

# Connecting Simply Blue devices to the Microsoft Stack

National Semiconductor  
Application Note 1720  
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September 2007



## 1.0 Introduction

Microsoft XP SP2 includes a bluetooth stack, offering data oriented services for serial port (SPP), Dial-up networking (DUN) and File transfer (FTP). Since the Simply Blue devices implement the SPP functionality, it is possible to establish a SPP or DUN link to or from the Microsoft Stack.

Since the MS Stack requires some special handling for incoming connections, this application note describes the procedure how to create a SPP link from a Simply Blue module LMX9838 or LMX9830 to a MS Stack using SBSmart.

Requirements:

- PC with Microsoft (MS) Windows XP Service Pack2 including Bluetooth stack
- Microsoft compatible bluetooth dongle (or built-in bluetooth solution in laptop)
- PC with UART connection to LMX9830DONGLE or LMX9838DONGLE (can be the same PC as with MS Stack)

This application note assumes the MS Stack / Bluetooth dongle setup and the SBSmart / LMX983xDONGLE connection to be functional.

Please refer to [1] or the Microsoft support page for further assistance in these areas.

## 2.0 Connecting from MS to Simply Blue

### 2.1 PREPARE SBSMART

In order to be able to accept a link, please proceed the following steps to initialize SBSmart and the Simply Blue device.

- Start SBSmart
- Select the Comport and UART baudrate for the LMX98xx dongle and press connect
- Make sure the device responds with "Simply Blue Ready"
- Press "General Init" to initialize the device
- Activate "SPP" in the Local SDB section
- Select "Both" for LMX982x or "Both (interlaced)" LMX983x for the ScanMode

If everything is correct, the screen should look like Figure 1.

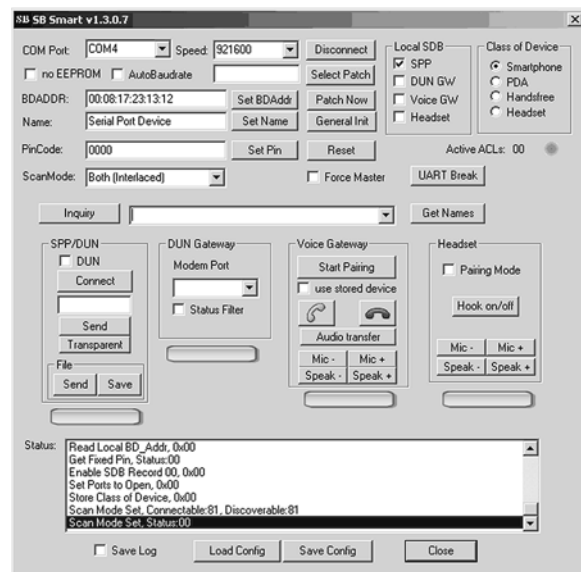


Figure 1. SBSmart settings for initialized device

### 2.2 CREATE LINK FROM MS STACK

In case the MS Stack is correctly installed and a local Bluetooth device has been detected, the Control panel should show a new function called "Bluetooth devices".

To create a new outgoing link, please proceed the following steps.

### 2.2.1 Open the bluetooth devices dialog

Select the Icon “Bluetooth Devices” in the control panel and double click. The stack will come up with an empty Devices field.



Figure 2. Main MS Stack window

### 2.2.2 Press “Add” in the tab “Devices”

By pressing the “Add” button the stack will start searching for devices. If devices are close enough, the Simply Blue device should appear with the name and the Class of device symbol configured by SBSmart.

### 2.2.3 Select the correct device and press next

To connect to the device simply select the icon and press Next.

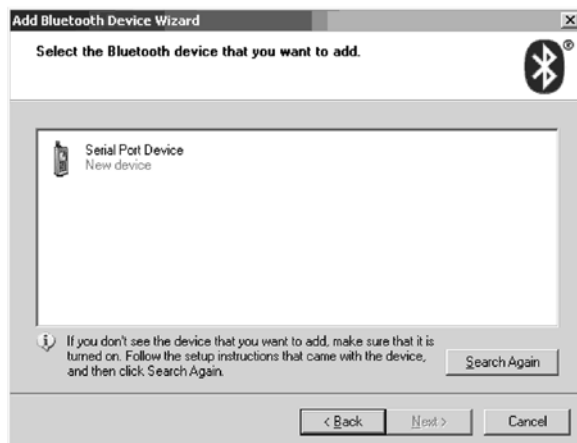


Figure 3. Select the correct bluetooth device

### 2.2.4 Enter the correct passkey and press Next

The MS Stack asks for a possibly required passkey, before it actually starts connecting to the device. In order to connect to the Simply Blue, please select the option “Use the

passkey found in the document” and type in the pincode as configured in SBSmart. By default it is set to “0000”.

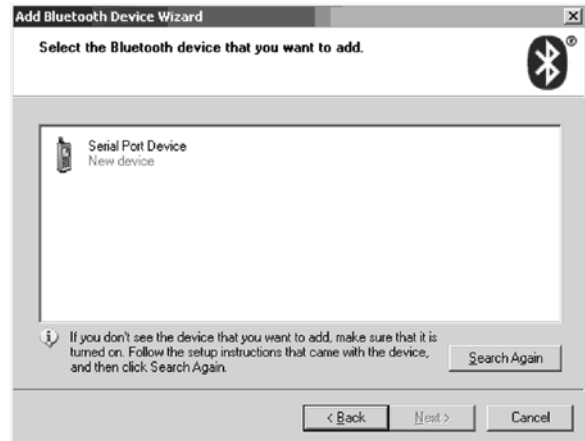


Figure 4. Type in correct passkey

By pressing “Next”, the MS Stack will try to connect to the Simply Blue and will use the passkey entered previously to authenticate.

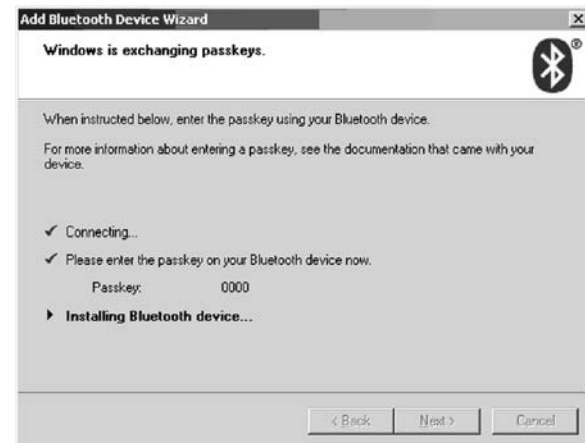


Figure 5. MS Stack connecting to Simply Blue

### 2.2.5 Note down Virtual COM ports

If the connection was successful, the MS Stack installs two new virtual COM ports for this device. These COM Ports need to be used in order to communicate with that specific Simply Blue device.

**Outgoing Port:** Each time the Outgoing COM port ( in the example COM17) is opened from a Windows application, the MS Stack will automatically establish the link to the corresponding device.

**Incoming Port:** In order to allow a device to connect to the MS Stack, this COM port needs to be opened by an application BEFORE the link can be established. (See Section 3.0).



Figure 6. Virtual COM Ports assigned by the MS Stack

### 2.2.6 Open Hyperterminal on Outgoing COM port

In order to create a link to the Simply Blue, the COM port assigned by the stack before (see Figure 6) has to be opened by an application. As an example the Microsoft Hyperterminal shall be used.

1. Open Hyperterminal from “Start/Programs/Accessories/Communication”
2. Create new connection with any name

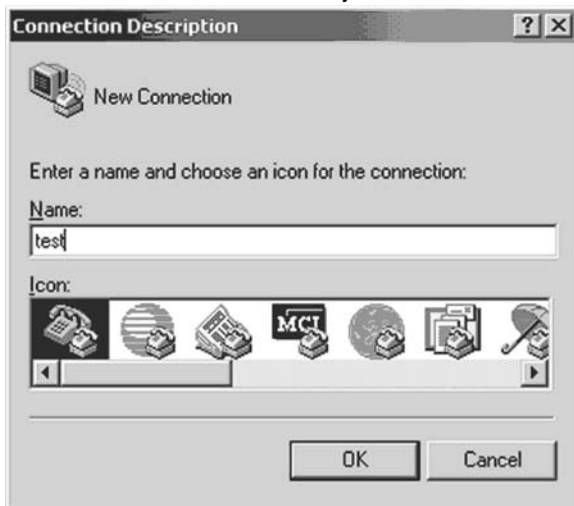


Figure 7. Create Hyperterminal connection

3. Configure the connection to use the outgoing port assigned by the MS Stack (in this example COM17).



Figure 8. Select Outgoing COM port

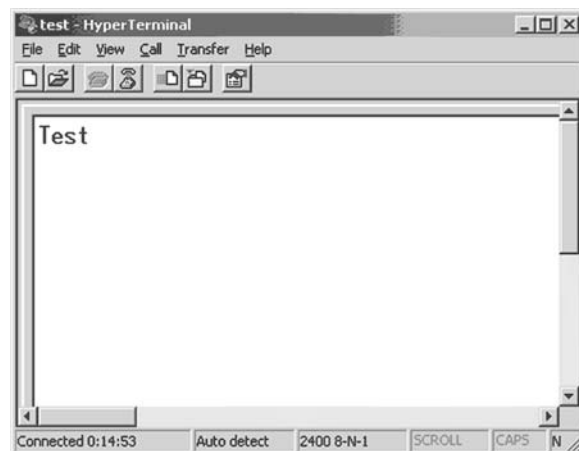


Figure 9. Hyperterminal connected to LMX98xx device

On connect, the MS stack will try to establish the link to the Simply Blue module, which will appear as incoming link in SBSmart. Any character typed into hyperterminal window will be sent to the Simply Blue.

Data received on Simply Blue will appear in the Status window of SBSmart. Data sent from SBSmart using the Send Data field (“Send” button), will appear in Hyperterminal as incoming data.

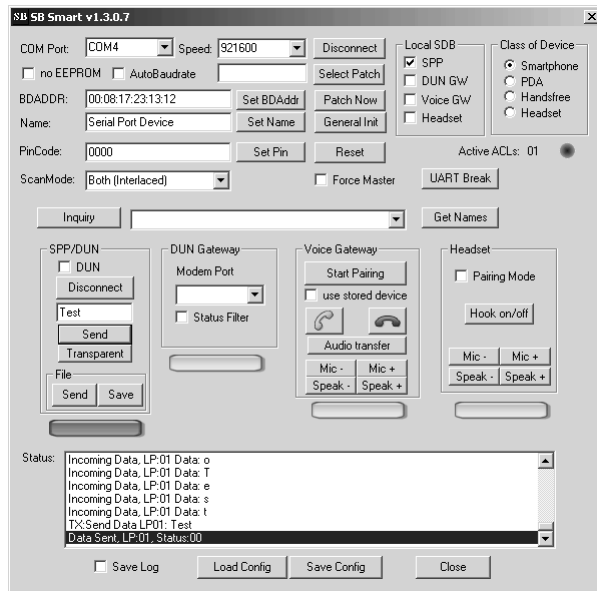


Figure 10. SBSmart showing incoming link

## 3.0 Create Link from SBSmart to MS Stack

### 3.1 PREPARE MS STACK

In order to establish a link from a remote device to the MS Stack, the appropriate service needs to be installed and activated.

#### 3.1.1 Open the bluetooth devices dialog

The bluetooth devices dialog can be found in the Control Panel and the icon "Bluetooth devices".

#### 3.1.2 Turn on Discovery mode

By default the MS stack disables the inquiry scan, so that it is not discoverable for other devices. For this, select the Tab "Options" within the "Bluetooth devices" dialog and enable the "Turn discovery on" check box.

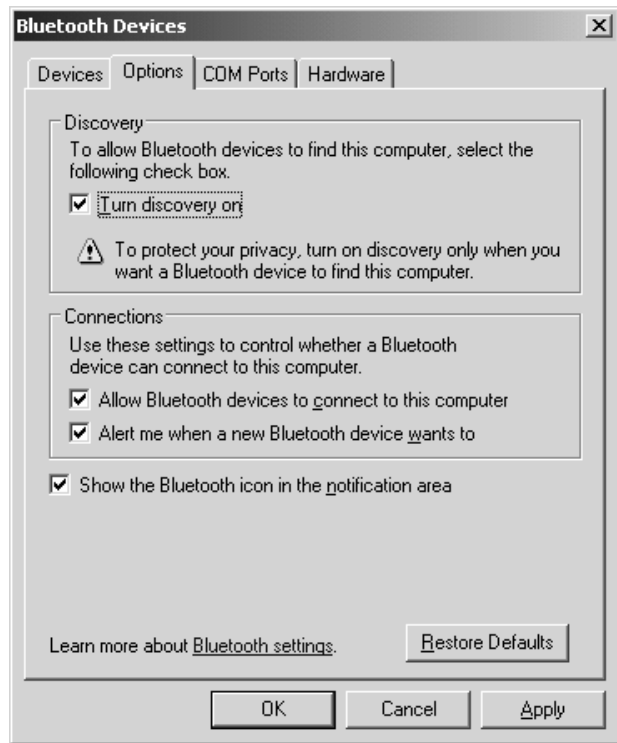


Figure 11. Turn on discoverability on MS Stack

#### 3.1.3 Check available COM ports

Select the Icon "Bluetooth Devices" in the control panel and double click. Select the Tab "COMPorts". If no devices have been installed yet, the stack will show an empty list. If the stack has been used to already establish an outgoing link as described in Section 2.2.5, the list should include the COM ports installed by that procedure (see Figure 12).

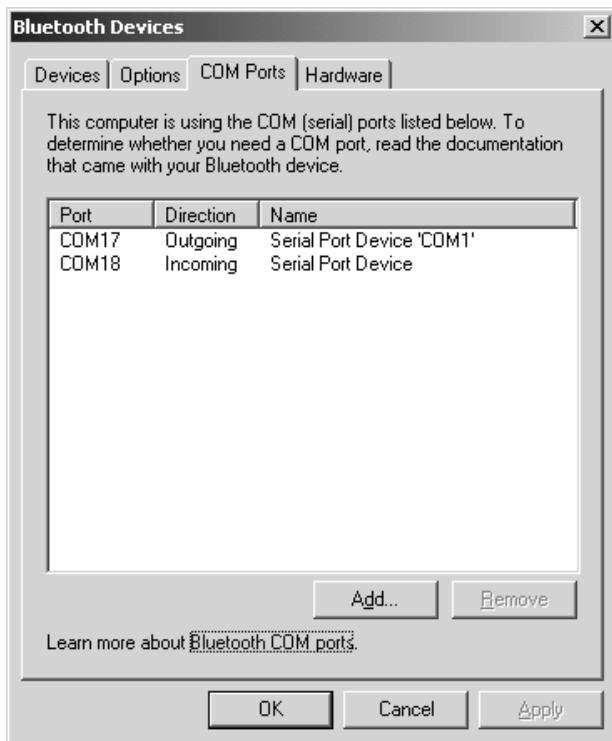


Figure 12. List of available Bluetooth Com Ports

In case no Com Port is listed with direction “Incoming” please follow the next instructions to add a new Incoming port. If an incoming port already exists (even for a different device), please continue with Section 3.1.2.

1. Click “Add..” for a new COM port”
2. Select “Incoming (device initiates the connections)”

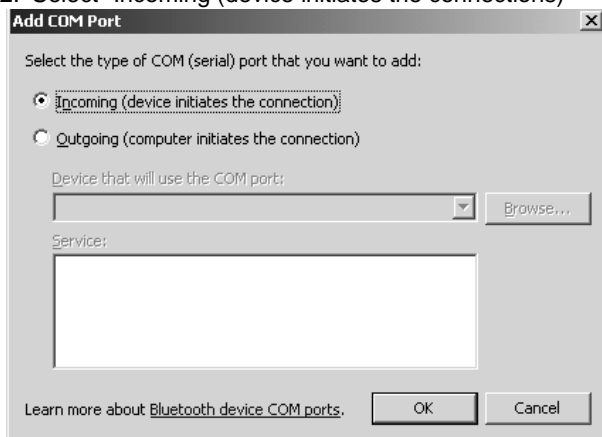


Figure 13. Add new Incoming port

3. Afterwards the new port will appear in the list.

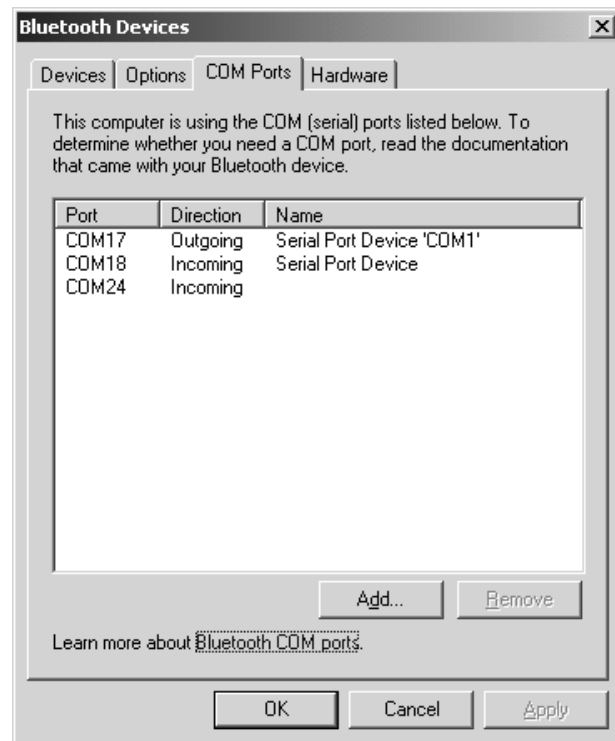


Figure 14. List of available COM ports

### 3.1.4 Open Hyperterminal on the incoming port

Even though the Bluetooth control dialog lists an Incoming port, a remote device will not be able to connect to it until this COM port is opened by an application. Therefore it is required to create a Hyperterminal session, connecting to that incoming port.

1. Open Hyperterminal from “Start/Programs/Accessories/Communication”
2. Create new connection with any name

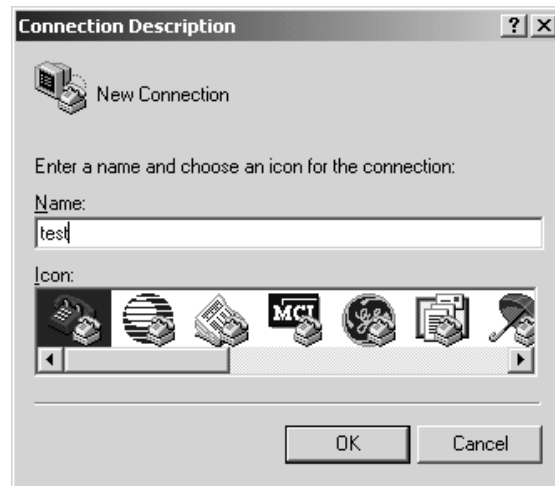


Figure 15. Create Hyperterminal connection

3. Configure the connection to use the incoming port assigned by the MS Stack (in this example COM18).



Figure 16. Select incoming COM port

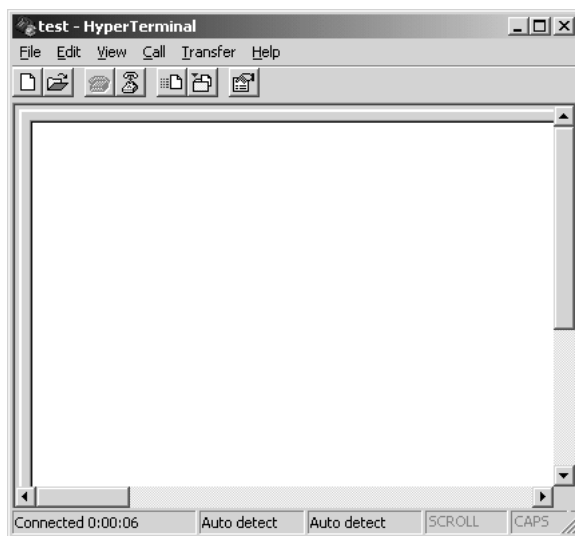


Figure 17. Hyperterminal connected to Simply Blue device

### 3.2 CREATE CONNECTION FROM SBSMART

There's no specific requirement to connect a MS stack than to any other device. The most important issue is to prepare the MS Stack as explained before. The following steps are common to any link establishment from SBSmart.

#### 3.2.1 Prepare SBSmart

The following steps need to be done to initialize SBSmart and the Simply Blue device.

- n Start SBSmart
- n Select the Comport and UART baudrate and press connect
- n Make sure the device responds with "Simply Blue Ready"
- n Press "General Init" to initialize the device
- n Activate "SPP" in the Local SDB section

If everything is correct, the screen should look like Figure 18.

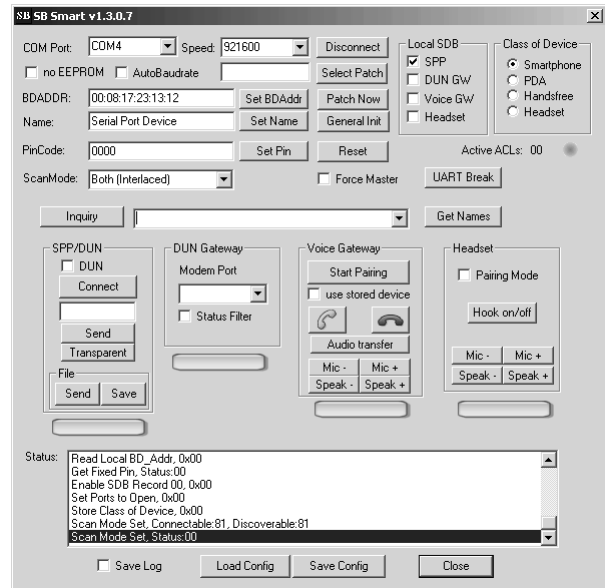


Figure 18. SBSmart settings for initialized device

#### 3.2.2 Inquire for new devices

Search for new devices and pick the MS Stack device by pressing "Inquiry" and select the MS Stack device. Optionally "Get Names" can be used before to retrieve the friendly name of the devices.

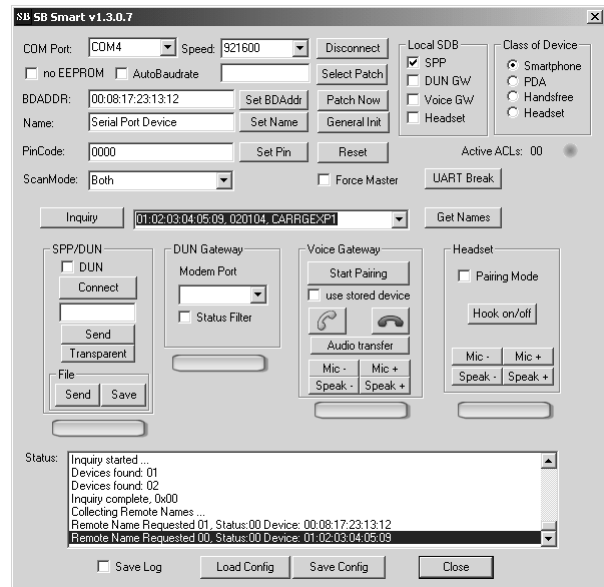


Figure 19. Find the MS Stack device

### 3.2.3 Connect using SPP connect

To connect to the remote device click on the “Connect” Button in the SPP/DUN area.

If the device has not been paired before, the MS stack will bring up a small notifier, which on click brings up a dialog to enter the correct passkey.

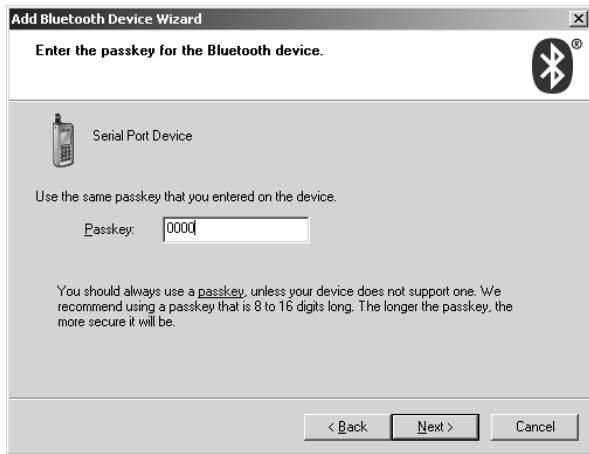


Figure 20. Enter Passkey on incoming link

After successful pairing, the MS Stack confirms the connection and recommends to turn off discovery again.



Figure 21. Link successfully established

SBSmart indicates the successful link as usual in the status log window and the activated LED.

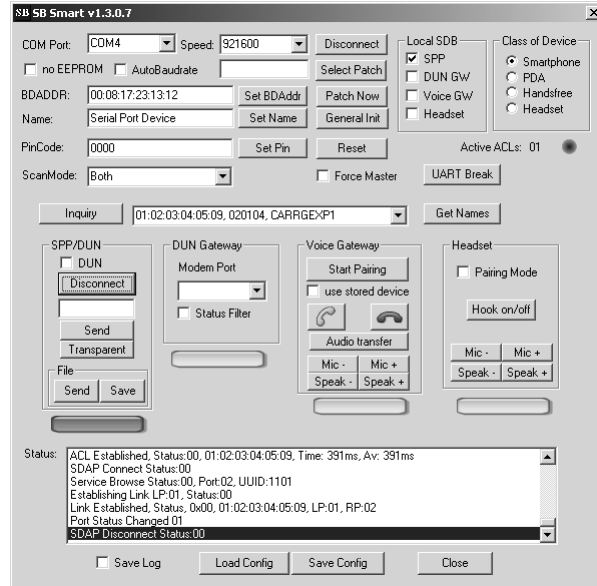


Figure 22. SBSmart after successful link establishment

Finally data can be transferred using the “Send Data” button or File/Send button on SBSmart and a terminal application like Hyperterminal.

## 4.0 Bibliography

- [1] SBSmart Software Users Guide, National Semiconductor

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