



Obexsender

User Guide

Version 1.4

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VERSION HISTORY

Version:	Author:	Comments:
1.0	<i>MSa</i>	<i>Initial version</i>
1.1	<i>JP</i>	<i>Added missing functions</i>
1.2	<i>MSa</i>	<i>User guide rewritten</i>
1.3	<i>JP</i>	<i>Added new features</i>
1.4	<i>MSa</i>	<i>Minor fixes</i>

TERMS & ABBREVIATIONS

Term or Abbreviation:	Explanation:
AS	<i>Access Server</i>
Bluetooth	<i>Set of technologies providing audio and data transfer over short-range radio connections</i>
DHCP	<i>Dynamic Host Configuration Protocol</i>
EDR	<i>Enhanced Data Rate</i>
GPRS	<i>General Packet Radio Service</i>
HTTP	<i>Hypertext Transfer Protocol</i>
IP	<i>Internet Protocol</i>
LAN	<i>Local Area Network</i>
OBEX	<i>Object Exchange</i>
OPP	<i>Object Push Profile</i>

PAN	<i>Personal Area Networking</i>
PDA	<i>Personal Digital Assistant</i>
TCP	<i>Transmission Control Protocol</i>
Wi-Fi	<i>Wireless Fidelity</i>
WLAN	<i>Wireless LAN</i>
VPN	<i>Virtual Private Network</i>
WRAP	<i>Wireless Remote Access Platform</i>
WWW	<i>World Wide Web</i>

1. INTRODUCTION

Obxsender is one of the built-in applications in the WRAP Access Server. It's dedicated to Bluetooth proximity marketing, content distribution, location based services and much more. WRAP Access Server plus the Obxsender provide the user with a ready platform to start content distribution including all the necessary Bluetooth functions from discovering the devices to transmitting the content. The user needs to only focus on what, when and to whom to send the content - rest is taken care of.

The figure below illustrates a simplified Obxsender network:

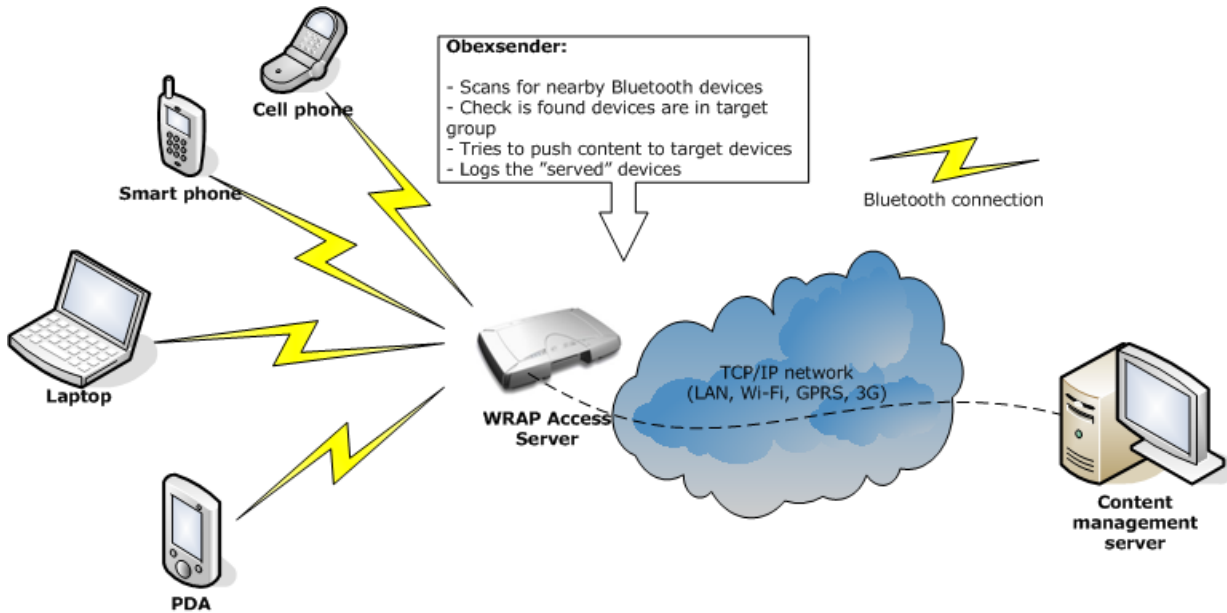


Figure 1: Obxsender functionality

KEY FEATURES:

- Automatic device discovery and content push over a Bluetooth connection
- 18 simultaneous Bluetooth connections with one WRAP Access Server
- Upload speed even up to 75KB/sec with Bluetooth 2.0+EDR
- Content can be stored locally – with external memory even up to 2GB space
- Wide networking support: Bluetooth, Ethernet, Wi-Fi, GPRS and EDGE
- Secure remote connections over a Virtual Private Networking
- Remote file system support
- Lot's of filtering options, like: device type, distance from WRAP Access Server
- Extensive logging
- Interaction between several WRAP Access Servers
- Content time stamping

2. USE CASES

In this chapter some possible Obexsender use cases are described.

2.1 Content push

This is the standard functionality in Obexsender. In content push mode Obexsender is scanning for devices and pushing it to clients who belong to the target group (not opted out by filtering).

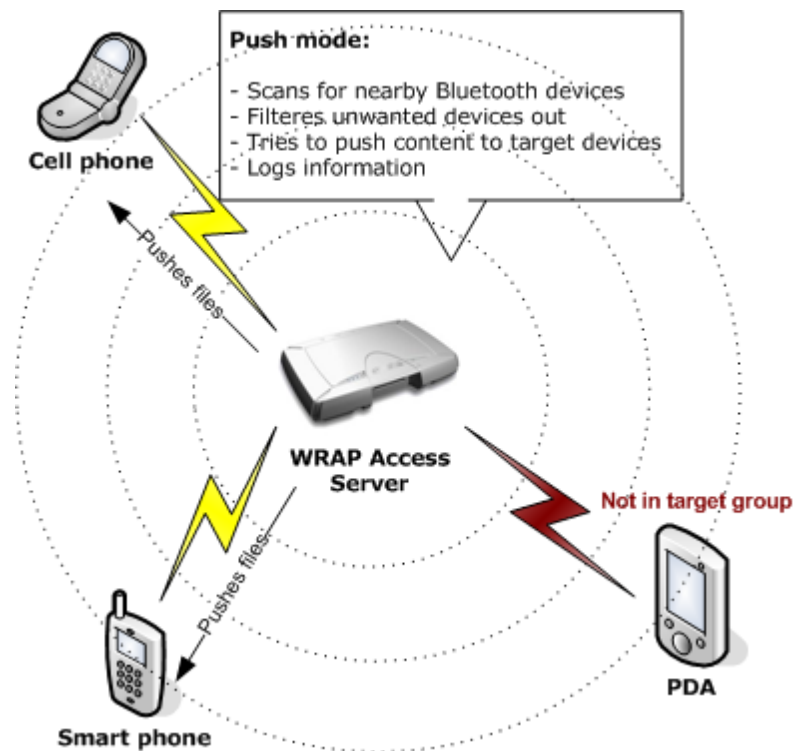


Figure 2: Push mode operation

2.2 Content pull

Obexsender can also be configured into a content pull mode. In this mode the transaction is initiated by the user. The user can send any file to the server or alternatively a file containing some specific string like "MP3" or "NOKIA N73" for example. The server parses the received file and as a response tries to push a corresponding file to the user if such exists.

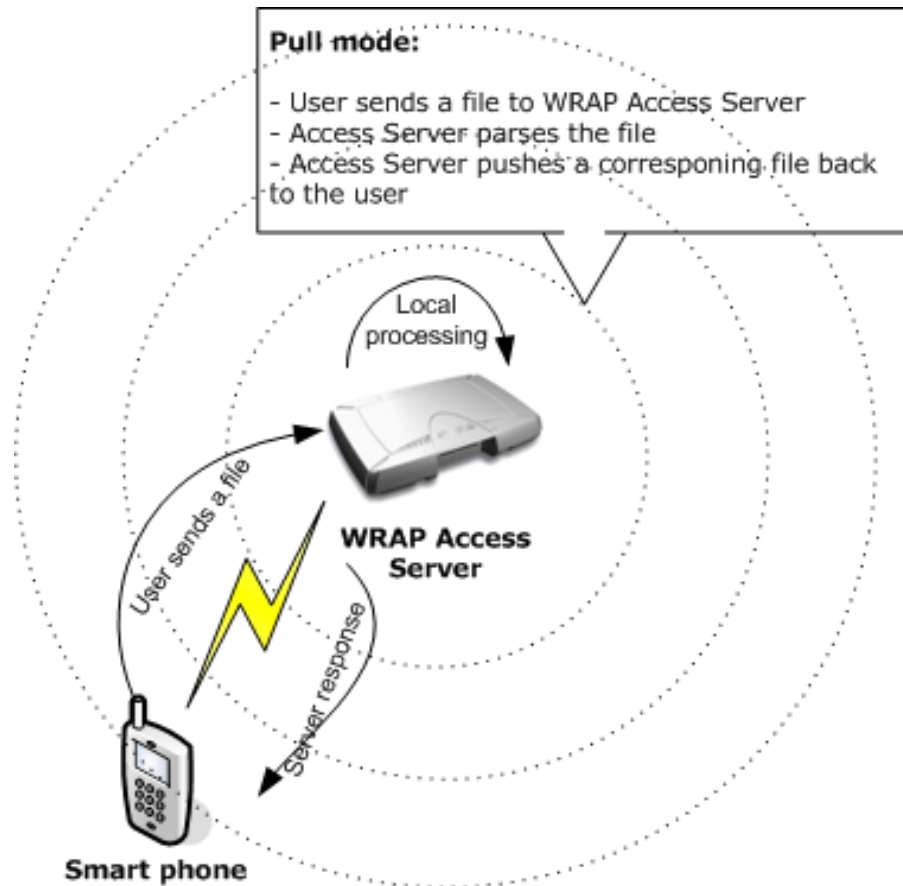


Figure 3: Pull mode

2.3 Scan

In the scan mode the WRAP Access Server simply scans for nearby Bluetooth devices and logs the number of devices found as well some basic information about them. The scan mode is useful if one just want to discover how many devices there are in the vicinity of a WRAP Access Server.

Scan mode is actually not part of the Obexsender but a different application running is the WRAP Access Server.

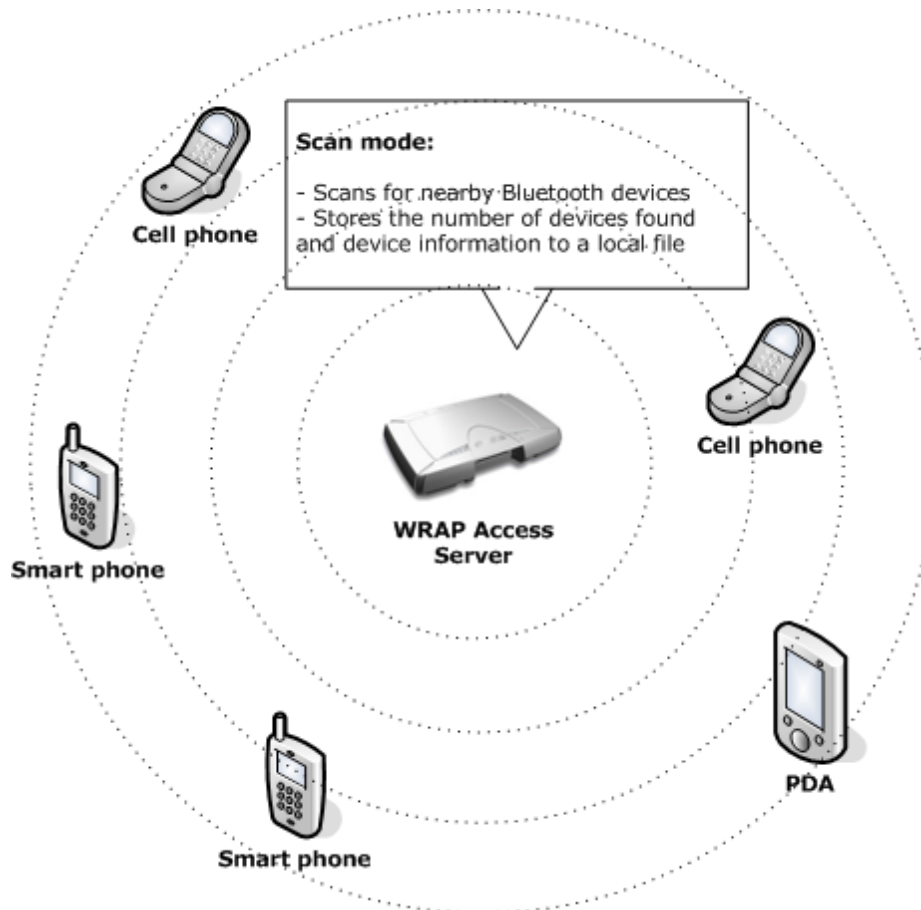


Figure 4: Scan mode

3. CONFIGURATION

This chapter contains the instructions from the most basic Obexsender configuration to the more advanced use cases.

3.1 Getting started

The easiest and fastest way to configure Obexsender is via the WWW setup. To do this your Access Server must be connected to the same network as your PC or alternatively you can also use a direct Ethernet cross cable or Bluetooth PAN connection. By default the WRAP Access Server uses DHCP, so if you connect it to your LAN it must support DHCP as well.

1. Once you have successfully connected the access server, start the '**WRAPFinder**' software. WRAPFinder lists all the Access servers in the same network as your PC.

If the Access Server does not show immediately, you may need to push the "**Rescan**" button a couple of times.

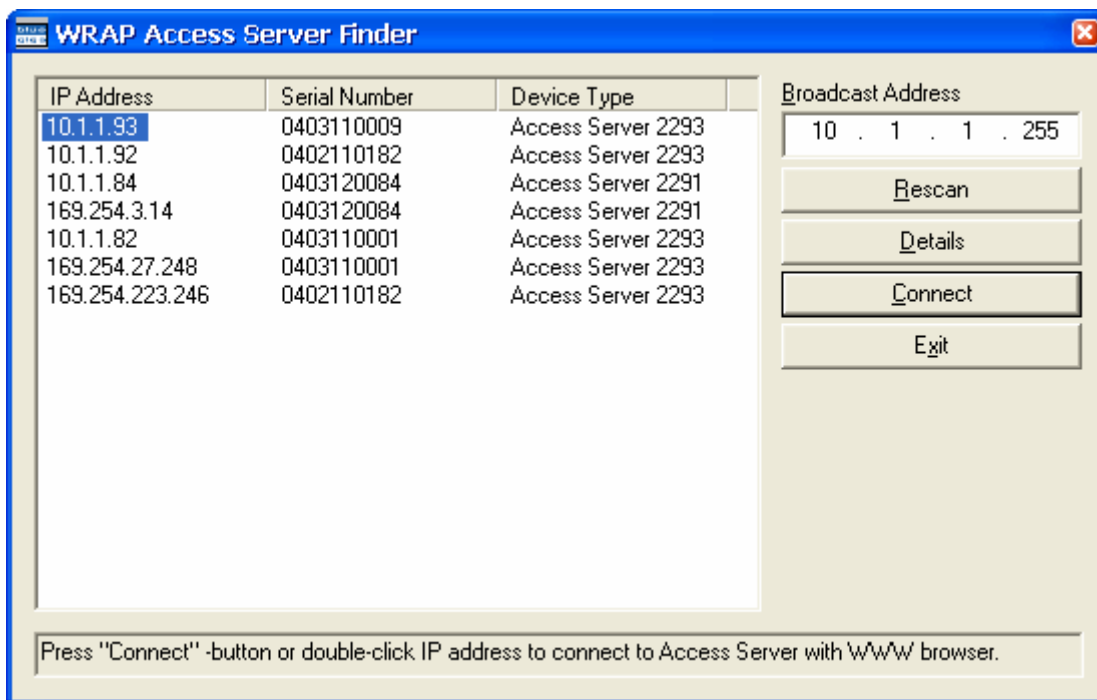


Figure 5: WRAPFinder

2. As a next step you need to select the correct Access server and press "**Connect**" button in the WRAPFinder user interface. An internet browser window should open with the IP-address of the Access server in the address bar.

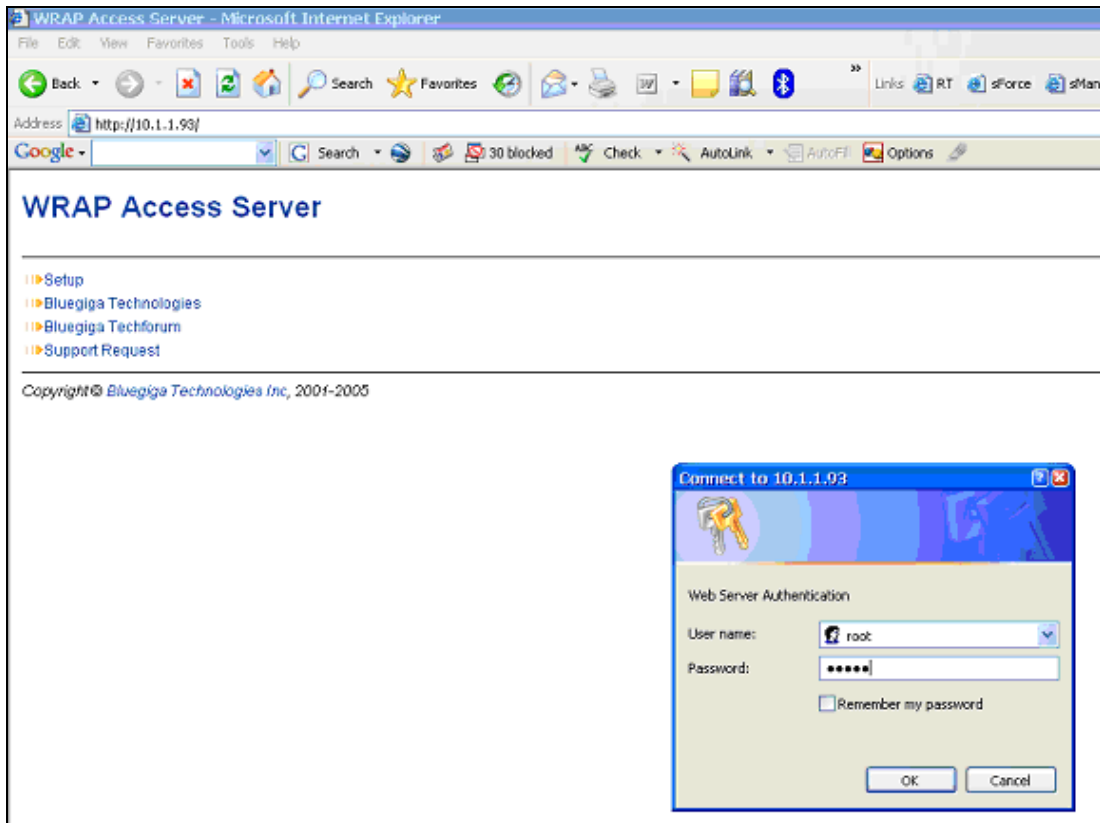


Figure 6: WRAP Access Server WWW setup

3. Follow the **“setup”** link and a login screen should show up. Enter a correct user name and password

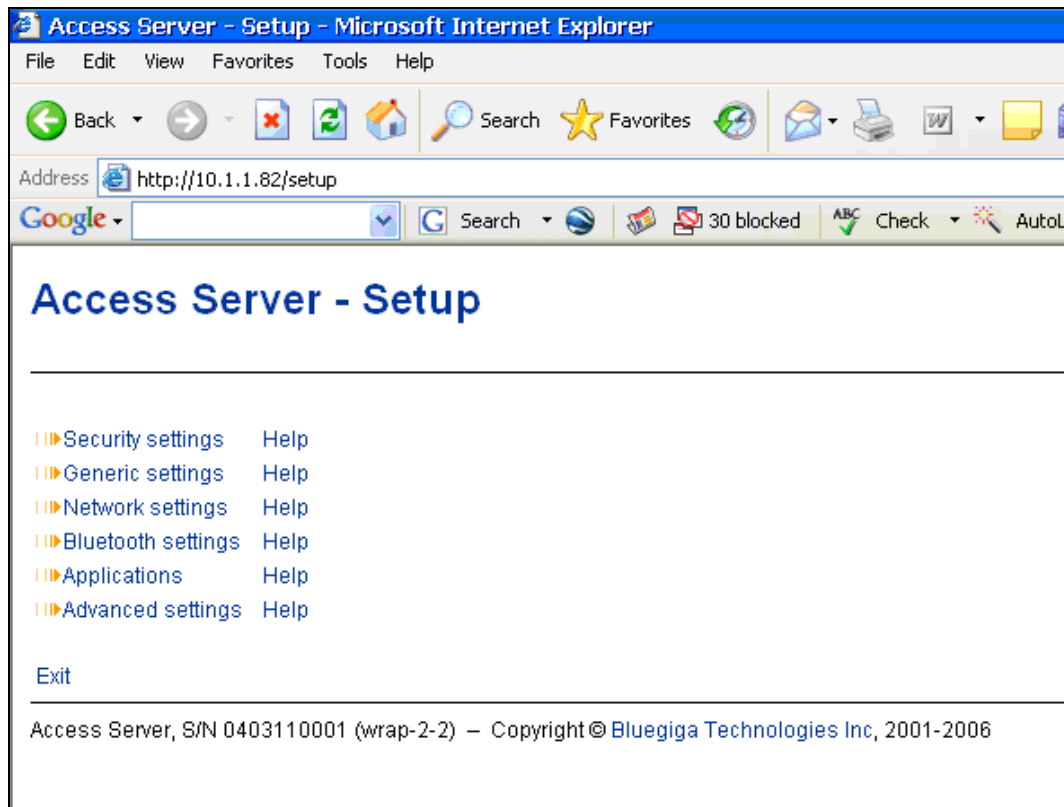


Figure 7: WWW setup main view

4. After a successful login you get access to the WWW setup main view

Note:

At this point you should check your access server software version. Obexsender works only with software version 2.2.0 and newer. At the bottom of the screen you should see a line saying:

Access Server, S/N 0511170051 (wrap-2-2) – Copyright © Bluegiga Technologies Inc, 2001-2006

If the version is older than “wrap-2-2” you should first update your WRAP Access Server. Latest software releases and instructions can be found from www.bluegiga.com/techforum/.

3.2 Updating Obexsender

If you have software version 2.2.0 in your Access server, you need to update Obexsender to the latest version. It offers many new, useful and necessary features that include:

- Retry delay, scan delay and reply delay
- Dump delay
- Possibility to save incoming files, i.e. remote requests
- Watchdog support
- Regexp and Unicode support
- Other minor bug fixes and improvements

The rest of the manual concentrates on the latest Obexsender, but it also covers all the features offered by previous Obexsender. The main menu of latest (at the time of writing) Obexsender is shown in Figure 8:

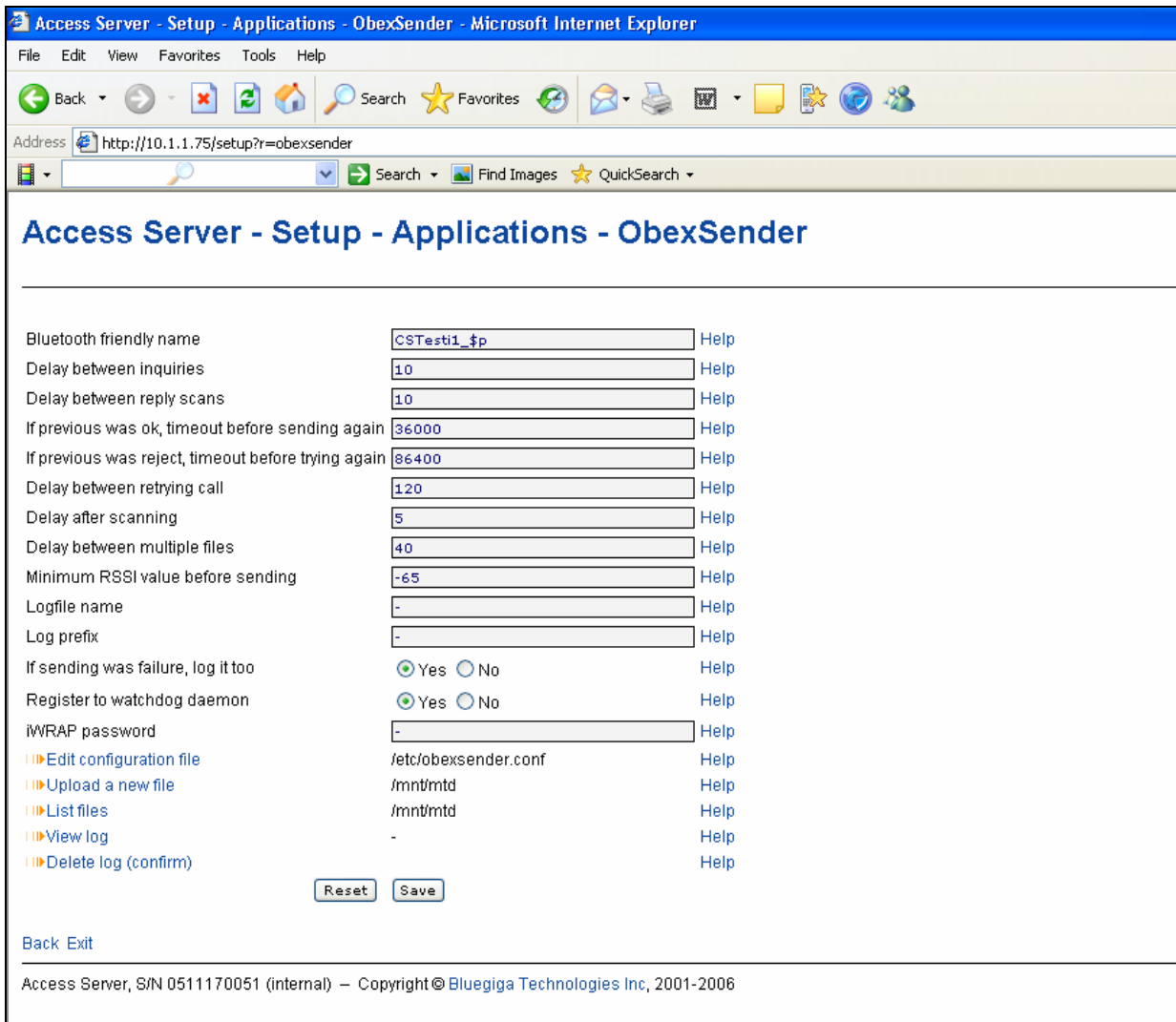


Figure 8: Latest Obexsender main menu

3.3 Activating Obexsender

By default the Obexsender application is disabled, so as a first task you should of course enable it if. This is quite simply done from the following page in the WWW setup (Figure 9):

Access Server - Setup - Applications - Default bootup applications

1. If it does NOT say **ON** right after Obexsender, please enable it by clicking **OFF** once.

Obexsender is enabled after a reboot. However if you have not completed rest of the configuration, do not reboot the WRAP Access Server yet.

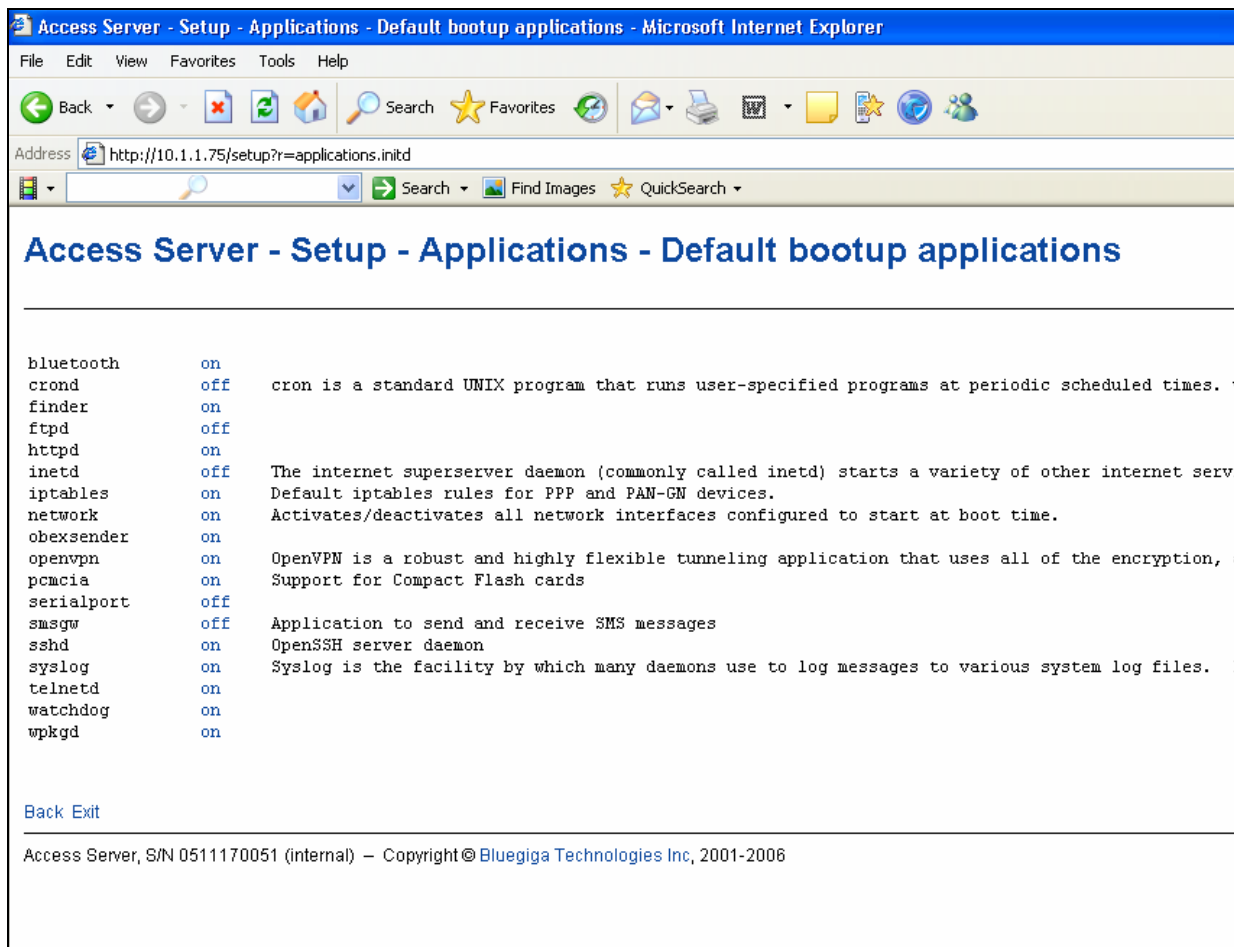


Figure 9: Default boot-up applications

NOTE: For Obexsender to start at all, you will need to define at least one file to be sent from:

Access Server - Setup - Applications – ObexSender settings – Edit configuration file

See chapter "*Advanced Obexsender configuration*", section "**Send these files in this order**".

3.4 Basic Obexsender configuration

Next you can move to the basic Obexsender configuration.

1. As a first step please go to the WWW setup page:

Access Server - Setup - Applications – ObexSender settings

On this page (Figure 8) you can configure the basic Obexsender settings. Use the **Help** links to get some basic information about each configuration. More detailed descriptions you can find below:

Bluetooth friendly name **[string]**

This name is the Bluetooth friendly name shown to other Bluetooth devices. For example when Obexsender is used in push mode this name is shown as a sender on a mobile phone screen.

With meta tags you can for example include the radio number in the name. Please click **Help** link for more information about tags

Delay between inquiries **[seconds]**

Obexsender uses a standard Bluetooth inquiry (device discovery) to find nearby Bluetooth devices. This configuration defines the time interval between inquiries i.e. how frequently new devices are being searched for.

Delay between reply scans **[seconds]**

This value determines how often OBEX in-folder (/tmp/obex) is scanned for remote requests. A low value increases CPU usage.

If previous was ok, timeout before sending again **[seconds]**

If a file has been successfully sent to a device, this timeout defines when content can be sent again to the same device.

If previous was reject, timeout before trying again **[seconds]**

If a file transmission to a device has failed or user has declined the file, this timeout defines when Obexsender can send content to the same device again.

Delay between retrying call **[seconds]**

When user doesn't accept or reject the file, Obexsender will try to send the file again. This setting determines the timeout before resend occurs. This is useful in case user doesn't notice the incoming Bluetooth transmission. Default value is 120 seconds, because many mobile phones tend to keep the Bluetooth link open for 120 seconds before closing it.

If you wish to disable this feature you can use the same value as in "ok delay" or "reject delay", i.e. the two previous settings.

Delay after scanning **[seconds]**

When a remote request from user has been received, this setting determines how long Obexsender will wait until the response file is sent back to the user. Default value is 5 seconds, because some mobile phones are not able to receive files over Bluetooth until

at least 5 seconds has passed from sending.

Delay between multiple files **[seconds]**

If Obexsender has been configured to send multiple files, this configuration sets the delay between the file transmissions.

Minimum RSSI value before sending **[integer]**

The working range of Obexsender can be configured or limited with this setting. RSSI or "Receiver Signal Strength Indicator" defines the distance to the receiving device in dBm. This value ranges from -128 to 0.

-128 = maximum range

-65 = medium range

-30 = minimum range

Notice that most of the Bluetooth devices, especially mobile phones are so-called "Class 2" devices, meaning that their range is approximately 10-20 meters. So even if the WRAP Access Server is a "Class 1" device (100-200 meters) RSSI value -128 does not mean that it can serve all devices within 100-200 meter range, but it rather means that it can serve all devices within 10-20 meter range.

Log file name **[string or IP-address]**

This configuration defines the path and name of the Obexsender log file (for example "/usr/local/obexsender/obexsender.log"). Log file contains information about successful and unsuccessful transmissions, timestamps and information about sent files.

You can also use an IP address of a log server as a parameter. Type "-" to use syslog.

Log prefix **[string]**

This prefix is put in front of every event in the log file. Type "-" for none (default).

Tip: If syslog is used for logging the prefix is an easy way to separate Obexsender from other application logs.

If sending was failure, log it too **[selection]**

If this is enabled failed transmissions will be logged too.

Register to watchdog daemon **[selection]**

If this is enabled, Obexsender will make Access server reboot automatically if Bluetooth radios have stopped responding.

iWRAP password **[string]**

If you have defined a password for the iWRAP (Bluetooth) interface you must have the same password configured here.

Type "-" for none (default).

Edit configuration file **[link]**

This link opens the raw Obexsender configuration file (/etc/obexsender.conf by default) and allows you to edit it manually. It also allows you to change some advanced settings that are not included in the basic configuration. Please see chapter "**Advanced Obexsender configuration**" for more information.

Upload a new file [\[link\]](#)

This link allows you to upload files into the Obexsender file system.

List files [\[link\]](#)

This link allows you to browse files on the Obexsender file system.

View log [\[link\]](#)

This link allows you to view the Obexsender log file if it exists. By default a summary of the logged events is displayed. Detailed information is available by clicking the date links.

Delete log [\[link\]](#)

This link will delete the current log file.

3.5 Uploading files

You can easily upload new content (files) for Obexsender by selecting "**Upload a new file**" in the Obexsender main menu. All you need to is browse for the file you want to upload and then click "**Upload**". You will see a confirmation note, for example "**File /usr/local/obexsender/Bike.jpg uploaded**".

At the moment you can only upload to /mnt/mtd directory from WWW-setup. If you would like to upload to some other directory, you'll need to use secure FTP to accomplish that. This is because normal FTP is disabled by default in the Access server. One good software for secure file transmission in Windows is *WinSCP*.

3.6 Advanced Obexsender configuration

Here you can alter all the settings available for Obexsender. It includes all the settings covered in last chapter and more. Here we will go through only the settings that can be configured only from the 'obexsender.conf' file, since basic configuration is already covered in previous chapters.

NOTE: Lines beginning with '#' character are comments and Obexsender will ignore them.

Use these iWRAPs for sending/inquiry.

Here you can choose which radios you want to use to send files. By default all radios are in use, but for example if you would like to use just the first radio, you can disable other radios like this:

```
baseband 127.0.0.1 10101
#baseband 127.0.0.1 10102
#baseband 127.0.0.1 10103
#baseband 127.0.0.1 10104
```

Baseband 10104 has been used for testing purposes only, so you don't need to worry about it.

Don't send to these bluetooth devices

With this setting you can define Bluetooth addresses you don't want to serve. The default setting is:

```
ignore 00:07:80:
```

This is the manufacturer ID for Bluegiga Technologies, so Obexsender can avoid sending to its own radios and to other Access servers in the same area.

Always send to these test devices when found (60s interval)

Devices defined here will be sent files every 60 seconds. Other timeout settings are ignored when these devices are in Access server's range. Usually used for testing purposes only.

Obexserver's directory (for remote requests)

This option defines the destination directory for files users send to the Access server, i.e. it's the OBEX in-folder for remote requests.

Automatically reboot Access Server if all iWRAPs fail

Obexsender will make the Access Server reboot if all Bluetooth radios stop responding for some reason. By default watchdog service is enabled (recommended).

Send these files in this order. If none listed then do not inquiry

Files will be sent to remote devices in the order they are listed here. For example if you want to transmit first "tp1.gif" and then "tp2.gif", you'll put it like this:

```
file /usr/local/obexsender/tp1.gif
file /usr/local/obexsender/tp2.gif
```

If no files are specified, Obexsender will not start at all.

Timestamp is Weekday, Starthour-Endhour or WeekdayStarthour-Endhour

Timestamps allow files to be sent only on specific days and/or times. Examples:

```
file /usr/local/obexsender/image1.jpg Fri (file is sent only on Fridays)
file /usr/local/obexsender/image2.jpg 8-14 (file is sent every day between 8am and 2pm)
file /usr/local/obexsender/image3.jpg Tue8-14 (file is sent only on Tuesdays between 8am and 2pm)
```

Parse remote requests, send file back

With this setting you can configure Obexsender to send a file to a user only if this file is specifically requested. Requesting for file can be done for example by sending a calling card with specified *keyword*. Keyword is extended regular expression (regex) and case-non-sensitive. Keyword is matched for actual *content in the file* (for example text strings, but also header information is taken into account) and *bdaddress* (Bluetooth address of the user's device, format is "00-00-00-00-00-00"). Examples:

1. Only keyword is specified:

```
reply GIF /usr/local/obexsender/pic.gif
```

When user sends a GIF image to the Access server, he will then receive "pic.gif" in return. Keyword "GIF" actually matches to the header information of the file, which contains "GIF" string. This way you can match to other known file formats too, like "VCF", i.e. electronic calling card.

2. Only *bdaddress* is specified as keyword:

```
reply 00:17:d5:5a:99:1d /usr/local/obexsender/pic.gif
```

In this case it doesn't matter what file user sends to Access server, since the Bluetooth address of his mobile is recognized directly.

Delete non-matching remote requests

If non-matching remote requests are received, they will be immediately deleted. This option is enabled by default, but you can disable it for example if you have some other usage for Object Push and FTP profiles.

Be verbose (0-4)

With this option you can configure the detail level in the Obexsender log file. By default "verbose" is written only once in the configuration file, which means level 1 is in use. If you want more detailed logging, "verbose" can be written more than once, like this

```
verbose
verbose
```

Now you would have level 2 in use. Level 4 is the maximum.

Filename for saving ignore-list for reboots

You can choose to save the information about already served devices, so you can form a so-called "ignore list". If this ignore list is saved in flash memory, it will be preserved

even if Access server is rebooted. By default this option is disabled, but you can enable it by adding the time interval, which defines how often the ignore list is updated. We recommend you use a rather big value, like 900 seconds (15 minutes) because a really small value will cause constant stress on the flash memory and could physically burn it as time passes.

Broadcast processed basebands to other senders

If there are many Access servers running Obexsender in the same network they can exchange information about remote devices they have already served. This way other servers won't push content to users that already have received files from some other server.

You can send this information to all Access servers (broadcast-ip) in the network or just to a single server (unicast-ip). You can also define the interface name for this, but basically "nap" (network access point) is the only choice. It will automatically check the broadcast address in the "nap" interface in the Access server and use it for information exchange.

3.7 How to store files sent to WRAP Access Server

By default all files sent over OPP to WRAP Access Server are stored to `/tmp/obex` folder and deleted after they have been processed. It is however possible to save the files to an other directory. The following procedure shows how to automatically copy these files to an example folder `/mnt/remote_request` (**NOTE:** you must first create this folder first!):

1. Create a copier script `/usr/local/bin/copier`. You can do it for example via **WWW-setup -> Advanced settings -> Edit other configuration files** and typing here `/usr/local/bin/copier`. Put the following script into the file:

```
#!/bin/sh
# to be called from obexsender: --fork /usr/local/bin/copier
# This directory must exist!
SAVEDIR="/mnt/remote_request"
/bin/cp "$1" "${SAVEDIR}/${3}`/bin/date "+%s"`-`echo $1 | /usr/bin/cut -f 2 -d-`"
```

2. Make it executable by giving command `"chmod a+rx /usr/local/bin/copier"` at command line interface.
3. Edit `"/etc/bluetooth.conf"` and add the following line:

```
SET BLUETOOTH LISTEN 3 "/usr/sbin/obexserver --bdaddr $b --prefix $b-$P- --fork /usr/local/bin/copier" 110
```

4. Restart WRAP Access Server

Now all incoming files are copied to `"/mnt/remote_request"` directory. The format of the files is `"bdaddr-btserverport-timestamp-filename.ext"`.

4. MONITORING OBEXSENDER

Obexsender creates log about its operation into a specified log file. By default no log file is specified, so you should do this first with instructions provided in chapter “**Basic Obexsender configuration**”.

When you choose “**View log**” in Obexsender menu, you can see only the summary of Obexsender action, i.e. how many successes, failures and retries there are. When you select the date or “Total” in the summary view, you will see more details. You will see basically to which Bluetooth address the content was sent and if the transmission was failure or success, or if transmission will be retried later. See example logging in figure below:

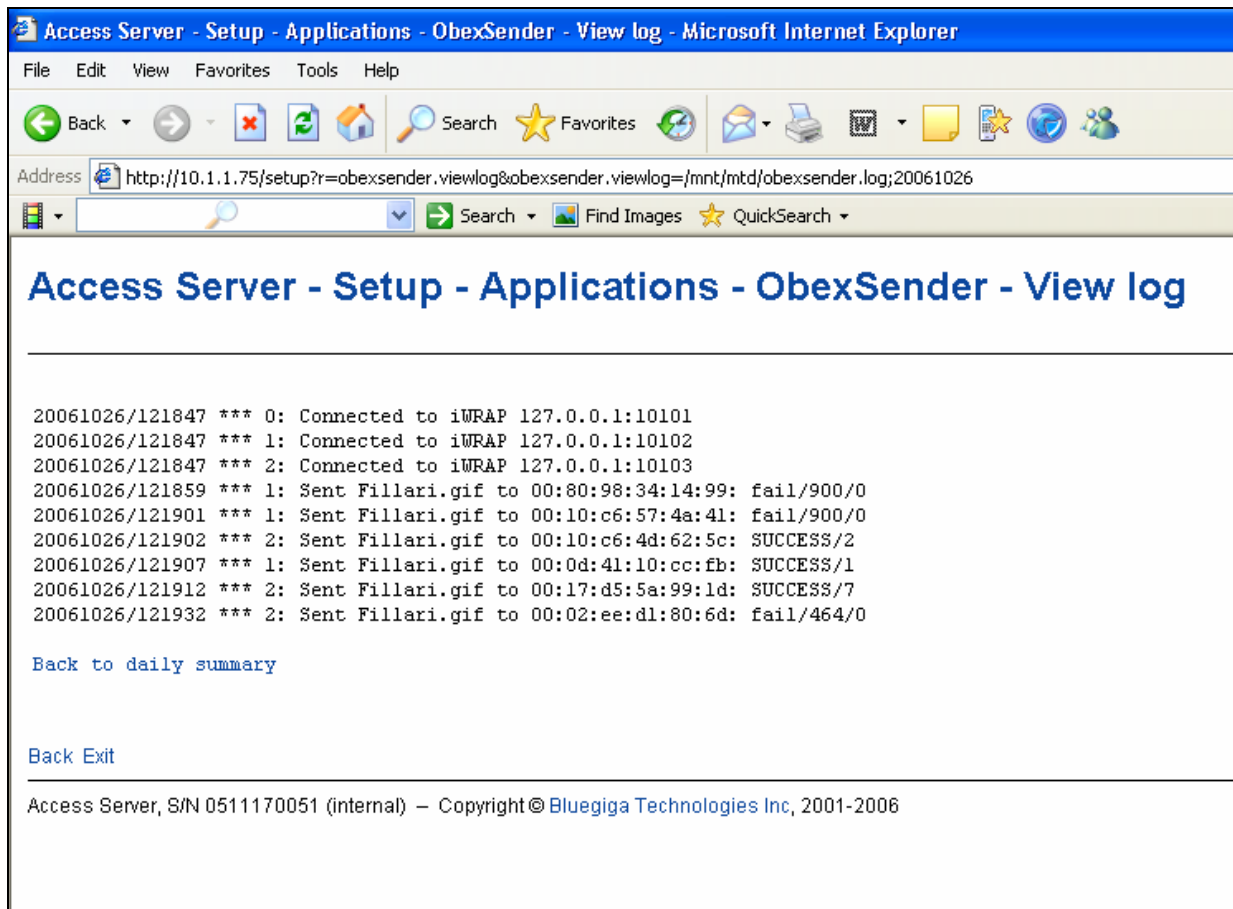


Figure 10: Detailed log view

If you want to see even more details about how Obexsender is performing, you can add the verbosity level of logging. See “**Advanced Obexsender configuration**”, section “**Be verbose (0-4)**”. Full verbose logging is usually needed only in problem solving.

5. TROUBLESHOOTING & KNOWN ISSUES

Troubleshooting:

- **Obexsender is not sending anything?**

Make sure you have at least one content file specified in the Obexsender configuration file (obexsender.conf). See chapter "**Advanced Obexsender configuration**", section "**Send these files in this order**".

Also check that Obexsender is activated, see chapter "**Activating Obexsender**".

- **Mobiles receive files only to 10-20 meters. Isn't Obexsender supposed to work up to 100 meters?**

Almost all mobile phones are so-called "class 2" devices, which mean that their maximum range is about 10 meters. In good conditions they can achieve even 30 meters.

If you know there are "class 1" devices (range up to 100 meters) in the area, you can check the RSSI value you have set, which determines the operational range of Obexsender. See chapter "**Basic Obexsender configuration**".

Known issues:

- If you enter a non-existing path in "**Log file name**" configuration Obexsender will fail to start.
- If you have entered a password for the iWRAP (Bluetooth) interface and the same password is not set in the Obexsender configuration, Obexsender will fail to start.
- If several log files are defined in "**obexsender.conf**", Obexsender will fail to start

6. SUPPORT

- Latest software build can be found from www.bluegiga.com/techforum/
- Latest User's and Developer's guide can be found from: WRAP Access Server [Users and Developers Guide](#)
- Technical support can be contacted by sending email to support@bluegiga.com