

NetUP DVB-IP Gateway 4x

Now You Can Be an Armchair TV Director Too!



Up until a few years ago TV via Internet or Ethernet was beyond our imagination. Today, however, high-capacity fibre-optic cables and the continuing rollout of broadband connections right to the living room have become a reality. IPTV is one option out of many and these days competes against satellite and cable television. Have you ever thought about how content is actually distributed via IPTV?

To answer that question we looked at the DVB-IP gateway offered by NetUP, which is the ideal system for small systems like at hotels or hospitals, but also for private users or anyone else, who wants to distribute TV content on the Internet.

The NetUP DVB-IP Gateway 4x is a professional product, which means all technology is packed into a 19-inch housing. On addition, all important connection interfaces are located both on the front and rear panels, which is another clear indication that the gateway is not for presentation next to the TV, but should rather be installed in a dedicated server cabinet or professional 19-inch rack.



On the front panel you find a two-line LCD display indicating the current mode of operation and providing valuable help during initial installation of the network interfaces.

Speaking of which, there are a total of six such interfaces, all of which can be set up individually. Above these connections there are 10 LEDs and to the right five buttons allow direct control of the unit. Apart from the network interfaces mentioned above there are two USB ports for hooking up external storage media and an RS-232 port for putting out status information to an external console.

NetUP

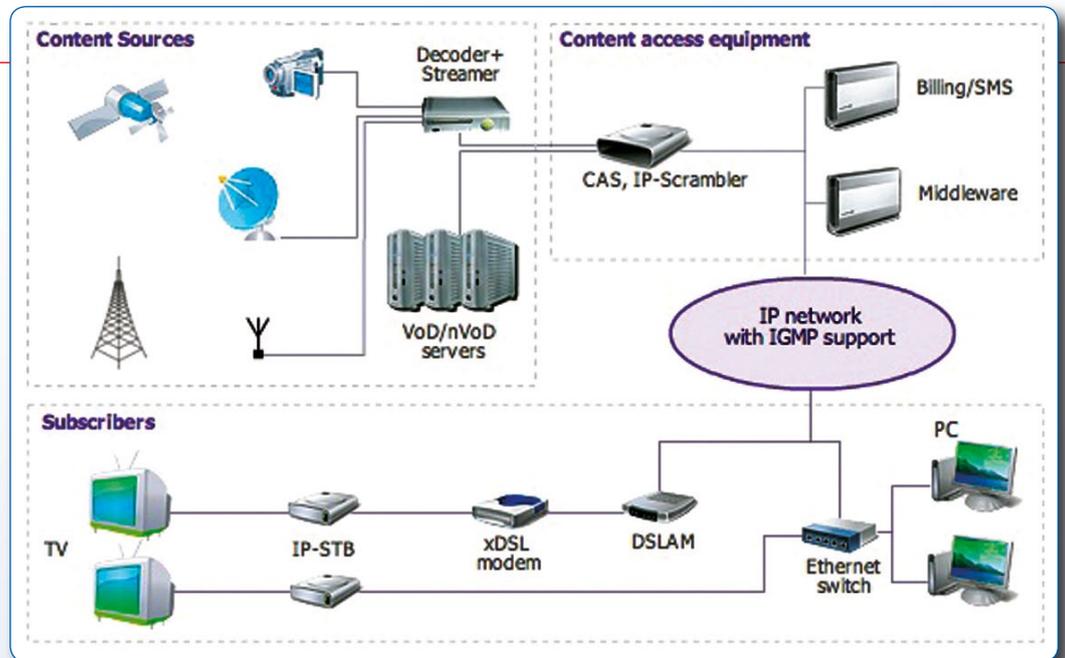
Four satellite IF inputs strike us when looking at the rear panel. They are required to receive the signals for further processing.

As we're talking about a professional device here it goes without saying that each tuner input is equipped with a dedicated Common Interface slot. This means a maximum of four CI modules can be used in connection with this gateway, which also comes with a mechanical power switch.

All components boast extraordinary build quality, with the integrated power supply unit alone letting most competitors turn pale by comparison. The modulator comes with 2 GB of flash memory and a 1 TB hard disk.

Professional use in most cases means permanent use, so a sufficient number of internal fans is paramount to breathe in a steady stream of fresh air. Without these, many sensitive components would risk overheating, which ultimately would result in failure.

Here too, it is more than evident that this gateway is not designed for use in the living room, as the fans create noise that easily equals that



■ Diagram of an IPTV network

of a standard vacuum cleaner. Watching TV next to the gateway is virtually impossible – but as mentioned previously, the gateway should be located in a dedicated server room anyway, where the fans can buzz away happily.

The manufacturer ships this system with a full range of mounting accessories so that the housing can be fitted into any standard 19-inch rack or server cabinet. The manual that comes with the gateway has a very user-friendly design and should answer any question that might ever arise.

Before being able to access the gateway for the first time

a network connections has to be established.

To this end one of the six available network interfaces is connected either directly with a PC or with a router, and is assigned an IP address. The five buttons on the front panel come into play here, as well as the LCD display.

In theory, you can set IP addresses for all three network interfaces directly on the unit; for the sake of simplicity we do recommend to start with one port and deal with the remaining five through the web interface that becomes available once the first port is hooked up. This way all settings can

be selected in the PC's web browser. As soon as the first IP address is assigned to the gateway, all you need to do is enter this address in your browser's address line to access the built-in web server.

You need to enter correct user name and password, which is set to standard values by default. We strongly recommend setting an individual user name and password to make sure the gateway is protected from unauthorised access.

The web interface is extremely easy to use and resembles MS Windows – so it will be familiar to most. In the main menu there are five



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specifications, however, the NetUP DVB-IP Gateway 4x will also be able to receive DVB-T, DVB-C and analog signals, with reception modules being exchanged similar to Plug&Play hardware components.

The manufacturer is currently working feverishly on implementing this feature,

we have come to expect from receivers for use at home – such as automatic search, extensive DiSEqC options, blind scan and other technical gadgets – are not available, as this is professional equipment focussing on an altogether different scope of application.

With the NetUP DVB-IP

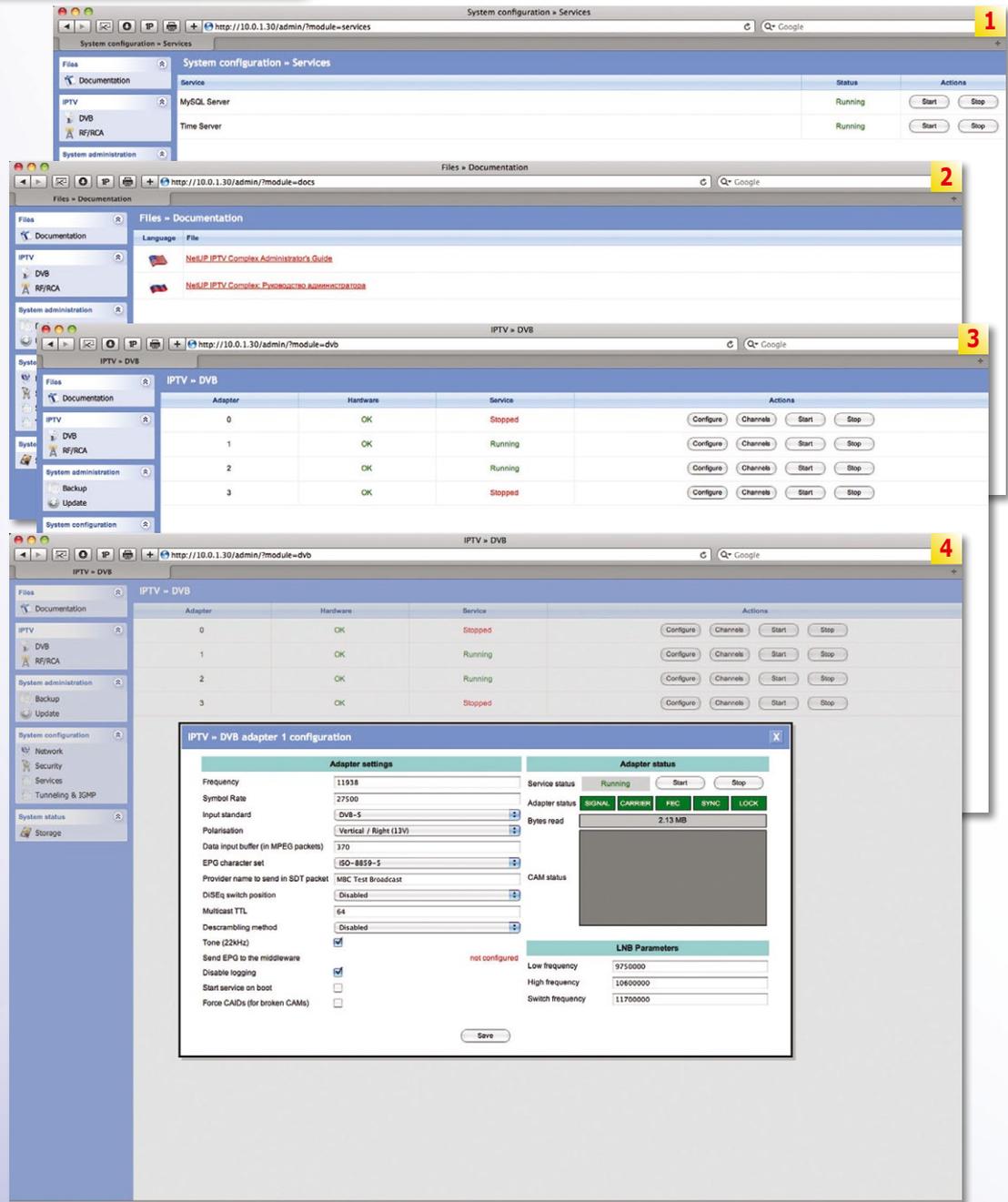
items (Files, IPTV, System Administration, System Configuration and System Status), with configuration and administration drawing most attention, of course.

With the help of this integrated web interface all six network ports can be managed separately, and usage data for each of the ports can be retrieved as well.

In case you're wondering why a total of six Ethernet ports are available, when a single one should do, the answer is quite simple: With several Ethernet ports it is possible to distribute channels on various different levels, which means that one level might supply channels that are not available on another distribution level.

Thus it is possible to create up to six different channel packages, which are all received and processed by the same gateway, but can be made up of completely different channels and which can be distributed, marketed or sold individually. In addition, each network adaptor can be assigned different IP addresses so that several levels are available within the same network architecture. Finally, there is also the question of bandwidth as high-definition content may call for distribution on more than one connection.

Our test device came with



four DVB-S2 tuners, which means we were able to receive, process and distribute satellite signals.

Depending on customer

because right now only satellite tuners are available.

Each of the four DVB-S2 tuners can be set up and configured individually. Features

1. Main menu of the web server

2. The manual is stored right in the gateway as PDF

3. Four tuners are available for individual configuration

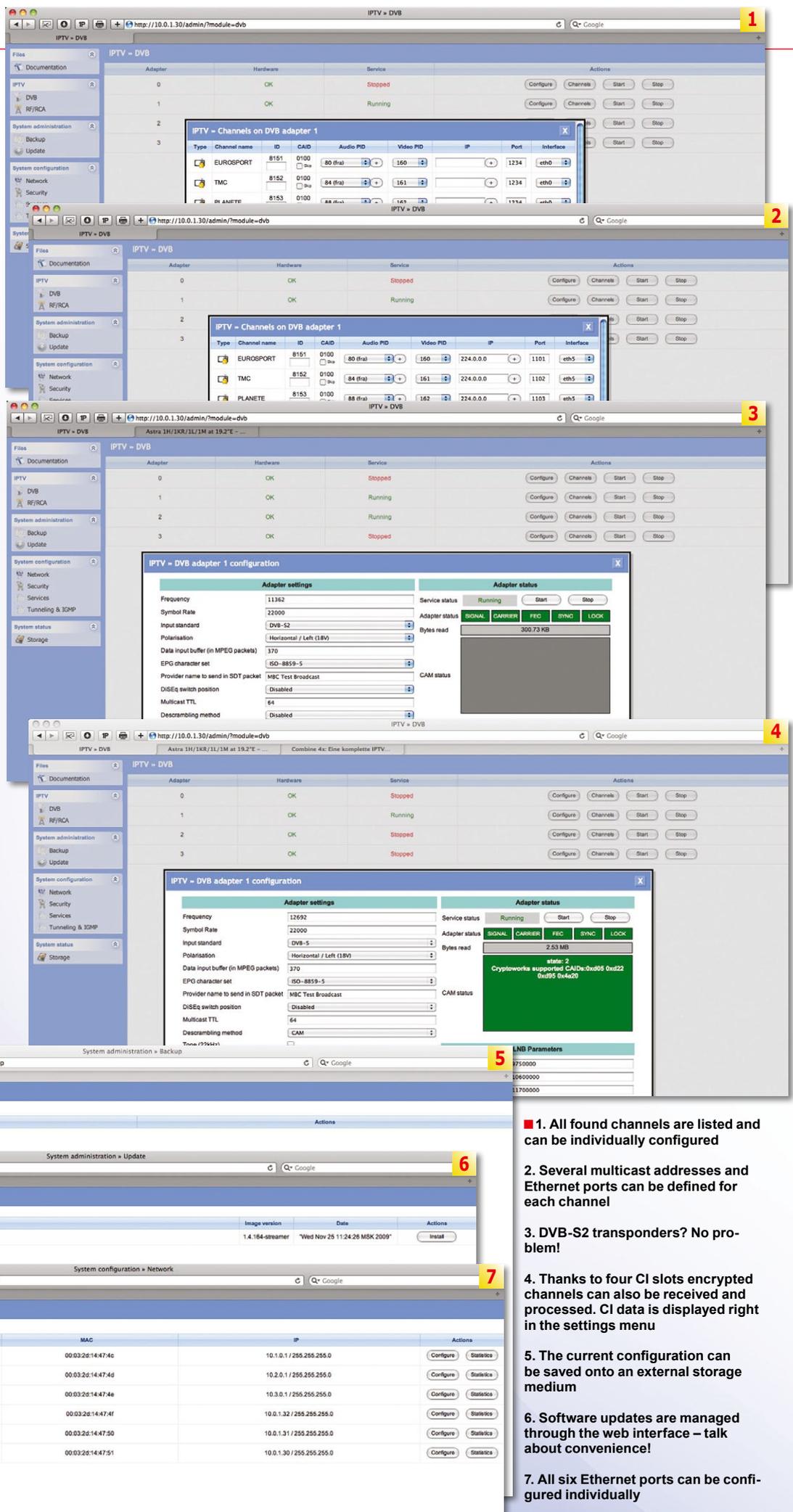
4. Setting reception parameters

Gateway 4x it is possible to set individual LOF parameters for each tuner, as well as defining simple DiSEqC 1.0 configuration and activating the 22 kHz signal. In addition you need to key in the required transponder frequency, symbol rate used and polarisation – complete with the corresponding power supply for the LNB.

As soon as the gateway has detected an active transponder based on the supplied parameters, five green blocks (for signal, carrier, FEC, sync and lock) appear. If there are reception problems, one or more blocks is/are coloured red, giving an indication of where the problem lies.

Channel selection comes next. Once the tuner has identified and locked a signal, a dedicated menu item is used to display the complete transponder content. Each detected channel (no matter whether TV or radio) is shown with all its technical specifications (audio and video PID).

If more than one PID is provided (in case of multiple audio tracks, for example) you can define which PID is to be distributed. It is then neces-



1. All found channels are listed and can be individually configured
2. Several multicast addresses and Ethernet ports can be defined for each channel
3. DVB-S2 transponders? No problem!
4. Thanks to four CI slots encrypted channels can also be received and processed. CI data is displayed right in the settings menu
5. The current configuration can be saved onto an external storage medium
6. Software updates are managed through the web interface – talk about convenience!
7. All six Ethernet ports can be configured individually

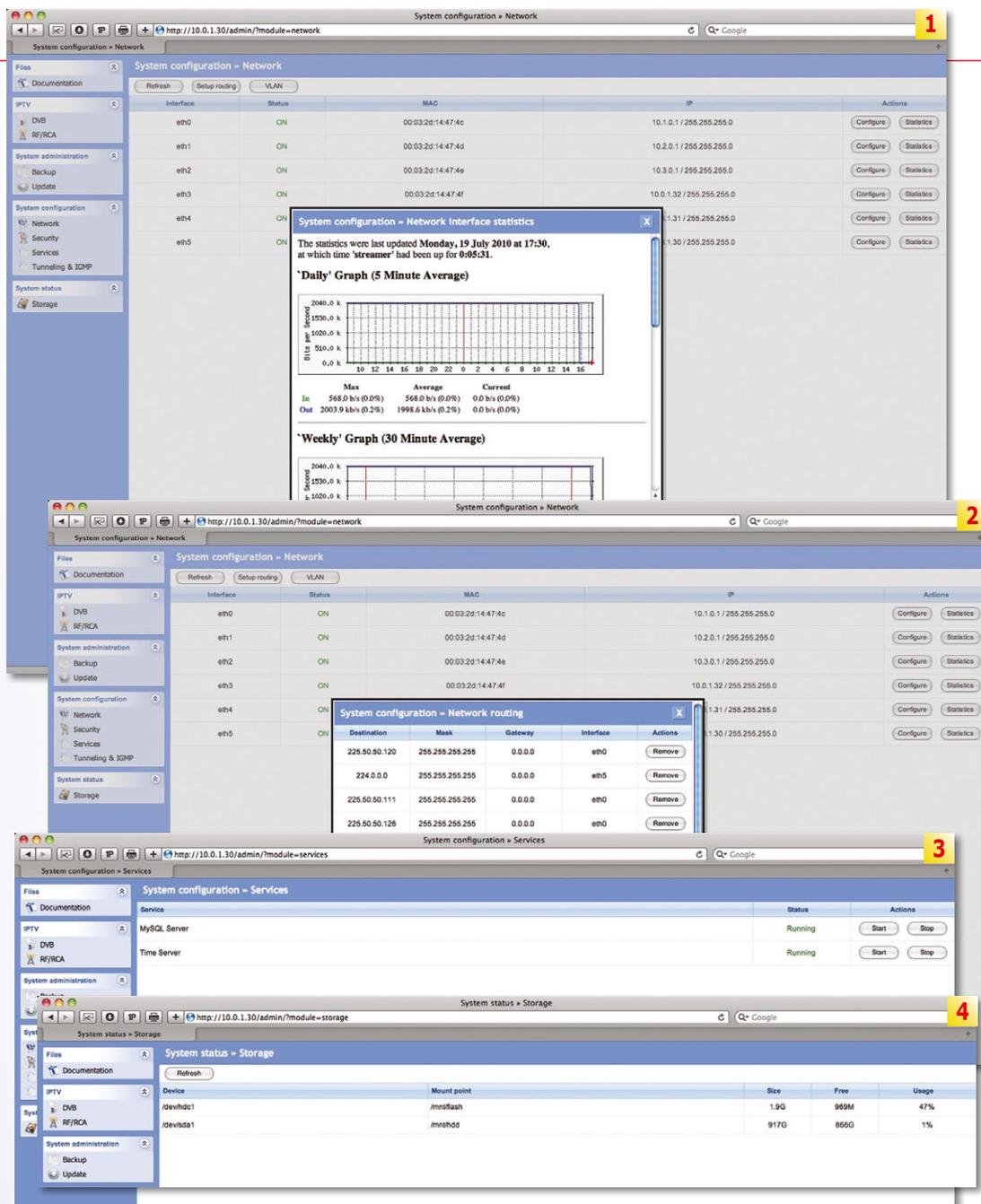
sary to assign a multicast IP address, a port and one of the six Ethernet interfaces to each selected channel. It is also perfectly possible that a channel can be assigned to more than one Ethernet interfaces and multicasts or ports, in order to distribute it on several levels.

It goes without saying that the NetUP DVB-IP Gateway 4x is able to handle EPG data of received channels, which is forwarded to the middleware for further processing and this way provided to the IPTV set-top boxes.

In our test setup we chose to send signals from four different satellites to the gateway. In detail, the signals came from the following transponders: BBC on ASTRA 28.8° East, MBC on NILESAT at 7° West, ORF on ASTRA 19.2° East and a fourth transponder on TURKSAT at 42° East. Even when pushing the tuners to the limit with a rather weak signal from ABS1 at 75° East all four of them were able to put out flawless video and audio. We simply could not ask for more!

Altogether we arrived at an impressive 32 TV channels which were bundled into a multicast using the IP address 224.200.200.201. We also could have left the port with 1234, for example, and distributed the individual channels using separate IP addresses such as 224.200.200.202, 224.200.200.203 and so on.

At the receiving end we used an AzBox Ultra HD (see test report in previous TELE-satellite issue 08-09/2010), which currently is one of only very few receivers capable of processing IPTV alongside DVB-S2. Setting up the AzBox for receiving the channels of our very own IPTV network was a breeze and we were



able to zap up and down a list of 32 channels in next to no time at all. Of course there's no point in setting up such an IPTV network for a single client receiver, which is why we expanded our installation to include various PCs in our editorial office for IPTV access.

The VLC player software (available at www.videolan.org for various operating systems) has turned out to be a handy solution for IPTV reception on the PC, and no matter how hard we tried, there was no way we could ever make the gateway falter. As a matter of fact, there wasn't even the slightest hiccup. This

meant we had to devise a test that would give the gateway the hardest time imaginable. What about transmitting British TV to a colleague in Thailand via IPTV?

Off we went and started with setting up a VPN connection using two Netgear VPN routers at each end before turning on the IPTV gateway. Only seconds had passed before our colleague contacted us on Skype to let us know that our attempt was successful.

For what it's worth, we do have to mention at this stage that we have very fast Internet access at our office, which

■ **1. Precise statistical data is collected for each Ethernet port**

2. Network routing

3. A MySQL server as well as a time server are also available

4. Lots of VOD content can be stored on the built-in 1 TB hard disk

offers uploading speeds in excess of 20 MBit/s. Anything less would not be sufficient for high-resolution content. At any rate, our Thai buddy was overwhelmed by the audio and video quality as well as zapping speed of the IPTV package we sent to him.

Thanks to DVB-S2 support the gateway is not only capable of receiving and distributing SDTV but also HDTV MPEG4/H.264. We detected

no fault when playing back HDTV content via IPTV. In addition, the gateway automatically detects and adjusts to technical parameters such as modulation and error correction, which is a feature we cannot praise highly enough.

The overall impeccable impression of the NetUP DVB-IP gateway is further complemented by a number of routing options, the integrated 1 TB hard disk as well as a very user-friendly software update feature. All it requires is to download the latest firmware from the manufacturer's website and then transfer it to the NetUP DVB-IP Gateway 4x via the network using FTP. It immediately appears in the update menu, complete with exact version number, and can be loaded and installed with a simple click.

All six Ethernet ports are 10/100/1000 Mbit LAN compatible, which means they support the current maximum that is technically feasible. The gateway itself is capable of simultaneously processing up to four transponders with an overall bandwidth of up to 240 MB/s. With its dimension of 430x44x411 it exactly fits into a standard 19-inch rack or a server cabinet, and its weight is a whopping 11.5 kg (mainly due to its high-end power supply unit). As you would expect from professional equipment, the gateway automatically reboots after power failure and returns to

the operating mode last used. Voltages from 90 to 240 VAC and 47 to 63 Hz can be handled by the power supply unit, which allows for global use of the gateway. When running the NetUP DVB-IP Gateway 4x draws approximately 100 W of power.

While the NetUP DVB-IP Gateway 4x is one component of many that make up a fully-fledged IPTV network, it can of course also be used for its own sake, just like we did in our test setup. It is responsible for processing and converting a DVB signal into an IPTV compatible format and thus serves as an interface between DVB input signal and IPTV network.

Client receivers, on the other hand, simply switch between channels and packages using different IP addresses and ports. With this approach in mind the gateway might act as a convenient backbone for supplying signals to several monitors within a building, and – naturally – for distributing satellite, cable or terrestrial signals via a network or the Internet. Speaking of which, it yet remains to be seen whether we will be allowed to disconnect our test gateway, as our Thai colleague seems to have become a BBC addict in the meantime. He is strongly opposed to us ending this test, as the BBC channels he can receive at the moment are not available otherwise in Thailand.

In most cases, however, the DVB-IP gateway will be used as an integral component in a much more complex IPTV network. To this end the gateway is connected to middleware which creates a provider-specific graphic OSD and presents channels processed by the gateway in an easy-to-use and visually pleasing design. Operators may even add VOD (video on demand), billing or other customer-specific features, which make such an IPTV network a perfect system for hotels, hospitals, apartment buildings or similar fields of application.

We should add at this stage that NetUP does not only offer its gateway as a single component, but also complete IPTV systems by way of turnkey solutions. These may include corresponding middleware and VOD, apart from the gateway at the core of the network.

The IPTV Combine 4x is one of these systems, and

here again we can say with conviction that the manufacturer does not offer half-hearted solutions: Both the DVB-IP Gateway 4x and the IPTV Combine 4x with built-in middleware are based on exactly the same hardware. So if a client already operates the DVB-IP Gateway 4x and needs to upgrade his system to IPTV Combine 4x with built-in middleware and VOD services all he needs to do is purchase extended software to magically unlock all Combine 4x features without having to change a single hardware component.

This upgrade option is also one of the reasons why every DVB-IP Gateway 4x is shipped with an enormous 1 TB hard disk in the first place. Its full capacity is only required once the gateway has turned into an IPTV Combine 4x with VOD, when the hard disk is filled with content for users to watch whenever they feel like it. We believe you can gather from what you have read so far



AzBox HD Ultra channel list consisting of both DVB-S and IPTV channels



that we were truly impressed with the DVB-IP Gateway 4x during our test. Extraordinary build quality and perfect ease-use are among its key characteristics.

While you have a comprehensive and well written manual at hand at all times, it would probably even be possible to set up and run the system without it. Naturally, technical details and useful hints can only be found in the written documentation.

NetUP uses very low threshold tuners which deliver a stable signal even under far from perfect reception conditions.

Thanks to a total of six Ethernet ports output signals can be freely configured and distributed on different levels. An additional highlight is hidden behind the convenient update feature that can easily turn the gateway into an IPTV Combine 4x with built-in middleware and VOD.

Glossary:

DVB-IP Gateway

Converts DVB signals received via satellite, cable or antenna so that they can be distributed via an IPTV network.

Middleware

Takes care of displaying content in a visually pleasing way. Creates on-screen menus for IPTV receivers and thus provides a graphic interface for end users.

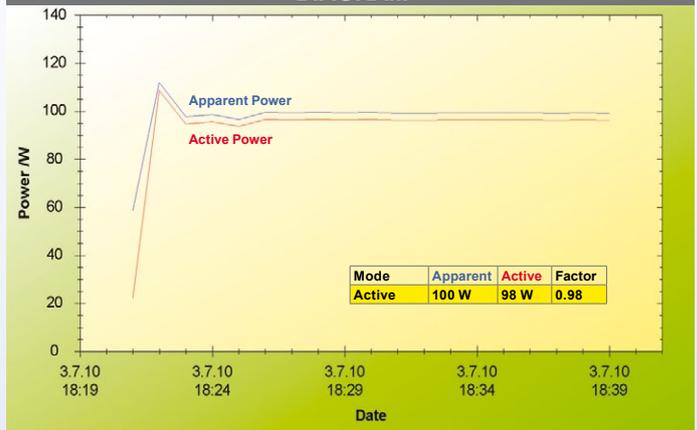
VOD

Allows permanent access to stored multimedia content. Users are able to start, pause and stop playback at any time, without being restricted to scheduled times.



MBC4 via IPTV on the AzBox Ultra HD

ENERGY DIAGRAM



Expert Opinion

- + Excellent build quality
- + Easy to use
- + Low threshold tuner
- + Versatile network options
- + SDTV and HDTV reception
- + DVB-S2 compatible
- + Upgrade option to IPTV Combine 4x standard



Thomas Haring
TELE-satellite
Test Center
Austria

- Fan noise

TECHNICAL DATA

	DATA
Manufacturer	NetUP, Olof Palme Street 1, Floor 7 resp. Postbox 87, 119311 Moscow, Russia
Fax	+7 499 143 5521
E-Mail	info@netup.tv
Model	DVB-IP Gateway 4x
Function	IPTV Gateway for DVB Signals
Tuners	4
Max. simultaneous Transponders	4
Max. bandwidth	240 MB/s
DiSEqC	1.0
Ethernet ports	6 x Gigabit Ethernet 10/100/1000 MB/s
CI Slots	4
USB Connector	yes (2)
RS232	yes
Dimensions	430x44x411mm
Power	90 ~ 264 Volt, 47 ~ 63 Hz
Weight	11.5kg
Consumption	~ 100W

