Application note

TOSHIBA TC35661 *Chiron*
EasySPP quick start guide
Version 1.0.0.15

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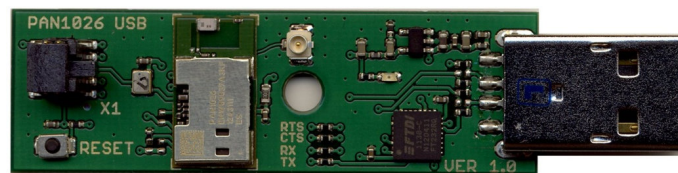
Contents

1   Abstract

The purpose of this document is to explain how to install and use *EasySPP*.

2   Introduction

EasySPP is an application that demonstrates the serial-port-profile (SPP) functionality of the TOSHIBA TC35661 *Chiron* Bluetooth baseband LSI.

2.1   Feedback

If you have a problem with *EasySPP*, please contact `TEEWirelessProducts@tee.toshiba.de`.

3   Installation

Please launch the installation of *EasySPP* by executing *setup.exe* from the installation directory. Please make sure that the installation path does not include special characters like "&" or "!", because the installation might fail.
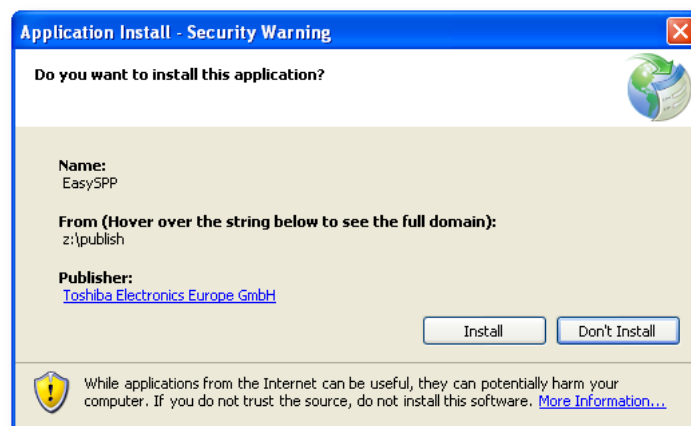
EasySPP is a *ClickOnce* application and uses the *.NET framework*. If the *.NET framework* is not yet installed on your system, the installer will help you installing it.

4   *PAN1026 USB stick* setup
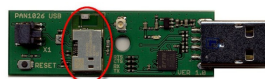
The TOSHIBA TC35661 *Chiron* is contained in the PAN1026 module on the USB stick.

By using a USB-to-serial converter from FTDI the *PAN1026 USB stick* is ready-to-use in any system that has a free USB slot and has the FTDI drivers installed.

If the latter is not the case then Windows may not recognize the *PAN1026 USB stick* and complain about missing drivers. In that case please follow the instructions in the following chapter to install the necessary driver.
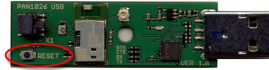
If something goes wrong and the module does not respond any more you can reset it by pressing the reset button. This will only reset the TC35661, not the FTDI adapter.

If you suspect a problem with the FTDI adapter you have to unplug and plug-in again the USB stick.

4.1   Installing a driver for the FTDI USB-to-serial converter

In case Windows does not have a driver for the USB-to-serial converter from FTDI installed already, you need to install the necessary driver manually.

Please download the "Virtual COM port driver" from the FTDI website and install them manually:

- `http://www.ftdichip.com/Drivers/VCP.htm`

5   Using *EasySPP*

5.1   Device selection

Please launch *EasySPP* from the start menu. If no serial port is present, an error dialog will be displayed and the application cannot be started.

At the bottom of the window is a status bar that will inform you about any actions that are underway or, in case of problems, will show error messages.
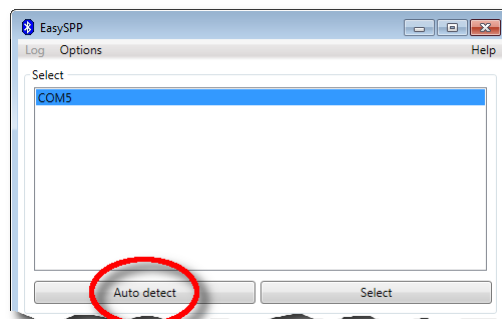
If some serial ports were found the list box will be filled accordingly. If you are unsure which serial port is provided by the stick you can use the "Auto detect" button.

It will scan all serial ports and check for the TOSHIBA TC35661 *Chiron* device. Please note that TOSHIBA TC35661 *Chiron* must run in HCI mode. If you are unsure about the state the device is in or don't know what this means, please press the reset button before using "Auto detect".
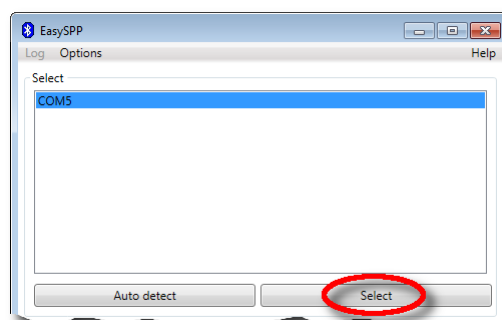
When the auto detection has finished all serial ports where TOSHIBA TC35661 *Chiron* devices were found will be labeled red. You can then select the desired serial port from the list and press "Select" to proceed.

5.2   Special options

TOSHIBA TC35661 *Chiron* uses a baud rate of 115200 by default. The baud rate can be changed after device initialisation by the application program.

However, there are special versions of TOSHIBA TC35661 *Chiron* that use a baud rate of 9600 by default. Because this cannot be detected prior to initialisation a special option exists for a proper selection.
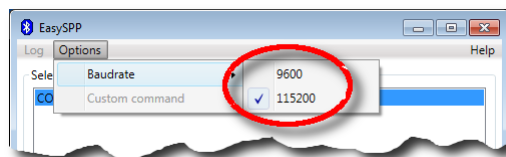

From the "Options" menu the baud rate may be selected if necessary. Please note that this information is not stored across application restarts. The selection must be made every time the application is started.

5.3   Initialisation
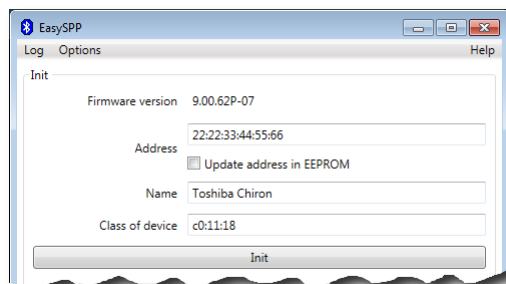
After the initial communication with TOSHIBA TC35661 *Chiron* is confirmed the initialisation dialog is shown. It will present the firmware version and some settings that affect the runtime behavior of TOSHIBA TC35661 *Chiron*.
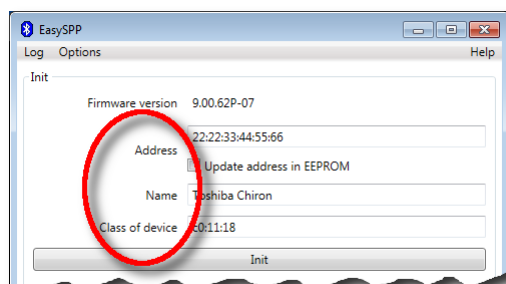

Various settings can be configured:

- The Bluetooth device address
- The Bluetooth device name
- The Bluetooth class of device setting

These are runtime settings only that are written to TOSHIBA TC35661 *Chiron* after initialisation.
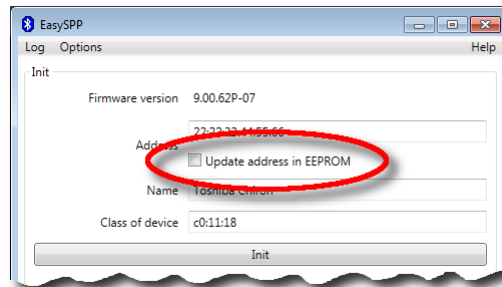

The Bluetooth device address may be stored inside an EEPROM and is thus preserved across re-boots. If you want the Bluetooth device address to be permanently stored please tick the "Update address in EEPROM" checkbox.
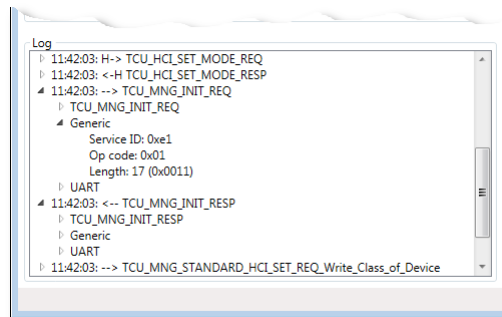

Please note the "Log" window in the lower half of the application window. It will print out detailed information about all the data that is exchanged with TOSHIBA TC35661 *Chiron*.
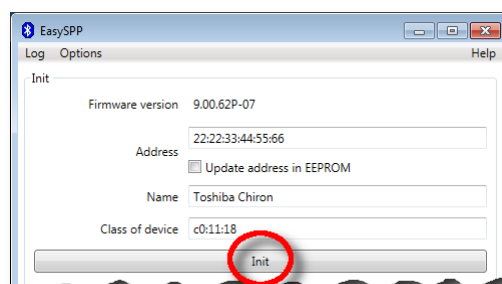
Depending on the mode TOSHIBA TC35661 *Chiron* is in, different levels of detail are available. If more details are available for one specific communication item, press on the "+" (or arrow) on the left of the item to reveal further information.
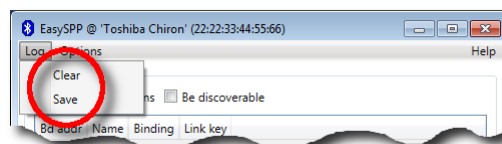
The "Log" menu entry can be used to save the log data to a file or clear the log information window.
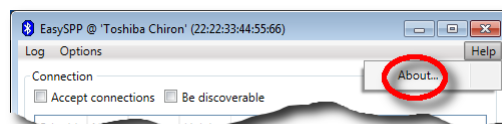

In "Help" menu entry you will find the option to display an About… box with useful information about the currently installed version of *EasySPP*.

A click on the "Init" button will finally initialise TOSHIBA TC35661 *Chiron*.

5.4   Scanning and connecting

Once TOSHIBA TC35661 *Chiron* is correctly initialized, *EasySPP* will let you find other Bluetooth devices and connect to them.
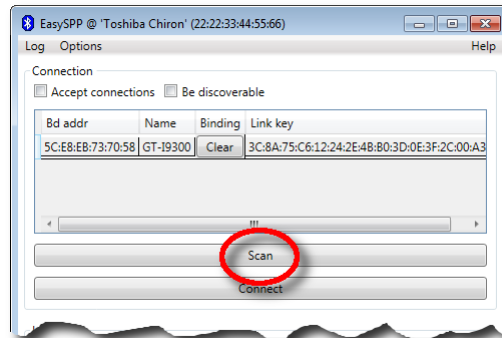
A click on the "Scan "button will instruct TOSHIBA TC35661 *Chiron* to scan the environment for other Bluetooth devices. Please not that at that point, *EasySPP* will not yet check if these devices have a SPP service or not.
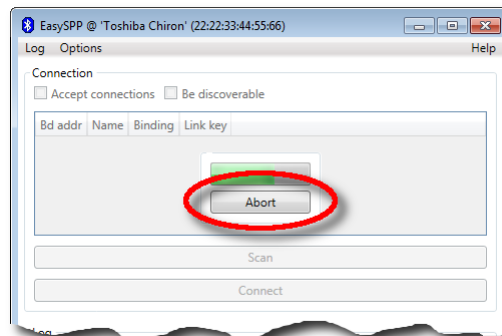
During scanning, a progress bar roughly shows the progress of the operation. If you want to abort the scanning process due to whatever reasons, use the "Abort" button to do so.
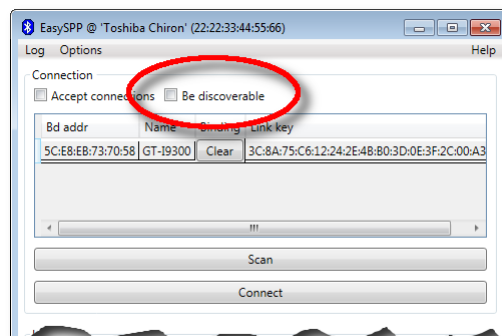
If "Be discoverable" is checked, TOSHIBA TC35661 *Chiron* itself will be discoverable by other Bluetooth devices.
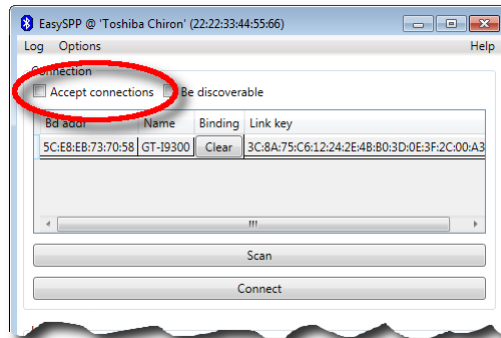
If "Accept connections" is checked, TOSHIBA TC35661 *Chiron* will accept incoming SPP requests.
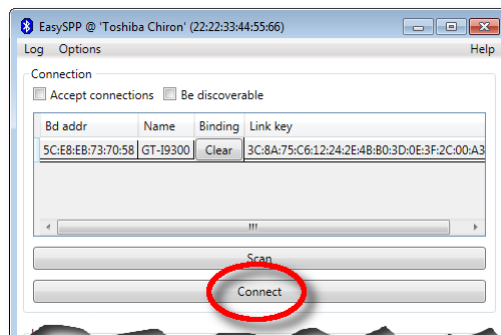
Please note that the two settings are really independent. If "Be discoverable" is not checked but "Accept connections" is, Bluetooth devices which known the Bluetooth device address may try to connect even though TOSHIBA TC35661 *Chiron* cannot be discovered.

If at least one Bluetooth device is found and is selected by clicking on it the "Connect" button becomes active.

Clicking the "Connect" button will instruct *EasySPP* to discover any SPP service on the remote Bluetooth device and try to connect to it. If the device does not offer a SPP service or cannot be connected due to other reasons, an error message will be displayed in the status bar.
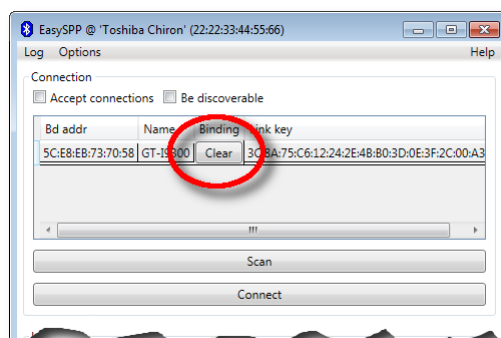

If you have previously been successfully connected to another Bluetooth device, the link key for that connection is stored and no further pairing is needed in the future.

If you want to remove the link key again and force a new pairing sequence for the next connection, please use the "Clear" button to remove an existing link key.

5.5   Pairing

Before any connection can be established both devices need to be paired. Depending on the remote device either pin-based pairing or secure simple pairing (SSP) is used.
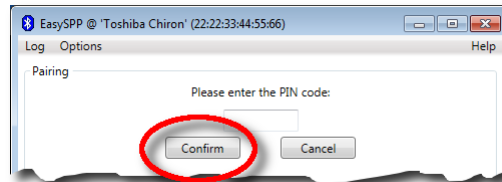

Older devices may still use pin-based pairing. In this case, please enter the pin code in the textbox and confirm it by pressing the "Confirm" button.
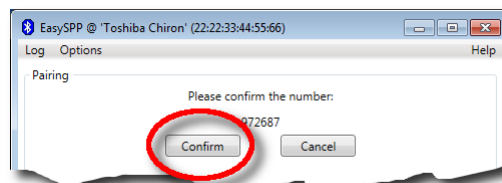

If the device already supports SSP then you have to verify that the number that is shown matches the number on your remote device and confirm it by pressing the "Confirm" button.

5.6   Data transmission

If a connection can be established or a remote device has successfully connected to TOSHIBA TC35661 *Chiron*, *EasySPP* will automatically transition into the connected state.
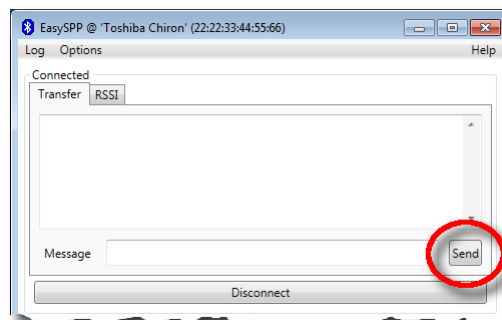
Data can be sent by typing it in the lower text box and pressing the "Send" button afterwards.

Data that is received from the remote party is displayed in the upper text box.
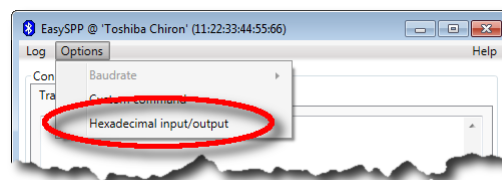
By default, plain text will be transmitted. If you check "Hexadecimal input/output" in the "Options" menu however, all data that is send or received will be handled as hexadecimal data.

It is not necessary to prefix the bytes with *0x*. For example, valid hexadecimal input strings are *0x11 0x22 0x33*, *11 22 33* or *112233*.

If you want to send larger amounts of text data, you can drag & drop a text file onto the "Send" button as well.

5.7 Disconnect
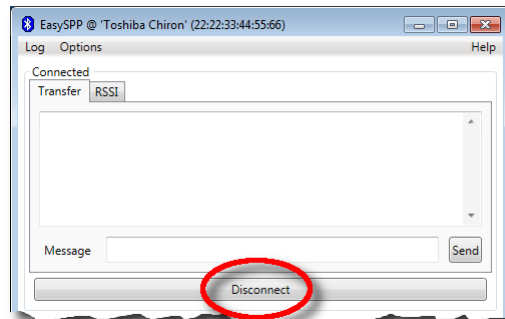
If the SPP connection is no longer needed, a press on the "Disconnect" button will disconnect the connection.

6   Application examples

6.1   Bluetooth connection between the *PAN1026 USB stick* and an Android device

6.1.1   Introduction

The purpose of this section is to explain how to set up a Bluetooth connection between the *PAN1026 USB stick* and an Android based device by using the software *EasySPP* and the application BlueSPP.

The following instruction assumes that the required software is already installed on your devices and the initialization of the *PAN1026 USB stick* is completed.

If this is not the case, please refer to the previous sections to install the software and to initialize the *PAN1026 USB stick*. The application BlueSPP is available at the Google Play Store for free.

Please notice that the following instruction was made with the Android Firmware version 2.3.3 (Gingerbread) and that the user interface might look a bit different to yours. Furthermore, notice that this instruction works only for the Android OS.

6.1.2   Instruction

Please launch the *EasySPP* software from the start menu and initialize the *PAN1026 USB stick* as it is described in the previous sections. After that, switch over to the Android based Bluetooth device and launch the BlueSPP application. In the case that the Bluetooth of your device is off, you will receive the following Bluetooth permission request.
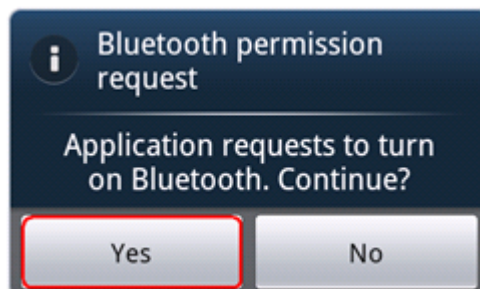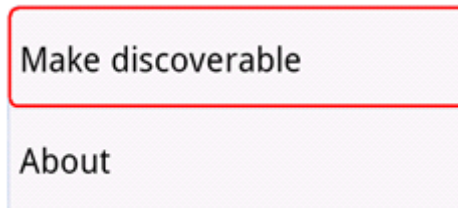

Please press "Yes" to turn on the Bluetooth of the device. The "No" button will exit the application.

To assure that the *PAN1026 USB stick* will be able to find the Android Bluetooth device, the device has to be visible. For that to happen, please press the "Menu" button on the device and select "More".
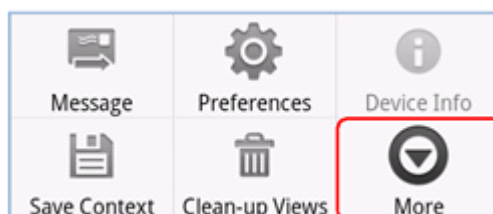
After that, select "Make discoverable"

and reply to the Bluetooth permission request with "Yes", which will make the device visible for 300 seconds.
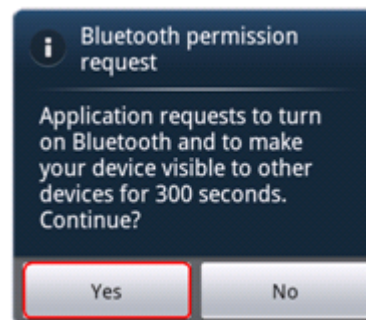
Now, the Android Bluetooth device is ready to use. Switch back to the *EasySPP* software and press the "Scan" button.
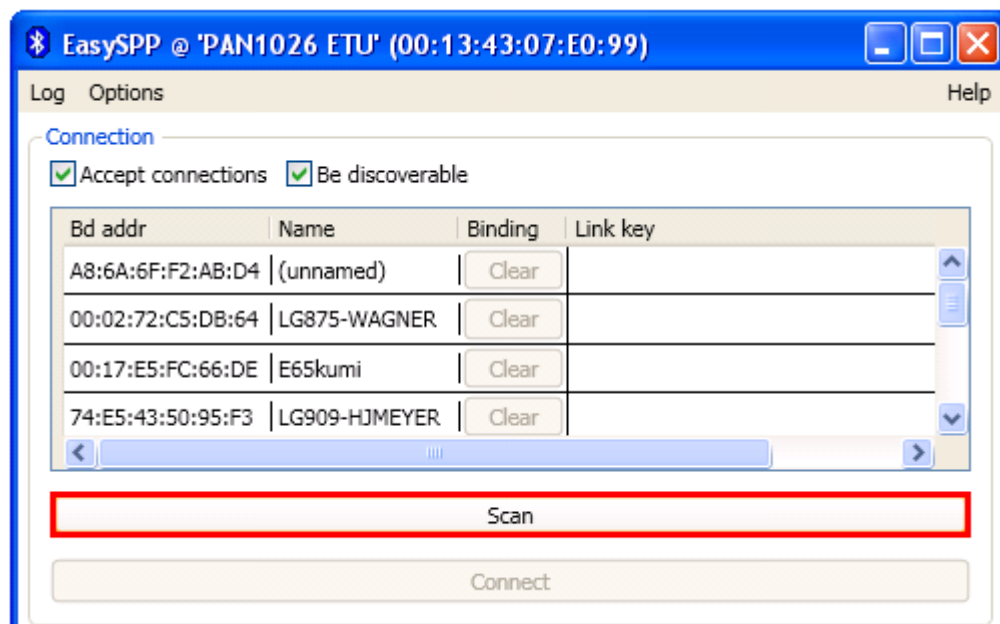
After the scan has finished you should find a list with at least your Android device in it. Select this device and press the "Connect" button.
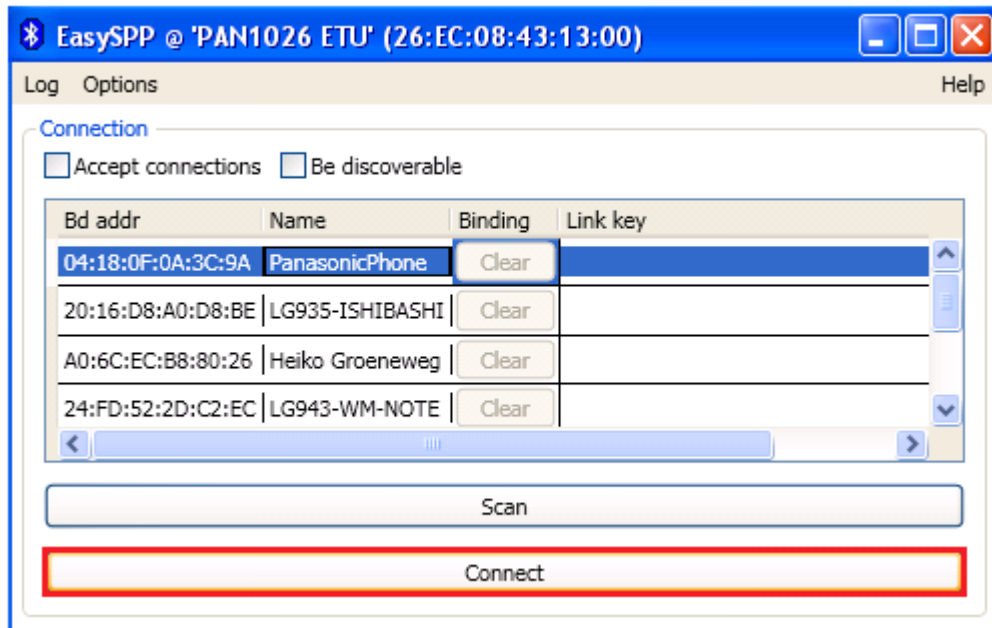
Next, you will receive a Bluetooth pairing request on both devices. Please compare the passkeys and accept/confirm the request if the passkeys are the same. Otherwise decline the request.
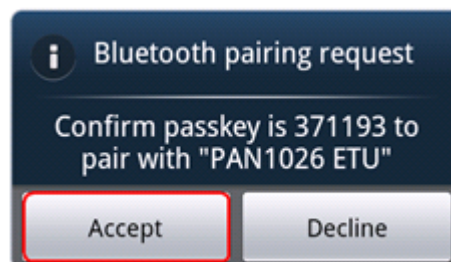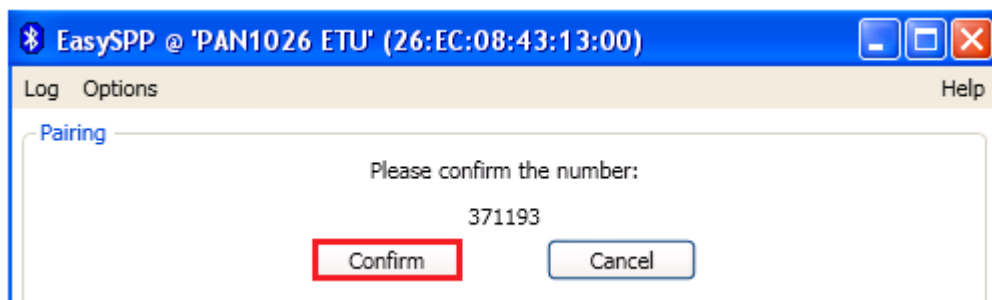
Now, the connection between the *PAN1026 USB stick* and the Android device is complete and you can start a communication by sending characters, for instance.
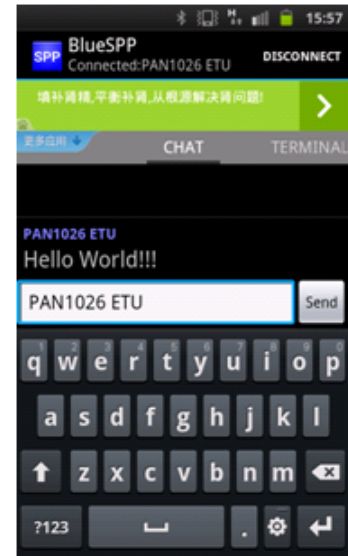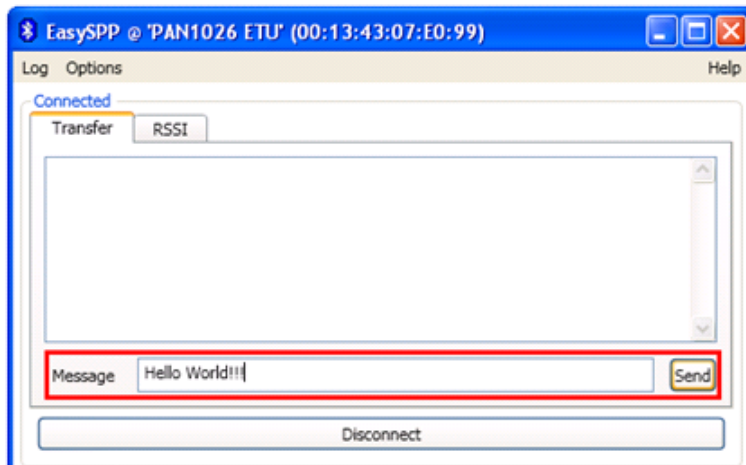
Further it is possible to send textfiles (.txt) with the *EasySPP* software. For demonstration purposes we have written the following textfile.
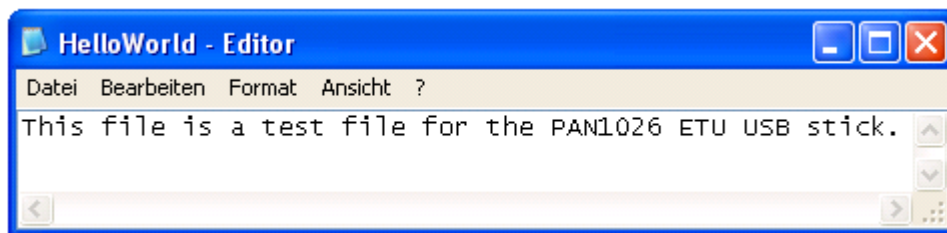
To send this file to the Android device, drag&drop it onto the "Send" button.
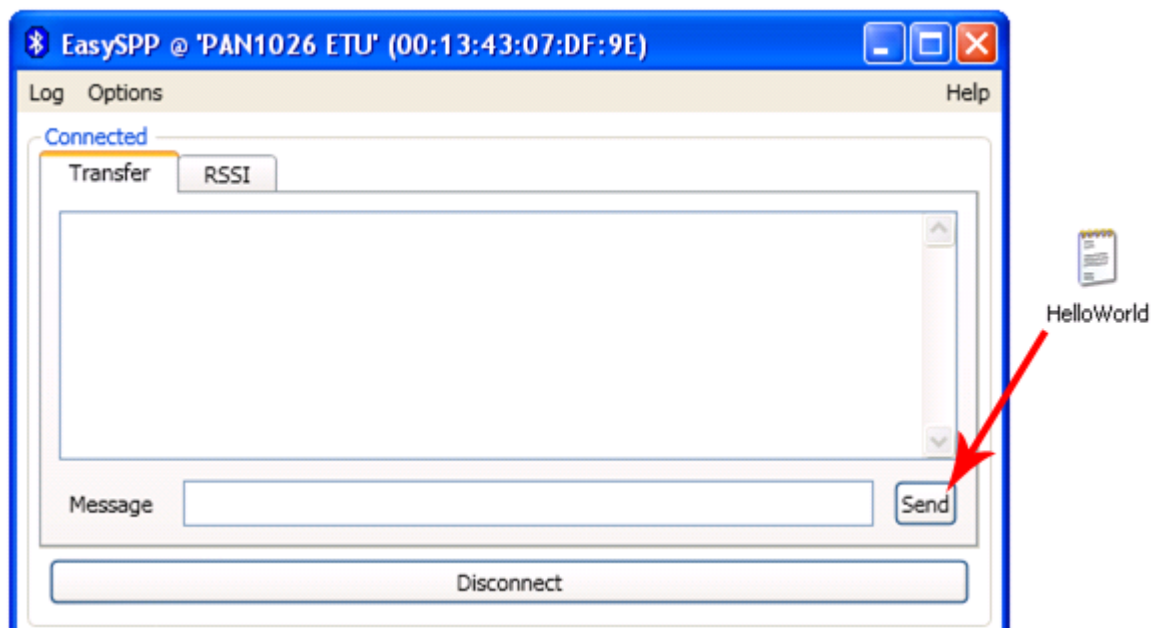
Now, you will find the content of the textfile on the display of the Android device.
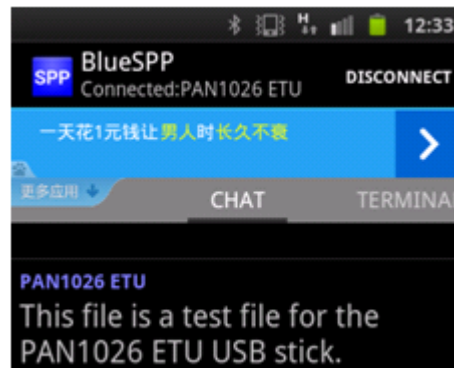
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