Quick Start Guide for GuruPlug Server Standard and Server Plus   GTI-2010.05.07

Thank you for purchasing GuruPlug Server Standard / GuruPlug Server Plus - the most sophisticated compact ARM based computer ever built. This is running at 1.2GHz yet using less than 10W power consumption. This little palm-sized powerhouse can handle all your biggest tasks while still saving about 96% on energy costs when compared to the average 175 Watt desktop computer. You can customize your Plug to work in almost any industry - Home Automation, Security/Surveillance, Medical Monitoring, Industrial Automation, Smart Grid Electrical, Mesh and Grid Computing. You can never have enough storage, not to mention fast access to all that data. That's why we have provided Wi-Fi, Bluetooth, Gigabit Ethernet, USB 2.0 and eSATA connection options to the Server line of products. Go ahead give us what you got, we can take it.

A. Package contents

Please check the package you've received with the following contents:

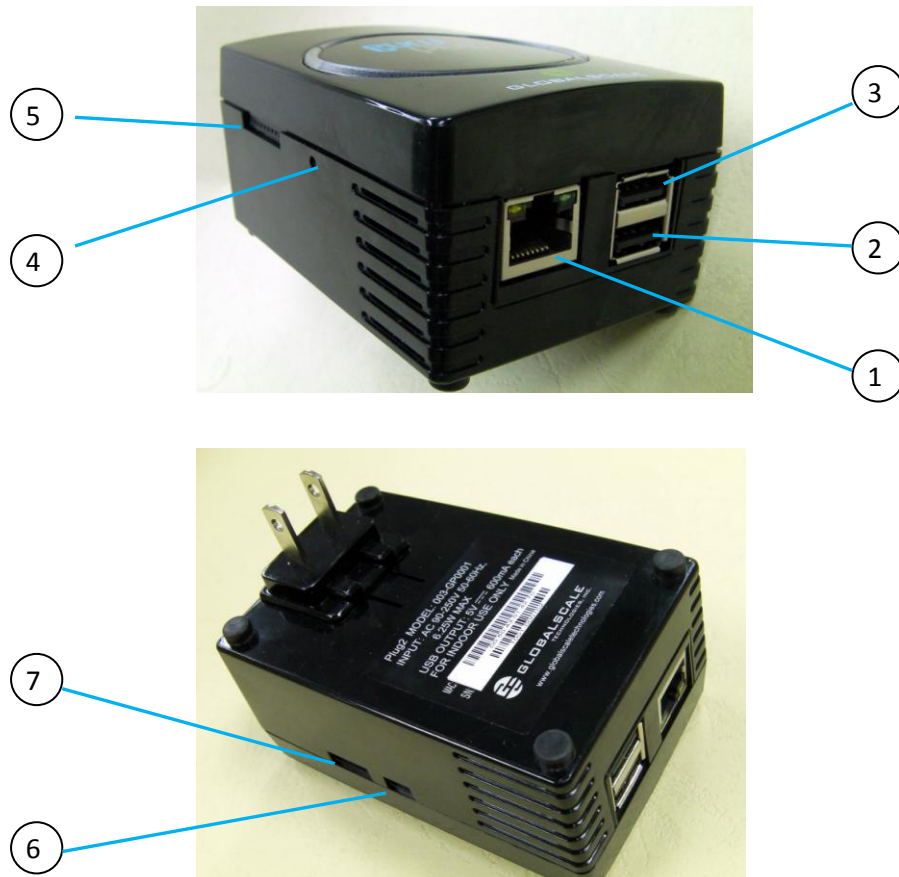|	Contents	GuruPlug Server Standard	GuruPlus Server Plus	Remark
1	GuruPlug	1 unit	1 unit	
2	Detachable AC plug	1 pcs	1 pcs	
3	Detachable AC power cord converter	1 pcs	1 pcs	
4	AC power cord	1 pcs	1 pcs	
5	Ethernet RJ45 cable	1 pcs	1 pcs	
6	Warranty sheet	Yes	Yes	
7	CD	No	No	Note 1
8	JTAG debug board	No	No	Note 2

Note 1: All files will be put on the following website for downloading

https://www.globalscaletechnologies.com/t-downloads.aspx

Note 2: Our JTAG debug board module is sold separately.

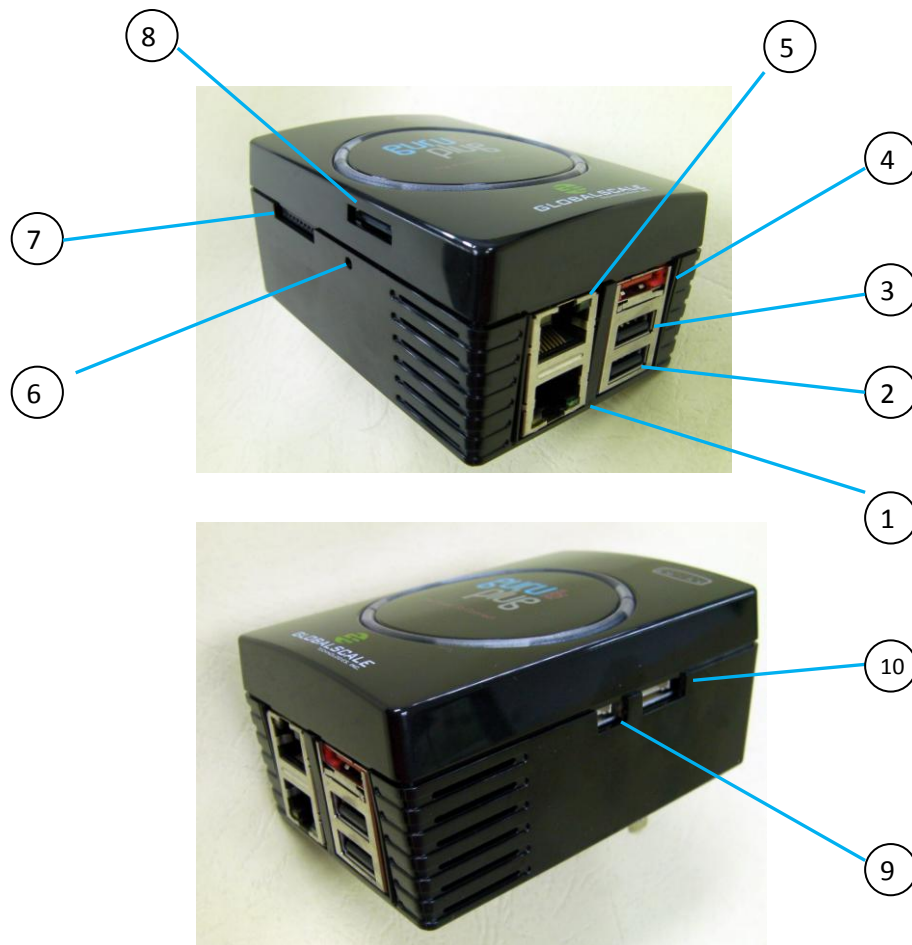# B. Appearance and connecting ports

a. GuruPlug Server Standard

Ports description- GuruPlug Server Standard

	Connection port	Description	Remark
1	RJ45	Gigabit Ethernet port	CAT5e or CAT6 cable
2	USB port #1	USB 2.0 high speed Host	
3	USB port #2	USB 2.0 high speed host	
4	Reset button	System reset	
5	U-SNAP	Utility Smart Network Access Port	For more information go to www.usnap.org *Note1*
6	UART port	Debug interface	For JTAG board connection only
7	JTAG port	Debug interface	For JTAG board connection only

Note1: GuruPlug Server will supply 3.3V power to U-SNAP I/O, the Max current is 220 mA.

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b. GuruPlug Server Plus

Ports description- GuruPlug Server Plus

	Connection port	Description	Remark
1	RJ45 #1	Gigabit Ethernet port #2 (eth1)	CAT5e or CAT6 cable
2	USB port #1	USB 2.0 high speed Host	
3	USB port #2	USB 2.0 high speed host	
4	eSATA	eSATA port	eSATA driver should be self-powered
5	RJ45 #2	Gigabit Ethernet port #1 (eth0)	CAT5e or CAT6 cable
6	Reset button	System reset	
7	U-SNAP	Utility Smart Network Access Port	For more information go to www.usnap.org *Note1*
8	Micro SD	Micro SD slot	Push to insert or eject Micro SD card
9	UART port	Debug interface	For JTAG board connection only
10	JTAG port	Debug interface	For JTAG board connection only

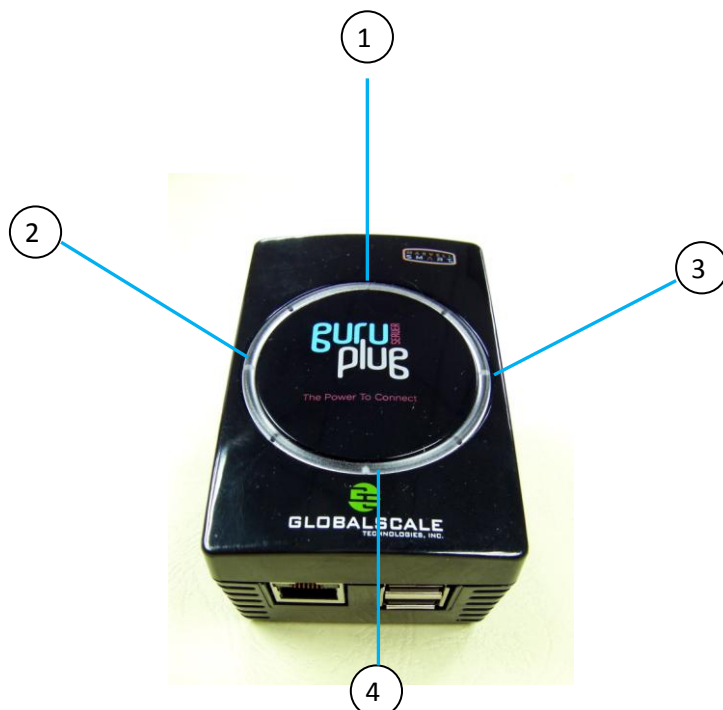Note1: GuruPlug Server / plus will supply 3.3V power to U-SNAP I/O, the Max. current is 220 mA.

C. LED indication

LED indication table

	Connection port	Color/ Pattern	Description
1	Power on LED	Solid green	Upon power on, this LED should light up
2	Boot-up	Solid green	Bootup has completed successfully.
		Off or solid red	Bootup failure
3	WiFi mode	Solid green	WiFi in AP mode
		Solid red	WiFi in Client mode
4	WiFi/ Bluetooth Activity	Blinking green	WiFi activity
		Solid green	Bluetooth activity

D. Connect to JTAG board

1. Connect 4 pin UART cable

2. Connect 8 pin JTAG cable

3. Connect Mini-usb-USB cable from here. The other end to computer's USB port.

This is the standard 20pin JTAG connector which has the same pin signals as 8 pin cable
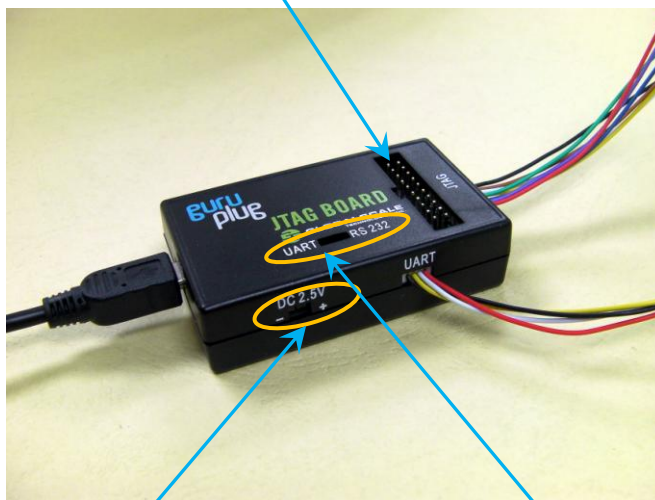
This DC 2.5V is for Guru CPU e-fuse programming only, do not use it for other purpose.

Normally, this switch (or jumper wire) should be on the left side for UART selection

E. Tools and files you need to start debugging

1. Prepare one PC with Fedora 9 (or Fedora 11) Linux operating system
2. Download and install the following tools and utilities

	File name	Description	Where to get it
1	Minicom	Used as Board console	Re-Install command: yum install minicom note 1: Fedora9 has a built-in minicom
2.	Ftdi_sio.ko	FTDI device driver module for Linux	http://www.globalscaletechnologies.com/t-downloads.aspx
3.	Ftdi_sio.ko	FTDI device driver module for Linux	http://www.globalscaletechnologies.com/t-downloads.aspx

3. Setup minicom

minicom –s

Set the Configure properties as follows:

Bits per sec field to *115200*

Data bits to 8

Parity to *None*

Stop bit to *1*

Flow Control to *None*

```
+------------------------------------------------------------------+
| A -    Serial Device       : /dev/ttyUSB1                        |
| B - Lockfile Location      : /var/lock                           |
| C -    Callin Program      :                                     |
| D -   Callout Program      :                                     |
| E -    Bps/Par/Bits        : 115200 8N1                          |
| F - Hardware Flow Control  : No                                  |
| G - Software Flow Control  : No                                  |
|                                                                  |
|    Change which setting? █                                       |
+------------------------------------------------------------------+
         | Screen and keyboard      |
         | Save setup as dfl        |
         | Save setup as..          |
         | Exit                     |
         | Exit from Minicom        |
         +--------------------------+
```

F. Basic procedures for debugging

1. Connect cables as illustrated in section D.
2. Run terminal program on Linux PC.
3. Type in # minicom –o marvell
4. Power on the GuruPlug Server or plus.

   Normally , you will see messages on screen as below,

```
U-Boot 2009.11-rc1-00602-g8e6db3d (Dec 24 2009 - 03:11:17)
Marvell-Plug2

SoC:    Kirkwood 88F6281_A0
DRAM:   512 MB
NAND:   512 MiB
In:     serial
Out:    serial
Err:    serial
Net:    egiga0
88E1121 Initialized on egiga0
Hit any key to stop autoboot:  0
*** ERROR: `ipaddr' not set
ping failed; host 192.168.2.1 is not alive
(Re)start USB...
USB:    Register 10011 NbrPorts 1
USB EHCI 1.00
scanning bus for devices... █
```

You can press any key to stop auto-boot when you see the boot delay timer is counting down.

After entering the uboot prompt, you can also change the uboot environment variables such as boot delay time,

Ipaddr, serverip and so on.

If no key has been pressed to interrupt the uboot, it will continue running to the login screen where it urges you to

input the login name and password, here is the default login information.

Login : root

Password: nosoup4u

```
Debian GNU/Linux 5.0 sheevaplug-debian ttyS0

sheevaplug-debian login: root
Password:
Last login: Wed Dec 22 08:46:31 UTC 2010 on ttyS0
Linux sheevaplug-debian 2.6.32-00007-g56678ec #1 PREEMPT Mon Feb 8 03:49:55 PSTl

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
sheevaplug-debian:~# █
```

Now, you have the full control right of it.
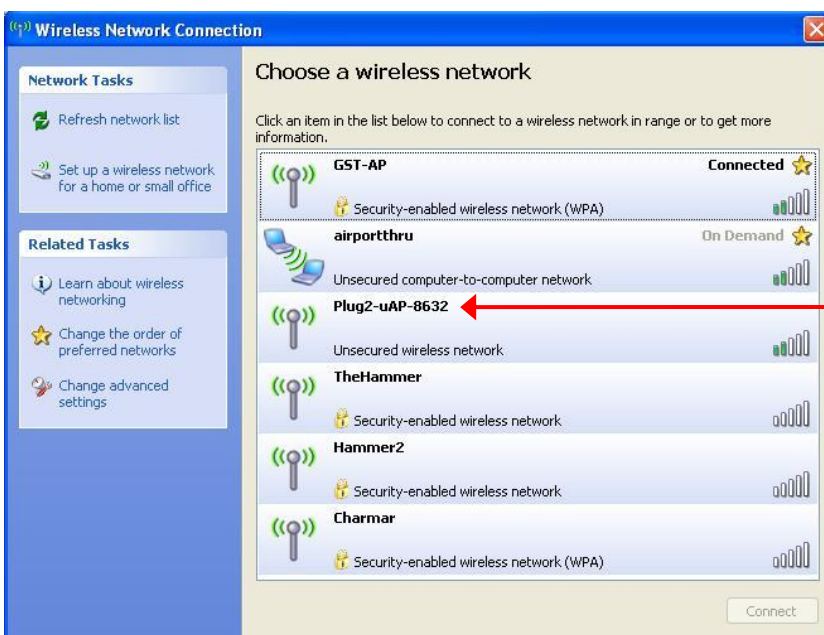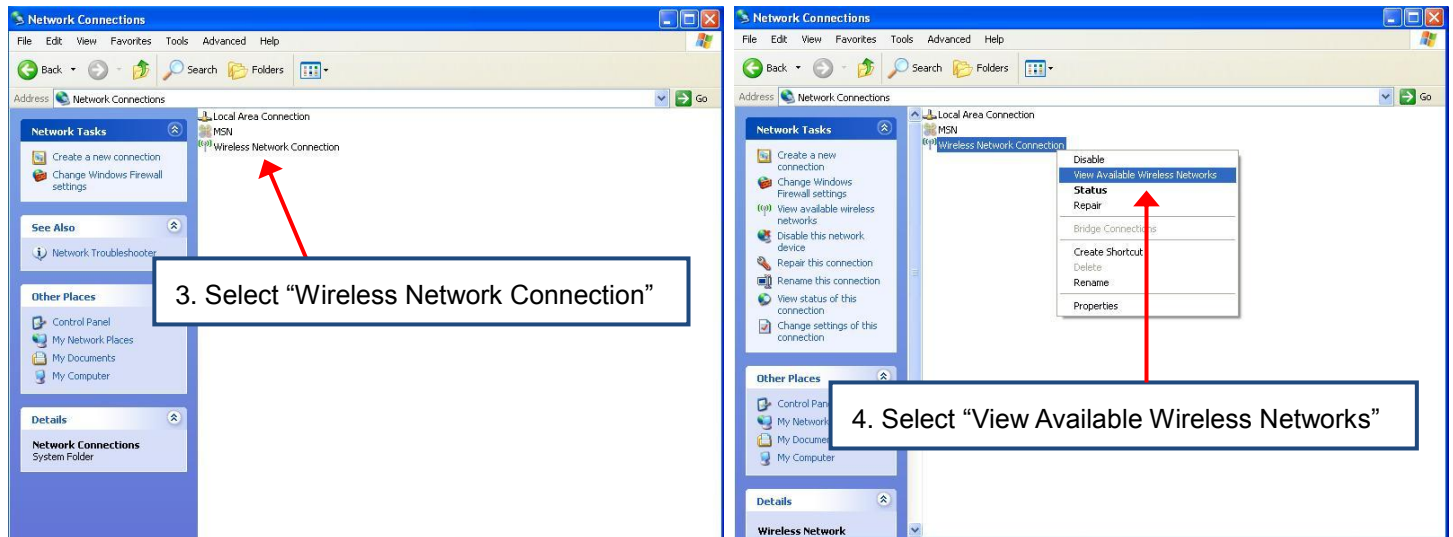
G. Wi-Fi / Bluetooth

Both GuruPlug Server Standard and GuruPlug Server Plus have a built-in WiFi module which is compliance with 8.2.11 b/g standard and Bluetooth 2.1 + Enhanced data rate (EDR).
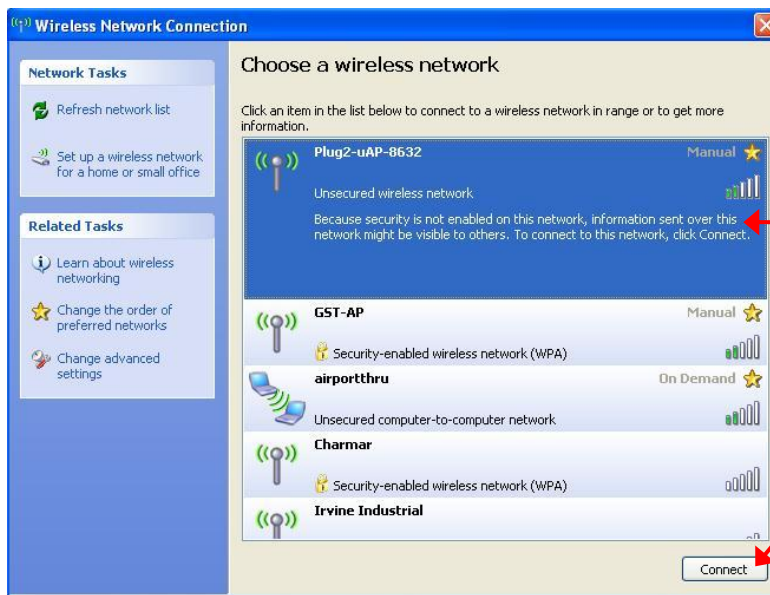
The WiFi works as both client and AP mode but only one at a time.

The default mode is AP mode every time when it powers on and can be switched to client mode manually by entering the setup page, please follow the procedures below to set-up the functionalities for WIFI and Bluetooth.

1. Prepare a Bluetooth earphone and one computer installed with Wi-Fi lan card, here we use computer with Windows XP operating system for example.
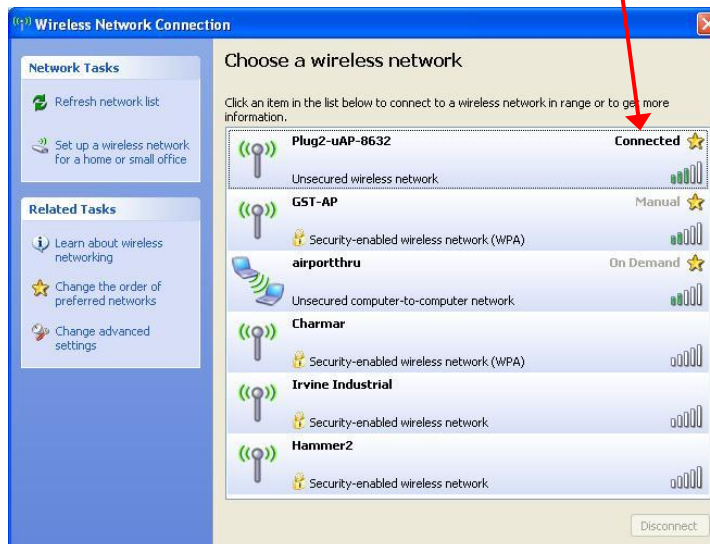
2. Go to "Network Connections"

3. Select "Wireless Network Connection"

4. Select "View Available Wireless Networks"

5. Choose name start with "plug2-uAP-xxxx" xxxx are last digits of the MAC address

6. Choose one and click here to connect.

7. Connected

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8. Open internet browser, enter address: 192.168.1.1, you will see the web page as below.

This is the setup page for this GuruPlug Server, please follow the instruction and link on the page for configuration.
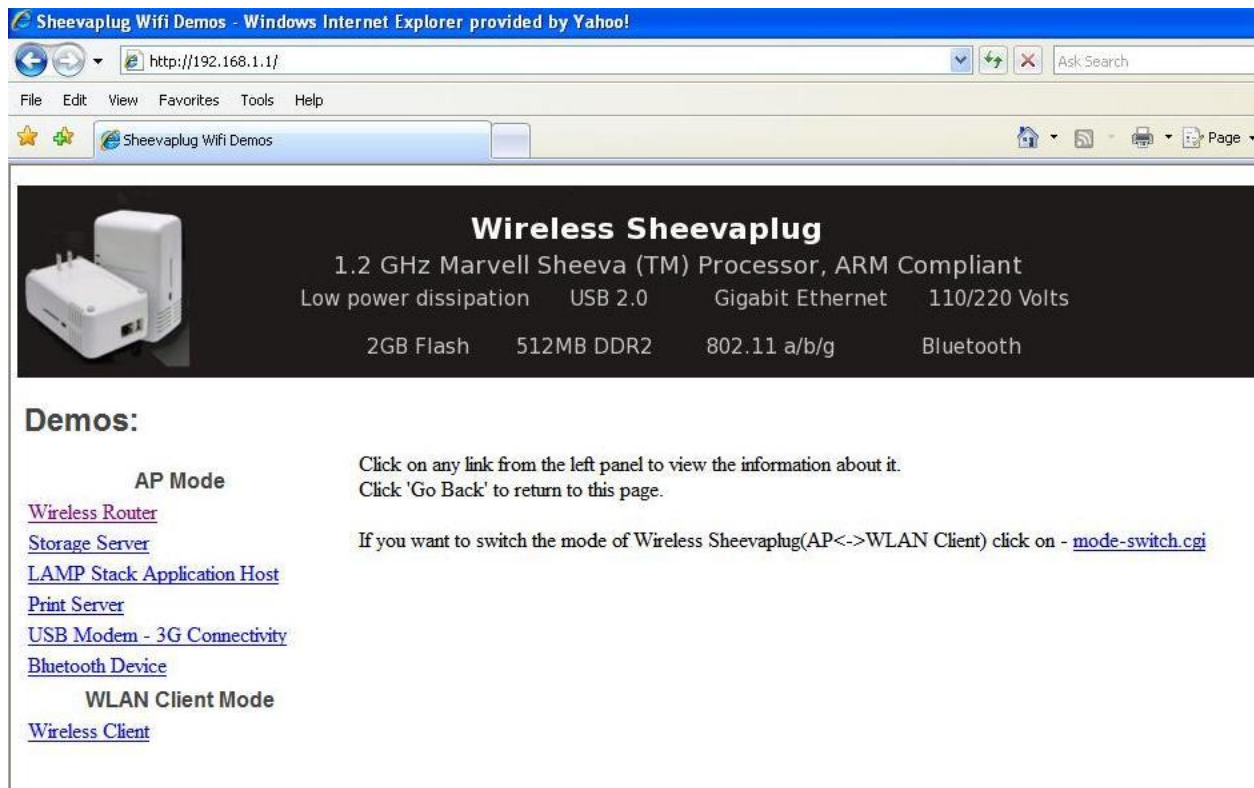
H. Download sites

To download the files for Guruplug server & server PLUS, please visit:

http://www.globalscaletechnologies.com/t-downloads.aspx

Other useful resource links are:

http://www.plugcomputer.org/

http://plugcomputer.org/plugwiki/index.php/GuruPlug

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