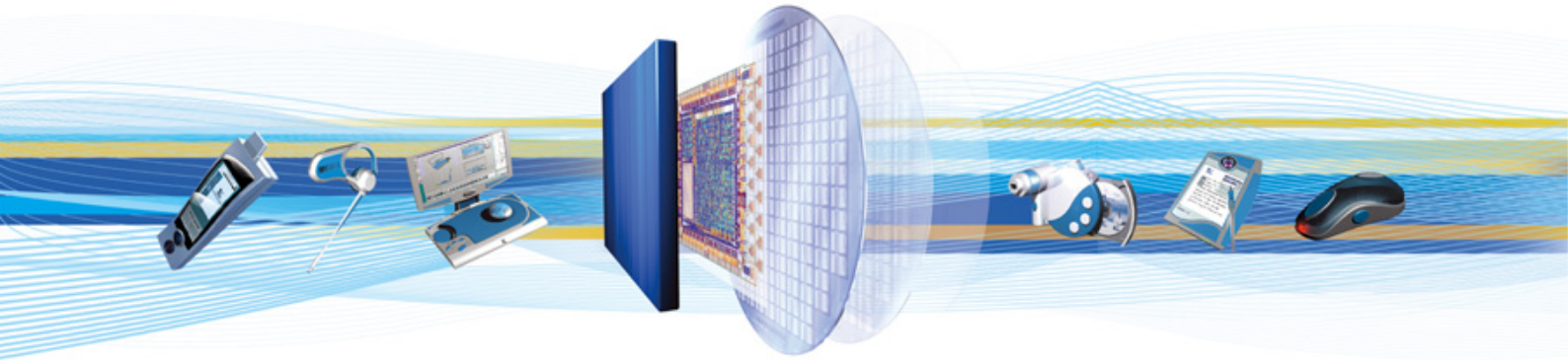
CSR Synergy Bluetooth 18.2.0

PAN Personal Area Networking Profile

Demo Description

November 2011



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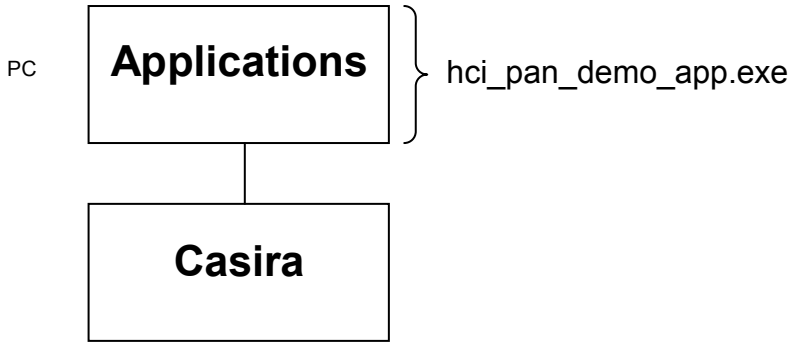
1 Persona Area Networking (PAN) Profile

1.1 General

The PAN demo application program is an example application of how the PAN API of CSR Synergy Bluetooth can be used. The application is running with a HCI-build firmware only. The application includes a demo implementation of IP, ARP, ICMP, UDP, DHCP client and TFTP server running as Scheduler tasks.



The scenarios covered by this profile are the following:

- Inquire and discover remote devices and remote services
- Send a ping request to a remote device
- Send and receive a file using TFTP. The demo application internet stack contains a TFTP server

The application has been made to run on Windows and Linux and may be connected to the Casira using either a serial connection using BCSP (`hci_pan_demo_app.exe`), a serial connection using H4DS (`hci_pan_demo_app_h4ds.exe`) or an USB connection (`hci_pan_demo_app_usb.exe`), and their HCI equivalent.

The Linux example application runs like the windows application, but has also been extended to run in kernel mode and hook into the Linux Networking sub-system.

1.2 Use of program hci_pan_demo_app.exe

NOTE: This description is for CSR Synergy Bluetooth HCI using BCSP over UART as host transport.

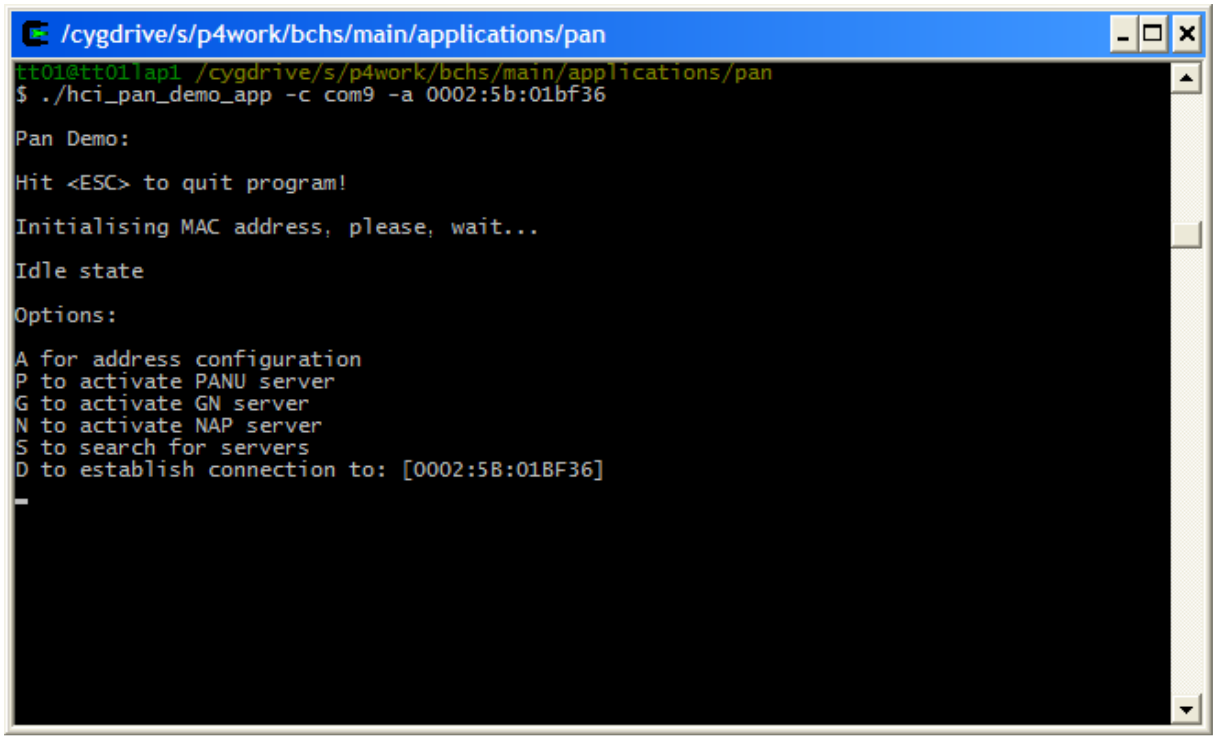
Start the program hci_pan_demo_app with one or more of the following program options:

1. Choose the COM port on which the Bluetooth module is connected, by specifying the –c parameter to the program, e.g. hci_pan_demo_app –c com1. At start up COM1 is selected as default.

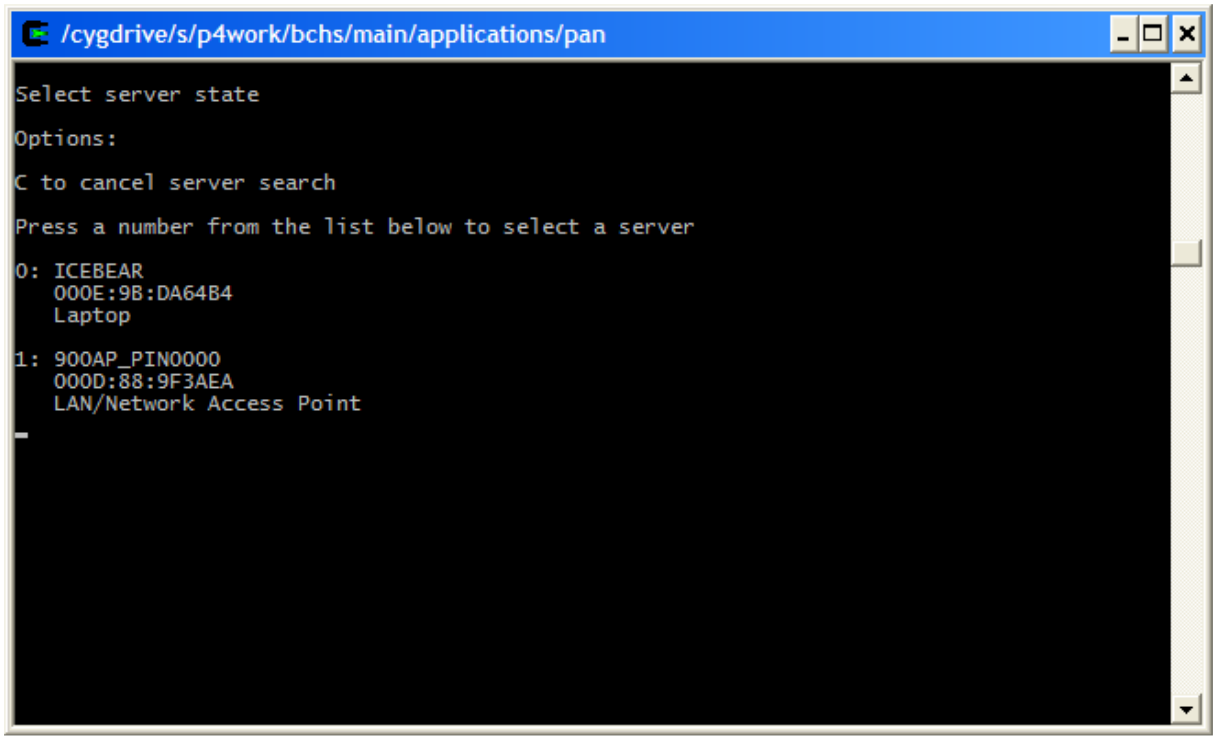
2. Choose the baudrate for the selected port on which the Bluetooth module is connected, by specifying the –b parameter to the program, e.g. hci_pan_demo_app –b 115200. If no parameter is specified the default is 115200

3. Choose a specific device for default connection by specifying the –a parameter to the program, e.g. hci_pan_demo_app –a 0002:5b:01a494. If no address is specified it is necessary to perform a search for servers in order to establish a connection.

Commands available in the main menu (Idle state) are listed in the screen dump below:

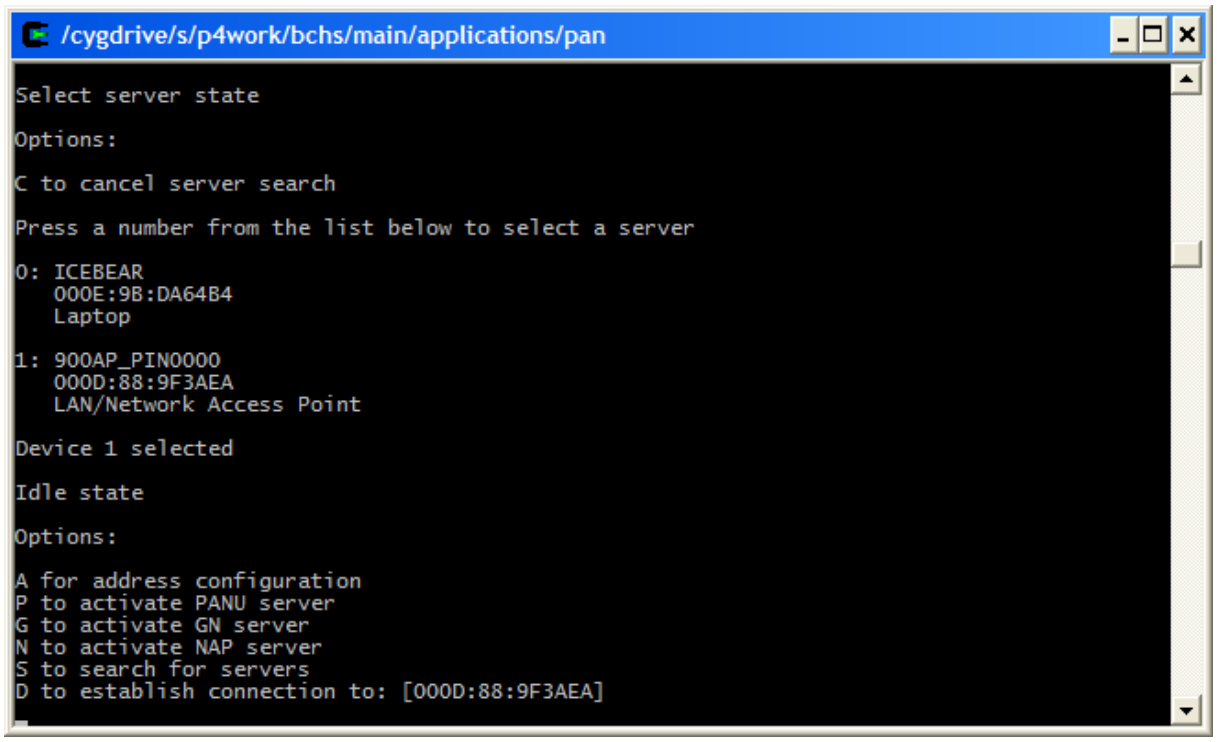


Press S for a search for servers in the vicinity:

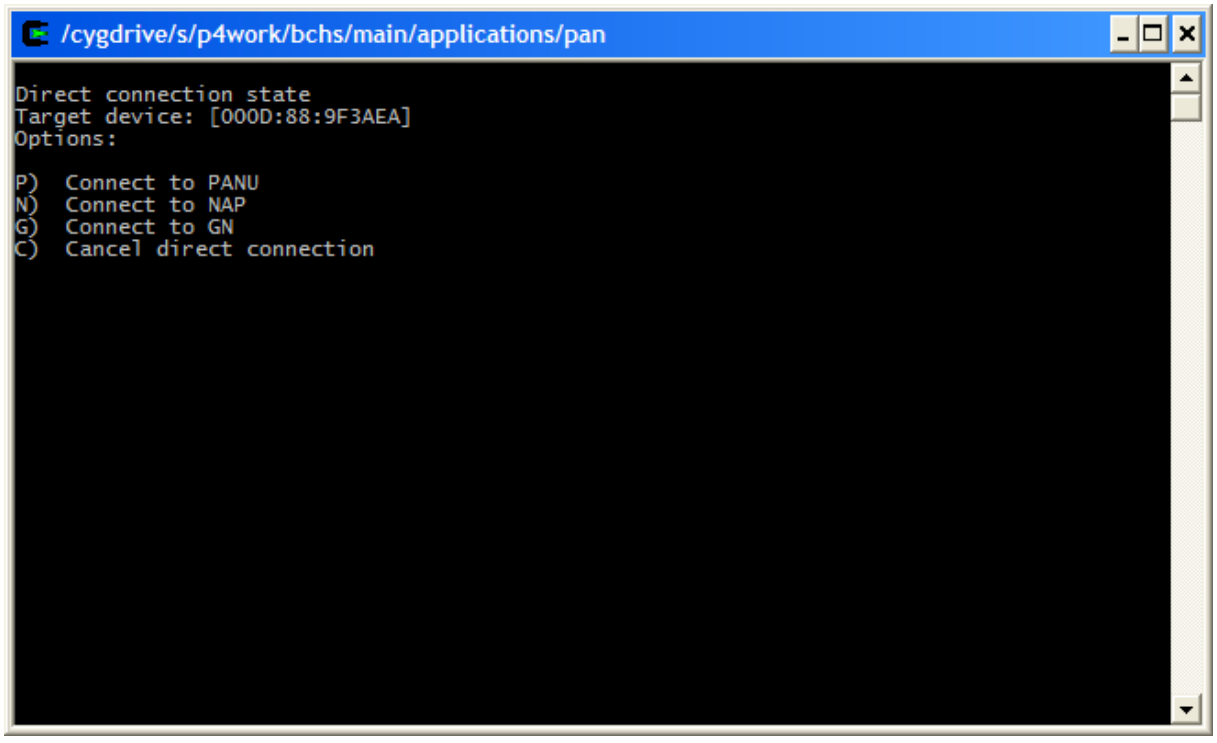


When the device(s) are found press the number of the desired device. When pressing ‘C’ - the server search is cancelled and application returns to idle state.

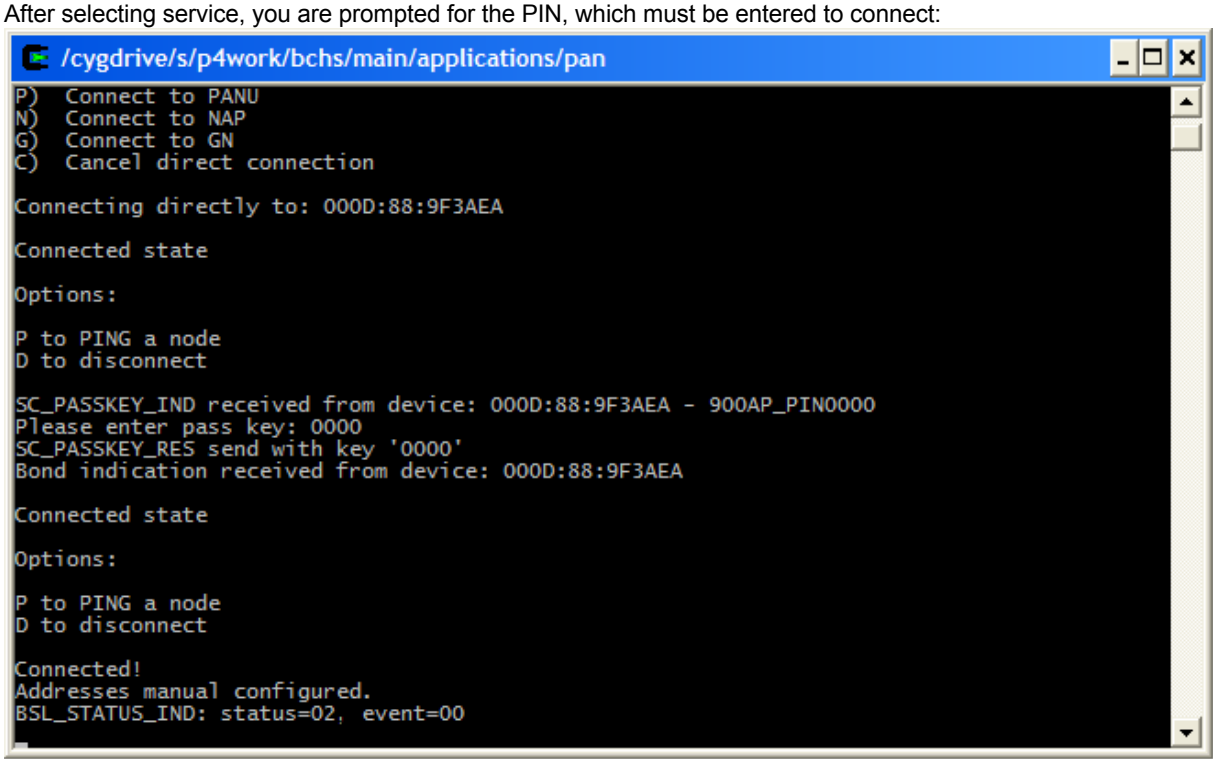
After selecting a device the application returns to the idle state and replaces the default device address with the selected device address:



Press ‘D’ to establish a connection to the selected device using one of the 3 supported services:

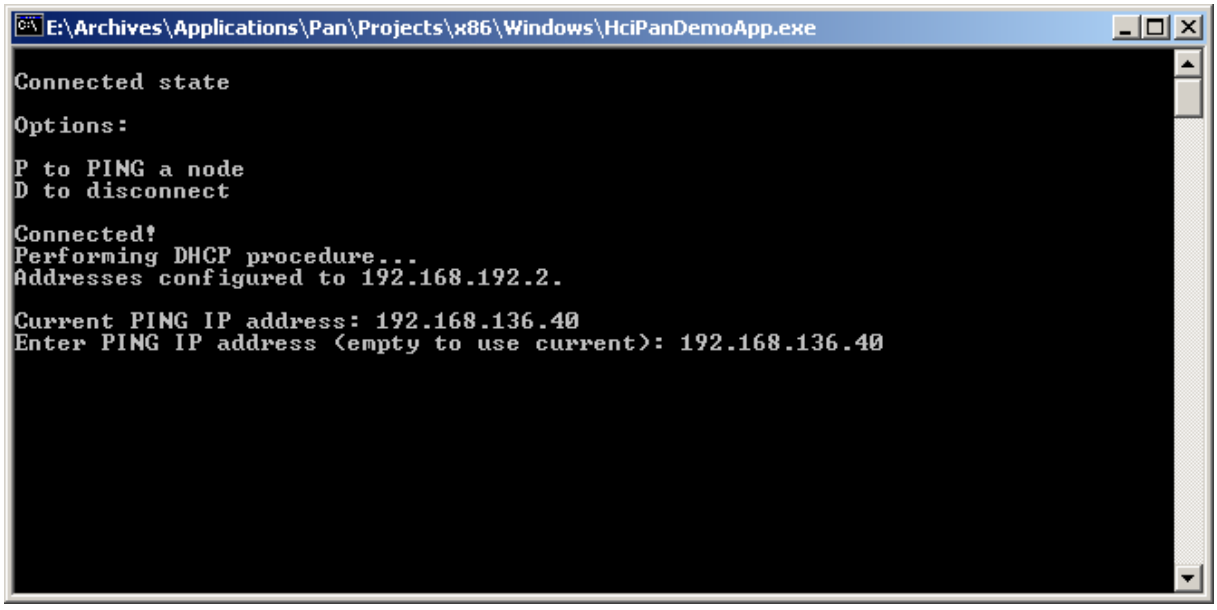


After selecting service, you are prompted for the PIN, which must be entered to connect:

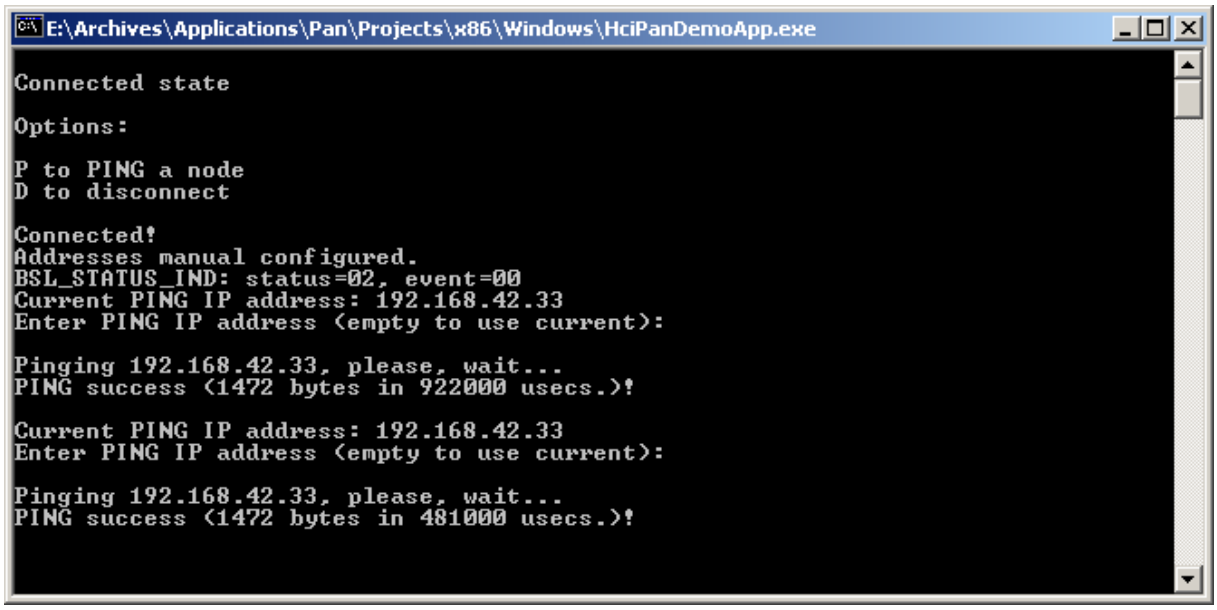


The CSR_BT_BSL_STATUS_IND informs the application about lower layer mode changes. The example shows that the Bluetooth link has entered sniff mode.

When connected, it is possible to ping nodes on the peer side. Choose P to PING a node, see illustration below:

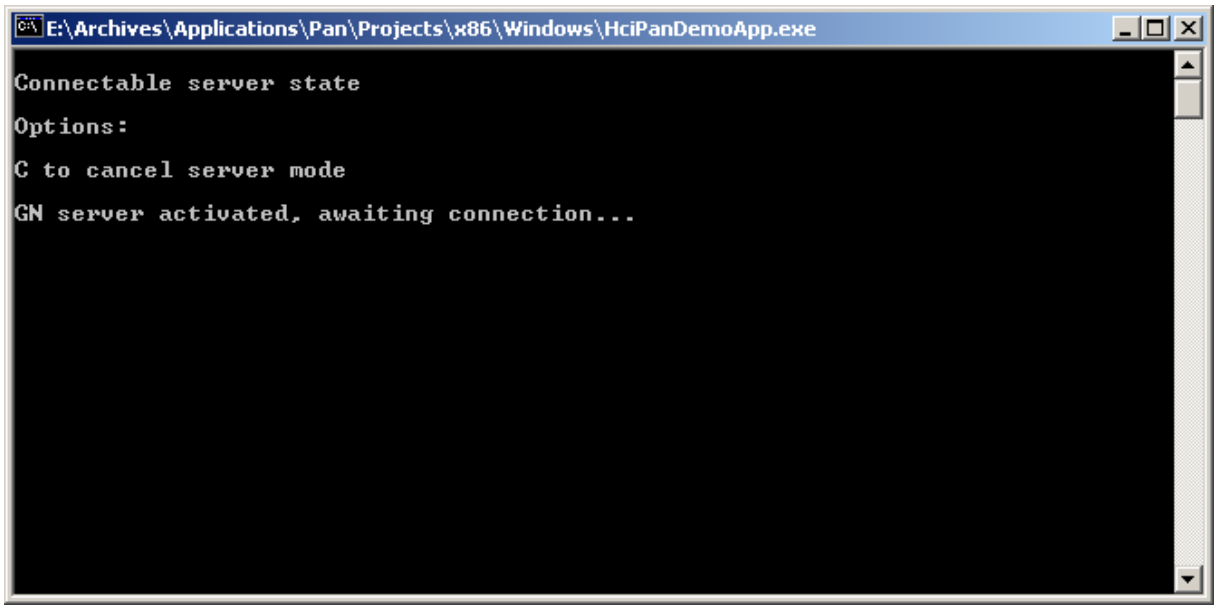


The default ping data size is set 1472 bytes - this will send a IP packet of 1500 bytes (including the IP and ICMP headers). The default size can only be changed by changing the corresponding define and recompiling the code.



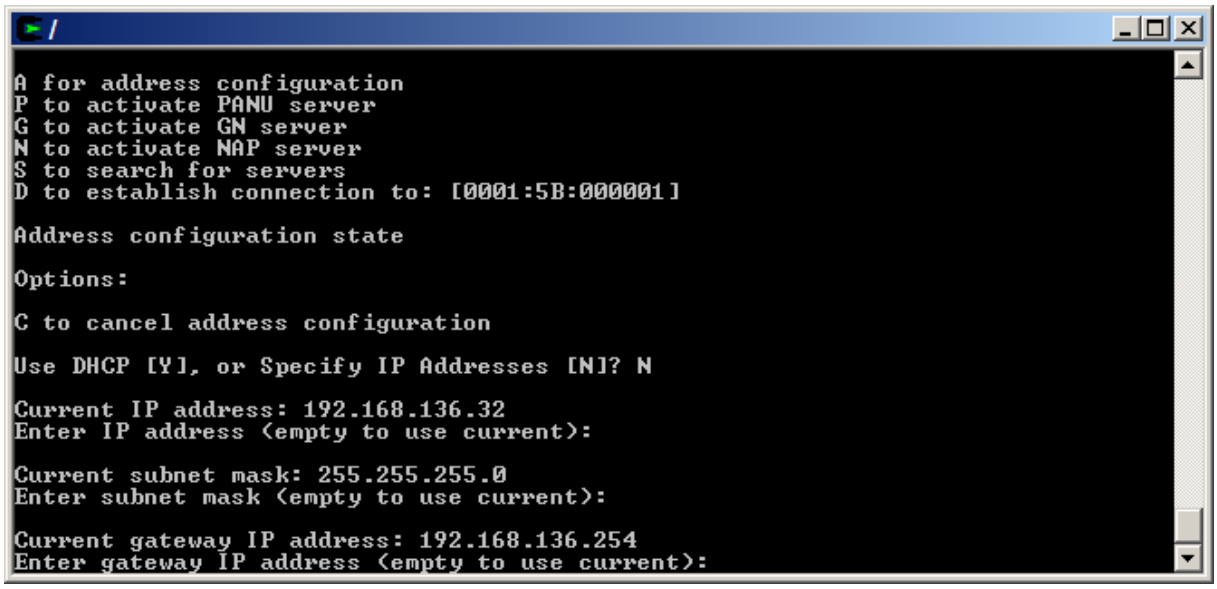
Notice: The response time depends on the sniff interval. In addition, the first ping (or any first time transmission to a node) will be preceded by an ARP request to locate the Ethernet address of the peer.

Press ‘G’ in the main menu to activate the local device as a GN server.



The same procedure is used for activating the local device as a NAP or PANU.

The ‘A’ option is used for setting the local addresses. This can be done either automatically by enabling DHCP or manually, in which case the IP address, subnet mask and gateway IP address can be entered.



Note: Do not enable DHCP if the peer side does not support DHCP.

2 Linux

This section describes how to build and run the PAN demo application on Linux.

The PAN demo application (pure user space), located in ./applications/pan, may be compiled on Linux by means of:

> make clean all TARGET_ARCH=Linux-2.6-x86

This will output two files: `hci_pan_demo_app` and `hci_pan_demo_app_usb`, for serial and USB communication respectively.

The demo applications are used like described above for Windows.

Terms and Definitions

BlueCore®	Group term for CSR's range of Bluetooth wireless technology chips
Bluetooth®	Set of technologies providing audio and data transfer over short-range radio connections
CSR	Cambridge Silicon Radio
UniFi™	Group term for CSR's range of chips designed to meet IEEE 802.11 standards

Document History

Revision	Date	History
1	26 SEP 11	Ready for release 18.2.0

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