IndustrialPro™ Routers (SN Series)
Wireless Modems

Migration and Advanced Firmware Update Procedures
Version 3.07

January 2011

CHANGE HISTORY

Version	Date	Description
3.07	January 11, 2011	SN Release 3.07
3.06	October 12, 2010	SN Release 3.06
3.05	October 5, 2010	SN Release 3.05
3.04	May 8, 2010	SN Release 3.04 – Pre Release

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1 Related Products

This release applies to the following products:

- **Sixnet IndustrialPro™ Gateway** Wireless Modems (BT-6000 Series) for migration into Sixnet IndustrialPro™ Routers :

  - BT-6400, BT-6401, BT-6401EB: GSM/EDGE Wireless modems

  - BT-6600, BT-6601, BT-6601EB, BT-6621: CDMA EVDO A Wireless modems

  - BT-6800, BT-6801, BT-6801EB, BT-6821: GSM/HSPA Wireless modems

- **Sixnet IndustrialPro™ Router** Wireless Modems (SN-6000 Series):

  - SN-6400, SN-6401, SN-6401EB: GSM/EDGE Wireless modems

  - SN-6600, SN-6601, SN-6601EB, SN-6621: CDMA EVDO A Wireless modems

  - SN-6800, SN-6801, SN-6801EB, SN-6821: GSM/HSPA Wireless modems

2 Release content

The release is composed of:

- **3.07_bt2sn.zip**: This archive contains the bt2sn_R5_bt6k.upd upgrade package used to migrate a Sixnet IndustrialPro™ Gateway wireless modem into a Sixnet IndustrialPro™ Router wireless modem (BT- Series to SN- Series) and a copy of the release notes.
- **3.07_sn_reflash.zip**: This archive contains the files used for the SN- series advanced upgrade and a copy of the release notes.
- **SN_MigrationAndUpdateProcedures_v3.07_2011-01-11.pdf**: this document in PDF format.

The two archive files shall be extracted on a local directory prior to being used in the upgrade process.

The archive files can be downloaded from the following location:

ftp://ftp.jbmelectronics.com/outgoing/bt6k/

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3   Sixnet IndustrialPro™ Gateway to Router Migration Procedures

One of the following procedures shall be used once to migrate a modem from the BT- Series (BT-6400, BT-6401, BT-6401EB, BT-6600, BT-6601, BT-6601EB, BT-6621, BT-6800, BT-6801, BT-6801EB and BT-6821 only) to its equivalent SN- Series.

Notes:

- The migration is a delicate process that needs to be followed precisely and may result in the modem becoming unresponsive. If this happens, the modem will be required to be sent in for repair.
- In the migration procedures, the USB connection can be replaced by an Ethernet connection (direct or cross-over RJ45 CAT5 cable). In this case the 192.168.111.1 IP address shall be replaced by 192.168.0.1. Using the USB connection allows to run in parallel the migration procedure and the advanced upgrade (reflashing) procedure since the later uses exclusively the Ethernet connection. This is especially useful when performing the two procedures on a large set of modems.
- The IP addresses given in the procedure are the factory default IP addresses. In case they have been changed, the modem shall first be reset to factory defaults. The easiest way to perform this task is to hold the reset button for between 3 and 10 seconds until the RS232 LED starts flashing.
- On some Windows systems with multiple Ethernet interfaces, problems can occur with the TFTP steps. You may need to temporarily disable Ethernet device(s) not required to connect.

The migration can be performed either:

- with BlueVue Device Manager, **or**
- with command line (DOS prompt).

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3.1 Migration using BlueVue Device Manager:

1. Connect PC and modem with USB cable
2. Start BlueVue Device Manager and Click "Change connection type" and make sure it is "Modem IP".
3. Type the modem LAN USB IP address in the related field if needed (default Modem IP is 192.168.111.1)
4. After the modem is detected, click **File** > **Configuration** and click "**Firmware**" tab
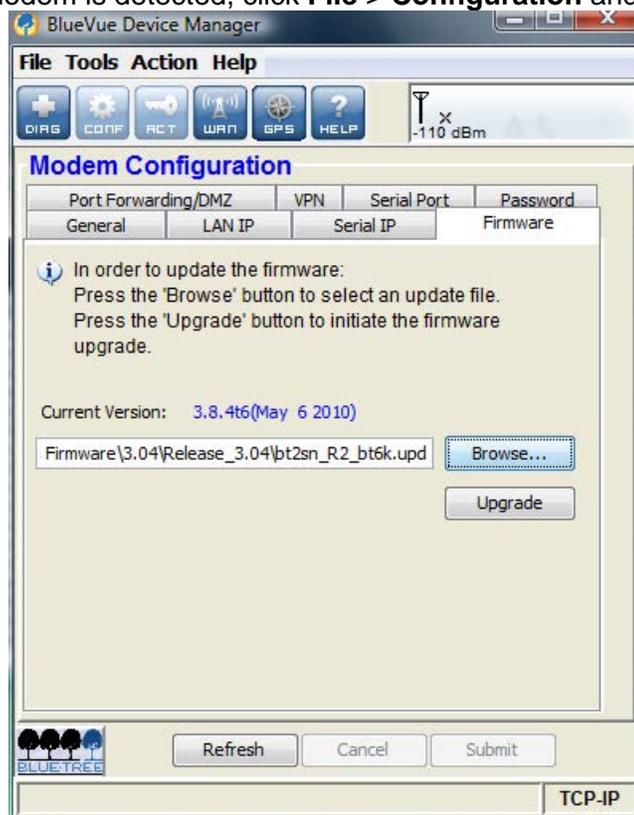
5. Select the **sn2bt_R5_bt6k.upd** file, then click "Upgrade"
6. Wait for the firmware update to end and the modem to restart (modem displays its boot LED pattern)
7. BlueVue Device Manager will eventually display that the upgrade could not be confirmed, click on OK and quit BlueVue Device Manager

Notes:

- When performing the migration operation on multiple modems, points 2, 3 and 7 may be skipped and the TFTP server may be left running (see Advanced Upgrade).

- BlueVue Device Manager may be downloaded from http://www.sixnet.com/dist/software/btw/bvdm_1.7.9.exe.

- This procedure is exclusive from the migration with command line.

- **After the migration procedure, the modem is unusable until the Advanced Firmware Upgrade procedure is performed.**

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3.2 Migration using command line:

This procedure is exclusive from the migration with BlueVue Device Manager.

1. Connect PC and modem with the USB cable, power the modem up, wait about 40 seconds for the modem to be ready
2. Telnet to the USB LAN port 6070 (retry until telnet connects and the modem prompt is displayed):

```
telnet 192.168.111.1 6070
```

3. Enter the following AT Command (start modem FTP server for 15 minutes):

```
AT+BFTPE=1
```

4. In another window, change directory to where you extracted the archive files:

```
cd \<directory path>
```

5. Next, FTP the modem USB LAN:

```
ftp 192.168.111.1
username: ftp
password: ftp
```

6. In the FTP window enter the following FTP commands:

```
bin
put 3.07_bt2sn/bt2sn_R5_bt6k.upd  btfw.bin
bye
```

7. In the telnet window enter the following AT command (apply modem upgrade package):

```
AT+BFWUPS=3
```

8. Wait for the modem to restart (LED pattern and telnet connection closed by modem)
9. Perform the Advanced Upgrade described below

Notes:

- This procedure is exclusive from the migration using BlueVue Device Manager.
- This procedure is faster than the migration using BlueVue Device Manager.
- **After the migration procedure, the modem is unusable until the Advanced Firmware Upgrade procedure is performed.**

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4 IndustrialPro™ Router Firmware Update Procedures

This procedure can be applied on IndustrialPro™ Router wireless modems (SN- Series) to update the installed firmware.

4.1 Normal update

Upgrade firmware using the modem web interface. The upgrade consists in first uploading the boot image file (available in 3.07_sn_reflash\Images\sn-bootfs.jffs2) and then the root image file (available in 3.07_sn_reflash\Images\sn-rootfs.jffs2).

If you are having trouble reflashing an older version through the GUI, you may obtain a helpful package at:
ftp://ftp.jbmelectronics.com/outgoing/bt6k/prepare_flashing_100810.zip
This can be applied through the GUI screen "Admin->Package Installation", immediately prior to using the "Admin->Firmware Update" screen.

4.2 Advanced Firmware Update Procedure

This procedure reflashes the entire content of the modem non-volatile memory with images stored on a local TFTP server. This is equivalent to a complete reflash to factory defaults.

1. Connect PC and modem with an Ethernet cable
2. Double-click on **sn_reflash.bat** in the **3.07_sn_reflash** folder. Depending on your Windows PC configuration, you may need to run sn_reflash.bat with **Administrator**'s privileges.
3. If the Windows PC has several Ethernet Adapter, the following screen will be displayed:
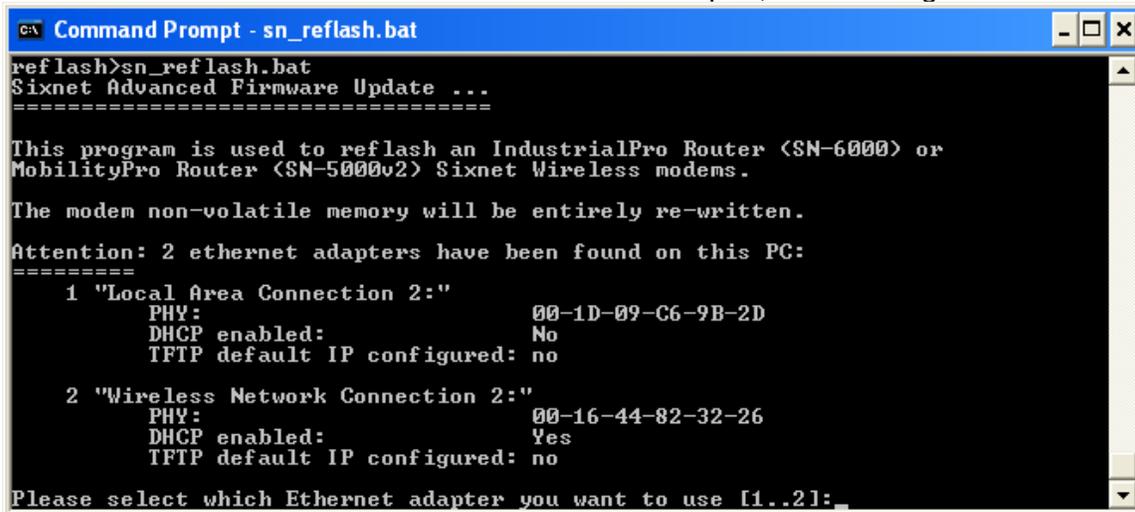
```
Command Prompt - sn_reflash.bat

reflash>sn_reflash.bat
Sixnet Advanced Firmware Update ...
====================================

This program is used to reflash an IndustrialPro Router (SN-6000) or
MobilityPro Router (SN-5000v2) Sixnet Wireless modems.

The modem non-volatile memory will be entirely re-written.

Attention: 2 ethernet adapters have been found on this PC:
=========
    1 "Local Area Connection 2:"
          PHY:                      00-1D-09-C6-9B-2D
          DHCP enabled:             No
          TFTP default IP configured: no

    2 "Wireless Network Connection 2:"
          PHY:                      00-16-44-82-32-26
          DHCP enabled:             Yes
          TFTP default IP configured: no

Please select which Ethernet adapter you want to use [1..2]:_
```

Select the interface you want to use for the modem advanced upgrade.

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4. The sn_reflash warns to close any open network file since it will change network settings. Press any key to continue or <Ctrl>-C to stop the process.
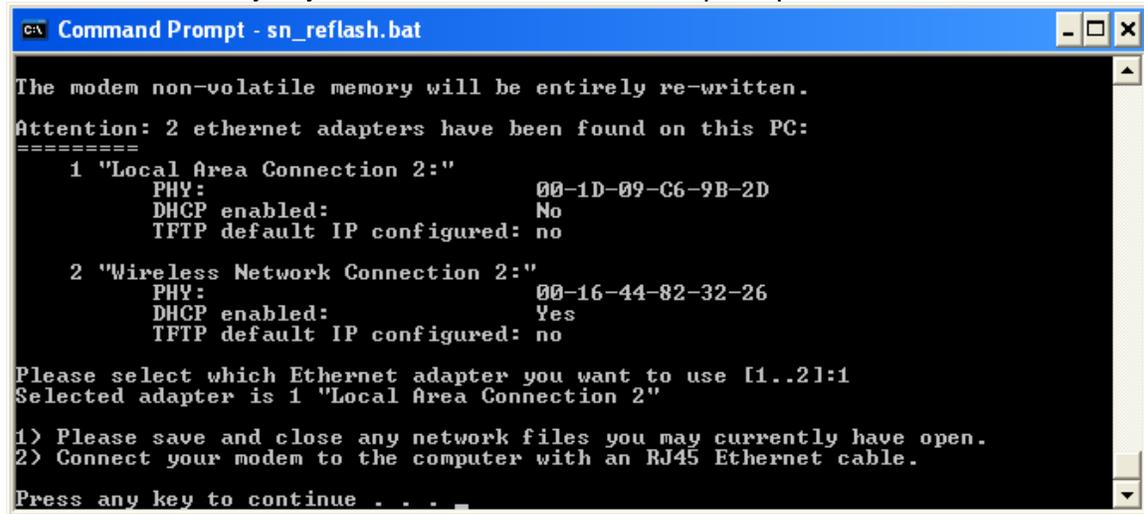
```
Command Prompt - sn_reflash.bat                          _ □ ✕

The modem non-volatile memory will be entirely re-written.

Attention: 2 ethernet adapters have been found on this PC:
=========
    1 "Local Area Connection 2:"
          PHY:                         00-1D-09-C6-9B-2D
          DHCP enabled:                No
          TFTP default IP configured: no

    2 "Wireless Network Connection 2:"
          PHY:                         00-16-44-82-32-26
          DHCP enabled:                Yes
          TFTP default IP configured: no

Please select which Ethernet adapter you want to use [1..2]:1
Selected adapter is 1 "Local Area Connection 2"

1) Please save and close any network files you may currently have open.
2) Connect your modem to the computer with an RJ45 Ethernet cable.

Press any key to continue . . . _
```

5. If the selected interface, is already configured with the default IP address, the following message will be displayed:

```
Command Prompt - sn_reflash.bat                                    _ □ ×
=========
    1 "Local Area Connection 2:"
          PHY:                          00-1D-09-C6-9B-2D
          DHCP enabled:                 No
          TFTP default IP configured: yes

    2 "Wireless Network Connection 2:"
          PHY:                          00-16-44-82-32-26
          DHCP enabled:                 Yes
          TFTP default IP configured: no

    3 "Local Area Connection 3:"
          PHY:                          26-DD-BA-36-7C-5E
          DHCP enabled:                 Yes
          TFTP default IP configured: no

Please select which Ethernet adapter you want to use [1..3]:1
Selected adapter is 1 "Local Area Connection 2"

1) Please save and close any network files you may currently have open.
2) Connect your modem to the computer with an RJ45 Ethernet cable.

Press any key to continue . . .

Interface "Local Area Connection 2" appears already configured with IP address 1
92.168.88.180.
For most modems, having 192.168.88.180 is normally enough.
Shall the interface be configured for all possible IP addresses [Y/N]:
```

For most modems, choosing '**N**' is Ok. Some modems may need to have other IP addresses configured. In this case select 'Y'.

6. Wait while the program configures the network interface and launches TFTP.
7. The following screen indicates that the TFTP server is awaiting firmware requests from the modem:

```
Command Prompt - sn_reflash.bat                                    _ □ ×
Release_3.05\3.05_sn_reflash\Images\
alias /gs\Administrator\Desktop\MarcTibout\Release_3.05\3.05_sn_reflash\Images\
is mapped to \Images\
listening On: 192.168.222.178:69
listening On: 192.168.222.168:69
listening On: 192.168.222.167:69
listening On: 192.168.88.180:69
listening On: 192.168.222.180:69
listening On: 192.168.111.2:69
listening On: 127.0.0.1:69
listening On: 192.168.222.122:69
permitted clients: all
server port range: all
max blksize: 65464
default blksize: 512
default timeout: 10
file read allowed: Yes
file create allowed: No
file overwrite allowed: No
thread pool size: 1

Reset your BlueTree modem to start the advanced firmware upgrade process ...
 - Press the RESET button of the modem for approximately 8 to 12 seconds
   then release it when only the WAN LED is flashing.

Press 'q' to quit.
```

If the TFTP server does not display the line "**listening On: 192.168.88.180:69**", you will need to restart it with Administrator's privileges.

8. Press the **RESET** button for between 10 and 15 seconds until the **WAN** LED starts flashing
9. Monitor the modem reflash in the sn_reflash window. Four files should get served:
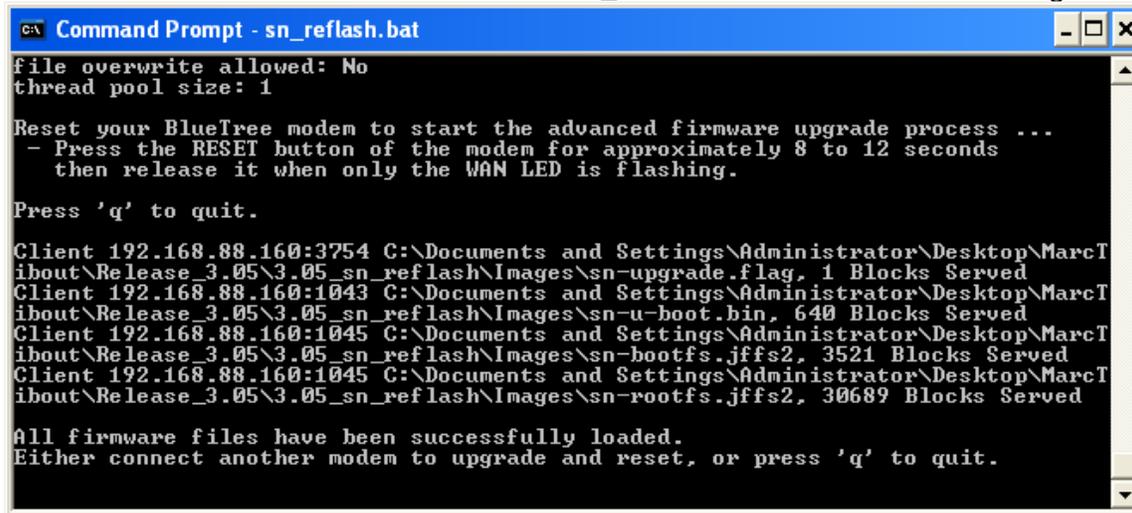
```
Command Prompt - sn_reflash.bat                                    _ □ ×

file overwrite allowed: No
thread pool size: 1

Reset your BlueTree modem to start the advanced firmware upgrade process ...
 - Press the RESET button of the modem for approximately 8 to 12 seconds
   then release it when only the WAN LED is flashing.

Press 'q' to quit.

Client 192.168.88.160:3754 C:\Documents and Settings\Administrator\Desktop\MarcT
ibout\Release_3.05\3.05_sn_reflash\Images\sn-upgrade.flag, 1 Blocks Served
Client 192.168.88.160:1043 C:\Documents and Settings\Administrator\Desktop\MarcT
ibout\Release_3.05\3.05_sn_reflash\Images\sn-u-boot.bin, 640 Blocks Served
Client 192.168.88.160:1045 C:\Documents and Settings\Administrator\Desktop\MarcT
ibout\Release_3.05\3.05_sn_reflash\Images\sn-bootfs.jffs2, 3521 Blocks Served
Client 192.168.88.160:1045 C:\Documents and Settings\Administrator\Desktop\MarcT
ibout\Release_3.05\3.05_sn_reflash\Images\sn-rootfs.jffs2, 30689 Blocks Served

All firmware files have been successfully loaded.
Either connect another modem to upgrade and reset, or press 'q' to quit.
```

10. Wait for the reflash to complete ("All firmware files have been successfully loaded")
11. **Wait for the modem to restart.** Power and RS232 LEDs should be on. Modem has entirely restarted when the RS232 LED turns OFF.
12. Disconnect the modem from its power source.
13. Quit the sn_reflash.bat program by pressing **q** in its window.

Notes:

- The `sn_reflash.bat` launches a TFTP server after reconfiguring the "Local Area Connection" interface to a static IP address. Setting the network interface may take a few minutes. The interface configuration is then restored when the program quits. If this is a problem, you may configure your Ethernet interface to the following static IP address 192.168.88.180 and run `bttftpsrv -v` in a DOS prompt of the Images directory.

- Launching the TFTP server may trigger a Windows firewall warning:

```
Windows Security Alert                                            ☒

        To help protect your computer, Windows Firewall has blocked
        some features of this program.

Do you want to keep blocking this program?

        Name:     BTTFTPSrv
        Publisher: Unkno...  C:\Documents and Settings\Tempuser\Desktop\SN_Firmwar

              [ Keep Blocking ]   [ Unblock ]   [ Ask Me Later ]

Windows Firewall has blocked this program from accepting connections from the
Internet or a network. If you recognize the program or trust the publisher, you can
unblock it. When should I unblock a program?
```

Select **Unblock** to continue.

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- When performing the update procedure on multiple modems, do not quit the sn_reflash.bat program (skip point 13), and loop between points 8 to 12.

- Do not try to connect to the newly upgraded SN- Series modem unless the TFTP server (sn_reflash) is terminated (the LAN Ethernet interface has been specially configured for the TFTP operations). Once the TFTP server has been terminated, you may connect to your newly upgraded device using a web browser at http://192.168.0.1:10000.

5   Support Information

Visit the Industrial Wireless Product Support section of Sixnet website to download product manuals, software updates and modem firmware updates.

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