

# Application Note

*Remote Firmware Update with  
Workbench Software*

## Intellectual Property

© 2019 Lantronix, Inc. All rights reserved. No part of the contents of this publication may be transmitted or reproduced in any form or by any means without the written permission of Lantronix.

*Lantronix* is a registered trademark of Lantronix, Inc. in the United States and other countries.

Patented: [www.lantronix.com/legal/patents/](http://www.lantronix.com/legal/patents/); additional patents pending.

All trademarks and trade names are the property of their respective holders.

## Contacts

### **Lantronix, Inc.**

7535 Irvine Center Drive, Suite 100

Irvine, CA 92618, USA

Toll Free: 800-526-8766

Phone: 949-453-3990

Fax: 949-453-3995

### **Technical Support**

Online: [www.lantronix.com/support](http://www.lantronix.com/support)

### **Sales Offices**

For a current list of our domestic and international sales offices, go to the Lantronix web site at [www.lantronix.com/about/contact](http://www.lantronix.com/about/contact)

## Disclaimer

All information contained herein is provided "AS IS." Lantronix undertakes no obligation to update the information in this publication. Lantronix does not make, and specifically disclaims, all warranties of any kind (express, implied or otherwise) regarding title, non-infringement, fitness, quality, accuracy, completeness, usefulness, suitability or performance of the information provided herein. Lantronix shall have no liability whatsoever to any user for any damages, losses and causes of action (whether in contract or in tort or otherwise) in connection with the user's access or usage of any of the information or content contained herein. The information and specifications contained in this document are subject to change without notice.

## Revision History

Date	Rev.	Comments
December 2017	1.0.0	Initial version.
October 2019	A	Initial Lantronix document. Added Lantronix document part number, logo, contact information, and links.

For the latest revision of this product document, please check our online documentation at [www.lantronix.com/support/documentation](http://www.lantronix.com/support/documentation).

## Table of Contents

1:	Introduction.....	5
	General.....	5
	Audience .....	5
	Architecture Concept .....	5
2:	Getting Started .....	6
	Requirements .....	6
	Restriction .....	6
	Setup a TCP connection and perform the firmware upgrade from the Workbench .....	6

# 1: Introduction

This application note is relating to the following products: **STEPPII, STEPPIII, FOX, BOLERO/-LT, MAMBO** and **MAMBO2**.

## General

The application note provides information how to upgrade remotely one of the above-mentioned devices to a new firmware using *Workbench* software version 2.4.1\_RC2 or later.

This document was written assuming the user has basic computer knowledge, and is familiar with the Windows operating environment.

## Audience

This document is intended for system integrators and application developers.

## Architecture Concept

The following figure provides an overview of interfaces required for remote update with Workbench software.

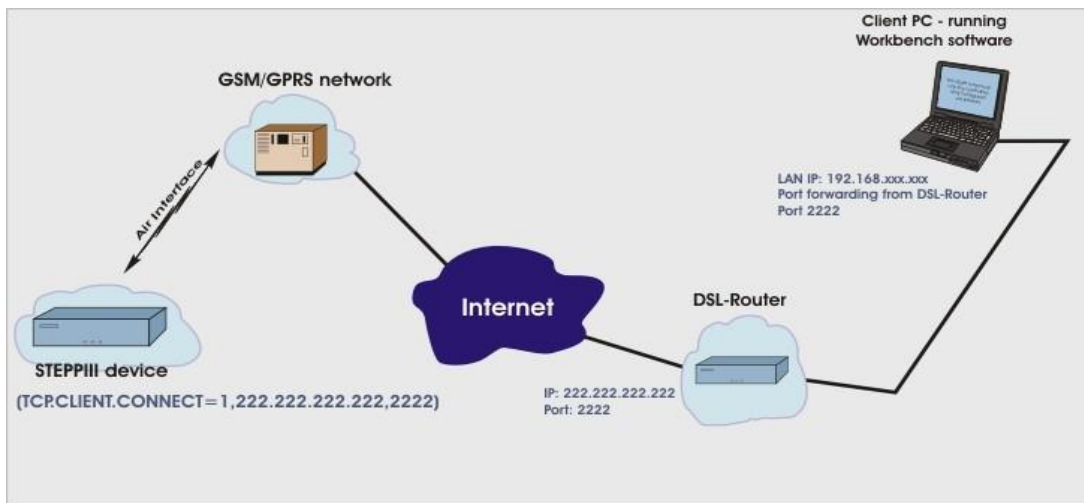


Figure 1: Architecture concept

## 2: Getting Started

### Requirements

- Workbench software version 2.4.1\_RC2 or later installed on your PC,
- Internet connection (in this document a DSL-Router is used).

### Restriction

- Device should be stationary (not moving and good GSM reception),
- Only one device can be upgraded at a time

### Setup a TCP connection and perform the firmware upgrade from the Workbench

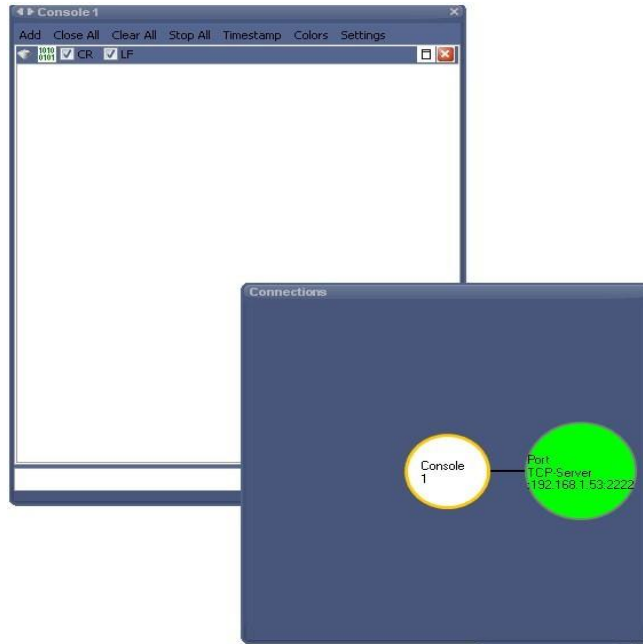
To set up a TCP connection to your target device, you have to get the public IP address of your DSL-Router and the local IP address and port number of your local PC first. You need to set up a port forwarding from the public to local IP address in your DSL-Router.

1. Thereafter, transmit the IP-address of the DSL Router and the Port number of your local PC(see Fig. 1) to the target device (e.g. by SMS) with contents e.g. **“\$PFAL,Cnf.Set,TCP.CLIENT.CONNECT=1,222.222.222.222,2222”**
2. Start the Workbench software and open a serial port view, select **TCP-S** from the selection box and enter the IP address of your local PC (e.g. 192.168.xxx.xxx) into the **Server** field and the port number (forwarded from the DSL-Router e.g. 2222) into the **Port** field. Finally, open that TCP port by clicking on the red point next to the Port.



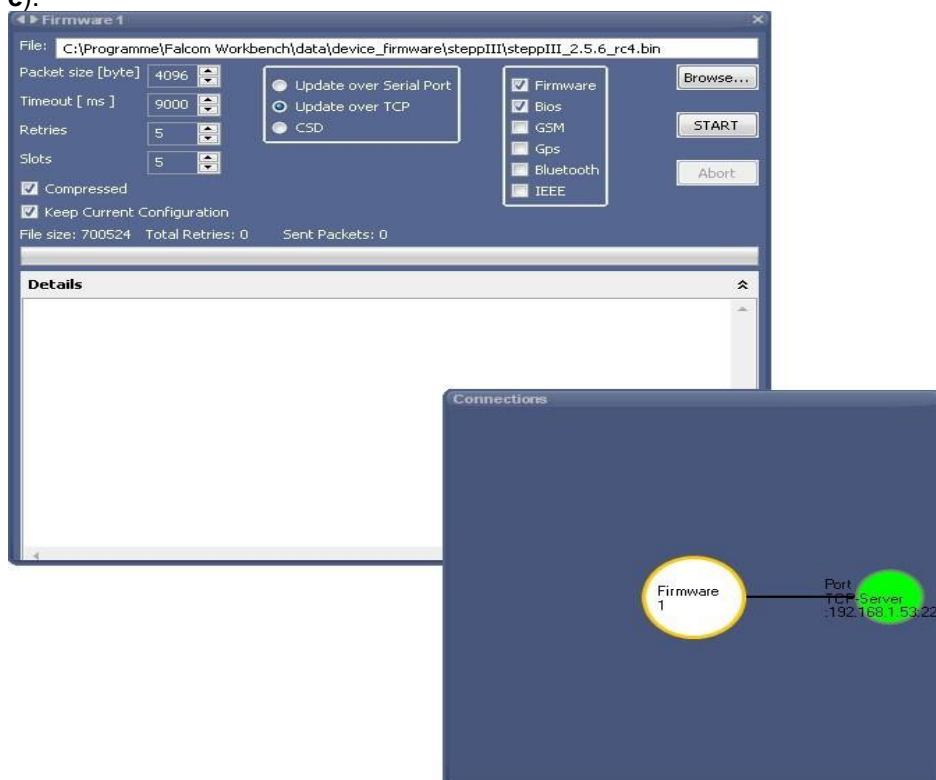
Figure 2: Port view with settings

3. Later on, open a **Console** view (e.g. Console1) and connect it to the TCP-S port



**Figure 3: Console view connected to the TCP port**

4. Connect your target device to that IP address.
5. Open also a **Firmware uploader** view (e.g. Firmware1) and connect it to the TCP-S port (**NOT to the Console1**). Use the settings given and described in steps (a to e).



**Figure 4: Firmware view with settings and connected to the TCP port**

- a. The **File** parameter specifies the path where the firmware as binary file by is located. Either type it or use the Browse button to get the directory.
- b. The Packet size parameter determines the number of bytes that will be sent in one packet. This setting is network depended. Min=512 bytes; Max=4096 bytes. The lower the packet size, the more secure is the packet

transmission. The higher the packet size, the faster is the packet transmission. Set it to maximum (= 4096 bytes) for high-volume data transmission. If you see that the “Total retries” increases itself, just decrease the packet size.

- c. The **Timeout** parameter specifies how long to wait for pending packets before trying to send it again. Set it to maximum (= 9000 ms)
  - d. The **Retries** parameter determines how many times should be resent a packet if the target device does not response “SUCCESS” within the timeout. Set it to 5.
  - e. The **Slots** parameter determines how many packets should be sent at once. This setting is device depended (MAMBO uses 3 slots while other devices use 5 slots). Set it to 5.
  - f. The **Compressed** check box determines how to transmit the firmware over the TCP. **Compressed** means, the size of the firmware is smaller than original file.
  - g. The **Keep Current Configuration** check box determines whether or not to keep the configuration inside the device. By default this option is checked (keep configuration).
  - h. The Firmware size, the Total retries and the currently Sent packets are shown on the below the check box “**Keep Current Configuration**” respectively.
6. In the left rectangle, select the option “**Update over TCP**”.
  7. In the right rectangle, select both options “**Firmware**” and “**BIOS**”.
  8. Finally, when all settings have been set click the Start button to start transmitting of the selected firmware over the air (TCP).
  9. The current status is shown in the Details while the number of the packet and responses from the connected device are shown in the Console1 (see Fig. 5).

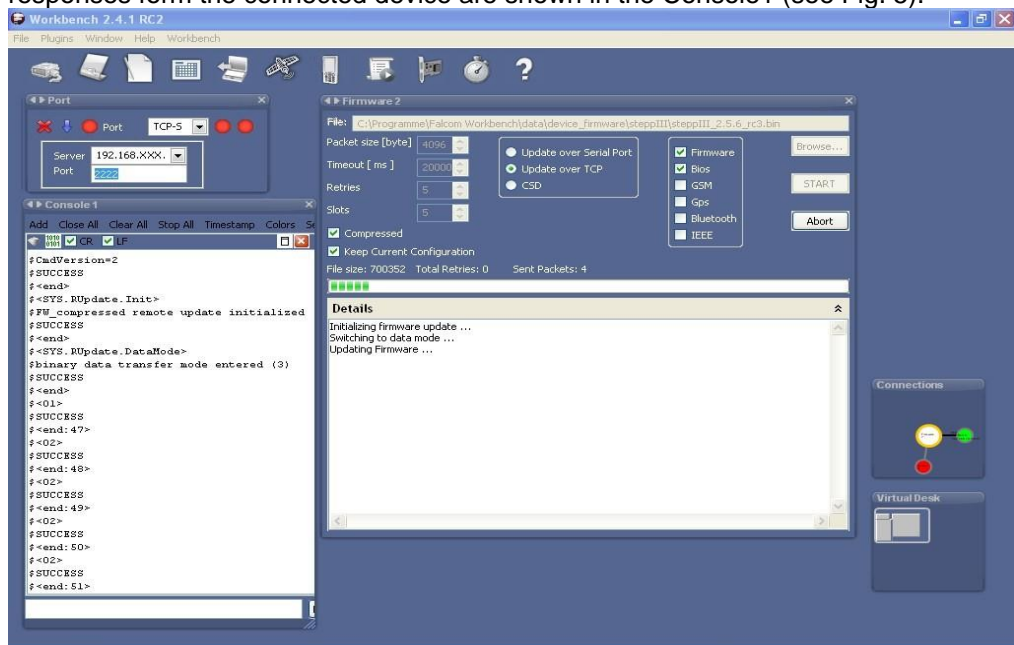


Figure 5: Update process

10. When the upgrade of the firmware has been done, a message box will appear. Press “Yes” to complete the update and restart your upgraded device (see Fig. 6).



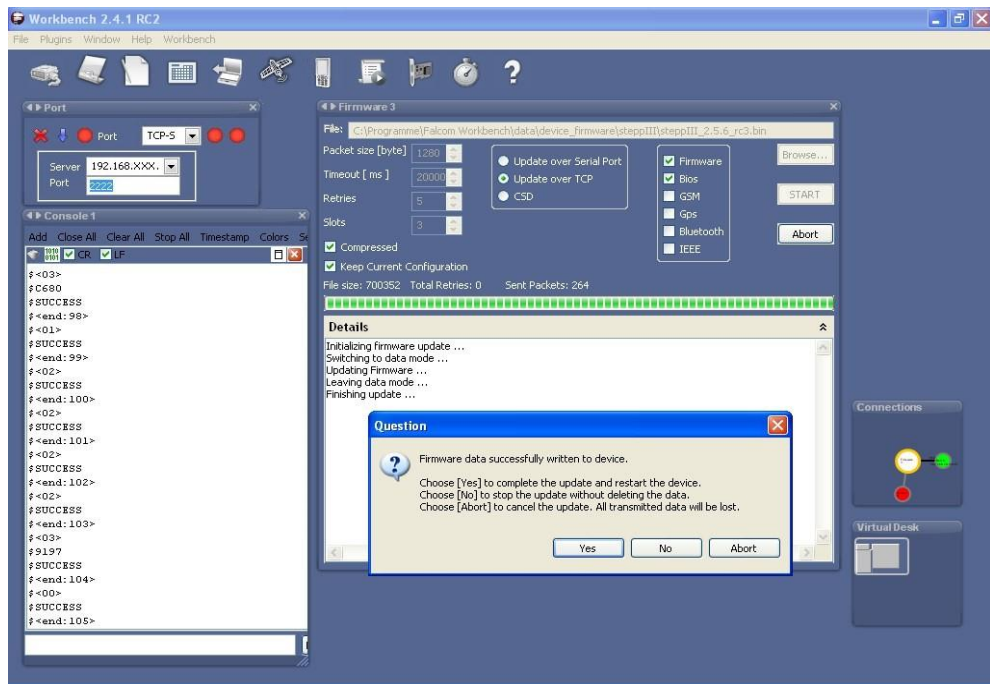


Figure 6: Update process completed