



dLAN[®] Audio extender

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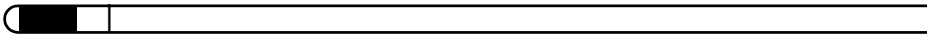
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Aachen, September 2007

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Preface

Thank you!



You decided on a dLAN adapter with which you can transmit your music into every room of your house via the electrical system so that you can play it on your stereo system or active loudspeakers. For this purpose, the device is equipped with two RCA sockets as well as a 3.5-mm jack socket.

Exacting manufacturing standards and stringent quality control are the basis for high product standards and consistent quality to ensure your fullest satisfaction with this dLAN Audio extender.

In addition to the standard software, devolo provides a wide range of useful free extras. For example, network products come with utilities to protect your privacy (**devolo EasyClean**) or quickly and easily share files within your home network (**devolo EasyShare**).

And if you are satisfied with your device, be sure to have a closer look at our other products which are also designed to make your connected lifestyle easier and simpler!

About this manual

After a brief introduction to the basics of dLAN and several application examples in **chapter 1**, **chapter 2** will cover successfully setting up your dLAN adapter. **Chapter 3** describes configuration options and integrating the product in a dLAN. **Chapter 4** describes the free add-on programs EasyClean and EasyShare that accompany your dLAN adapter.

Description of the symbols

Here we briefly describe the meaning of the symbols used in this manual.

Very important note. Failure to observe this note may result in damage.



Important note that should be observed.





Additional information, background material and configuration tips for your device.



From time to time you will find the icon of a devolo program in the margin to the left of the text; the program will be explained in greater detail at that point.

We hope you have just as much fun reading this manual as we had writing it. If you have any further ideas or suggestions related to our products, we would be delighted to hear from you at support@devolo.com!

devolo on the Internet

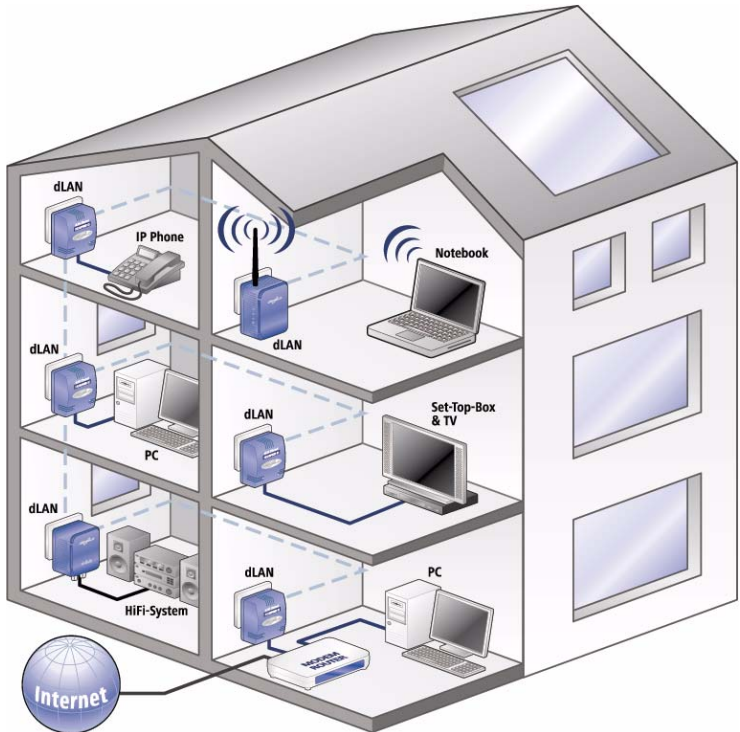
You can also rely on devolo for service and support after purchasing one of our products. For example, our website not only contains extensive documentation, but also software and firmware updates. Be sure to visit www.devolo.com regularly.

We especially recommend the extensive devolo manuals on the topic of home networking that contain a wealth of interesting background information. These are available free of charge and can be downloaded from the **Service & Support** area of our website.

1

Introduction

dLAN is an intelligent, secure technology that lets you set up a home network easily, quickly and economically via your household power grid, without the need for complex and expensive dedicated cabling. The available performance and effort required for the installation also compares favorably to traditional methods—dLAN technology now attains speeds you would expect from other LAN technologies, and installing it is a breeze!



Not only network signals can be conveniently transmitted via the electrical system using dLAN adapters. Audio signals with CD quality can be transmitted from computers with a dLAN connection via electrical lines to suitable playback devices. This allows you to turn your computer into your very own private broadcast station and listen to your favorite music wherever a receptacle can be found!

1.1 What exactly is dLAN?

dLAN (direct Local Area Network) uses the household power grid to transfer data between computers equipped with suitable adapters and other network components. As a result, any power outlet can be used as a network access point. The data is modulated prior to transfer and sent as a signal via the electrical system in the house. State-of-the-art technology ensures that the power and data networks do not interfere with one another. Networking via dLAN is fast and secure. The data is encrypted using a key to prevent easy interception by third parties.

1.2 The benefits of dLAN Audio extender

Our product allows you to transfer the sound output of your Windows PC in CD quality (16 bit, 44.1 kHz stereo) via the electrical system to any room of your house. For this purpose, a sound card driver is installed on your computer to which the entire audio output of the computer is redirected. In this way, you do not have to worry about individual settings of your favorite music player. Any application that can output music via the built-in sound card also works with this dLAN adapter.

RCA sockets as well as 3.5-mm jack socket are integrated for the audio output. It allows you to easily and directly connect a stereo system or active loudspeaker. This makes the adapter so flexible that it can be quickly taken to another room where it can be plugged into an open receptacle—without reconfiguration!



Please do not use both connection types together at any time (RCA sockets and jack sockets). Always connect your stereo system or your active loudspeakers either to the RCA sockets or the jack socket.

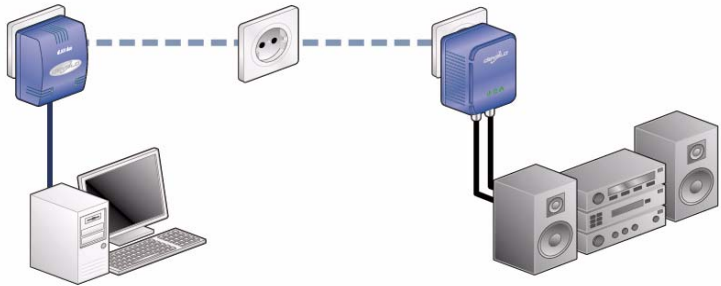


Please note that dLAN devices such as the devolo dLAN duo (14 Mbps) and devolo dLAN HS Ethernet (85 Mbps) with dLAN 200 AV devices (200 Mbps) can be used on the same electrical system without interference, but they will not be able to communicate directly with one another

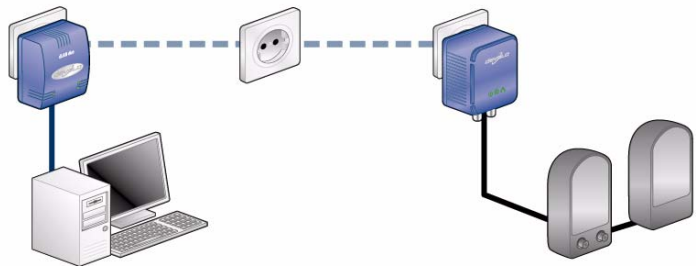
1.3 Sample applications

The PC that is connected with the electrical system via a dLAN adapter sends its audio signals to the dLAN Audio extender. It is connected with the input of a stereo system in another room, e.g. via stereo RCA cable. On the PC, all audio signals are redirected to the electrical system via the sound card driver. At the

target location, the adapter ensures a clean back transfer into sound signals CD quality.



As an alternative, you can also connect the adapter directly with loudspeakers that feature a built-in active amplifier via the built-in mini jack socket.



Never connect headphones directly with the adapter! It may damage the device. The built-in sockets are intended for connecting active loudspeakers or stereo system.

2 Initial use

This chapter provides more information about the hardware and software as well as the installation and startup of the adapter.



2.1 Package contents

Please take a moment to ensure that the contents of the package are complete before starting with the installation of your adapter. You should have the following items:

- Adapter
- Cable
 - Stereo RCA cable
 - USB cable (starter kit only)
 - Network cable (starter kit only)
- Hard copy of installation guide
- CD-ROM with software and online documentation

2.2 Displays and connections

2.2.1 Control indicators (LEDs)

The current status of the adapter is shown via control indicators (LEDs) on the outside of the housing.



Operation: lit continuously when the adapter is connected to the electrical system.



dLAN: lit continuously when a connection exists to other dLAN adapters; flashes when data is being sent or received via electrical lines.



LAN connection: lit continuously when a connection with the network exists; flashes when data is being sent or received in the LAN.

2.2.2 Ports

The product is very easy to handle. The device has very few ports:

- The **AC plug** connects the adapter to your electrical system.
- The device is connected with your stereo system or your active loudspeakers via the two **RCA sockets** (red=right stereo channel, white=left stereo channel).
- As an alternative, the **3.5-mm jack socket (stereo)** can be used for the connection.

2.3 Connecting the adapter

2.3.1 Connection to the electrical system

To connect the adapter, plug it into an open receptacle at the desired installation location. Ensure that the adapter is fully inserted in the outlet.



If possible, do not plug the adapter into a power strip. This may impair the transmission of the dLAN signals. A free wall outlet is preferable.

2.3.2 Connecting the audio cable

Next, connect either the two RCA sockets or the jack socket using a suitable cable with an open input of your stereo system or active loudspeakers.



For stereo systems, it is essential to check first which input is still available. Do not confuse inputs with outputs (the latter are frequently labeled with "PLAY" or

"Output"). Avoid the PHONO input. It is specifically designed for connecting a record player or turntable. The result would be a poor sound quality.



The figure shows the two connection types jack plug (top) and RCA (bottom). Any audio cable can be used for the audio connection, e.g. 2x RCA (stereo) to 2x RCA (stereo), 3.5 mm jack plug to 2x RCA (stereo) or 3.5 mm jack plug to 3.5 mm jack plug. If you are using an RCA cable, ensure that the red and white connectors are inserted in the sockets with the same color. In very rare cases, the connector of such a cable may also be black. That would correspond to the white color.



Please do not use both connection types together at any time (RCA sockets and jack sockets). Always connect your stereo system or your active loudspeakers either to the RCA sockets or the jack socket!



Never connect headphones directly with the adapter! It may damage the device. The built-in sockets are intended for connecting active loudspeakers or stereo system.

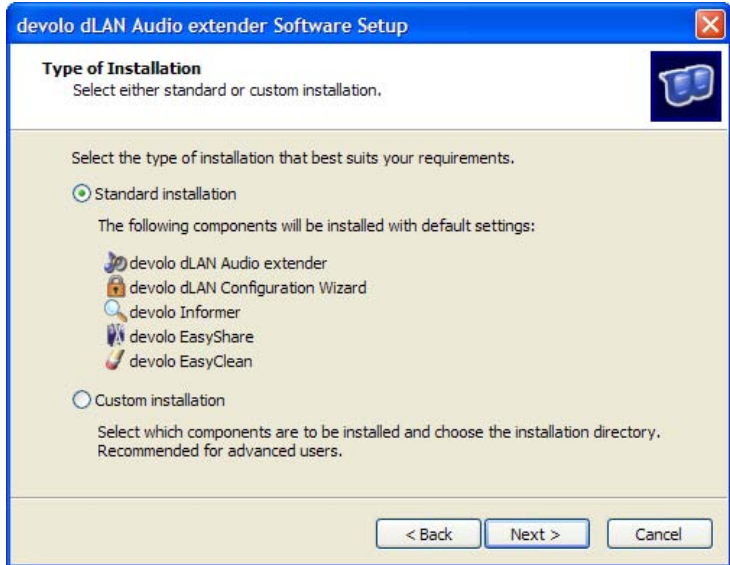
2.4 Software installation

The **software** subfolder on the enclosed installation CD contains applications and tools for the supported operating systems.

2.4.1

Installing the devolo software

The software package for the operating systems Windows XP and Vista consists of the following components:



- The **devolo dLAN Audio extender** program allows starting the software with which the sound output from the built-in sound card can be switched to the devolo dLAN Audio extender.



- The **devolo dLAN Configuration Wizard** allows you to use your own network key in your dLAN network,



- **devolo Informer** finds dLAN adapters in the dLAN and displays information about these devices.



- **devolo EasyShare** lets you quickly and easily transfer files from one PC to another in your home network.



- **devolo EasyClean** is a convenient way to clear your private data in Microsoft Internet Explorer.

A sound card driver is always installed together with the **devolo dLAN Audio extender** component and registered as an additional standard audio device (**devolo dLAN Audio extender**) under Windows. It allows redirecting the sound output of your PC in such a way that it is digitally transmitted via the electrical system to the dLAN Audio extender where it is converted back for playback via a stereo system or active loudspeakers.



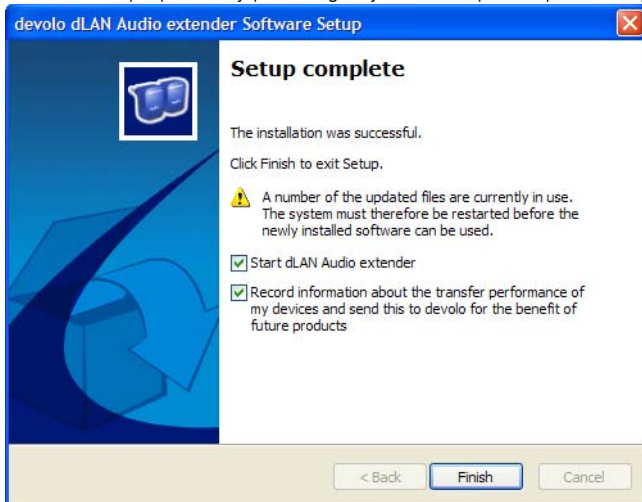
Experts can also purposefully configure the sound settings of individual applications in such a way that the sound output is carried out either via the loudspeakers connected directly to the PC or (via sound driver) via the remote dLAN Audio extender. For more about this subject, please see section 3.4.3.

To install the software, insert the included CD-ROM in the CD or DVD drive of your computer. If Autoplay is enabled on your PC, the installation will start automatically. Otherwise, call up Windows Explorer by right-clicking on **start** and selecting **Explorer** from the context menu. On the CD, open the directory **software ▶ dlan** and manually start the installation wizard. After starting the installation wizard, select the command **Install dLAN Audio extender**.



During the installation process, you will be given the choice of installing all five software components (**Standard**) or selecting individual ones (**Custom**). We recommend a complete installation of all applications, or as a minimum the **dLAN Audio extender**, **dLAN Configuration Wizard** and **devolo Informer**.

When installation is complete, you will be given the option of immediately installing the software for the dLAN Audio extender. You will also be asked for permission to transfer anonymous performance data related to your dLAN adapter to devolo. The data sent to devolo pertains only to the performance values of your dLAN devices. The data is anonymized and will be used exclusively for statistical purposes. By providing it, you can help us improve our products.



After the installation of the audio driver, your computer may have to be restarted. Afterwards, you can find the installed software applications in the **start ► All Programs ► devolo** program group.

3 Configuration

The devolo dLAN Audio extender is very easy to configure. Like all devolo dLAN products, the adapter in its default configuration is set to automatically work with other dLAN devices already installed in your network. Only if you want to use your own password in your dLAN network do you have to execute the **dLAN Configuration Wizard**.



*For security reasons, we recommend using the **dLAN Configuration Wizard** to assign a separate dLAN network password for all your adapters.*

If you want to listen to music using the product, you configure the sound output of your PC by using the **dLAN Audio extender Control** so that it is redirected to the electrical system via the sound card driver.

3.1 devolo Informer

devolo Informer can detect all available dLAN adapters in your home network and display device information in an overview. After installing the devolo software, it can be found in the **start ► All Programs ► devolo** program group.



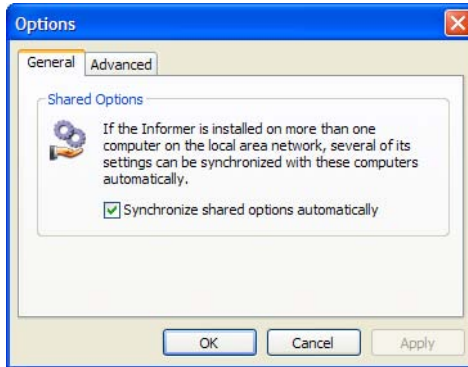
When the Informer is launched, it initially scans your home network for all available dLAN devices. This may take a moment. All found adapters are listed with their names and MAC addresses in the overview window. The transmission speed of active dLAN connections between adapters is also displayed.

devolo Informer generally updates the list of found dLAN devices automatically. If newly-added adapters do not appear in the window, refresh the display with **F5** or via the **View** menu.



devolo Informer can use special access techniques to find the adapter in your network in cases in which you cannot access it using a web browser or configuration program (i.e. when you do not know its IP address). Ensure that you always have the Informer handy for such cases.

Use the **Device** menu or the context menu that opens with a right-click on the name of the displayed dLAN device to rename the adapter or launch either of the configuration options (open **dLAN Configuration Wizard** and online configuration interface via **Status and Management**).

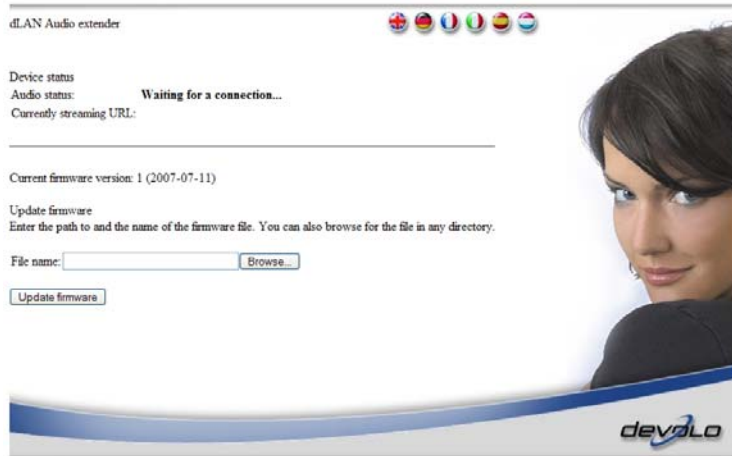


Multiple instances of devolo Informer installed in your network can be set to exchange information about found dLAN adapters under **View ► Options...** You may also specify whether information on the performance of your dLAN adapters will be transferred to devolo here. The data sent to devolo pertains only to the performance values of your dLAN devices. The data is anonymized and will be used exclusively for statistical purposes. By providing it, you can help us improve our products.

3.2 Status and Management

The command **devolo Informer ► Open Status and Management** allows opening a status window for the dLAN Audio extender in the web browser of

your PC. The upper part of the window displays the current audio status of the adapter and the IP address of the currently sending computer.



The lower part of the status window displays the version of the firmware currently used in the dLAN Audio extender. Upon demand, devolo provides new versions of the firmware in the support area of the Internet pages under www.devolo.com.

To update the firmware of the adapter, you have to select a corresponding file from a data carrier using the **Browse...** button and then click on **Update firmware**. During the update process, an information message appears. After successful completion of the update, the adapter is restarted.

3.3 Security in the dLAN

3.3.1 Basics

Data communication via the electrical system is encrypted to ensure the privacy of your dLAN. The data encryption options using the **dLAN Configuration Wizard** are described below.

3.3.2 Encrypting the dLAN via dLAN Configuration Wizard



After the successful installation of the devolo software, the **dLAN Configuration Wizard** is located in the **start** ► **All Programs** ► **devolo** program group, or it

can be started via the menu **Device ► Start dLAN Configuration Wizard** in the devolo Informer.



Before beginning with this step, make a note of the security IDs of all existing dLAN adapters. This unique identifier of each dLAN device is located on the label on the underside of the housing. It consists of 4 x 4 letters separated by dashes (e.g. ANJR-KMOR-KSHT-QRUV). Ensure that all dLAN adapters are connected to the power grid and computers or other network components as appropriate.

❶ Scan for dLAN adapter

After launching the wizard, it initially scans for a dLAN adapter connected directly to your computer.

❷ Assign network password

In this step, select a network password that applies to all adapters in your home network. The password must be used by all dLAN devices.

Three options are available:

Continue using the existing password

If you already have a network password, it is generally a good idea to use it for the new dLAN adapter as well. If you do not want to continue using it, or you would like to use an automatically generated password or one you have chosen yourself, you will need to rebuild your dLAN network once with the, entering the security IDs for each of the adapters.

Automatically generate a random network password

Alternatively, the dLAN Configuration Wizard can automatically generate a password for use with your dLAN network.

Assign your own password/reset the password to factory default

You can also assign a password of your own, or restore the factory default password of your dLAN adapter.

The factory default password is "HomePlug".





Assigning a specific password to a single adapter will exclude it from the remaining dLAN.

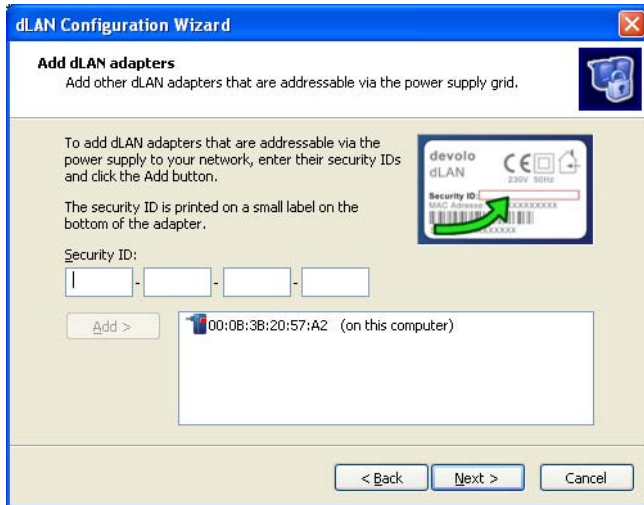


3 Add dLAN adapters

At this point, add further dLAN adapters to your home network. You will need the 16-character security IDs from the labels on the adapter housings. Enter the code without hyphens in the 'Security ID' field and click on **Add**. The device will be found if the security ID is correct.

When launching the dLAN Configuration Wizard again after a successful initial installation, e.g. when integrating a new adapter into the network, the application will remember devices and security IDs entered in previous sessions. It will therefore not be necessary to enter them again. The dLAN Configuration Wizard will display an error message if an adapter entered previously is not found. In

that case, check whether the dLAN device is connected to the power grid and is available.



Once you have entered the security IDs of your dLAN adapters, your dLAN is complete. All computers and other network devices connected to the adapters by cable should now be able to communicate with one another in the network.

3.4 Adjusting the sound output

After installing the software of the adapter and restarting Windows, the dLAN Audio extender is permanently available as an additional standard audio device under the operating system. It allows sending audio data digitally via the electrical system to the dLAN Audio extender which converts them back to sound and can play them via a connected stereo system. In contrast to other transmission paths, the audio information reaches its destination without losses in CD quality.

Quickly selecting between the built-in hardware sound card and the sound card driver is implemented by the **dLAN Audio extender Control** software. After starting this application via **start ► All Programs ► devolo ► dLAN Audio extender**, the system tray of Windows XP or Vista at the bottom right corner of the screen (to the left of the clock) shows the corresponding icon of the selector switch with which one of sound cards for audio output can be selected quickly and easily.

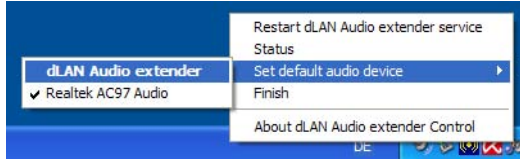


3.4.1

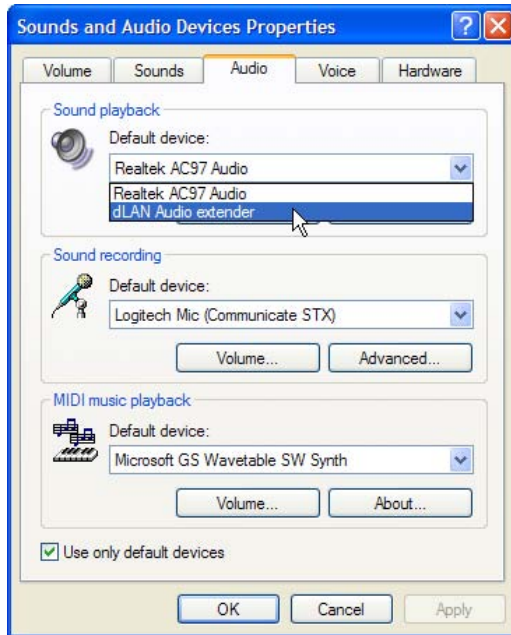
Windows XP



To select between the built-in sound card of the computer and the devolo dLAN Audio extender under Windows XP, right-click on the icon of the selector switch (image of a note with loudspeaker). Go to the **Select default audio device** sub-menu and select the desired sound driver.



For all subsequently started programs, the audio playback is carried out via the newly selected device.



As an alternative, you can also directly select from the different sound cards via the Windows Control Panel. To do so, call up the **start ► Control Panel ► Sounds and Audio Devices** control field. The desired playback device can be selected via the **Audio ► Sound playback ► Default device** drop-down menu.



Under **Volume** ► **Advanced...** you should move the **volume** slider to the top to ensure an optimal sound quality. Afterwards, always adjust the volume of the audio output using the controls of your stereo system or the active loudspeakers.

You can call up the **devolo Informer** via the **Status** menu entry of the **dLAN Audio extender Control**.



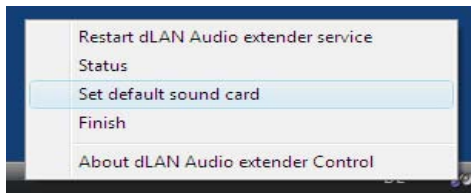
If the sound output should not work under Windows XP, you can use the command **Restart dLAN Audio extender service** to reset the service for the adapter that is running in the background.

3.4.2

Windows Vista



Under Windows Vista right-click on the icon of the dLAN Audio extender Control application in the system tray. By selecting the **Select default sound card** command, the corresponding **Manage Audio Devices** control field of the Vista Control Panel where you can perform the desired setting.



As an alternative, you can also call up the corresponding control field directly via **start** ► **Control Panel** ► **Hardware and Sound** ► **Sound** ► **Manage audio devices**. Under **Playback**, select the desired sound card for audio playback. The active selection is indicated by a green check mark.

You can call up the **devolo Informer** via the **Status** menu entry of the **dLAN Audio extender Control**. The command **Restart dLAN Audio extender service** can be used to reset the Windows service for the adapter that is running in the background.

3.4.3

Customizing the audio output

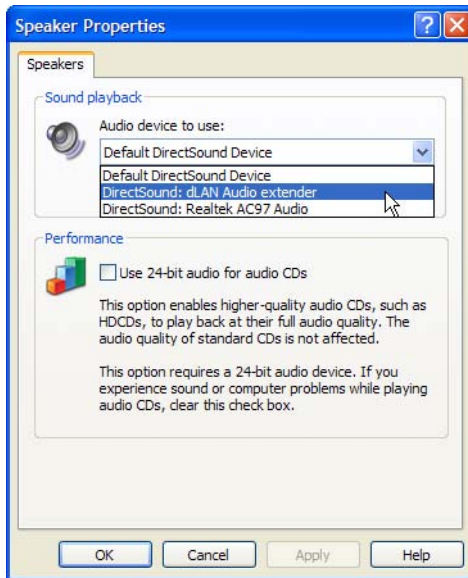
Deviating from the current selection of the sound output via **dLAN Audio extender Control**, you can also separately set a specific sound driver for playback in the different applications. This allows you to configure a specific program in such a way that the sound output is carried out only on the **dLAN Audio**

extender, while the remaining applications play their audio signals via the local loudspeakers of the PC.

Some examples of popular applications:

Microsoft Windows Media Player

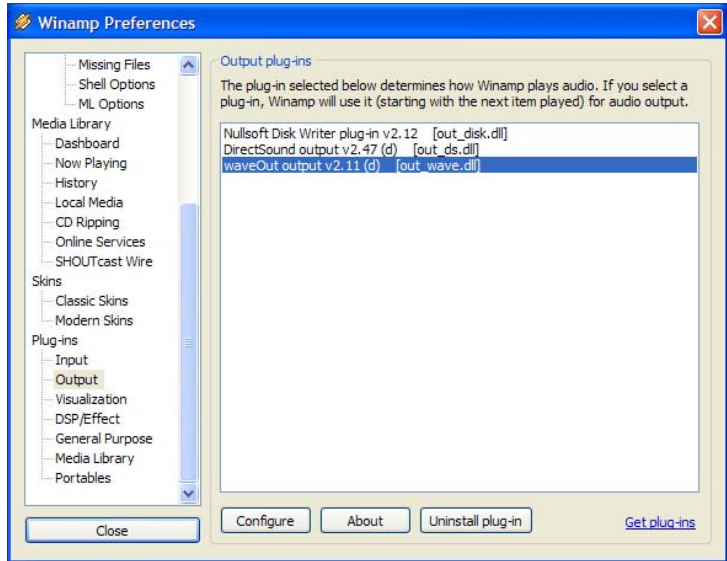
Open the **Tools ► Options...** configuration dialog. Click on the **Devices** tab and double-click on the **Loudspeaker** device. Another window opens in which you can select an individual driver in the **Sound playback** drop-down menu.



Winamp

Right-click on the title bar of the player window. In the **Options** context menu, select **► Preferences**. Under the **Plug-ins** entry, select the **Output** entry and

double-click on the **waveOut** entry. In the **Device** drop-down menu, you can now set the desired playback destination.



4 Additional devolo software

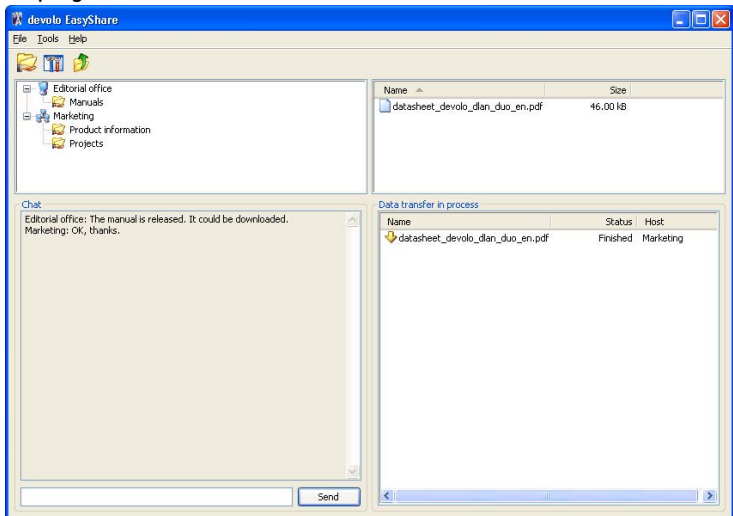
Your adapter comes with two helpful utilities that can simplify your work with your home network:

- **devolo EasyShare** provides you with a fast, simple and reliable way of transferring files between Windows PCs in your network.
- **devolo EasyClean** can help protect your privacy if you surf the Internet using Microsoft Internet Explorer.

4.1 devolo EasyShare



Once you have physically connected your computers to a network, the next challenge frequently arises: how do you configure the computers to exchange files quickly and easily, yet without compromising security? If you have ever had problems sharing a folder on your Windows PC so that other computers in your network can see and access it, you will quickly come to appreciate devolo EasyShare. This little application lets you transfer files from one computer to another simply and quickly. It even features a chat function that lets EasyShare users communicate within their local network. EasyShare can be found under **start** ► **All programs** ► **devolo**.



The dialog window of the application is divided into four sections.



The top left section contains your own computer, as well as any other computers in your home network and that are also running EasyShare. If a newly added PC does not appear here, press **F5** or use **File ► Refresh** to update the list.

The program generally finds additional computers running EasyShare automatically and very quickly. In doing so, it scans the entire so-called subnet, which normally consists of 255 different IP addresses (e.g. 192.168.0.1, 192.168.0.2, etc. up to 192.168.0.255).

Normally, EasyShare uses the name of your PC. You can also use **Tools ► Options** to specify a different designation under which your computer will appear in the EasyShare network. The application's sounds can also be enabled and disabled there. If folders have already been shared on the various found EasyShare computers, their names can be displayed by clicking on the plus line to the left of the computer name. Click a folder to display its contents in the top right-hand section of the EasyShare window. Two options are available for transferring files to your own computer:

- **Double-click** the file name with the left mouse button. EasyShare will open a small dialog box prompting you for the target folder on your computer.
- Alternatively, **right-click** to open a context menu that also contains the last destination used, such as the desktop of the current Windows user.

The current transfers appear in the lower right-hand section of the EasyShare window. In addition to the file name, the progress in percent, the transfer rate in Kbps and the name of the source computer are displayed.

To share folders on your own computer, click the name of your own computer and use the **File ► Add share** menu. A short wizard will help you enter the exact path or browse to the correct folder. Once you have specified a share name, the folder and its files and subfolders will be available to all other EasyShare users. Shares can also be deleted in the File Sharing menu, while **File ► Share properties** lets you configure your shares.



Be careful when sharing large folders or whole hard drives! Their contents (including all subfolders) will be available to any user of your home network who also uses EasyShare. Unlike Windows shares, however, they are only available whenever EasyShare is running.

All current EasyShare users can chat in the lower left-hand section. Simply enter your text in the input field under the chat section and press **Send**. Your message will immediately appear in the chat section of other users' EasyShare windows.

4.2

devolo EasyClean

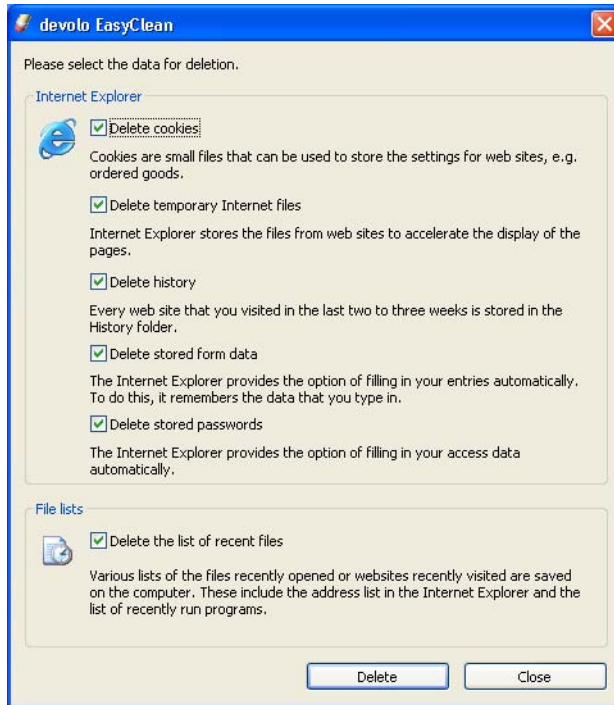


If you surf the Internet using Microsoft Internet Explorer, **devolo EasyClean** can help protect your privacy. The web browser continuously stores a range of personal information such as cookies and the addresses of visited sites, as well as form contents and even passwords. However, Internet Explorer (especially versions below 7.0) is very vulnerable to attackers who access that information and misuse it for criminal purposes. EasyClean can be found under **start ► All programs ► devolo**.

The devolo EasyClean utility lets you manually delete the information collected by Internet Explorer and Windows. The following data can be cleared:

- **Cookies**—Many websites store small files on your computer, so-called cookies. These files may contain personal information such as log-in data, passwords or credit card numbers.
- **Temporary Internet files**—Temporary files are stored on your hard drive while you surf the Net. Over time, these files take up a considerable amount of space.
- **History files**—Internet Explorer records your surfing activity over a period of days or weeks. This can be practical, but it also takes up space and can be undesirable in many cases.
- **Stored form data**—Internet Explorer stores information that you enter in forms and can auto-complete this information in the future.
- **Stored passwords**—Passwords can also be stored and automatically inserted together with usernames in subsequent log-in procedures. While this is convenient, it's also dangerous—especially in connection with bank transactions. Sensitive information such as this should only be stored locally in special programs designed for this purpose.

- **List of recent files**—Internet Explorer maintains lists of open documents and visited websites. This information is generally no longer needed.



Simply check or clear the checkboxes of the data types as appropriate and click **Delete**. That's it!



We also recommend powerful and secure alternatives to Microsoft Internet Explorer such as Firefox (www.firefox.com).

5 Appendix

5.1 Help and optimization

This chapter provides help and instructions for optimizing the adapter. In case of additional questions, you will find help in the Support area of our Internet site under www.devolo.com.

5.1.1 dLAN connection

Slow transmission rate

Effect:

The connection rate between your dLAN adapter is very low.

Possible cause:

- One of the adapters is plugged into a power strip. By switching one or several power outlet boxes in series, the signal is weakened. This leads to a reduced transmission efficiency.

Solution:

- If possible, plug the respective adapter into a wall outlet.

Adapter cannot be found in the dLAN

Effect:

Even though the dLAN adapter is plugged into the receptacle, it cannot be found by other dLAN adapters in the dLAN.

Possible causes:

- The transmission signal is too weak. One of the adapters may be plugged into a power strip.
- The dLAN is not correctly configured, e.g. because the adapters are using different dLAN passwords.

Solutions:

- Plug the adapter from a power strip into a wall outlet.
- Reconfigure your dLAN by using the dLAN Configuration Wizard.

5.1.2 Audio playback

No sound output

Effect:

No sound.

Possible causes:

- The volume of your stereo system or active loudspeakers is turned down or muted.
- The audio cable is not plugged in or slipped out.
- The audio cable is connected to a different input or an output of your stereo system or active loudspeakers.
- The sound of your computer is turned down or muted, e.g. in the Windows volume control.
- The sound output was not switched to the dLAN Audio extender, but is still switched via the PC sound card.
- The dLAN is not correctly configured.
- The transmission speed in the dLAN is too slow.

Solutions:

- Turn the volume higher at the output device or switch muting off.
- Check whether the audio cable is plugged into the correct sockets at both ends.
- In Windows XP, call up the volume control via **start ► Control Panel ► Sounds and Audio Devices ► Volume ► Device volume ► Advanced**. Ensure that both **Volume Control** and **Wave** are not turned all the way down and that the **Mute** check boxes of these two channels are not disabled.
- Check whether the **devolo dLAN Audio extender Control** software is loaded (identified by an icon consisting of a note with a loudspeaker in the Windows system tray at the bottom right on the taskbar) and the output is redirected to the **devolo Audio extender** sound driver (right-click on the application icon, then **Select default audio device**).
- Check whether your dLAN functions properly.

Sound output cannot be switched

Effect:

The sound output is not carried out via the dLAN Audio extender, but is still switched via the loudspeakers directly connected to the PC.

Possible causes:

- The sound card driver is not correctly installed.
- The sound output has not been redirected to the devolo dLAN Audio extender.
- The switch to the adapter did not occur until after the start of the sound application.

Solutions:

- Please install the driver and the software for the adapter.
- Switch the sound output with the help of the dLAN Audio extender software before starting the audio program.

Sound too low

Effect:

The sound of your stereo system or at the active loudspeakers is very low.

Possible causes:

- The sound at the stereo system or at the active loudspeakers is set to low or muted.
- The sound output on your PC is set to low (e.g. in the Windows volume control).
- You are using passive loudspeakers without amplifier for audio playback.

Solutions:

- Turn the sound volume higher at the output device. If the sound quality should decrease now, see also the following item.
- In Windows XP, call up the volume control via **start ► Control Panel ► Sounds and Audio Devices ► Volume ► Device volume ► Advanced**. Move the **Volume** and **Wave** controls completely up. Next, use only the volume control of your stereo system or your active loudspeakers to adjust the sound output up or down.

- Use only a stereo system with amplifier or active loudspeakers.

Poor sound quality

Effect:

The sound quality is poor, e.g. because a loud humming interferes with the sound or because dropouts occur.

Possible causes:

- The sound output on your PC is set too low (e.g. in the Windows XP volume control).
- The adapter is connected to the PHONO input of your stereo system. This input is technically designed for analog record players.
- The transfer rate in your dLAN is too low.

Solutions:

- In Windows XP, call up the volume control via **start ► Control Panel ► Sounds and Audio Devices ► Volume ► Device volume ► Advanced**. Move the **Volume** and **Wave** controls completely up. Use only the volume control of your stereo system or your active loudspeakers to adjust the sound output up or down.
- Select a suitable input at your stereo system.
- If possible, plug your dLAN adapters into wall outlets, instead of power strips. The poorer transfer options via multiple distributors reduce the throughput in your electrical system.

Left and right channel are switched

Effect:

The left and right channel are apparently switched during stereo output.

Possible cause:

- The audio cable between the dLAN adapter and the stereo system or the active loudspeakers is not correctly connected.

Solution:

- Ensure that the red connector is plugged into the red socket and the white or black connector in the white socket.

Playback is delayed

Effect:

The sound output via the dLAN Audio extender is delayed by some time.

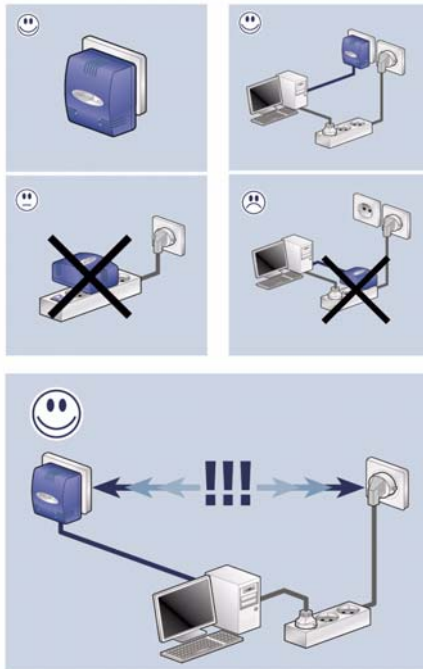
Possible cause:

- That is absolutely normal. To ensure an interference-free sound output, the adapter features an integrated buffer that is filled with data first before the playback starts. For this reason, the audio output also continues for some time after you stopped it on the PC.

5.2 Bandwidth optimization

We recommend observing the following connection rules to eliminate possible sources of interference:

- Avoid extension strips. This may impair the transmission of the dLAN signals. Free wall outlets are preferable.



- Also position the adapter away from your computer, as it may interfere with the adapter's operation.
- Plug the devices into different outlets and avoid using the same extension strip.

5.3 Important safety instructions

All safety and operating instructions should be read and understood before using the device, and should be kept for future reference.

- Never open the dLAN Audio extender. There are no user-serviceable parts inside the dLAN Audio extender.



Do not try to service this product yourself! Contact qualified technicians each and every time your device needs maintenance. There is a risk of electric shock!

- Use the dLAN Audio extender in a dry location only.
- Always use the included network cable to connect the device.
- Do not insert any objects into the openings of the dLAN Audio extender.
- To disconnect the dLAN Audio extender from the power supply grid, pull the power plug.
- Do not keep the dLAN Audio extender in direct sunlight.
- Slots and openings on the case serve as ventilation. Never block or cover them.
- Never set up the dLAN Audio extender near a heater or radiator.
- The dLAN Audio extender should be located only where sufficient ventilation according to the instructions of the manufacturer can be ensured.
- Disconnect the dLAN Audio extender from the power supply grid before cleaning. Use a moist towel to clean the device. Never use water, paint thinner, benzene, alcohol or other strong cleaning agents when cleaning the device, as these could damage the case.
- Never use the dLAN Audio extender with a power supply that does not meet the specifications provided on the rating plate. If you do not know what type of power supply you have at home, contact your dealer or energy supplier.
- In the event of damage, disconnect the dLAN Audio extender from the power supply grid and contact customer service. This applies, for example, if
 - the power cable or plug is damaged.
 - liquid has been spilled on the dLAN Audio extender or objects have fallen into the device.
 - the dLAN Audio extender has been exposed to rain or water.
 - the dLAN Audio extender does not work, even though the operating instructions have been followed properly.
 - the dLAN Audio extender's case is damaged.

5.4 Technical data

	dLAN Audio extender
Standards	HomePlug standard 1.0
Protocols	CSMA/CD via mains supply
Audio data rate	16 bit, 44.1 KHz stereo CD quality
Transfer method	Asynchronous via mains supply
Network buffer	∅ 1 sec.
Modulation	OFDM – 84 Carrier (Orthogonal Frequency Division Multiplexing) via mains supply
Range	200m via mains supply
Security	DES _{pro} encryption via mains supply
LEDs	<ul style="list-style-type: none"> ● Power ● dLAN ● Sound Link
dLAN connection	EURO mains plug
Audio interface	Connector type: <ul style="list-style-type: none"> ○ Line-out: 2 x cinch, 1 x pin ○ Signal/interference distance analogue out: 87db (AT) ○ Output distortion factor (THD): 0.01% @ 1KHz ○ RL > 3k Ohm
Power consumption	6 W (max.)
Power supply	Integrated supply via plug: <ul style="list-style-type: none"> ● Nominal voltage: 110 – 240V AC ● Nominal power: 40 mA / 230V + 60 mA / 110V ● Nominal frequency: 50/60 Hz
Temperature	Storage: –25 °C – 70 °C Operation: 0 °C – 40 °C
Environmental conditions	10-90% air humidity (non-condensing)
Operating systems	Configuration software and plug-in software for Windows XP (32 bit) and Windows Vista (32 bit)
Approvals	CE-compliant in accordance with the technical requirements of R&TTE for all EU countries and Switzerland EN 60950 -1+ A11:2004 EN 55022: 2006 EN 50412-2-1
Part No.	01196 (DE/AT/CH/IT/BE/NL/ES), 01211 (FR), 01198 (UK)

	dLAN Audio extender
EAN code	4250059611962 (DE/AT/CH/IT/BE/NL/ES), 4250059612112 (FR), 4250059611986 (UK)
Warranty	3 years
Service & Support hotline	Phone: 0180-5338656 (only within Germany) E-mail: support@devolo.de
On-site service	Phone: 01805-665066 (only within Germany)
Sales infoline	Phone: +49 (0)241-1827979 Fax: +49 (0)241-1827997 E-Mail: vertriebsinfo@devolo.de
Design	Wall plug plastic housing (large)
Dimensions adapter	80 x 65 x 40 mm (height x width x depth)
Weight adapter	158 g
Packaging size	78.5 x 231 x 188.5 mm (height x width x depth)
Accessories	<ul style="list-style-type: none"> ● Stereo cinch cable ● Documentation: printed installation guide ● CD-ROM: Software and documentation

5.5

CE conformity

This product complies with the technical requirements of the 1999/5/EC Directive (R&TTE) and the other relevant provisions of the FTEG, and it is designed for use in the EU and Switzerland.

The product is class B equipment. This equipment may cause interference with radio waves in home use; if this occurs the operator may be required to take corrective action.

5.5.1 Declaration of conformity



KONFORMITÄTSERKLÄRUNG

DECLARATION OF CONFORMITY

Hersteller: Manufacturer:	devolo AG Sonnenweg 11 52070 Aachen
Produkt: Product:	dLAN[®] Audio extender
Typnummer: Type number:	MT 2095, 2096
Verwendungszweck: Intended purpose:	PLC Audio Adapter PLC audio adapter
Richtlinie: Directive:	EMV 89/336/EWG EMC 89/336/EEC

Das Produkt entspricht den grundlegenden Anforderungen und Bestimmungen der folgenden Normen und Methoden:
The product complies with the essential requirements and provisions of following standards and methods:

Sicherheitsanforderungen: Safety requirements:	EN 60950-1:2001+A11:2004
Immunitätsanforderungen: Immunity requirements:	EN 50412-2-1:2006
Emissionsanforderungen: Emission requirements:	EN 55022:2006 (Class B) und Expert Opinion vom Competent Body EMV and Expert Opinion by Competent Body EMC

Diese Erklärung wird verantwortlich abgegeben durch:
This declaration is submitted by:

Aachen, 22. Juni 2007
Aachen, 22nd June 2007

Heiko Harbers
Vorstandsvorsitzender
CEO

5.6 Warranty conditions

The devolo AG warranty is given to purchasers of devolo products in addition to the warranty conditions provided by law and in accordance with the following conditions:

1 Warranty coverage

- a) The warranty covers the equipment delivered and all its parts. Parts will, at devolo's sole discretion, be replaced or repaired free of charge if, despite proven proper handling and adherence to the operating instructions, these parts became defective due to fabrication and/or material defects. Alternatively, devolo reserves the right to replace the defective product with a comparable product with the same specifications and features. Operating manuals and possibly supplied software are excluded from the warranty.
- b) Material and service charges shall be covered by devolo, but not shipping and handling costs involved in transport from the buyer to the service station and/or to devolo.
- c) Replaced parts become property of devolo.
- d) devolo is authorized to carry out technical changes (e.g. firmware updates) beyond repair and replacement of defective parts in order to bring the equipment up to the current technical state. This does not result in any additional charge for the customer. A legal claim to this service does not exist.

2 Warranty period

The warranty period for this devolo product is three years. This period begins at the day of delivery from the devolo dealer. Warranty services carried out by devolo do not result in an extension of the warranty period nor do they initiate a new warranty period. The warranty period for installed replacement parts ends with the warranty period of the device as a whole.

3 Warranty procedure

- a) If defects appear during the warranty period, the warranty claims must be made immediately, at the latest within a period of 7 days.
- b) In the case of any externally visible damage arising from transport (e.g. damage to the housing), the person carrying out the transportation and the sender should be informed immediately. On discovery of damage which is not externally visible, the transport company and the sender are to be immediately informed in writing, at the latest within 3 days of delivery.
- c) Transport to and from the location where the warranty claim is accepted and/or the repaired device is exchanged, is at the purchaser's own risk and cost.
- d) Warranty claims are only valid if a copy of the original purchase receipt is returned with the device. devolo reserves the right to require the submission of the original purchase receipt.

4 Suspension of the warranty

All warranty claims will be deemed invalid

- a) if the label with the serial number has been removed from the device,
- b) if the device is damaged or destroyed as a result of acts of nature or by environmental influences (moisture, electric shock, dust, etc.),
- c) if the device was stored or operated under conditions not in compliance with the technical specifications,
- d) if the damage occurred due to incorrect handling, especially to non-observance of the system description and the operating instructions,
- e) if the device was opened, repaired or modified by persons not contracted by devolo,
- f) if the device shows any kind of mechanical damage, or
- g) if the warranty claim has not been reported in accordance with 3a) or 3b).

5 Operating mistakes

If it becomes apparent that the reported malfunction of the device has been caused by unsuitable hardware, software, installation or operation, devolo reserves the right to charge the purchaser for the resulting testing costs.

6 Additional regulations

- a) The above conditions define the complete scope of devolo's legal liability.
- b) The warranty gives no entitlement to additional claims, such as any refund in full or in part. Compensation claims, regardless of the legal basis, are excluded. This does not apply if e.g. injury to persons or damage to private property are specifically covered by the product liability law, or in cases of intentional act or culpable negligence.
- c) Claims for compensation of lost profits, indirect or consequential detriments, are excluded.
- d) devolo is not liable for lost data or retrieval of lost data in cases of slight and ordinary negligence.
- e) In the case that the intentional or culpable negligence of devolo employees has caused a loss of data, devolo will be liable for those costs typical to the recovery of data where periodic security data back-ups have been made.
- f) The warranty is valid only for the first purchaser and is not transferable.
- g) The court of jurisdiction is located in Aachen, Germany in the case that the purchaser is a merchant. If the purchaser does not have a court of jurisdiction in the Federal Republic of Germany or if he moves his domicile out of Germany after conclusion of the contract, devolo's court of jurisdiction applies. This is also applicable if the purchaser's domicile is not known at the time of institution of proceedings.
- h) The law of the Federal Republic of Germany is applicable. The UN commercial law does not apply to dealings between devolo and the purchaser.

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