Application Note

Remote Firmware Update with Workbench Software
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## Revision History

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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.

![Architecture Concept Diagram](image)

*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.

![Port view with settings](image)

Figure 2: Port view with settings

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

![Figure 4: Firmware view with settings and connected to the TCP port](image)

- The **File** parameter specifies the path where the firmware as binary file is located. Either type it or use the Browse button to get the directory.

- 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 form the connected device are shown in the Console1 (see Fig. 5).

![Figure 5: Update process](image)

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