

# Innominate mGuard v6

## Application Note

### Update, Recovery and Flash Guide



*mGuard smart*



*mGuard PCI*



*mGuard blade*



*mGuard industrial RS*



*EAGLE mGuard*



*mGuard delta*

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## **1 Disclaimer**

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## 2 In which case do I need to execute which procedure?

### 2.1 Update Procedure

The *Update* procedure is used for updating the mGuard to a newer firmware release. This will be done user friendly through the web interface. The update can be installed locally (offline) or online. If possible, the online update should be the preferred method.

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 **Note:** Starting with an update to version 5 a *Major Release Update License* must be installed on the device for being able to update to the next major release (X.y.z). Please refer to the chapter [Major Release Update License](#).

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### 2.2 Recovery Procedure

You need to perform the *Recovery* procedure if you lost access to the mGuard and can't contact the device, neither through the web browser nor through SSH. This may be caused by one of the following reasons:

- The internal IP of the mGuard (*Router*, *PPPoE*, *PPTP* mode) is unknown.
- The management IP (*Stealth* mode) is unknown.
- SSH and HTTPS access rules were defined which do not allow accessing the device.

The *Recovery* procedure will reset the **mGuard delta** and the **mGuard blade control unit** into *Router* mode and the internal IP to 192.168.1.1. Those devices will be accessible again through <https://192.168.1.1>.

All other products (**mGuard smart**, **mGuard industrial RS**, **EAGLE mGuard**, **mGuard blade** and **mGuard PCI**) will be reset into *Stealth* mode. Those devices will be accessible again through <https://1.1.1.1>.

The *Recovery* procedure will also remove SSH access rules and enable internal HTTPS access. Apart of this the *Recovery* procedure won't affect current configured VPN connections, firewall settings or passwords.

### 2.3 Flash Procedure

You only need to flash the firmware of the mGuard if the root password is unknown. **This procedure will erase existing configurations on the mGuard.** The mGuard will be restored to the factory default settings, also the passwords. You need to reconfigure the mGuard after flashing the firmware.

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 **Note:**

- If you want to update the version of the firmware, the *Update* procedure should be the preferred method.
  - Starting with version 5 afterwards installed licenses, as for example Anti Virus or VPN licenses, will be stored permanently on the device and won't be erased by the flash procedure. In prior versions afterwards installed licenses will be erased and need to be re-installed.
  - Starting with an update to version 5 a *Major Release Update License* must be installed on the device for being able to flash the device with the next major release (X.y.z) (refer to [Major Release Update License](#)).
  - If you need to flash an already configured device, save the current configuration as configuration profile and download it to the local system before flashing the unit. This way you can restore the configuration after flashing the device.
-

## 2 The Rescue Switch

The **Rescue Switch** is used for executing one of the following actions:

- Reboot of the device.
- Perform the *Recovery* procedure.
- Start the *Flash* procedure.

Its location depends on the product, as shown in the picture below:



**mGuard smart**



**mGuard PCI**



**mGuard blade**



**EAGLE mGuard**



**mGuard industrial RS**



**mGuard delta**

### 3 Recovery Procedure

The *Recovery* procedure will reset the **mGuard delta** and the **mGuard blade control unit** into *Router* mode and the internal IP to 192.168.1.1. Those devices will be accessible again through <https://192.168.1.1>.

All other products (**mGuard smart**, **mGuard industrial RS**, **EAGLE mGuard**, **mGuard blade** and **mGuard PCI**) will be reset into *Stealth* mode. Those devices will be accessible again through <https://1.1.1.1>.

The *Recovery* procedure will also remove SSH access rules and enable internal HTTPS access. Apart of this the *Recovery* procedure won't affect current configured VPN connections, firewall settings or passwords.

- Press the **Rescue Switch** slowly 6 times (once per second).

⇒ The response of the device depends on the product:


<b>mGuard smart</b>	<ul style="list-style-type: none"> <li>- The middle LED switches off for one second.</li> <li>- The middle LED lights green for one second.</li> <li>- Finally the middle LED starts flickering green.</li> </ul>
<b>mGuard PCI &amp; mGuard blade</b>	<ul style="list-style-type: none"> <li>- The red WAN LED will flash 6 times.</li> <li>- The red LAN LED will flash once.</li> </ul>
<b>EAGLE mGuard</b>	<ul style="list-style-type: none"> <li>- The <i>Status</i> LED switches off for one second.</li> <li>- The <i>Status</i> LED lights orange for one second.</li> <li>- Finally the <i>Status</i> LED light green.</li> </ul>
<b>mGuard delta</b>	<ul style="list-style-type: none"> <li>- The <i>Status</i> LED switches off for one second.</li> <li>- The <i>Status</i> LED lights green for one second.</li> <li>- Finally the <i>Status</i> LED starts flickering green.</li> </ul>
<b>mGuard industrial RS</b>	<ul style="list-style-type: none"> <li>- The <i>State</i> LED switches off for one second.</li> <li>- The <i>State</i> LED lights green for one second.</li> <li>- Finally the <i>State</i> LED starts flickering green.</li> </ul>

- Press the **Rescue Switch** slowly 6 times (once per second) again.

⇒ The response of the device depends on the product:

<b>mGuard smart</b>	<ul style="list-style-type: none"> <li>- The middle LED switches off for one second.</li> <li>- The middle LED lights green for one second.</li> <li>- The device reboots. The middle LED lights red briefly.</li> </ul>
<b>mGuard PCI &amp; mGuard blade</b>	<ul style="list-style-type: none"> <li>- The device will perform a reboot.</li> </ul>
<b>EAGLE mGuard</b>	<ul style="list-style-type: none"> <li>- The <i>Status</i> LED switches off for one second.</li> <li>- The <i>Status</i> LED lights orange for one second.</li> <li>- The device reboots. The <i>Fault</i> LED lights red until the device is ready.</li> </ul>
<b>mGuard delta</b>	<ul style="list-style-type: none"> <li>- The <i>Status</i> LED switches off for one second.</li> <li>- The <i>Status</i> LED lights green for one second.</li> <li>- The device reboots.</li> </ul>
<b>mGuard industrial RS</b>	<ul style="list-style-type: none"> <li>- The <i>State</i> LED switches off for one second.</li> <li>- The <i>State</i> LED lights green for one second.</li> <li>- The device reboots.</li> </ul>

---

 **Note:** If the mGuard is in *Stealth* mode and the specified default gateway is not reachable because the external interface of the mGuard is not connected to the network, you need to assign a static MAC address to the IP address of the default gateway by using the arp command (e.g. arp -s <IP address of the default gateway> aa-aa-aa-aa-aa-aa). Otherwise the mGuard won't be accessible through <https://1.1.1.1>. Please refer to the *mGuard User's Manual* for further information.

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## 4 Major Release Update (MRU) License

Starting with an update to version 5 a *Major Release Update (MRU) License* must be installed on the unit for being able to update to the next major release (X.y.z), as for example from 4.x.x to 5.0.0. Minor releases (x.Y.z) and patch releases (x.y.Z) are free of charge until further notice. Please contact your local dealer for obtaining a *Major Release Update Voucher* for requesting the *Major Release Update License*.

There exist three different kinds of *Major Release Update* voucher:

- You need an **Innominate mGuard VPN-250 Major Release Upgrade** voucher if afterwards a VPN-250 license was installed on the device for enabling a maximum of 250 VPN connections.
- You need an **Innominate mGuard Redundancy Major Release Upgrade** voucher if a license was installed for enabling *Firewall Redundancy*.
- In all other cases you need an **Innominate mGuard Major Release Upgrade** voucher.

For an update to version 5 an *MRU License* is only required for devices which were produced before 01.01.2007. For an update to version 6 an *MRU License* is only required for devices which were produced before 01.10.2007.

For each update to the next major release one *MRU License* is required. If you want to update a device from version 4 to version 6, two *MRU Licenses* are required, one license for the update to version 5 and another license for the update to version 6.

The production date is displayed in the menu *Management -> Licensing (tab Overview)* in the base license of the device. The base license is the license where the option *licence\_type* displays the product name (e.g. *Innominate mGuard gateway*).

(mGuard Flash ID 002900013f26c288-04c0)

**AntiVirus License**

AntiVirus license installed	No
Expiry date	-

**Feature License**

License with priority 1094583075

licence_id	0
licence_date	2004-09-07T18:51:15
flash_id	002900013f26c288
serial_number	14907008
hardware_revision	000007de
licence_order	109
product_code	51013
vpn_channels	10
l2tp_server	1
licence_version	1
licence_type	Innominate mGuard gateway
fw_redundancy	1

Menu: *Management -> Licensing*

An *MRU License* is also required when flashing the device with the next major release. Starting with version 5 afterwards installed licenses are stored permanently on the device which means that they won't be erased during the flash procedure. When flashing a unit with an installed v5 with v6, you can request the *MRU License* from the device and then flash it with the new major release. Flashing a device with version 5 requires that the *MRU License* is uploaded to the device during the flash process. The *MRU License* must be located in the same directory as the firmware image files and must have either the filename *licence.lic* or *<serialnumber>.lic*. The flash process looks automatically for those files being available.

The *Major Release Update Voucher* consists of a voucher serial number (e.g. 2730200089) and a corresponding voucher key (e.g. cb30-09e5-cf8c-2cdf-bc56-2a45). After receiving the voucher you need to request the *MRU License* for the device:

- Go to the menu **Management -> Licensing**, tab **Install**.
  - Enter the voucher serial number and the voucher key.
  - Click **<Online License Request>**.
- ⇒ The license will be issued and installed automatically onto the device.

Overview	Install
<b>Automatic License Installation</b>	
Voucher Serial Number/Voucher Key	2730200089    cb30-09e5-cf8c-2cdf-bc56-2a45
	Online License Request
Reload Licenses	Online License Reload
<b>Manual License Installation</b>	
Order License	Edit License Request Form
Filename	Durchsuchen...
	Install license file

Menu: *Management -> Licensing*

If the device does not have access to the Internet, use the following URL from a workstation with Internet access: [http://license.innominate.com/request\\_license.cgi](http://license.innominate.com/request_license.cgi). You also need to provide the complete flash ID of the device (including the checksum) when requesting the license through this URL. The flash ID of the unit is displayed in the menu **Management -> Licensing**, tab **Overview** (e.g. *003c000b414efbe7-0282*). After entering the required data and clicking **<Submit>** the license file will be made available for download. The license needs to be installed in the section *Manual License Installation*:

- Click **<Browse>**.
- Select the license file.
- Click **<Install license file>**.


Once the *MRU License* is installed on the device it can be updated to the next major release version or flashed with this version.

The devices behave in the following manner if the *MRU License* is missing:

- After starting a local or an online update the message **The update is not intended for the currently installed version** is displayed and the update is aborted.
- After flashing the device an LED displays the morse signal SOS (three times short, three times long, three times short). If this happens you need to flash the device again with the previous installed version or upload the license during the flash procedure. Which LED sends SOS depends on the product:
  - **mGuard smart**: The middle LED in red.
  - **mGuard blade** and **mGuard delta**: The red WAN LED.
  - **mGuard industrial RS** and **EAGLE mGuard**: The fault LED.
  - **mGuard delta**: The status LED in green.

## 5 Update Procedure

The firmware of the mGuard can be updated conveniently through the web interface. The update can be installed either locally (offline) or online through the Internet. If possible, the online update should be the preferred method.

 **Note:** Starting with an update to version 5 an installed *Major Release Update License* is required for installing major release updates (refer to chapter [Major Release Update License](#)).

### 5.1 How to retrieve the currently installed Firmware Version

Go to the menu **Management -> Update**, tab **Overview**. The currently installed version is displayed in the line *Version*. *Base* informs about the version which was installed when the device was produced and *Updates* about the installed updates.

Overview	Update	AntiVirus Pattern
<b>System Information</b>		
Version	4.2.1.default	
Base	4.1.1.default	
Updates	update-4.1.x-4.2.0.default update-4.2.0-4.2.1.default	


### 5.2 Local (offline) Update

- At first you need to retrieve the firmware version which is currently installed on the device as described in the previous chapter.
- Check our homepage ([www.innominate.com](http://www.innominate.com), *Downloads -> Updates*) for the latest released version. If there is no update from the device's current version to the latest release available, for example from v3.0.0 to v4.2.1, you need to update the device step by step, from v3.0.x to v3.1.1 and then from v3.1.x to v4.2.1.
- Download the appropriate update file (e.g. update-4.0.x-4.2.1.tar.gz) from our homepage. You don't need to extract the files. This will be done automatically by the mGuard.
- Verify that the file extension of the downloaded file is \*.tar.gz. Sometimes the Microsoft Internet Explorer saves the file as \*.tar.tar which is an unusable format for the mGuard. In this case you'll get the error message "**tar: Invalid gzip magic**".
- Go to the menu **Management -> Update**, tab **Update**.
- In the section *Local Update*, click **<Browse>** and specify the downloaded update file.

Overview	Update	AntiVirus Pattern
<b>Local Update</b>		
Filename	D:\update-4.0.x-4.2.1.tar <input type="button" value="Durchsuchen..."/>	
	<input type="button" value="Install Packages"/>	
<small>The filename of the package set has the extension '.tar.gz'. The format of the filename you have to enter is: 'update-a.b.c-d.e.f.tar.gz'.</small>		

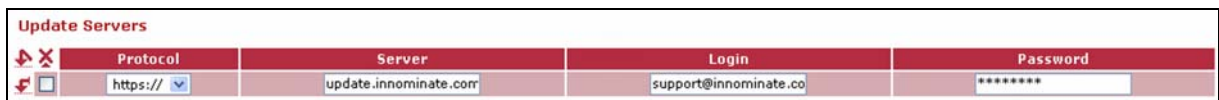
- Click **<Install Packages>**.
- ⇒ The update is started.
- Examine the output.
  - When the update is finished, reboot the device if prompted.

### 5.3 Online and Automatic Update

 **Note:** The mGuard must have access to the Internet for performing the online or automatic update.

#### 5.3.1 Configuring the Update Server

- Go to the menu **Management -> Update**, tab **Update**.
- In the section *Update Servers*, select **https://** as *Protocol* and specify **update.innominate.com** as update server.
- Enter the account information (login/password) you have received after registering through our homepage ([www.innominate.com](http://www.innominate.com) -> Services -> Software Updates).



Protocol	Server	Login	Password
https://	update.innominate.com	support@innominate.co	*****

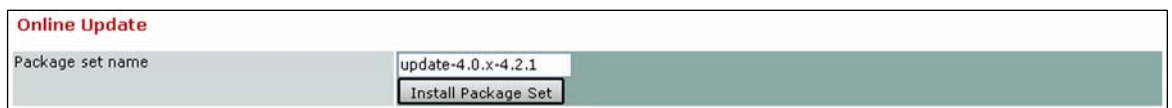
- Click **<Apply>**.

#### 5.3.2 Online Update

Due to the *Automatic Update* this option is obsolete but it is still available for maintaining backward compatibility. This option might be removed in a future release.

- At first you need to retrieve the firmware version which is currently installed on the device as described previously.
- Check our homepage ([www.innominate.com](http://www.innominate.com), *Downloads -> Updates*) for the latest released version. If there is no update from the device's current version to the latest release available, for example from v3.0.0 to v4.2.1, you need to update the device step by step, from v3.0.x to v3.1.1 and then from v3.1.x to v4.2.1.
- Go to the menu **Management -> Update**, tab **Update**.
- In the section *Online Update*, enter as **Package Set Name** the name of the update package which should be installed. The format of the package set name is as follows:

**update-<current version>-<target version>**, e.g. update-4.0.x-4.2.1.



Online Update	
Package set name	update-4.0.x-4.2.1
	<input type="button" value="Install Package Set"/>

The appropriate *Package Set Name* can be obtained from our homepage ([www.innominate.com](http://www.innominate.com), *Downloads-> Updates*).

- Click **<Install Package Set>**.
- ⇒ The Online Update is started.
- Examine the output.
- When the update is finished, reboot the device if prompted.


### 5.3.3 Automatic Update

- Go to the menu **Management -> Update**, tab **Update**.

Automatic Update	
Install the latest patch release (x.y.z)	<input type="button" value="Install latest patches"/>
Install the latest minor release (x.Y.z) for the currently installed major version	<input type="button" value="Install latest minor release"/>
<small><b>Note:</b> It might be possible that there is no direct update from the currently installed version to the latest published minor release available. Therefore, after updating the system to a new minor release, press this button again until you receive the message that there is no newer update available.</small>	
Install the next major release (X.y.z)	<input type="button" value="Install next major version"/>
<small><b>Note:</b> It might be possible that there is no direct update from the currently installed version to the next major release available. Therefore execute the minor release update first and repeat this step until you receive the message that there is no newer minor release available. Then install the next major release.</small>	

- Select one of the following options:
  - **<Install latest patches>** for updating the device within one minor release version (e.g. from 4.2.0 to 4.2.1).
  - **<Install latest minor release>** for updating to the next minor release (e.g. from 4.1.0 to 4.2.0).
  - **<Install next major version>** for updating the device to the next major release (e.g. from 4.x.x to 5.0.0). Selecting this option requires the presence of a *Major Release Update License* (refer to chapter [Major Release Update License](#)).

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 **Note:** It might be possible that there is no direct update available from the currently installed version to the latest published minor or major release. Therefore, after updating the system to a new minor or patch release, press the same button again until you receive the message that there is no newer update available.

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### 6 Flash Procedure

You only need to flash the firmware of the mGuard if the root password is unknown. It might also be useful to flash the device with the target version instead of executing several updates. **This procedure will erase existing configurations on the mGuard.** The mGuard will be restored to the factory default settings, also the passwords. You need to reconfigure the mGuard after flashing the firmware.

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 **Note:**

- If you want to update the version of the firmware, the *Update Procedure* should be the preferred method.
- Starting with version 5, flashing the mGuard with the next major release requires a *MRU License* (refer to chapter [Major Release Update License](#)).
- Starting with version 5 afterwards installed licenses are stored permanently on the device which means that they won't be erased during the flash procedure. When flashing a unit with an installed version 5 with version 6, you can request the *MRU License* from the device and then flash it with the new major release. Flashing a device with version 5 requires that the *MRU License* is uploaded to the device during the flash process. The *MRU License* must be located in the same directory as the firmware image files and must have either the filename *licence.lic* or *<serialnumber>.lic*. The flash process looks automatically for those files being available.
- If you want to flash a device, which was produced with version 5 or 6, with a lower version than 5, you need to use the file *install.p7s* of the firmware image of version 5 or 6.

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**ATTENTION: Do not interrupt the power supply when the flashing procedure is running. Otherwise the device could be damaged, may be left inoperable, and may require your device to be sent to the manufacturer.**

#### 6.1 Prerequisites

The following data/programs must be located on the client you want to use for flashing the mGuard. You may copy them from the mGuard CD or download them from our homepage ([www.innominate.com](http://www.innominate.com), *Download -> Firmware*).

1. The image software (*install.p7s* and *jffs2.img.p7s*) of the desired firmware version.
2. Windows: TFTP-/DHCP-Server (tftpd32.exe).
3. If there is a desktop firewall running on the client, disable it.
4. If the *MRU License* should be uploaded to the device during the flash procedure, put the license file into the same directory which contains the image software, either as *licence.lic* or as *<serialnumber>.lic*.

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 **Note:** When using the Windows TFTP-/DHCP Server you should use at least version 2.80.


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## 6.2 Windows Client and DHCP-/TFTP Server Setup

- Copy the image software (install.p7s and jffs2.img.p7s) into a local directory of the Windows client.
- **If the external interface of the mGuard is connected to the network: disconnect it!**
- If you want to flash an mGuard PCI which is operated in *Power-over-PCI* mode, you must connect the LAN interface of the mGuard PCI to the Ethernet card of the Windows client.
- Configure the Windows client to use the following IP settings. When using the mGuard PCI in **Driver** mode, you need to apply those settings to the mGuard PCI card.

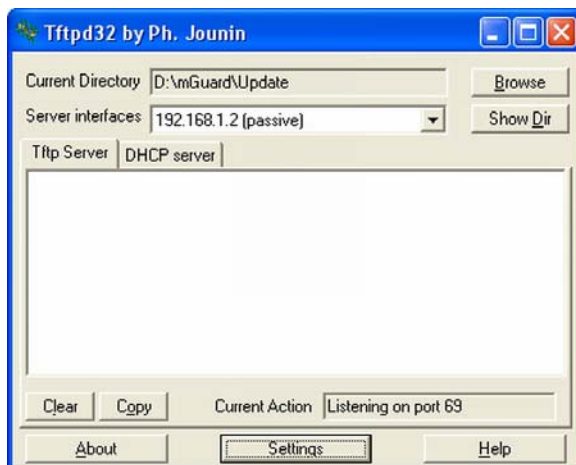
<b>IP address</b>	192.168.1.2
<b>Subnet mask</b>	255.255.255.0
<b>Default gateway</b>	192.168.1.1

---

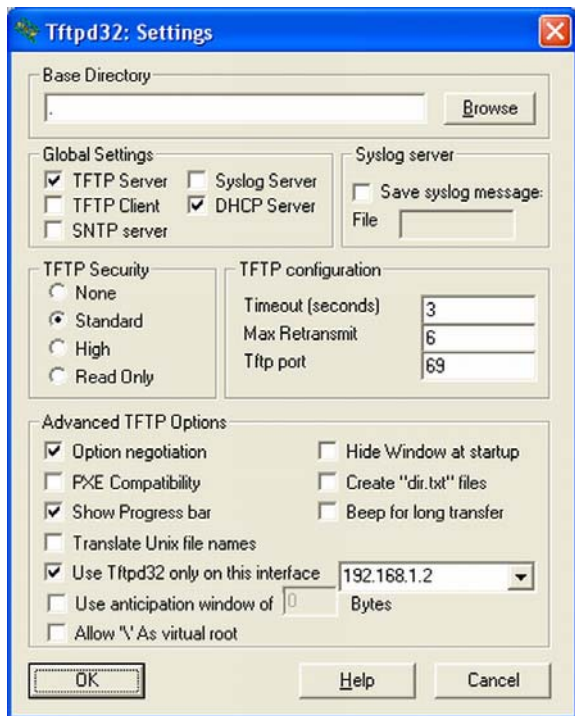
 **Note:** If you are familiar with the configuration of the TFTP/DHCP Server then you can keep the IP settings of the client and configure the TFTP/DHCP Server accordingly, as long as the client does not receive its IP settings via DHCP. Otherwise you should use the above mentioned IP settings and configure the TFTP/DHCP Server as described below.

---

- Start the program tftpd32.exe. You may ignore appearing error messages. They won't appear anymore after configuring and restarting the TFTP-/DHCP Server.

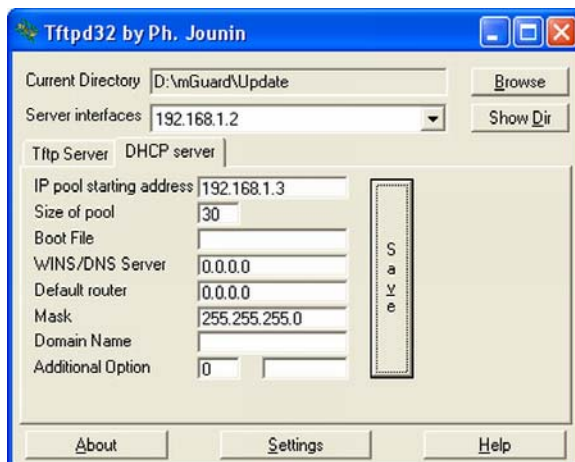


- The program should display the IP 192.168.1.2 as **Server interfaces**. The mark *passive* won't be displayed anymore after configuring and restarting the program.
- Click **Settings**.



- Ensure that only the options displayed in the screenshot are enabled.
- Click **OK**.

- Restart the program for applying the changes.
- Switch to the tab **DHCP Server**.



- Enter the following parameters:  
**IP pool starting address** = 192.168.1.3  
**Size of pool** = 30  
**Mask** = 255.255.255.0
- Click **Save** and switch to the tab **Tftp Server**. Information about the flash progress will be displayed in this screen.

- Click **Browse** and select the directory, which contains the image software *install.p7s* and *jffs2.img.p7s*.

The Windows client and TFTP-/DHCP Server setup is finished. Now the flash procedure can be started on the mGuard.

### 6.3 Flash Process

To start the *Flash* procedure, press the *Rescue* switch for approximately 3 seconds, until:

<b>mGuard smart</b>	All LEDs light green.
<b>mGuard PCI &amp; mGuard blade</b>	Both green LEDs (LAN and WAN) and the red LAN LED switch on.
<b>EAGLE mGuard</b>	The three LEDs LS/DA 1, LS/DA 2 and V.24 light green.
<b>mGuard delta</b>	The <i>Status</i> LED begins to fade out.
<b>mGuard industrial RS</b>	The three LEDs <i>State</i> , <i>LAN</i> and <i>WAN</i> light green.

 **Note:**

- If you release the *Rescue* switch too late or too early, the mGuard restarts again.
- Starting with version 6 it is also possible to initiate the flash procedure by creating the file **RESCUE\_me\_now** in the top level directory of the mGuard with a subsequent reboot of the devices. This feature is really helpful when flashing an **mGuard PCI** because the rescue switch is usually not accessible from the outside.

This starts the *Flash* procedure and information about the flash progress is displayed in the tab *Tftp server* of the program Tftpd32. It takes about 60 seconds before the first information appears. The complete flash procedure may take about 20 minutes.

The status display changes as follows during the flash process:

<b>mGuard smart</b>	<ul style="list-style-type: none"> <li>• The middle LED flashes.</li> <li>• The 3 green LEDs form a bouncing ball display in which the light shifts from one LED to the next.</li> <li>• The middle LED lights continuously.</li> <li>• All 3 LEDs flash green at the same time.</li> </ul> <p>⇒ The <i>Flash</i> procedure is finished and you need to reboot the device.</p>
<b>mGuard PCI &amp; mGuard blade</b>	<ul style="list-style-type: none"> <li>• The red LAN LED flashes and flickers then.</li> <li>• The green LEDs and the red LAN LED form a bouncing ball display in which the light shifts from one LED to the next.</li> <li>• The red LAN LED lights continuously.</li> </ul> <p>⇒ The mGuard reboots automatically when the <i>Flash</i> procedure is finished.</p>
<b>EAGLE mGuard</b>	<ul style="list-style-type: none"> <li>• The LEDs LS/DA 1, LS/DA 2 and V.24 light orange briefly.</li> <li>• The LEDs LS/DA 1, LS/DA 2 and V.24 form a bouncing ball display in which the light shifts from one LED to the next.</li> <li>• The LEDs LS/DA 1, LS/DA 2 and V.24 are switched off. The LEDs p1, p2 and <i>Status</i> light green continuously.</li> <li>• The LEDs LS/DA 1, LS/DA 2 and V.24 flash green at the same time.</li> </ul> <p>⇒ The <i>Flash</i> procedure is finished and you need to reboot the device.</p>
<b>mGuard delta</b>	<ul style="list-style-type: none"> <li>• The <i>Status</i> LED flashes.</li> <li>• The <i>Status</i> LED flashes fast.</li> <li>• The <i>Status</i> LED lights continuously.</li> <li>• The <i>Status</i> LED flashed once per second.</li> </ul> <p>⇒ The <i>Flash</i> procedure is finished and you need to reboot the device.</p>
<b>mGuard industrial RS</b>	<ul style="list-style-type: none"> <li>• The <i>State</i> LED flickers green.</li> <li>• The LEDs <i>Modem</i>, <i>State</i> and <i>LAN</i> form a bouncing ball display.</li> <li>• The <i>State</i> LED lights continuously.</li> <li>• The LEDs <i>Modem</i>, <i>State</i> and <i>LAN</i> flash green at the same time.</li> </ul> <p>⇒ The <i>Flash</i> procedure is finished and you need to reboot the device.</p>

At the end of the flash procedure the program tftpd32 may display the error message that the file **rollout.sh** couldn't be found. You can ignore this message. The file *rollout.sh* is only required if the mGuard should also be configured during the flash procedure.

**mGuard delta** and **mGuard blade control unit** are in *Router* mode after flashing it. The user interface can be accessed through <https://192.168.1.1>.

All other products (**mGuard smart**, **mGuard industrial RS**, **EAGLE mGuard**, **mGuard blade** and **mGuard PCI**) are in *Stealth* mode. The user interface can be accessed through <https://1.1.1.1>.

If you need to flash more than one mGuard, simply connect the next mGuard and press the *Rescue* switch as described above. The *Flash* procedure will start again. Of course you may also connect several mGuards to a switch and flash them at the same time.