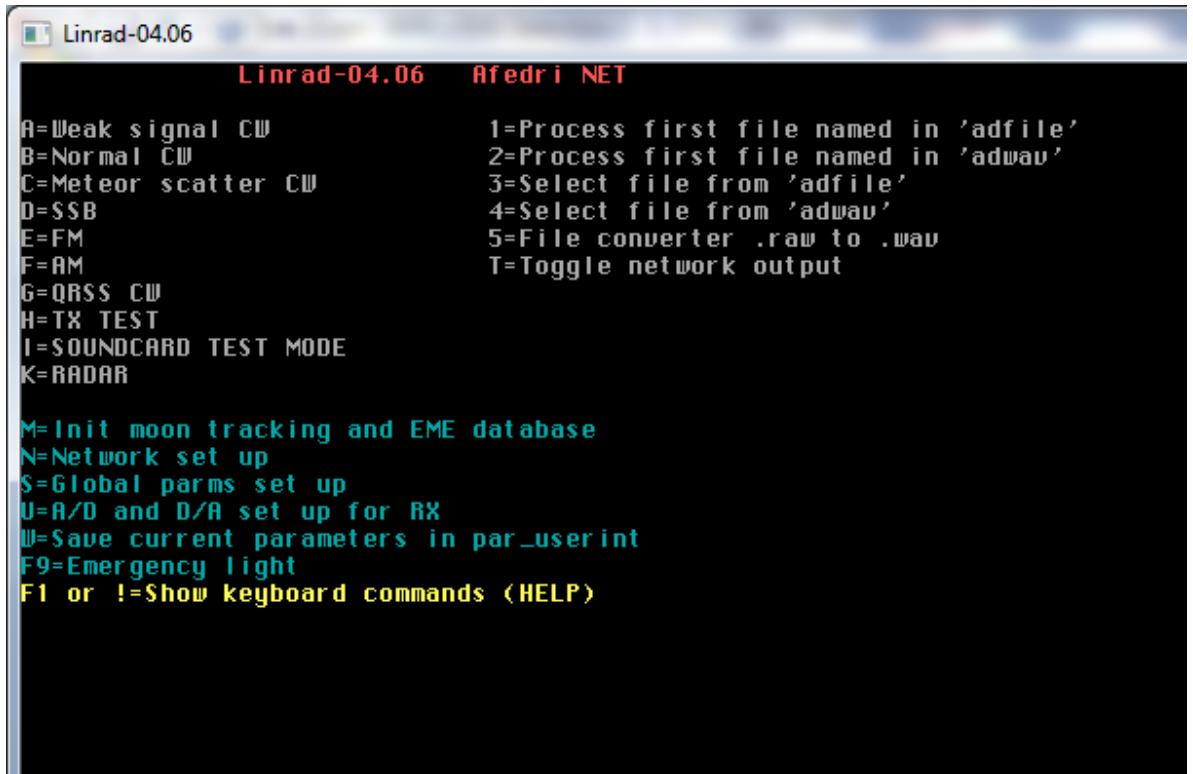
14. Now you will see SSB mode reception screen:



Now Linrad to AFE822x or Dual Channel AFEDRI SDR-Net configuration is finished.

Linrad to MAP6 interface configuration:

1. Start Linrad, you will be in the Main menu:



```
Linrad-04.06 Afedr i NET
A=Weak signal CW          1=Process first file named in 'adfile'
B=Normal CW              2=Process first file named in 'adwav'
C=Meteor scatter CW      3=Select file from 'adfile'
D=SSB                    4=Select file from 'adwav'
E=FM                      5=File converter .raw to .wav
F=AM                      T=Toggle network output
G=QRSS CW
H=TX TEST
I=SOUNDCARD TEST MODE
K=RADAR

M=Init moon tracking and EME database
N=Network set up
S=Global parms set up
U=A/D and D/A set up for RX
W=Save current parameters in par_userint
F9=Emergency light
F1 or !=Show keyboard commands (HELP)
```

2. Press "N" key to go to Network configuration.

You will be now in network configuration screen (see image below), I recommend to configure your Linrad in the manner similar to what you see in my example, You need to change:

SEND address to 127.0.0.1 (loopback device) and enable option

Send timf2 (blanker output)

```
Linrad-04.06

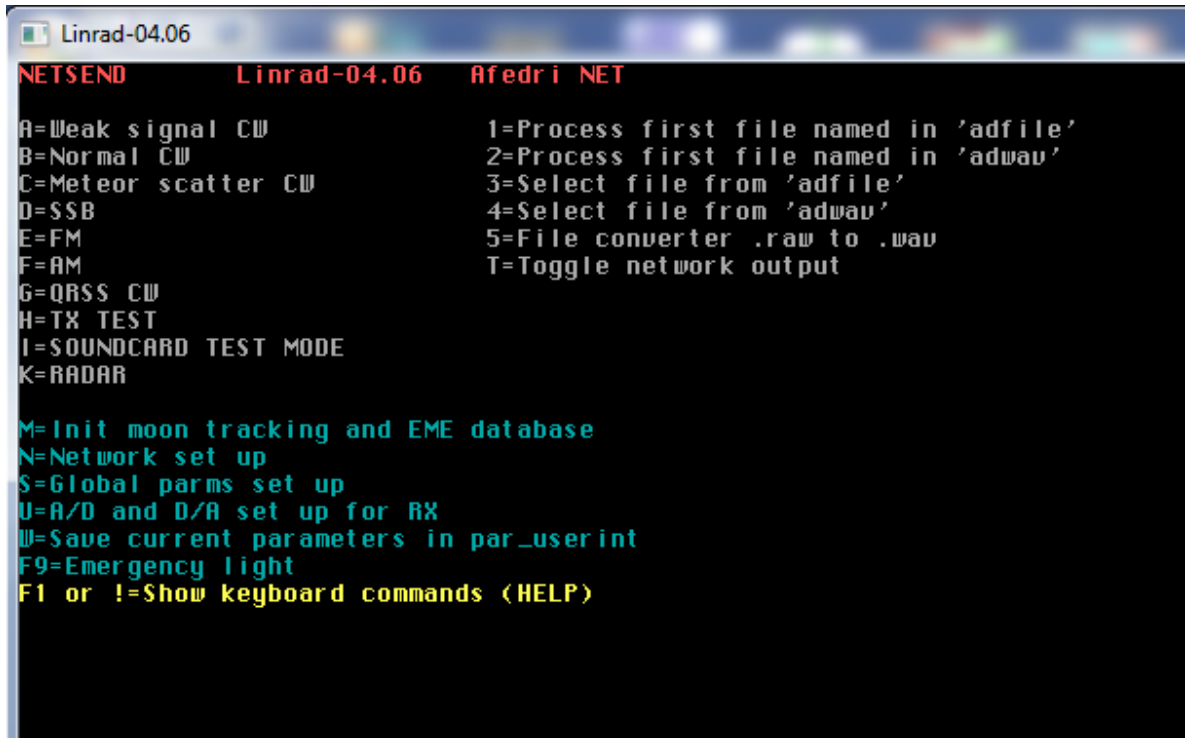
CURRENT NETWORK SETTINGS ARE:

1:   Base port = 50000
2:   SEND address = 127.0.0.1
3:  RECEIVE address = 239.255.0.0
4:  Send raw data in 16 bit format OFF
5:  Send raw data in 18 bit format OFF
6:  Send raw data in 24 bit format OFF
7:  Send FFT1 transforms OFF
8:  Send timf2 (blanker output) ON (port=50004)
9:  Send FFT2 transforms OFF
10: Send baseband (resampled,16 bit) OFF
11: Send baseband raw (24 bit)OFF
12: RX input from network -- (Raw data, 16 bit)
F1: Help

On exit from this routine network transmit will be OFF.
The screen shows what will become enabled when send
is enabled (with T on the main menu)
(Do not forget to save with W on the main menu)

Enter a line number to change, 0 to exit => _
```

Press Zero key to save desired network parameters , you will be returned to main Linrad screen,



```
Linrad-04.06
NETSEND      Linrad-04.06      Afedri NET

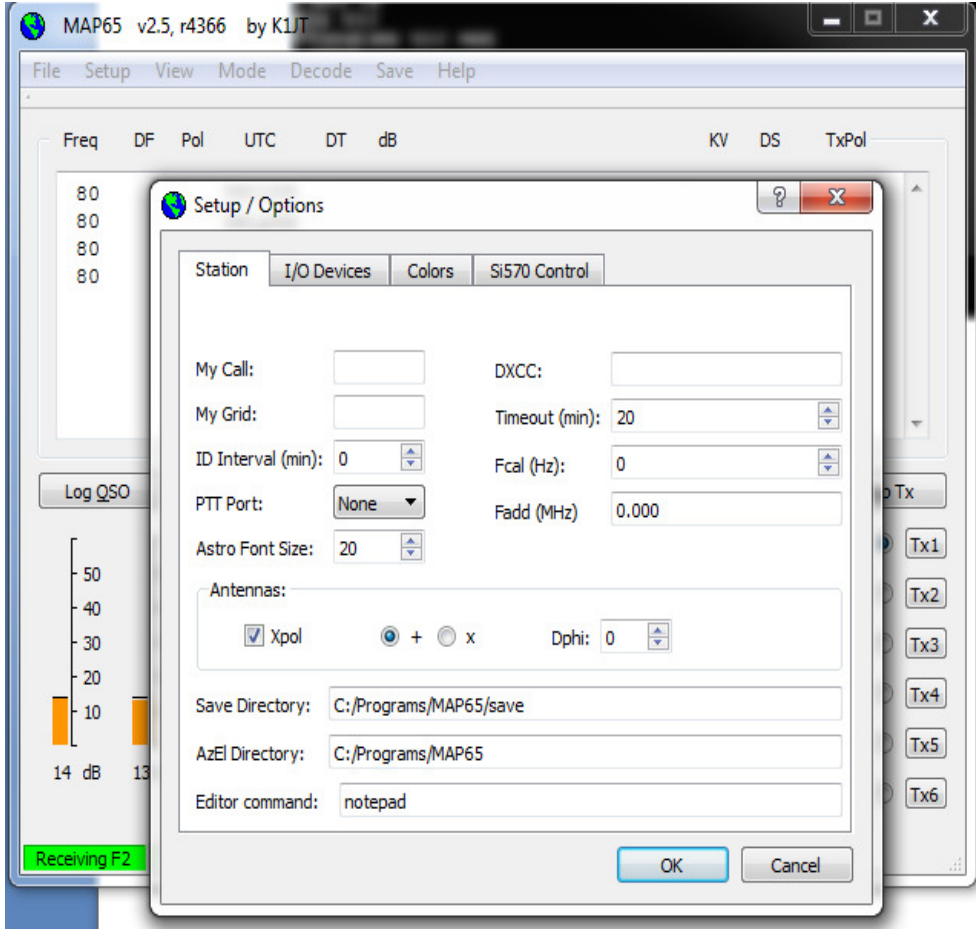
A=Weak signal CW           1=Process first file named in 'adfile'
B=Normal CW                2=Process first file named in 'adwav'
C=Meteor scatter CW       3=Select file from 'adfile'
D=SSB                     4=Select file from 'adwav'
E=FM                      5=File converter .raw to .wav
F=AM                      T=Toggle network output
G=QRSS CW
H=TX TEST
I=SOUNDCARD TEST MODE
K=RADAR

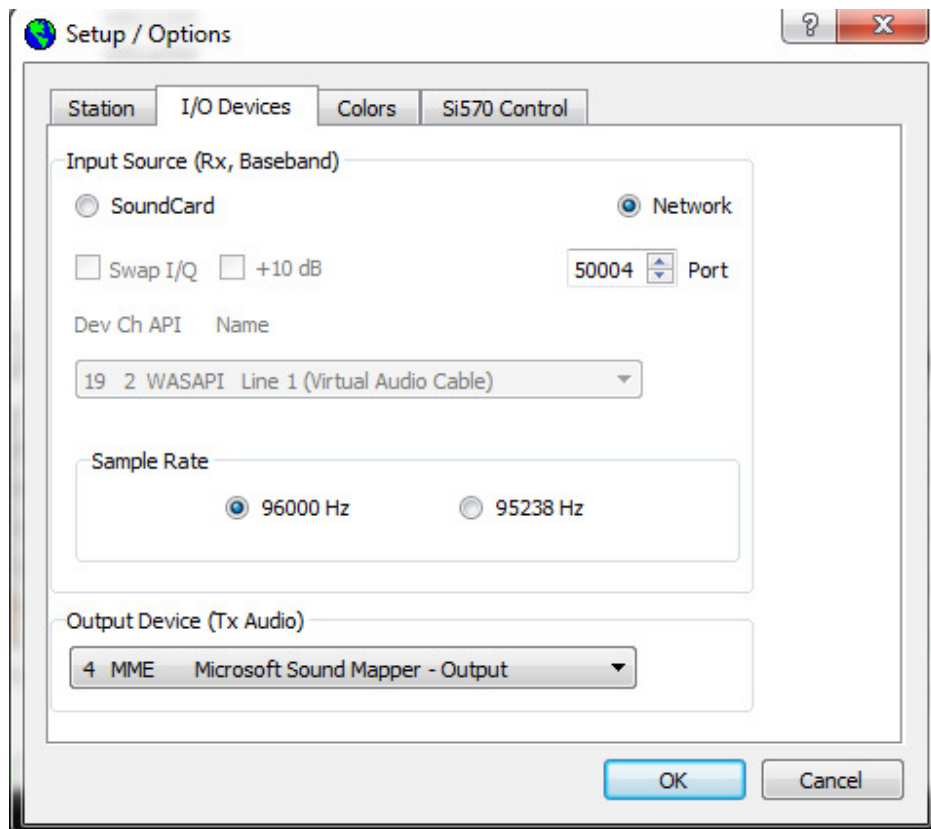
M=Init moon tracking and EME database
N=Network set up
S=Global parms set up
U=A/D and D/A set up for RX
W=Save current parameters in par_userint
F9=Emergency light
F1 or !=Show keyboard commands (HELP)
```

Press "T" key to enable Network output and finally do not forget to press "W" key to save parameters.

MAP65 configuration example

1. Start MAP65 and press "Setup"-> "Options" menu, to MAP65 with Linrad you should repeat next setting like on my screenshots:





Maybe you will need to change additional settings in MAP65, but it is out of scope of this simple instructions.

Enjoy