FL/TC MGUARD devices Update and Flash mGuard 8.9.4 and 10.5.0

Application note

Application note

FL/TC MGUARD devices - Update and Flash mGuard 8.9.4 and 10.5.0

AH EN MGUARD UPDATE, Revision 14 2025-06-12

This user manual is valid for the following mGuard devices:

Device	Order No.
FL MGUARD RS4000 TX/TX (VPN)	2700634 / (2200515)
FL MGUARD GT/GT(VPN)	2700197 / (2700198)
FL MGUARD SMART2 (VPN)	2700640 / (2700639)
FL MGUARD RS2000 TX/TX VPN	2700642
FL MGUARD RS2000 TX/TX-B	2702139
FL MGUARD DELTA TX/TX (VPN)	2700967 / (2700968)
FL MGUARD PCI4000 VPN	2701275
FL MGUARD PCIE4000 VPN	2701278
FL MGUARD RS4000 TX/TX VPN/MAN	2701866
FL MGUARD RS2005 TX VPN	2701875
FL MGUARD RS4004 TX/DTX (VPN)	2701876 / (2701877)
FL MGUARD RS4000 TX/TX-P	2702259
FL MGUARD RS4000 TX/TX VPN-M	2702465
FL MGUARD CENTERPORT	2702547
FL MGUARD CORE TX VPN	2702831
TC MGUARD RS4000 3G VPN	2903440
TC MGUARD RS2000 3G VPN	2903441
TC MGUARD RS4000 4G VPN	2903586
TC MGUARD RS2000 4G VPN	2903588
TC MGUARD RS4000 4G VZW VPN	1010461
TC MGUARD RS2000 4G VZW VPN	1010462
TC MGUARD RS4000 4G ATT VPN	1010463
TC MGUARD RS2000 4G ATT VPN	1010464
FL MGUARD 4302	1357840 (1696708)
FL MGUARD 4305	1357875 (1696779)
FL MGUARD 2102	1357828
FL MGUARD 2105	1357850
FL MGUARD 4102 PCI	1441187
FL MGUARD 4102 PCIE	1357842

The applicable documentation is available for download at phoenixcontact.net/product/<item number>:

108250_en_14

1 Update and flash FL/TC MGUARD devices

Document-ID: 108250_en_14
Document-Description: AH EN MGUARD UPDATE

Make sure you always use the latest documentation.
It can be downloaded using the following link phoenixcontact.net/products.

Contents of this document

The following chapters describe:

1. which mGuard firmware versions can be updated to mGuard 8.9.4,
2. which mGuard firmware versions can be updated to mGuard 10.5.0,
3. which files you need to update your mGuard device,
4. how a firmware update is carried out,
5. how the flash procedure is carried out.

1.1 Introduction

The firmware on mGuard devices can be updated in different ways:

1. Local Update
2. Online Update (not available for FL MGUARD 2000/4000 - mGuard 10.x)
3. Automatic Update
4. Flashing the firmware

In the case of a **firmware update**, the existing configuration of the mGuard device usually remains unchanged.

Flashing an mGuard device deletes the existing configuration, including all passwords, and resets the device to the default status (default settings).

Firmware version 8

Updating to **mGuard firmware version 8.9.4** is described in detail for all mGuard devices in Chapters 1.7 to 1.17. Table 1-1 briefly lists the required update files.

Firmware version 10

Updating to **mGuard firmware version 10.5.0** is described in detail for all mGuard devices in Chapters 1.18. Table 1-3 briefly lists the required update files.

1.2 Update to mGuard firmware version 8.9.4

An update to **mGuard firmware version 8.9.4** is only possible from **mGuard firmware version 8.6.1** or later.

If you want to update from a **firmware version < 8.6.1**, you must perform the update in several steps by first updating to version 8.6.1 (see Section 1.3, “Update to mGuard firmware version 8.6.1”). In the next step you can update this version to version 8.9.4.

An update to firmware version 8.9.4 is only possible if the function "**Encrypted State Synchronization**" (menu *Redundancy*) has been deactivated before.

The name of the update file to be used depends on the installed firmware version (source version) on the device and contains the following terms:

- Source version: 8.6.1 to 8.9.x --> Term: *8.{6-9}*

The update to **mGuard firmware version 8.9.4** is described in detail in chapters 1.7 to 1.17, depending on the device (see „Contents of this document“). Table 1-1 briefly lists the required update files depending on the source firmware version.

Table 1-1 Updating mGuard firmware version from **8.6.1** or later to **8.9.4**: Required files

Devices	Local Update	Firmware Flashing
FL MGUARD RS2000 FL MGUARD RS4000 (TX/TX) (incl. variants -B, -P, -M)	**Download file**: *Update_MPC_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD RS2005 FL MGUARD RS4004 (TX respectively TX/DTX)	**Download file**: *Update_MPC_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD PCI(E)4000	**Download file**: *Update_MPC_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD SMART2	**Download file**: *Update_MPC_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD GT/GT	**Download file**: *Update_MPC_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_GTGT_v8.9.4.zip* **Update (flash) files**: *jffs2.img.mpc83xx.p7s* *install.mpc83xx.p7s*

Table 1-1 Updating mGuard firmware version from **8.6.1** or later to **8.9.4**: Required files

FL MGUARD DELTA TX/TX	**Download file**: *Update_MPC_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD CENTERPORT	**Download file**: *Update_X86_v8.9.4.zip* **Update files**: *update-8.{6-9}-8.9.4.default.x86_64.tar.gz*	**Download file**: *FW_X86_v8.9.4.zip* **Update (flash) files**: *firmware.img.x86_64.p7s* *install.x86_64.p7s*
TC MGUARD RS2000 3G VPN TC MGUARD RS4000 3G VPN	**Download file**: *Update_MPC_TC3G_v8.9.4.zip* **Update files**: *gemalto.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC3G_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* *pxs8_03001_0100617.usf.xz.p7s*
TC MGUARD RS2000 4G VPN TC MGUARD RS4000 4G VPN (Firmware update for devices with **Gemalto engine** - from Q3/2021)	**Download file**: *Update_MPC_TC4G_G_v8.9.4.zip* **Update files**: *PLS8-E.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC4G_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* *pls8-e_rev04.004_arn01.000.11.usf.xz.p7s*
TC MGUARD RS2000 4G VPN TC MGUARD RS4000 4G VPN (Firmware update for devices with **Huawei engine** - from Q3/2021)	**Download file**: *Update_MPC_TC4G_H_v8.9.4.zip* **Update files**: *huaweigeneric.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC4H_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* *ME909u-521_UPDATE_12.636.12.01.00.BIN.xz.p7s*
TC MGUARD RS2000/4000 4G VZW VPN	**Download file**: *Update_MPC_TC4GVZW_v8.9.4.zip* **Update files**: *HL7518.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC4GVZW_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* *RHL75xx.4.04.142600.201801231340.x7160_1_signed_dwl.dwl.xz.p7s*
TC MGUARD RS2000/4000 4G ATT VPN	**Download file**: *Update_MPC_TC4GATT_v8.9.4.zip* **Update files**: *HL7588.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC4GATT_v8.9.4.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* *RHL75xx.A.2.15.151600.201809201422.x7160_3_signed_DWL.dwl.xz.p7s*

1.3 Update to mGuard firmware version 8.6.1

Possible from **mGuard firmware version 7.6.0**.

The name of the update file to be used depends on the installed firmware version (source version) on the device and contains the following terms:

Source version: 7.6.0 to 7.6.x --> Term: *7.{6}*

Source version: 8.0.0 to 8.5.x --> Term: *8.{0-5}*

Source version: 8.6.0 --> Term: *8.{6}*

The update to **mGuard firmware version 8.6.1** is performed in the same way as described in chapters 1.7 to 1.17 (see „Contents of this document“). Table 1-2 briefly lists the required update files depending on the source firmware version.

Table 1-2 Updating mGuard firmware version **7.6.0 or later** to **8.6.1**: Required files

Devices	Local Update	Firmware Flashing
FL MGUARD RS2000 FL MGUARD RS4000 (TX/TX) (incl. variants -B, -P, -M)	**Download file**: *Update_8.6.1_MPC.zip* **Update files**: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz* *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz* *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD RS2005 FL MGUARD RS4004 (TX respectively TX/DTX)	**Download file**: *Update_8.6.1_MPC.zip* **Update files**: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz* *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
TC MGUARD RS2000 3G VPN TC MGUARD RS4000 3G VPN	**Download file**: *Update_8.6.1_TC3G_MPC.zip* **Update files**: *gemalto.update-8.{4-5}-8.6.1.default.mpc83xx.tar.gz* *gemalto.update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC3G_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* pxs8_03001_0100617.usf.xz.p7s
TC MGUARD RS2000 4G VPN TC MGUARD RS4000 4G VPN	**Download file**: *Update_8.6.1_TC4G_MPC.zip* **Update files**: *huaweigeneric.update-8.{4-5}-8.6.1.default.mpc83xx.tar.gz* *huaweigeneric.update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_TC4G_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s* ME909u-521_UPDATE_12.636.12.01.00.BIN.xz.p7s
FL MGUARD PCI(E)4000	**Download file**: *Update_8.6.1_MPC.zip* **Update files**: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz* *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz* *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*

Table 1-2 Updating mGuard firmware version **7.6.0 or later** to **8.6.1**: Required files

FL MGUARD SMART2	**Download file**: *Update_8.6.1_MPC.zip* **Update files**: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz* *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz* *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*
FL MGUARD CENTERPORT	**Download file**: *Update_8.6.1_x86.zip* **Update files**: *update-7.{6}-8.6.1.default.x86_64.tar.gz* *update-8.{0-5}-8.6.1.default.x86_64.tar.gz* *update-8.{6}-8.6.1.default.x86_64.tar.gz*	**Download file**: *FW_X86_8.6.1.zip* **Update (flash) files**: *firmware.img.x86_64.p7s* *install.x86_64.p7s*
FL MGUARD GT/GT	**Download file**: *Update_8.6.1_MPC.zip* **Update files**: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz* *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz* *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_GTGT_8.6.1.zip* **Update (flash) files**: *jffs2.img.mpc83xx.p7s* *install.mpc83xx.p7s*
FL MGUARD DELTA TX/TX	**Download file**: *Update_8.6.1_MPC.zip* **Update files**: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz* *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz* *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*	**Download file**: *FW_MPC_8.6.1.zip* **Update (flash) files**: *ubifs.img.mpc83xx* *install-ubi.mpc83xx.p7s*

1.4 Update to mGuard firmware version 10.4.1

An update to **mGuard firmware version 10.5.0** is possible from **all mGuard firmware versions starting with firmware version 10.0.0**.

The name of the update file to be used depends on the installed firmware version (source version) on the device and contains the following terms:

Source version: 10.0.x to 10.5.x --> Term: *10.{0-5}*

The update to **mGuard firmware version 10.5.0** is described in chapter 1.18 (see „Contents of this document“). Table 1-3 briefly lists the required update files depending on the source firmware version.

Table 1-3 Updating mGuard firmware version **10.0.0 or later** to **10.5.0**: Required files

Devices	Local Update	Firmware Flashing
FL MGUARD 4302 FL MGUARD 4305 FL MGUARD 2102 FL MGUARD 2105 FL MGUARD 4102 PCI FL MGUARD 4102 PCIE	**Download file**: *Update_mGuard-10.5.0.zip* **Update files**: *update-10.{0-5}-10.5.0.default.aarch64.tar.gz*	**Download file**: *Firmware_mGuard-10.5.0.zip* **Update (flash) files**: *firmware.img.aarch64.p7s* *install.aarch64.p7s*

1.5 Migration of the configuration from mGuard firmware version 8.x to 10.x

The new mGuard device platform 3 is operated with the mGuard 10.x firmware version. An update from firmware version 8.x to 10.x is not possible.

However, the configuration of mGuard 8.x devices can be migrated to devices with installed mGuard 10.x firmware version.

The procedure for the migration to mGuard 10.5.0 is described in the application note "Device replacement and migration" (AH DE MGUARD MIGRATE 10 - 111259_en_xx), available at phoenixcontact.net/product/<item-number>.

1.6 General information about mGuard updates

1.6.1 PHOENIX CONTACT Web Shop

The available update files for each mGuard device are provided for download on the product page in the PHOENIX CONTACT Web Shop under: phoenixcontact.net/products.

Depending on the installed firmware version, different files must be used for an update.

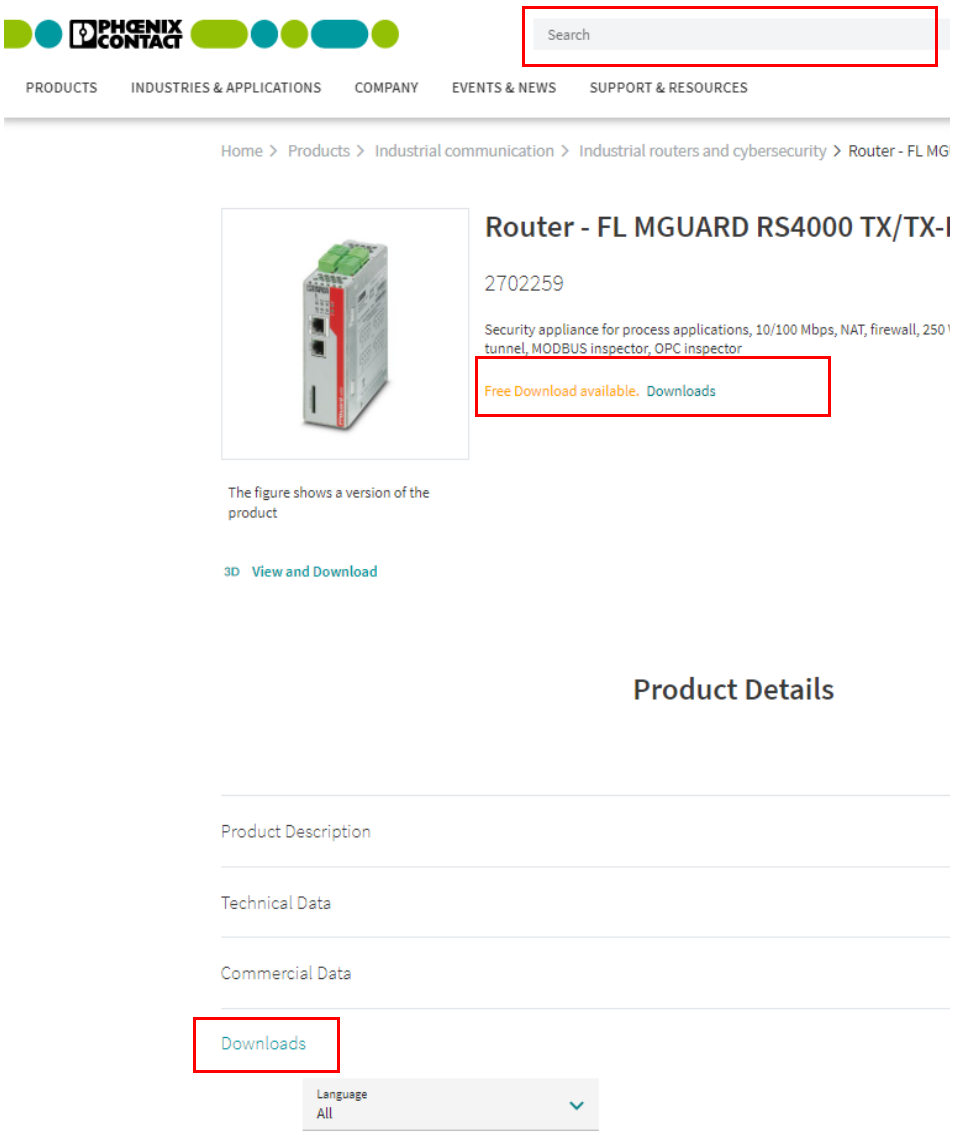


Figure 1-1 PHOENIX CONTACT Web Shop – Product page

1.6.2 Versioning: Major, Minor and Patch Releases

The following designations are used in the versioning of the mGuard firmware:

1. Major release (major version number)

   Major releases supplement the mGuard with new properties and contain mostly larger and more fundamental changes to the mGuard firmware . Their version number changes in the first digit position. version **8**.6.1, for example, is a major release for version **7**.6.8.

2. Minor release (minor version number)

   Minor releases supplement mGuard with new properties. Their version number changes in the second digit position. version 8.**6.**0**,** for example, is a minor release for version 8.**4.**2.

3. **Patch release** (fixing of vulnerabilities / general bug fixing)

   Patch releases resolve errors in previous versions and have a version number which only changes in the third digit position. version 8.6.**1,** for example, is a patch release for version 8.6.**0**.

1.6.3 Designation of the update files

The file that must be used to update your mGuard device depends on the firmware version installed on the device.

In the file name of the respective update file, it is indicated in **curly brackets** which firmware versions can be updated with this file.

Example "Local Update" RS4000

Using the update file "*update*-**8.{0-5}**-*8.6.1.default.mpc83xx.tar.gz",* firmware versions **8.0.0** to **8.5.x** can be updated to version 8.6.1.

In this case the download file is named "*Update_8.6.1_MPC.zip*".

Example "Online Update" RS4000

With the specification of the package set name "*update*-**7.{6}**-*8.6.1.default",* firmware versions **7.6.0** to **7.6.x** can be updated to version 8.6.1.

1.6.4 Description of the update procedure

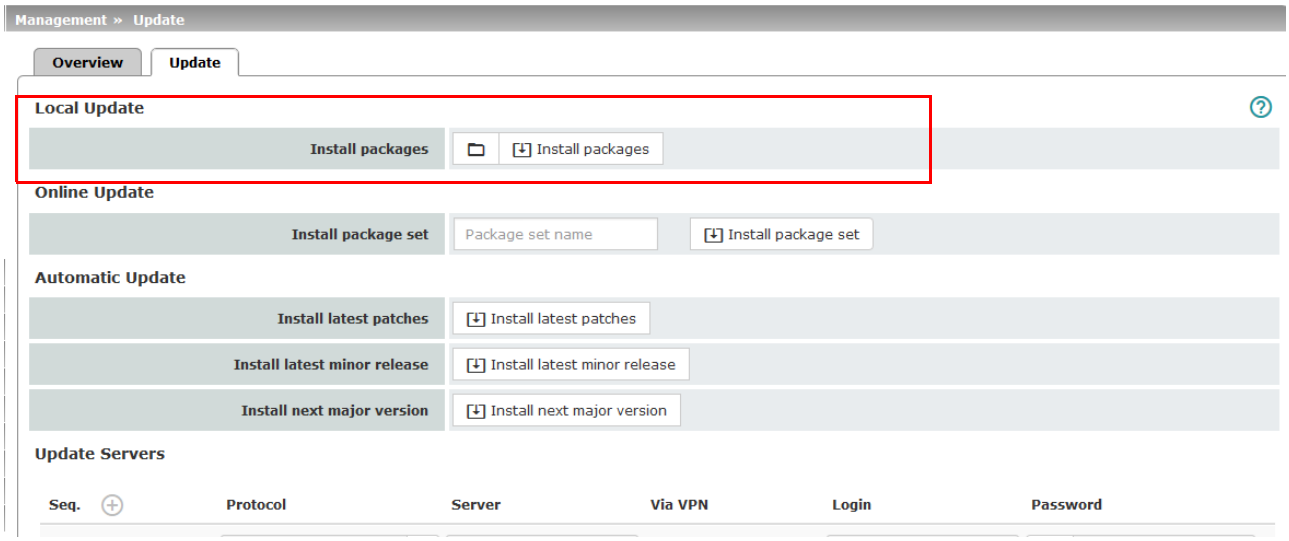
NOTE: Do not interrupt the power supply of the mGuard device during the update process! Otherwise, the device could be damaged.

You can find more information on installation, operation and updates for mGuard devices in the firmware reference manual and in the mGuard device manual (available in the PHOENIX CONTACT Web Shop under phoenixcontact.net/products or help.mguard.com.):

- mGuard 8.x: 105661_en_xx "UM EN MGUARD"
- mGuard 8.x: 105656_en_xx "UM EN MGUARD DEVICES"
- mGuard 10.x: 110191_en_xx "UM EN FW MGUARD10"
- mGuard 10.x: 110192_en_xx "UM EN HW FL MGUARD 2000/4000"

1.6.4.1 Local Update

The update file (*tar.gz* format) is loaded from the locally connected configuration computer onto the mGuard device and installed via the mGuard web interface (**Management >> Update >> Update**).



The firmware versions which can be updated with the update file are indicated in the file names of the update file in curly brackets.

Example (FL MGUARD RS4000):

Major release update: 7.6.8 to 8.6.1:

- Download file: *Update_8.6.1_MPC*
- Update file: *update-***7.{6}***-8.6.1.default.mpc83xx.tar.gz*

Minor release update: 8.**4**.2 to 8.6.1:

- Download file: *Update_8.6.1_MPC*
- Update file: *update-***8.{0-5}***-8.6.1.default.mpc83xx.tar.gz*

Patch release update: 8.6.**0** to 8.6.1:

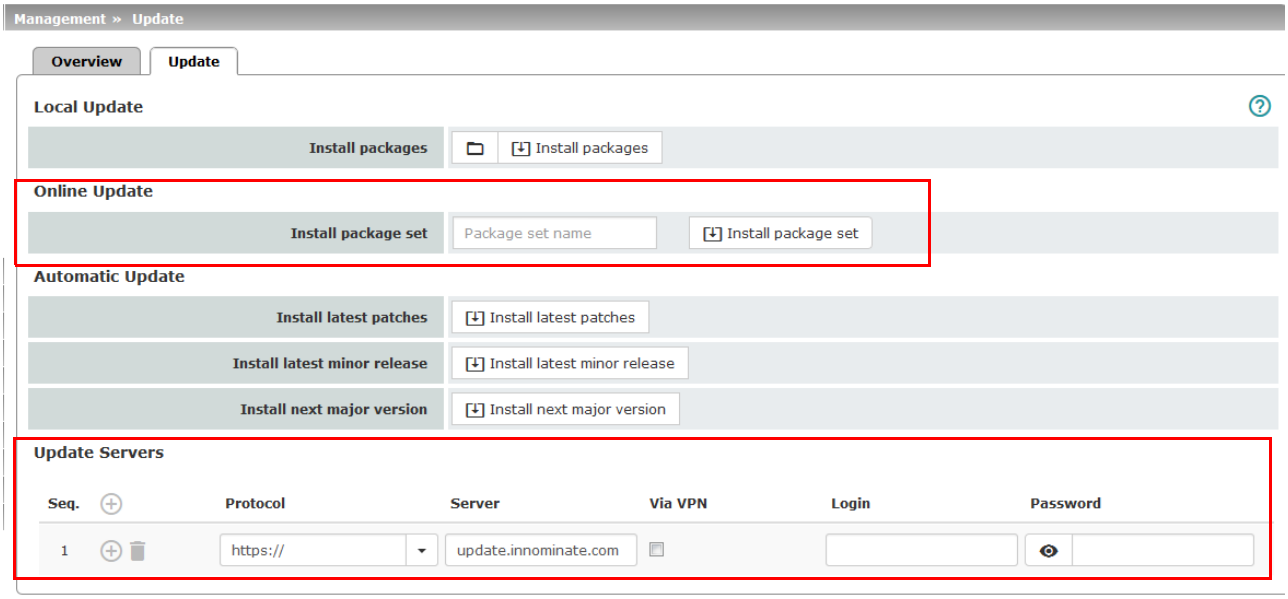
- Download file: *Update_8.6.1_MPC*
- Update file: *update-***8.{6}***-8.6.1.default.mpc83xx.tar.gz*

1.6.4.2 Online Update

Not available for FL MGUARD 2000/4000 devices with firmware version 10.x installed.

The update file is loaded from a configurable update server and installed.

The update is initialized through the request of a **package set** on the mGuard web interface (**Management >> Update >> Update**).



The firmware versions which can be updated by means of the selection of the package set name are indicated in the package set names in curly brackets.

Example (FL MGUARD RS4000):

Major release update: **7**.6.8 to 8.6.1

– Package set name: *update-***7.{6}***-8.6.1.default*

Minor release update: 8.**4**.2 to 8.6.1

– Package set name: *update-***8.{0-5}***-8.6.1.default*

Patch release update: 8.6.**0** to 8.6.1

– Package set name: *update-***8.{6}***-8.6.1.default*

NOTE: Online or Automatic Updates from the installed source firmware version **7.6.8** can lead to an error (see note in Section 1.20, “Setting up mGuard firmware update repositories”).

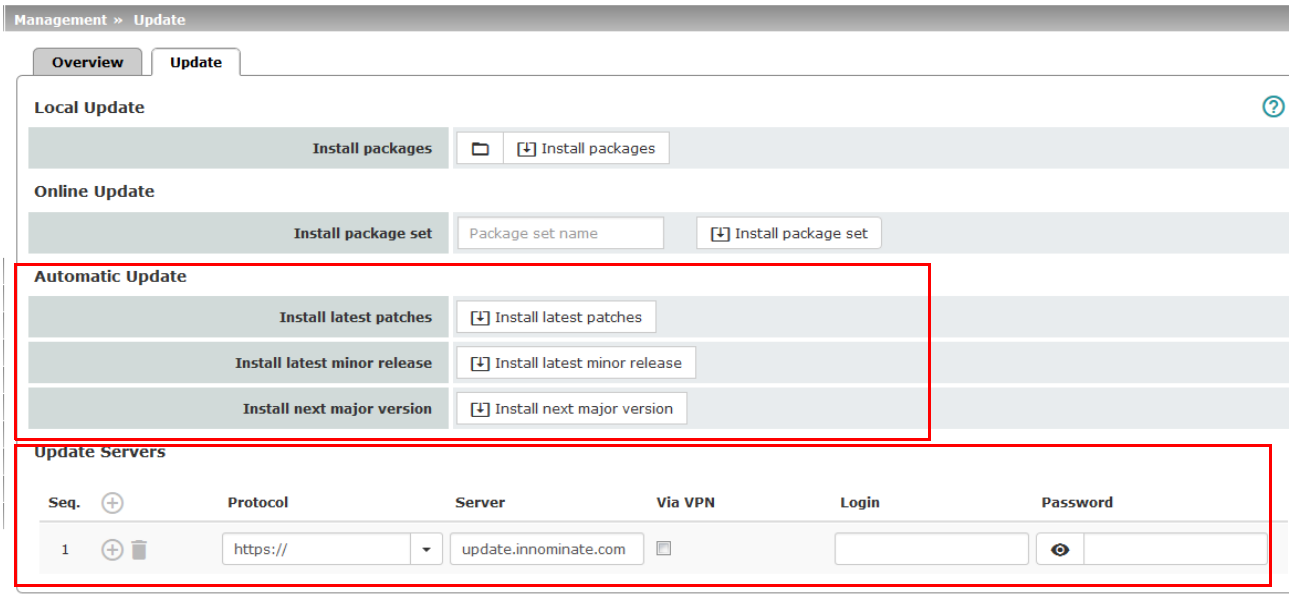
The login information (login + password) does not have to be specified if the update server which has been preset ex-works (https://update.innominate.com) is used.

From firmware version 10.3.0, the authenticity of an update server can be ensured by means of an X.509 certificate.

1.6.4.3 Automatic Update

The update file is automatically determined from the selected update option and loaded and installed by a configurable update server.

The update is initialized via the mGuard web interface (**Management >> Update >> Update**) or the mGuard command line "*mg update*" .



Update options:

a) Install latest patches
b) Install latest minor release
c) Install next major release

NOTE: Online or Automatic Updates from the installed source firmware version **7.6.8** can lead to an error (see note in Section 1.20, “Setting up mGuard firmware update repositories”).

It may occur that a **direct Automatic Update** to the current minor or the next major release is not possible from an installed firmware version. In this case, first perform one or more updates on authorized minor or patch releases. Afterwards, you can update to the current minor or the next major release in the last step.

The login information (login + password) does not have to be specified if the update server which has been preset ex-works (https://update.innominate.com) is used.

1.6.4.4 Flashing the firmware

The mGuard firmware is loaded from an SD card, USB flash memory (both with vfat file system) or from a TFTP update server, and installed onto the mGuard device.

Installed licenses remain on the device after flashing (in the case of devices with installed firmware version 5.0.0 or higher).

Configuration profiles and licenses can be installed and activated during the flash process (see Section 1.19, “mGuard Flash Guide”).

NOTE: Flashing the firmware deletes all data, passwords and configurations on the mGuard device. The device is reset to its default setting. Save any existing configuration as a configuration profile at a safe location before flashing.

NOTE: Downgrading the pre-installed default firmware version is not supported.

For mGuard devices produced starting in January 2018, a *downgrade* of the pre-installed default firmware version to an earlier firmware version may fail. If this is the case, flash the device again with the firmware version that was originally installed or a higher version.

1.7 FL MGUARD RS2000/4000 TX/TX (incl. -B, -P, -M)

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.7.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.7.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD RS 4000).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.7.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.7.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!*):

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-7.{6}-8.6.1.default*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.7.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.7.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.7.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.7.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.7.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.7.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

1.7.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD RS 4000).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**:
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s*) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the */Firmware* directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.7.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the *Stat*, *Mod*, and *Sig* LEDs light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the LEDs *Stat, Mod,* and *Sig* flash green simultaneously, the flash process has been concluded successfully. (The flashing behavior is different in the case of simultaneous uploading of a configuration profile).
3. Restart the device.

1.8 FL MGUARD RS2005/4004 TX bzw. TX/DTX

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.8.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.8.1.1 Download update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD RS 4004).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.8.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.8.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!*):

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.8.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.8.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.8.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.8.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.8.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.8.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

1.8.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD RS 4004).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s*) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the */Firmware* directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.8.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the *Stat*, *Mod*, and *Info2* LEDs light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the LEDs *Stat, Mod,* and *Info2* flash green simultaneously, the flash process has been concluded successfully. (The flashing behavior is different in the case of simultaneous uploading of a configuration profile).
3. Restart the device.

1.9 TC MGUARD RS2000/4000 3G VPN

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 (starting from 7.6.0) to version 8.6.1. In the next step, you can update this version to version 8.9.4.

A **Local Update** to mGuard firmware version **8.6.1** is possible from version 8.4.0.

Online Update and **Automatic Update** are possible from version 8.0.0.

1.9.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_TC3G_v8.9.4.zip*

Update files (= unpacked Zip file):

– *gemalto.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *gemalto.update-8.{4-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *gemalto.update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.9.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 3G).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_TC3G_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *gemalto.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.9.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *gemalto.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*.
5. Click the **Install packages** button to start the update.

1.9.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.9.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.9.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.9.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.9.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.9.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.9.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_TC3G_v8.9.4.zip*

Update files, including modem firmware (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

– *pxs8_03001_0100617.usf.xz.p7s*

1.9.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 3G).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s* and *pxs8_03001_0100617.usf.xz.p7s*) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the /Firmware directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.9.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from an TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the *Stat*, *Mod*, and *Info2* LEDs light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the LEDs *Stat, Mod* and *Info2* flash green simultaneously, the flash process has been concluded successfully (differs when uploading a configuration profile).
3. Restart the device.

1.10 TC MGUARD RS2000/4000 4G VPN

Order number: 2903588 (RS2000) / 2903586 (RS4000)

The required update files depend on the installed modem

The devices 2903588 and 2903586 were produced with two different modems depending on the series:

– until Q3/2021: manufacturer **Huawei**
– from Q3/2021: manufacturer **Gemalto**

Depending on the built-in modem, you need different update and download files for an update to firmware version 8.9.0 (see Section 1.10.1).

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.10.1 Local Update to 8.9.4

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– Firmware update for devices with **Huawei** engine:
  – *Update_MPC_TC4G_H_v8.9.4.zip* (see below)
– Firmware update for devices with **Gemalto** engine:
  – *Update_MPC_TC4G_G_v8.9.4.zip* (see below)

Huawei:
Update_MPC_TC4G_H_v8.9.4.zip

Update files (= unpacked Zip file):

– *huaweigeneric.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *huaweigeneric.update-8.{4-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *huaweigeneric.update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.10.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Updat_MPCeTC4G_H_v8.9.4_.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *huaweigeneric.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.10.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.

3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *huaweigeneric.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

Gemalto:
Update_MPC_TC4G_H_v8.9.4.zip

Update files (= unpacked Zip file):
– *PLS8-E.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.10.1.3 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_TC4G_G_v8.9.4_.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *PLS8-E.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.10.1.4 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *PLS8-E.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.10.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-8.{4-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.10.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.10.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.10.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.10.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.10.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.10.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_TC4G_v8.9.4.zip*

Update files, including modem firmware (= unpacked Zip file):

– *ubifs.img.mpc83xx*
– *install-ubi.mpc83xx.p7s*
– *ME909u-521_UPDATE_12.636.12.01.00.BIN.xz.p7s*
– pls8-e_rev04.004_arn01.000.11.usf.xz.p7s

1.10.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_TC4G_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s, ME909u-521_UPDATE_12.636.12.01.00.BIN.xz.p7s,* and pls8-e_rev04.004_arn01.000.11.usf.xz.p7s,) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the /Firmware directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.10.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the *Stat*, *Mod*, and *Info2* LEDs light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the LEDs *Stat, Mod* and *Info2* flash green simultaneously, the flash process has been concluded successfully (differs when uploading a configuration profile).
3. Restart the device.

1.11 TC MGUARD RS2000/4000 4G VZW VPN

Order number: 1010462 (RS2000) / 1010461 (RS4000)

1.11.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_TC4GVZW_v8.9.4.zip*

Update files (= unpacked Zip file):

– *HL7418.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.11.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G *VZW VPN*).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_TC4GVZW_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *HL7518.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.11.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *HL7518.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.11.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.11.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.11.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.11.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.11.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.11.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.11.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_TC4G_VZW_v8.9.4.zip*

Update files, including modem firmware (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

– *RHL75xx.4.04.142600.201801231340.x7160_1_signed_dwl.dwl.xz.p7s*

1.11.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G VZW VPN).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_TC4G_VZW_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s* and RHL75xx.4.04.142600.201801231340.x7160_1_signed_dwl.dwl.xz.p7s) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the /Firmware directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.11.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the *Stat*, *Mod*, and *Info2* LEDs light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the LEDs *Stat, Mod* and *Info2* flash green simultaneously, the flash process has been concluded successfully (differs when uploading a configuration profile).
3. Restart the device.

1.12 TC MGUARD RS2000/4000 4G ATT VPN

Order number: 1010464 (RS2000) / 1010463 (RS4000)

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.
If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.12.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:
– *Update_MPC_TC4GATT_v8.9.4.zip*

Update files (= unpacked Zip file):
– *HL7588.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.12.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G ATT VPN).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_TC4GATT_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *HL7588.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.12.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *HL7588.update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.12.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.12.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.12.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.12.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.12.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.12.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.12.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_TC4G_ATT_v8.9.4.zip*

Update files, including modem firmware (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

– *RHL75xx.A.2.15.151600.201809201422.x7160_3_signed_DWL.dwl.xz.p7s*

1.12.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. TC MGUARD RS 4000 4G ATT VPN).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_TC4G_ATT_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s* and RHL75xx.A.2.15.151600.201809201422.x7160_3_signed_DWL.dwl.xz.p7s) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the /Firmware directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.12.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the *Stat*, *Mod*, and *Info2* LEDs light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the LEDs *Stat, Mod* and *Info2* flash green simultaneously, the flash process has been concluded successfully (differs when uploading a configuration profile).
3. Restart the device.

1.13 FL MGUARD PCI(E)4000

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.13.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!*):

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.13.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD PCI4000).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.13.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.13.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-7.{6}-8.6.1.default*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.13.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.13.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.13.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.13.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.13.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.13.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

1.13.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD PCI4000).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s*) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the */Firmware* directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.13.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device: The two WAN LEDs and the upper LAN LED light up green simultaneously. Release the Reset button during this green light phase.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the two WAN LEDs and the upper LAN LED flash green simultaneously, the flash process has been concluded successfully. (The flashing behavior is different in the case of simultaneous uploading of a configuration profile).
3. Restart the device.

1.14 FL MGUARD SMART2

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.14.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.14.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD SMART2).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.14.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.14.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-7.{6}-8.6.1.default*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.14.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.14.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.14.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.14.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.14.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.14.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

1.14.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD SMART2).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx, install-ubi.mpc83xx.p7s*) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.14.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

To flash the firmware from a TFTP server, a TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until all three LEDs light up green.
   – The device starts the flash process: The device searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the TFTP server.
2. If all three LEDs flash green simultaneously, the flash process has been concluded successfully. (The flashing behavior is different in the case of simultaneous uploading of a configuration profile).
3. Restart the device.

1.15 FL MGUARD CENTERPORT

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.15.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_X86_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.x68_64.tar.gz*
– (To 8.6.1: *update-7.{6}-8.6.1.default.x68_64.tar.gz*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.x68_64.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.x68_64.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.15.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD CENTERPORT).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_X86_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.x68_64.tar.gz* .

1.15.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.x68_64.tar.gz*
5. Click the **Install packages** button to start the update.

1.15.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-7.{6}-8.6.1.default*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.15.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.15.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.15.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.15.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.15.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.15.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_X86_v8.9.4.zip*

Update files (= unpacked Zip file):

– *firmware.img.x86_64.p7s*

– *install.x86_64_p7s*

1.15.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD CENTERPORT).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_X86_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy the unpacked files *firmware.img.x86_64.p7s*, *install.x86_64_p7s* into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the *Firmware* directory on the SD card or the USB flash drive.

1.15.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card / USB flash drive first. The firmware is only loaded from a TFTP server if no SD card / USB flash drive is found.

The TFTP server must be installed on the locally connected computer.

1. Connect a USB keyboard and a monitor to the device.
2. Restart the device.
3. As soon as the device boots, press one of the arrow keys on the USB keyboard several times until the boot process is interrupted: ↑, ↓, ← or →.
4. The boot menu is displayed.

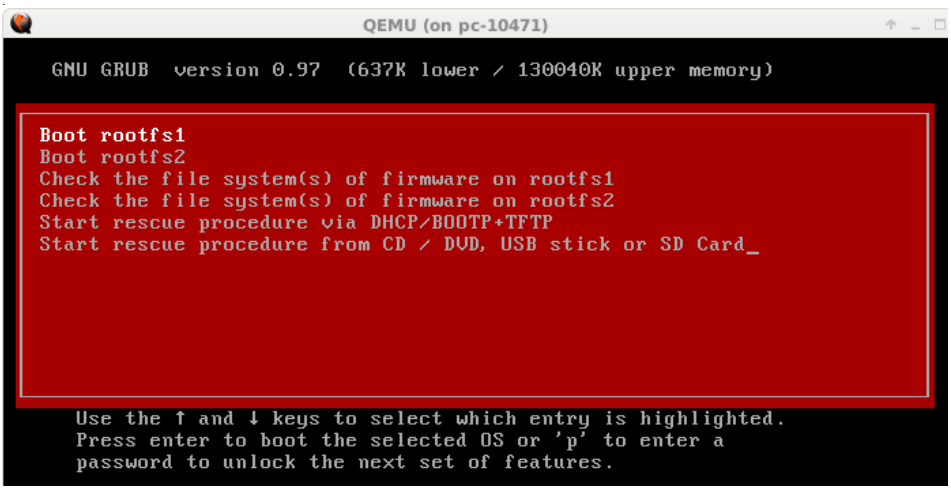


Figure 1-2 Boot menu

5. Select one of the two options to perform the flash procedure (rescue procedure) using the arrow keys ↓ or ↑:

– **Start rescue procedure via DHCP / BOOTP+TFTP**
– **Start rescue procedure from CD / DVD, USB stick or SD card**

To apply the selection, press the **Enter** key.

Start rescue procedure via DHCP / BootP+TFTP

Effect: The device downloads the necessary files from the TFTP server:

– *install.x86_64_p7s*
– *firmware.img.x86_64.p7s*

After the flash process concludes, the device is in the delivery state (default setting).

Start rescue procedure from CD/DVD, USB stick or SD card

General requirements:

1. A CD/DVD drive connected to the USB port or
2. A USB stick (USB Flash drive) connected to the USB port or
3. An SD memory card inserted into the SD card drive.
4. The necessary update files were copied onto the installation medium in the following directories:
   – */Firmware/install.x86_64_p7s*
   – */Firmware/firmware.img.x86_64.p7s*

Effect: After the flash process has been started by pressing the Enter key, the required data is downloaded from the selected medium. After the flash process concludes, the device is in the delivery state (default setting).

1.16 FL MGUARD GT/GT

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.16.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.16.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD GT/GT).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.16.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.16.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-7.{6}-8.6.1.default*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.16.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.16.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.16.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.16.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.16.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.16.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_GTGT_v8.9.4.zip*

Update files (= unpacked Zip file):

– *jffs2.img.mpc83xx.p7s*

– *install.mpc83xx.p7s*

1.16.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD GT/GT).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_GTGT_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*jffs2.img.mpc83xx.p7s, install.mpc83xx.p7s*) from the directory *GTGT* into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server.

1.16.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

To flash the firmware from a TFTP server, a TFTP server must be installed on the locally connected computer.

1. Start the flash process by pressing the mode button (see "Section 1.16.4.3, “Function selection by means of mode button (Smart mode)”").
   – The device searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the TFTP server.
2. If **05** is shown in the display, and the LEDs flash green simultaneously, the flash process has been concluded successfully. (The flashing behavior is different in the case of simultaneous uploading of a configuration profile).
3. Restart the device.

1.16.4.3 Function selection by means of mode button (Smart mode)

Activate Smart mode

The Mode button is used to call/exit Smart mode and to select the desired function. The three mode LEDs indicate the mode that is currently set and the mode which will apply when exiting Smart mode.

Call up Smart mode

- Disconnect the device from the power supply.
- As soon as the supply voltage is switched on, hold down the Mode button for **more than ten seconds**. The three mode LEDs flash briefly three times and indicate that Smart mode is active.
- When Smart mode is started, the device is initially in the “Exit without changes” state (“51” in the display).

Select the desired setting

- To select the different settings, press the Mode button briefly and select the desired operating mode using a binary light pattern of the mode LEDs and a code on the 7-segment display.

Exit Smart mode and activating the selection

- To exit, press and hold down the Mode button for at least five seconds. The previously selected function is executed.

Possible functions in Smart mode

The device supports the selection of the following functions in Smart mode (see also example below):

Table 1-4 Functions in Smart mode

Function	7-segment display	ACT LED 1	SPD LED 2	FD LED 3
Exit Smart mode without changes	51	Off	Off	**On**
Activate the recovery procedure	55	**On**	Off	**On**
Activate the flash procedure	56	**On**	**On**	Off
Apply customized default profile	57	**On**	**On**	**On**

1.17 FL MGUARD DELTA TX/TX

An update to mGuard firmware version 8.9.4 is possible from version 8.6.1 or later.

If necessary, perform the update in two steps, by first updating version < 8.6.1 to version 8.6.1. In the next step, you can update this version to version 8.9.4.

1.17.1 Local Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
– (To 8.6.1: *update-7.{6}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default.mpc83xx.tar.gz*)
– (To 8.6.1: *update-8.{6}-8.6.1.default.mpc83xx.tar.gz*)

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.17.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD DELTA).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_MPC_v8.9.4.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*

1.17.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-8.{6-9}-8.9.4.default.mpc83xx.tar.gz*
5. Click the **Install packages** button to start the update.

1.17.2 Online Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

Package set name to be used (*depending on installed firmware version!***):**

A package set name describes from which firmware versions updates can be made to the current firmware version.

– *update-8.{6-9}-8.9.4.default*
– (To 8.6.1: *update-7.{6}-8.6.1.default*)
– (To 8.6.1: *update-8.{0-5}-8.6.1.default*)
– (To 8.6.1: *update-8.{6}-8.6.1.default*)

The curly bracket indicates which installed source firmware versions can be updated by specifying the package set name (see Section 1.6.3).

1.17.2.1 Prepare online updates

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.17.2.2 Perform online update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Enter the name of the desired package set in the **Online Update** section under **Install package set**:
   – e.g., Minor update: *update-8.{6-9}-8.9.4.default*
4. Click the **Install package set** button to start the update.

1.17.3 Automatic Update to 8.9.4

Possible from installed firmware version **8.6.1** or later.

1.17.3.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.17.3.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.17.4 Flash firmware version 8.9.4

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *FW_MPC_v8.9.4.zip*

Update files (= unpacked Zip file):

– *ubifs.img.mpc83xx*

– *install-ubi.mpc83xx.p7s*

1.17.4.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD DELTA).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *FW_MPC_v8.9.4.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*ubifs.img.mpc83xx*, *install-ubi.mpc83xx.p7s*) from the *mpc* directory into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the */Firmware* directory on the SD card.

The *ubifs.img.mpc83xx* and *install-ubi.mpc83xx.p7s* files can be used to flash all of the devices described in this document, with the exception of FL MGUARD CENTERPORT and FL MGUARD GT/GT.

1.17.4.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

1. Hold down the reset button of the device until the three lower LEDs on the left (ERR, FAULT, INFO) light up green.
   – The device starts the flash process: It first searches for an inserted SD card and for the corresponding update file in the */Firmware* directory. If the device does not find an SD card, it searches for a DHCP server via the LAN interface in order to obtain an IP address. The required files are loaded and installed from the SD card or the TFTP server.
2. If the three lower LEDs on the right (ERR, FAULT, INFO) flash green simultaneously, the flash process has been concluded successfully. (The flashing behavior is different in the case of simultaneous uploading of a configuration profile).
3. Restart the device.

1.18 FL MGUARD 2102/2105, 4305/4305, 4102 PCI(E)

An update to mGuard firmware version 10.5.0 is possible from version 10.0.0 or later.

All device variants with the suffix K or KX are always included.

1.18.1 Local Update to 10.5.0

Required files (*depending on installed firmware version!***):**

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Update_mGuard-10.5.0.zip*

Update files (= unpacked Zip file):

– *update-10.{0-5}-10.5.0.default.aarch64.tar.gz*

–

The curly bracket indicates which installed source firmware versions can be updated with the update file (see Section 1.6.3).

1.18.1.1 Download the update file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD 4305).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the **download file** *Update_mGuard-10.5.0.zip.*
6. Unpack the Zip file.
7. Use the **update file** provided for the firmware version installed on your device (see Section 1.6.3):
   – e. g. Minor update: *update-10.{0-5}-10.5.0.default.aarch64.tar.gz*

1.18.1.2 Install Local Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. In the **Local Update** section, click the **No file selected** symbol under **Install packages**.
4. Select the downloaded **update file**:
   – e. g. Minor update: *update-10.{0-5}-10.5.0.default.aarch64.tar.gz*
5. Click the **Install packages** button to start the update.

1.18.2 Automatic Update to 10.5.0

1.18.2.1 Prepare Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Make sure that at least one valid update server is entered in the **Update Servers** section.

1.18.2.2 Start Automatic Update

1. Log on as *admin* user on the web interface of the mGuard device.
2. Select **Management** >> **Update** >> **Update**.
3. Click the button of the desired update process in the **Automatic Update** section to start the update:
   a) Install latest patches
   b) Install latest minor release
   c) Install next major release

1.18.3 Flash firmware version 10.5.0

Required files:

Download file on the device-specific product page in the Phoenix Contact Web Shop:

– *Firmware_mGuard-10.5.0.zip*

Update files (= unpacked Zip file):

– *firmware.img.aarch64.p7s*

– *install.aarch64.p7s*

1.18.3.1 Download flash file

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD 4305).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the following **download file**: *Firmware_mGuard-10.5.0.zip*
6. Unpack the Zip file.
7. Copy all unpacked files (*firmware.img.aarch64.p7s*, *install.aarch64.p7s*) into a freely selected directory (e.g. *mGuard-Firmware*) on your TFTP server or in the */Firmware* directory on the SD card.

The *firmware.img.aarch64.p7s* and *install.aarch64.p7s* files can be used to flash the devices described in this document (platform 3 devices with installed firmware version 10.x).

1.18.3.2 Flash mGuard device

NOTE: Flashing the firmware deletes all passwords and configurations on the mGuard device. The device is reset to its default setting.

During flashing, the firmware is always loaded from an SD card first. The firmware is only loaded from a TFTP server if no SD card is found.

The TFTP server must be installed on the locally connected computer.

Damage to the device in case of premature termination

Do not restart the device until the flash procedure is completed. (Duration: approximately 2 minutes.)

FL MGUARD 2102/4302
FL MGUARD 2105/3405

Performing a flash procedure (rail mounted devices)

- Press and hold the Mode button of the device for at least nine seconds until the **“PF1–5” LEDs** light up green.
- Release the Mode button. Otherwise, the device will be restarted.

⇒ The flash procedure is executed.

⇒ After approximately 20 seconds, the **PF1-3** LEDs light up in “Running light” mode (green). The **FAIL** LED lights up (red):

  – The device first searches for an inserted SD card and for the corresponding update files in the */Firmware* directory.

  – If the device does not find an SD card, it searches for a DHCP server via the LAN interface (XF2) in order to obtain an IP address.

⇒ The required files are loaded and installed from the SD card or the TFTP server.

⇒ The device is automatically restarted again during the flash procedure.
Do not switch off the device prematurely under any circumstances. Wait until the flash procedure has finished **completely**.

⇒ The **FAIL** LED then lights up permanently (red).

⇒ After another approximately 60 seconds, the **PF1-3** LEDs flash (green).

⇒ The flash procedure has been completed successfully. Duration: approximately 2 minutes.

- Restart the device by briefly pressing the Mode button or temporarily disconnecting the device from the power supply.

⇒ The device is ready to operate when the **PF1** LED flashes green (heartbeat).

FL MGUARD 4102 PCI(E)

Performing a flash procedure (PCI cards)

- Press and hold the Mode button on the front panel of the device for at least nine seconds until the **PF1 LED** as well as the **LEDs of the Ethernet sockets** (XF1/2) light up green.
- Release the Mode button. Otherwise, the device will be restarted.

⇒ The flash procedure is executed.
  – The device first searches for an inserted SD card and for the corresponding update files in the */Firmware* directory.
  – If the device does not find an SD card, it searches for a DHCP server via the LAN interface (XF2) in order to obtain an IP address.

⇒ The required files are loaded and installed from the SD card or the TFTP server.

⇒ The device is automatically restarted again during the flash procedure.

⇒ The **PF1/FAIL** LED then lights up and flashes green and red.

⇒ After another approximately 60 seconds, the **SPD LEDs** (XF1/2) flash additionally (green).

⇒ The flash procedure has been completed successfully. Duration: approximately 2 minutes.

- Restart the device.

⇒ The device is ready to operate when the **PF1** LED flashes green (heartbeat).

1.19 mGuard Flash Guide

1.19.1 Flashing mGuard devices

The mGuard firmware is loaded and installed onto the mGuard device from an SD card, USB flash memory (both with vfat file system) or from a TFTP update server. All data, passwords, and configurations on the device are deleted. The device is reset to its default setting.

Carrying out the flash process is described individually for every mGuard device in this document (see the device-specific Section "*Flashing firmware version 8.9.4*").

NOTE: Downgrading the pre-installed default firmware version is not supported.

For mGuard devices produced starting in January 2018, a *downgrade* of the pre-installed default firmware version to an earlier firmware version may fail. If this is the case, flash the device again with the firmware version that was originally installed or a higher version.

A downgrade is no longer possible from an installed firmware version 10.5.0.

1.19.2 Problems with incompatible SD cards

When you flash the mGuard device with an SD card from a manufacturer other than PHOENIX CONTACT, the flashing procedure described in this document may fail.

To avoid problems flashing with SD cards of other manufacturers, proceed as follows during the described flashing procedure:

1. Push the card lightly into the device without engaging it.
2. Start the flash procedure as described for your device.
3. Hold down the reset button of the device until the corresponding LEDs light up.
4. Release the reset button.
5. Immediately push the card firmly into the slot until it engages.
6. Wait until the flashing procedure is over, then restart the device.

1.19.3 Uploading configuration profile during the flash process

You can automatically upload and activate a created configuration profile (ATV profile) onto the mGuard device during the flash process.

The flashing behavior of the LEDs after the flash process deviates in this case from the standard flashing behavior.

1.19.3.1 Preparation

Create the file *preconfig.sh* with the following contents:

For unencrypted ATV profiles

```
#!/bin/sh
exec gaiconfig --silent --set-all < /bootstrap/preconfig.atv
```

For encrypted ATV profiles

```
#!/bin/sh
/Packages/mguard-tpm_0/mbin/tpm_pkcs7 < /bootstrap/preconfig.atv.p7e | gaiconfig \ --factory-default --set-all
```

If you wish to upload a configuration profile encrypted with the device certificate, you should change the file's name from **.atv* to **.atv.p7e.* Encrypted and unencrypted configuration profiles can be kept apart easier in this way.

The mGuard device treats the ATV profile equally, independent of the file ending.

During the flash process, the device searches for the following files and uploads them:

– */Rescue Config/<Seriennummer>.atv*
– */Rescue Config/<Seriennummer>.atv.p7e*
– */Rescue Config/preconfig.atv*
– */Rescue Config/preconfig.atv.p7e*
– */Rescue Config/preconfig.sh*

1.19.3.2 Loading configuration profile from SD card

In order to upload and activate a configuration profile during the flash process, proceed as follows:

1. Besides the *Firmware* directory, also create the *Rescue Config.* directory.
2. Rename the saved configuration profile as *preconfig.atv or <Seriennummer>.atv*.
3. Copy the configuration profile to the *Rescue Config*. directory.
4. Copy the *preconfig.sh* file (UNIX-Format) to the *Rescue Config*. directory.
5. Carry out the flash process as described for your device.

1.19.3.3 Loading configuration profile from the TFTP server

In order to load and activate a configuration profile during the flash process, see the description in Section 1.19.5, “Setting up DHCP and TFTP servers”.

1.19.4 Uploading licence file during the flash process

Not for FL MGUARD 2000/4000 series devices with firmware version mGuard 10.x installed.

A licence file can be uploaded onto the mGuard device and activated during the flash process as follows (e. g. a licence for more VPN connections *FL MGUARD LIC VPN-10* or for a lifetime software update *FL MGUARD LIC LIFETIME FW*).

1.19.4.1 From SD card

In order to upload and activate a licence file during the flash process, proceed as follows:

1. Create the *Rescue Config.* directory on the installation medium.
2. Copy the licence file in the *Rescue Config.* directory.
3. Rename the licence file as *license.lic or <Seriennummer>.lic*.
4. Carry out the flash process as described for your device.

1.19.4.2 From the TFTP server

In order to load and activate a licence file during the flash process, see Section 1.19.5, “Setting up DHCP and TFTP servers”.

1.19.5 Setting up DHCP and TFTP servers

Network problems

If you install a second DHCP server in a network, this could affect the configuration of the entire network.

Third-party software

Phoenix Contact does not undertake any guarantee or liability for the use of third-party products. Any reference to third-party software does not constitute a recommendation, rather serves as an example of a program that could be used.

1.19.5.1 Under Windows

If you wish to use the third-party program "*TFTPD32.exe*", obtain the program from a trustworthy source, and proceed as follows:

1. If the Windows PC is connected to a network, disconnect it from the network.
2. On the Windows PC, create a directory that you wish to use for the flash process of mGuard devices. This directory is later selected as root directory of the TFTP server. All the files required are loaded from this directory during the flash process.
3. Copy the desired firmware image file(s) into the created directory.
4. **(Uploading licence file)** If a **licence file** is to be uploaded and installed onto the mGuard device during the flash process, copy the file into the directory that has been created. Name the file as follows:
   - *license.lic* or
   - *<Serial number>.lic.*
5. **(Uploading configuration profile)** If a configuration profile is to be uploaded and activated on the mGuard device during the flash process, copy the corresponding **rollout script** (*rollout.sh*, see Section 1.19.6, “Sample script: rollout.sh”) and the **configuration profile** in the directory that has been created. Name the configuration profile as follows:
   - *preconfig.atv* (if all mGuard devices should receive the same configuration) or
   - *<Seriennummer>.atv* (if each mGuard device should receive an individual configuration).
6. Start the *TFTPD32.exe* program.

   The host IP to be specified is: **192.168.10.1**. It must also be used as the address for the network card.
7. Click the **Browse** button to switch to the directory where the mGuard image files are saved: (e. g. *install-ubi.mpx83xx.p7s, ubifs.img.mpc.p7s*).

8. Make sure that this really is the correct licence file for the device (under “Management >> Update” on the web interface).

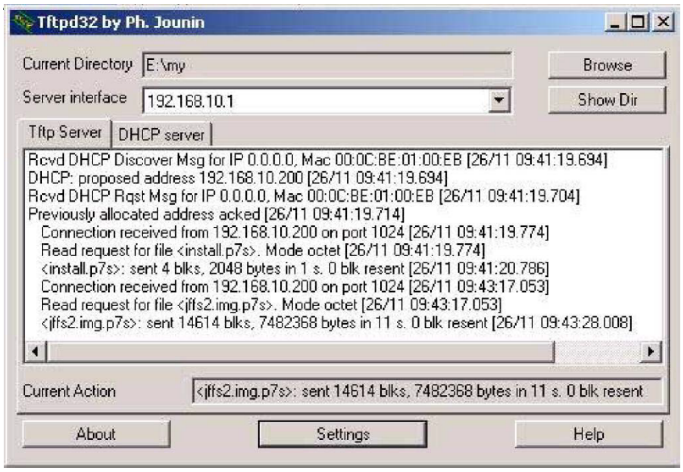
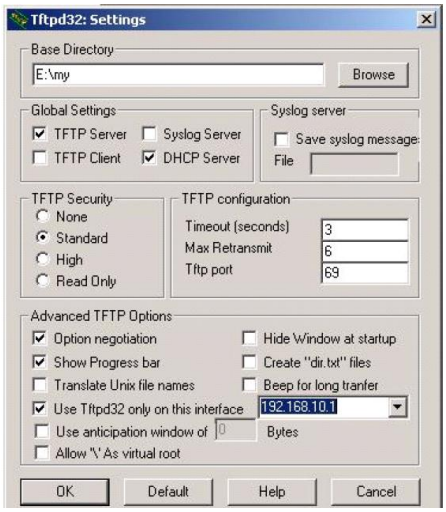


Figure 1-3 Entering the host IP

9. Switch to the “TFTP Server” or “DHCP Server” tab and click the “Settings” button to set the parameters as follows:



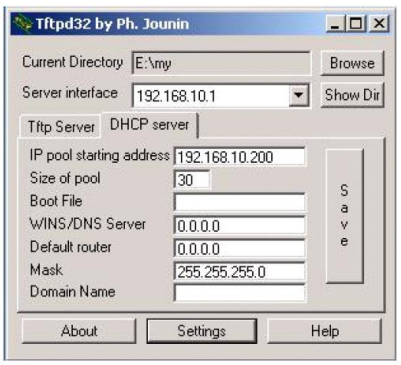


Figure 1-4 Settings

1.19.5.2 Under Linux

All current Linux distributions include DHCP and TFTP servers.

1. Install the corresponding packages according to the instructions provided for the respective distribution.
2. Configure the DHCP server by making the following settings in the */etc/dhcpd.conf* file:
   subnet 192.168.134.0 netmask 255.255.255.0 {
   range 192.168.134.100 192.168.134.119;
   option routers 192.168.134.1;
   option subnet-mask 255.255.255.0;
   option broadcast-address 192.168.134.255;}
   This example configuration provides 20 IP addresses (.100 to .119). It is assumed that the DHCP server has the address 192.168.134.1 (settings for ISC DHCP 2.0).

The required TFTP server is configured in the following file: */etc/inetd.conf*

3. In this file, insert the corresponding line or set the necessary parameters for the TFTP service. (Directory for data: */tftpboot*)
   tftp dgram udp wait root /usr/sbin/in.tftpd -s /tftpboot/
   The mGuard image files must be saved in the */tftpboot* directory: e. g. *install-ubi.mpx83xx.p7s, ubifs.img.mpc.p7s*.
4. **(Uploading licence file)** If a **licence file** is to be uploaded and installed onto the mGuard device during the flash process, copy the file into the */tftpboot* directory. Name the file as follows:
   – *license.lic* or
   – *<Serial number>.lic*.
5. **(Uploading configuration profile)** If a configuration profile is to be uploaded and activated on the mGuard device during the flash process, copy the corresponding **rollout script** (*rollout.sh*, see Section 1.19.6, “Sample script: rollout.sh”) and the *configuration profile* in the */tftpboot* directory. Name the configuration profile as follows:
   – *preconfig.atv* (if all mGuard devices should receive the same configuration) or
   – *<Seriennummer>.atv* (if each mGuard device should receive an individual configuration).
6. Then restart the *inetd* process to apply the configuration changes.
7. If using a different mechanism, e.g., *xinetd*, please consult the corresponding documentation.

1.19.5.3 TFTP server: Error messages

During the flash process, the mGuard device searches by default for the files *rollout.sh, license.lic* and <*Seriennummer*>*.lic*. If these files are not available, a corresponding error message is displayed:

File rollout.sh: error 2 in system call CreateFile The system cannot find the file specified.

File <serial number>.lic : error 2 in system call CreateFile The system cannot find the file specified.

File licence.lic: error 2 in system call CreateFile The system cannot find the file specified.

The error message can be ignored if no licence file is uploaded, or the mGuard device should not be preconfigured via the *rollout.sh* script. The flash process is continued as planned in such cases.

1.19.6 Sample script: rollout.sh

Use of rollout scripts

The implementation and use of a rollout script is not a part of the mGuard product or mGuard firmware supported by PHOENIX CONTACT. Responsibility for the implementation and use of a rollout script lies solely with the customer and not PHOENIX CONTACT.

During the flash process, the mGuard device checks the presence of the *rollout.sh* file. This file must be located in the same directory as the firmware image file on the TFTP server. If the file exists, it is uploaded on the mGuard device and run there.

The *rollout.sh* file must be a UNIX shell script. The configuration data for the mGuard device can be requested from the TFTP server with the script, and the configuration program of the mGuard device (*gaiconfig*), started.

The rollout script documented here serves as a template and only can be used in a manner individually adapted by the customer. In principle, the rollout support can be implemented in two ways, so that

– "**all**" mGuard devices receive the same configuration (**static TFTP**), or
– "**every**" mGuard receives its own individual configuration depending on its serial number (**dynamic TFTP**).

1.19.6.1 Static TFTP (standard configuration for every mGuard device)

A sample *rollout.sh* script is documented below. This downloads a standard configuration file for installation on mGuard devices from the TFTP server via *tftp*. The name of the configuration file defined in the script is *preconfig.atv*.

```
#!/bin/sh -ex
# The IP address of the DHCP/TFTP server
# is supplied by install.p7s | install-ubi.mpc83xx.p7s | install.mpc83xx.p7s |
# install.aarch64.p7s

server=$1

# This is the filename of the user supplied static configuration file
# on the host in the TFTP-server directory

cfg_name=preconfig.atv
export PATH=/bin:/bootstrap

# fetch the static configuration-file "preconfig.atv"

tftp -g -l - -r "$cfg_name" "${server}" | dd bs=1M of=/bootstrap/preconfig.atv

# create a small configuration-script that installs the
# configuration fetched from ${server}

cat >/bootstrap/preconfig.sh <<EOF

#!/bin/sh

modprobe param_dev 2>/dev/null
gaiconfig --silent --set-all < /bootstrap/preconfig.atv
EOF

# Make it executable. It will be executed after all packets
# are installed completely.

chmod 755 /bootstrap/preconfig.sh
```

1.19.6.2 Dynamic TFTP (individual configuration for every mGuard device)

A sample *rollout.sh* script is documented below. This downloads a device-specific configuration file from the TFTP server via *tftp*. The name of the configuration file defined in the script is *<serialnumber>.atv*.

```
#!/bin/sh -ex

# The IP address of the DHCP/TFTP server
# is supplied by install.p7s | install-ubi.mpc83xx.p7s | install.mpc83xx.p7s
# install.aarch64.p7s

server=$1
export PATH=/bin:/bootstrap
mount -t proc none /proc || : mount -t sysfs sysfs /sys || :
if test -f /proc/sys/mguard/parameter/oem_serial ; then SERIAL=`cat
/proc/sys/mguard/parameter/oem_serial`
else
SERIAL=`sysmguard param oem_serial`
fi

# This is the filename of the user supplied static configuration file
# on the host in the TFTP-server directory

cfg_name=${SERIAL}.atv

# fetch the static configuration-file "preconfig.atv"

tftp -g -l /bootstrap/preconfig.atv -r $cfg_name ${server}

# create a small configuration-script that installs the
# configuration fetched from ${server}

cat >/bootstrap/preconfig.sh <<EOF

#!/bin/sh

modprobe param_dev 2>/dev/null || :
gaiconfig --silent --set-all < /bootstrap/preconfig.atv
EOF

# Make it executable. It will be executed after all packets
# are installed completely.

chmod 755 /bootstrap/preconfig.sh
umount /proc umount /sys || :
```

1.20 Setting up mGuard firmware update repositories

If you have questions, please contact Support at your local PHOENIX CONTACT subsidiary.

To update your mGuard devices, you can use your own update server (Unix or Windows server). You can download the required update files on the device-specific product pages in the Phoenix Contact Web Shop.

Download file:

- **FL MGUARD CENTERPORT**
  Unix and Windows Server: *mguard-firmware-repositories_x86_v8.9.4.zip*
- **Other FL/TC MGUARD devices (mGuard 8.x)**
  Unix and Windows Server: *mguard-firmware-repositories_mpc_v8.9.4.zip*
- **Other FL MGUARD devices (mGuard10.x)**
  Unix and Windows Server: *mguard-firmware-repositories_10.5.0.zip*

To operate an update server, proceed as follows:

1. Open the website of the Phoenix Contact Web Shop in a web browser at: phoenixcontact.com/products.
2. Search for the device's product name (e.g. FL MGUARD RS 4000).
3. Open the desired product page.
4. Select the *Downloads* tab and the *Firmware update* category.
5. Download the desired **Download file**:
   mguard-firmware-repositories_mpc_v8.9.4.zip
6. Copy the contents of the ZIP folder onto your update server.
7. Enter the update server on the mGuard web interface under **Management >> Update >> Update** (see Section 1.6.4.3, “Automatic Update”).
8. You can now carry out **Online Updates** or **Automatic Updates** from your update server.

NOTE: Online or Automatic Updates from the installed source firmware version **7.6.8** can lead to an error when the update server is operated with newer versions of the Apache Web Server (e.g. 2.4.18).

This problem will not occur if the Phoenix Contact update server which has been preset ex-works (https://update.innominate.com) is used.

To avoid the problem, an update server such as *nginx* or *fnord* can be used instead of an Apache Web Server.

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