

Blue Terminal

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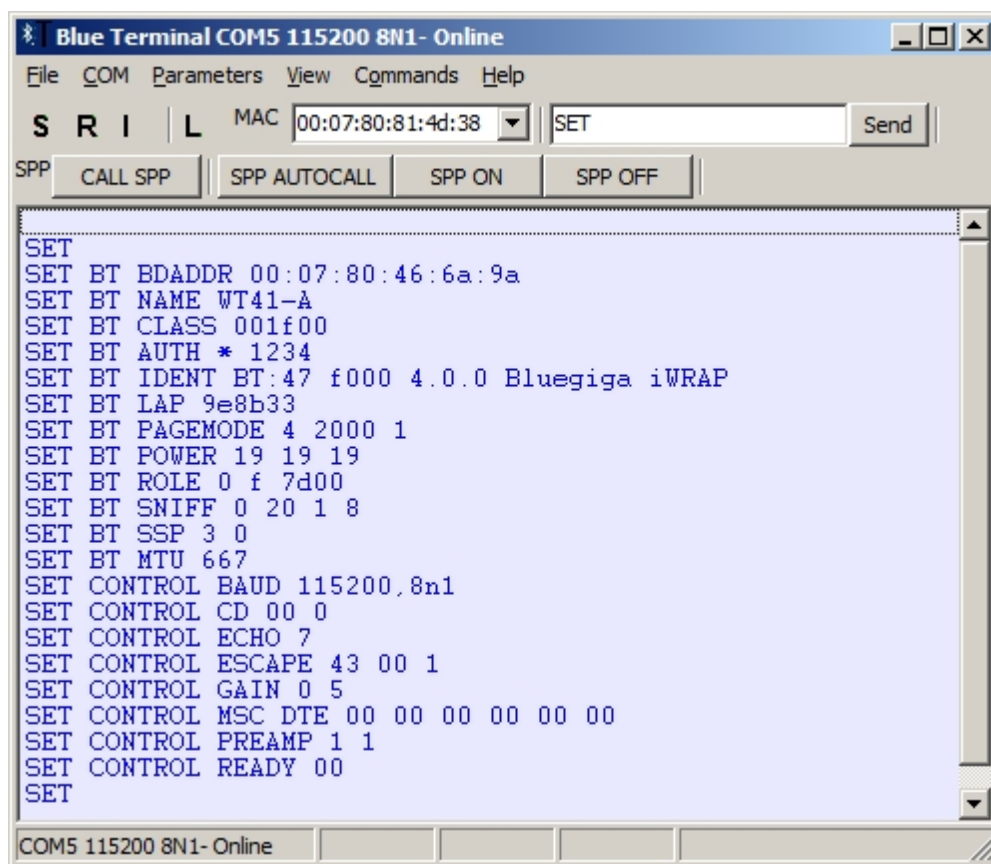
Overview

The Blue Terminal program is a simple serial terminal with extra buttons to assist with testing and setting up Bluegiga Bluetooth modules. The name Blue Terminal is the short form of BlueTooth Serial Terminal. This help can also be found at esdn.com.au/Help

When run, the program will appear as shown below. On the first run, the COM port should be set to the COM port which is active, and the baud rate should be set to the appropriate rate. The status of the serial connection will be shown in the lower left part of the status bar as:

- Online for a successful connection or
- Offline for an unsuccessful connection.

The settings are saved to and loaded from the [Registry](#) when the File is Closed or Opened.



Registry Settings

Various settings and values are saved to the Registry when BlueTerminal is closed. These settings are then reloaded when BlueTerminal is restarted.

Disclaimer: Do not use a registry editor to edit the registry directly unless you have no alternative. The registry editors bypass the standard safeguards provided by administrative tools. These safeguards prevent you from entering conflicting settings or settings that are likely to degrade performance or damage your system. Editing the registry directly can have serious, unexpected consequences that can prevent the system from starting and require that you reinstall Windows .

The settings are saved to the registry under the name \HKEY_CURRENT_USER\SOFTWARE\BlueTerminal.

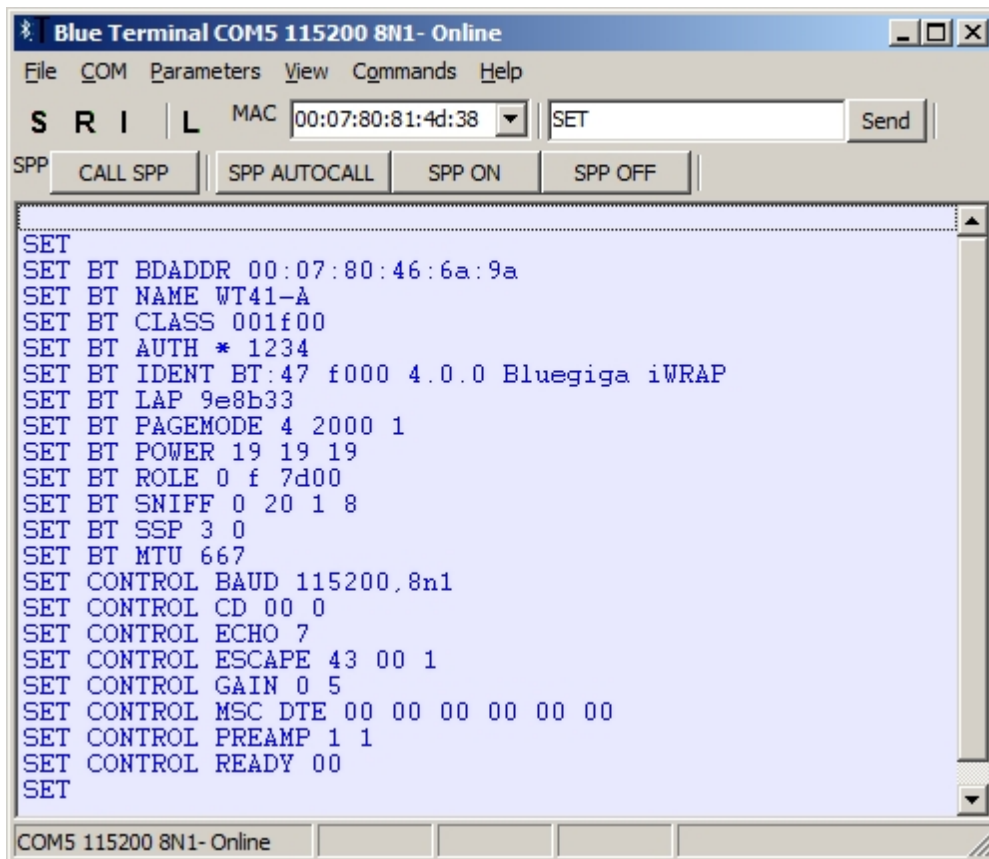
Free Version

The Free Version is identical to the Pro Version of Blue Terminal except for a 30 second delay on changing any parameters.

In the Free Version, COM1, COM2 and COM3 may be used without the timer. The timer is added to encourage frequent users to upgrade to the Pro version of Blue Terminal.

Bluegiga interface

Blue Terminal allows for efficient testing of BlueGiga bluetooth modules. Press the S or SET button to view all the settings. Alternately, the mouse can select the lower screen, and the operator may type in SET followed by the ENTER key.



Menu

Menu

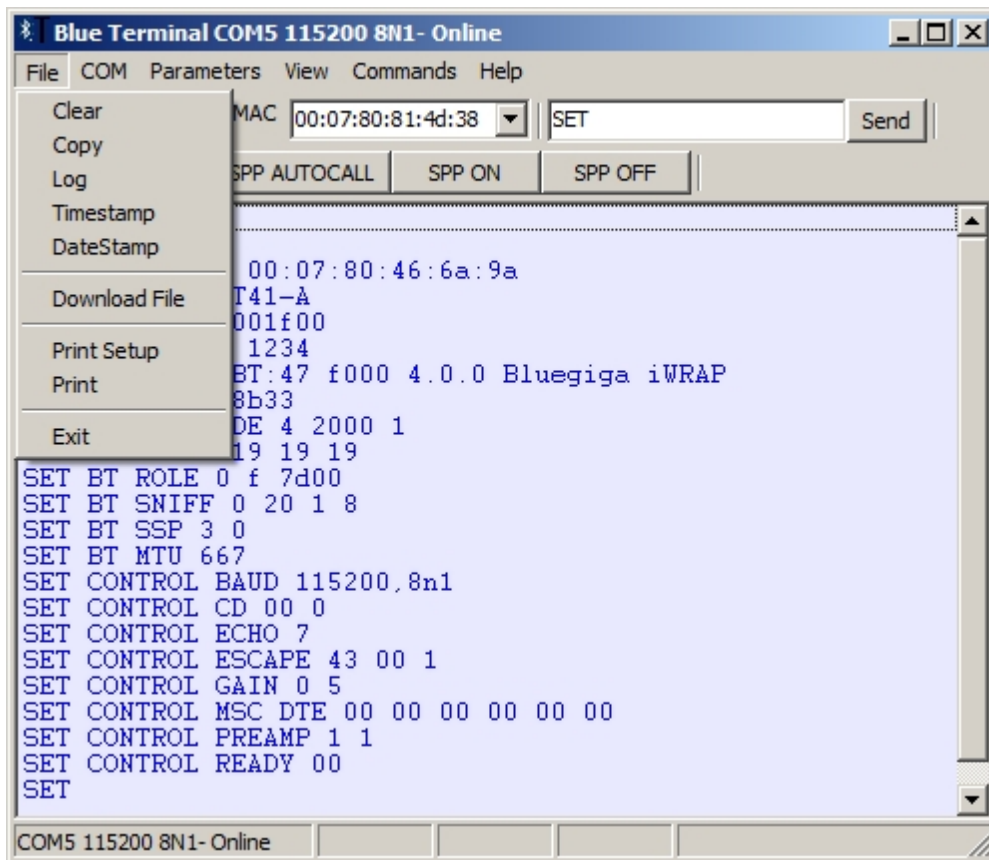
There are six menu headings:

- File - to select File and Print operations
- COM - Select or Autodetect the correct Com Port
- Parameters - select the Com Port parameters such as baud rate, parity or data bits.
- View - turn on various customised toolbars or options to setup Bluegiga iWrap profiles easily
- Commands - some commonly used Bluegiga iWrap commands
- Help - activate this context-sensitive help

File

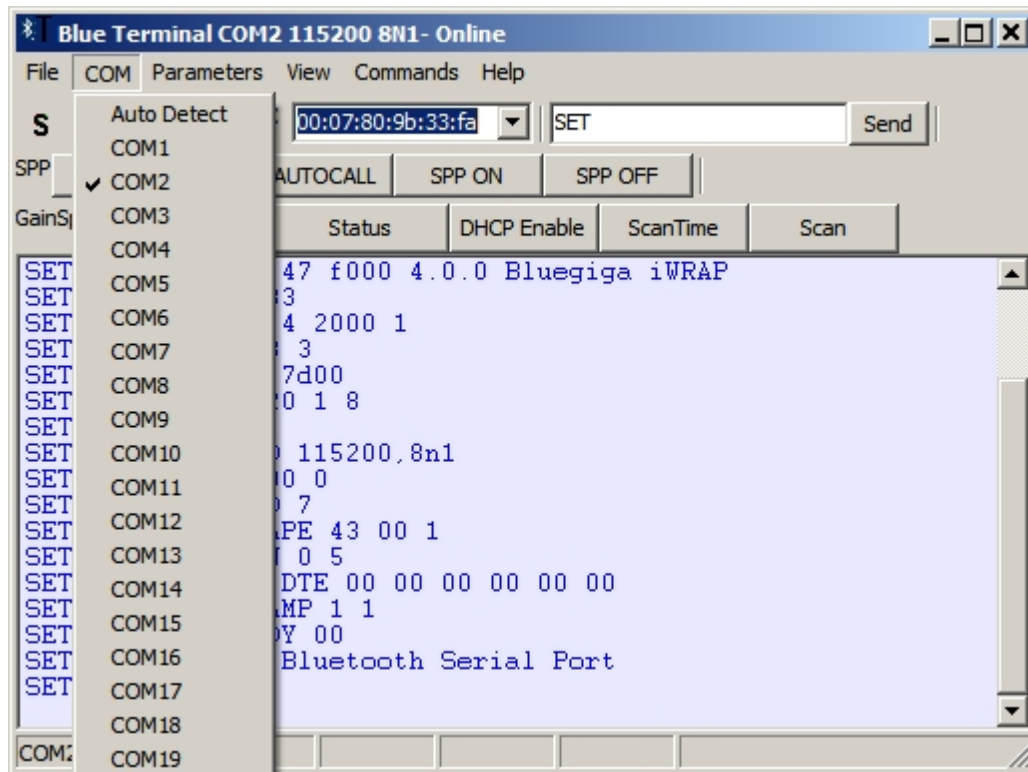
The File Menu has the following selections:

- Clear - clear the screen
- Copy - copy the screen data to the clipboard
- Log - turn the file logging on or off - the filename is shown on the status bar
- TimeStamp - Add a timestamp to the log file
- DateStamp - Add a datestamp to the log file
- Download File - send a file through the serial port in ASCII format (useful for EEPROM Emulator device)
- Print Setup - Change the Print Properties
- Print - Print as Black on White to any printer
- Exit - Close the Blue Terminal session



COM

Select the Com port to connect to. If unsure, select Autodetect and select the Com port from the drop down list of active Com ports. COM port 1 to 100 are supported - while Windows allows COM ports from 1 to 255. The COM ports from 21-100 are found in the respective submenus.



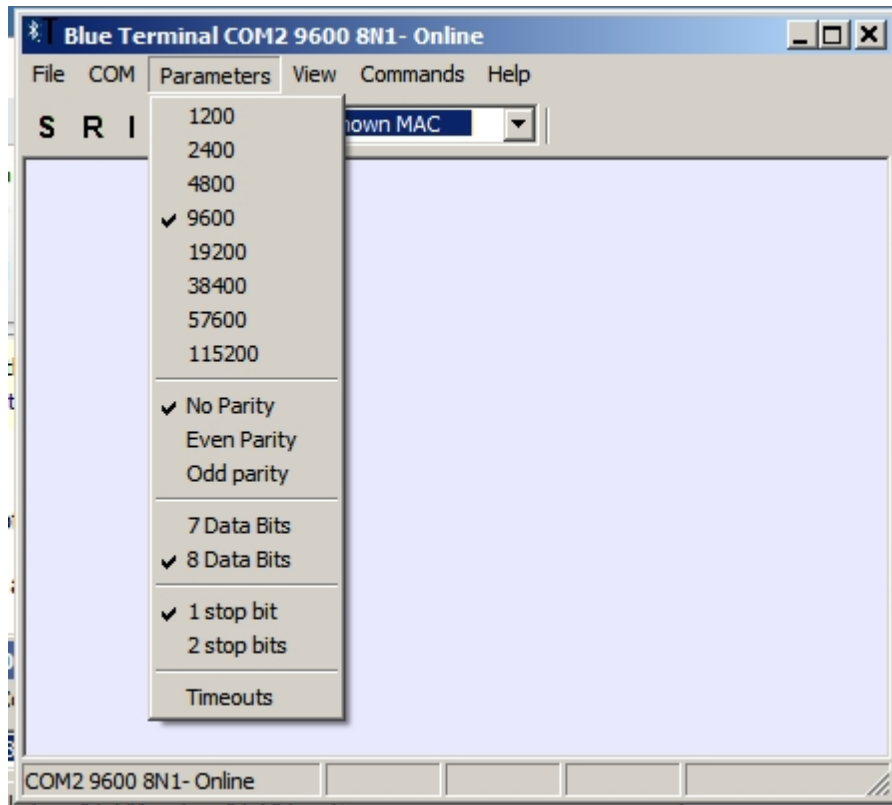
Parameters

Parameters

Select the baud rate from one of the available baud rates.

Also select the parity, databits and stopbits. These settings along with the Com port selection are saved to the Registry on exit.

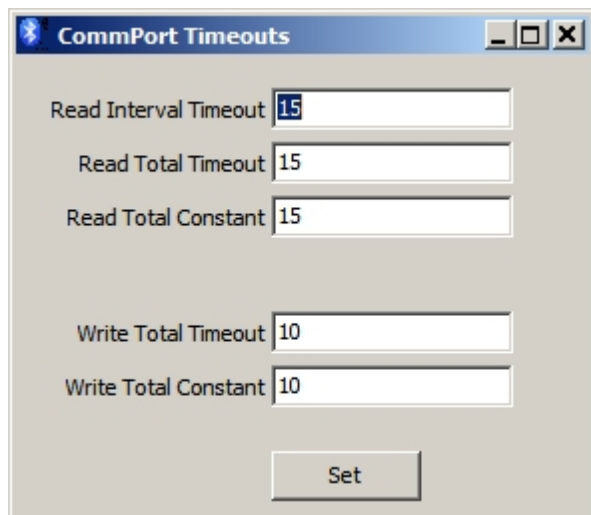
The Timeouts screen allows for the Comm Port timeouts to be adjusted.



Timeouts

The Timeouts screen allows for the CommPort Timeouts to be adjusted and set.

These timeouts affect how fast Blue Terminal will react to incoming and outgoing serial data. Please note that the Timeouts should be nonzero, otherwise lockup situations may occur where Blue Terminal cannot read the serial data when devices are plugged in and out repeatedly.

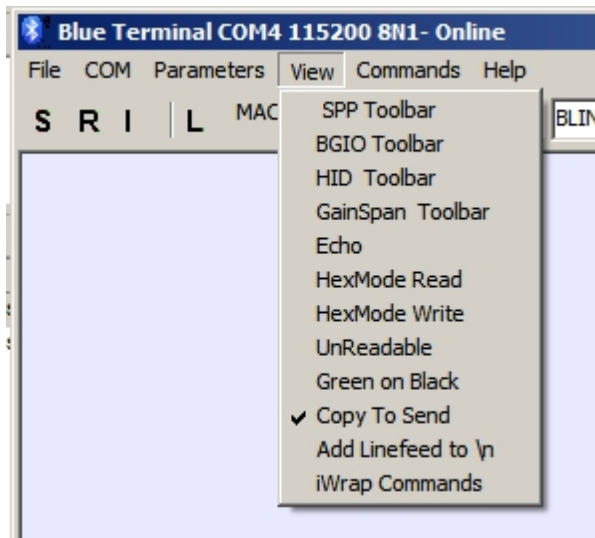


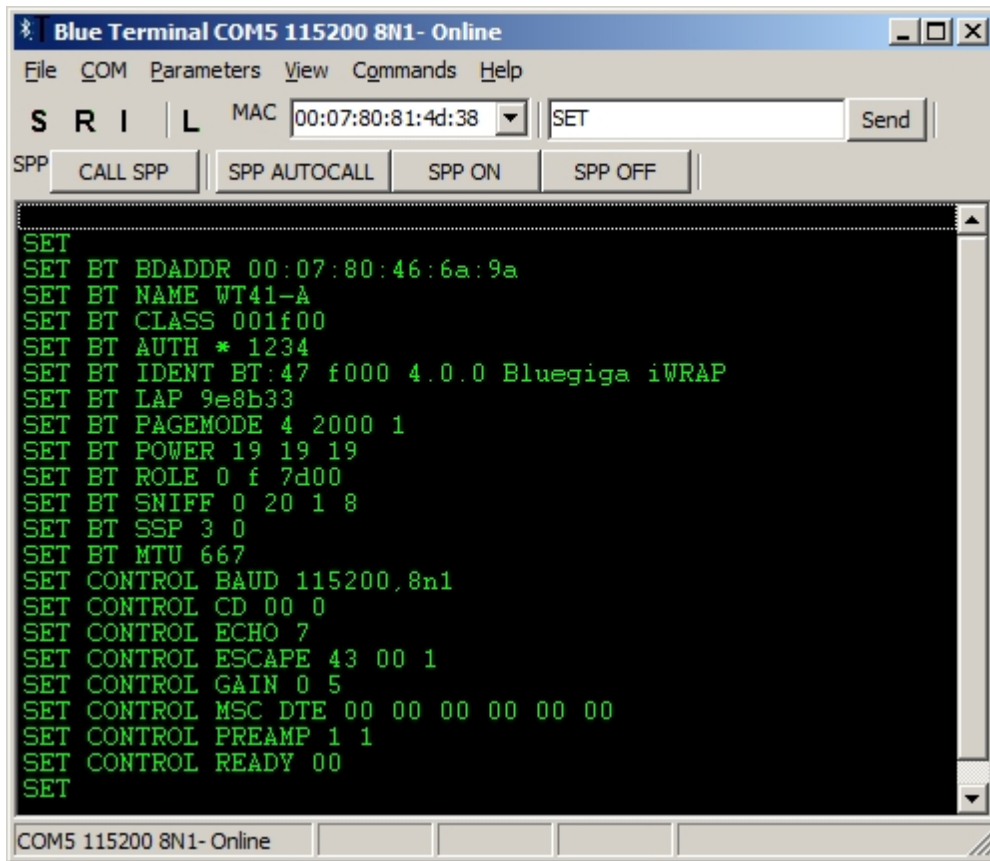
View

View - toggle on or off the toolbar of special modes

- SPP (BlueGiga Serial Port Profile) toolbar
- BGIO (BlueGiga IO Profile) Toolbar
- HID (BlueGiga Human Interface Device) Toolbar
- Echo mode - echo all characters on the screen

- Hex mode - view all incoming characters in hexadecimal mode
- Hex Write - send out characters in hexadecimal format (with a space) (this can be done by typing in the [data window](#) or use the Send button)
- Unreadable - view unreadable characters (eg most characters below 0x20) when checked, or display in hex mode if turned off (default)
- Green on Black - use the original colour scheme of Green Text on a Black background similar to the old Wyse terminals (see lower picture)
- Copy to Send - any commands sent out the Serial port will be copied to the Send box. For example, pressing the S button will copy SET to the Send box. This allows for an easy way to see what data is being sent out the serial port, and allows data to be repeatedly sent out or modified
- Add Linefeed to \n - useful when receiving data which is only terminated with a \n not a \n\r such as from Arduino
- iWrap Commands - add a list of iWrap commands which can be clicked on to send the command to the module

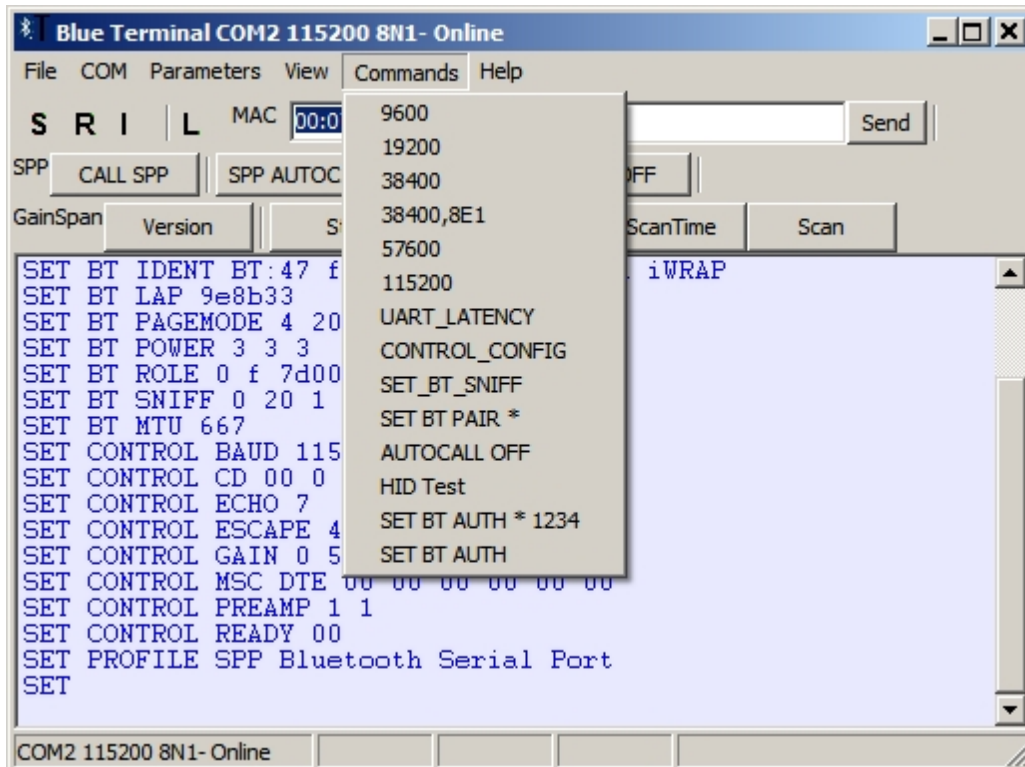




Commands

Commands

These are some common shortcuts for commands. The baud rate commands will change the Blue Terminal and Bluegiga device simultaneously to the new baud rate.



To View the commands, select the View|Copy To Send and the commands will appear in the SEND box as they are sent out.

9600, 19200 ... 115200

The commands 9600, 19200 and so on will change the baud rate to the selected value. Before this, the BlueGiga command will be sent out SET CONTROL BAUD xxxx command will be sent which will change the baud rate on the BlueGiga device to the selected baud rate. Then the baud rate of the computer will change and the SET command will be sent out. So the process is:

1. Change BlueGiga baud rate using SET CONTROL BAUD command
2. Change computer baud rate
3. Send out SET to confirm the baud rate changes were successful

UART LATENCY

UART LATENCY sends out SET CONTROL CONFIG 4000

CONTROL CONFIG

CONTROL CONFIG sends out SET CONTROL CONFIG LIST

SET BT SNIFF

SET BT SNIFF sends out SET BT SNIFF 4 2

SETBTPAIR*

Press the SET BT PAIR * to clear all the previous pairings. To enable pairings, the SET BT SSP 3 0 command must be issued first.

AUTOCALLOFF

The AUTOCALL OFF button issues the SET CONTROL AUTOCALL command which turns off autocall mode.

HID Test

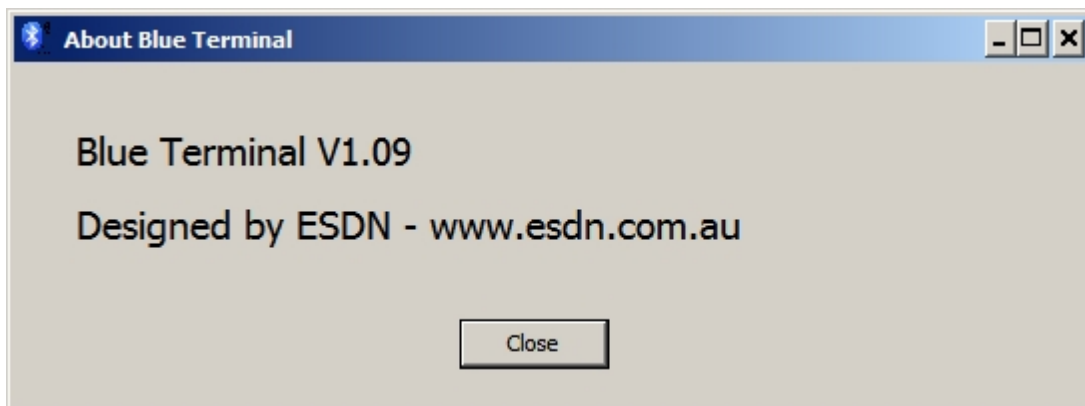
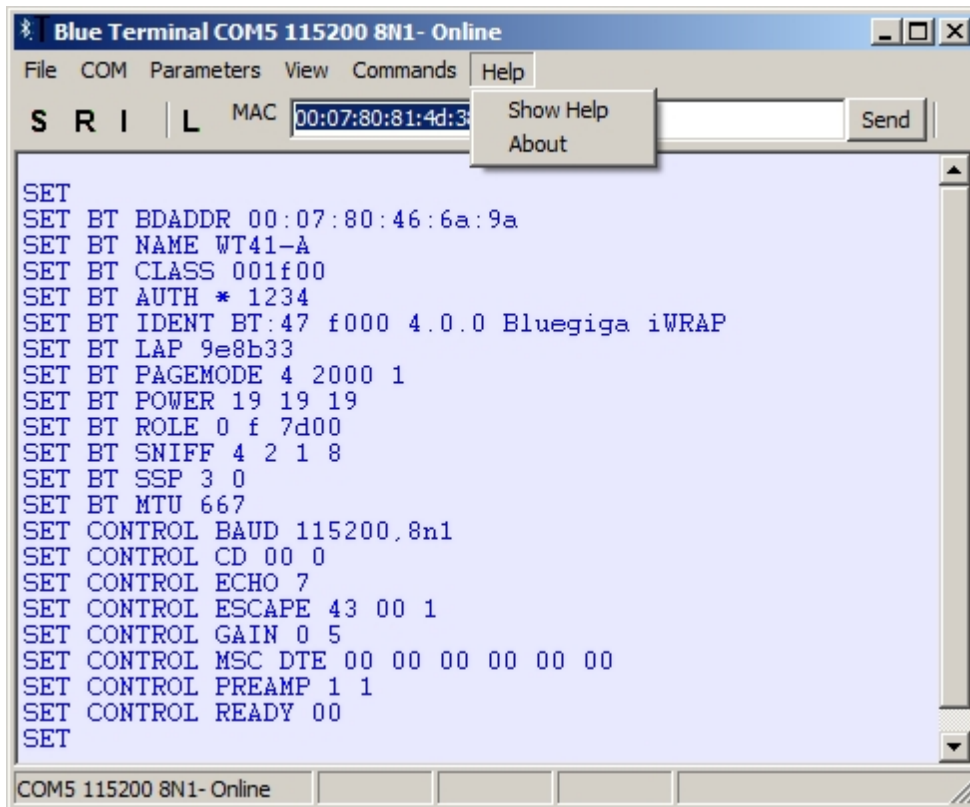
Send out 50 lines of

0. 123,456,789
1. 123,456,789
2. 123,456,789
- ...
50. 123,456,789

Help

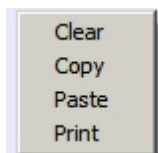
Help

- Show Help - View the help or simply press F1
- About - view the About screen (shown below)



Popup Menu

The Popup Menu appears when the data area of the window is right clicked. This provides quick access to the most common commands of Clear, Copy, Paste and Print.



Toolbar buttons

Toolbar Buttons

There are several toolbars provided to help with interfacing to BlueGiga and Gainspan modules. These toolbars are:

- Standard toolbar
- SPP profile toolbar for Serial Port Profile

- BGIO profile toolbar for BlueGiga IO Profile
- HID profile toolbar for Bluegiga HID Profile
- Gainspan Toolbar

SET

Press the S or SET button to view all the Bluegiga settings.

```
SET
SET BT BDADDR 00:07:80:89:88:f5
SET BT NAME WT12-A
SET BT CLASS 001f00
SET BT IDENT BT:47 f000 4.0.0 Bluegiga iWRAP
SET BT LAP 9e8b33
SET BT PAGEMODE 4 2000 0
SET BT POWER 3 3 3
SET BT ROLE 0 f 7d00
SET BT SNIFF 0 20 1 8
SET BT MTU 667
SET CONTROL BAUD 115200,8n1
SET CONTROL CD 00 0
SET CONTROL ECHO 7
SET CONTROL ESCAPE 43 00 1
SET CONTROL GAIN 0 5
SET CONTROL MSC DTE 00 00 00 00 00 00
SET CONTROL PREAMP 1 1
SET CONTROL READY 00
SET PROFILE BGIO Bluegiga IO
SET
```

RESET

Press R or RESET (or type in RESET and Enter) to perform a soft reset of the Bluegiga device. Note that a hard reset may be accomplished by typing SET RESET and ENTER

```
RESET
WRAP THOR AI (5.0.2 build 764)
Copyright (c) 2003-2013 Bluegiga Technologies Inc.
READY.
```

INQUIRY

Press the I for INQUIRY button (or type in INQUIRY 5 NAME) to send out an inquiry command for 5 seconds, reporting the name of all bluetooth devices found. If the result of the Inquiry is 0 but bluetooth devices are available, check the Pagemode setting of the Bluegiga devices, or the visibility setting for non-Bluegiga devices.

```
INQUIRY 5 NAME
INQUIRY_PARTIAL 00:07:80:81:4d:3d 001f00
INQUIRY 1
INQUIRY 00:07:80:81:4d:3d 001f00
NAME 00:07:80:81:4d:3d "WT12-A"
```

LIST

Press L for LIST (or type in LIST and Enter) to list the current connections of the Bluegiga device.

```
LIST
LIST 1
LIST 0 CONNECTED RFCOMM 666 0 0 30 8d 8d 00:07:80:81:4d:2c 1 OUTGOING ACTIVE MASTER PLAIN
0
```

MAC Address

The MAC Address combo box saves all the MAC addresses which are found using the INQUIRY command. The selected MAC Address is then using in all CALL commands. To select the device to connect to, select the correct MAC address from the combo box.

Send

The Send Edit Box and button allow commands to be sent out. This is useful if repeated command need to be used, or if data needs to be sent in Multiplex mode. Note that a carriage return is appended to the sent data.

SELECT

The SELECT button will select an open connection with the selected channel

CLOSE

The CLOSE button will close a connection on the selected channel.

SET OUTPUT

The right arrow button sets the Bluegiga device IO to all outputs, using the command PIO SETDIR FF FF

OUTPUT ON

The ON button sets the Bluegiga device IO to ON, using the command PIO SET FF FF

OUTPUT OFF

The OFF button sets the Bluegiga device IO to OFF, using the command PIO SET FF 00

Multiplex Mode

Select the MUX Mode checkbox to turn on Multiplex mode. In multiplex mode, the command string is wrapped inside a control packet. The advantage is Multiplex mode is that simultaneous communication command can be sent to any of 7 open channels.

When the MUX mode checkbox is checked, the command SET CONTROL MUX 1 is sent out, to place the Bluegiga device in Multiplex mode. When the MUX mode checkbox is unchecked, the command SET CONTROL MUX 0 is sent out in multiplex mode, to turn off the MUX mode.

```
SET CONTROL MUX 1
<BF><FF><00><08>READY.
<00>
```

SPP ToolBar

SPP Profile

The SPP Profile is the Bluegiga Serial Port Profile

Call SPP

Call SPP, will initiate a SPP connection attempt using the following code, with <MAC ADDRESS> being the MAC address found in the MAC combo box by using the Inquiry command

```
CALL <MAC ADDRESS> 1101 RFCOMM  
CALL 0
```

SPP Autocall

SPP AUTOCALL will turn on the SPP AUTOCALL feature to allow the Bluegiga device to call any paired devices once every 5 seconds. To turn AUTOCALL off expand the window and use the AUTOCALL OFF button in the standard toolbar.

```
SET CONTROL AUTOCALL 1101 5000 RFCOMM
```

SPP ON

The SPP ON button turns the SPP profile on with the command below:

```
SET PROFILE SPP ON
```

SPP OFF

The SPP OFF button turns off any SPP profile by issuing this command:

```
SET PROFILE SPP
```

SSP 3 0

The SSP 3 0 command executes the SET BT SSP 3 0 command which allows for pairing of Bluegiga devices. This is only available in iWrap 4

PAGEMODE

The PAGE MODE button executes the SET BT PAGEMODE 4 2000 1 command.

CMD/DATA

The CMD/DATA button switches between command and data mode. When a serial port profile (SPP) connection is made, the Bluegiga device automatically goes into data mode. This means that all data is sent through the connection and commands such as SET cannot be executed. To switch out of data mode, enter +++ or enter the escape character three times with a 1 second delay before and after. When the Bluegiga device responds with READY, the device is now in command mode.

BGIO ToolBar

BGIO Profile (Bluegiga I/O Profile)

CALL BGIO

CALL BGIO will call and connect to a BGIO profile. The Master device should be set to a SPP Profile, and the slave device should be set to a BGIO profile.

BGIO Autocall

BGIO AUTOCALL will issue the command to setup the Bluegiga device to autocall using the BGIO Profile.

```
SET CONTROL AUTOCALL af5c7d47-350b-45f6-bdf6-b403441edb77 5000 RFCOMM
```

BGIO ON

The BGIO ON button will turn on the BGIO profile by issuing this command:

```
SET PROFILE BGIO ON
```

BGIO OFF

The BGIO OFF button turns off any BGIO profile by issuing this command:

```
SET PROFILE BGIO
```

SET DIR

The SET DIR command will set the remote BGIO device to be all outputs by issuing this command:

```
<00><05><07><FF><FF><FF><FF>
```

SET PIO

The SET PIO command will turn on the remote BGIO device outputs by issuing this command:

```
<00><05><04><FF><FF><FF><FF>
```

CLR PIO

The CLR PIO command will turn off the remote BGIO device outputs by issuing this command:

```
<00><05><04><FF><FF><00><00>
```

HID ToolBar

CALL HID

CALL HID will issue the command CALL <MAC ADDRESS> 11 HID. An Inquiry command should be done first to determine which MAC address should be used.

PAIR

PAIR will call the command PAIR <MAC ADDRESS>

HID ON

HID ON sends out the command below to the Bluetooth module:

```
SET PROFILE HID Keyboard
```

HID OFF

HID OFF send out the command below to the bluetooth module:
SET PROFILE HID

GainSpan ToolBar

Version

Send out AT+VER=?

Status

Send out AT+NSTAT=?

DHCP Enable

Send out AT+NDHCP=1

ScanTime

Send out ATS5=999

Scan

Send out AT+WS

Disconnection and Reconnection

When a COM device is removed, the Blue Terminal program will automatically detect this, and change the status in the Statusbar to COMx - Offline. When the same device is reconnected, Blue Terminal will automatically reconnect the device and change its status to Online with the same parameters and show this in the Statusbar. The reconnection process will take from 5-10 seconds typically.

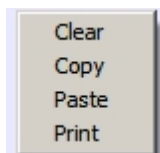
Data Window

The Data Window is shaded with a light shade of blue to remind the user about the benefits of using Bluetooth.

All serial data will be displayed here (the data can be optionally displayed as Hex if needed).

To send data out, simply click the mouse inside this window and press any key to send out the ASCII data for that key. Alternately, data may be typed into the send box, and the Send button pressed. This is helpful when repeated data needs to be sent out.

Right Click anywhere in the Data Window to bring up the Popup menu below.



Version info

Version Release info

v1.00 19 Aug-2011 First release

- v1.01 7-Dec-2011 Improve Help, Add Gainspan toolbar, timestamp, datestamp
- v1.02 9-Feb-2012 Fix Auto off/on and stop timer in Autodetect mode
- v1.03 8-Mar-2012 - Add View Hex|Write support - status bar shows Hex Write
- v1.04 30-Nov-2012 - \n or 0x0a now makes the line feed for Arduino sketches, rework Free Panel - delay now 30s, fixup Paypal link
- v1.05 14-Feb-2013 - Added View > Add linefeed to \n option so SET does not give double line spacing, improved Copy To Send, restored Right Click in Window
- v1.06 - 26 -April-2013 - fix for Windows64, fixup File > Log to start after file is opened, add Parameters > timeouts
- v1.07 - 29-May-2013 - improve Windows64 startup, fixup windows icon, restore Send data, set Read timeouts for Eterlogic Virtual Com port
- v1.08 - 4-Oct-13 - Add two extra toolbuttons to turn on 3 lights at a time, iWrap 5 change IO port to FC
- v1.09 - 5-Dec-13 - Fixup Auto Detect, add Com ports 21-100
- v1.10 - 27-Feb-14 - Add iWrap window and View lwrap menu item

Licensing

This version of Blue Terminal is supplied as a product for research, design, development and testing and should not be used for any critical applications.

The free version of this program may be freely distributed. For support, please refer to www.esdn.com.au