MC909X

User Guide

Preliminary

symbol®
The Enterprise Mobility Company ™

3

Using Bluetooth

Contents

Preliminary

Introduction

Bluetooth-equipped devices can communicate without wires, using frequency-hopping spread spectrum (FHSS) RF to transmit and receive data in the 2.4 GHz Industry Scientific and Medical (ISM) band (802.15.1). Bluetooth wireless technology is specifically designed for short-range (30 feet/10 meters) communications and low power consumption.

Mobile computers with Bluetooth capabilities can exchange information (e.g., files, appointments and tasks) with other Bluetooth enabled devices such as phones, printers, access points and other mobile computers. In addition, a dial-up modem connection can be created between the Bluetooth mobile computer and a Bluetooth enabled phone. The Bluetooth phone can then be used as a modem.

Symbol mobile computers with Bluetooth technology use the StoneStreet Bluetooth stack. To program Bluetooth within the mobile computer refer to the Microsoft Embedded Visual C++ help.

Turning the Bluetooth Radio Mode On and Off

Turn off the Bluetooth radio to save power or if entering an area with radio restrictions (e.g., an airplane). When the radio is off, the mobile computer can not be seen or connected to by other Bluetooth devices. Turn on the Bluetooth radio to exchange information with other Bluetooth devices (within range). Communicate only with Bluetooth radios in close proximity.

> **Note** To achieve the best battery life in mobile computers with multiple radios, turn off the radios that are not being used.

Bluetooth Power States

Cold Boot

When a cold boot is performed on the mobile computer, Bluetooth turns off after initialization (which takes a few moments). It is normal to see the *Bluetooth* icon appear and disappear, as well as a wait cursor, when initialization proceeds in all modes.

Warm Boot

When a warm boot is performed on the mobile computer, Bluetooth returns to the last state after initialization.

Suspend

When the mobile computer suspends, Bluetooth turns off.

> **Note** When the mobile computer is placed in suspend mode, the Bluetooth radio mode powers off and the piconet (Bluetooth connection) is dropped. When the mobile computer resumes, it take approximately 10 seconds for the Bluetooth radio driver to re-initialize the radio.

Resume

When the mobile computer resumes, Bluetooth turns on if it was on prior to suspend.

Adaptive Frequency Hopping

Adaptive Frequency Hopping (AFH) is a method of avoiding fixed frequency interferers. AFH can be used with Bluetooth voice. All devices in the piconet (Bluetooth network) must be AFH-capable in order for AFH to work. There is no AFH when connecting and discovering devices. Avoid making Bluetooth connections and discoveries during critical 802.11b communications. AFH for Bluetooth can be broken-down into four main sections:

- Channel Classification - A method of detecting an interference on a channel-by-channel basis, or pre-defined channel mask.
- Link Management - Coordinates and distributes the AFH information to the rest of the Bluetooth network.

- Hop Sequence Modification - Avoids the interference by selectively reducing the number of hopping channels.
- Channel Maintenance - A method for periodically re-evaluating the channels.

When AFH is enabled, the Bluetooth radio "hops-around" (instead of through) the 802.11b high-rate channels. AFH coexistence allows Symbol mobile computers to operate in any infrastructure.

The Bluetooth radio in this mobile computer operates as a Class 2 device power class. The maximum output power is 2.5mW and the expected range is 32.8 feet (10 meters). A definitive definition of ranges based on power class is difficult to obtain due to power and device differences, and whether one measures open space or closed office space.

Note It is not recommended to perform Bluetooth wireless technology inquiry when high rate 802.11b operation is required.

Disabling Bluetooth

To disable Bluetooth, tap *Bluetooth* icon - *Disable Bluetooth*. The *Bluetooth* icon changes to indicate that Bluetooth is disabled.

Figure 3-1. Disable Bluetooth

Enabling Bluetooth

To enable Bluetooth, tap *Bluetooth* icon - *Enable Bluetooth*. The *Bluetooth* icon changes to indicate that Bluetooth is enabled.
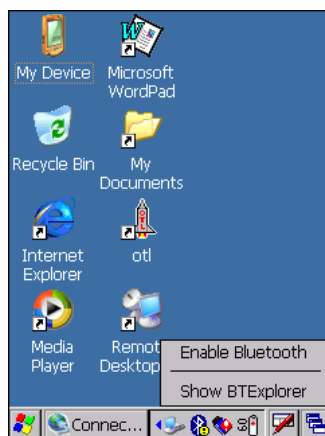

Figure 3-2. Enable Bluetooth

Discovering Bluetooth Device(s)

Follow the steps below to discover and create a bond (pair) with other Bluetooth devices. The mobile computer can receive information from discovered devices, without bonding. However, once bonded, an exchange of information between the mobile computer and a bonded device occurs automatically when the Bluetooth radio in turned on.

To find Bluetooth device in the area:

1. Ensure that the Bluetooth device being looked for is in discoverable mode.

2. Ensure that the two devices are within 30 feet (10 meters) of one another.

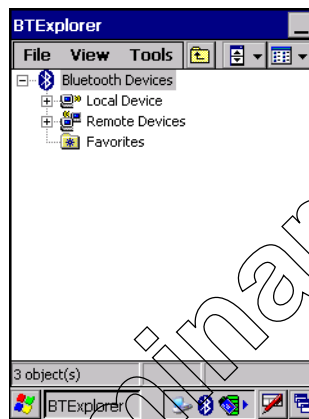3. Tap the *Bluetooth* icon and select *Show BTExplorer*. The *BTExplorer* window appears.

Figure 3-3. BTExplorer Window

4. Tap *File - New Connection*. The *New Connection Wizard* appears.
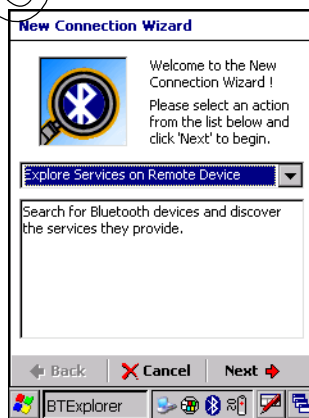

Figure 3-4. New Connection Wizard Window

5. Select *Explore Services on Remote Device* from the drop-down list.

6. Tap **Next.** The mobile computer searches for other Bluetooth devices in the area. The *Select Remote Device* window appears.

Figure 3-5. Select Remote Device Window

7. All discovered Bluetooth devices appear in the list box.

8. Select one of the Bluetooth devices in the *Remote Device Name* column.

9. Tap **Next** to discover services provided by the discovered device.

Bonding with Discovered Device(s)

A bond is a relationship created between the mobile computer and another Bluetooth device in order to exchange information in a secure manner. Creating a bond involves entering the same PIN on the two devices to bond. Once a bond is created, and the Bluetooth radios are turned on, the devices recognize the bond and are able to exchange information without re-entering a PIN.

To bond with a discovered Bluetooth device:

1. Tap the *Bluetooth* icon and select *Show BTExplorer*. The *BTExplorer* window appears.

2. Tap *File - New Connection*. The *New Connection Wizard* appears.

3. Select *Pair with Remote Device* from the drop-down list.

4. Tap **NEXT**. The *Select Remote Device* window appears.

Figure 3-6. Select Remote Device Window

Note   If the device to which the mobile computer is bonding does not appear in the list, ensure it is turned on, in discoverable mode, and within range (30 feet/10 meters) of the mobile computer.

5.   Select the remote device to pair with then tap **Next**. The mobile computer begins to pair with the remote device.
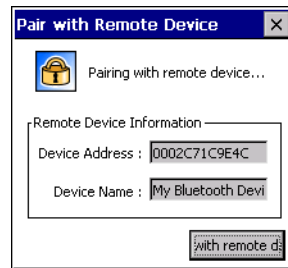

Figure 3-7. Pairing with Remote Device Window

6.   On the remote device, enter a PIN number.
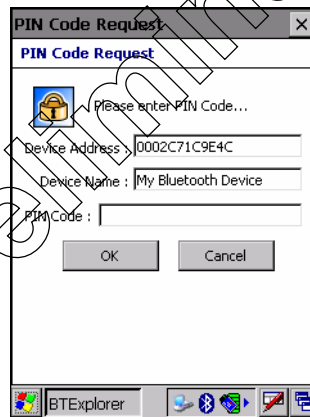7.   On the mobile computer, the *PIN Code Request* window appears.

Figure 3-8. PIN Code Request Window

8. In the *PIN Code:* text box, enter the PIN number (between 1 and 16 characters) and then tap **Next**. The devices are successfully paired.

Figure 3-9. Pairing Status Window

9. Tap **Finish**.

Renaming a Bonded Device

If it is necessary to rename a bonded device, it can be done from the *BTExplorer* window.

1. Launch *BTExplorer*.
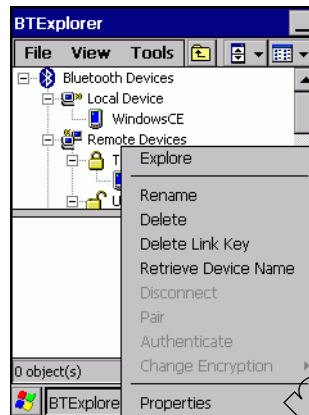2. Tap and hold the device to rename. In the pop-up menu, select *Rename*.

Figure 3-10. Rename Device Selection Dialog Box
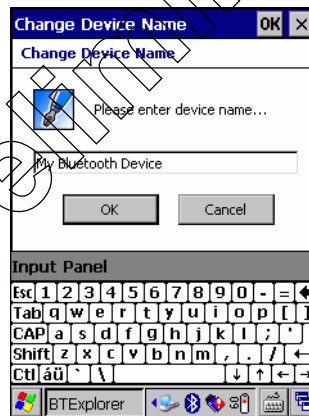
3. The *Rename bonded device* window appears.

Figure 3-11. Rename a Bonded Device Window

4. Enter a new name for the bonded device in the text box. Tap **OK**.

Deleting a Bonded Device

If it is no longer necessary to connect with a device, delete it from the *Bluetooth Bonded Devices* window.

1. Launch *BTExplorer*.

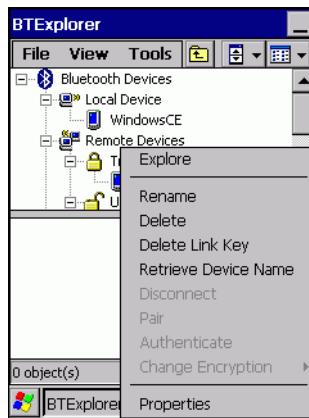2.   Tap and hold the device to delete. In the pop-up menu, select *Delete*.

Figure 3-12. Delete a Bonded Device
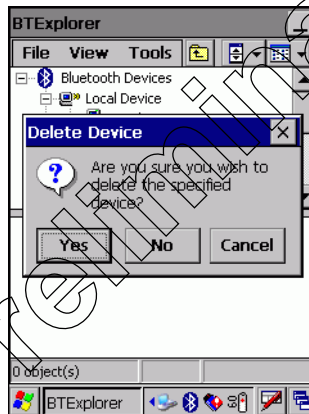
3.   A confirmation dialog appears. Tap **Yes**.

Figure 3-13. Delete Device Confirmation Dialog Box

Accepting a Bond

1. Ensure that the Bluetooth device is turned on and in discoverable mode.
2. When prompted to bond with the other device the *PIN Code Request* window appears.
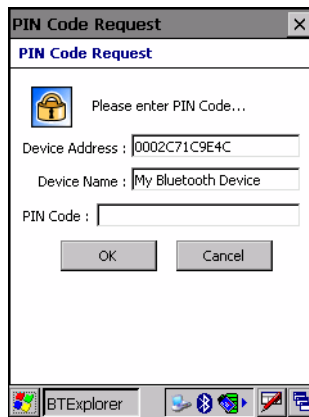

Figure 3-14. PIN Code Request Window

3. In the *PIN Code:* text box, enter the same PIN that was entered on the device requesting the bond. The PIN must be between 1 and 16 characters.
4. In the *Device Name*: text box, edit the name of the device requesting the bond, if desired.
5. Tap **OK**.
6. The bond is created and the mobile computer can now exchange information with the other device.

Bluetooth Settings

Use the *BTExplorer Settings* window to configure the operation of the BTExplorer application. Tap *Tools* - *Settings*. The BTExplorer Settings window appears.

Device Info Tab
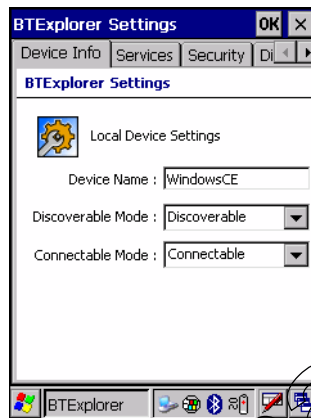
Use the *Device Info* tab to configure *BTExplorer*.

Figure 3-15. BTExplorer Settings - Device Info Tab

Device Name	Displays the name of the mobile computer.
Discoverable Mode	Set to make the mobile computer discoverable by other Bluetooth devices.
Connectable Mode	Set to make the mobile computer connectable by other Bluetooth devices.

Services Tab

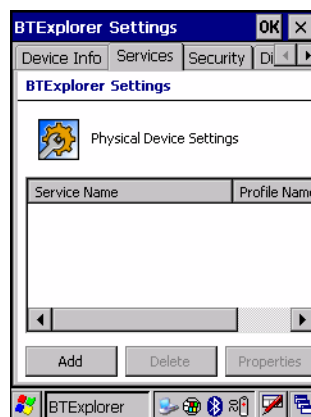Use the *Services* tab to add or delete Bluetooth services.

Figure 3-16. BTExplorer Settings - Services Tab

To add a service:

1. Tap **Add**. The *Add Local Service* window displays.

Figure 3-17. Add Local Service Window

2. In the list, select a service to add.
3. Tap **OK**. The *Edit Local Service* window displays for the selected service.
4. Select the appropriate information and then tap **OK**. See the following paragraphs for detailed information on the available services.

Dial-Up Networking Service

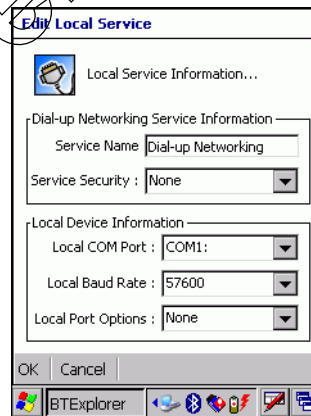Dial-up Networking allows a dial-up modem to be accessed by other Bluetooth devices.

Figure 3-18. Add Local Service Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.
Local COM Port	Select the COM port.
Local Baud Rate	Select the communication baud rate.
Local Port Options	Select the port option.

File Transfer Service

File transfer allows files to be browsed by other Bluetooth devices.

Figure 3-19. File Transfer Information Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.
Root Directory	Select the directory that other Bluetooth devices can access.
File Permissions	Select the file permissions for the selected directory. Check the appropriate box to grant Read access, write access and delete access.

OBEX Object Exchange Service

OBEX Object Push allows contacts, business cards, pictures, appointments, and tasks to be pushed to the device by other Bluetooth devices.

Figure 3-20. OBEX Exchange Information Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/Encrypt.
Business Card	TBD

Do not allow clients to push objects

Inbox Directory   Select a directory where another Bluetooth device can store files.

Personal Area Networking Service

Personal Area Networking hosts a Personal Area Network which allows communication with other Bluetooth devices.

Figure 3-21. Personal Area Networking Window

Service Name   Displays the name of the service.

Service Security   Select the type of security from the drop-down list; None, Authenticate or Authenticate/Encrypt.

Support Group Ad-Hoc Networking   TBD

Serial Port Service

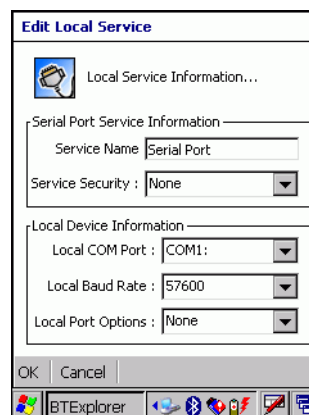Serial port allows COM ports to be accessed by other Bluetooth devices.

Figure 3-22. Serial Port Service Window

Service Name	Displays the name of the service.
Service Security	Select the type of security from the drop-down list; None, Authenticate or Authenticate/ Encrypt.
Local COM Port	Select the COM port.
Local Baud Rate	Select the communication baud rate.
Local Port Options	Select the port option.

Security Tab

To adjust the security settings for an individual service, select the *Services* tab first, then select the individual service, then *Properties*.

Figure 3-23. BTExplorer Settings - Security Tab

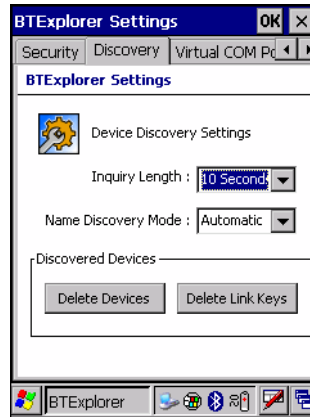|	
Use PIN Code (Incoming Connecting)	TBD
PIN Code	TBD
Encrypt Link On All Outgoing Connections	TBD

Discovery Tab

Figure 3-24. BTExplorer Settings - Discovery Tab

Inquiry Length

Name Discovery Mode

Discovered Devices

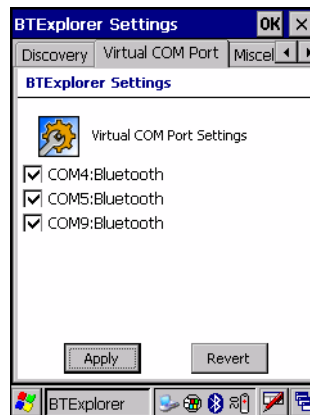## *Virtual COM Port Tab*

Figure 3-25. BTExplorer Settings - Virtual COM Port Tab

COM4:Bluetooth

COM5:Bluetooth

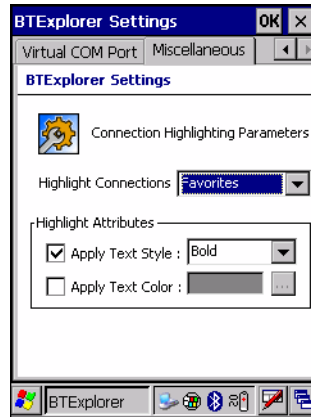COM9:Bluetooth

Miscellaneous Tab

Figure 3-26. BTExplorer Settings - Miscellaneous Tab

Highlight Connections

Highlight Attributes

Apply Text Style

Apply Text Color

Bluetooth Printing

The mobile computer supports Bluetooth printers that support a serial port profile. Printing to a Bluetooth printer requires a print-enabled application to be installed on the mobile computer.