

# ayon

## **JRiver BlackBox - Internal Server with SSD and custom-made JRiver MS**

### **Introduction**

Many high-end customers using audio streaming devices are concerned that they need to use several devices in their network to get access to their complete music catalogue. Using different implementations and configurations also means that different devices have to be looked at also when problems occur. To solve this general problem Ayon Audio, Stream Unlimited, and JRiver have presented a simple solution for the audiophile world, the internal JRiver BlackBox. It contains the complete music catalogue of the preferred audio files.

### **Main areas**

#### **MEDIA STORAGE**

For most of today's consumers space and generated noise are no longer the major concern. Meanwhile solid-state disks (SSD) are widely spread. Therefore, these have been chosen to store the data on the JRiver BlackBox Media server. For further simplification consumers can have direct access to the data by means of an USB-cable connecting the computer and copying the data to the SSD with the device switched off. At switching-on of the device the data are shown on the JRiver BlackBox media server. Although it seems simple, for the transfer of a large data volume the end-user does not have to administer several commonly used network drives and very low transfer rates. Furthermore, with JRiver it is easy and straightforward to select contents and to back-up the whole archive.

#### **CONNECTION / NETWORK**

The transfer of a great data volume should ideally be done via a cabled (ethernet-) connection and not via WLAN; hence the JRiver BlackBox offers an ethernet connection as standard. The control of the device and the feedback to the user may be done via Wi-Fi without any problem. The home router provides a Wi-Fi network that can be used by mobile devices with JRemote or other compatible controller apps.

## **HARDWARE-PLATFORM**

In the S-10 II an additional and independent streamer platform (server module) with own power supply has been installed. The decision to isolate the server part from the main streamer platform and to relieve it respectively intends to keep the system open for future upgrades and concentrate on one task only:

- providing audio contents or
- decoding of audio contents

To assure the compatibility with new functions the streaming modules should not serve a second purpose and function as content server. However, the server module needs not be modified as the basic protocols can remain the same when the streamer is compatible with them. Here reference is made to the UPnP protocol that is in use now for more than 10 years with very few modifications only – simply because it fulfils the requirements of a bit perfect audio transmission. Since long JRiver is a leading provider of UPnP media servers for audiophiles worldwide. Compared to other server platforms mostly equipped with x86-compatible CPUs (notebooks, desktop pcs) the hardware modules of Ayon Audio / StreamUnlimited are based on modern powerful ARM-CPU's which are reliable, feature a low power consumption, and are maintained internally. The same modules are used for audio streaming purposes and tested on the market with millions of products, while the performance of the CPU surpasses by large the requirements of an audio content server. Products of competitors using power consuming x86-based platforms have to cope a high amount of clock noise and radiation in their unit requiring big heat sinks or noise generating fans.

## **OPERATING SYSTEM**

Our structure is based upon a user defined Linux system to which we have added only the obligatory software components necessary to provide the infrastructure for the execution of our envisaged application. This way the system remains rationalized and clearly arranged. In the contrary to other providers / brands we do not claim to have reinvented the wheel with a new operating system whilst in reality inside there still a Linux Kernel is running. Millions of systems are based on Linux, which means that we are dependent on a well maintained regularly tested base. Of course, we have decoupled the data from system parts, i.e. they are stored in different locations. This way, our system remains operational in case something happens with the data / the archive.

## **CONFIGURATION**

The JRiver BlackBox is completely preconfigured. The user only needs to transfer the desired data to the SSD music folder via USB and connect a network cable. Then the device is switched on and automatically shown in the system as media server. No complicated modifications are required and the content always corresponds to the one stored on the server.

## **SUPPORTING INFORMATION**

JRiver is on the market for many years. Besides the JRiver WIKI there is an active forum available around the clock that should be capable to answer all questions regarding product and set-up.

## **UPGRADING / UPDATING**

When new software versions are published the consumer can perform an upgrade via the website of the JRiver BlackBox Server, using his IP-address in a standard web browser.

## **CONCLUSION**

The JRiver BlackBox is a simple solution for the operation of an audiophile UPnP server in an audio device. When the streamer is switched on, the network connection is enabled and the content is made available to the streaming part of the system. With the JRemote app of JRiver the consumer takes advantage of the harmonized behavior of control point and server. Significantly, the BlackBox offers alternative ways of access to the contents – there is no forced user interface because UPnP is an open standard with dozens of control point apps.

### **Other advantages:**

- User friendliness
- all functions in one box - server and streamer
- no monthly rentals / purchase and use as long as required
- reliable and robust operation
- no additional noise generating components inside that may disturb the listening
- upgradeability

### Ayon S-10 II – technical highlights, implementation, advantages and installation of the JRiver BlackBox

- already during development of the S-10 II we have considered the implementation of the BlackBox from the very beginning.
- a new motherboard with 2 independent streamer modules each with own power supply
- main streamer module is not charged add, hence best possible sound
- server streaming module only responsible for the internal server application, hence best possible sound
- direct access and shortest signal path
- special and adopted media server firmware by JRiver with license key included
- standard delivery with 1 TB Samsung SSD, optional also 2 TB SSD
- the S-10 II needs only one LAN-connection to the router to control the S-10 II with a tablet/mobile phone.