Is Intermec's Bluetooth®
Device Utility Right for Me?

Intermec®

Introduction
Although Bluetooth® is no longer "new" technology, it is still new to many developers and it can be intimidating getting started.

Intermec computers include control panel applets and setup wizards that can be used to find, select and set up Bluetooth devices, but that require user interaction with every computer. If you want to control the process from within your application, you could choose to use the Application Program Interface (API) provided by the Bluetooth stack provider but that can require writing a fair amount of code to perform various device management tasks. Furthermore, it means rewriting the code if you change Bluetooth stack providers. With the Bluetooth Device Utility, Intermec provides a high-level, easy-to-use API that allows your application to discover and manage Bluetooth devices and set them up for use. In addition, Intermec provides a utility program based on this API that your software can call to set up Bluetooth devices, requiring minimal application changes.

The key features of the Bluetooth Device Utility are:
• Downloading Bluetooth setup information from a host so users do not need to set up each computer from the keyboard
• Discovery of Bluetooth devices
• Bluetooth device selection by device type and sub-type
• Bonding the computer with Bluetooth devices
• Support for Bluetooth security levels 1 and 3
• Set up of Bluetooth virtual COM ports for applications to access Bluetooth devices
• Registration of Bluetooth scanners with the Intermec Data Collection Engine
• Remote configuration of Bluetooth device parameters, such as friendly name and discoverability
• Device type-specific tests allowing the user to identify a selected device
• Automatic selection of the first available device within a group

This paper is written for developers and/or IT personnel who are responsible for integrating Bluetooth support into their company's application environment.

For detailed information about using the Bluetooth Device Utility, refer to the Bluetooth Resource Kit User's Guide in the Intermec Developer Library (www.intermec.com/idl).

Scenarios/Questions
1. **I just received a shipment of 100 computers, printers and scanners. How do I assign each printer and scanner to a specific computer? Do I need to perform a Bluetooth discovery on every computer?**
    Although one option is to perform a Bluetooth discovery on every computer, that can be time consuming and user intensive. Instead, it is possible to download setup information to the Bluetooth Device Utility from the host via an XML file.

    If you already have the Bluetooth device address information for the peripherals on the host, you can generate individual XML files for each computer, specifying each peripheral in one computer's XML file, and download the XML file to the computer with the other application data.

    If you do not have the Bluetooth device information stored on the host, use the Bluetooth Device Utility to gather the information. Run the utility program on one computer, perform a discovery for printers and a discovery for scanners, move all devices found to the Added list (see Figure 1) and exit the program. The program saves the device information to an XML file (\Windows\PSWDM0C.XML by default). Retrieve the XML file from the computer, extract the device information on the host and generate individual XML files for each computer, specifying each peripheral in one computer's XML file.
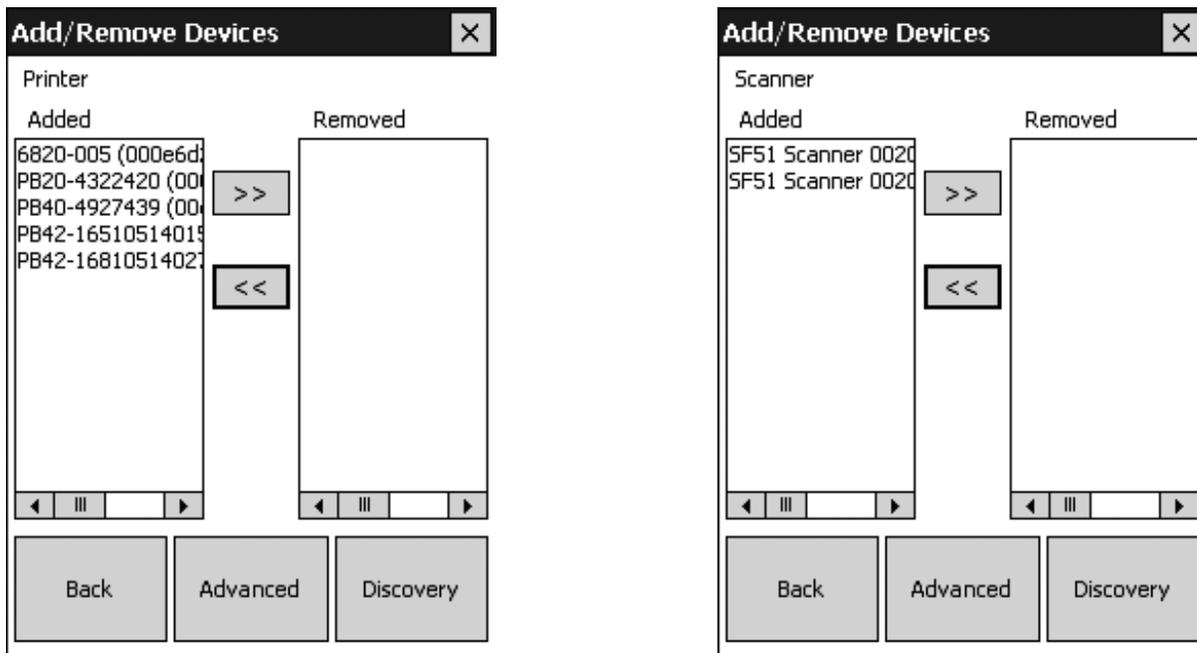

Note that it is also possible to share peripherals among multiple computers. Refer to the question about shared depot printers below.

Figure 1: Adding printers and scanners in the utility program.

2. **There are a group of devices on the table. How do I locate the device that is assigned to my computer?**
    Use the Test button in the utility program (see Figure 2) or use API TestDevice (.NET) or ITC_TestDevice (C++) in your application. For printers, this will send some text to the selected printer. Customize the text via the Test element in the XML file, such as to include a user name or route number (see Figure 3). For scanners, the test connects to the device several times. For the SF51 scanner, the scanner beeps each time a connection is established.
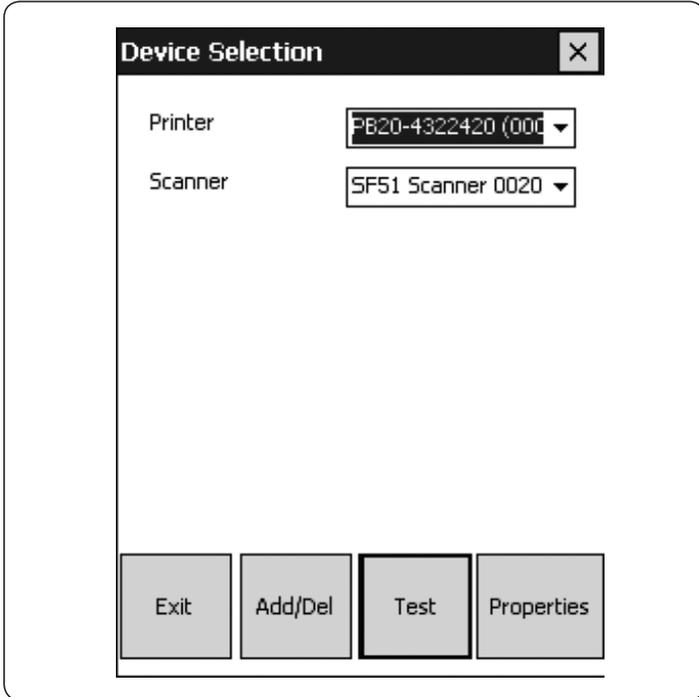
Figure 2: The Test button can help you locate your devices.

```
  . . .
    <DeviceType name="Printer">
        <Filter name="Printer"/>
        <Test>Printer test page

User: John Smith
Route# 123456\f</Test>
    </DeviceType>
```

Figure 3: Example XML of a customized printer test.
. . .
3. **I selected a device. Now how do I use it from my application?**
    Use XML element BtPort to tell the Bluetooth Device Utility how your application intends to access devices of a certain type (see Figure 4). The Bluetooth Device Utility sets up a device so that it can be accessed by your application but other Resource Kits provide the methods for accessing the device. To print reports to Bluetooth printers from your Intermec computer, use the Printing Resource Kit. For data collection with Bluetooth scanners, use the Data Collection Resource Kit.

```
  . . .
    <DeviceType name="Printer">
        <Filter name="Printer"/>
        <BtPort>WPPORT</BtPort>
    </DeviceType>
    <DeviceType name="Scanner">
        <Filter name="Scanner"/>
        <BtPort>BtScanner1</BtPort>
    </DeviceType>
  . . .
```

Figure 4: Example use of BtPort.

In this example, the application intends to access the printer using the port specified in the WPPORT registry value. Scanners will be registered with the Intermec Data Collection Engine so that the application can use the methods provided by the Data Collection Resource Kit.

4. **Do I need to discover the device each time before I use it?**
    No. Once the device is known to the Bluetooth Device Utility, you simply select it and access it.

5. **I just sent a device in for service. How do I swap in a replacement device and set up my computer to use it?**
    Use the utility program or API to discover and select the replacement device or download an updated XML file from the host that contains the device information for the replacement device.

6. **Our users access different printers at different times during the day – one during load, another during the day, and yet another during settlement at the end of the day. How do I manage these multiple printers?**
    Place the printers in separate groups by specifying multiple Subtype elements in the XML file.

    There are two options for accessing the different printer sub-types:

    a. One option is to set up the XML file to specify a single BtPort element value for all printers, and select a device in the appropriate sub-type before each report.

Example:
```
  . . .
    <DeviceType name="Printer">
        <Filter name="Printer"/>
        <Subtype name="Route Printer">
            <BtPort>WPPORT</BtPort>
        </Subtype>
        <Subtype name="Depot Printer">
            <Filter name="Printer80Column"/>
            <BtPort>WPPORT</BtPort>
        </Subtype>
        <Subtype name="Dock Printer">
            <Filter name="Printer80Column"/>
            <BtPort>WPPORT</BtPort>
        </Subtype>
    </DeviceType>
  . . .
```

In this example, the application performs one of the following steps before each report:
1. Calls the utility program or API ControlPanel (.NET) or ITC_DeviceUtility (C++) to allow the user to select a device.
2. Calls the utility program with command line option –Select to select a predetermined device. For example, the following command line selects the default Route Printer: pswdm0c.exe –Select "Printer" "Route Printer"
3. Calls API SetActiveDevice (.NET) or ITC_SetActiveDevice (C++) to select a predetermined device.   For example, the following call selects the default Route Printer: SetActiveDevice("Printer", "Route Printer", null)

b. The second option is to specify different BtPort element values for each sub-type and use the appropriate port for each report.

Example:

```
. . .
    <DeviceType name="Printer">
        <Filter name="Printer"/>
        <Subtype name="Route Printer">
            <BtPort>BSP1:</BtPort>
        </Subtype>
        <Subtype name="Depot Printer">
            <Filter name="Printer80Column"/>
            <BtPort>BSP2:</BtPort>
        </Subtype>
        <Subtype name="Dock Printer">
            <Filter name="Printer80Column"/>
            <BtPort>BSP3:</BtPort>
        </Subtype>
    </DeviceType>
. . .
```

In this example, the application uses port "BSP1:" to print to the currently selected Route Printer, "BSP2:" to print to the selected Depot Printer and "BSP3:" to print to the selected Dock Printer.

7. **Our depot printers are shared among all users. How do I set that up?**
Include all of the depot printers in the XML files for all computers. Use the API AutoSelectDevice (.NET) or ITC_AutoSelectDevice (C++) to have the Bluetooth Device Utility find the first available depot printer and set up a port to use it. For example:

AutoSelectDevice("Printer", "Depot Printer")

Alternately, you can allow the user to choose a printer:
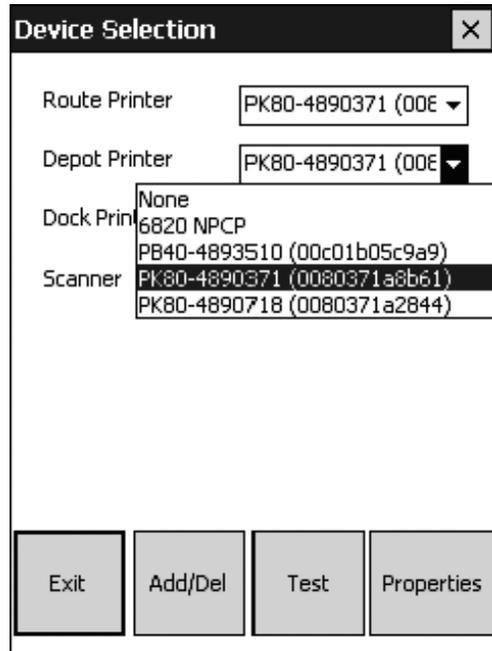
8. **I don't like the user interface of the utility program. Can I change it?**
All program literals can be overridden via the XML file. In addition, the size and position of the dialog controls can be modified by creating a resource-only satellite DLL. Instructions are in the Bluetooth Resource Kit User's Guide.

9. **I don't want my competitors to "see" my devices.**
To have the Bluetooth Device Utility make a device undiscoverable when it is the default device, include a DefaultDevice element in the XML file and specify attribute discoverable="N". For example:

```
. . .
    <DeviceType name="Printer">
        <Filter name="Printer"/>
        <DefaultDevice discoverable="N"/>
    </DeviceType>
. . .
```

In this example, when the user selects a printer in the utility program or the application uses API SetDefaultDevice (.NET) or ITC_SetDefaultDevice (C++), the utility disables the discoverable state of the printer if it can. (Currently, the Intermec PK80 printer is the only device that the Bluetooth Device Utility can automatically make undiscoverable. For other devices, you would need to change the discoverable state via other means. Refer to the documentation for your device).

Note that although a device is undiscoverable, your application can still access it because it already knows the device address.

10. **Does the Bluetooth Device Utility set up secure Bluetooth connections?**
Yes. Set up XML element Security for various security levels.

a. You can allow only secure connections:
```
. . .
    <Devices>
        <Security enabled="Y" strict="Y"/>
. . .
```

b. You can allow connections only to devices that have security disabled:
```
. . .
    <Devices>
        <Security enabled="N" strict="Y"/>
. . .
```

c. You can allow the computer to connect to any device, using security if requested by the device.
```
. . .
    <Devices>
        <Security enabled="N" strict="N"/>
. . .
```

11. **Can I use the Bluetooth Device Utility with non-Intermec peripherals?**
The Bluetooth Device Utility has only been tested with Intermec printers and scanners but it should work with any Bluetooth device that supports the Serial Port Profile. Support for additional profiles may be added in the future.

To add new device categories, add DeviceType, Filter and optionally Subtype elements to the XML file. For example:

```
. . .
    <DeviceType name="SomeNewDevice">
        <Filter name="SomeNewDevice"/>
        <BtPort>BSP1:</BtPort>
    </DeviceType>
. . .
    <Filter name="SomeNewDevice">
        <ServiceClass major="0x04"/>
        <DeviceClass major="0x06" minor="0x80"/>
    </Filter>
. . .
```

Refer to the device documentation for the appropriate Bluetooth Service Class and Device Class values for your device.

More Information
For detailed information about using the Bluetooth Device Utility, refer to the Bluetooth Resource Kit User's Guide in the Intermec Developer Library (www.intermec.com/idl).

Intermec

North America
Corporate Headquarters
6001 36th Avenue West
Everett, Washington 98203
Phone: (425) 348-2600
Fax: (425) 355-9551

South America & Mexico
Headquarters Office
Newport Beach, California
Phone: (949) 955-0785
Fax: (949) 756-8782

Europe/Middle East &
Africa Headquarters Office
Reading, United Kingdom
Phone: +44 118 923 0800
Fax: +44 118 923 0801

Asia Pacific
Headquarters Office
Singapore
Phone: +65 6303 2100
Fax: +65 6303 2199

Internet
www.intermec.com
Worldwide Locations:
www.intermec.com/locations

Sales
Toll Free NA: (800) 934-3163
Toll in NA : (425) 348-2726
Freephone ROW: 00 800 4488 8844
Toll ROW : +44 134 435 0296

OEM Sales
Phone: (425) 348-2762

Media Sales
Phone: (513) 874-5882

Customer Service and Support
Toll Free NA: (800) 755-5505
Toll in NA : (425) 356-1799