

Dear Customer,

Thanks for using TBS6909, TBS6909 is a powerful DVB-S/S2 octa tuner card, and there is some information you need to know before using. Now, we have released open source driver for TBS6909. Detail install steps and use way please refer to the following explanation.

### How to download and install open source driver:

Install the TBS6909 firmware:

```
# wget http://www.tbsdtv.com/download/document/linux/tbs-tuner-firmwares_v1.0.tar.bz2
# tar jxvf tbs-tuner-firmwares_v1.0.tar.bz2 -C /lib/firmware/
```

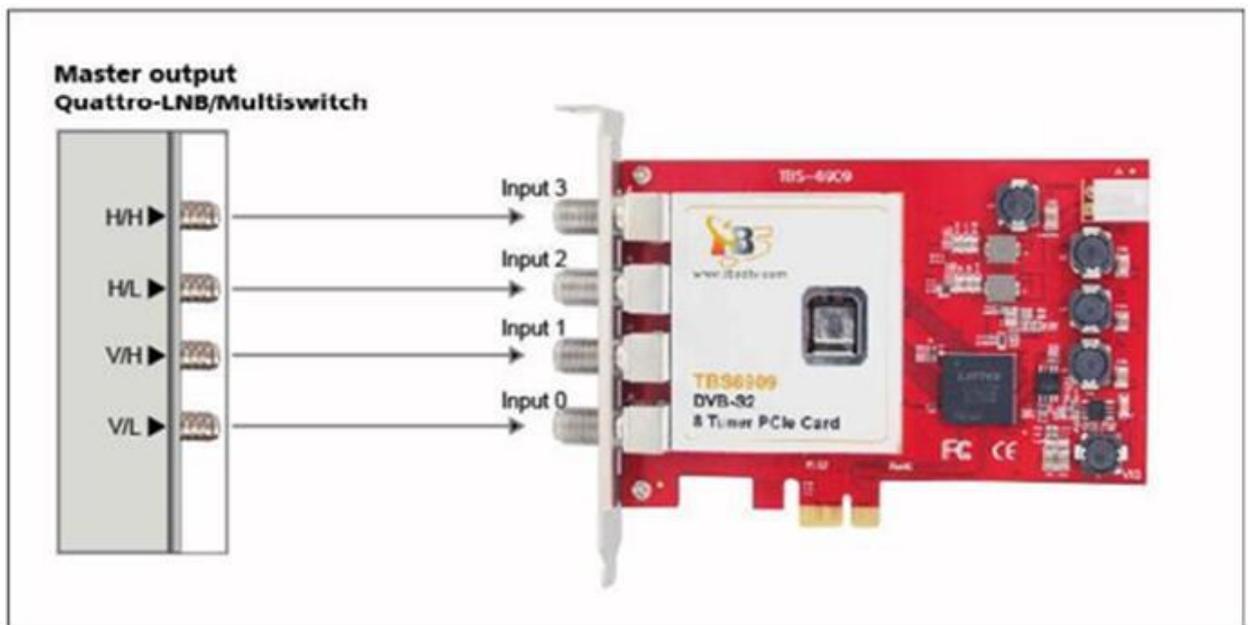
Download and install:

```
# mkdir tbsopensource
# cd tbsopensource
# git clone https://github.com/tbsdtv/media_build.git
# git clone --depth=1 https://github.com/tbsdtv/linux_media.git -b latest ./media
# cd media_build
# make dir DIR=./media
# make distclean
# make -j4
# make install
# reboot
```

For more information you can check here :  
[https://github.com/tbsdtv/linux\\_media/wiki](https://github.com/tbsdtv/linux_media/wiki)

Default mode is multiswitch mode. There are two ways of signal input for TBS6909. In this mode, the signal input can be like this:

### Multiswitch mode: (Mode 0)



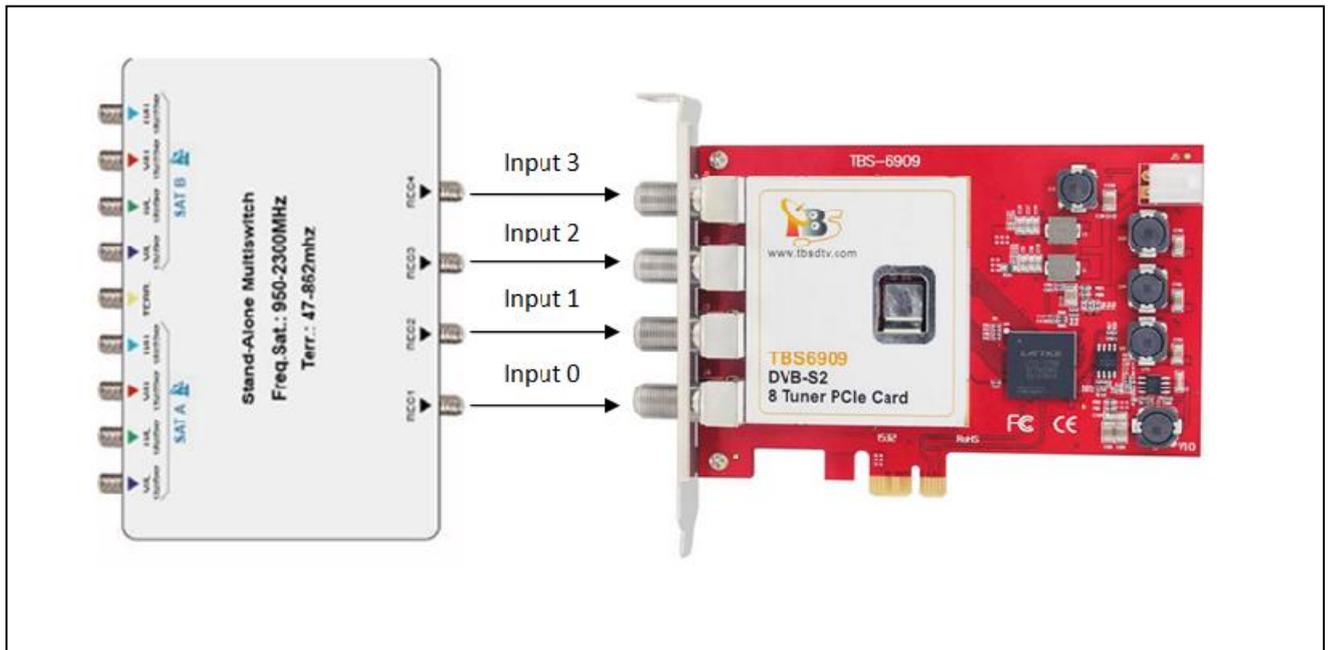
If you are using quad LNB, you can directly connect the 4 cables to the 4 ports of TBS6909.

If you want to lock TPs, the Tuner will automatically select an appropriate input. For example (Notes: adapter0 ~ adapter 7 are the 8 tuners of tbs6909):

-lock VH frequency to adapter0, adapter1, adapter2, adapter3 and adapter4, then the driver will create virtual and dynamic links between those 5 adapters of the Linux kernel and 5 of the demodulator cores of TBS6909 will route them all to Input1. That means in this case 5 of the TBS 6909 demodulator cores will take the signal from the tuner attached to the Input1.

- lock HL frequency to adapter5, then the 6th demodulator core of TBS6909 will be virtually and dynamically connected to adapter5 by the driver and the core itself will take signal from the tuner attached to Input2

- lock HH frequency to adapter6 and adapter7, then the rest 2 demodulator cores of TBS6909 will be virtually and dynamically connected respectively to adapter6 and adapter7 by the driver and the cores itself will take signal from the tuner attached to Input3



In some case multiswitch have more than one satellite input, need to choose the satellite first, then you can use this mode. It will be selected satellite by sending Diseqc command.

In this mode, if input 0 to input 3 has at least an active input then all tuners can get lock, for example:

If we have a VH signal connected to input 1 come from satellite B, use dvblast to scan the channel:

```
dvblast -f 12538000 -s 41250000 -v 13 -a 0 -S 2
```

it means that the VH port is choose satellite B, the other 7 tuners all can get the satellite B VH signal.

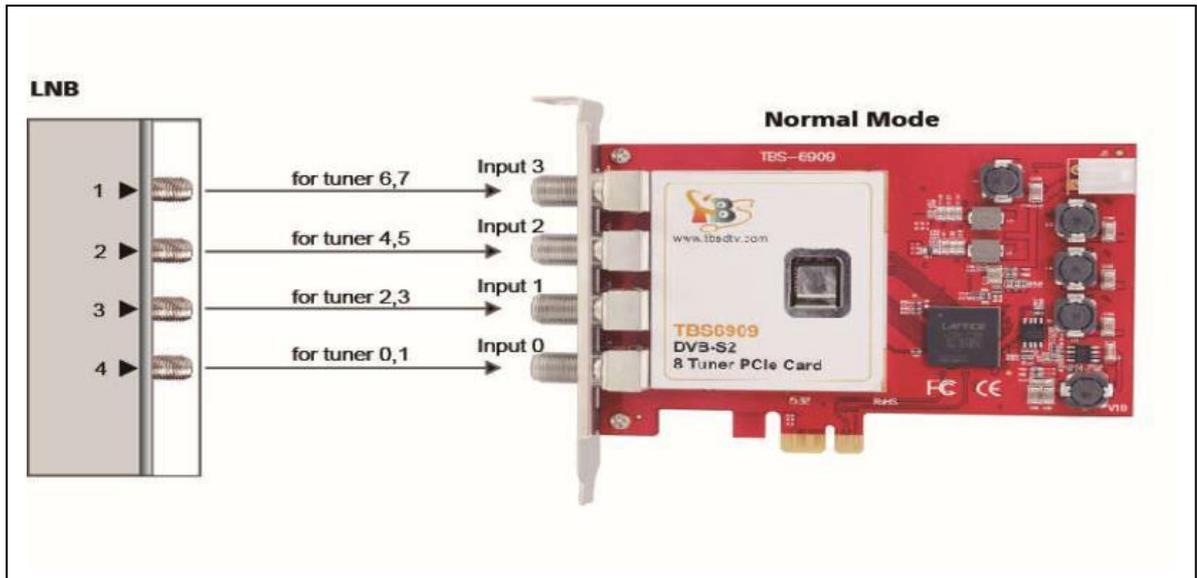
If we have a HL signal connected to input 2 come from satellite A, use dvblast to scan the channel:

```
dvblast -f 11080000 -s 43200000 -v 18 -m psk_8 -a 3 -S 1
```

it means that the HL is choose satellite A, the other 7 tuners all can get the satellite A HL signal.

If you have four kinds active signal connected to correct 4 inputs, then you can get all VL, VH, HL, HH signal.

## Normal mode:(Mode 1)



If you want to use normally way with TBS6909, you need to change the mode to normal mode, one input for two tuners, every port you can choose the satellite you want with Diseqc command, the two tuners use the same satellite signal and polarization. In this mode, you don't need to distinguish VL, VH, HL, HH signal, no matter it's a ku or C-band satellite signal, just scan it.

create text file "/etc/modprobe.d/mxl5xx.conf" with line:

**options mxl5xx mode=1**

after created this file, restart your PC to load the new configuration.

Both of mode 0 and mode 1 support Diseqc and multiswitch. It's necessary to use a diseqc or multiswitch when you want to use two or more satellites and many inputs needed at the same time. The following explainaions will tell you how to deal with this when you use dvblast, tvheadend or Astar to receive and stream.

The most commonly used Diseqc is a 4-port or 8-port diseqc, and multiswitch is 2-satellite or 4-satellite.

**1. For dvblast:**

When you lock DVB-S2 TPs, you need to set the modulation, but this setting is not necessary for DVB-S. Then add a parameter "-S XX" to select the satellite which you want to scan, some examples:

```
dvblast -f 12660000 -s 45000000 -v 13 -m psk_8 -a 0 -S 2
```

```
dvblast -f 12630000 -s 43200000 -v 18 -m psk_8 -a 5 -S 4
```

**2. For mumudvb config:**

```
#DVB-S
```

```
card=2
```

```
freq=12648
```

```
srate=29500
```

```
pol=V
```

```
coderate=auto
```

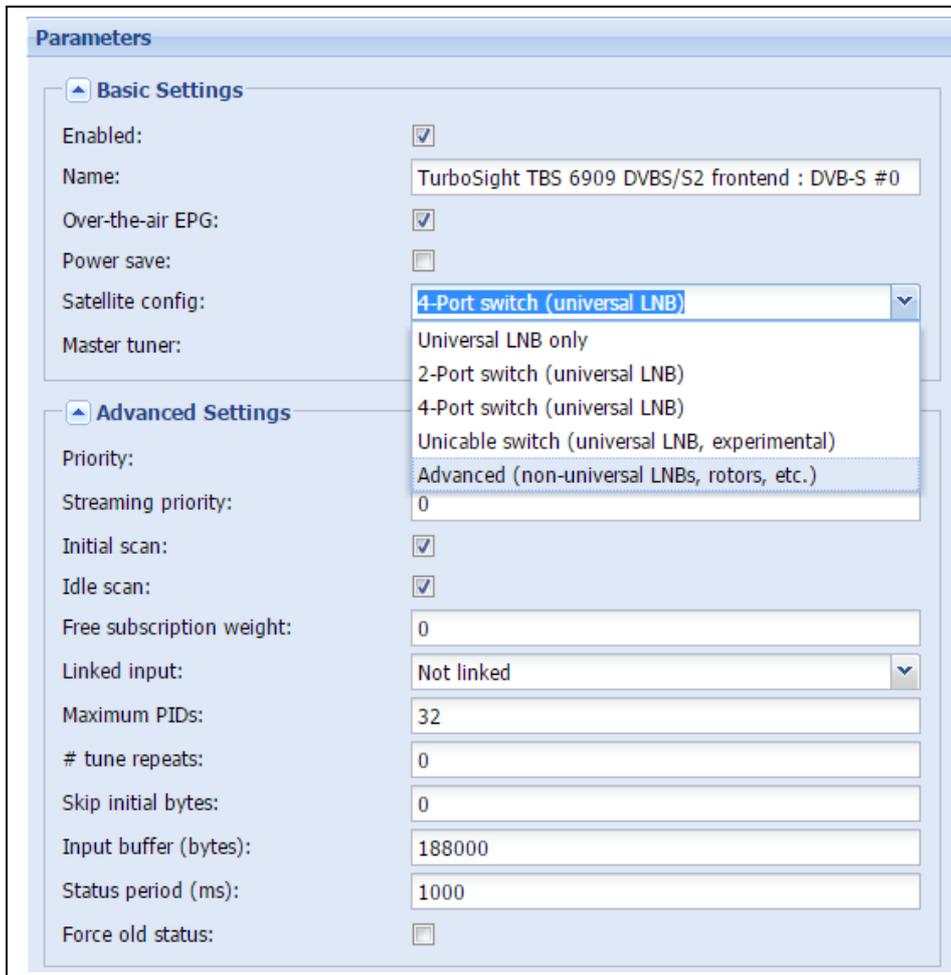
```
common_port=1234
```

```
autoconfiguration=full
```

```
modulation =8PSK
```

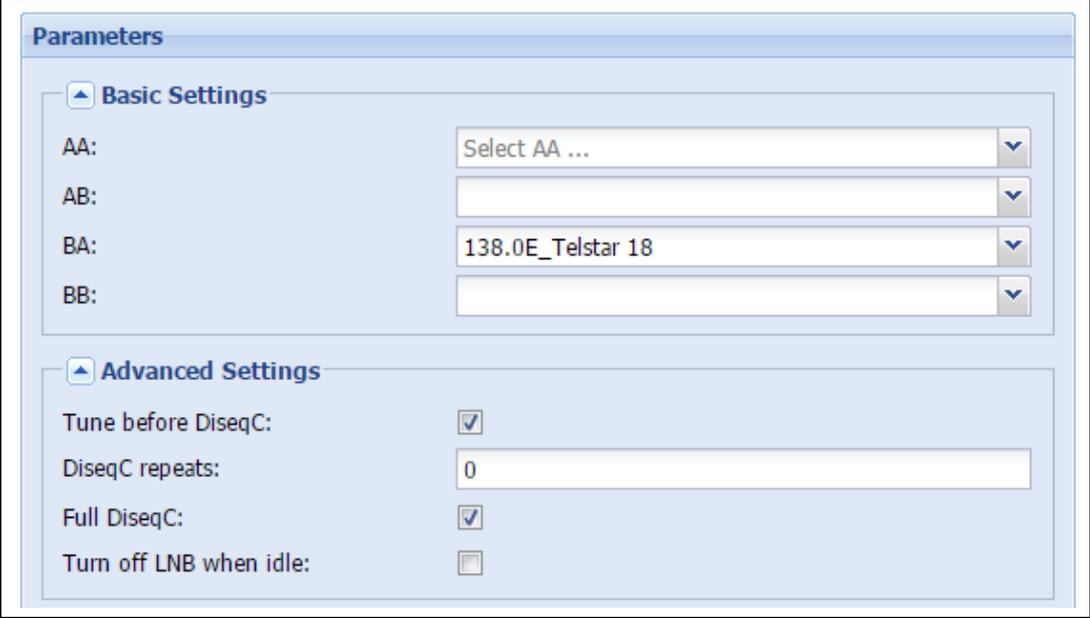
**3. For tvheadend**

In tvheadend, you need to do some Diseqc settings in TV adapters. If you are using a 4-port diseqc or a 4-satellite multiswitch, please select the "4-Port switch(universal LNB)"; if it's a 2-port diseqc or a 2-satellite multiswitch, please select the "2-Port switch(universal LNB)", like this:



Now, we take a 4-satellite multiswitch as an example:

After selected the Diseqc or multiswitch, then go to add a network. The AA is corresponding to diseqc port 1 or multiswitch SAT 1; the AB is corresponding to the diseqc port 2 or multiswitch SAT2; the BA is corresponding to the diseqc port 3 or multiswitch SAT 3; the BB is corresponding to diseqc port 4 or multiswitch SAT 4.



The screenshot shows a 'Parameters' dialog box with two sections: 'Basic Settings' and 'Advanced Settings'. In 'Basic Settings', there are four dropdown menus for AA, AB, BA, and BB. The BA menu is set to '138.0E\_Telstar 18'. In 'Advanced Settings', there are four checkboxes: 'Tune before DiseqC' (checked), 'DiseqC repeats' (set to 0), 'Full DiseqC' (checked), and 'Turn off LNB when idle' (unchecked).

Parameter	Value
AA:	Select AA ...
AB:	
BA:	138.0E_Telstar 18
BB:	
Tune before DiseqC:	<input checked="" type="checkbox"/>
DiseqC repeats:	0
Full DiseqC:	<input checked="" type="checkbox"/>
Turn off LNB when idle:	<input type="checkbox"/>

After did this, you can go ahead, the next tvheadend setting is same as usual. A special part you have to pay attention to when you need to lock DVBS2 TPs, please select it to DVBS2, modulation to "PSK/8" in "Muxes" setting as below, like this:



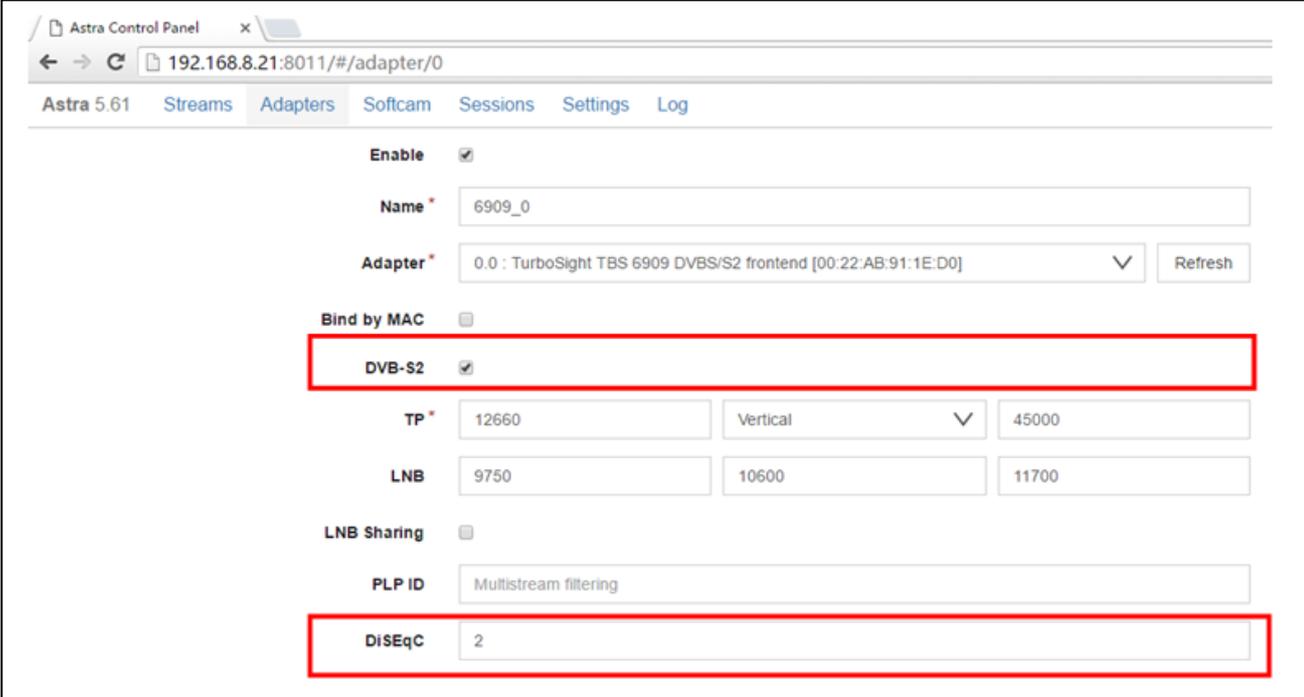
The screenshot shows an 'Edit Mux' dialog box with a 'Basic Settings' section. The 'Delivery System' is set to 'DVBS2' and 'Modulation' is set to 'PSK/8', both highlighted with red boxes. Other settings include: Enabled (checked), EPG Scan (Enable (auto)), Scan Status (IDLE), Frequency (kHz) (12500000), Symbol Rate (Sym/s) (7200000), Polarization (V), FEC (5/6), Rolloff (AUTO), ISI (Stream ID) (-1), PLS Mode (ROOT), and PLS Code (1).

Parameter	Value
Enabled:	<input checked="" type="checkbox"/>
EPG Scan:	Enable (auto)
Scan Status:	IDLE
Delivery System:	DVBS2
Frequency (kHz):	12500000
Symbol Rate (Sym/s):	7200000
Polarization:	V
Modulation:	PSK/8
FEC:	5/6
Rolloff:	AUTO
ISI (Stream ID):	-1
PLS Mode:	ROOT
PLS Code:	1

#### 4. For Astra:

The special part of using TBS6909 in Astar is Diseqc setting. The same as tvheadend, your satellite cable connected to which diseqc port or which multiswitch satellite, you need to enter the corresponding number "1", "2", "3", "4" to the diseqc setting box.

If it's a DVBS2 TPs, please tick behind the "DVBS2". Click "Advanced Options" to set it, like this:



The screenshot shows the Astra Control Panel interface for configuring an adapter. The browser address bar shows the URL `192.168.8.21:8011/#/adapter/0`. The navigation menu includes "Astra 5.61", "Streams", "Adapters", "Softcam", "Sessions", "Settings", and "Log". The "Adapters" section is active, showing the configuration for adapter "6909\_0". The "Enable" checkbox is checked. The "Adapter" dropdown is set to "0.0 : TurboSight TBS 6909 DVBS/S2 frontend [00:22:AB:91:1E:D0]". The "Bind by MAC" checkbox is unchecked. The "DVB-S2" checkbox is checked and highlighted with a red box. The "TP" field is set to "12660", "Vertical", and "45000". The "LNB" field is set to "9750", "10600", and "11700". The "LNB Sharing" checkbox is unchecked. The "PLP ID" field is set to "Multistream filtering". The "DISEqC" field is set to "2" and highlighted with a red box.

After finished Diseqc setting, the rest Astra setting is same as usual.

TBS Support Team  
Email: [support@tbsdtv.com](mailto:support@tbsdtv.com)  
Website: [www.tbsdtv.com](http://www.tbsdtv.com)

Any more questions, please contact with our technical support team [support@tbsdtv.com](mailto:support@tbsdtv.com).

Best Regards,