µWARPPlus

Administrator's Guide

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TRADEMARKS

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About this Document

This document is for administrators who configure, troubleshoot and manage µWARPPlus applications.

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Chapter 1 – Introduction

µWARPPlus provides a dedicated device located at the customer premise to complement a hosted PBX solution by delivering a subset of capabilities better suited to be delivered by customer premise equipment. A single product family provides a flexible combination of licensable features, allowing service providers to standardize on a single device to address their individual requirements.

µWARPPlus can be installed into new or existing hosted PBX systems and operates seamlessly with most common IP phones manufacturers.

The following applications are supported:

- On Premise Paging
- Local Music on Hold Source

Features

- BroadSoft® BroadWorks® Compatible (IOT Approved)
- BroadWorks release independent
- Easily adaptable to other Hosted PBX systems
- Flexible, simplified configuration and installation procedure
- Uses Multicast for Paging
- Up to 10 Groups or Zones can be configured for Paging
- Can stream Music On Hold from an internet streaming source
- Web-based GUI for configuration, status, and troubleshooting information
- Automated configuration at startup via T/FTP and HTTPS downloads
- Very small form factor
- Isolated from the hosted solution: can be installed or removed without disruption to hosted services Customizable look so you can promote your brand

Chapter 2 – Overview

System Requirements

- Power source: 110V-240V AC (50-60 Hz) o Power supply and country specific power cord included in the µWARP appliance package
- Non-VLAN tagged LAN port at the customer premise on the same network as the IP phones in the paging group.
- Standard SIP User Agent (UA) account on the BroadSoft switch (unique user agents required for each of the Pager and Music on Hold)
- Phone receiving pages must support Multicast Paging
- Feature code or extension for each of the Pager and Music On Hold
- FTP, TFTP or HTTPS Server

Paging

Once installed at the customer premise, page announcements are redirected through the µWARPPlus to a configurable Multicast IP address. Phones in the same network are configured to "listen" for pages from that Multicast IP address. On Premise Paging offloads WAN bandwidth demands and provides the local paging functionality typically available with traditional legacy PBX systems.

The µWARPPlus acts as a local SIP User Agent (SIP UA) registered with the BroadSoft switch. Page requests are handled locally by the µWARPPlus instead of sending multiple RTP media streams from the BroadSoft switch across the WAN to the customer premise.

Music On Hold

µWARPPlus with Music on Hold (MOH) provides users with a customizable content source, routed directly through the µWARPPlus appliance. The µWARPPlus can stream music from an Internet source, play WAV and ulaw files from a USB key or play the one native file stored locally on the µWARPPlus.

An Identity/Device Profile must be created and provisioned as the external source on the Music on Hold services page on the BroadSoft switch.

Licensing

The µWARPPlus is licensed in the factory for either the Pager application, the Music On Hold application or both applications. The µWARPPlus license cannot be augmented in the field.

Chapter 3 – Configuration Overview

There are two methods to configure the µWARPPlus:

- Using the Web GUI
- Configuration files located on a T/FTP or HTTPS server

Using the Web GUI

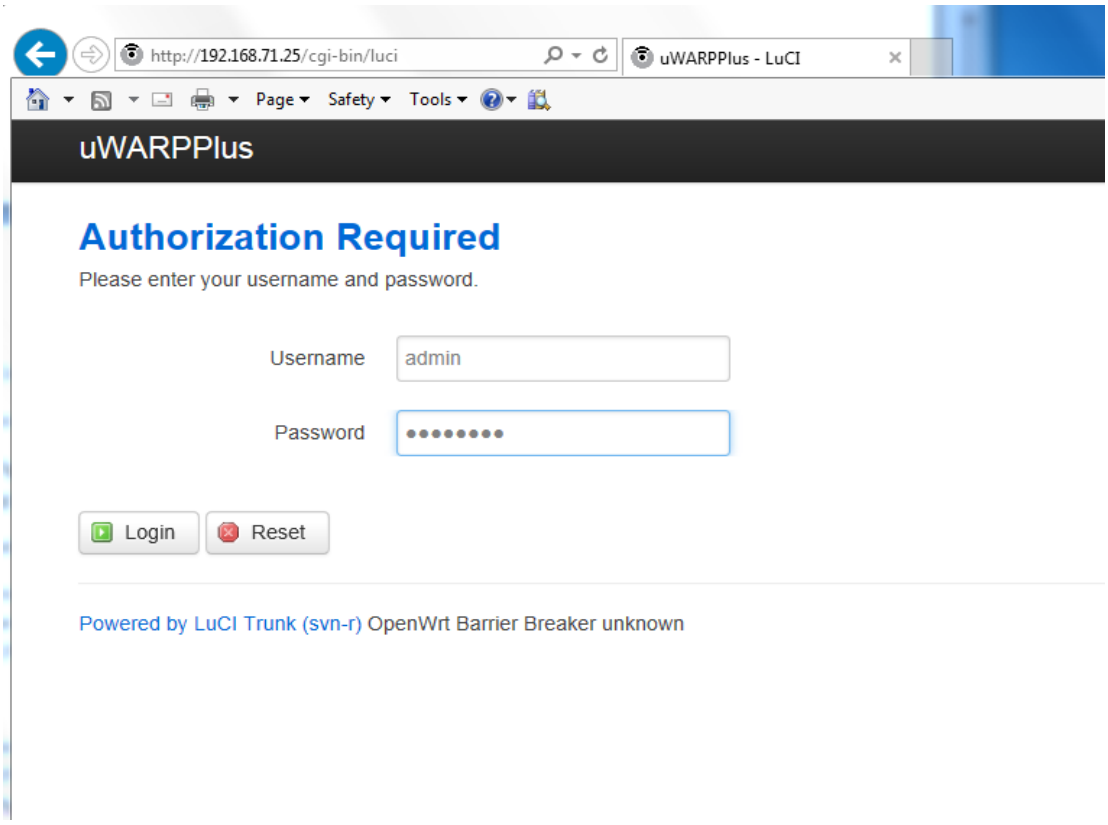
You can access the Web GUI from a standard Web browser such as Internet Explorer, Google Chrome or Firefox. When parameter values are entered in the Web GUI, configuration files are created that can be copied to a T/FTP or HTTPS server.

Logging On

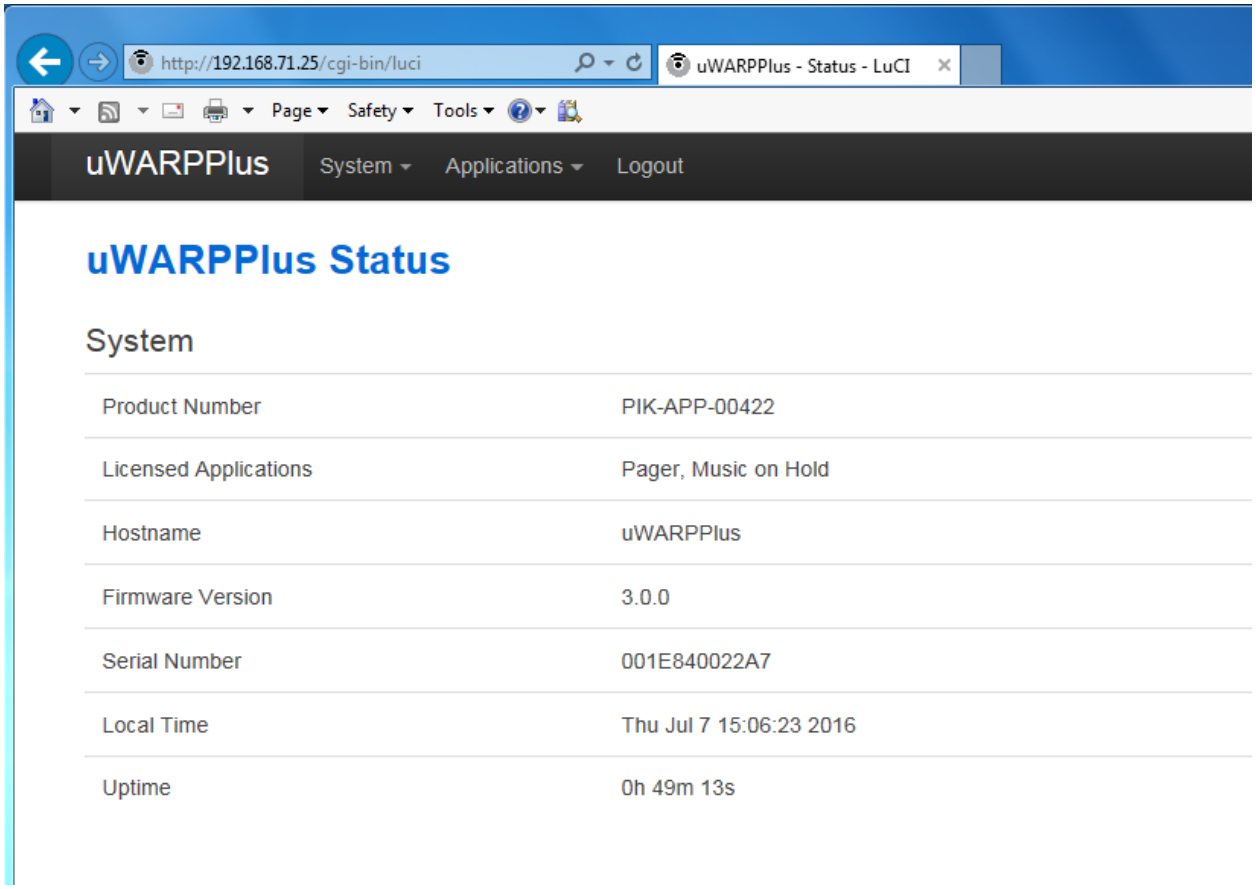
In the address bar of your browser, enter the IP address of your µWARPPlus. You can insert a USB key that does NOT contain a µWARPPlus image (as this will cause the µWARPPlus to flash that image) into the µWARPPlus and it will write a file called /uwarp/uwarp-info.txt that contains the IP address.

The Login Page

The username is *admin* and the password is *pikapika*.



The System Status page



To logout, click the Logout on the menu bar.

Web GUI Menus

All status screens and configuration functions are grouped under two menus: System and Applications.

System Menu

Submenu	Description
Status	On this page, you can view the information: Product Number, Licensed Applications, Hostname, Firmware Version, Serial Number, Local Time, Uptime. Memory Usage, Network Status
System Settings	On this page, you can configure the following parameters: Hostname, Timezone, admin password, NTP servers
Network	From this page, you can edit the network interface to use DHCP or assign a Static IP address
Download Settings	On this page, you can configure the following server settings for downloading configuration files at boot: Download Type, Server, Path, Username, Password
Backup / Flash Firmware	On this page, you can backup or restore configuration files, and flash a new firmware image
Reboot	Reboots the µWARPPlus

Applications Menu

Submenu	Description
Pager	Use this page to configure the Pager Settings for the µWARPPlus
Music On Hold	Use this page to configure the Music On Hold Settings for the µWARPPlus
SIP Connections	Use this page to view the connection status for your SIP connections. You can also force the µWARPPlus service to reload it's SIP configuration and restart the µWARPPlus service.

Note: If your µWARPPlus is not licensed for a given application, the Web GUI will allow you to enter configuration data, save and apply, but the configuration data will not be used by the µWARPPlus service.

Using Configuration Files

As an alternative to the using the Web GUI, you can manually create configuration files using a standard text editor. µWARPPlus services use configuration files which contain parameter names and values. Parameters can be listed in the files in any order. The files are retrieved from a central server accessed by FTP, TFTP or HTTPS. This provisioning method is typical for mass deployment.

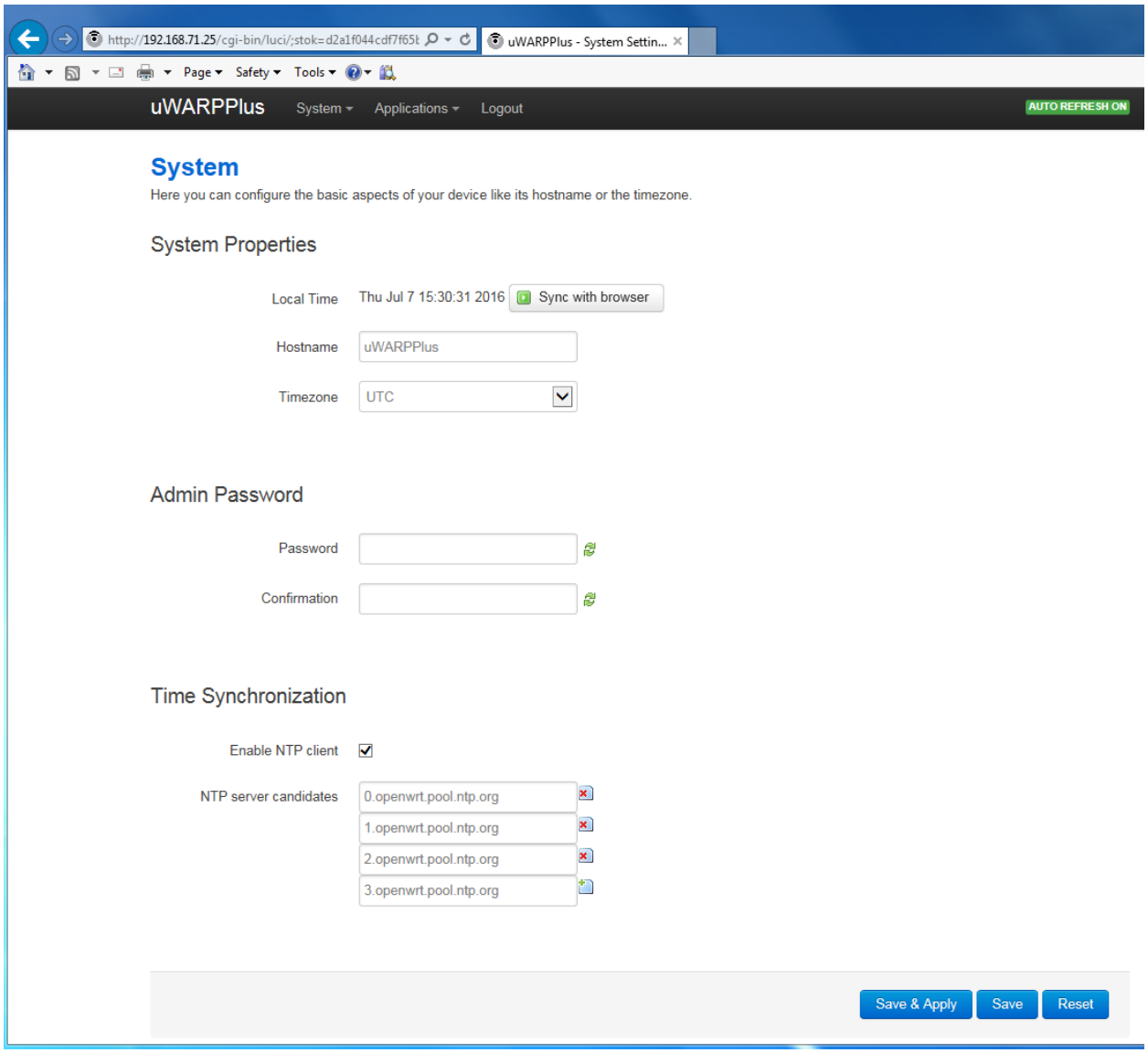
Configuration files for each feature are uniquely identified using the MAC address of the µWARPPlus, which is located on the underside of the unit. Files are named <mac-address>.*<filename>* where <mac-address> is the MAC address of the µWARPPlus appliance, and *filename* is one of *pager*, *music*, *dlconfig* or *network*, for example, 001e840006d9.pager. Be sure to use lower case for the file name and do not use colons in the MAC address. When you create the file, ensure that parameters names are spelled correctly in lower case.

The following file is an example of the Pager file:

```
config pager
        option username '6069'
        option password 'secret'
        option domain '192.168.44.1'
        option ivr '0'
        option multicast '238.0.0.1:1234'
        option usercont 'enabled'
```

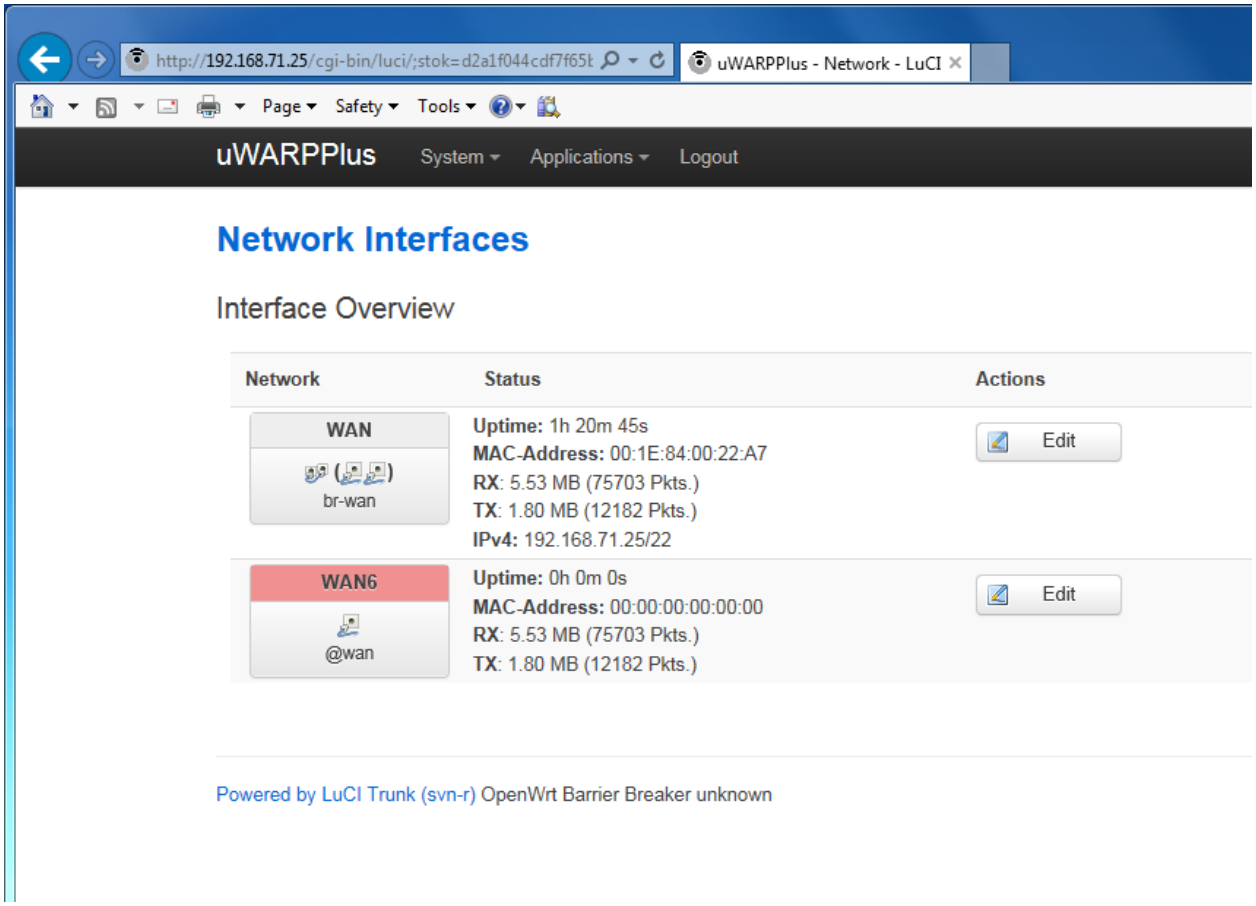
Chapter 4 –System Configuration

System Settings Page



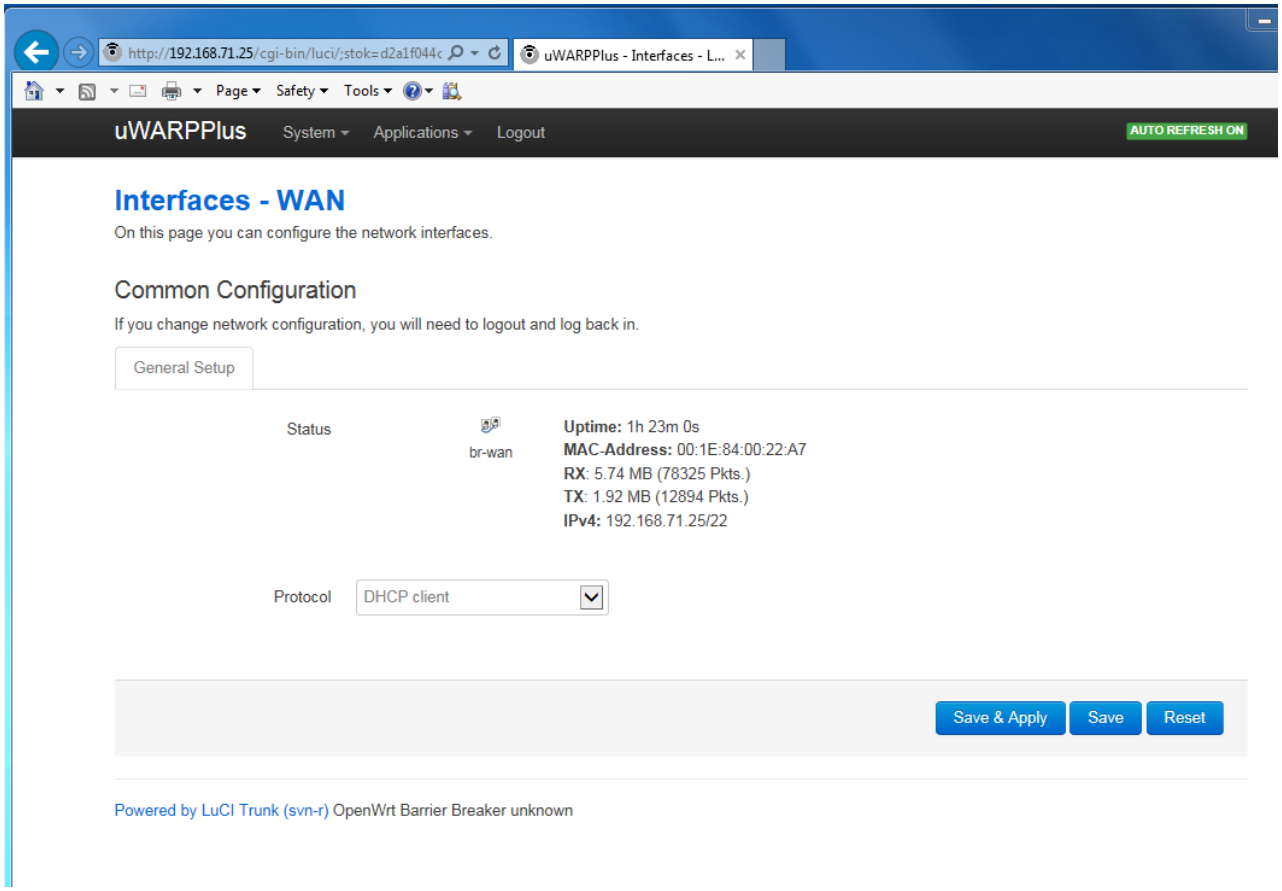
From the System -> System Settings page, you can modify the Hostname, Timezone, admin password and which NTP servers to synchronize time with.

Network Interfaces Page



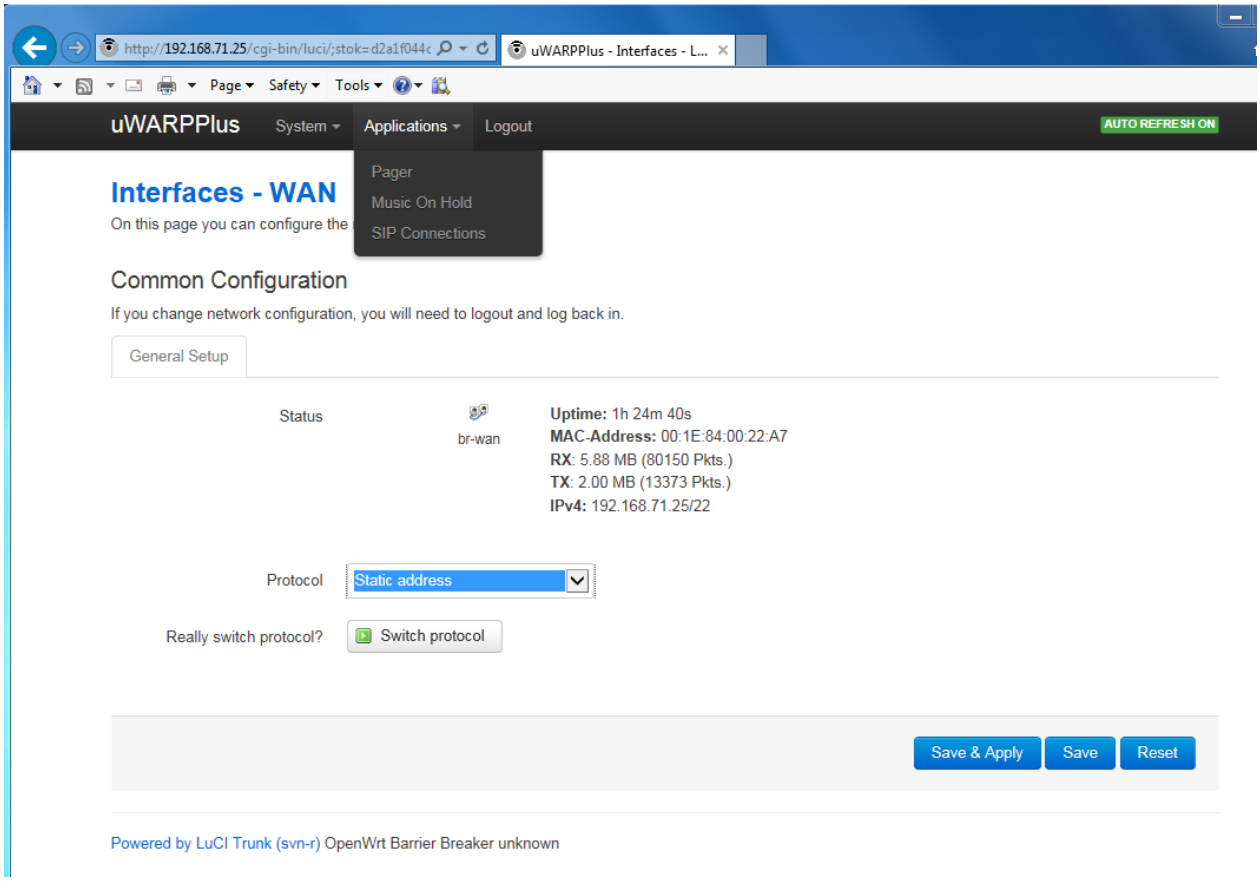
The System -> Network page shows the status of the network interface which is named WAN. Clicking the "Edit" button allows the user to configure the WAN interface.

Editing the Network Interface



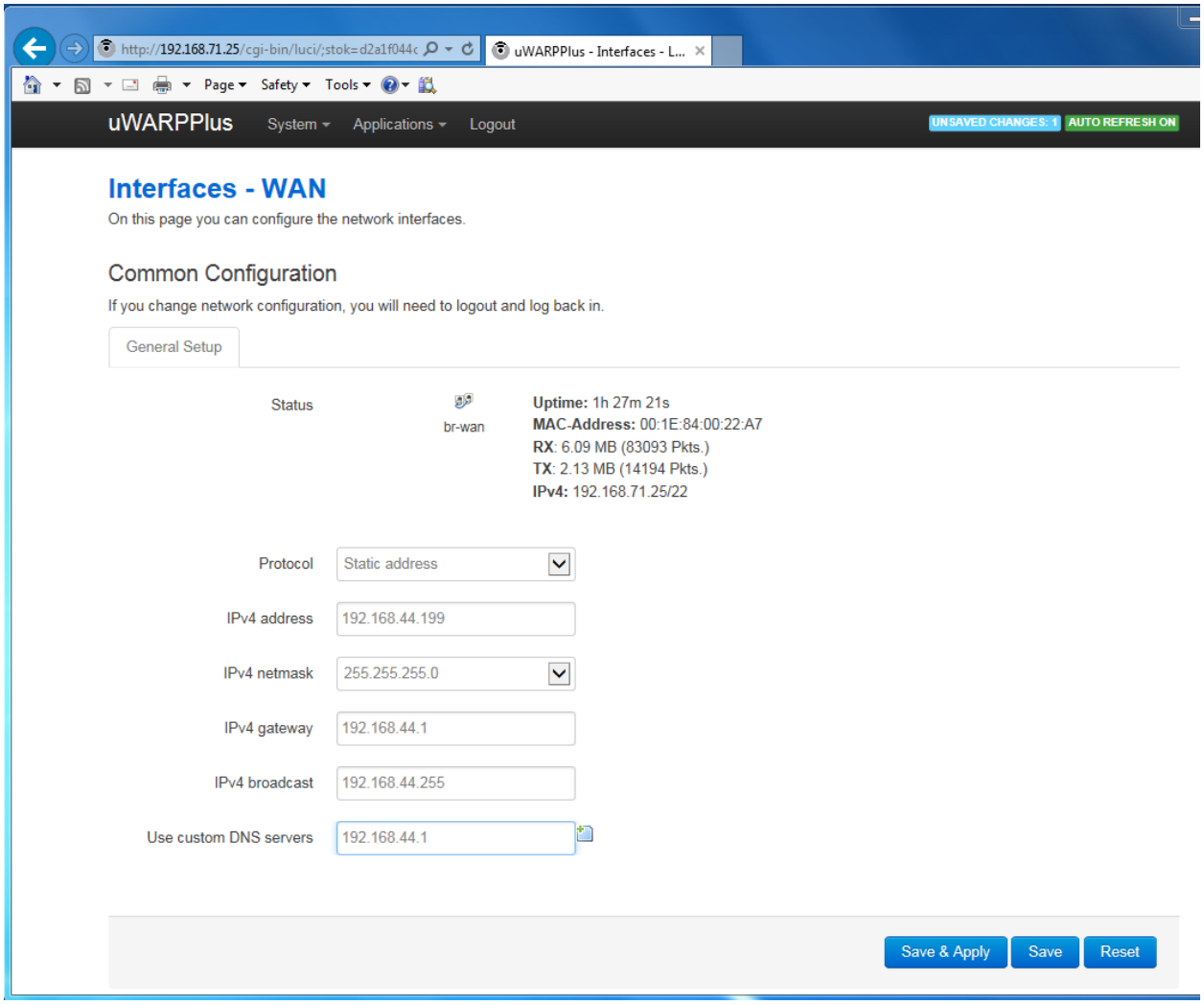
In the Edit screen, the user can configure the WAN interface protocol as a DHCP client or a static IP address. The factory default setting is DHCP.

Changing from DHCP Protocol to Static IP Protocol



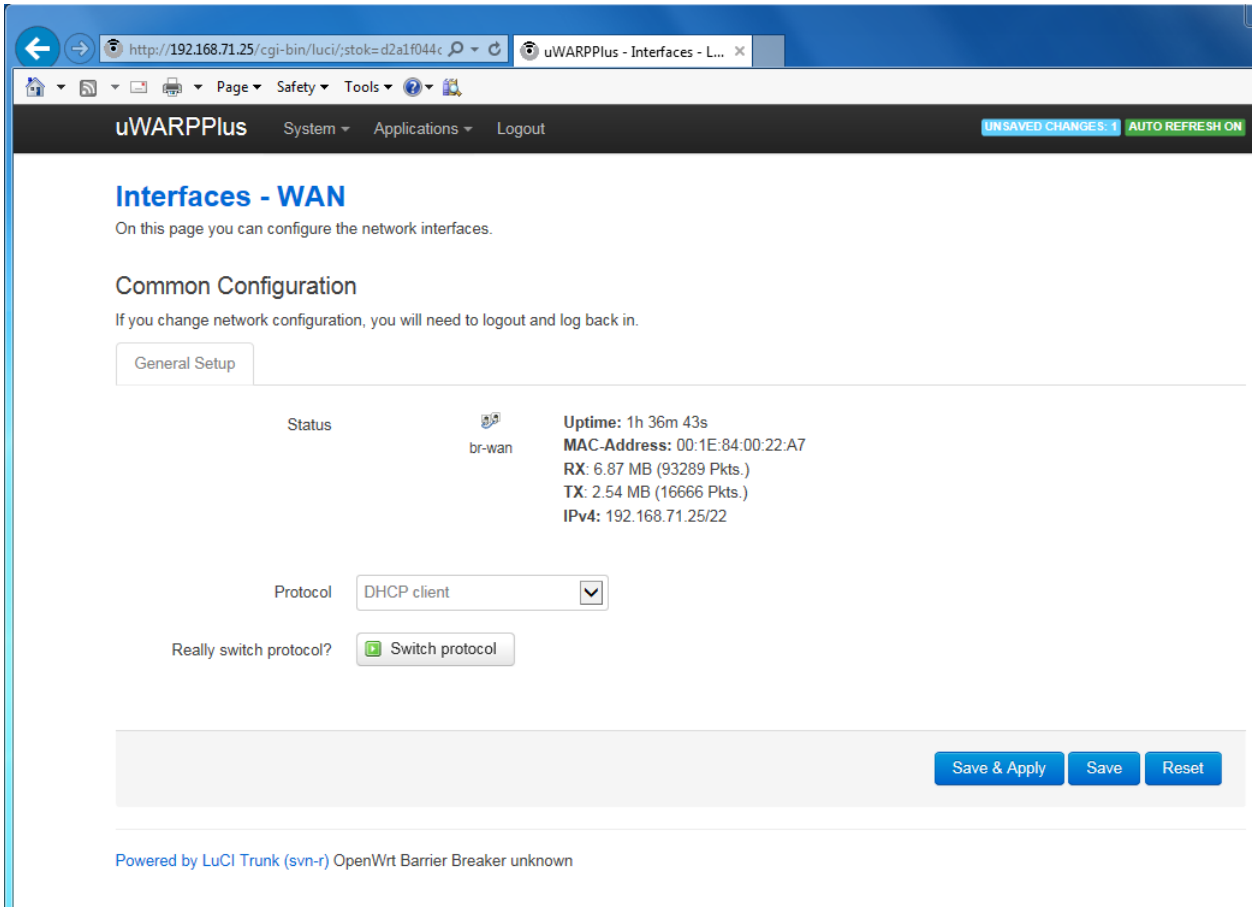
To change the WAN interface to static, select the "Static address" choice on the Protocol drop down menu and then press the "Switch protocol" button.

Configuring the Static IP Data



Once the "Switch protocol" button is clicked, the edit boxes for entering the IP address, netmask, gateway, broadcast and DNS server will appear. Enter the correct configuration data and press the "Save & Apply" button. If the actual IP address is changed during this step, you will now need to log back into the µWARPPlus using this new IP address.

Changing from Static IP Protocol to DHCP Protocol



For switching the protocol back to DHCP, select "DHCP client" choice in the Protocol drop down menu and press the "Switch protocol" button and then "Save & Apply". Don't forget to log back in.

The Network File

To automate the configuration of the network of µWARPPlus, the network file can be configured and stored on a T/FTP or HTTPS server. The title of the file should be *<mac-address>.network*.

The following network file example has the WAN interface protocol configured to DHCP which is the default setting:

```
config interface 'loopback'
        option ifname 'lo'
        option proto 'static'
        option ipaddr '127.0.0.1'
        option netmask '225.0.0.0'

config interface 'wan'
        option _orig_ifname 'eth0'
        option _orig_bridge 'false'
        option type 'bridge'
        option ifname 'eth0 eth1'
        option proto 'dhcp'

config interface 'wan6'
        option ifname '@wan'
        option proto 'dhcpv6'

config globals 'globals'
        option ula_prefix 'fbd9:4c99:3228::/48'
```

Note: only modify the 'wan' interface.

This next example uses the Static IP protocol:

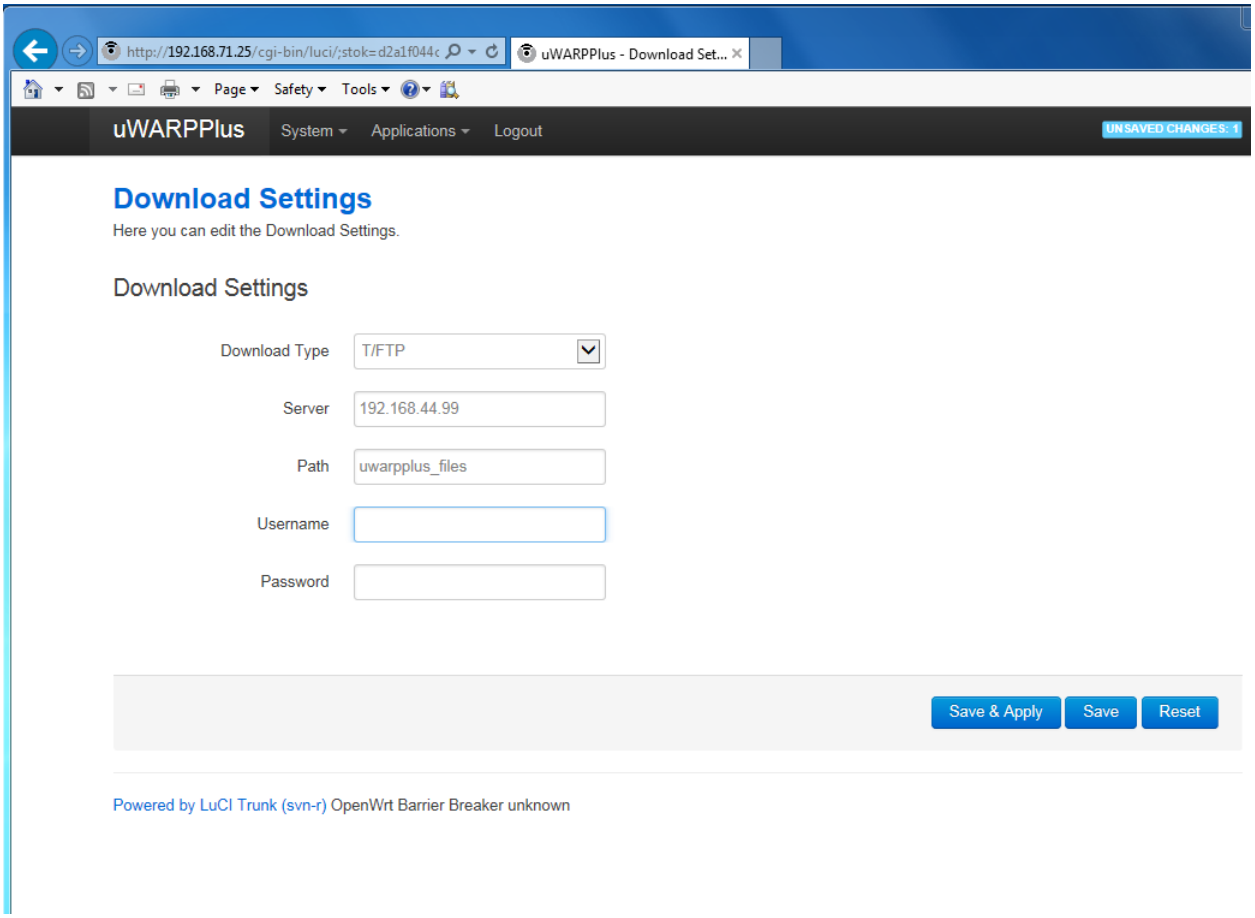
```
config interface 'loopback'
        option ifname 'lo'
        option proto 'static'
        option ipaddr '127.0.0.1'
        option netmask '225.0.0.0'

config interface 'wan'
        option _orig_ifname 'eth0'
        option _orig_bridge 'false'
        option type 'bridge'
        option ifname 'eth0 eth1'
        option proto 'static'
        option ipaddr '192.168.44.199'
        option netmask '255.255.255.0'
        option gateway '192.168.44.1'
        option broadcast '192.168.44.255'
        option dns '192.168.44.1'

config interface 'wan6'
        option ifname '@wan'
        option proto 'dhcpv6'

config globals 'globals'
        option ula_prefix 'fbd9:4c99:3228::/48'
```

Note: only modify the 'wan' interface.

Download Settings Page

The System -> Download Settings page allows you to setup a T/FTP or HTTPS server for downloading your µWARPPlus configuration files at boot time.

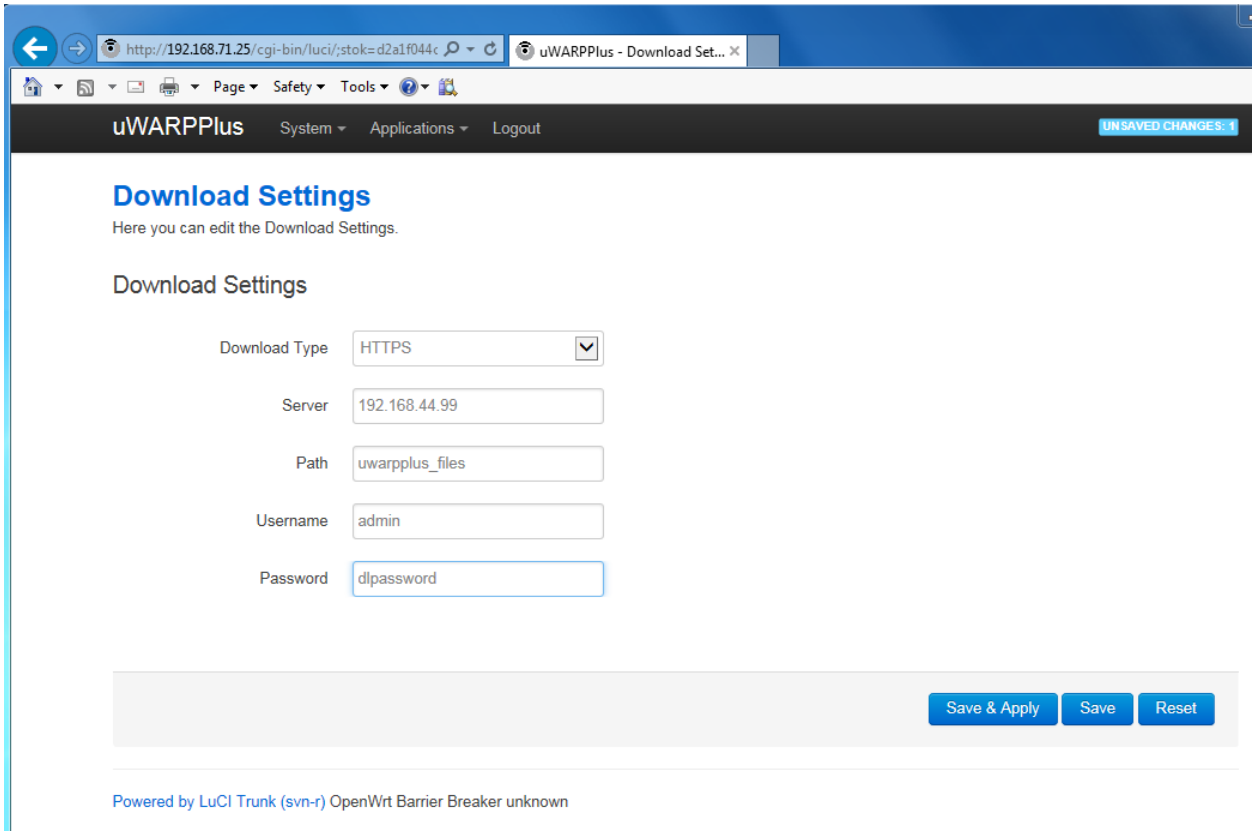
TFTP Download



For TFTP, no username or password is required. The entered path should be relative to the server's tftp path. For example, if your server's tftp path is */tftp/* and your µWARPPlus configuration files are stored in */tftp/uwarpplus_files/*, then enter just the "*uwarpplus_files*" portion of the path. The GUI is smart enough to add or remove leading and trailing backslashes (/).

For FTP and HTTPS, a username and password should be entered.

HTTPS Download



To use HTTPS, select HTTPS from the Download Type drop down menu, fill in the configuration for the Server, Path, Username and Password and click the "Save & Apply" button. On the next reboot, the µWARPPlus will attempt to download the configuration files from this server.

The dlconfig File

To automate the configuration of the download settings of µWARPPlus, the dlconfig file can be configured and stored on a T/FTP or HTTPS server. The title of the file should be:

<mac-address>.dlconfig.

The following dlconfig file example uses *tftp* to download the configuration data:

```
config dlconfig
        option dltype 'tftp'
        option server '192.168.44.99'
        option path 'uwarpplus_files'
```

This next file would use *ftp* to download the configuration data (same as tftp but with username and password):

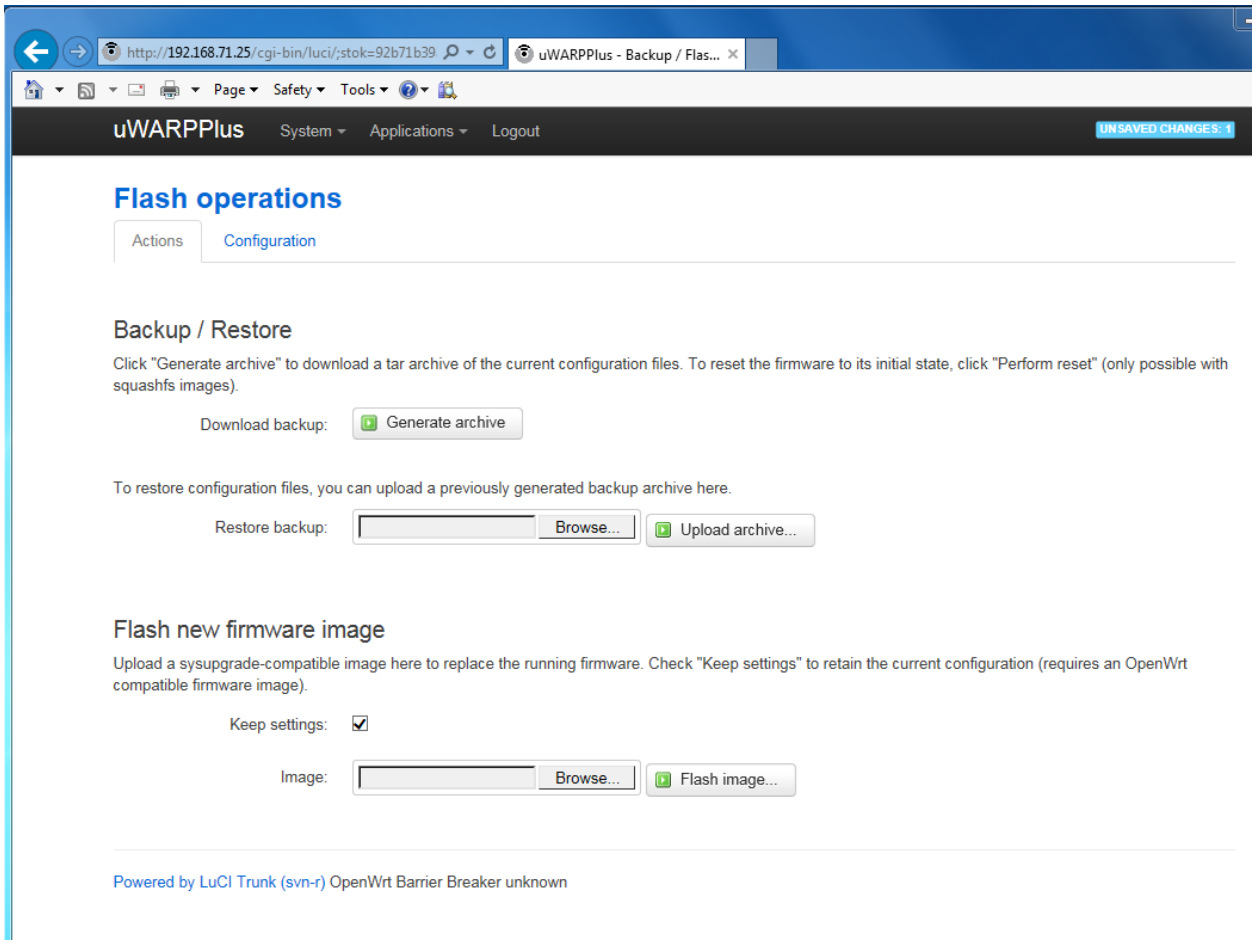
```
config dlconfig
        option dltype 'tftp'
        option server '192.168.44.99'
        option path 'uwarpplus_files'
        option username 'admin'
        option password 'dlpassword'
```

This final example will use https to download the configuration data:

```
config dlconfig
        option dltype 'https'
        option server '192.168.44.99'
        option path 'uwarpplus_files'
        option username 'admin'
        option password 'dlpassword'
```

Backup / Flash Firmware

The System -> Backup /Flash Firmware page allows you to archive configuration data and update the firmware on your µWARPPlus.

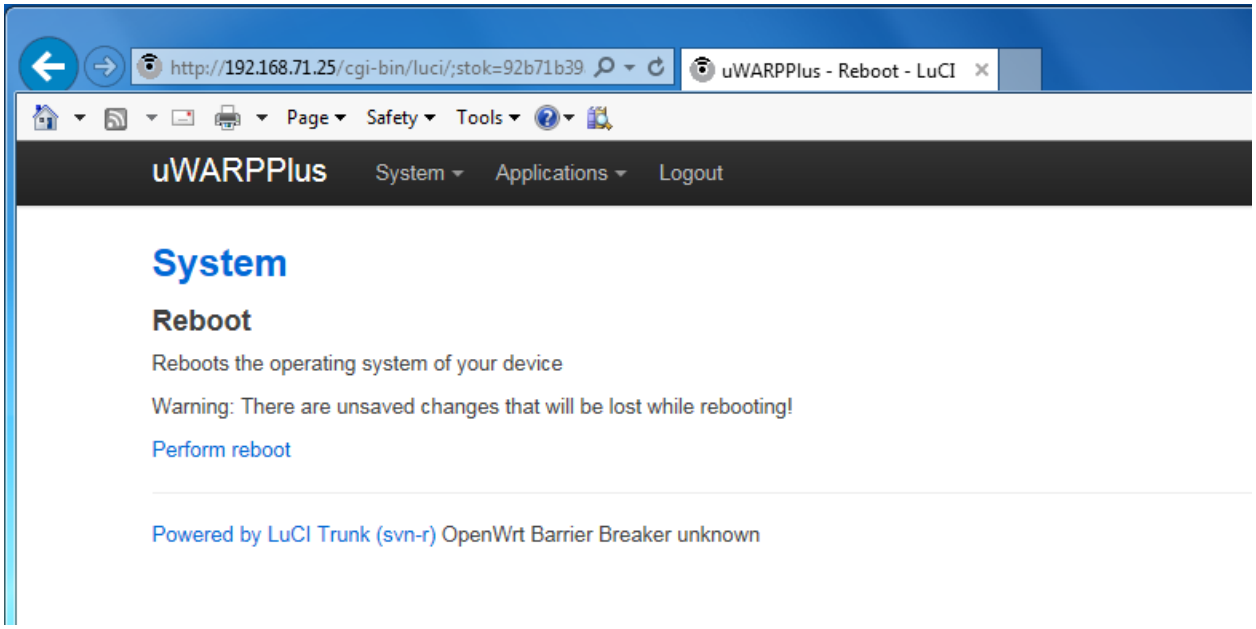


To backup configuration files, click the "Generate archive" button. This will allow you to save an archive of the configuration data on your computer. This archive could be uploaded later using via the "Restore archive" utility.

This page can also be used to flash a new firmware image onto your µWARPPlus. Get the new firmware binary from PIKA Technologies and store it on your computer. It should be in the format of:

uwarpplus-<version>-squashfs-<factory or sysupgrade>-<release date>.bin

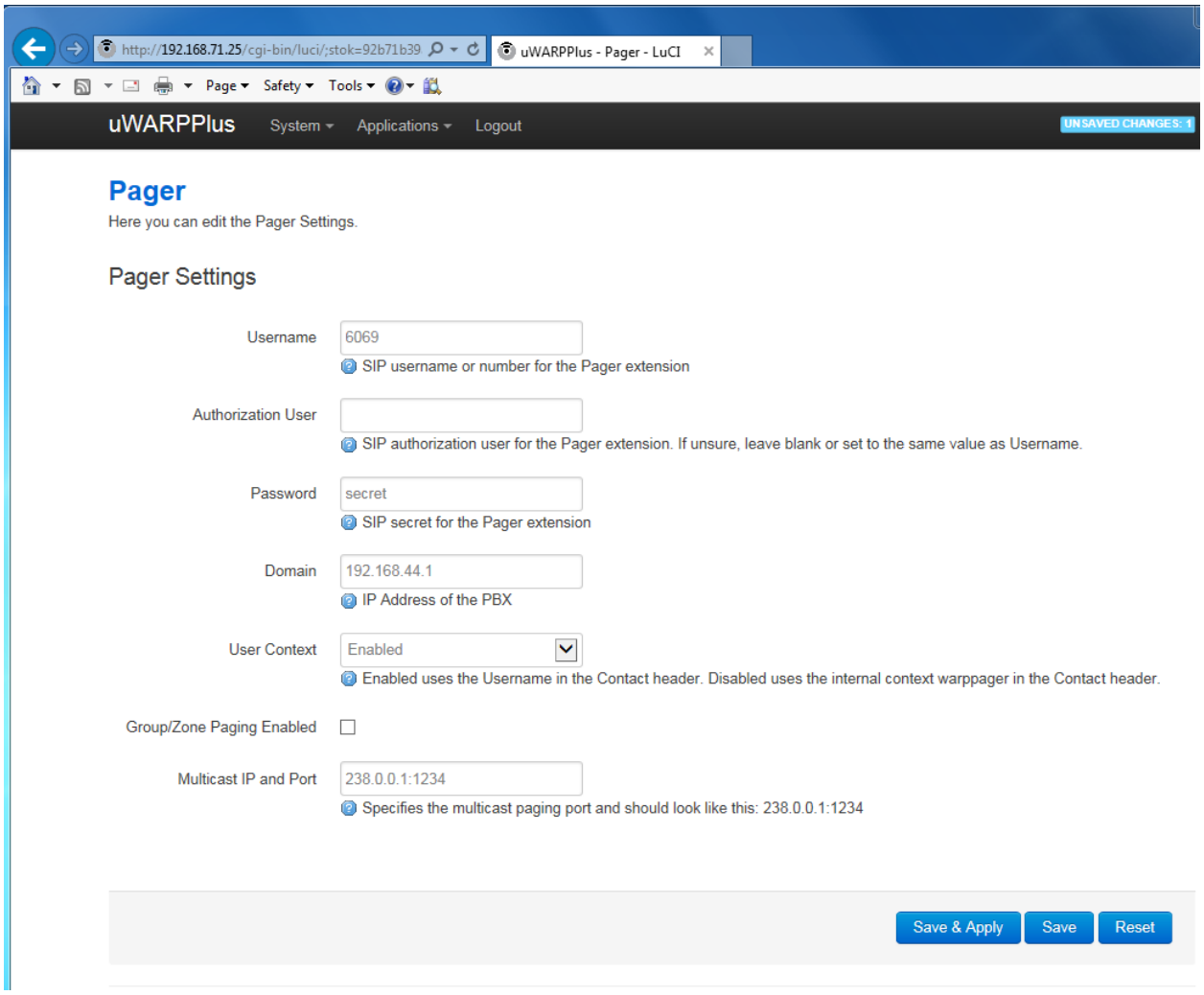
Reboot



On the System -> Reboot page, you can click the "Perform reboot" link to reboot your µWARPPlus.

Chapter 5 – Application Configuration

Pager



The Applications -> Pager page allows you to configure the µWARPPlus for Paging. The **username** and **domain** parameters are mandatory.

Username: SIP user agent account name.

Authorization User: used when a Registration Request is challenged. If left blank, the µWARPPlus will use the Username as its Authorization User.

Password: the password used to authenticate the µWARPPlus with the external SIP server.

Domain: the domain or IP address of the external SIP server to register the µWARPPlus against.

User Context: The µWARPPlus uses an internal context, for example **warppager**, in its Address of Record in the Contact header used during registration, for example, **warppager@***IP_ADDRESS*. Some edge

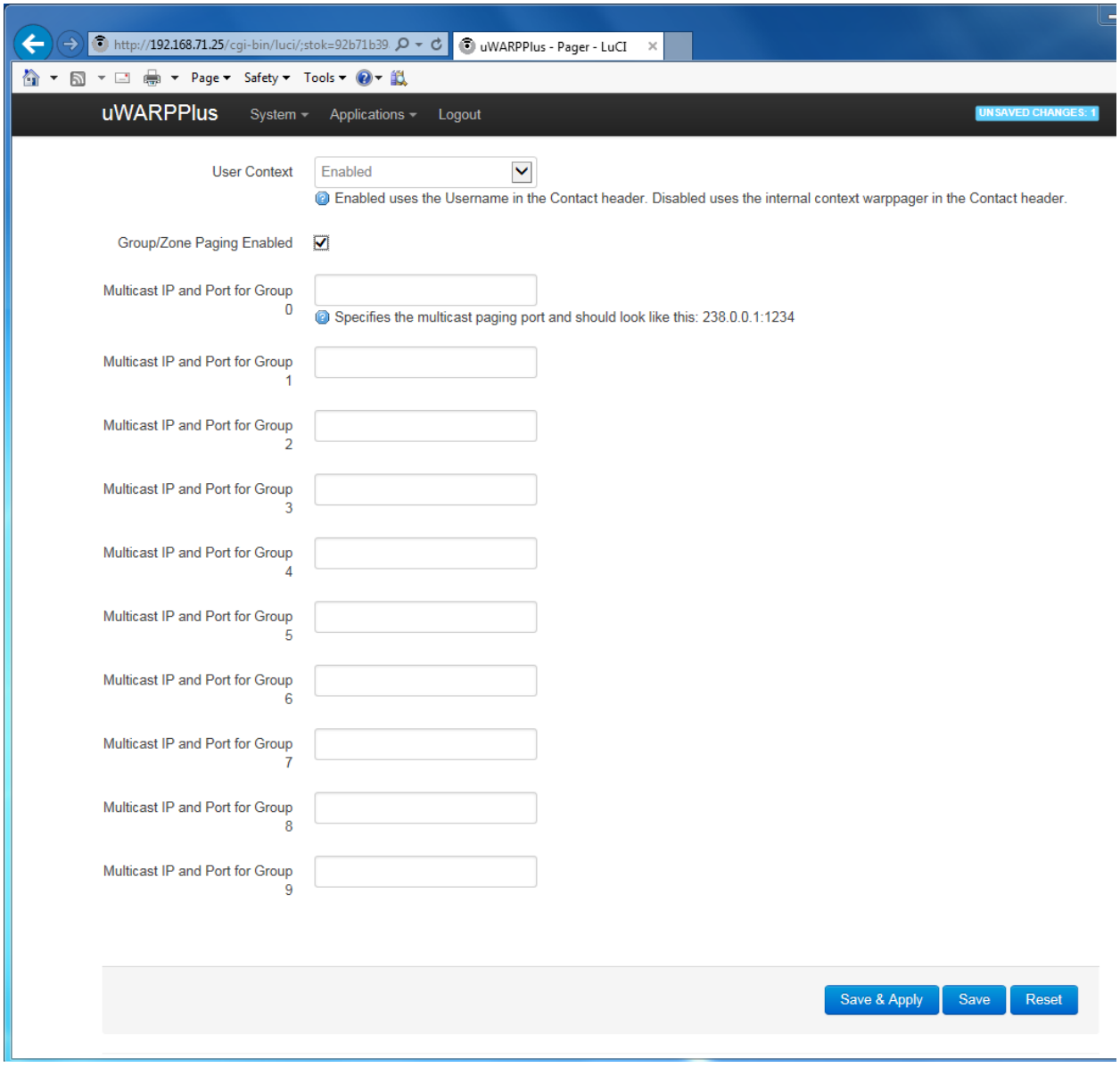
devices need the username to match the To header. This parameter indicates whether to use the username assigned to the SIP UA account in the Contact header. If you use an edge device and are having problems with call routing, enabling this parameter may resolve the problem. If you use an edge device and are having problems with call routing, enabling this parameter may resolve the problem.

Group/Zone Paging Enabled: when this option is enabled, you can have up to ten different paging groups on your µWARPPlus. When dialing the Pager, you will be prompted to press a digit corresponding to the Group that you want to page. If disabled, only one paging group is available and it will be immediately paged once the Pager is dialed.

Multicast IP and Port: This is the IP address and port that the phones be listening to for receiving pages. It is recommended that you disable barging on the phone if you do not want pages to interrupt phone calls in progress.

Multicast IP configuration with Group/Zone Paging Enabled

With the Group/Zone Paging feature enabled, you will have the option to configure up to 10 Multicast IP addresses and ports:



The pager File

To automate the configuration of the Pager, the pager file can be configured and stored on a T/FTP or HTTPS server. The title of the file should be: *<mac-address>.pager*

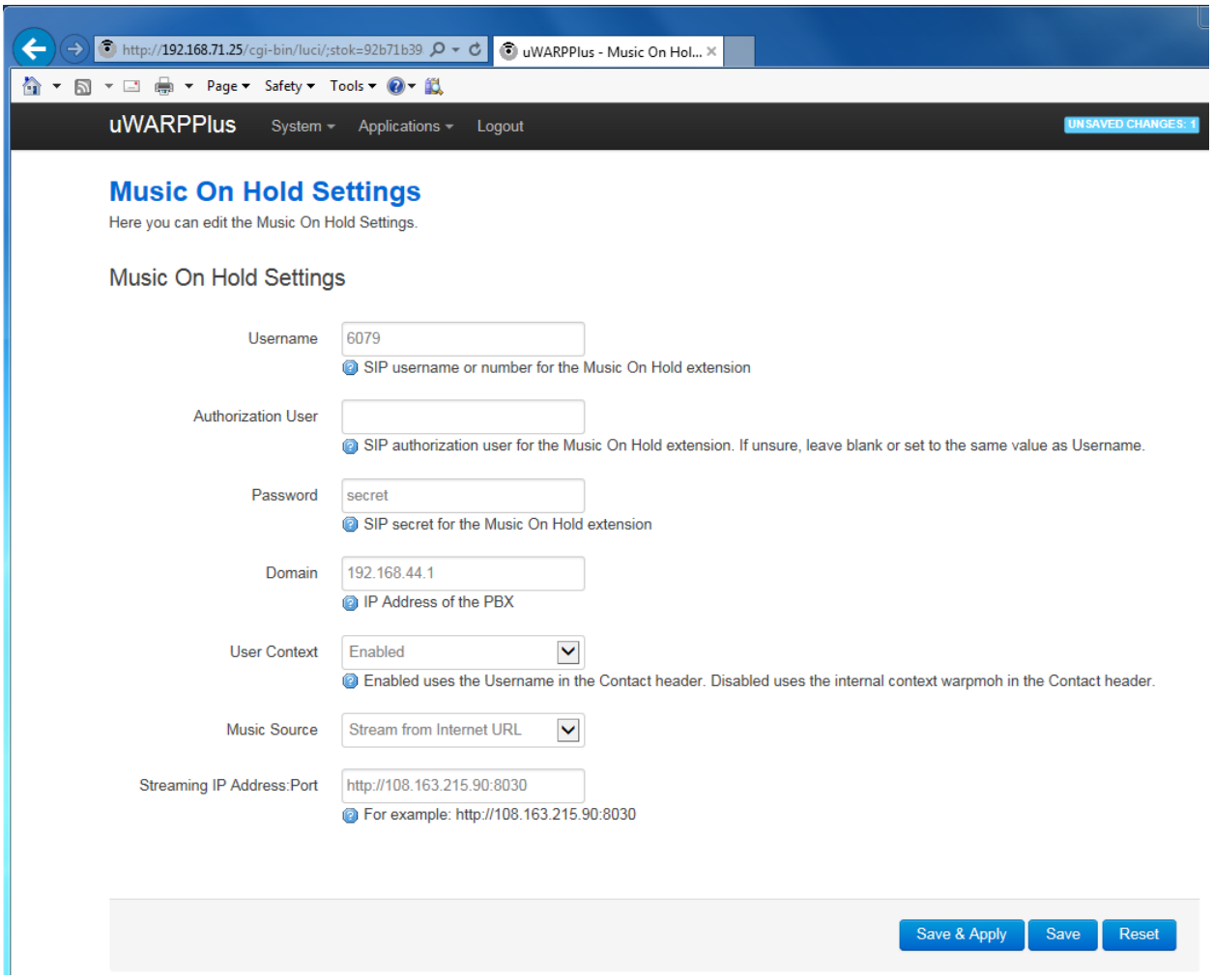
The following pager file example has *Group/Zone Paging* **disabled**:

```
config pager
        option username '6069'
        option password 'secret'
        option domain '192.168.44.1'
        option ivr '0'
        option multicast '238.0.0.1:1234'
        option usercont 'enabled'
```

This example pager file has *Group/Zone Paging* **enabled**:

```
config pager
        option username '6069'
        option password 'secret'
        option domain '192.168.44.1'
        option usercont 'enabled'
        option ivr '1'
        option multicast0 '238.0.0.1:1234'
        option multicast1 '238.0.0.2:1234'
        option multicast2 '238.0.1.1:1234'
        option multicast3 '238.0.1.2:1234'
        option multicast4 ''
        option multicast5 ''
        option multicast6 ''
        option multicast7 ''
        option multicast8 ''
        option multicast9 ''
```

Music On Hold



Username: SIP user agent account name.

Authorization User: used when a Registration Request is challenged. If left blank, the µWARPPlus will use the Username as its Authorization User.

Password: the password used to authenticate the µWARPPlus with the external SIP server.

Domain: the domain or IP address of the external SIP server to register the µWARPPlus against.

User Context: The µWARPPlus uses an internal context, for example **warpmoh**, in its Address of Record in the Contact header used during registration, for example, **warpmoh@***IP_ADDRESS*. Some edge devices need the username to match the To header. This parameter indicates whether to use the username assigned to the SIP UA account in the Contact header. If you use an edge device and are

having problems with call routing, enabling this parameter may resolve the problem. If you use an edge device and are having problems with call routing, enabling this parameter may resolve the problem.
Music Source: The µWARPPlus has three options for the music source:

- Stream from Internet URL
- Files on a USB Key
- Files on the µWARPPlus

The *Stream from Internet* option allows you to hear music streamed from an internet radio station or custom streaming application when connected to Music On Hold.

The *Files on USB Key* option supports files in the WAV or ulaw formats. MP3 files will cause performance issues on the µWARPPlus. The music files should be in a directory called "/Music" off the root directory of your USB key. **Please ensure the USB key is inserted in the µWARPPlus before clicking the "Save & Apply" button.**

The *Files on µWARPPlus* option may be best suited as testing option as there is only one music file on the µWARPPlus and listeners who are on hold will find this option very repetitive.

Streaming IP Address:Port: This is the IP address or URL of an internet radio station or custom IP streaming service. Some internet radio stations make their streaming addresses available in a *.pls* file. This would be the address and port that you enter in order to stream this source to phones that are on hold.

The music File

To automate the configuration of Music On Hold, the music file can be configured and stored on a T/FTP or HTTPS server. The title of the file should be: *<mac-address>.music*

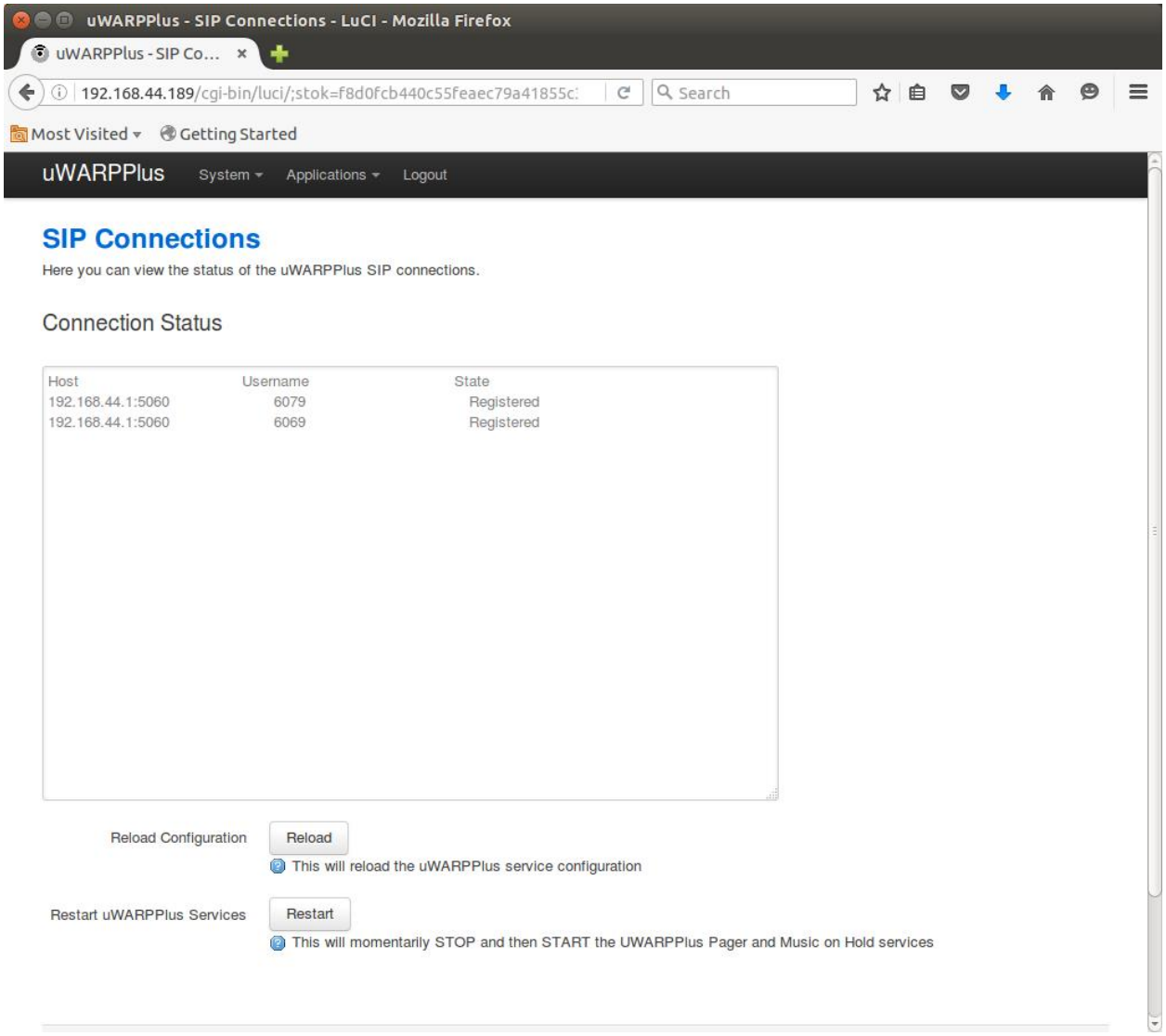
The following music file example has **Internet Streaming** as its Music Source:

```
config music
        option username '6079'
        option password 'secret'
        option domain '192.168.44.1'
        option usercont 'enabled'
        option source 'internet'
        option streamurl 'http://108.163.215.90:8030'
```

This example music file has the **Files on uWARPPlus** music source:

```
config music
        option username '6079'
        option password 'secret'
        option domain '192.168.44.1'
        option usercont 'enabled'
        option source 'native'
```

SIP Connections



The Applications -> SIP Connections page will show the Connection Status of the Pager and Music On Hold services. If the Username, Authorization User, Password and Domain are all correct and the µWARPPlus service is functioning correctly, the state should show "Registered". If all the configuration is confirmed to be correct and the state is not Registered, then you may want to try pressing the Reload button or the Restart button.

The Restart button will momentarily stop all applications and interrupt service. Do not refresh your browser after clicking the Restart button as this will stop and start the service again. Instead, navigate back to the SIP Connections page under the Applications menu.