dLAN[®] pro 1200+ PoE





devolo dLAN[®] pro 1200+ PoE

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1 Preface

Thank you for placing your trust in this product.

devolo dLAN business solutions are a favourably priced option for using the power grid infrastructure in a building to establish a broadband IP network. The advantage this brings is obvious: no new cables have to be laid – expenditure and costs remain low. dLAN can be used as an easily scalable, primary network as well as to supplement an existing infrastructure.

The dLAN pro 1200+ PoE allows you to set up your own home network with almost no effort. Because the clever dLAN technology transmits the data over the electrical wiring, you do not have to lay any new cables.

1.1 About this manual

Carefully read all instructions before setting up the device and store the manual and/or installation guide for later reference.

After a brief introduction to "dLAN" basics and a presentation of the dLAN pro 1200+ PoE in **Chapter 2**, **Chapter 3** will cover successfully setting up your dLAN pro 1200+ PoE. **Chapter 4** explains how to configure your dLAN pro network. Tips for bandwidth optimization, information of environmental compatibility of the device and our warranty conditions can be found in **Chapter 5** and conclude the manual.

You can find the technical data for the dLAN pro 1200+ PoE on the Internet under www.devolo.com/en/business-solutions.

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.

1.1.1 Intended use

Use the adapter as described in these instructions to prevent damage and injuries.

1.1.2 CE conformity

This product complies with the technical requirements of the directive 2014/30/EU and the other relevant provisions of the FTEG.



This product is designed for use in the EU, Switzerland and Norway.

The product is class B equipment.

You can find the CE declaration of this product on the Internet under

www.devolo.com/en/business-solutions.

1.1.3 Safety notes

It is essential to have read and understood all safety and operating instructions before the devolo device is used for the first time; keep them safe for future reference.



DANGER due to electricity

Users should never **open** devolo devices. **Opening the device poses a risk of electric shock!**

Users do not need to carry out any maintenance on devolo devices. In the event of damage, disconnect the devolo device from the mains supply by pulling it or its plug out of the power outlet. Then contact qualified specialist personnel (after-sales service) exclusively. **Damage** is deemed to have occurred, for example,

- if the power plug is damaged
- if the devolo device has been showered with liquid (e.g. rain or water).
- if the devolo device is inoperable.
- if the housing of the devolo device is damaged. devolo devices may only be operated using a **mains power supply**, as described on the **nameplate**.

To disconnect devolo devices from the mains supply, pull the device itself or its mains plug from the power outlet. The power outlet and all connected network devices should be easily accessible so that you can pull the mains plug quickly if needed.

Only use devolo devices at a dry location.

Disconnect devolo devices from the mains supply to clean! Avoid solvent cleaning agents since they can cause damage to the housing. Only use a dry towel for cleaning.

DANGER due to overheating

<u>/!\</u>

Multiple devolo devices must not **be interlocked**.

devolo devices should only be installed at locations that guarantee adequate ventilation. Slots and openings on the housing are used for ventilation:

- Do not **cover** devolo devices when operating.
- Do not place **any objects on** devolo devices.
- Do not insert **any objects** into the **openings** of devolo devices.
- devolo devices must not be placed directly next to an open flame (such as fire or candles).
- devolo devices must **not be exposed to direct heat radiation** (e.g. radiator, direct sunlight).

1.2 devolo on the Internet

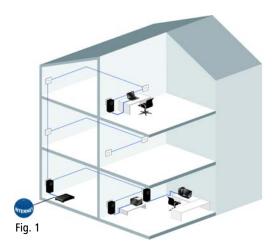
For detailed information on our products, visit www.devolo.com/en/business-solutions.

The devolo business area not only contains product descriptions and documentation, but also updates of devolo software and your device's firmware.

If you have any further ideas or suggestions related to our products, please don't hesitate to contact us at support@devolo.com!

2 Introduction

dLAN is an intelligent, secure technology that lets you set up a home network easily, quickly and economically via your household electrical wiring, without the need for complex and expensive dedicated cabling. The available performance and effort required for the installation also compares favourably to traditional methods.



2.1 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 household power lines. 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 interception by third parties.

2.2 The dLAN pro 1200+ PoE

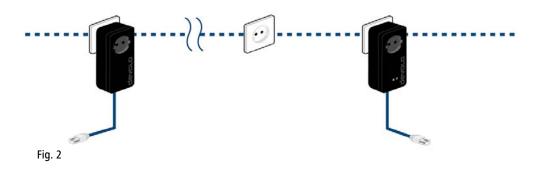
- Developed for professional use in small networks with high demands on reliability and performance
- devolo Green IT—intelligent PowerSave technology provides energy savings of 90 percent—all automatically. devolo's patented energy saving mode detects whether the computer connected to the HomePlug device is switched on or off and adapts the operating status of the device accordingly.
- dLAN technology from the world's market leader, developed for professional use

- Professional remote management using the dLAN AVpro manager software with comprehensive configuration options
- Reliable security in public areas: LED status display and encryption button can be switched off by remote management
- You can experience top-level data transfer rates at speeds up to 1200 Mbps. The range+ technology provides an even more stable Internet connection with significantly longer range.
- Gigabit Ethernet port with PoE functionality (in accordance with IEEE 802.3af, 15.4-watt output power).
- Optimal dLAN security with 128-bit AES encryption
- Supports Quality of Service (QoS) for automatic data prioritisation
- Long range of up to 400 metres with a connection over the electrical wiring
- The dLAN AVpro manager enables reliable, fast and convenient integration of the dLAN pro 1200+ PoE into dLAN pro networks with different architectures (peer-to-peer or MDU).

2.3 All about the network

This chapter provides an overview of the various dLAN pro networks possible with the dLAN pro 1200+ PoE.

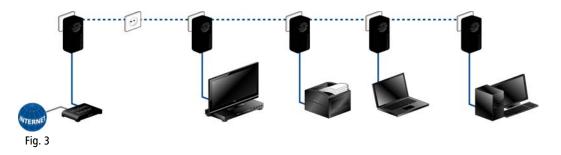
2.3.1 Easy Internet extension over the mains



2.3.2 dLAN Peer-to-Peer

All dLAN pro devices in a peer-to-peer network (P2P) are equal to each other. The connected network nodes can communicate with one another freely and directly. The dLAN pro device which is most easily accessible

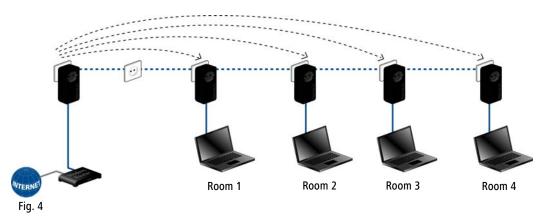
from all dLAN pro devices in the network is automatically designated by these as the Central Coordinator (CCo) and from then on co-ordinates the communication between the nodes. By default, the dLAN pro devices are configured for a peer-to-peer network.



2.3.3 dLAN MDU

In an MDU network (**MDU**: Multiple **D**welling Unit), the connected network nodes are linked as slaves to a master and, together with the master, form a logical dLAN pro network segment. Each slave sends data

only to its master. At the technical level, communication between the slaves of the MDU dLAN is not possible. The masters of the MDU dLANs are interconnected via Ethernet switches. Thus MDU dLANs are ideally suited for floor-by-floor networking (such as in hotels).



2.3.4 PoE operation

The Ethernet port on the dLAN pro 1200+ PoE can provide power to a connected device in accordance with IEEE 802.3af class '0'.

By default, PoE functionality of the dLAN pro 1200+ PoE **is enabled**.

You can disable the PoE functionality of the dLAN pro 1200+ PoE **for 10 seconds** to briefly disconnect the connected device from the mains supply and restart it.

There are two methods of disabling PoE functionality for the dLAN pro 1200+ PoE:

Using the PoE button

- Press the PoE button with the lightning symbol on the front panel of the device.
- ② PoE functionality is re-enabled automatically after 10 seconds.

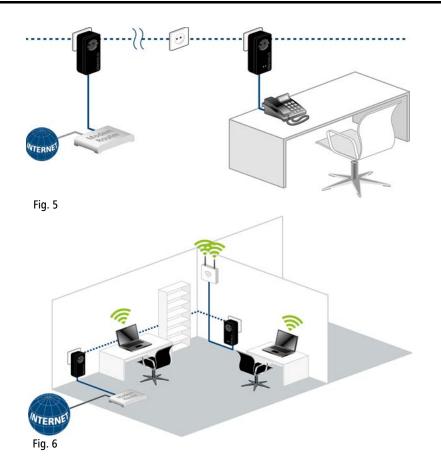
Using dLAN AVpro manager

- Select the network with the dLAN pro 1200+ PoE in the dLAN networks window.
- ② In the dLAN network view, click the device in question with the right mouse button to open the context menu of the device.

③ Click the menu item called **Reset PoE** to disable the PoE functionality of the Ethernet port for **10 seconds**. This interrupts the power supply to the connected device, which in turn switches off for 10 seconds.



If the device in question is part of the network, disabling PoE functionality can have effects on the accessibility, for example, of terminal devices.



3 Initial use

This chapter covers everything you need to know to set up your dLAN pro 1200+ PoE. It will explain connecting the dLAN pro 1200+ PoE and its functions. We will now briefly introduce the devolo software.



Fig. 7 is country-specific

3.1 Package contents

Please ensure that the delivery is complete before beginning with the installation of your dLAN pro 1200+ PoE:

• Single Kit:

- O dLAN pro 1200+ PoE
- O Network cable
- Hard copy of installation guide
- O Documentation at <u>www.devolo.com/en/business-solutions</u>

or

Starter Kit:

- O dLAN pro 1200+ PoE
- O dLAN pro 1200+
- O Two network cables
- O Hard copy of installation guide
- O Documentation at

www.devolo.com/en/business-solutions

devolo AG reserves the right to change the package contents without prior notice.

3.2 System requirements

- Operating systems: Windows 7 (x86/x64), Windows 8 (x86/x64), Windows 10 (x86/x64), Linux (Ubuntu 12.4) and all operating systems with network support
- Network connection

Please note that your computer or other device must have a network adapter with a network port.



To set up a dLAN pro network, you need at least two dLAN pro devices (200 Mbps, 500 Mbps, or 1200 Mbps).

3.3 Functions

The dLAN pro 1200+ PoE is equipped with:

- 2 indicator lights (LEDs)
- 1 encryption button
- 1 PoE button
- 1 reset button
- 1 Ethernet port with PoE functionality
- 1 integrated electrical socket

3.3.1 Encryption button

This button controls the following functions:

Encrypting the dLAN pro network

- To encrypt your dLAN pro network individually, press each encryption button on the connected devices for approximately 1 second—within 2 minutes.
- To remove a dLAN pro device from your network, press the encryption button on the corresponding device for at least 10 seconds.



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For security reasons, the function of the encryption button can be disabled in dLAN AVpro manager.

For more information on dLAN encryption, refer to Chapter 4 dLAN pro network.

Indicator light

The indicator light (LED) shows all of the statuses for the dLAN pro 1200+ PoE by illuminating and/or flashing in different ways:

 The LED flashes red quickly at regular intervals if the dLAN pro 1200+ PoE is connected to the mains supply but there is no dLAN connection. Check whether the device is connected to the mains supply correctly and whether the encryp-

- tion process has been carried out successfully. For more information about this, refer to **3.4 Connecting the dLAN pro 1200+ PoE**.
- The LED lights up white if the dLAN pro 1200+ PoE is ready to operate and a dLAN connection exists.
- The LED **flashes white quickly** at regular intervals if the encryption process (**pairing**) is being performed in the dLAN pro network.
- The LED flashes white at irregular intervals if the dLAN pro 1200+ PoE is in PowerSave mode.
- The LED flashes red at regular intervals if the transmission rate of the dLAN pro 1200+ PoE is not in the optimum range. For information on improving the transmission rate, refer to Chapter 5.1 Bandwidth optimization.



The function of the LED status display can be disabled in dLAN AVpro manager.

3.3.2 PoE button

This button controls the PoE functionality as follows:

By default, PoE functionality of the dLAN pro 1200+ PoE **is enabled**.

You can disable the PoE functionality of the dLAN pro 1200+ PoE **for 10 seconds** to briefly disconnect the connected device from the mains supply and restart it.

For more information on PoE functionality, re-

fer to Chapter **2.3.4 PoE operation***.*

Indicator light

The indicator light (LED) shows the status of PoE by illuminating and/or flashing in different ways:

- The LED lights up white when PoE is enabled.
- The LED is off during the 10-second deactivation of PoE.

3.3.3 Reset button

The **Reset** button (next to the Ethernet jack) has the following function:

To change the configuration of the dLAN pro 1200+ PoE back to the factory defaults, press the Reset button for more than 10 seconds. Keep in mind that all settings that have already been configured will be lost!

You can use a pointed object (such as a paper clip) to press the reset button.

3.3.4 Ethernet connection

A PC or other network device can be connected to the dLAN pro 1200+ PoE at this port using a standard network cable.

The Ethernet port can provide power to a connected device in accordance with IEEE 802.3af class '0'.

3.3.5 Integrated electrical socket

If you connect additional devices using a power strip, plug this power strip into the electrical socket of the dLAN pro 1200+ PoE. The integrated mains filter eliminates any interference from connected devices and significantly improves data transmission in the network.

3.3.6 PowerSave mode

A dLAN pro device switches to PowerSave mode after a short while if no active network device is connected to the network interface (such as if the network card on a computer is inactive). In PowerSave mode, the dLAN pro device cannot be accessed over the electrical wiring. As soon as the network device (e.g. computer) connected to the network interface is switched on again, your dLAN pro device can also be accessed over the electrical wiring again.

A dLAN pro device connected to a computer can go into PowerSave mode only if the network card of the switched-off computer is also inactive.

If you are using a network card that remains active when the computer is switched off, we recommend connecting the computer to an on/off switch using a power strip so that both the computer and the integrated network card are de-energised.

If you would like to ensure that a dLAN pro device does **not** switch to **PowerSave mode**, this function can be disabled in the **dLAN AVpro manager** software.

More information on devolo Green IT and sustainability is available online at www.devolo.com.

3.4 Connecting the dLAN pro 1200+ PoE

This section describes how to connect your dLAN pro 1200+ PoE to a computer or other network device.



For the permitted voltage range for operating the device and the power consumption, refer to the label on the rear of the device. For more technical specifications, refer to the product sheet online at www.devolo.com/en/business-solutions.

① Connect the dLAN pro 1200+ PoE to the network jack of your computer or network device using a network cable.



Prevent tripping hazards when cabling.

② Plug the dLAN pro 1200+ PoE into an available power socket.



The power socket and all connected network devices should be easily accessible so that you can pull the mains plug quickly if needed.

To disconnect the device from the mains supply, pull the device itself or its mains plug out of the electrical socket.

- Additional network devices that are connected via a power strip are connected to the mains power supply by plugging the power strip into the integrated electrical socket of the dLAN pro 1200+ PoE.
- Once you have connected at least two dLAN pro devices as described above, your dLAN pro network has been established. To secure your network, continue with your network configuration. For more information, refer to the chapter 4 dLAN pro network.

For detailed information about connecting other devolo dLAN pro devices, visit: <u>www.devolo.com/en/business-solutions</u>.

3.5 Software for Windows

The devolo software is available online at <u>www.devolo.com/en/business-solutions</u>. After you have downloaded the installation file to your PC, start it by double-clicking on it.

The installation wizard installs the devolo dLAN AVpro manager as well as the associated manual on the Windows operating system.

After installation is complete you will find the installed devolo dLAN AVpro manager as well as the associated manual in the program group Start \diamondsuit All Programs \diamondsuit devolo.

In addition to the individual encryption of your dLAN pro network and the security from unauthorised access, dLAN AVpro manager offers other expanded dLAN pro functions.

For detailed descriptions and information on configuration of your dLAN pro network please consult this dLAN AVpro manager manual.

4 dLAN pro network

4.1 Security in the dLAN

Before you can use the dLAN pro 1200+ PoE in your dLAN pro network, first you have to connect it to other dLAN pro devices as a network. Two specific pieces of information are especially important for this:

- Shared use of a dLAN password results in a delimited dLAN network.
- Shared use of the dLAN password serves as access control to the dLAN pro network as well as the encryption, and thereby the interception protection, of the transmitted data.

The dLAN password can be specified automatically via the **encryption button** or manually using the **dLAN AVpro manager** program. Please note the following basic principle when choosing your encryption method:

- In dLAN pro networks, data encryption is as simple as touching a button, since all corresponding dLAN pro devices are equipped with an encryption button.
- For dLAN pro networks that include devices with and without encryption buttons, data encryp-

tion must be set up using the **dLAN AVpro** manager.

4.2 dLAN pro network encryption at the touch of a button

To encrypt a dLAN pro network, in which all associated devices are equipped with an encryption button, simply press the encryption button that is located on the device. Pressing this button will encrypt your dLAN pro network with a randomly generated password.



For security reasons, you can deactivate the encryption button in the dLAN AVpro manager software. The following section contains exact instructions of encryption on the basis of possible network scenarios:

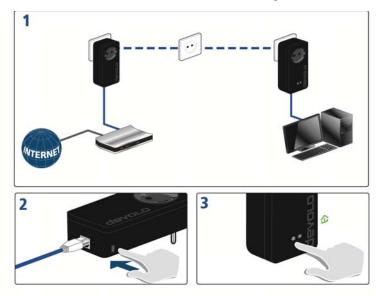


dLAN devices cannot be configured while in PowerSave mode.

Encrypting a new dLAN pro network with a dLAN pro 1200+ PoE and an additional dLAN pro device

Once both dLAN pro devices have been successfully connected, press each encryption button for **>one sec-ond within two minutes** of one another.

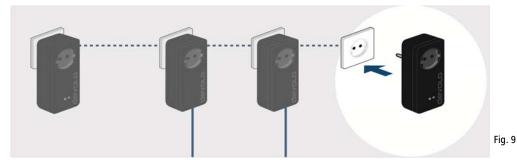
That's it! Your dLAN pro network is now protected against unauthorised access.



Expanding an existing dLAN pro network by adding another dLAN pro device

If you have already secured your existing dLAN pro network using the encryption button, use the same method to integrate further devices. Once you have successfully connected the new dLAN pro device, first press the encryption button (> one second) of one of your network's existing devices, then press the encryption button (> one second) of your new dLAN pro device within two minutes.

That's it! The new dLAN pro device is now integrated in your network. To integrate additional dLAN pro devices in your network, repeat the above steps.



Removing a dLAN pro device from a network

To remove a dLAN pro 1200+ PoE or another dLAN pro device with encryption button from an existing network, press its encryption button for at least ten seconds.

To remove a dLAN pro 1200+ PoE or another dLAN pro device without encryption button from an existing network, open the dLAN AVpro manager in the program group Start \Diamond All Programs \Diamond devolo. Under **Unused devices** call up the context menu (right-click on the device) of the dLAN pro device and click the **Delete** entry.

The device will be assigned a new randomly generated password and will thus no longer be able to access the network. To integrate the device into a different dLAN pro network, follow the steps described above, depending on whether you are setting up a new network or adding the device to an existing one.

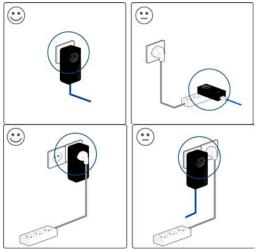
The installation wizard installs the dLAN AVpro manager configuration software as well as the associated manual on the Windows operating system (see **3.5.1 Software for Windows**).

5 Appendix

5.1 Bandwidth optimization

To significantly improve the transmission capacity of the network, we recommend that you comply with the following "connection rules":

• Plug the device directly into a wall socket. Avoid multiple sockets.





- You should connect all additional network devices that are connected to a multiple socket to the mains power supply via the electrical socket integrated into the dLAN pro 1200+ PoE.
- To take full advantage of the filter function of the dLAN pro 1200+ PoE and to improve data transmission in the network, always plug the multiple socket into the electrical socket of the dLAN pro 1200+ PoE.

5.2 Disposal of old devices

To be used in the countries of the European Union and other European countries with a separate collecting system:



The icon with crossed-out wastebasket on the device means that this adapter is an electrical or electronic device that falls within the scope of application of the European Community WEEE Directive. These types of devices may no longer be disposed of with household waste. Rather they can be given to a municipal collection point free of charge. Contact your municipal government to find out the address and hours of the nearest collection point.

5.3 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

The above conditions define the complete scope of devolo's legal liability.

- a) 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.
- b) Claims for compensation of lost profits, indirect or consequential detriments, are excluded.
- c) devolo is not liable for lost data or retrieval of lost data in cases of slight and ordinary negligence.
- d) 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.
- e) The warranty is valid only for the first purchaser and is not transferable.
- f) 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.
- g) 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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