

ART

AAF Recovery Tool – V 3.7 AV 7000/AV 700

A detailed overview of the ART features,
Quick-Installation-Guide for the maxiubootloader
and installation guide for AAF E2 images (Flash and USB)



PART I

Rev 1.0, May 2010

*V 3.7 is current released version



The most important at the beginning....

Acknowledgements (in alphabetical order)

To **Andy-1** and the AAF crew for operating and maintaining a fantastic board!

To **Black_64**, who provides a lot of tools (not only for Atevio) and was not tired to answer my (sometimes silly) questions about ART. Finally for reviewing this document.

Special thanks to **Maic**, who supports creating this manual by providing an AV7000 for testing. So I could keep my family box still running without stress ☺.

To **SoLaLa**, who delivers not only the uboot and bootloaders. He provides a lot of information about bootloader installation, flashing the box and also reviews this document.

To all **users** of the board who will help with their feedbacks, issues and solutions to keep the board alive at an actual knowledge level.

Thank you!



This manual is for use with AV 7000 (TwinTuner) and AV 700 (Single Tuner)
 All tasks are common for both receivers. If you use this manual for AV 700 make sure that you use the correct software version.
 Currently ART is available for AV 7000 and AV 700. The versions are only for use with the corresponding receiver!

All screenshots, commands and log files shown in this manual are referring to an Atevio AV7000.
 They are may be created using different and older versions.

The AV7000 is identical with following other brands:

Reseller	Model	Reseller ID	Country
Fortis	FS-9000	20 00 00 00	Korea
Rebox	RE.9000HD	20 01 00 00	Belgium
Octagon	SF-1018	20 02 00 00	Germany
HDBox	FS 9300 HD	20 03 00 00	Czech Republic
UltraPlus	F-9000HD	20 05 00 00	New Zealand
Openbox	S8 HD PVR	20 06 00 00	Ukraine
Tiviar	F1 HD PVR	20 07 00 00	Switzerland/USA
ICECRYPT	S4000HDPVR	20 08 00 00	Great Britain
Atevio	AV 7000 HD	20 09 00 00	Germany
Skyway	Diamond	20 13 00 00	Russia

The AV700 is identical with following other brands:

Reseller	Model	Reseller ID	Country
Fortis	HS-9510 HD PVR	20 00 03 00	Korea
Rebox	RE.4000HD PVR	20 01 03 00	Belgium
Octagon	SF-1008	20 02 03 00	Germany
HDBox	FS 9100 HD	20 03 03 00	Czech Republic
UltraPlus	980 HD	20 05 03 00	New Zealand
Openbox	S5 HD PVR	20 06 03 02	Ukraine
Tiviar	S1 eco HD PVR	20 07 03 00	Switzerland/USA
Optibox	Koala HD	20 15 03 00	?
Atevio	AV 700	20 09 03 00	Germany
Skyway	Classic	20 13 03 00	Russia

The tables are may be not complete!
 Information about identical clone boxes are found at
<http://www.aaf-board.com/wbb2/index.php> and other sites in the internet.



Important Note:

This software may be affects the functions and warranty of your HDTV SAT receiver!

Neither AAF Board nor any other person is responsible if anything works not as expected – except YOU!

**The software is shared voluntary and non-commercial!
If you don't agree with this don't use this software!**

Use at your own risk!



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Document revision history:

Release 1.0 – April 30th 2010 – Document created.

Please report any bugs or typos to the AAF Board or send a PN to FSC830!

This document is written by FSC830



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Overview

For better ease of use and readability this manual is divided in several parts.

PART I:

Basic informations about ART, required hard- and software and recommended connection settings are found here.

Contains also a “**Quick-Installation-Guide**” for the maxiubootloader, a guide for installing an **E2 USB Image** using the “**AAF Maxiboot Installer**” (AMI) and installing an **E2 Flash Image**.

PART II:

Describes every single pane of ART in a very detailed way.

This section should be read carefully if any issues during the maxiubootloader installation are occurring to your system.

Also recommended for interested users who want to know some more details what ART can do.

PART III:

Explains how to install the maxiubootloader using USB or TFTP method.

Some hints about troubleshooting.



Requirements

Required hardware:

Laptop or PC with MS Windows XP, MS Vista or MS Windows 7 and a serial connector (native COM Port (preferred) or USB2COM adaptor)

Microsoft .NET Framework (at least V3.5) must be installed!

A null-modem cable (not just a serial cable)

Network equipment for connecting the receiver and the computer. This might could be a single cross-over LAN cable or at least two patch cables, and a switch or router. At least one USB stick for E2 images or bootloader installation

Required software:

AAF Recovery Tool "ART" for your receiver.*

AAF maxiboot installer "AMI".*

An Enigma2 image, flash or USB version depends which type of E2 image you like to install.*

A terminal software (i.e. Hyperterminal, Putty, Teraterm) for logging and debugging.

Note: Putty is not able to transfer files. In some cases files need to be transferred using the KERMIT protocol. Ensure that the terminal software you are using supports KERMIT transfer.

Using ART the receiver and the computer must be connected with serial and LAN interface!

When using AMI only a LAN connection is required.

This manual covers not detailed information how to setup a network. Basic network knowledge is recommended.

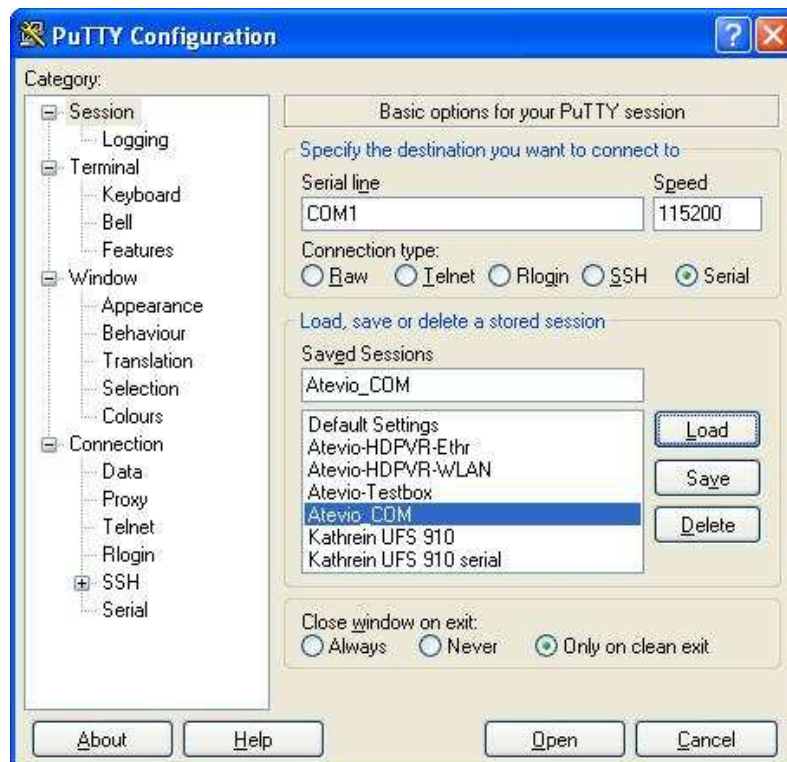
*) Please refer always to the AAF-board for current releases of the software!

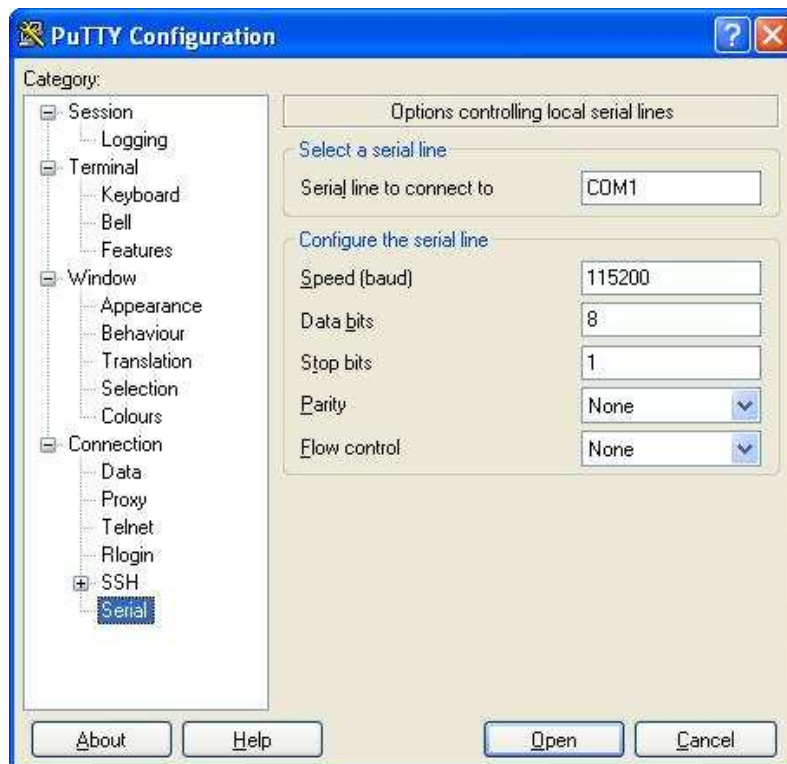
Connecting computer and receiver

Serial connection:

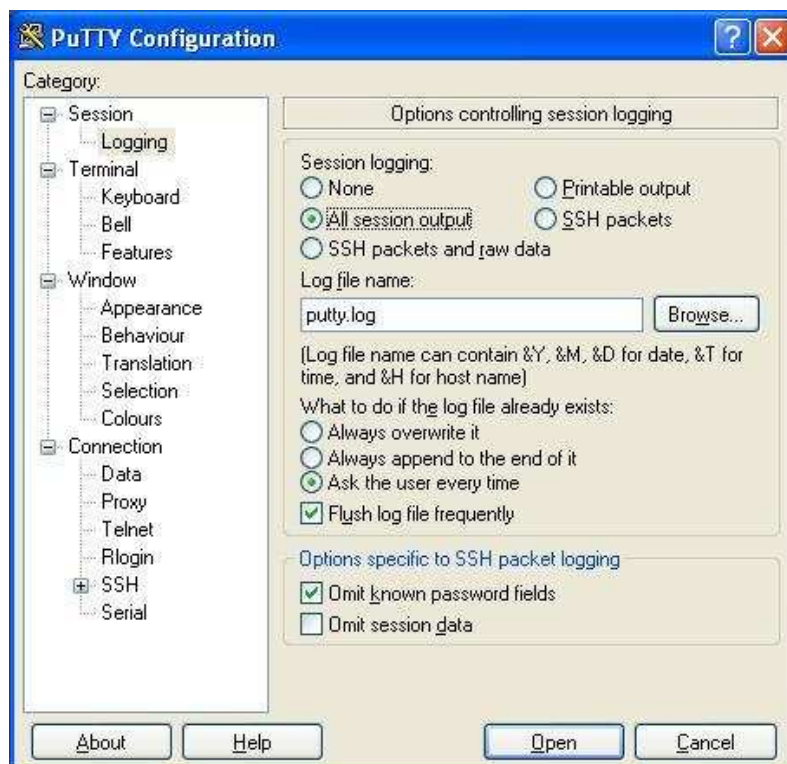
Settings for the serial connection are 115200,8,n,1,n

Example with Putty



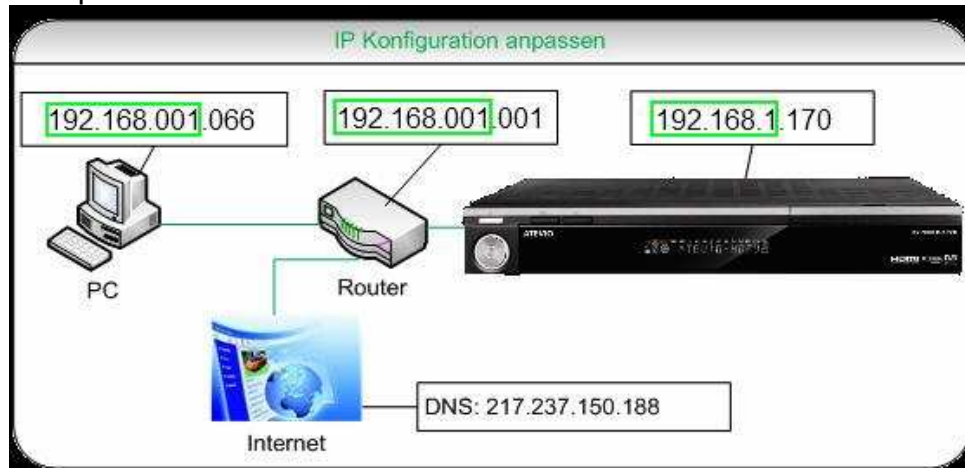


Putty allows you to log all sessions output



Network connection

Computer and receiver are connected via a router:



Entries in the Settings pane for ART:

IP-Adress: 192.168.1.170
 Gateway: 192.168.1.1
 Server-IP: 192.168.1.66
 Submask: 255.255.255.0

The DNS entry at your router depends on your provider!

Computer and receiver are connected via a crosswired LAN cable (or a switch):



Note: if the pc uses a 1GB/s LAN interface a normal patch cable can be used.

Entries in the Settings pane for ART:

IP-Adress: 192.168.1.170
 Gateway: 192.168.1.66
 Server-IP: 192.168.1.66
 Submask: 255.255.255.0



Testing the connection:

Start your terminal program and connect to the receiver, then start the receiver. Type several times the enter or space key to interrupt the boot.

You should get an output like this:

A screenshot of a PuTTY terminal window titled 'COM1 - PuTTY'. The background is yellow. The text displayed is: 'U-Boot 1.1.2 (Jul 3 2009 - 12:01:20) - st2.0-14', 'rTs 01FrTs', and 'STi710x>' followed by a green cursor. The window has a blue title bar and a standard Windows-style border.

(Picture shows the original bootloader AV7000)

Typing printenv shows the settings (extract).

A screenshot of a PuTTY terminal window titled 'COM1 - PuTTY'. The background is yellow. The text displayed is the output of the 'printenv' command, showing various boot parameters such as 'bootdelay=0', 'baudrate=115200', 'board=stb7100ref_27', 'targetname=muso', 'bootcmd=bootm a0300000', 'hwnfconf=set nwhwnet device:eth0,hwaddr:\$ethaddr', 'nfsserverconf=set nfs_server nfsroot=\$serverip', 'ipconf=set ipaddr:cfg ip=\$ipaddr', 'cramfsbootargs=run hwnfconf;run ipconf;set bootargs console=ttyAS1', 'rcfg::192.168.10.1:255.255.255.0:hmp7109::off nwhwconf=\$nwhwnet k', 'e:16 loglevel=0', 'idebootargs=run hwnfconf;set bootargs console=ttyAS1,115200 root=/', 'msglvl:0,watchdog:4000,rxsize:16', 'nfsbootargs=run hwnfconf;run nfsserverconf;run ipconf;set bootargs', '_server:/opt/STM/STLinux-2.2/devkit/sh4/target,nfsvers=2,rsize=409', '0:hmp7109::off nwhwconf=\$nwhwnet bigphysarea=4060 stmmaceth=msglv', 'updt_ker=vfd READ;tftp a4000000 vmlinux.ub.cram; protect off 1:24', 'tect on 1:24-47;vfd COMPLETE', and 'updt_ker_nfs=vfd READ;tftp a4000000 vmlinux.ub.nfs; protect off 1'. The window has a blue title bar and a standard Windows-style border.

Note:

During all flashing and testing for this manual the receiver and computer have been connected directly with a patch cable (computer is equipped with 1GB/s interface) and serial connection.



Where do you want to go from here?

Follow the links!

[I like to install the maxiuboot asap!](#)

[I want to know more about ART!](#)

[Hints and troubleshooting](#)



Quick-Installation-Guide

Connect the receiver and the computer as described before.

First start ART, select the correct COM port and then start the receiver, click at the "Connect" button.

As long as ART has not connected to the receiver the current settings are not displayed.

As shown in the picture you need not the type in your network settings at this time.



As long as ART is not connected, the receiver **power led** remains red (V3.1b and above).

**If you are using a version previous V 3.5:
Before flashing your receiver ensure that you are using the correct program
version of ART!!!**

The bootloader flash routine of ART V 3.5 supports hardware recognition.
So always the correct bootloader is flashed to your box!



After connecting to the receiver, click first the “**Read Mac from AT7000**” button, afterwards type in the network settings depending to your infrastructure.

As clearly shown only the IP address, the Server IP and the MAC address can be written to the original bootloader.

Click at the “**Write to AT7000**” button for each of the three items or “**Write all to AT7000**”.

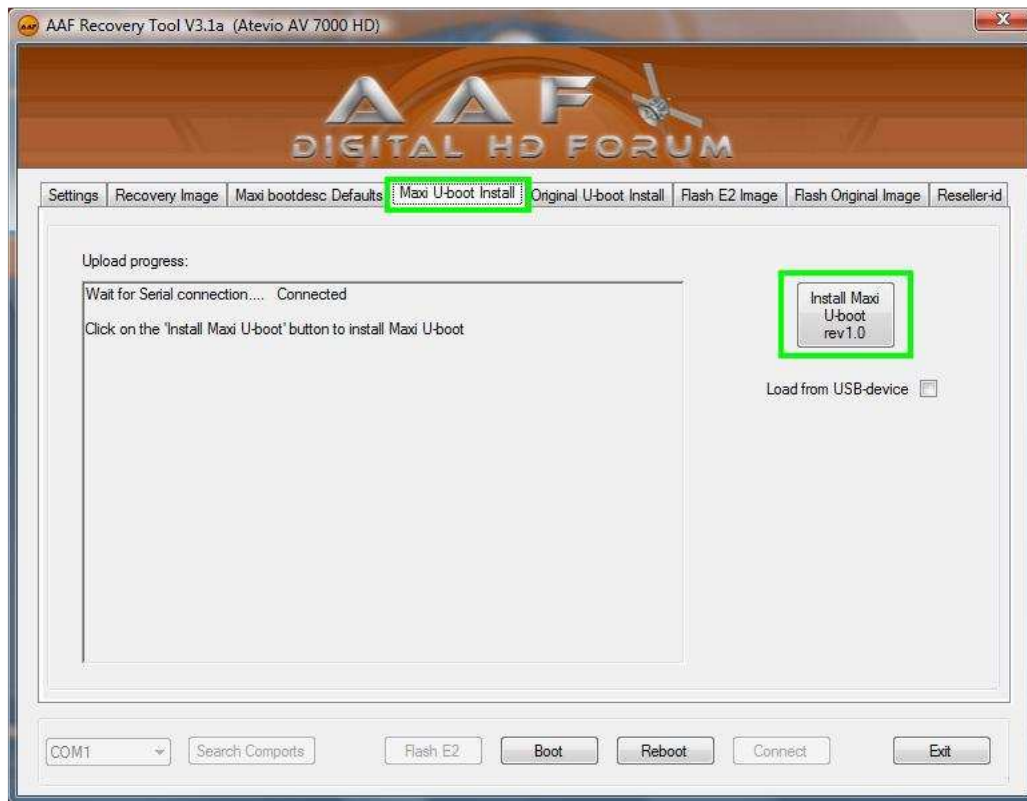
Press the “**Save**” button also!



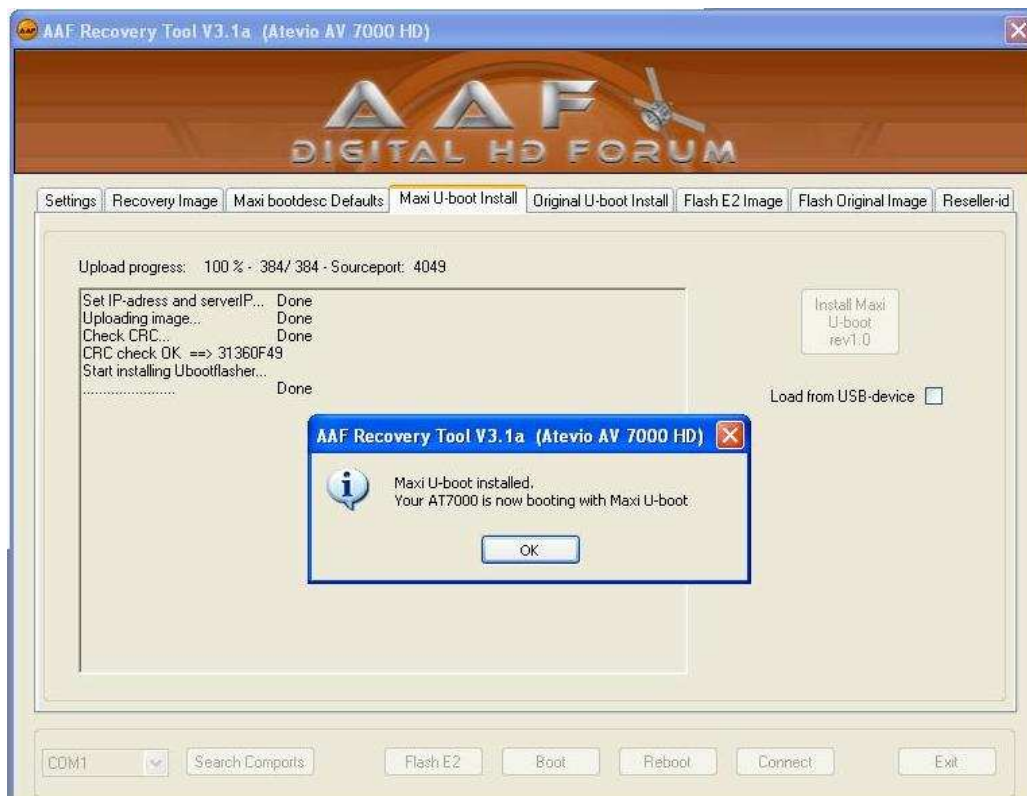
You can enter the Gateway IP and Subnetmask also, but you cant write these two to the receiver now!



Next move to the “Maxi Uboot Install” pane and click at the “Install Maxi U-boot” button.



The Maxi U-boot Installation should be ended within 2 minutes.

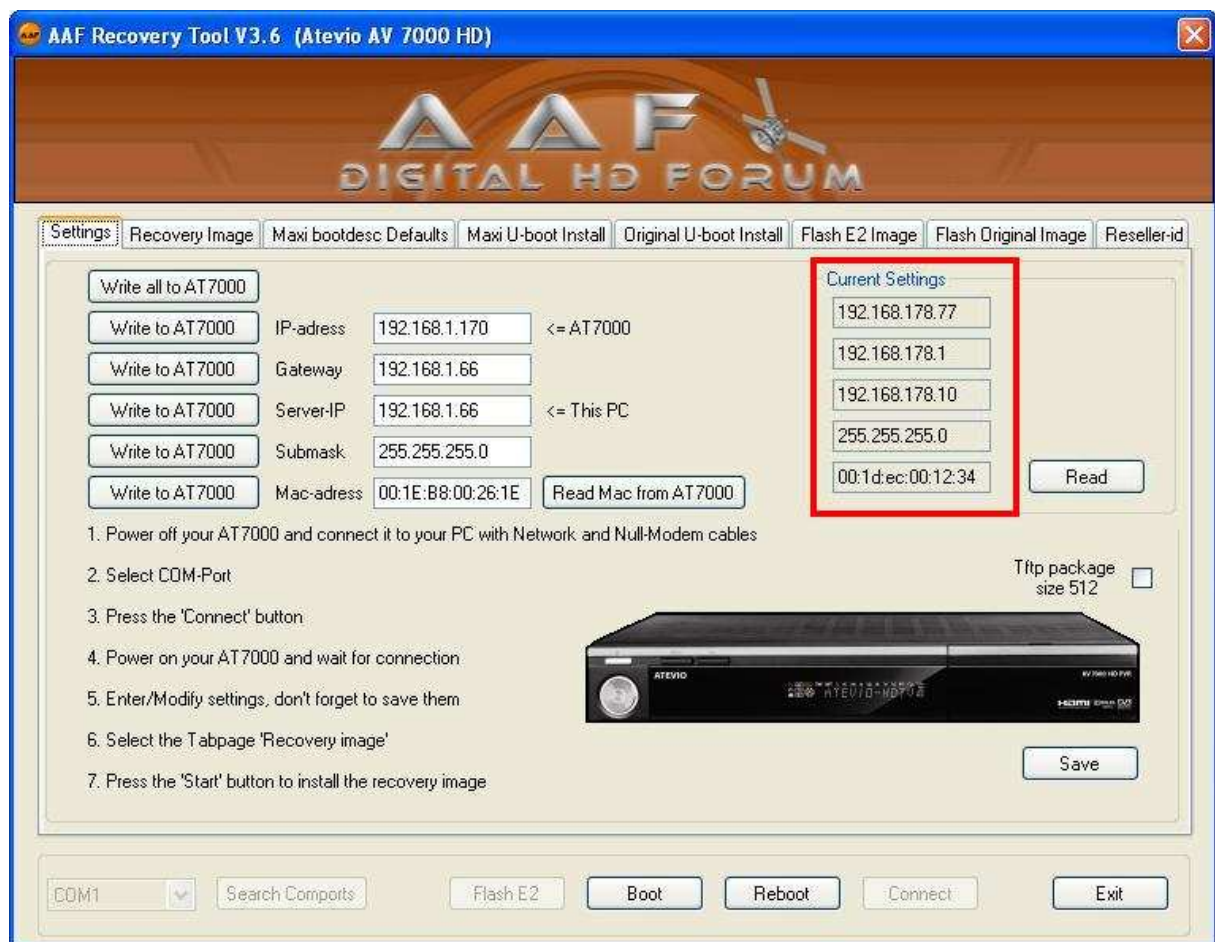




After the maxiubootloader is installed successfully the receiver reboots.
Close ART and wait until boot is finished.
Start ART again and power cycle the receiver. When the receiver starts up press the
“Connect” button.

Now ART should display these settings:

Note that in the “**Current Settings**” the maxiuboot default settings are displayed!
After installing the maxiubootloader all “Write to AT7000” buttons are selectable!

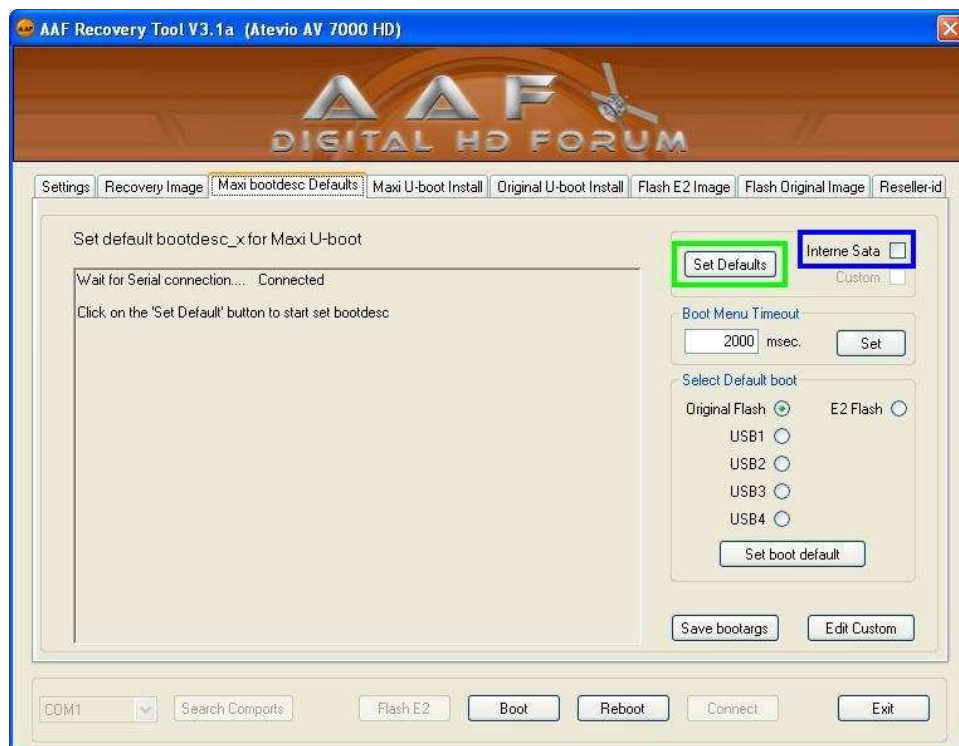




Now write all network settings to the receiver and press “**Save**” again (use each **Write to AT7000** or **Write all to AT7000**).



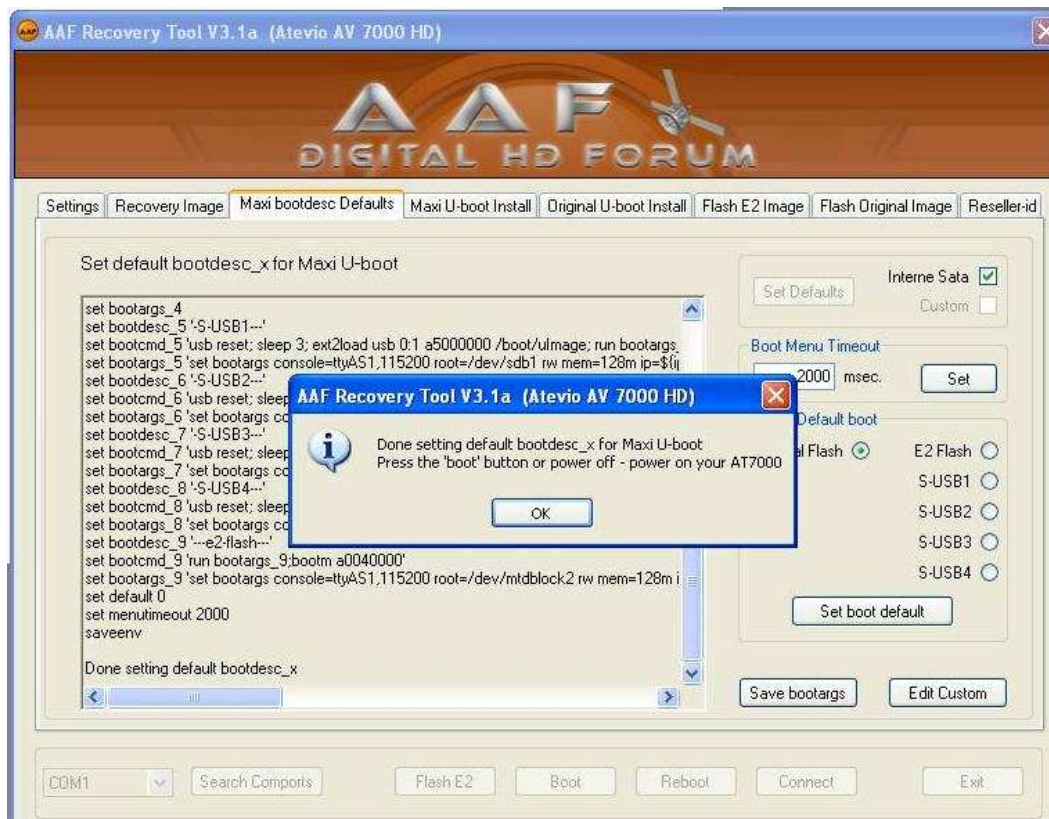
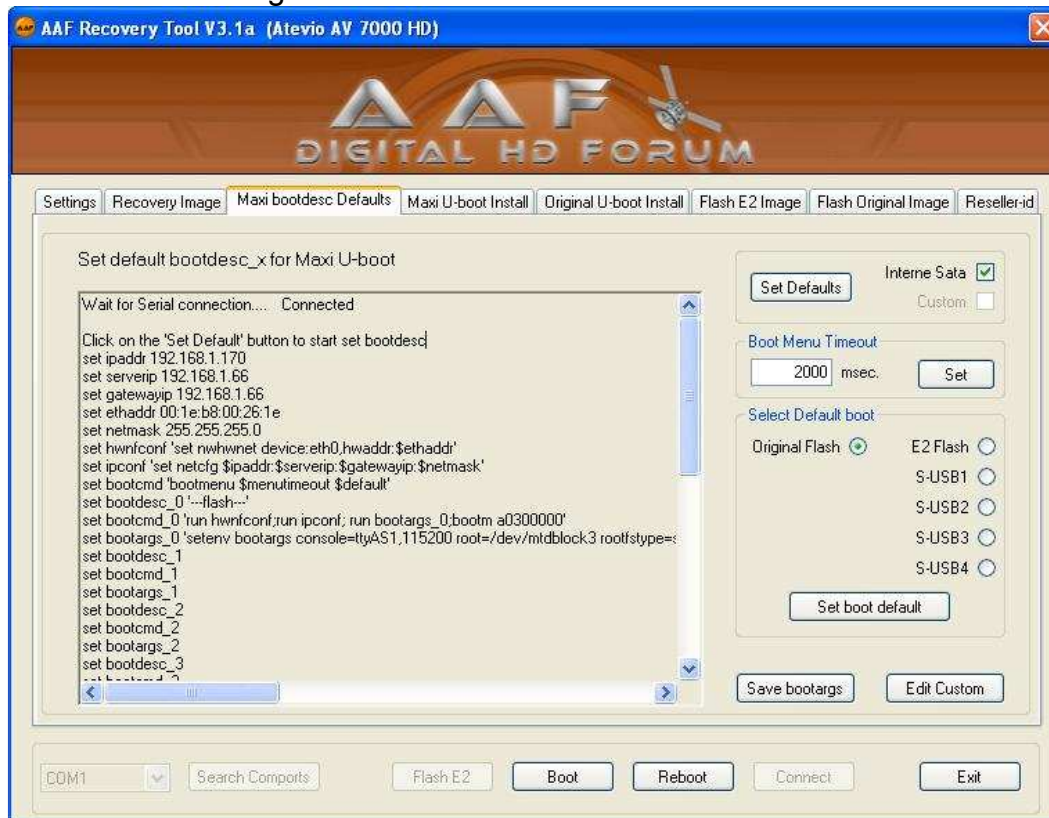
Move to the “Maxi bootdesc Defaults” pane and click at “**Set Defaults**” to set the default bootargs.



If your receiver is equipped with an internal SATA HDD, check the checkbox for “[Internal Sata](#)”!



The default bootargs are written to the maxiubootloader.



Reboot the receiver.

The receiver is now using the maxiubootloader!



This can be verified at the VFD during startup.



Change the default boot option

If you like to modify your default boot option any time after flashing the maxiubootloader, you need not to reconnect with ART again.

Select the desired boot option during boot up of the receiver using the UP/DOWN keys of your remote control.

If the desired boot option is shown in the VFD (i.e. -S-USB1---), press the RED key (not the record key) at your RC.



The word "Saving" will be seen in the VFD for some seconds. You have changed the default boot option successfully.



[Continue with E2 Flash Installation](#)

[Continue with E2 USB Installation](#)

[Continue with ART in Details](#)

**[Continue with alternative
Installation/Troubleshooting](#)**



Installation of an E2 Flash Image

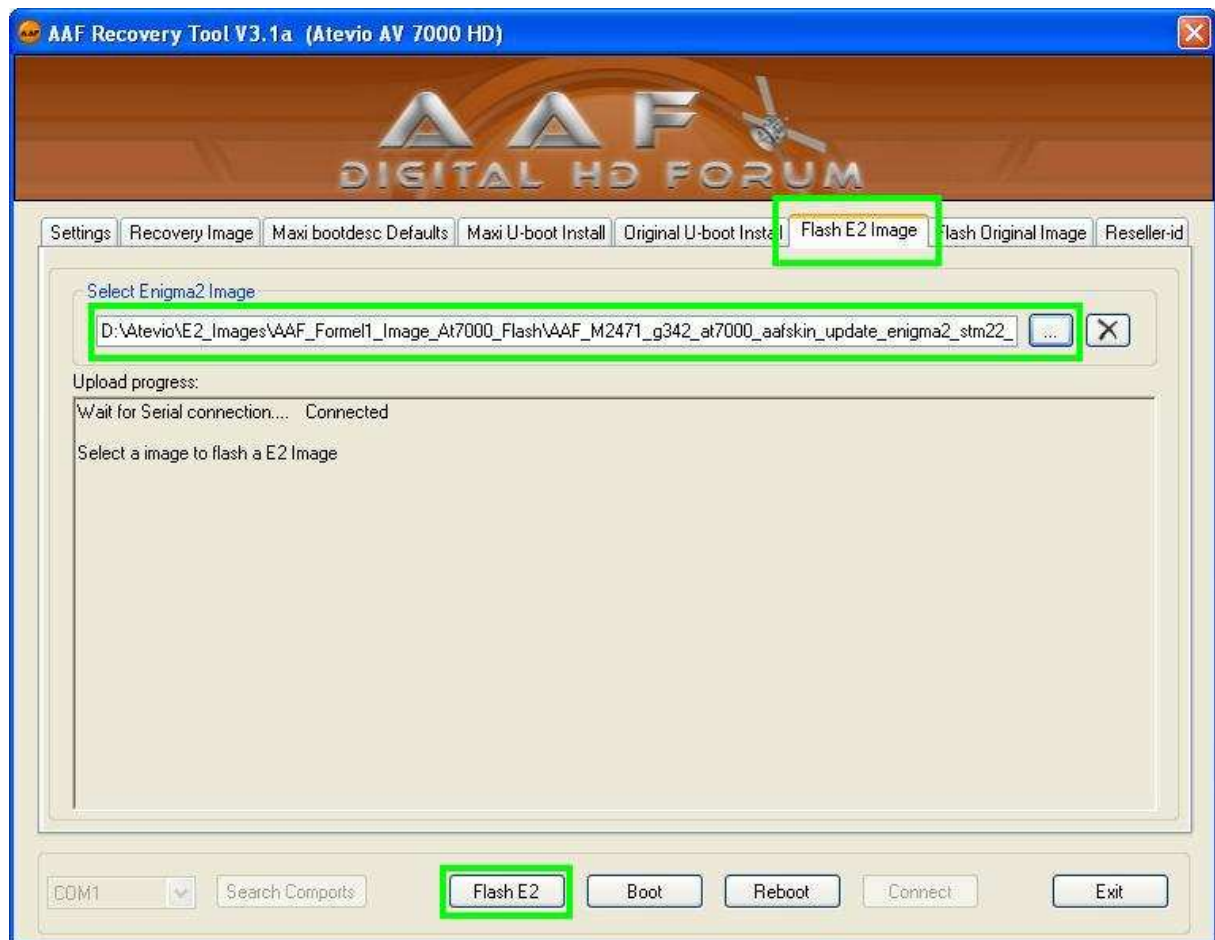
Requirements

An installed maxiubootloader and correctly set bootargs!

Run ART, connect to the receiver and choose the “Flash E2 Image” pane.

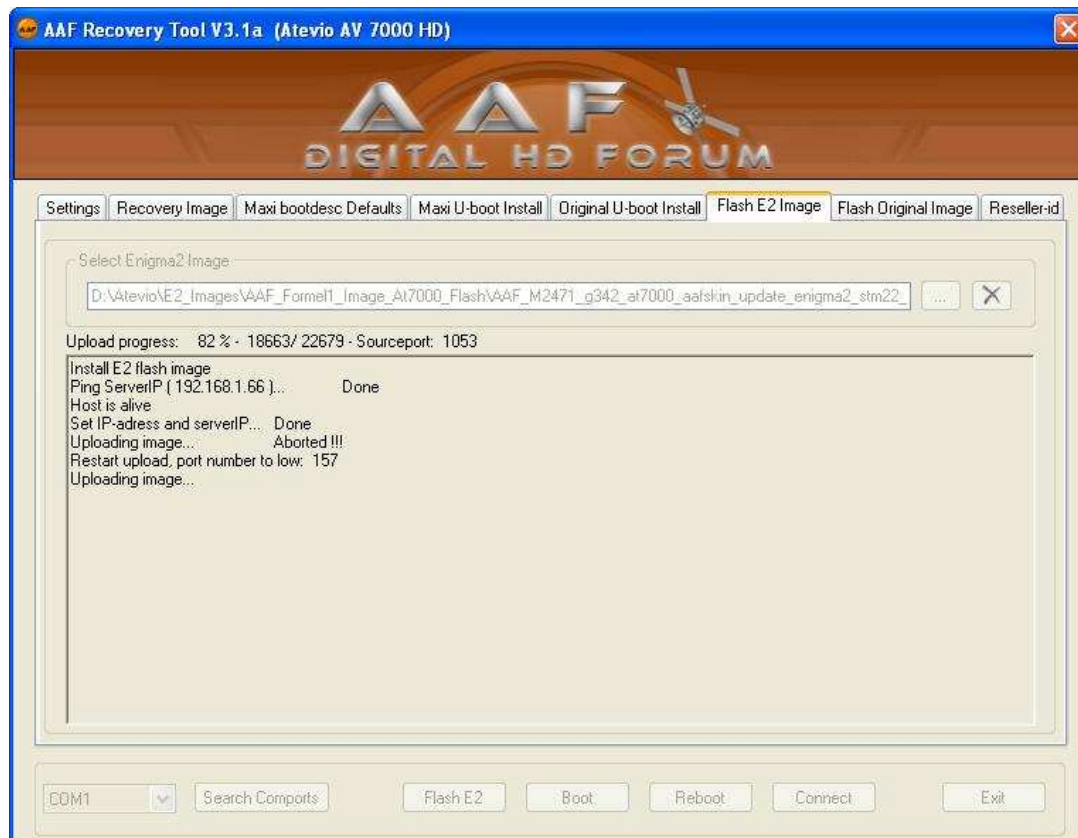
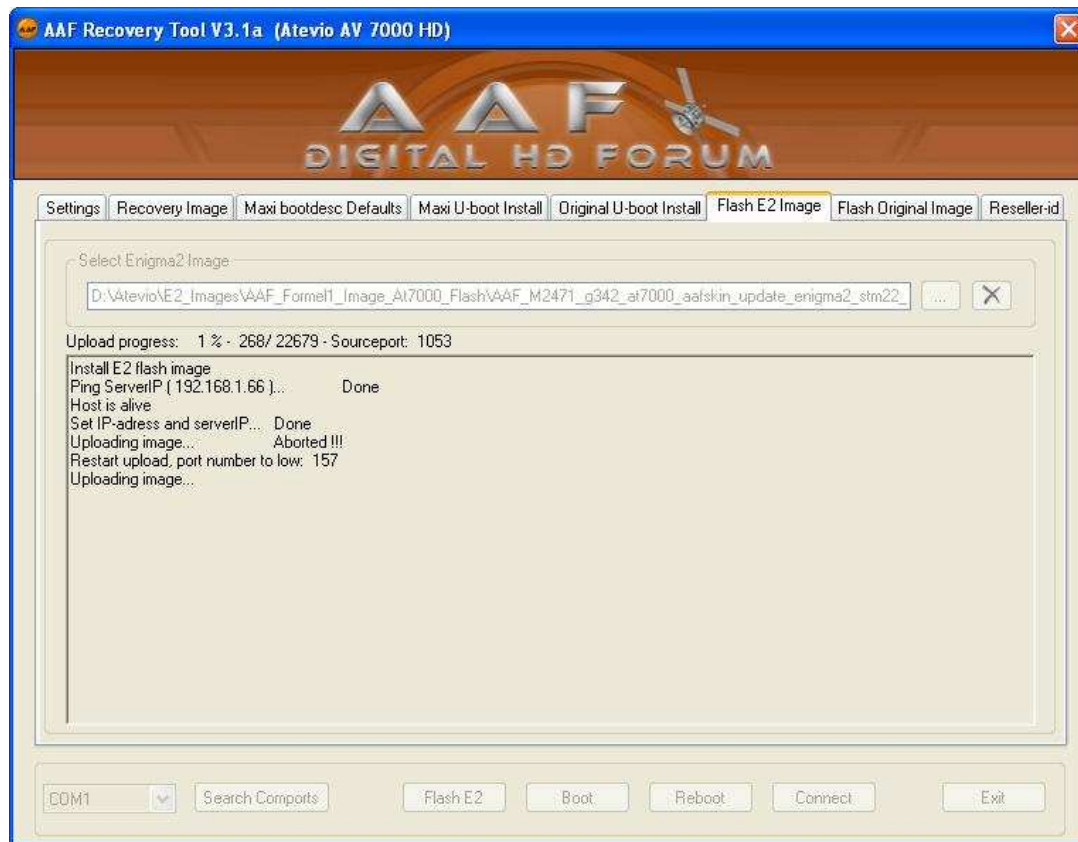
Browse to the location where your E2 Flash image is stored.

After selecting the image click at the “Flash E2” button and wait. The flash process lasts about 20 minutes (using defaults).



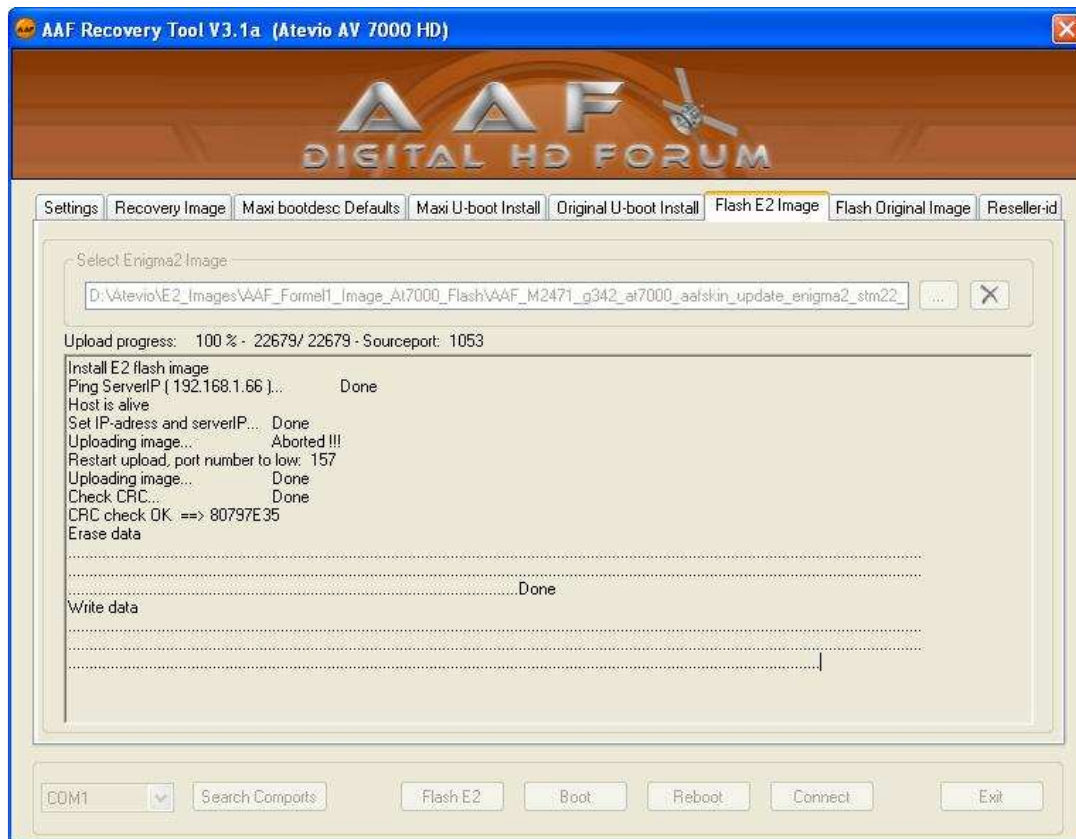


Flashing...

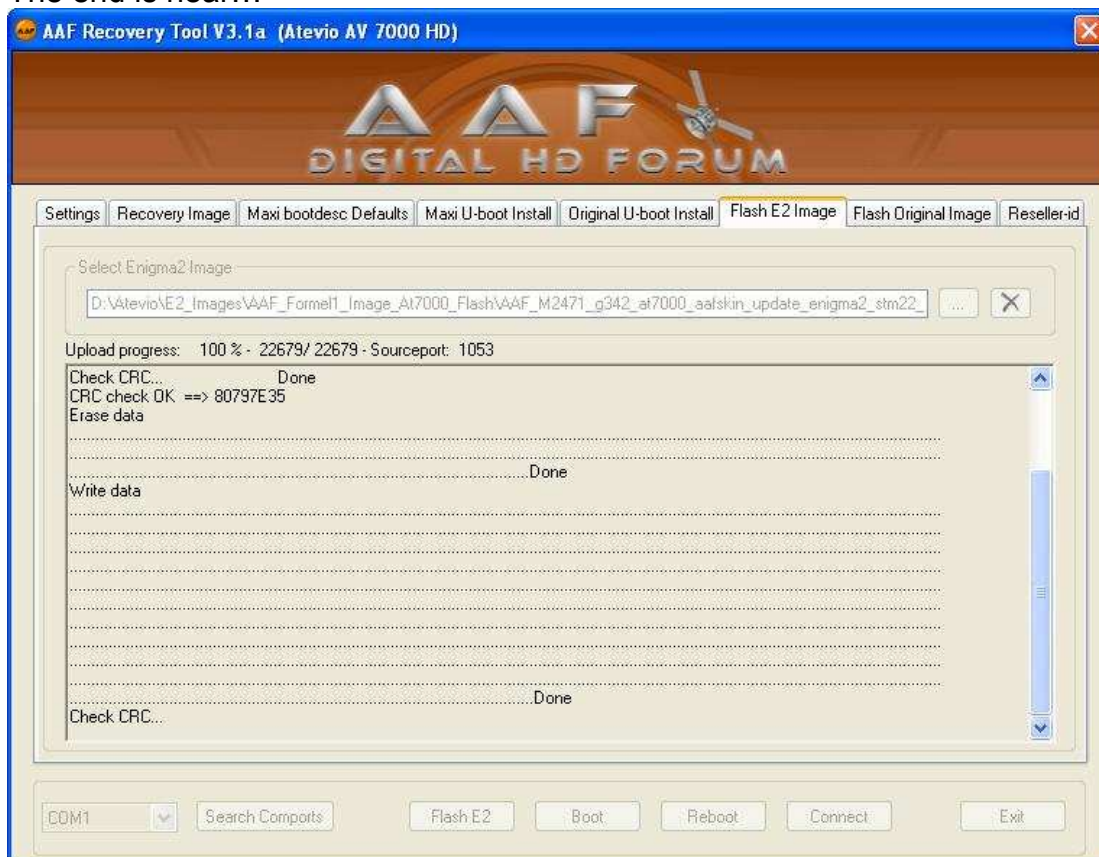




Still flashing...

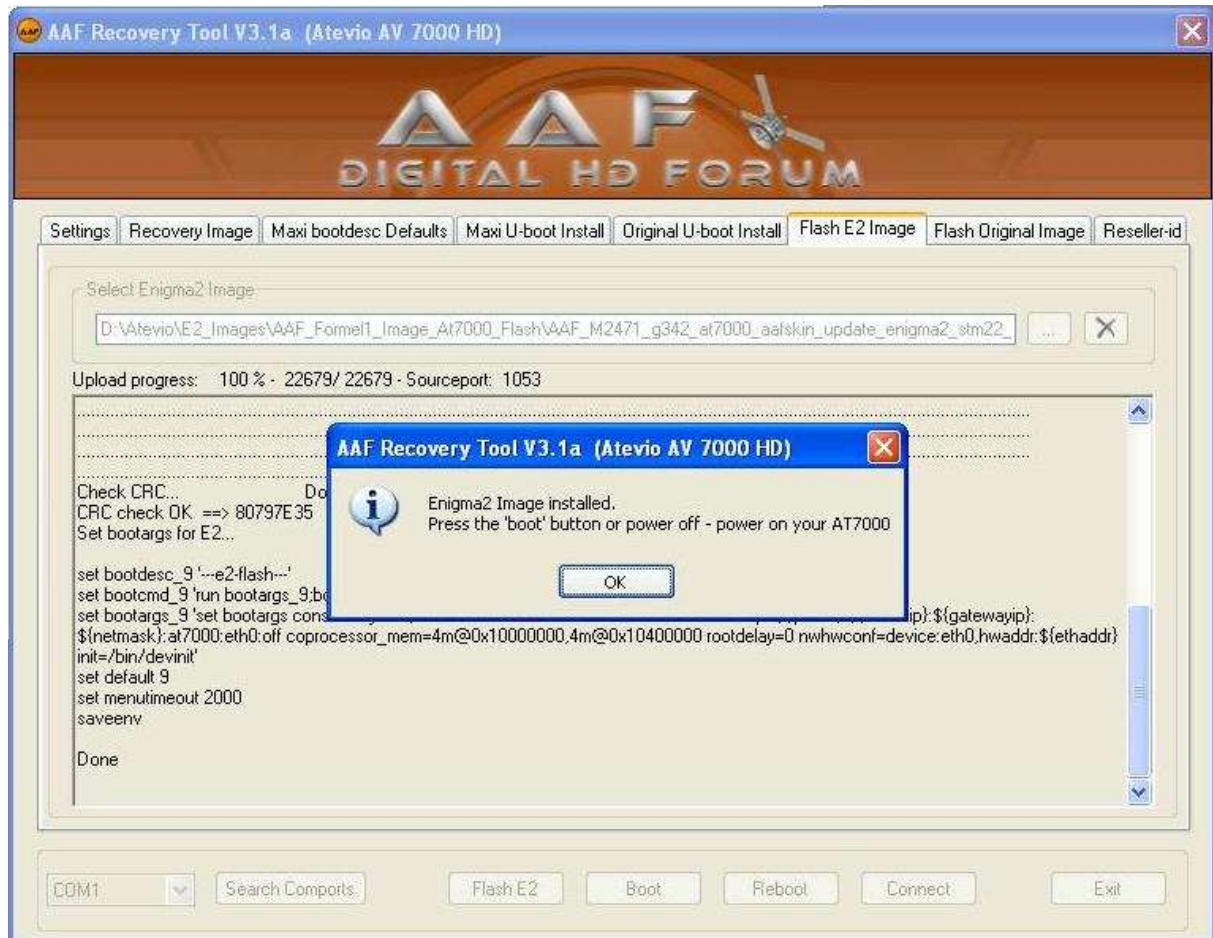


The end is near...





Done!



Seen in the background, the bootargs are modified for use with E2 in the flash.

Restart your receiver, set up E2 and enjoy...

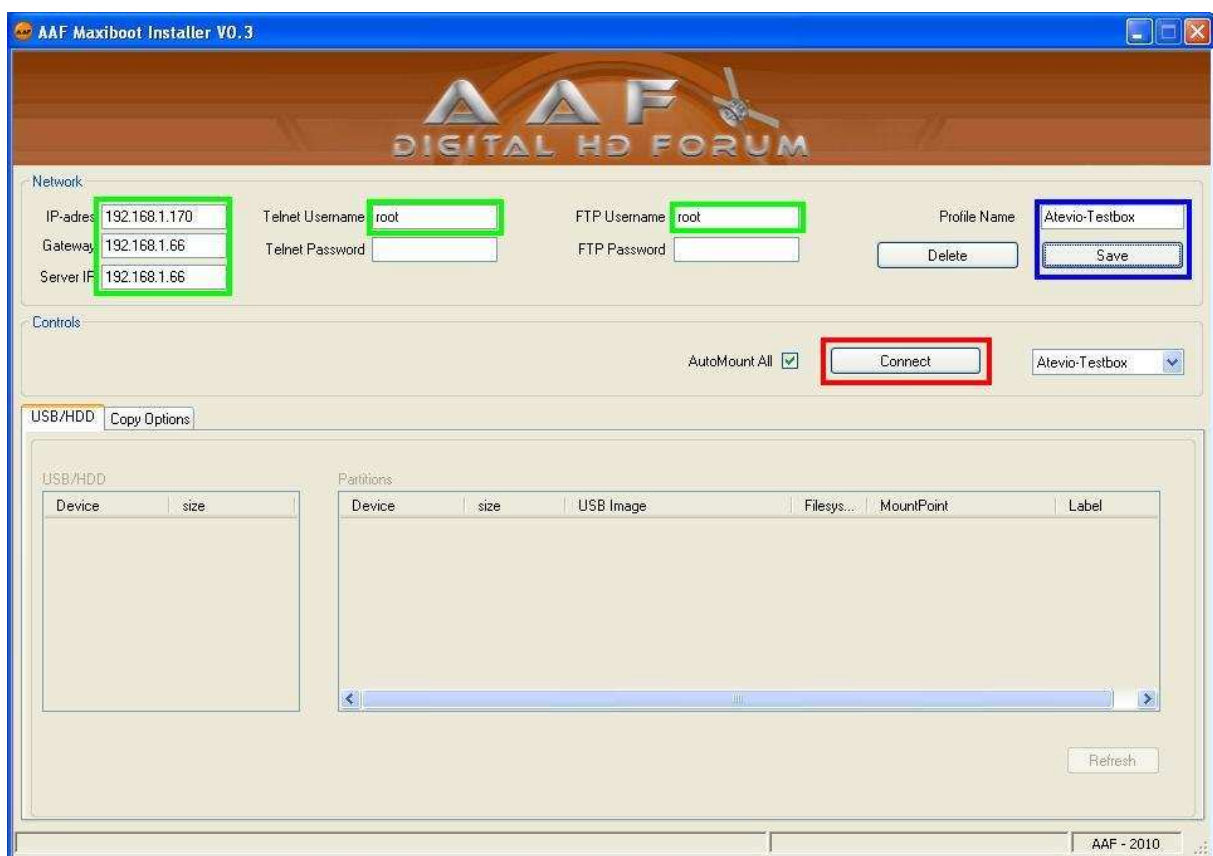


Installation of an E2 USB Image using AMI

Requirements

An installed maxiubootloader and correctly set bootargs!
ART is not needed, use AMI instead.

Start up the receiver, when boot is finished run the AAF Maxiboot Installer

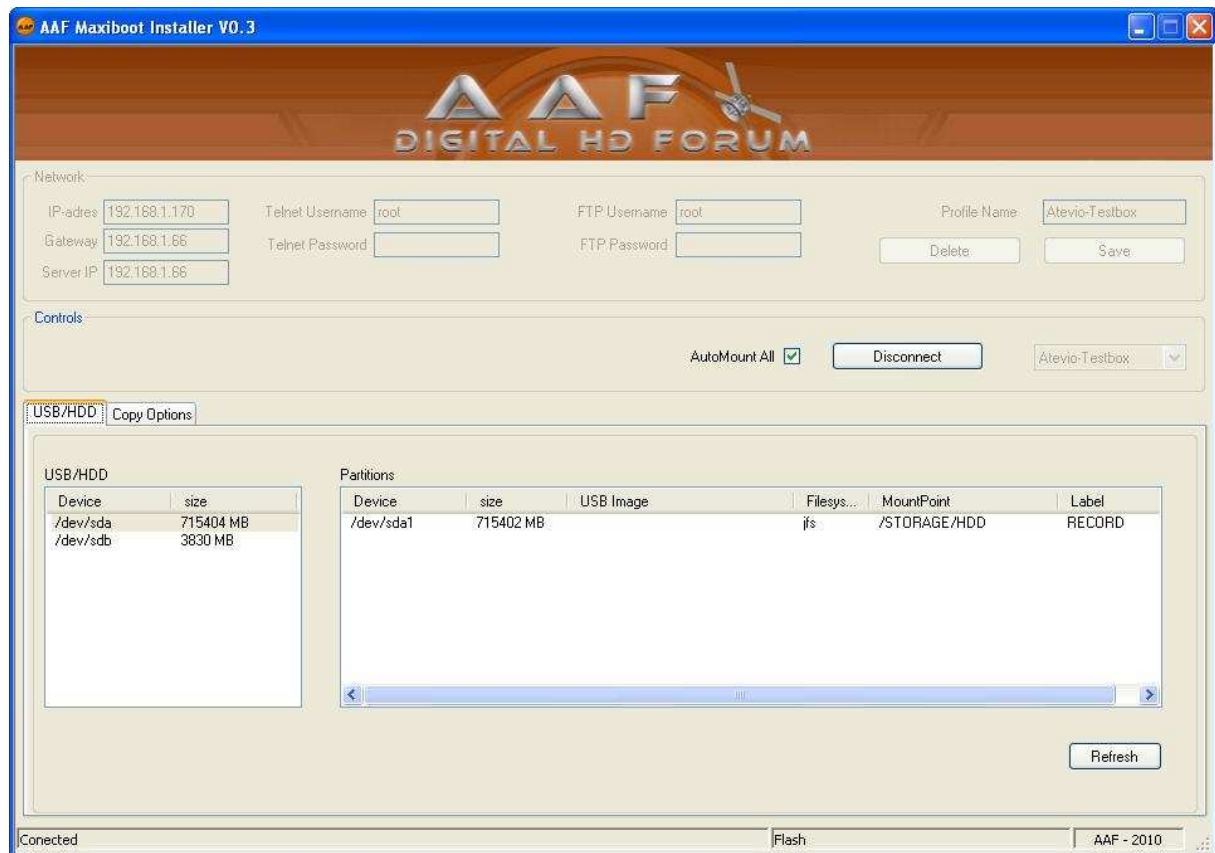


Enter your **network settings** and the **username**. As an option, you can **save** your settings in a **profile**.

Finally click at the “**Connect**” button.



If everything was typed in correctly you will be connected to your receiver.

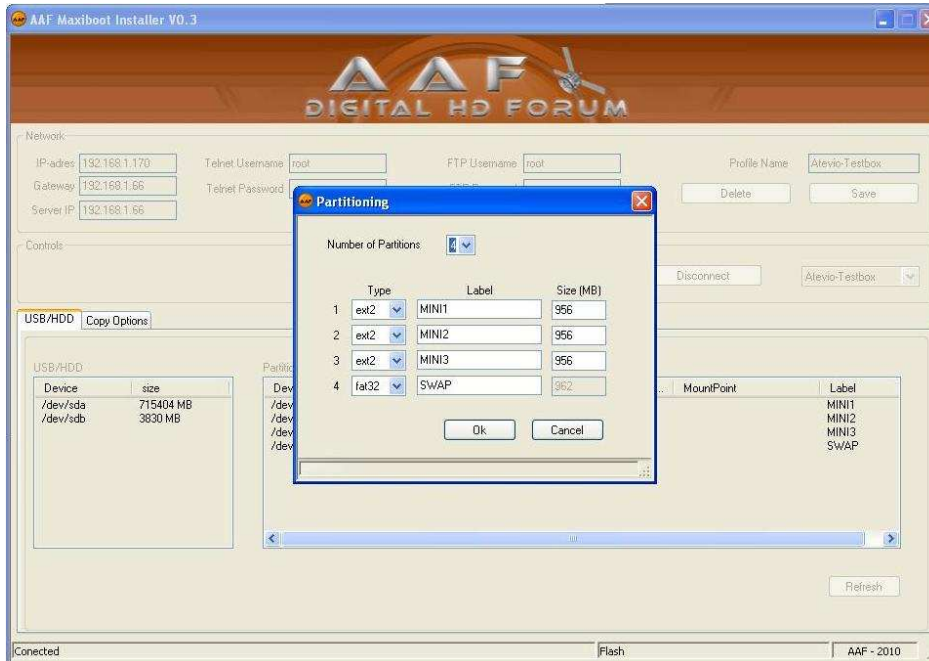


In the lower left window all recognized storage devices are displayed.
This receiver is equipped with an internal SATA drive which will always be mounted as /dev/sda.
The device /dev/sdb is an USB stick for the E2 images installation.



Rightclick at /dev/sdb and choose “Partitioning” the create partitions at the USB stick.
Note: the used USB stick contains already partitions, these will be destroyed if you are continuing this task!

Select the number of partitions you want to create, the size and the filesystems, click “OK”.

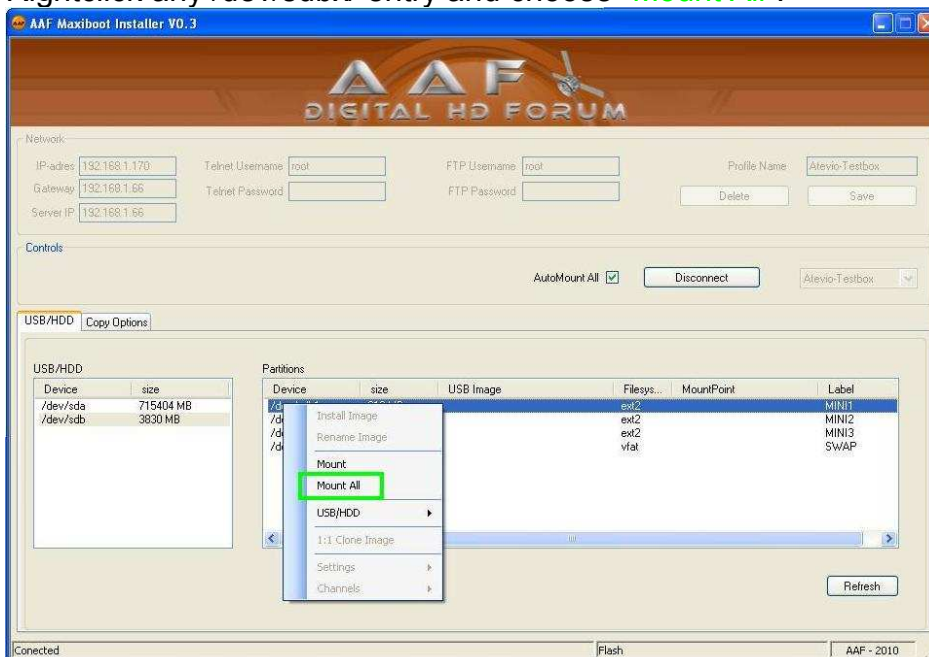


When partitioning is finished, follow the advice to restart the receiver (you need to restart the receiver manually using the power button or the remote control, AAF does not reboot the receiver).

During bootup click “Disconnect”.

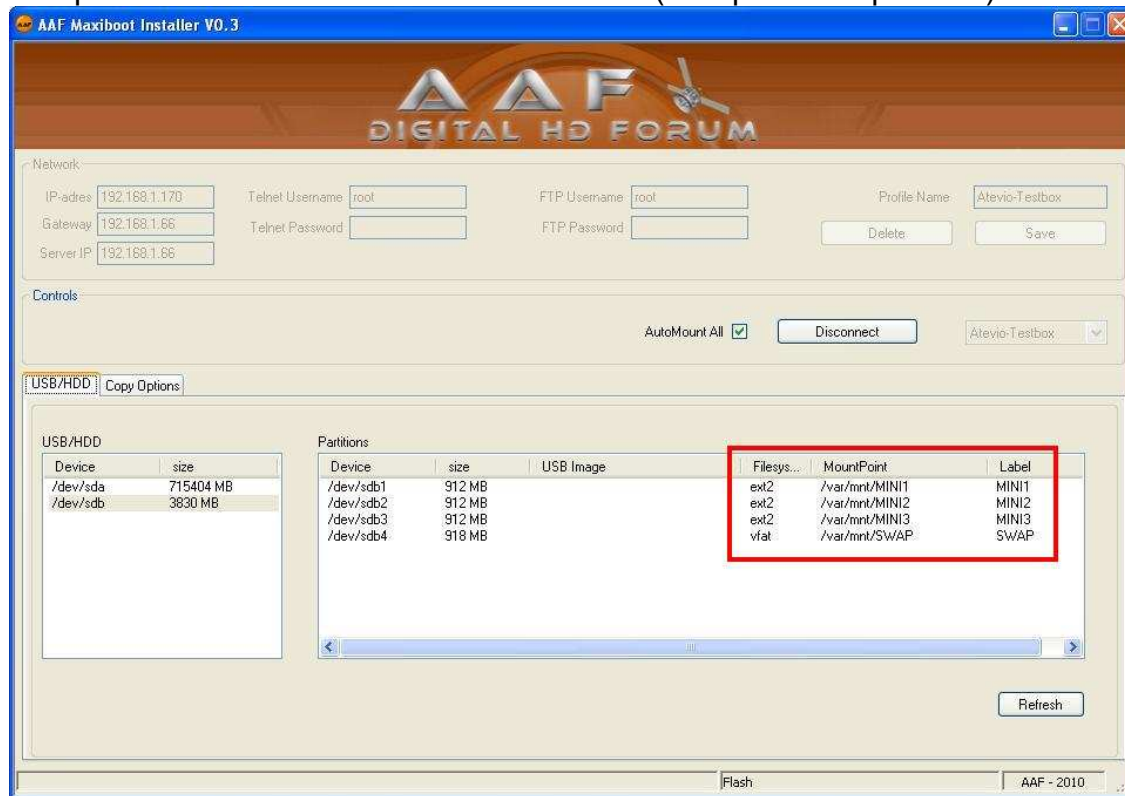
When the receiver finished its boot reconnect as before.

Rightclick any /dev/sdbx/ entry and choose “Mount All”.

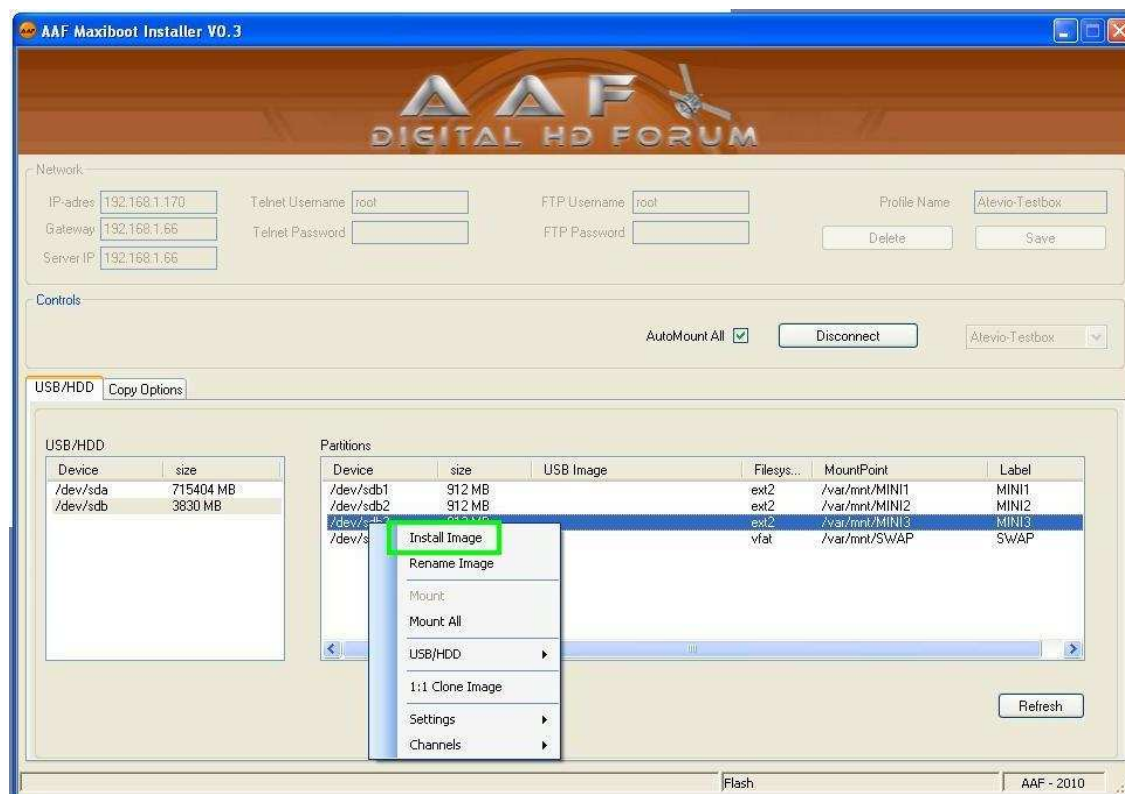




The partitions are mounted to /var/mnt/MINix (except SWAP partition).

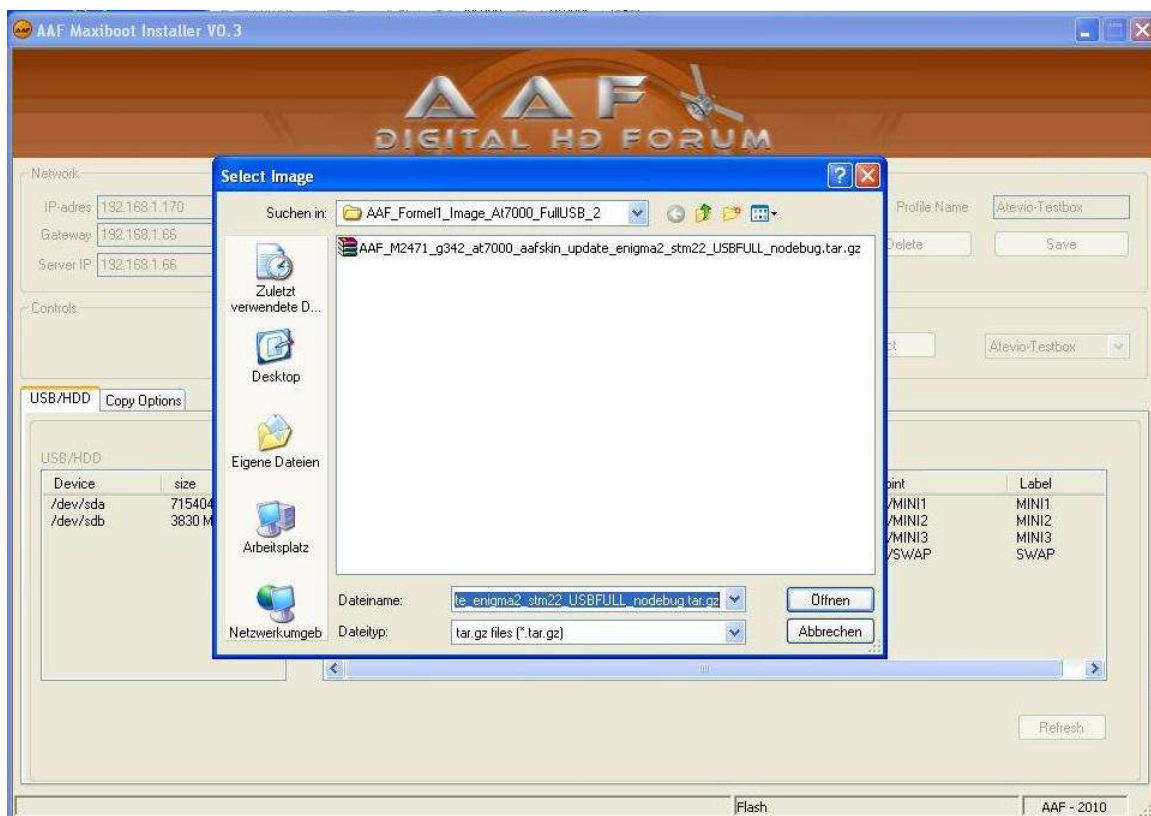
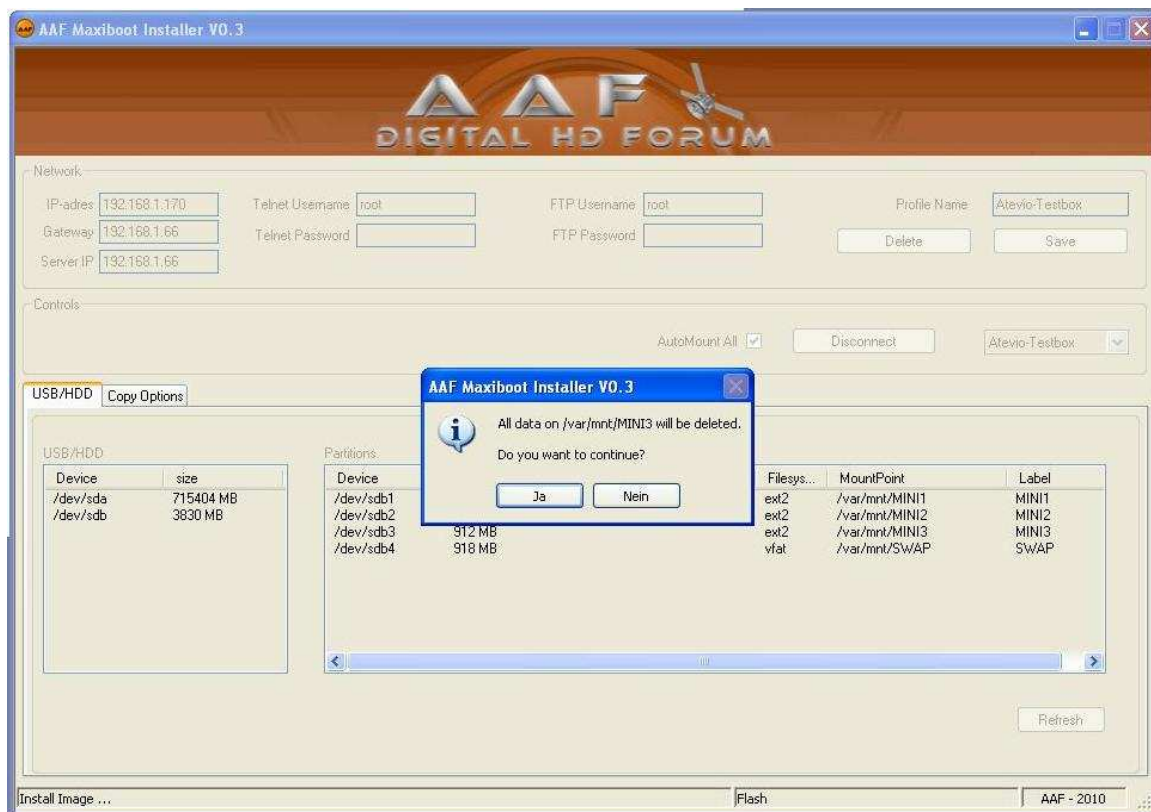


Rightclick a partition and choose "Install".



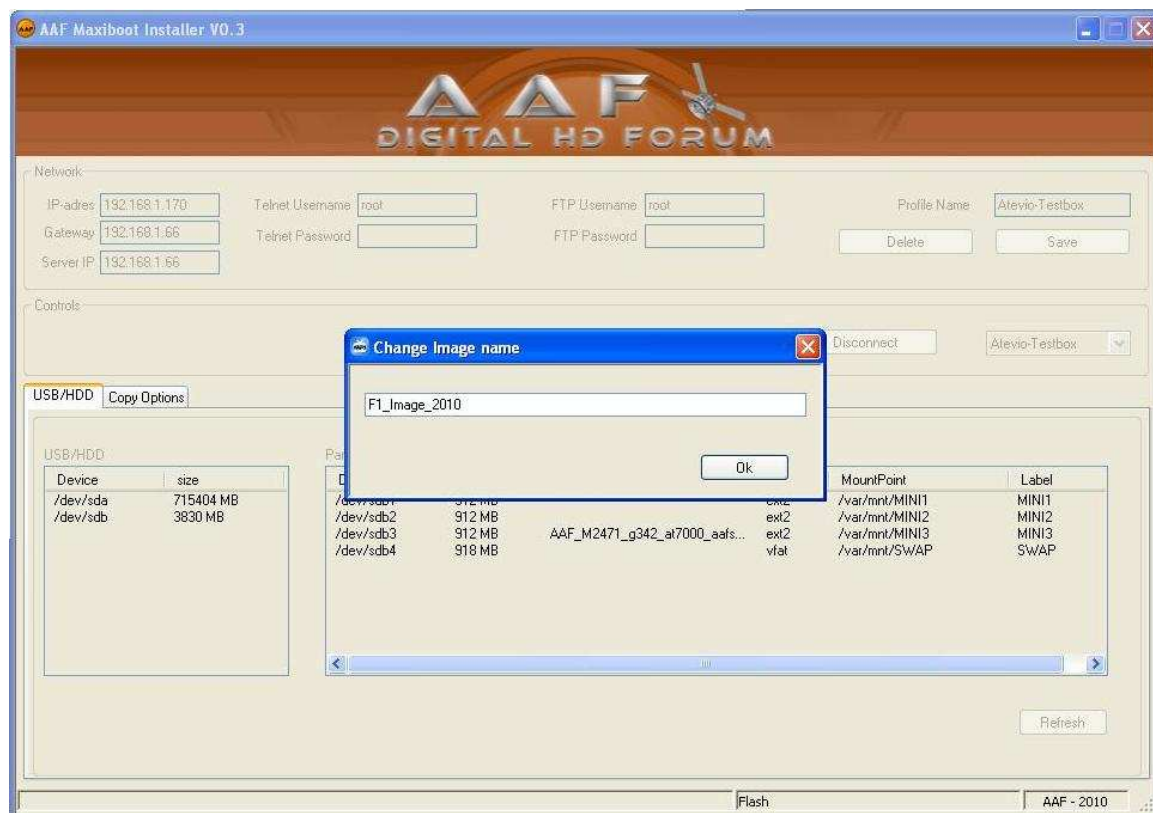
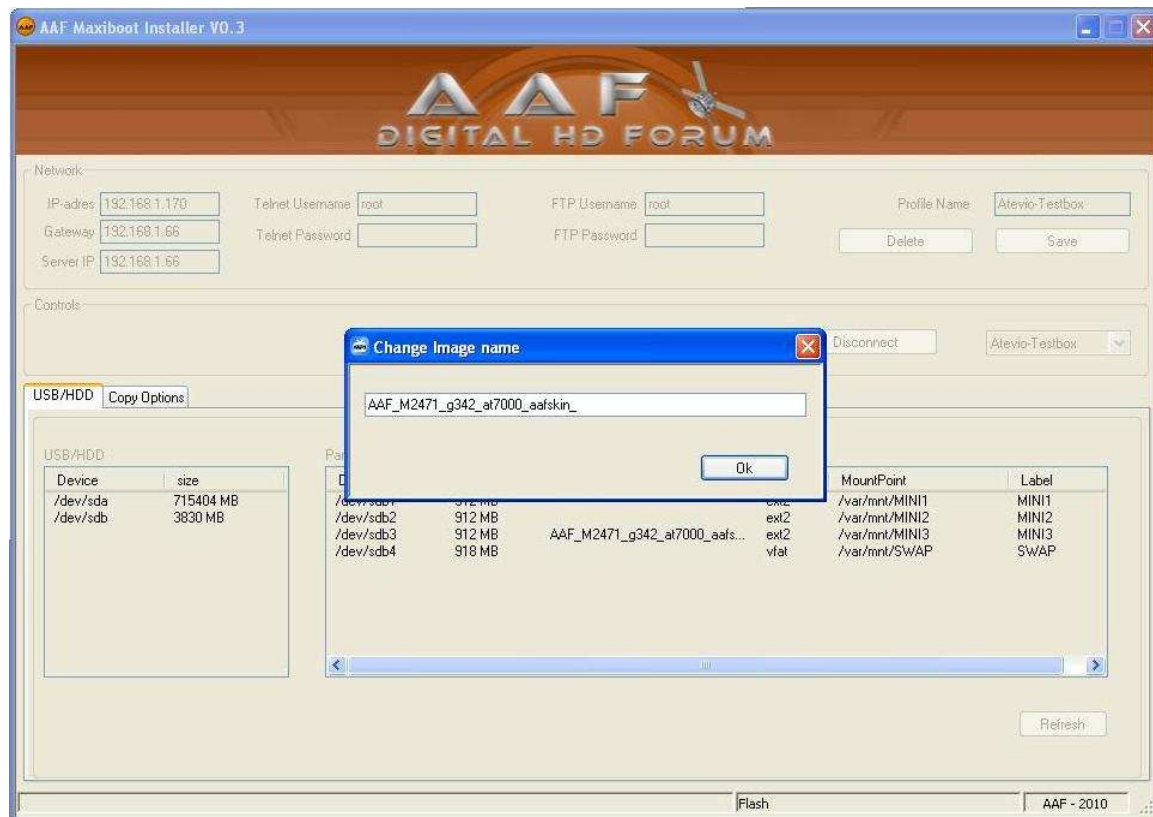


Confirm the deletion message and browse to the location where your UBS image is stored.



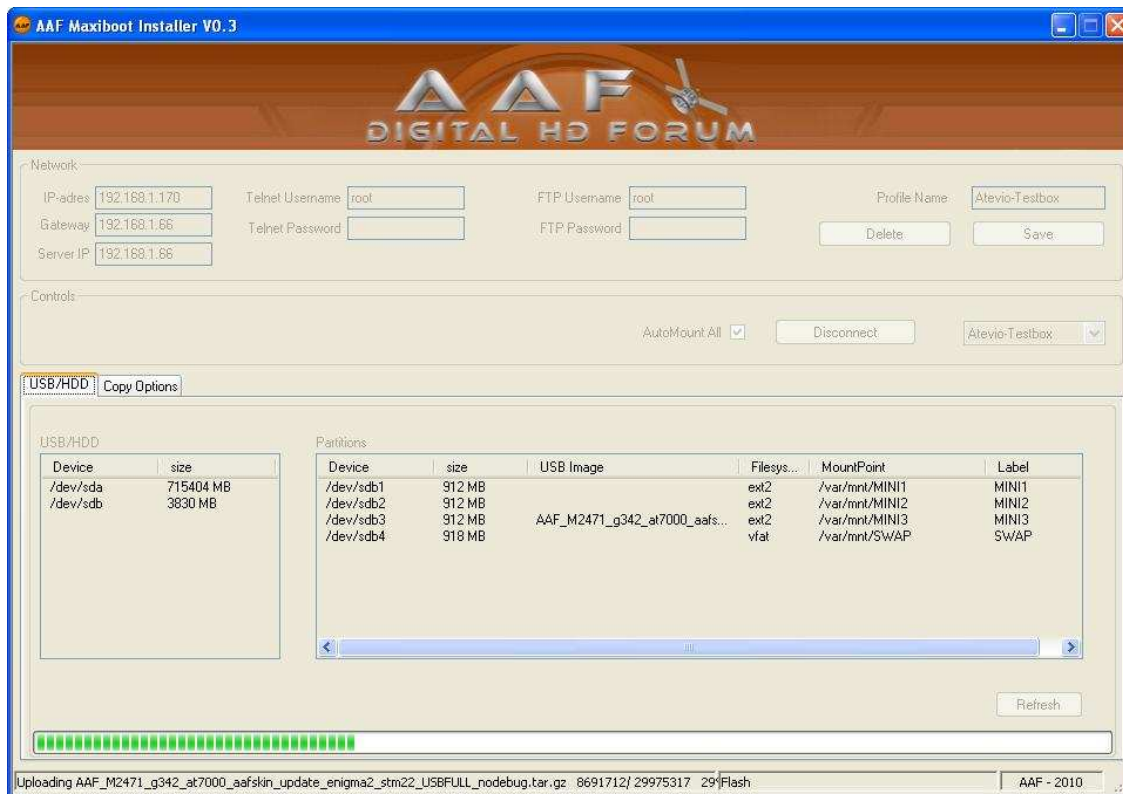


Change the image name to identify your images easily

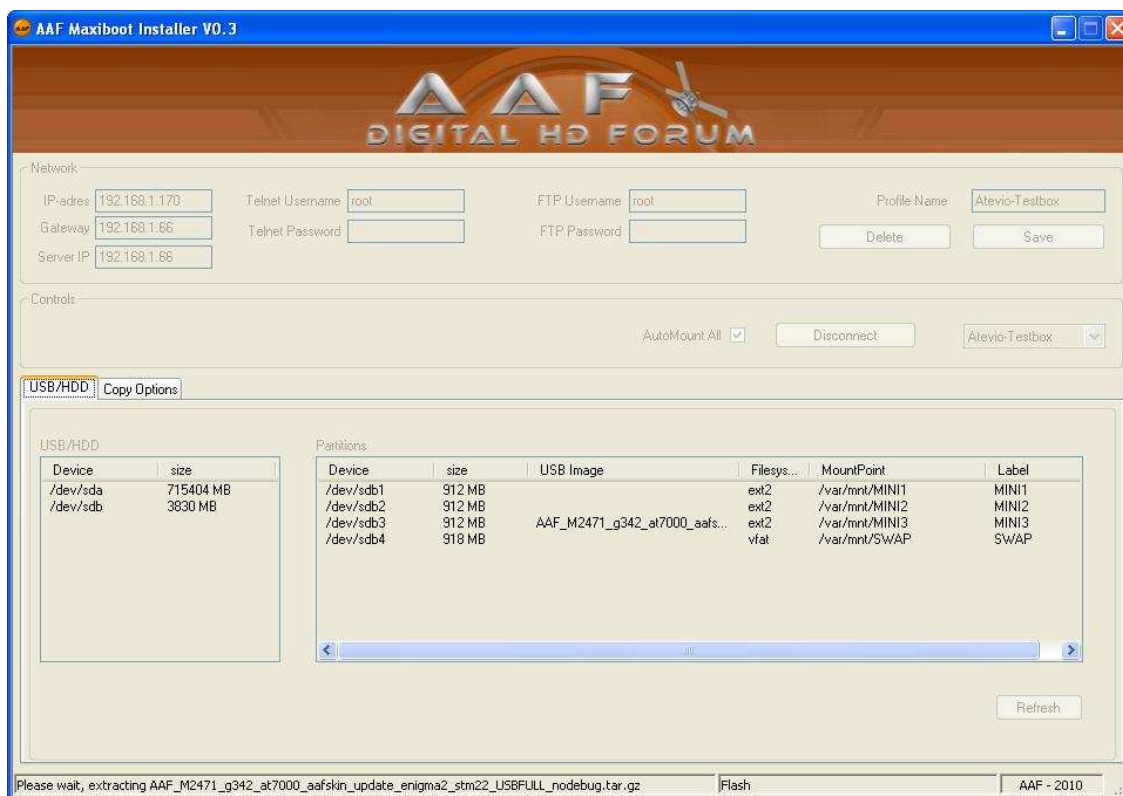




Installation starts. First, the image is transferred to the receiver.

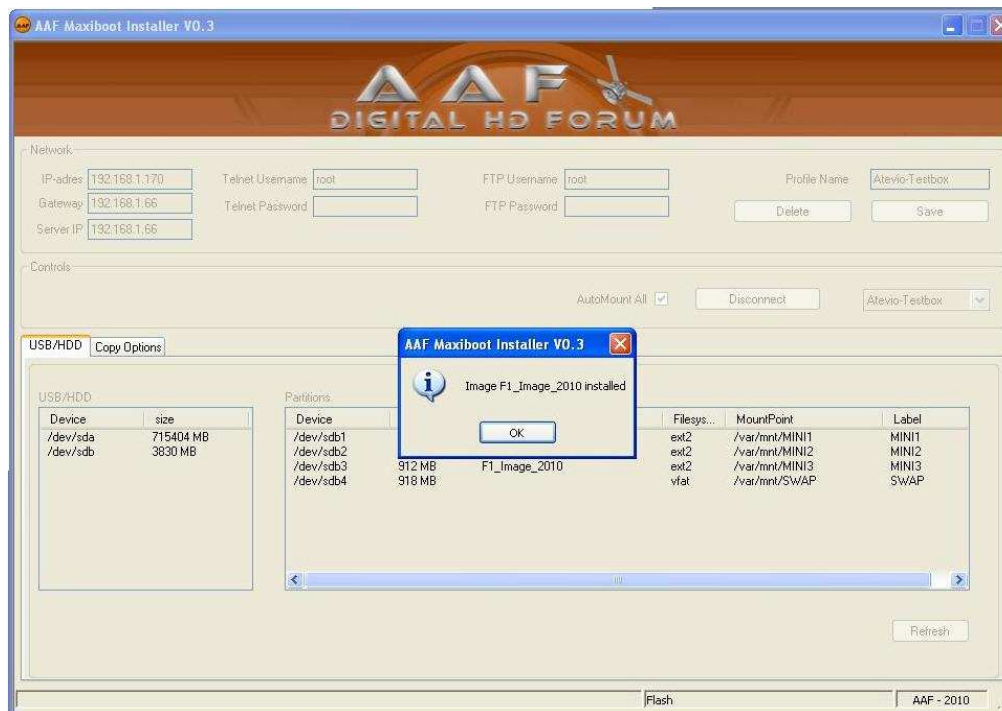


Then the image will be unpacked and installed.





Finally installation succeeded.

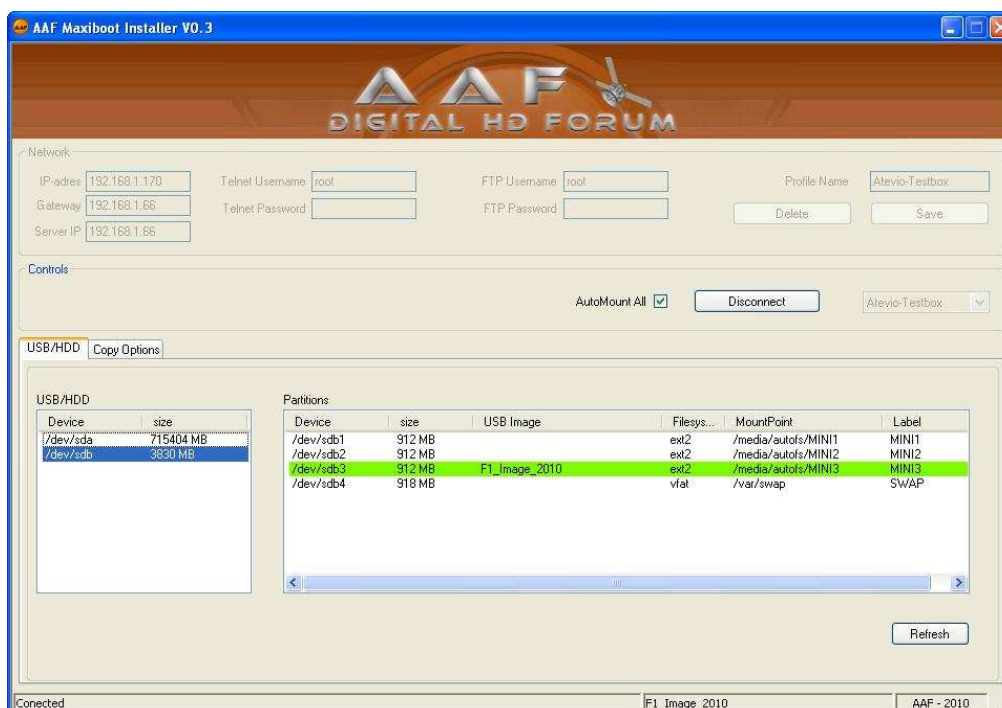


Disconnect from the receiver and reboot.

If ---flash--- is displayed in the VFD use the UP/DOWN keys at the remote control or at the receiver to select your boot image.

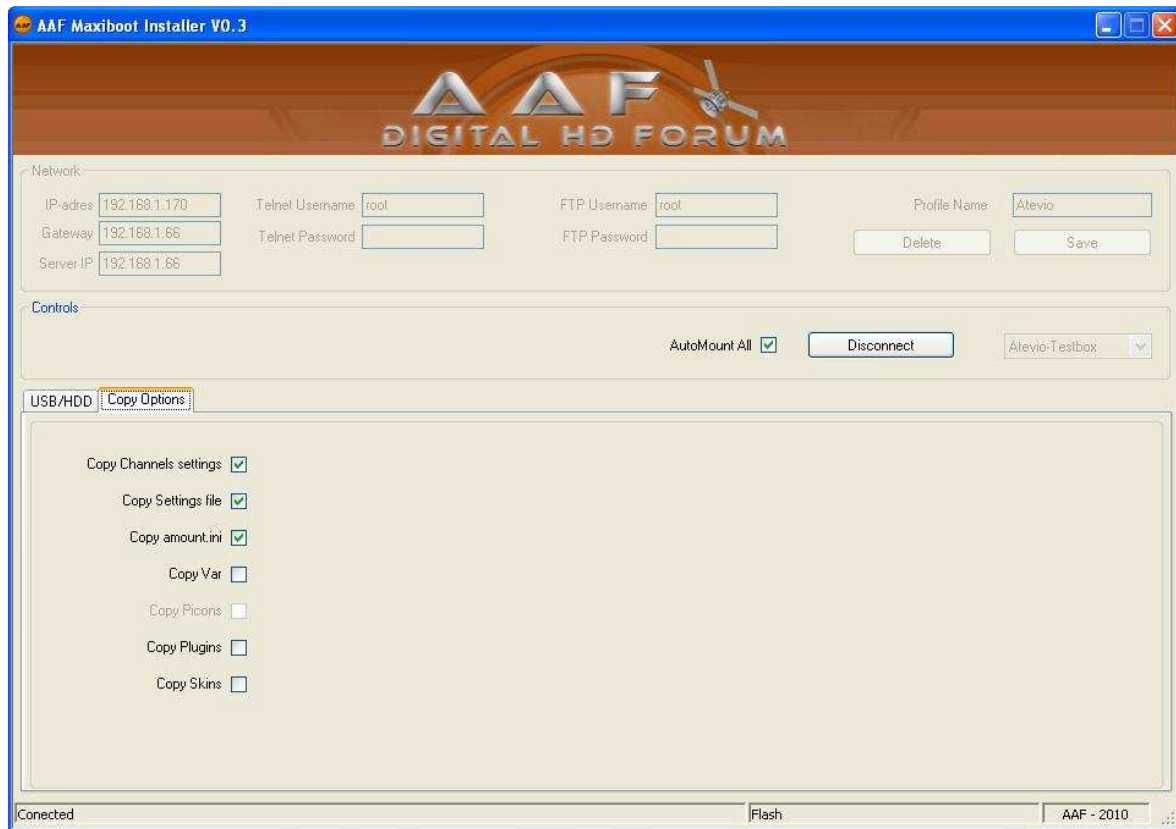
Referring to the example, the image is installed at /dev/sdb3. The corresponding boot option is -S-USB3- (with internal SATA) or ---USB3- (without internal SATA).

Reconnect to the receiver, the active image is highlighted.





If you are installing a second or third image after you setup the first image, you may like to copy the settings from the first image to all succeeding images. To do this, choose the “Copy Options” and check the items you would like to copy to the new image.

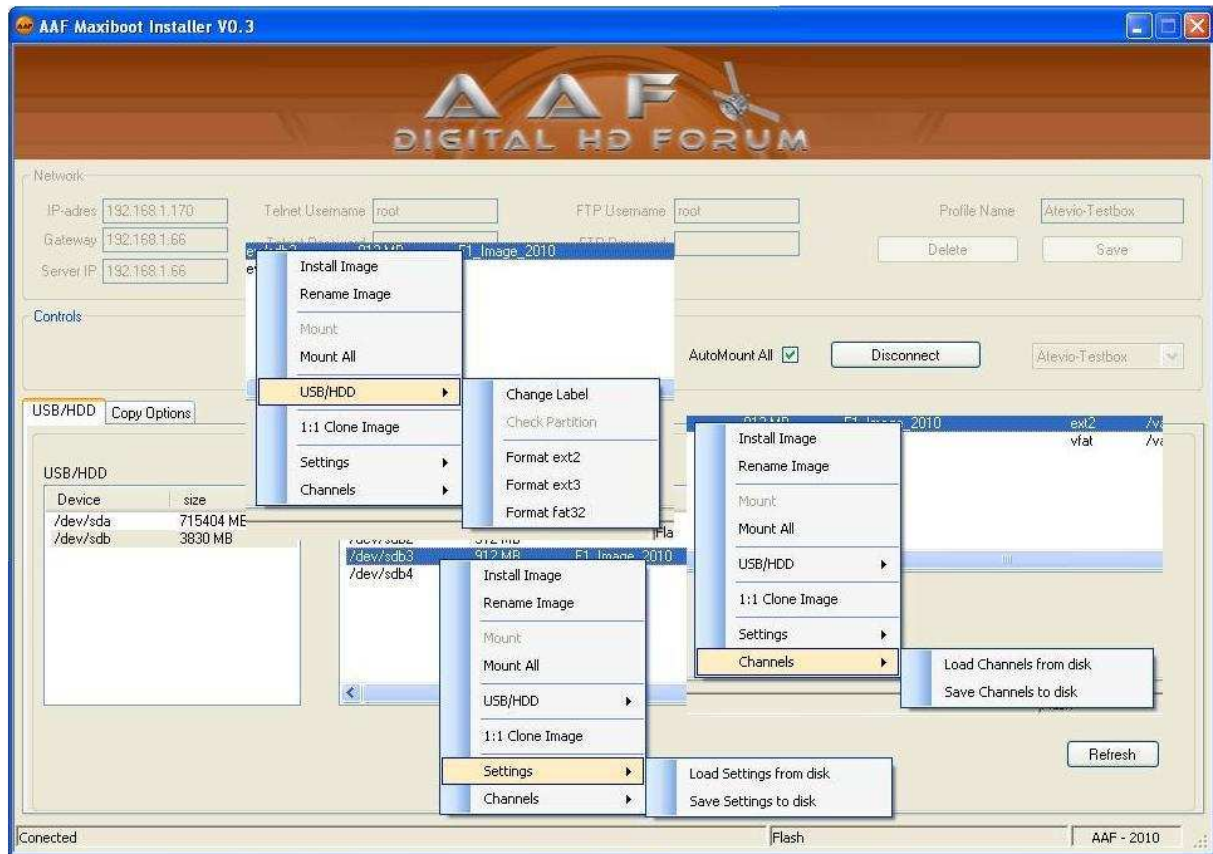


Currently the copy of picons is not supported.



AMI allows you some more tasks. Rightclick an entry to see the available options.

Note: screenshot is edited to show all options at one picture!



You can rename an image name using AMI, formatting the partitions or clone an image 1:1 from one partition to another.

Currently you cant use the clone option to clone an image from one device to another (i.e. from /dev/sdb3 to /dev/sdc3 when using a second USB stick).

The settings and channels can be written to and read from a disk.



Please download/use PART II of the manual.

Part II contains detailed informations about ART.

Please download/use PART III of the manual.

Part III lists alternative methods of installing the bootloaders/images and hints for troubleshooting.



For future use...