

# ZBG-100

## Gateway Recovery Guide

## 1 History

DVers.:	Date	Modified by	Changes	State
01	04.06.2015	PI-FG	Born	Release
02	13.10.2015	PI-FG	Update of file links	Release

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## 4 Definition of Symbols



The attention symbol refers to actions, which can cause damage to material or equipment.



The notice indicates necessary conditions for error-free operation. It picks out important details, makes the job easier, and gives tips and advice on the optimal use of hardware and software.

## 5 Well Known Problems Treated In This Document

- Problem: gateway is not accessible via its IP anymore:
  - o try out recovery option A in [chapter 8: Settings Recovery via USB](#)
  
- Problem: the blue device LED lights up permanently, so it seems that the LabCon daemon is not starting correctly
  - o start up with [chapter 6: System Time Recovery](#)

## 6 First Try: System Time Recovery

One well-known reason that the LabCon daemon on the gateway does not start properly could be outdated date and time settings in the UNIX system. To update the time and date on the gateway try one of the following (this approaches require that the IP connection is still working).

### 6.1 Approach 1 (requires access to the internet)

1. Connect and login to the gateway via SSH, e.g. `'ssh root@192.168.0.100'`, if default IP is set
2. Stop the network time daemon: `'service ntp stop'`
3. Update the time using a well-known time server: e.g. `'ntpdate pool.ntp.org'`
4. Check if the system time is up to date using command `'date'`, if not repeat step 3 (maybe using a different time server)
5. Restart the network time daemon: `'service ntp restart'`

### 6.2 Approach 2 (does not require access to the internet)

1. Connect and login to the gateway via SSH, e.g. `'ssh root@192.168.0.100'`, if default IP is set
2. Stop the network time daemon: `'service ntp stop'`
3. Set the system time up to date: e.g. `'date 060408002015.00'` (format is: MMDDhhmmYYYY.ss)
4. Restart the network time daemon: `'service ntp restart'`



After updating the date and time using an approach, restart the LabCon service with command `'labcon restart'` or reboot the device via command `'reboot'`.

## 7 Second Try: General Gateway Software Reset

If none of the prior approaches leads to success, try to recover the gateway by reinstalling its firmware image via an USB-stick, like described here:

[http://www.pikkerton.de/ mediasfiles/106-firmware-update-labcon.pdf](http://www.pikkerton.de/mediasfiles/106-firmware-update-labcon.pdf)

You can download the gateway image file here (e-mail registration required):

[www.pikkerton.net/download/LabCon/Software/Images/ZBG\\_USB\\_v3.00.00\\_4758.tar.bz2](http://www.pikkerton.net/download/LabCon/Software/Images/ZBG_USB_v3.00.00_4758.tar.bz2)



**If the image recovery process has finished, update the LabCon firmware to the latest revision via the website of the gateway.**

You can download the latest LabCon software revision update file here (e-mail registration required):

[www.pikkerton.net/download/LabCon/Software/Updates/labcon\\_update\\_V3.00.00\\_build\\_4xxx to 4758.tgz](http://www.pikkerton.net/download/LabCon/Software/Updates/labcon_update_V3.00.00_build_4xxx_to_4758.tgz)

## 8 Third Try: Settings Recovery or Reset to Delivery Status

If the gateway is still not available via its IP address after you brought the firmware up to date, there are two possible recovery options, either to reset the settings of the gateway to (adjustable) defaults or reset the whole device to delivery status.

### 8.1 Recovery Option A: LabCon Settings Recovery via USB-Stick

The USB-stick has to hold the file `labcon_settings.tgz` only (this archive contains the file 'labcon.cfg' with pikkerton manufacturer default settings).

You can download the file here (e-mail registration required):

[www.pikkerton.net/download/LabCon/Recovery/labcon\\_settings.tgz](http://www.pikkerton.net/download/LabCon/Recovery/labcon_settings.tgz)

After downloading the file follow these steps:

1. The USB-stick is required to be formatted with one of the following file systems:  
FAT, FAT16, FAT32, ext2, ext3, or ext4 (USB-stick in NTFS format is not supported!)
2. After you have copied the file `labcon_settings.tgz` to the root directory of the USB-stick, plug the stick into the ZBG device and reboot the ZBG (trigger a reset or hard reset if reboot is not possible).
3. The ZBG should be reachable via the IP configured in file 'labcon.cfg' within the archive immediately after the settings have been processed successfully (settings reset will be triggered automatically by the LabCon-Boot-Script at device boot).

Of course you are free to edit the configuration file `labcon.cfg` in the archive to apply your customized settings during the recovery process, but:



**Ensure that the file name of the archive is preserved as well as the configuration file with its full qualified path and name inside the archive.**

## 8.2 Recovery Option B: Reset to Delivery Status during ZBG Image Recovery via a prepared USB-Stick (for advanced users)

At first you need an USB-stick which contains an actual ZBG firmware image. Plug the stick to an arbitrary PC with an UNIX OS (or a PC with other OS which supports UNIX file systems like ext2/3/4). To enable the settings reset when the image is being written to the gateway, you have to replace the file '/etc/init.d/image\_update' in the ZBG-image (extracted ZBG-image on an USB-stick), described in the following steps:

1. After you rolled out the ZBG-image to a USB-stick, the stick contains following partition layout (under the assumption that the USB-stick is detected as device '/dev/sda' on the UNIX system):

'/dev/sda1': boot partition on the USB-stick

'/dev/sda2': root partition on the USB-stick

2. Now you have to mount the USB-stick into the UNIX OS to be able to browse the root partition of the ZBG-image on the USB-stick (root privileges are required for file system modifications). An example mount operation on standard UNIX distributions looks like:

```
'mount /dev/sda2 /media/usb'
```

This command requires path '/media/usb' to be an existing directory. Following the example the root partition of the USB-stick should be mounted at mount-point '/media/usb' now.

3. Browse to directory '/media/usb/etc/init.d/' and replace the file 'image\_update' in there with the one you can download here (e-mail registration required):

[www.pikkerton.net/download/LabCon/Recovery/image\\_update](http://www.pikkerton.net/download/LabCon/Recovery/image_update)

Please be absolutely sure that this script owns execution privileges after copying, at least for the root user. If not, assign them to the script, e.g. by invocation of following command:

```
'sudo chmod 755 /media/usb/etc/init.d/image_update'
```



**If you do not ensure execution privileges for this file, the ZBG image recovery via USB will not work properly.**

4. After replacing the file, flush the file system buffers (e.g. invoke 'sync' in directory '/media/usb/etc/init.d/'), leave the directory of the USB-stick (e.g. 'cd /') and un-mount the USB-stick from system, e.g. with command 'umount /media/usb'.

5. Plug the stick into the ZBG device and reboot the ZBG (trigger a reset or hard reset if reboot is not possible), so the complete image recovery (like described [here](#)) will take place. This takes approximately 5 up to 10 minutes, attend to the ZBG device LEDs to obtain current state of the recovery process (LED states will be described in the next chapter 8.3).

If the image recovery has finished, unplug the USB-stick and re-reboot/-reset the ZBG. Afterwards, all settings will be reset to manufacturer defaults and all custom configurations (e.g. Nagios service groups or ZBS device configuration files) and CSV logs will be lost, so the gateway has been reset to delivery status and should be accessible via IP 192.168.0.100 now.



**If the reset to delivery status has finished, update the LabCon firmware to the latest revision via the website of the gateway.**

You can download the latest LabCon software revision update file here (e-mail registration required):

[www.pikkerton.net/download/LabCon/Software/Updates/labcon\\_update\\_V3.00.00\\_build\\_4xxx\\_to\\_4758.tgz](http://www.pikkerton.net/download/LabCon/Software/Updates/labcon_update_V3.00.00_build_4xxx_to_4758.tgz)

### 8.3 Gateways LED States

The device LEDs indicate the state of the firmware update process as shown in the following table:

		Max. Duration [min]	Action
Blue LED	Red LED		
Off	Off	2	Linux kernel boot running
On	Off	1	Linux OS boot running
Off	Blinks	7	Firmware update running (data is being copied to internal flash)
Blinks	Off	-	Firmware update finished