

## ***TBS-6903/6908 DVB-S2 Receiver EUMETCast Windows Setup Guide***

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## ***Document Change Record***

<b><i>Issue / Revision</i></b>	<b><i>Date</i></b>	<b><i>DCN. No</i></b>	<b><i>Changed Pages / Paragraphs</i></b>
v1	10 March 2015		First release
v1A	16 April 2015		Links Updated, New Version of BDADDataEx software used
v1B	29 April 2015		Tuner Frequency changed
v1C	17 February 2016		New DVB Windows driver used (§3.2, p7), EUMETCast Europe PID table updated (§4.2e, p14), C-Band Africa IPTool Configuration added (§4.4, p17)
v1D	18 February 2016		Paragraph structure updated (§4.4, p17) Tellicast Setup Updated (§6.1, §6.3, pp30-31)
v2	15 March 2016		New TBS-6903 device added (§1, p5) Prerequisites Updated (§2, p6) New IPTool software Version used (§4, p11)

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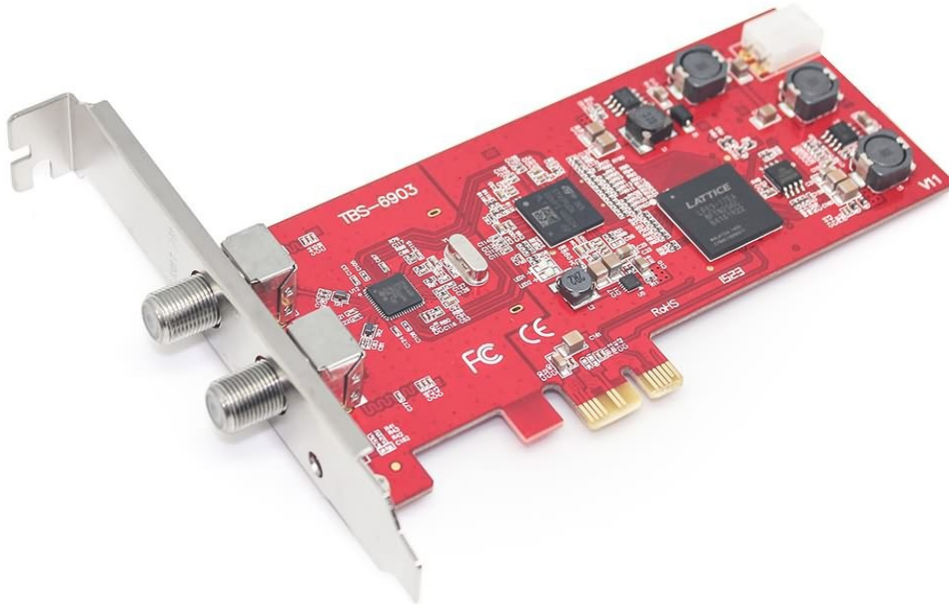
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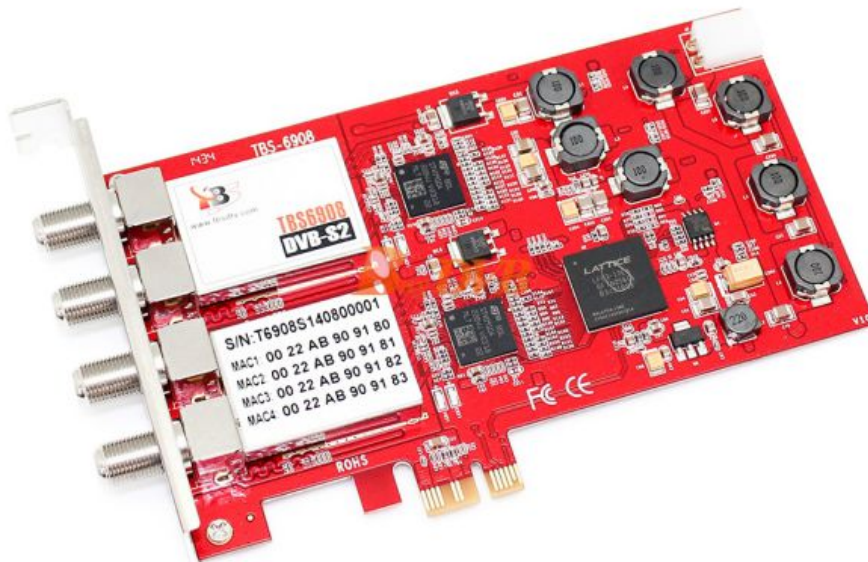
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## 1 INTRODUCTION

The purpose of this manual is to guide a user through the minimum necessary steps to allow the reception of EUMETCast data (DVB-S2) on the TBS-6903/ TBS-6908 satellite receivers.



**Figure 1 TBS-6903 Receiver**



**Figure 2 TBS-6908 Receiver**

*Please refer also to TBS “TBS Devices Manual\_Version xxx” for more details, it is provided at the following link:*

<http://www.tbsdtv.com/download/document/common/tbs-quick-install-guide.zip>

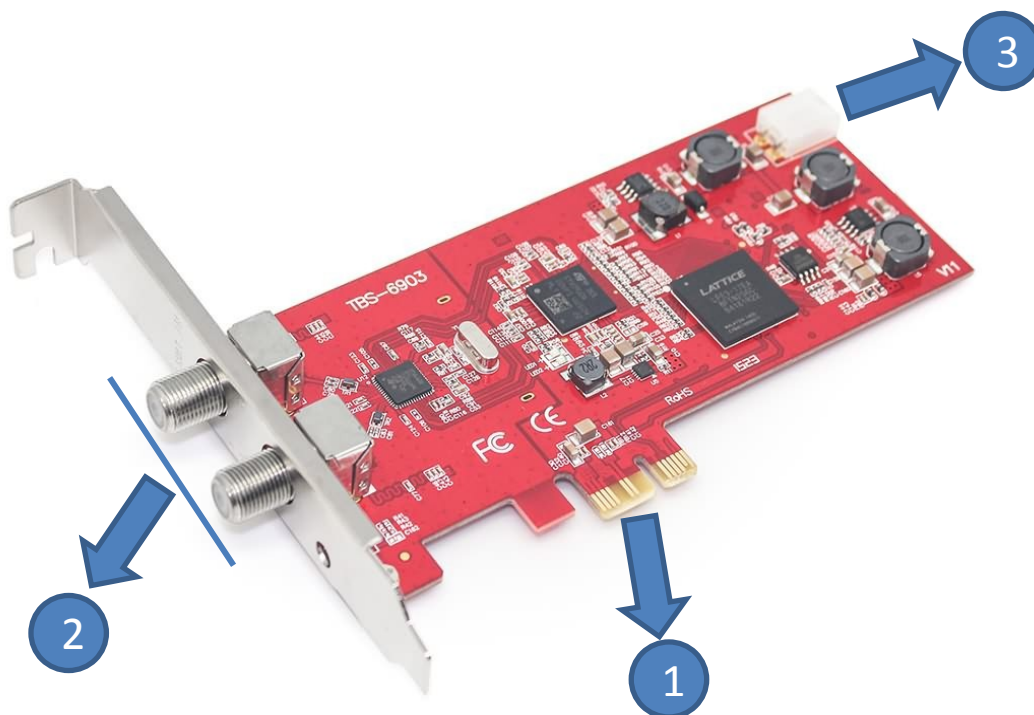
## 2 PREREQUISITES

Before performing the configuration please ensure the following steps have been addressed:

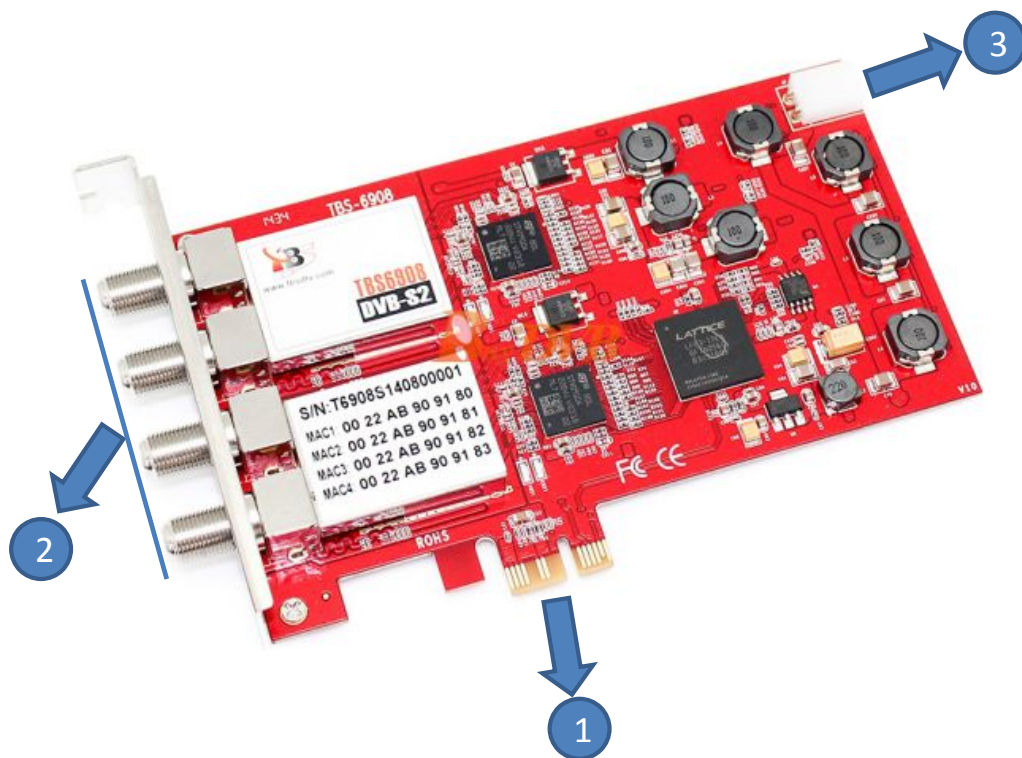
- A PC that covers the recommended technical specifications (see [TD15: EUMETCast Reception Station Requirements – PC Hardware Specifications](#)). If the HVS is enabled PC RAM should be > 4 Gb.
- A PCIe slot port is available for connecting the receiver;
- Operating System is compliant;
- Internet explorer 7 and higher, Firefox 3 and higher or any other compatible browser;
- Administrator or Root access to the reception host system;
- The EUMETCast antenna pointing has been performed correctly to EUTELSAT10A for DVB-S2 reception. (For DVB-S2 reception the antenna pointing and LNB quality are crucial);
- An EKU has been obtained from the EUMETSAT user help desk;
- The reception host has the latest EUMETCast reception software installed;

## 3 DEVICE INSTALLATION

### 3.1 Physical Connections



*Figure 3 TBS-6903 Connectors*



*Figure 4 TBS-6908 Connectors*



*Figure 5 TBS-6903/6908 Power Cable*

The connectors used in the TBS-6903/TBS6908 device configuration are described in the following table:

Number	Connector
1	PCIe 1.x Connector
2	RF In
3	Power Cable Connector

- Plug-in the connector 1 to a free PCIe slot of your PC ;
- Connect the antenna cable to one of the four connectors 2;
- Connect the Power Cable Connector 3 to the power using the TBS-6908 power cable (Figure 3)
- Install the windows drivers (see paragraph 3.2) ;
- Install and Configure IP Tool (see paragraph 4) ;
- Instead of IP tool you can use BDADDataEx (see paragraph 5)
- Configure Tellicast (see paragraph 4.1) ;

**Notes:**

- i. On TBS-6903/6908 to get adapter 0 use the lower plug.
- ii. The external power plug is optional. It needs to be used in very rare cases when there is no enough power from PCIe slot. (The LNB Input on TBS cards can provide 450mA. If the user has only LNB connected on the coaxial cable, then the external power is not needed as one LNB is on average 100mA. If there are things like motor, DiSEqC devices on the same coaxial cable, then the power consumption can go up and external power be needed).

### 3.2 Windows Drivers Installation

- a) You can find the latest windows driver at tbsdtv web site :

<http://www.tbsdtv.com/download/>

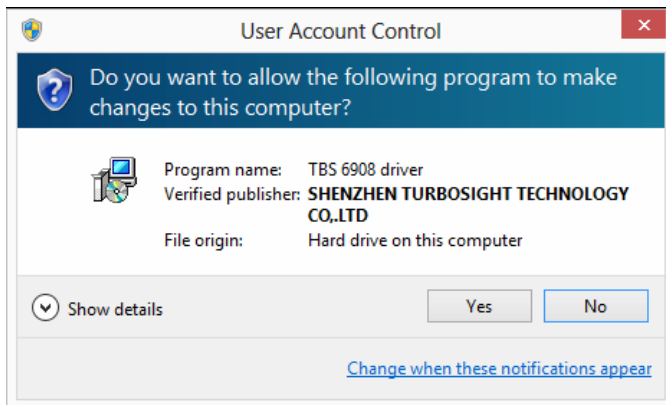
The version used for EUMETSAT testing the TBS-6903 card was v.1.0.0.3,, for the TBS-6908 card was v.1.0.0.6.

- b) Run the driver installer (TBS\_69xx\_driver\_setup.exe)

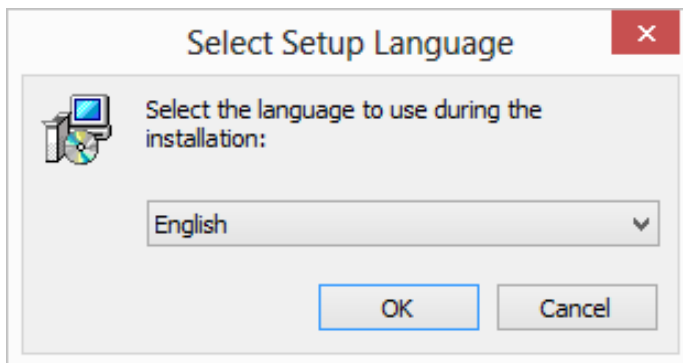
 TBS\_6908\_driver\_setup  Double Click and run

- c) In case you get a security message, select “Yes”

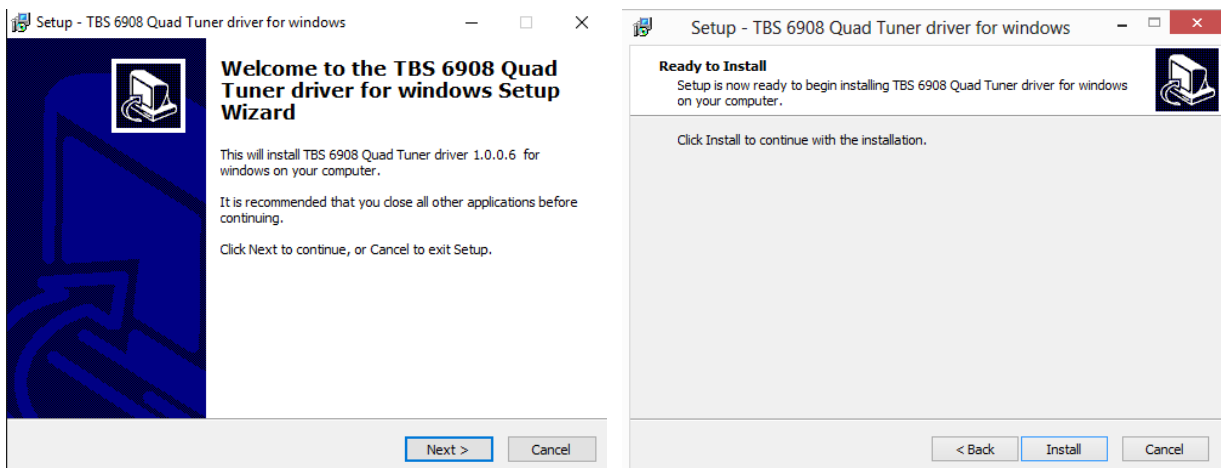




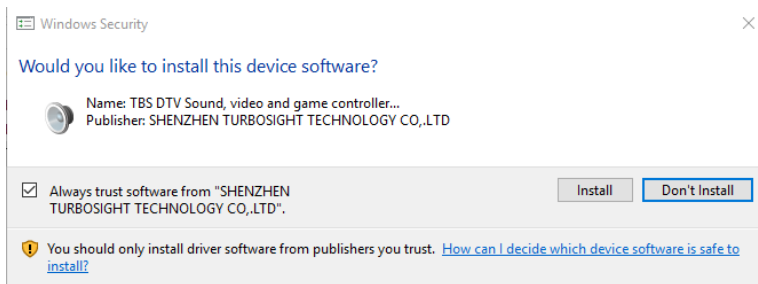
d) Select the preferred language to use during the installation



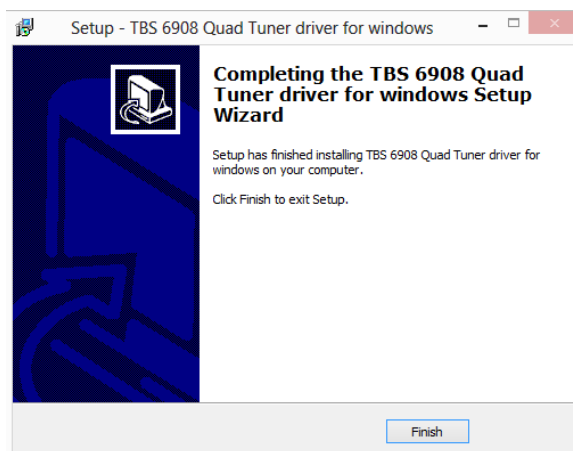
e) Select “Next” & “Install” to start the installation



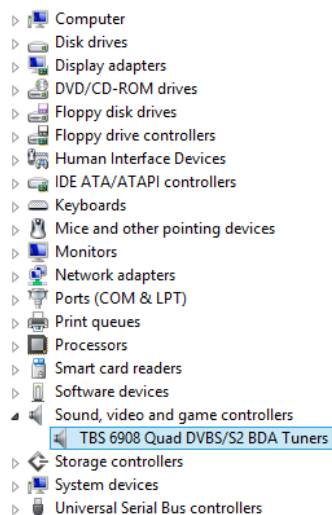
f) In case you get a security message, select “Always trust ....” and “Install”



g) Select “finish”. You have now installed the drivers for the TBS-6908 device



h) You can now see the TBS-6908 under the Windows Device Manager :



## 4 CHANNEL TUNING USING IP TOOL


### 4.1 IP Tool installation

- a) You can find the latest IPTool software at tbsdtv web site :

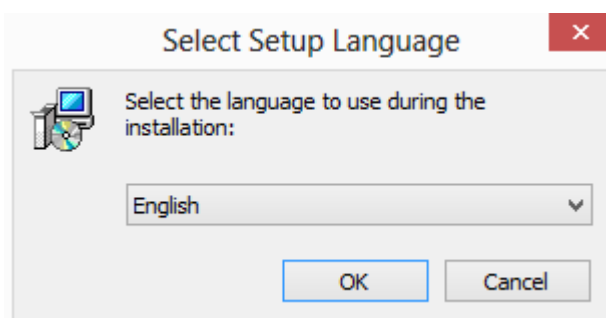
<http://www.tbsdtv.com/download/>

The version used for EUMETSAT testing was v.3.0.4.9

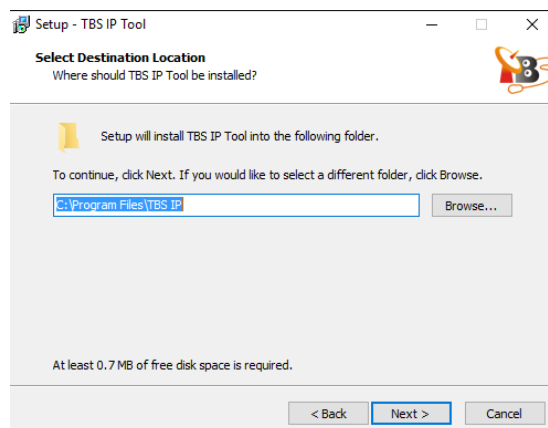
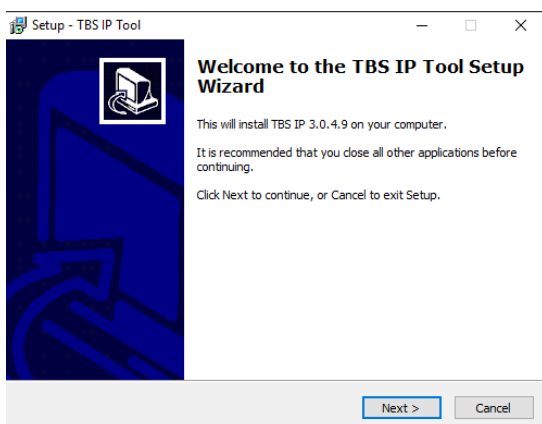
- i) Run the IP Tool installer

 **TBS\_IP\_TOOL\_V3.0.4.9.exe** ← Double Click and run

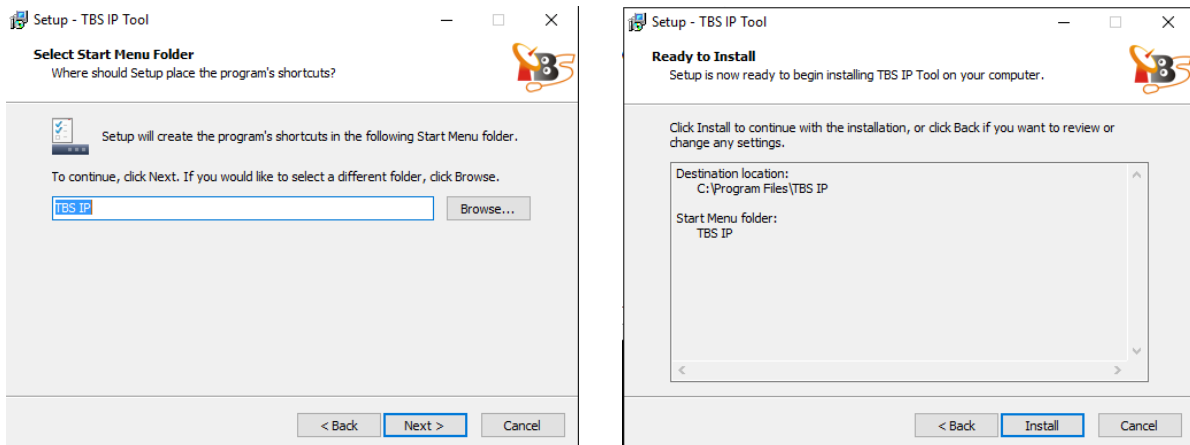
- j) Select the preferred language to use during the installation



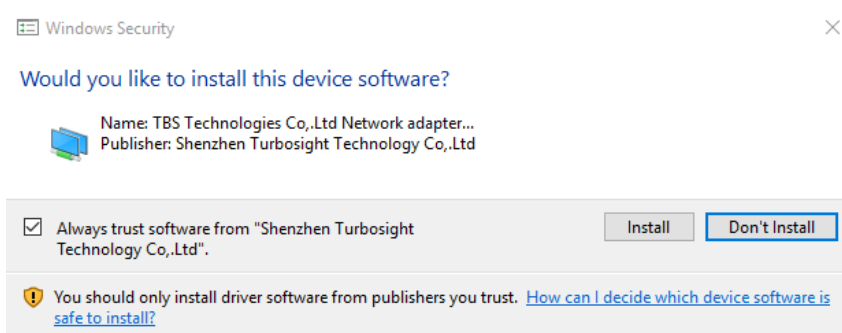
- k) Select “Next” to start the Installation & then “Next” again to select the installation directory :



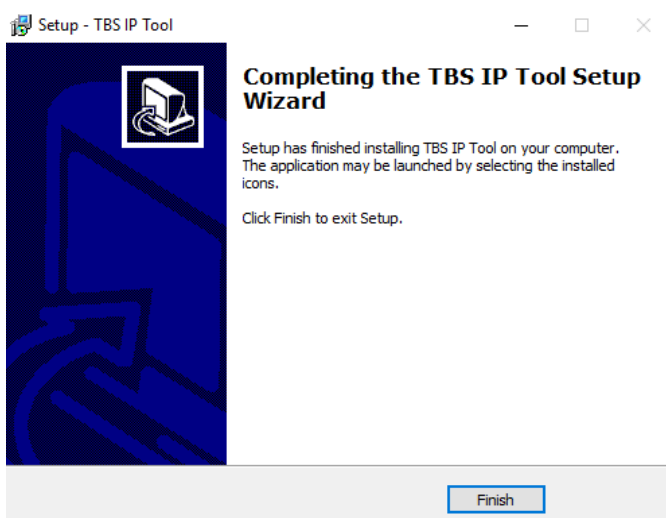
- l) Select “Next” to create the programs shortcut & “Install” to continue the installation :



m) In case you get a security message, select “Always trust ....” and “Install”



n) Select “finish”. You have now installed the TBS IP TOOL for the TBS-6925/6983 device



## 4.2 IP Tool Ku Band Europe Configuration

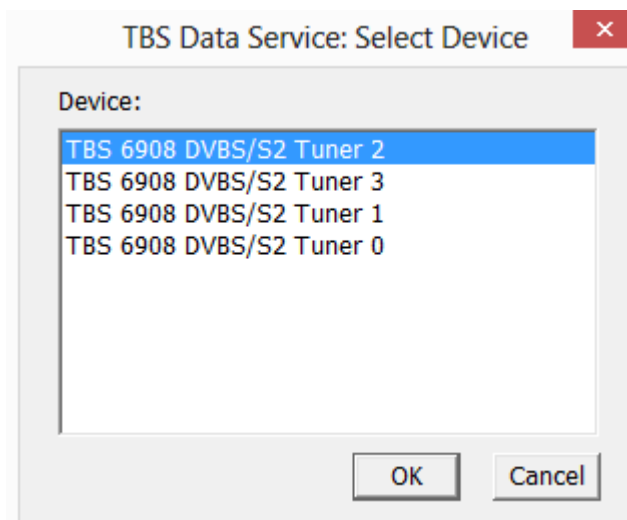
- a) Run the IP Tool software



← Double Click and run

Note: After the double-click, you may get a security warning, which you should accept.

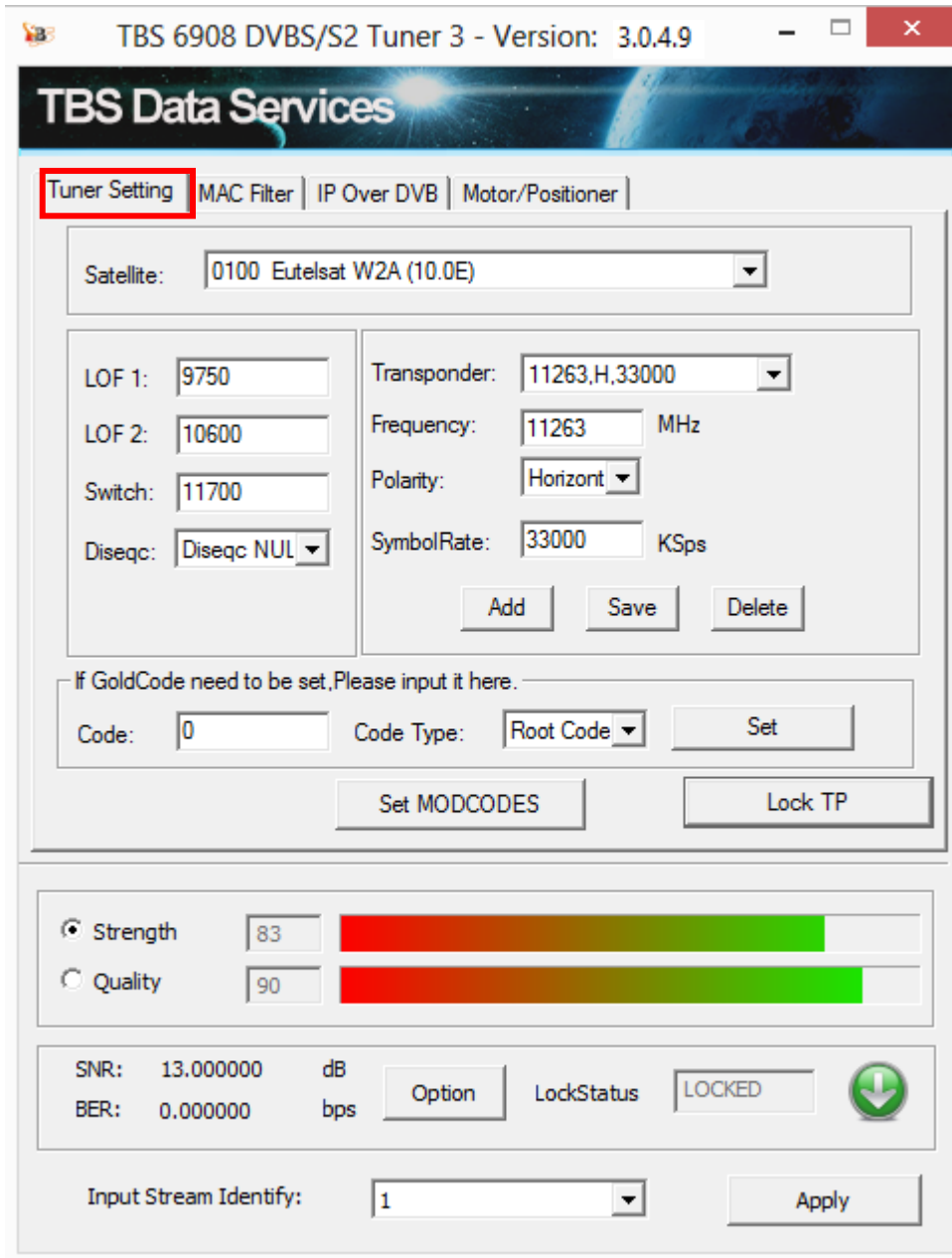
- b) Select the used DVB Device and “OK”



- c) Input the correct parameters into **Tuner Setting**, and select **Lock TP**. When you have a signal lock the device LOCK LED lights green.

The following settings should be entered:

- Select: Eutelsat W2A (10.0E) Satellite
- Frequency: 11262.500 MHz
- Polarity: Horizontal
- Symbol rate: 33000 KSps
- Press: “Add”
- Press: “Save”
- Code: 0, Code Type: Root Code and then press “Set”



TBS 6908 DVBS/S2 Tuner 3 - Version: 3.0.4.9

**TBS Data Services**

**Tuner Setting** | MAC Filter | IP Over DVB | Motor/Positioner

Satellite: 0100 Eutelsat W2A (10.0E)

LOF 1: 9750 Transponder: 11263,H,33000

LOF 2: 10600 Frequency: 11263 MHz

Switch: 11700 Polarity: Horizontal

Diseqc: Diseqc NUL SymbolRate: 33000 KSps

Add Save Delete

If GoldCode need to be set, Please input it here.

Code: 0 Code Type: Root Code Set

Set MODCODES Lock TP

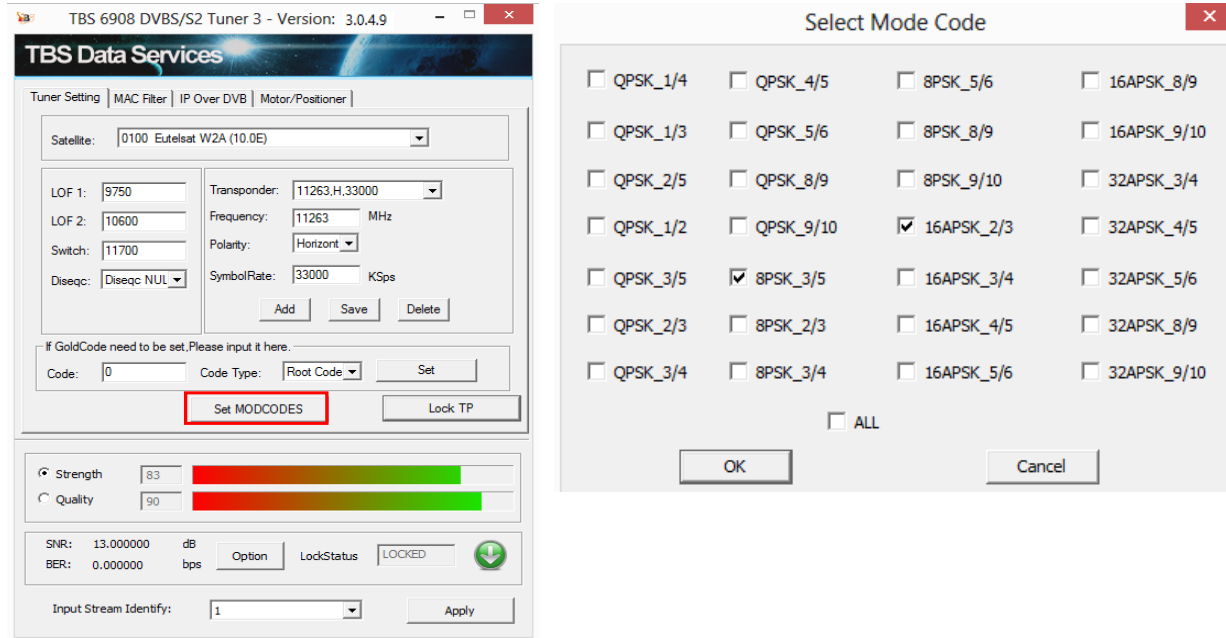
Strength 83 Quality 90

SNR: 13.000000 dB BER: 0.000000 bps Option LockStatus LOCKED

Input Stream Identify: 1 Apply

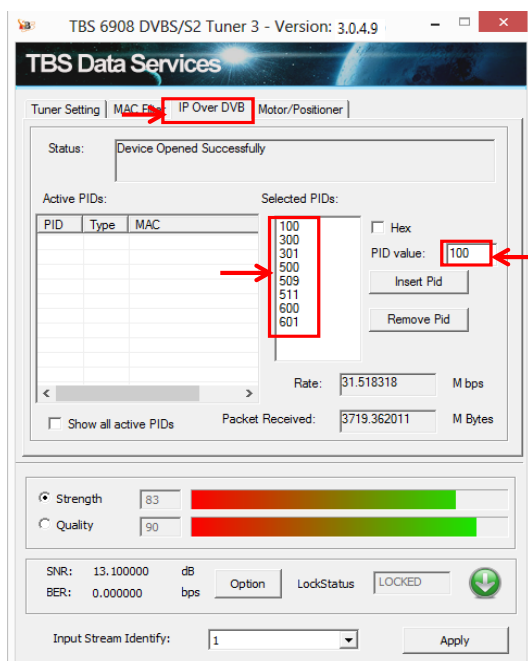
- Now press "Lock TP" to lock the signal.

- d) Click the **Set MODCODs** button, and then select the MODCODs you want to receive. For Basic Service (BS) select 8PSK\_3/5 and for High Volume Service (HVS) select 16APSK\_2/3. Select **OK**



- e) After setting the MODCODS filters, press "Lock TP" to lock the signal again and then click on the "IP Over DVB". Add the selected PIDs :

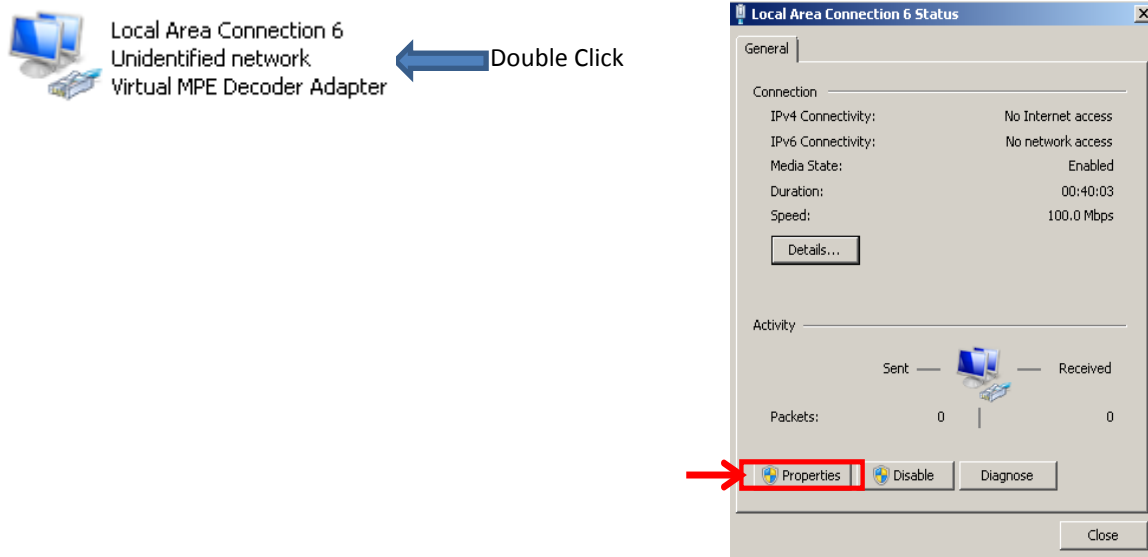
- Ensure the Hex box is unchecked.
- Enter a PID value starting with 100 in the PID value box, and press the Insert PID button. It should appear in the Selected PIDs list.
- Repeat this for all the remaining PIDs you need, typically: 300, 301, 500, 509, 511, 600 & 601 (600 & 601 are for the HVS).



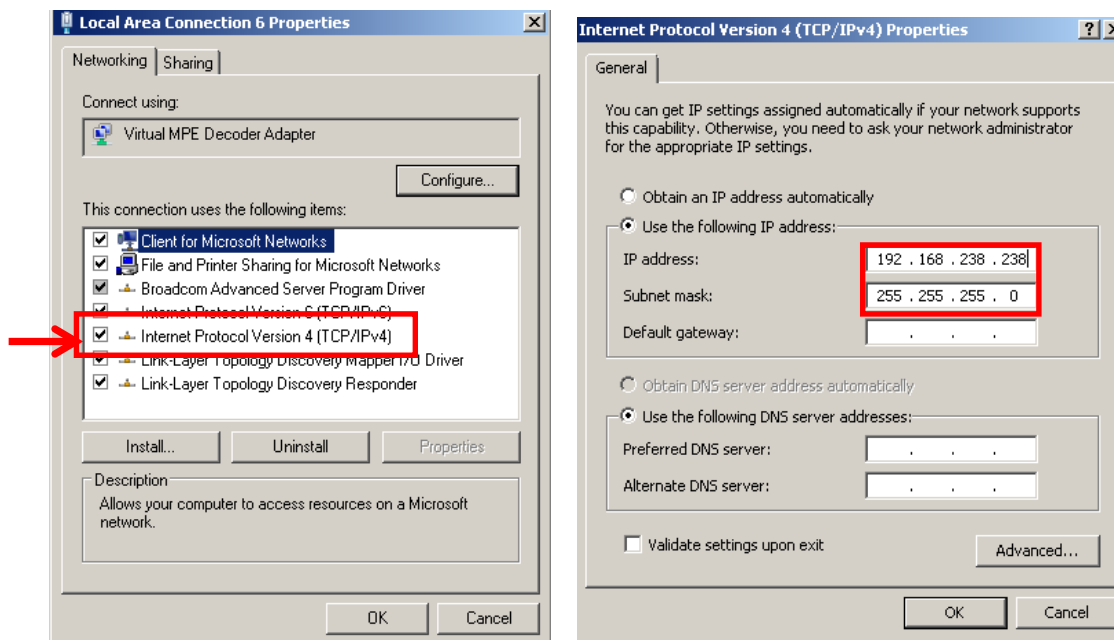
f) Virtual MPE Decoder Adapter Configuration.

We now need to define the network address of the virtual network card presented by the software so that TelliCast knows where to find its data

Open “Network & sharing Center”. Go to “Change adapter Settings”. Double Click on the “Virtual MPE Decoder Adapter” and select properties.



g) Change the IP address to 192.168.238.238 and the subnet mask to 255.255.255.0

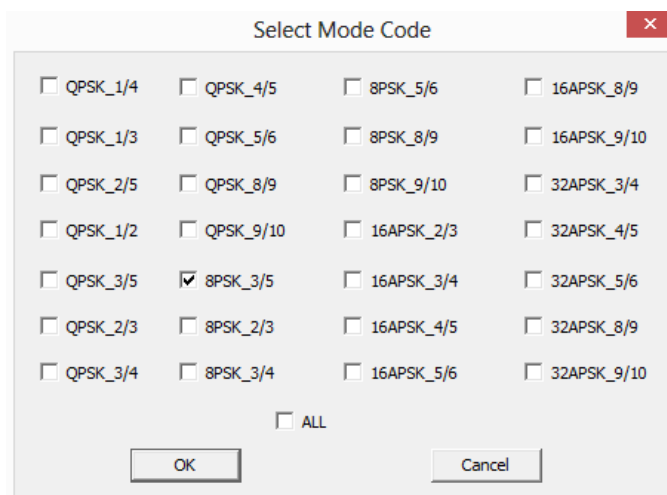


Note: It is suggested to uncheck all the items in the items list, except Internet Protocol Version 4 (TCP/IPv4). This may reduce the load on the network "card".



### 4.3 Disabling the High Volume Service

To disable the High Volume Service (HVS) and receive only the Basic Service (BS) change the “Set MODCODES” selecting only “8PSK,3/5” and click on “Apply settings”. (see 4.2 d)



### 4.4 IP Tool C-Band Africa Configuration

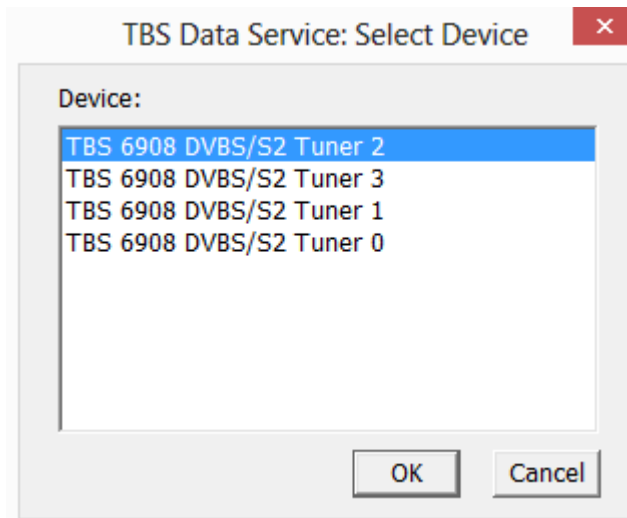
- a) Run the IP Tool software



← Double Click and run

Note: After the double-click, you may get a security warning, which you should accept.

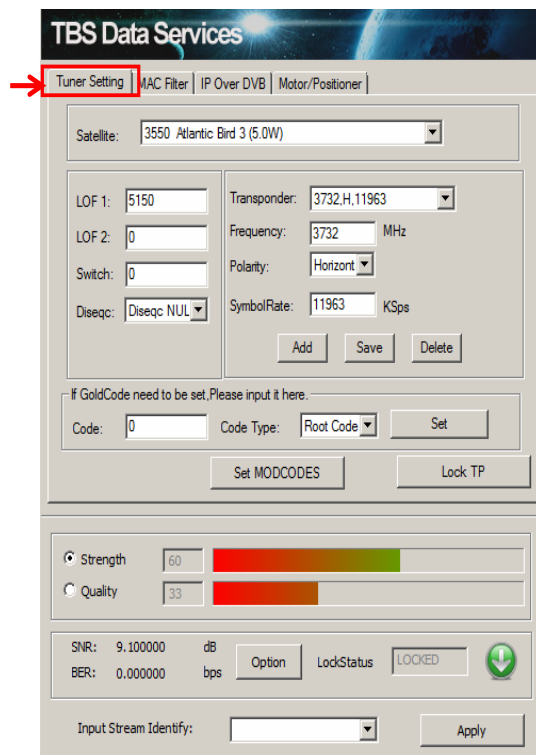
- b) Select the used DVB Device and “OK”



- c) Input the correct parameters into **Tuner Setting**, and select **Lock TP**. When you have a signal lock the device LOCK LED lights green.

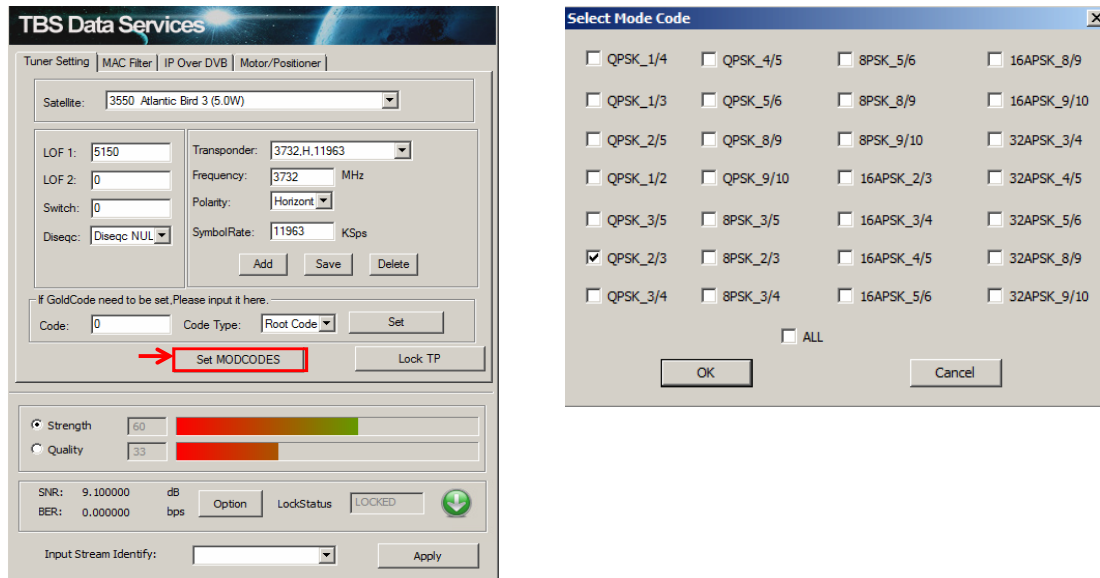
The following settings should be entered:

- Select: Atlantic Bird 3 (5.0W) Satellite
- Frequency: 3732 MHz
- Polarity: Horizontal
- Symbol rate: 11963 KSps
- Press: "Add"
- Press: "Save"
- Code: 0, Code Type: Root Code and then press "Set"

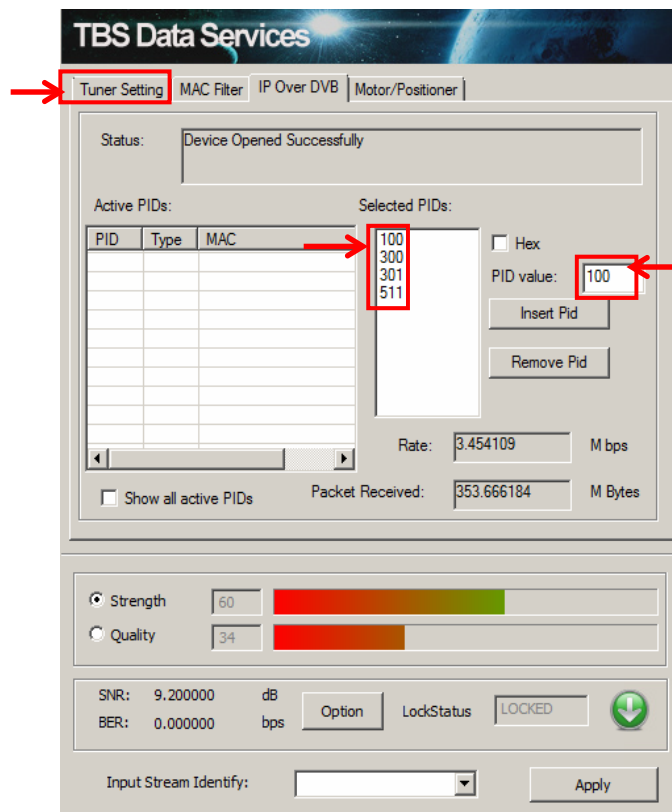


- Now press "Lock TP" to lock the signal.

- d) Click the **Set MODCODs** button, and then select the MODCOD QPSK\_2/3.  
Select **OK**



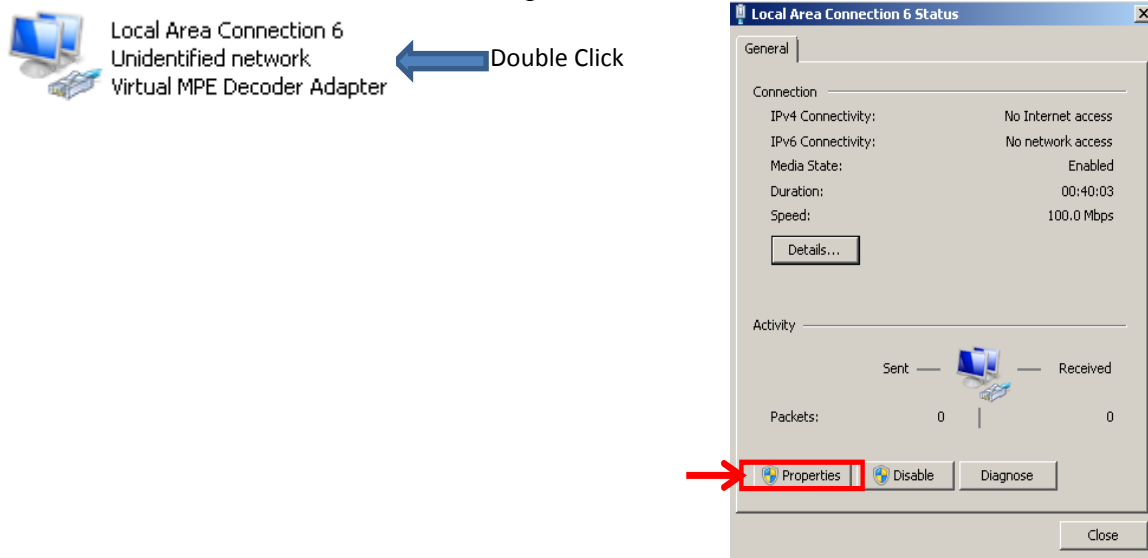
- e) After setting the MODCOD filter, press "Lock TP" to lock the signal again and then click on the "IP Over DVB". Add the selected PIDs :
- Ensure the Hex box is unchecked.
  - Enter a PID value starting with 100 in the PID value box, and press the Insert PID button. It should appear in the Selected PIDs list.
  - Repeat this for all the remaining PIDs you need, typically: 300, 301 and 511.



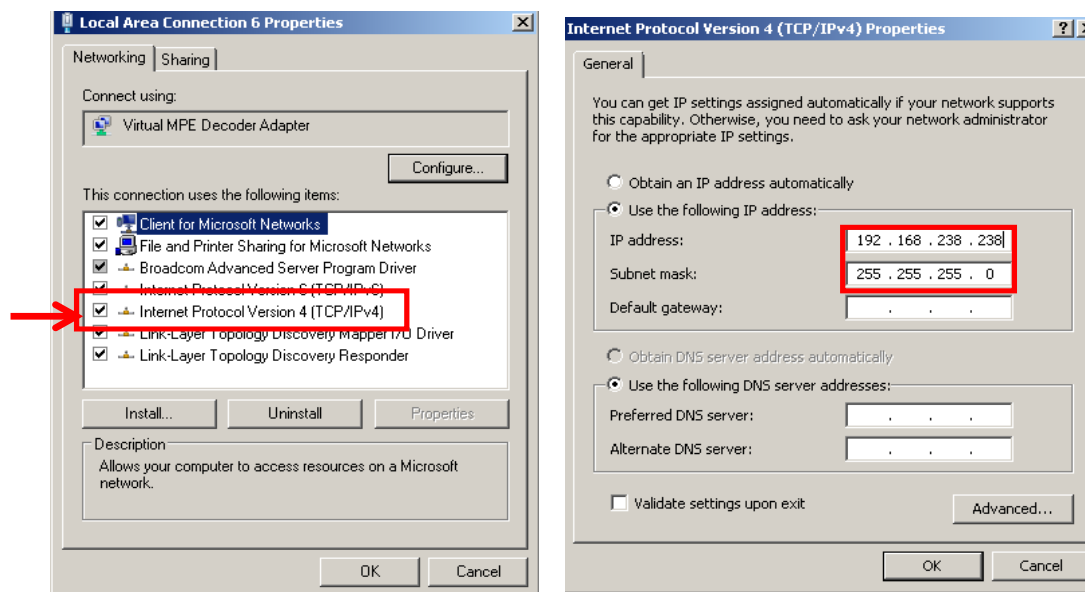
f) Virtual MPE Decoder Adapter Configuration.

We now need to define the network address of the virtual network card presented by the software so that TelliCast knows where to find its data

Open “Network & sharing Center”. Go to “Change adapter Settings”. Double Click on the “Virtual MPE Decoder Adapter” and select properties.



g) Change the IP address to 192.168.238.238 and the subnet mask to 255.255.255.0



Note: It is suggested to uncheck all the items in the items list, except Internet Protocol Version 4 (TCP/IPv4). This may reduce the load on the network "card".

## 5 CHANNEL TUNING USING BDADATAEX

As an alternative to the TBS IP Tool, a generic IP tool made by CrazyCat can be used. It works with many DVB devices. The choice is up to the users.

### 5.1 BDADDataEx installation

You can find the latest BDADDataEx software at the CrazyCat BDADDataEx web site:

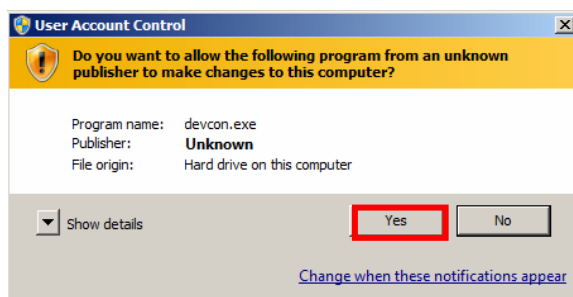
<http://crazycatlab.sat-fishers.com/bdadataex.html>

The version used for EUMETSAT testing was v.1.1.2.1240

- a) Download / unzip BDADDataEx.exe and Common files BDADDataEx (Tap-Win32-driver, dll, sounds) on your disk
- b) Under the tap-win-dvb subdirectory there are two directories (i386 and amd64). If your system is a 32bit WIN OS go to the i386 otherwise if it is a 64bit WIN OS go to the amd64.
- c) Install the TAP drivers

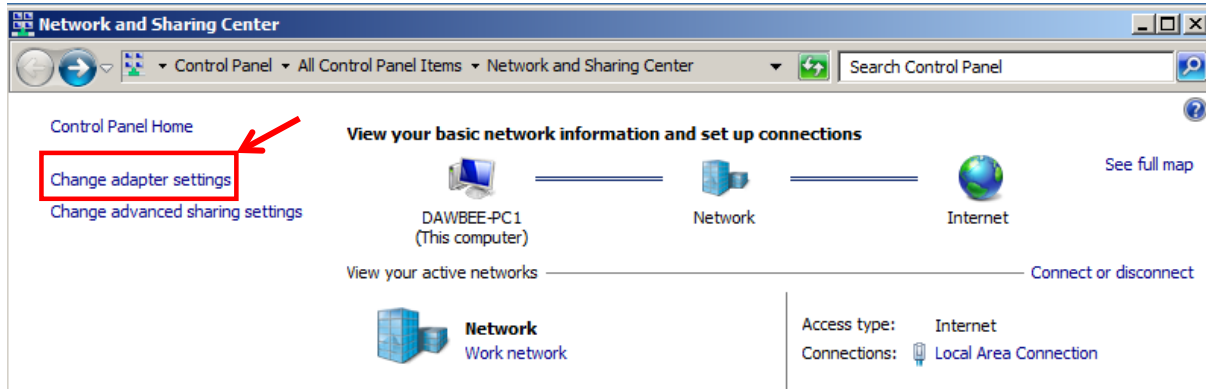
 **install.cmd** ← Double Click and run

- d) [If you see a Security Warning just click “Yes”](#)

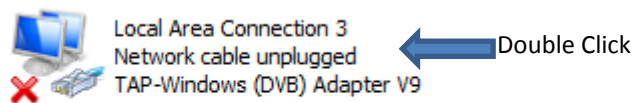


## 5.2 Windows Emulated Network Adapter Configuration

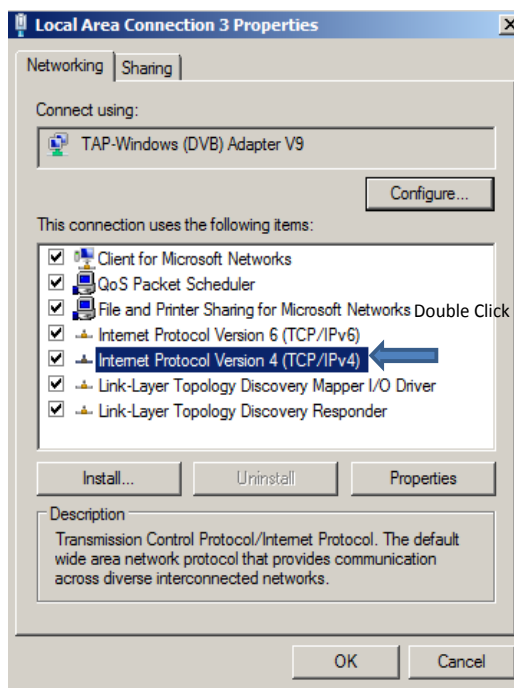
- a) Open Network & Sharing Center & select “Change adapter settings”



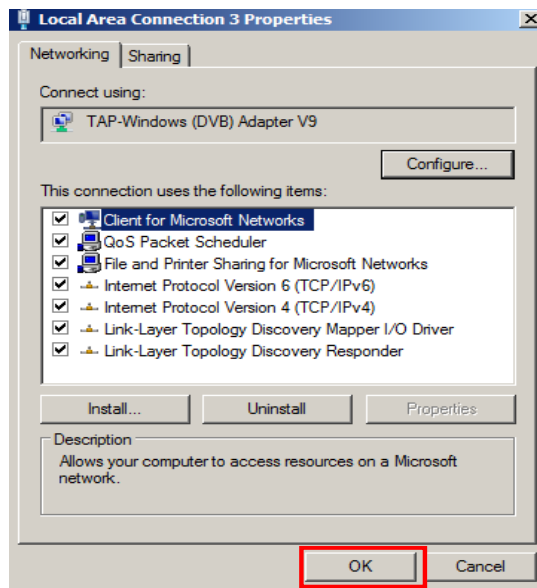
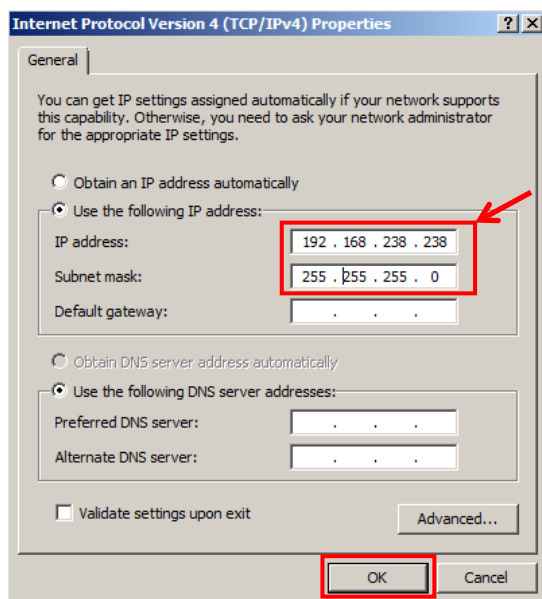
- b) Double click on TAP Network Connection. We will define the network address of the virtual network card presented by the software so that TelliCast knows where to find its data.



- c) Double click on the “TCP/IPv4”



- d) Use 192.168.238.238 for IP address & Subnet Mask 255.255.255.0 and click OK.  
Close the main Local Area Connection Properties window by clicking on “OK”



## 5.3 BDADDataEx Configuration

### 5.3.1 Automatic Configuration

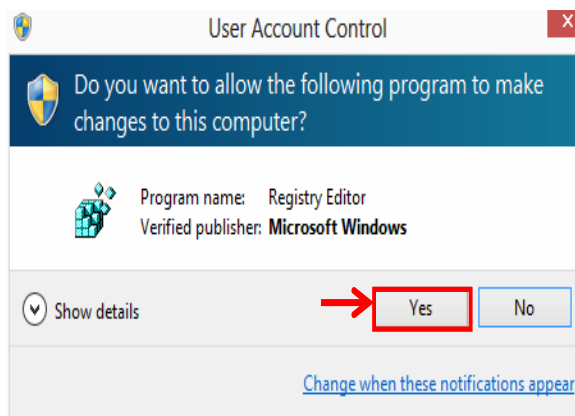
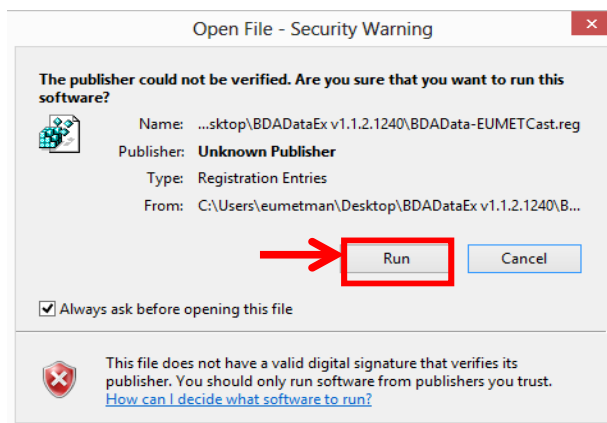
- a) Download the BDADData-EUMETCast.reg file from the EUMETSAT ftp site :

[ftp://ftp.eumetsat.int/pub/OPS/out/user/EUMETCast\\_Support/EUMETCast\\_Licence\\_cd/Windows/DVB\\_devices/TOOLS/](ftp://ftp.eumetsat.int/pub/OPS/out/user/EUMETCast_Support/EUMETCast_Licence_cd/Windows/DVB_devices/TOOLS/)

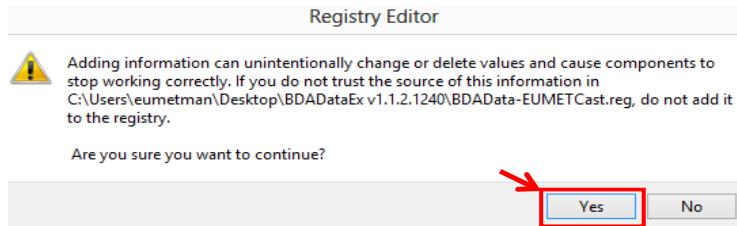
- b) Double click on the BDADData-EUMETCast.reg file.



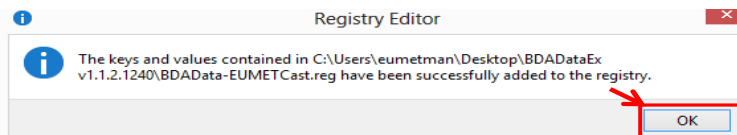
- c) If you see the following security messages just click “Run” and “Yes”



- d) On the “Registry Editor” Window click on “YES”



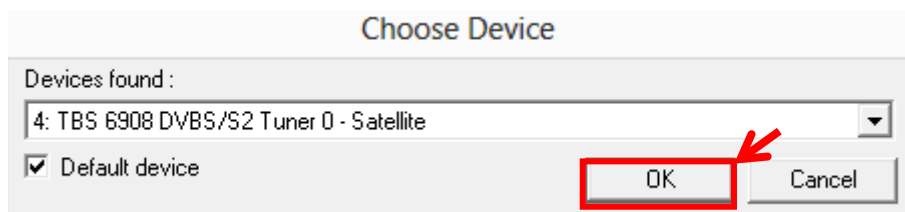
- e) If settings successfully added to the registry, you get the following message. Click then on “OK”.



- f) Start the BDADDataEx program

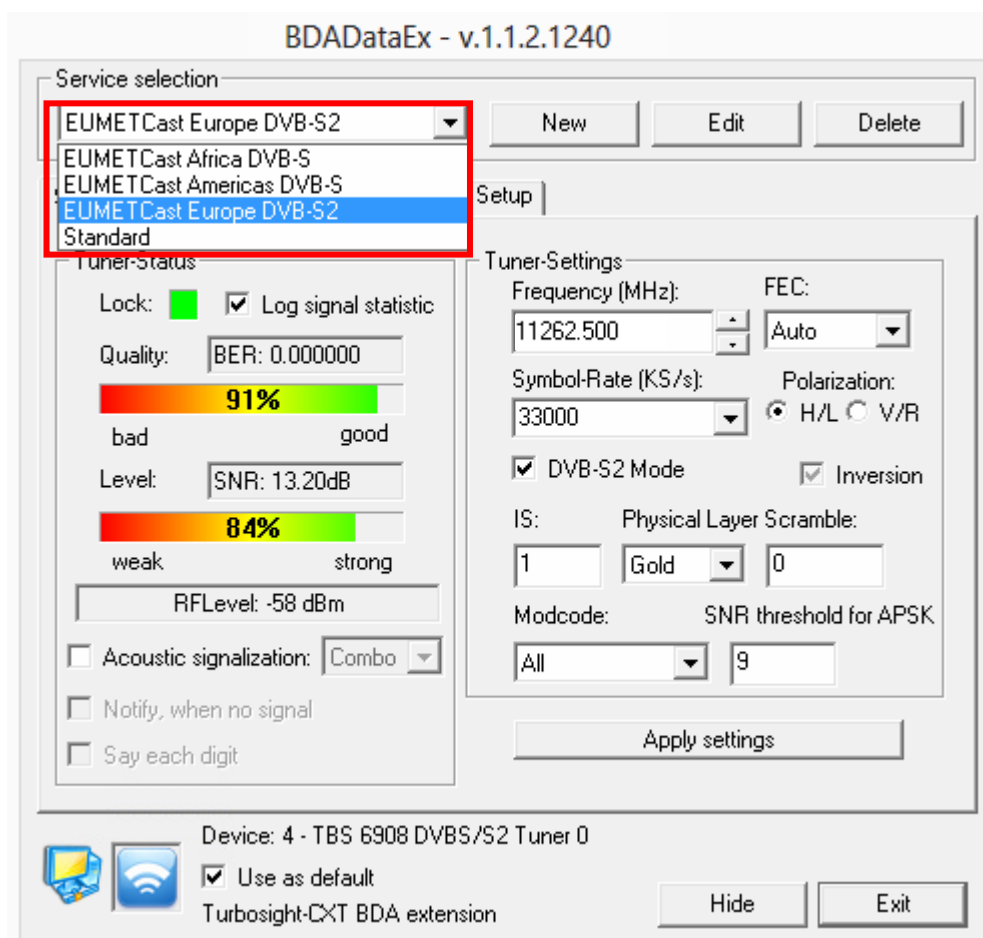


- g) Select the used DVB Device and then Click on “OK”. You can also select that this would be the “Default device”.



- h) In the pop up window and in the first TAB “Status/Tuner” select the needed Service. (EUMETCast Europe DVB-S2, EUMETCast Africa DVB-S, EUMETCast America DVB-S). In this case we are selecting EUMETCast Europe DVB-S2. If everything is OK the “Tuner-Status” should be green, if not check your reception (antenna pointing, optimization, cabling etc) :





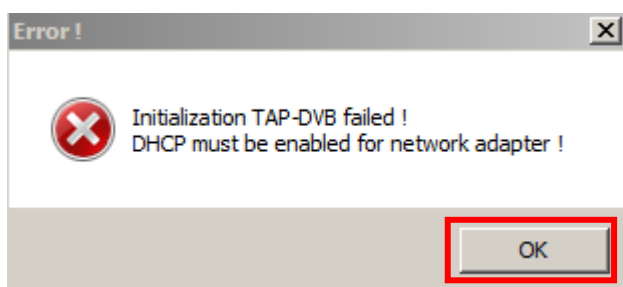
### 5.3.2 Manual Configuration

This section explains how to manually configure the software.  
It is only needed if the automatic configuration (steps 5.3.1 a was not successful)

- a) Start the BDADDataEx program

 BDADDataEx.exe ← Double Click and run

Note: After the double-click, you may get the following warning:



Click on “OK” to continue.

- b) Select the used DVB Device and then Click on “OK”. You can also select that this

would be the “Default device”.

### Choose Device

Devices found :

4: TBS 6908 DVBS/S2 Tuner 0 - Satellite

☒ Default device

OK Cancel

- c) In the pop up window and in the first TAB “Status/Tuner” change the “Tuner – Settings” as following, Click on “Apply Settings” and check “Lock”, “Quality” & “Level” . If “lock” is green click on “Edit”, if not check your reception (antenna pointing, optimization, cabling etc) :

Lock  
should be  
green

BDADDataEx - v.1.1.2.1240

Service selection

Standard New Edit Delete

Status/Tuner DiSEqC/LNB MPE-Filter Setup

Tuner-Status

Lock: ■ ☒ Log signal statistic

Quality: BER: 0.000000

91%

bad good

Level: SNR: 13.20dB

84%

weak strong

RFLevel: -58 dBm

☐ Acoustic signalization: Combo

☐ Notify, when no signal

☐ Say each digit

Tuner-Settings

Frequency (MHz): 11262.500 FEC: Auto

Symbol-Rate (KS/s): 33000 Polarization: ☒ H/L ☐ V/R

☒ DVB-S2 Mode ☒ Inversion

IS: 1 Physical Layer Scramble: Gold 0

Modcode: All SNR threshold for APSK: 9

Apply settings

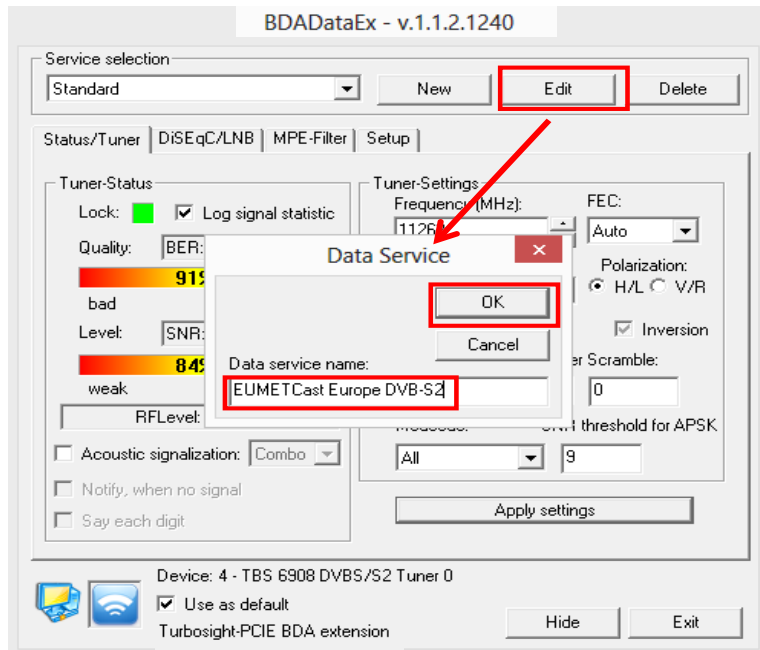
Device: 4 - TBS 6908 DVBS/S2 Tuner 0

☒ Use as default

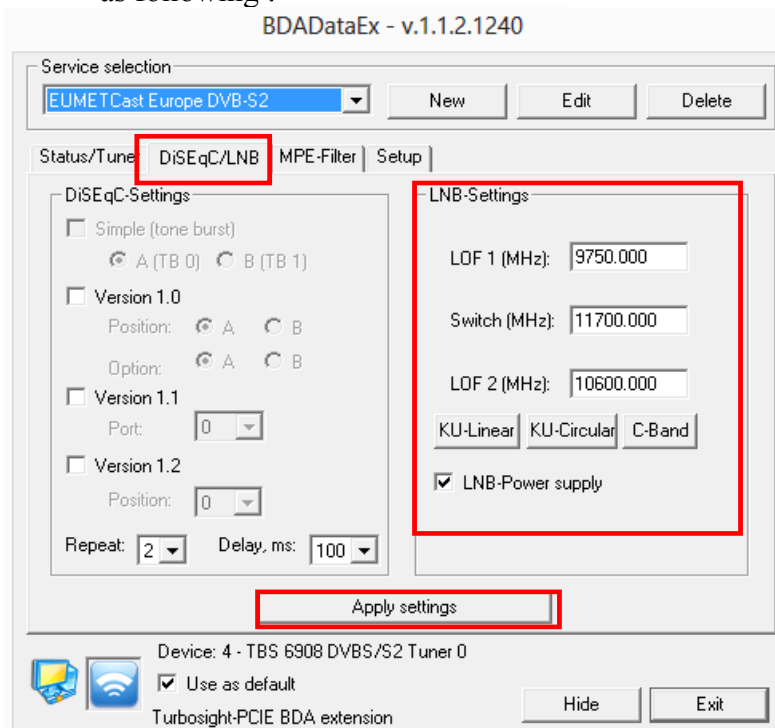
Turbosight-PCIE BDA extension

Hide Exit

- d) By clicking the “Edit” the “Data Service” pop up windows appears. Change the name to “EUMETCast Europe DVB-S2” and click on “OK”.

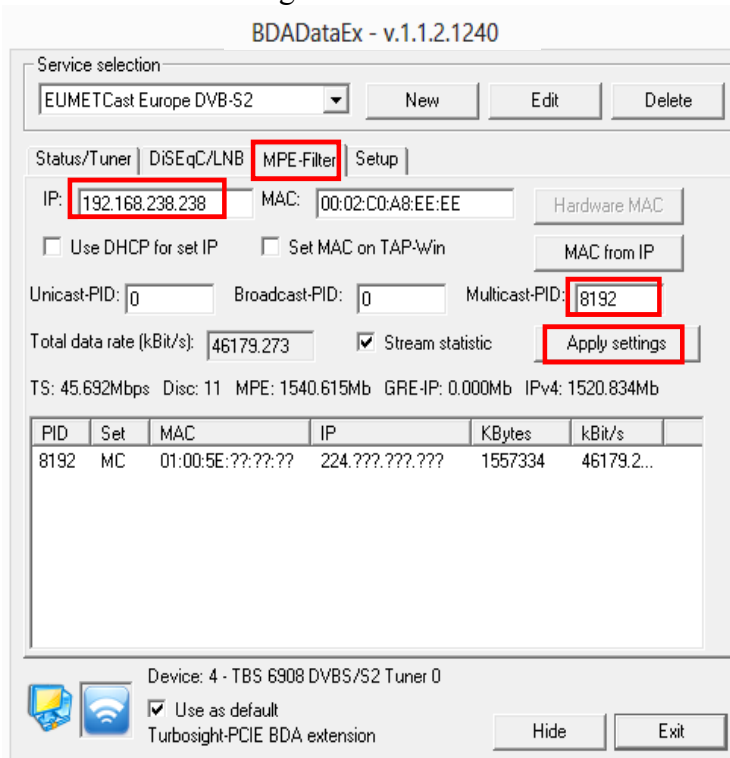


- e) Click on the second TAB “DiSEqC/LNB” and check the “LNB-Settings”. It should be as following :



Change the settings if needed and click on “Apply Settings”

- f) Click on the third TAB “MPE-Filter” and check the “IP” & “Multicast PID”. It should be as following :



BDADDataEx - v.1.1.2.1240

Service selection  
EUMETCast Europe DVB-S2 [New] [Edit] [Delete]

Status/Tuner | DiSEqC/LNB | **MPE-Filter** | Setup

IP: **192.168.238.238** MAC: 00:02:C0:A8:EE:EE [Hardware MAC]  
☐ Use DHCP for set IP ☐ Set MAC on TAP-Win [MAC from IP]

Unicast-PID: 0 Broadcast-PID: 0 Multicast-PID: **8192**

Total data rate (kBit/s): 46179.273 ☒ Stream statistic **Apply settings**

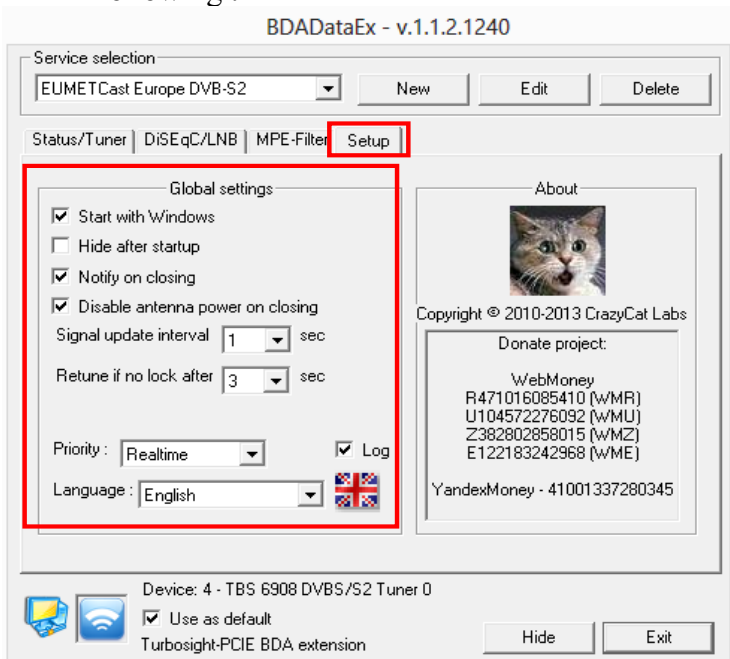
TS: 45.692Mbps Disc: 11 MPE: 1540.615Mb GRE-IP: 0.000Mb IPv4: 1520.834Mb

PID	Set	MAC	IP	KBytes	kBit/s
8192	MC	01:00:5E:??:??:??	224.???:???:???:???	1557334	46179.2...

Device: 4 - TBS 6908 DVBS/S2 Tuner 0  
☒ Use as default  
 Turbosight-PCIE BDA extension [Hide] [Exit]

Also check ✓ “Stream Statistic” if Stream monitoring is needed

- g) Click on the fourth TAB “Setup” and check the “Global Settings” . It should be as following :



BDADDataEx - v.1.1.2.1240


Service selection  
EUMETCast Europe DVB-S2 [New] [Edit] [Delete]

Status/Tuner | DiSEqC/LNB | MPE-Filter | **Setup**

**Global settings**

☒ Start with Windows  
☐ Hide after startup  
☒ Notify on closing  
☒ Disable antenna power on closing  
 Signal update interval: 1 sec  
 Retune if no lock after: 3 sec

Priority: Realtime ☒ Log  
 Language: English

About  
  
 Copyright © 2010-2013 CrazyCat Labs  
 Donate project:  
 WebMoney  
 R471016085410 (WMR)  
 U104572276092 (WMU)  
 Z382802858015 (WMZ)  
 E122183242968 (WME)  
 YandexMoney - 41001337280345

Device: 4 - TBS 6908 DVBS/S2 Tuner 0  
☒ Use as default  
 Turbosight-PCIE BDA extension [Hide] [Exit]

Also check ✓ “Log” if Log is needed.

## 5.4 Disabling the High Volume Service

To disable the High Volume Service (HVS) and receive only the Basic Service (BS) change the FEC from “All” → “3/5”, “Modcode” from “All” → “8PSK,3/5” and click on “Apply settings”.

**BDADDataEx - v.1.1.2.1240**

Service selection  
EUMETCast Europe DVB-S2
New Edit Delete

Status/Tuner DiSEqC/LNB MPE-Filter Setup

Tuner-Status  
Lock: ☒ Log signal statistic  
Quality: BER: 0.000000  

91%

bad good

Level: SNR: 13.10dB  

84%

weak strong

RFLevel: -58 dBm  
☐ Acoustic signalization: Combo  
☐ Notify, when no signal  
☐ Say each digit

Tuner-Settings  
Frequency (MHz): 11262.500  
Symbol-Rate (KS/s): 33000  
FEC: 3/5  
Polarization: ☒ H/L ☐ V/R  
☒ DVB-S2 Mode ☒ Inversion  
IS: 1 Physical Layer Scramble: Gold 0  
Modcode: 8PSK,3/5 SNR threshold for APSK: 9  
Apply settings

Device: 4 - TBS 6908 DVBS/S2 Tuner 0  
☒ Use as default  
T: Turbosight-PCIE BDA extension

Hide Exit

## **6 TELICAST AND SYSTEM CONFIGURATION SETUP**

### **6.1 Tellicast Setup**

After the steps above have been completed, the Tellicast application must be given the fixed IP from which the data can be taken:

Into the configuration file `cast-client_XXX.ini` the "*interface\_address*" must be set to the reception host local IP Address:

```
interface_address=192.168.238.<nnn>  
e.g.  
interface_address=192.168.238.238
```

N-B: The `interface_address` parameter can be commented or deleted from `cast-client_XXX.ini` and the Tellicast application will search the multicast data on all the interfaces available on the host; that is not recommended when the reception host is used to receive another data flow, the Tellicast client application is not able to distinguish between the flows a priori!

### **6.2 Firewall**

Make sure the firewall allows traffic from the interface address in 6.1!

### **6.3 Windows Routing Table**

If the TelliCast fails to work, being either stuck in the yellow T-icon state or, if the network cable is connected after the system was working, the icon alternates between the "pink" and "red" states.

This may be related to the default multicast entries in the TCP/IP routing table.

To solve this problem, you need to tell Windows that the addresses handled by Tellicast must always be reached through the `interface_address` which you set up in `cast-client_XXX.ini` file (192.168.238.nnn).

In the Start menu, All Programs, Accessories menu, you will find an item named Command Prompt.

Right-click on this item, and select Run as administrator. Enter the following command (replace `IP_address` with the local IP address of 6.1) :

`route delete 224.0.0.0` (Please note that this might disable services which use multicast as protocol e.g. streaming services.

`route -p ADD 224.0.0.0 mask 240.0.0.0 IP_address metric 1`

e.g., if `IP_adress` = 192.168.238.238

route delete 224.0.0.0 (Note : This might disable services which use multicast as protocol e.g. streaming services).

```
route -p ADD 224.0.0.0 mask 240.0.0.0 192.168.238.238 metric 1
```

Then restart the computer

## **7 ACRONYMS**

BS	Basic Service
DVB-S, DVB-S2	Digital Video Broadcast, a broadcast standard
EUMETCast	EUMETSAT multicast based broadcast system
EUMETSAT	European Meteorological Satellite Organisation
HVS	High Volume Service
ISI	Input Stream Identifier
LNB	low-noise block downconverter
MODCOD	Modulation & Coding
PID	Packet IDentification