Linux on Linksys Routers

Jeff Muse
St. Louis Unix Users Group
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Why Hack Your Linksys?

- You might like a command-line interface on your router
- You want/need added functionality, such as asterisk, hotspots, SMB clients, or wireless IDS.
- You want a better GUI
- It adds to your geek cred

A Bit of History

- Linksys originally based their firmware on Linux – the GPL required they release their code.
- Later versions used vxworks, an embedded system from Wind River not covered by the GPL. Using vxworks allowed Linksys to include less flash and RAM.

What Hardware Do I Need?

- A Linksys or similar wireless router
- There are many Linksys versions – be careful which version you get. See the Wikipedia or OpenWRT pages so you get one which has enough power. Avoid those with limited flash and/or RAM, or plan on running “micro” firmware.
- There are versions specifically aimed at third party firmware, including WRT54GL and Netgear KWGR614

What 3rd-Party Firmware is Available?

- Sveasoft – subscription only, possibly in violation of the GPL due to redistributing OpenWRT binaries without releasing code. Originally based on Linksys firmware – one of the first 3rd-party firmware distributors.
- Dd-wrt – based on Sveasoft's modifications of Linksys firmware. Pure GPL.
- OpenWRT – complete “from-scratch” firmware entirely under the GPL
- Tomato – includes proprietary Broadcom code and non-GPL code for the ajax-based user interface

How Do I Decide What Firmware to Use?

- Read the feature lists!
- Verify that your router has enough flash and RAM for the firmware you'd like to run (you'll probably need to check the serial number against the docs)

How Do I Install New Firmware?

- Upload a new image. Depending your current firmware, you could use the web GUI, TFTP, or (if you're already running 3rd-party firmware) the command line. See the docs for your new firmware and hardware.
- Use a wired connection
- The router's IP address will be reset to 192.168.1.1 when the new firmware is loaded
- Don't interrupt the upload – go make some coffee while it's running!

What If I Brick My Router?

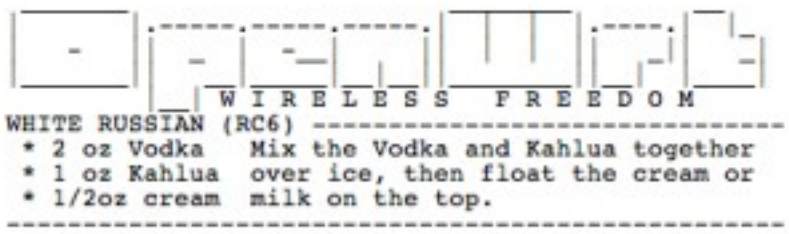
- Like everything else, this is dependent on what hardware you have and exactly how your router is broken.
- In general, holding the reset button, unplugging the router while still holding the reset button, plugging in again, and releasing the reset button is a good place to start. This will reset the firmware to defaults, but will not restore prior firmware versions.

What If I Brick My Router? (continued)

- If you have boot_wait enabled in nvram, you might be able to reflash via TFTP
- The dd-wrt wiki has lots of documentation about recovering from a bad flash.

OpenWrt Admin Console

Router Info



Firmware Version	WHITE RUSSIAN (RC6)
Kernel Version	Linux version 2.4.30 (mbm@reboot) (gcc version 3.4.4 (OpenWrt-1.0)) #1 Mon Nov 6 17:35:21 PST 2006
Current Date/Time	Sat Jan 1 00:03:34 UTC 2000
MAC Address	00:14:BF:77:88:66

CATEGORIES: Info Status »System« Network

OpenWrt Admin Console

Host Name: Soon-Freifunk
Uptime: 9 min
Load: 0.03, 0.01, 0.00
Version: WHITE RUSSIAN (RC6)

»Settings« Password Change Installed Software Firmware Upgrade

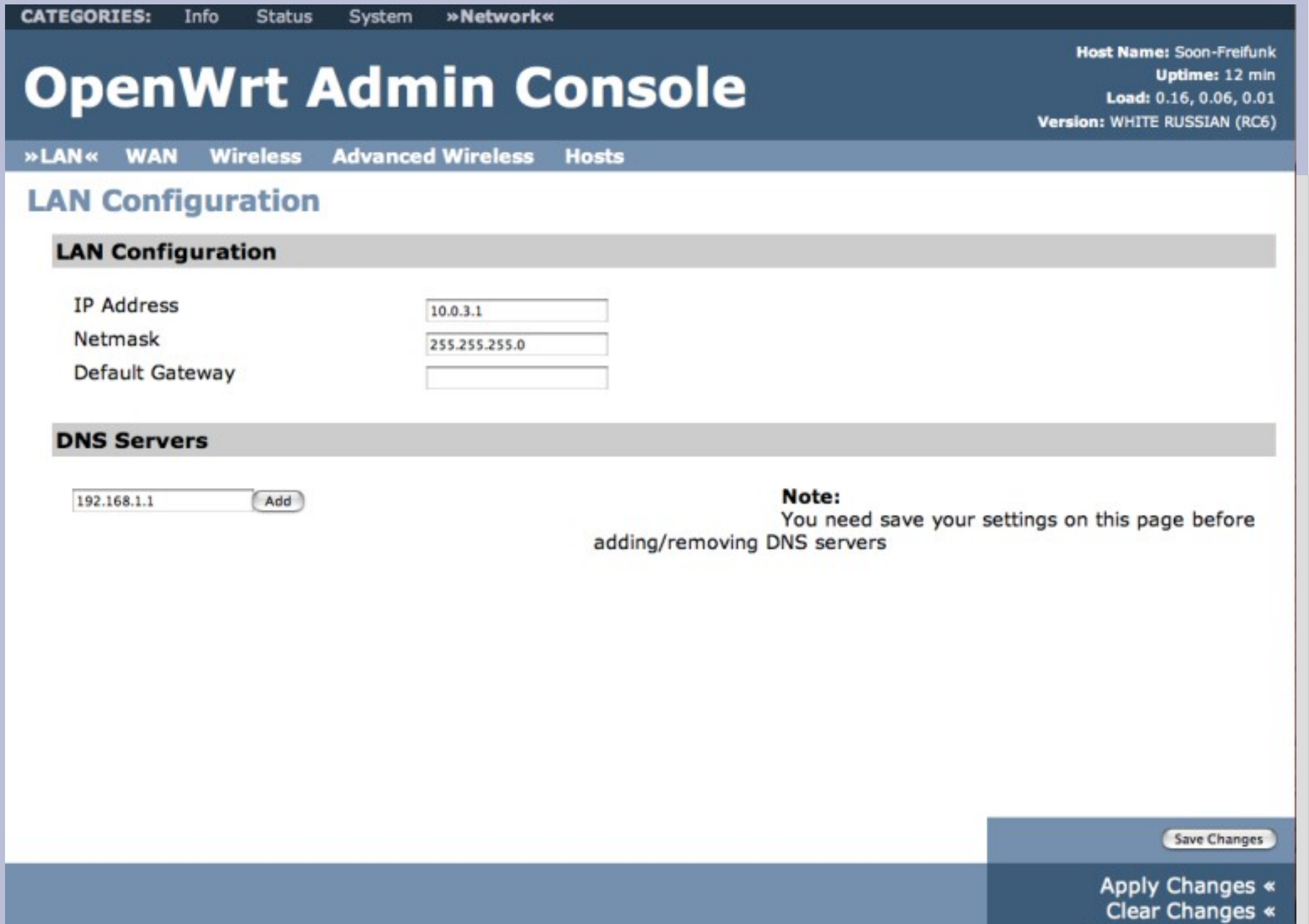
System Settings

System Settings

Host Name	Soon-Freifunk
boot_wait	Enabled
Language	English

Save Changes

Apply Changes «
Clear Changes «


CATEGORIES: Info Status System »Network«
OpenWrt Admin Console
Host Name: Soon-Freifunk
Uptime: 12 min
Load: 0.16, 0.06, 0.01
Version: WHITE RUSSIAN (RC6)
»LAN« WAN Wireless Advanced Wireless Hosts
LAN Configuration
LAN Configuration
IP Address
10.0.3.1
Netmask
255.255.255.0
Default Gateway
DNS Servers
192.168.1.1
Add
Note:
You need save your settings on this page before adding/removing DNS servers
Save Changes
Apply Changes «
Clear Changes «

Installing Webif2

```
BusyBox v1.2.1 (2006.12.10-00:34+0000) Built-in shell (ash)
Enter 'help' for a list of built-in commands.

  _______                     ________        __
 |       |.-----.-----.-----.|  |  |  |.----.|  |_
 |   -   ||  _  |  -__|     ||  |  |  ||   _||   _|
 |_______||   __|_____|__|__||________||__|  |____|
          |__| W I R E L E S S   F R E E D O M
 WHITE RUSSIAN (0.9) ---------------------------------
  * 2 oz Vodka   Mix the Vodka and Kahlua together
  * 1 oz Kahlua  over ice, then float the cream or
  * 1/2oz cream  milk on the top.
 ---------------------------------------------------
root@Quantumbase:~$ cd /
root@Quantumbase:/$ ipkg install  http://ftp.berlios.de/pub/xwrt/webif_latest.ipk
Downloading http://ftp.berlios.de/pub/xwrt/webif_latest.ipk
Installing webif (0.3-5) to root...
Configuring webif
Device: Linksys WRT54G/GS/GL
Committing new device id ...
Committing new firmware id ...
SUCCESS! Webif^2 installation appears OK. Welcome to X-Wrt!
You may need to do a hard REFRESH to clear old CSS style from your browser.
Successfully terminated.
root@Quantumbase:/$
```

System Information

Firmware	OpenWrt White Russian - With X-Wrt Extensions 0.9
Kernel	Linux 2.4.30 #1 Wed Aug 8 08:21:33 CDT 2007
MAC	00:17:31:DC:07:48
Device	ASUS WL-500g Premium
Board	Broadcom BCM947XX
Username	admin

Web mgt. console	Webif²
Version	r3630

Check For Webif² Update

☐ Include daily builds when checking for update to webif²

You can find more information about Webif², contribute to the project or help other users by following these links:
X-Wrt | Forum | Wiki | Trac

Kernel Modules

Loaded Modules

Module	Size	Count	Used by
arc4	528	0	(unused)
cls_fw	2888	4	
diag	19808	0	(unused)
ehci-hcd	20556	0	(unused)
ext3	72788	2	
fat	36840	0	[vfat]
ip_conntrack_ftp	4320	1	
ip_conntrack_irc	3128	1	
ip_conntrack_tftp	1728	1	
ip_nat_ftp	2960	0	(unused)
ip_nat_irc	2336	0	(unused)
ip_nat_tftp	1824	0	(unused)
ip_queue	6224	0	(unused)
ipt_CONNMARK	816	2	
ipt_IMQ	672	1	
ipt_LOG	3888	0	
ipt_MIRROR	1296	0	(unused)
ipt_REDIRECT	640	0	(unused)
ipt_TARPIT	2240	0	
ipt_ipp2p	7320	1	
ipt_layer7	10512	2	
ipt_length	336	5	
ipt_recent	8208	0	
jbd	54872	2	[ext3]
loop	11112	0	(unused)
nls_cp1250	3680	0	(unused)
nls_iso8859-2	3184	0	(unused)
nls_utf8	688	0	(unused)
ppp_async	8108	0	(unused)
ppp_generic	22868	0	[ppp_async]
printer	9788	0	(unused)
sch_hfsc	15960	1	
sch_red	3216	2	
sch_sfq	3912	2	
scsi_mod	70616	2	[usb-storage sd_mod]

Device Status

RAM Usage

Total: 30516 KiB

98%

Used: 29796 KiB (98%)

Swap: 65528 KiB

1%

Used: 48 KiB (1%)

RAM Usage:
This is the current RAM usage. The amount free represents how much applications have available.

Swap:
When a program requires more memory than is physically available in the computer, currently unused information can be written to a temporary buffer on the hard disk, called swap, thereby freeing memory.

Tracked Connections

Maximum: 5953

1%

Used: 26 (1%)

Tracked Connections:
This is the number of connections in your router's conntrack table. View Conntrack Table.

Mount Usage

/tmp *none*	0%	*52KiB of 15256KiB*
/oldroot/jffs */dev/mtdblock/4*	78%	*4268KiB of 5440KiB*
/oldroot */jffs*	100%	*1920KiB of 1920KiB*
/ */dev/scsi/host0/bus0/target0/lun0/part2*	5%	*51228KiB of 1044156KiB*
/mnt/disc0_1 */dev/scsi/host0/bus0/target0/lun0/part1*	60%	*4854520KiB of 8507800KiB*
swap partition -1 */dev/scsi/host0/bus0/target0/lun0/part4*	1%	*48KiB of 65528KiB*

Mount Usage:
This is the amount of space total and used on the filesystems mounted to your router.

Running Processes

Stop Refreshing Interval: 20 (in seconds)

For more information about fields see the legend...

Processes Status

PID	Uid	VmSize	Stat	Command
1	root	364	S	/bin/busybox init
2	root		SW	[keventd]
3	root		RWN	[ksoftirqd_CPU0]
4	root		SW	[kswapd]
5	root		SW	[bdflush]
6	root		SW	[kupdated]
9	root		SW	[mtdblockd]
72	root		SWN	[jffs2_gcd_mtd4]
91	root		SW	[khubd]
191	root		SW	[usb-storage-0]
192	root		SW	[scsi_eh_0]
216	root		SW	[kjournald]
220	root		SW	[kjournald]
289	root	372	S	logger -s -p 6 -t
291	root	364	S	/bin/busybox init
293	root	340	S	klogd
314	root	400	S	/sbin/syslogd -C16 -m 30 -L -R 192.168.96.2:514
920	root	324	S	wifi up
1088	root	476	S	/usr/sbin/nas -P /var/run/nas.lan.pid -H 34954 -i eth2 -A -m 132 -k heslo -s XWrt -w 4 -g 3600
1105	root	400	S	/usr/sbin/dropbear
1130	root	396	S	httpd -p 80 -h /www -r XWrt
1377	root	380	S	/usr/sbin/crond
1492	root	416	S	udhcpc -i vlan1 -b -p /var/run/vlan1.pid -H XWrt -R
1508	nobody	432	S	dnsmasq -l /tmp/dhcp.leases -K -F lan,192.168.96.3,192.168.96.253,255.255.255.0,1441m -F wifi,192.168.97.2,192.168.97.253,255.255.255.0,720m -X 86400 -Z
1521	root	276	S	ntpclient -i 86400 -h cz.pool.ntp.org
1617	root	372	S	/usr/bin/xrelayd -A /etc/ssl/webiftunnel.cert -p /etc/ssl/webiftunnel.key -d 443 -r 127.0.0.1 80 -D 7 -P /var/run/webifssl.pid
1632	root	308	S	vsftpd
22108	root	324	S	/usr/sbin/ez-ipupdate -D -d -F /var/run/ez-ipupdate.pid -c /etc/ez-ipupdate/ez-ipupdate.conf -b /etc/ez-ipupdate/ez-ipupdate.cache -i vlan1 -e /etc/ez-ipupdate/ez-ipupdate-ok.sh
31280	root	584	S	/usr/sbin/dropbear

Kernel Modules

Loaded Modules

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arc4	528	0	(unused)
cls_fw	2888	4	
diag	19808	0	(unused)
ehci-hcd	20556	0	(unused)
ext3	72788	2	
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ip_conntrack_ftp	4320	1	
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ip_conntrack_tftp	1728	1	
ip_nat_ftp	2960	0	(unused)
ip_nat_irc	2336	0	(unused)
ip_nat_tftp	1824	0	(unused)
ip_queue	6224	0	(unused)
ipt_CONNMARK	816	2	
ipt_IMQ	672	1	
ipt_LOG	3888	0	
ipt_MIRROR	1296	0	(unused)
ipt_REDIRECT	640	0	(unused)
ipt_TARPIT	2240	0	
ipt_ipp2p	7320	1	
ipt_layer7	10512	2	
ipt_length	336	5	
ipt_recent	8208	0	
jbd	54872	2	[ext3]
loop	11112	0	(unused)
nls_cp1250	3680	0	(unused)
nls_iso8859-2	3184	0	(unused)
nls_utf8	688	0	(unused)
ppp_async	8108	0	(unused)
ppp_generic	22868	0	[ppp_async]
printer	9788	0	(unused)
sch_hfsc	15960	1	
sch_red	3216	2	
sch_sfq	3912	2	
scsi_mod	70616	2	[usb-storage sd_mod]

Backup and Restore

Backup Configuration

Backup Name: XWrt

Create Backup

Backup Name:
You can add a descriptive name to your configuration to better distinguish between several backups. The time of the backup is automatically included.

Restore Configuration

Backup File: Procházet...

Restore Configuration

Backup File:
Browse for the requested backup archive (config[-datetime].tgz) to restore the configuration from.

Backup Flash Partitions

Select Partition:
- (•) cfe (256 KiB)
- ( ) linux [kernel, squashfs, jffs2] (7872 KiB)
- ( ) rootfs [squashfs] (1927 KiB)
- ( ) nvram (64 KiB)
- ( ) OpenWrt [jffs2] (5440 KiB)

Free Memory: 21180 KiB

Backup Partition

Select Partition:
You can selectively backup the particular flash memory partition. You need *cfe*, *linux*, and *nvram* for the full backup, although you can select any other partition.

Free Memory:
It requires a big amount of the free memory to back up the linux, rootfs and jffs partitions. You will probably need to stop unnecessary services before the backup if there is not enough free memory.

Firmware Upgrade

Turn 'boot wait' ON: ☐
Erase JFFS2 partition: ☐
Firmware image: [ ] Procházet...

Upgrade

Turn boot wait on:
This option will cause boot_wait to be set prior to flashing the firmware image. When boot_wait is set most units will wait a few seconds at boot-up to see if anyone sends them a new firmware image via TFTP. This is useful in case the firmware upgrade flash corrupts your router's firmware.

Erase JFFS2:
This option is only useful when flashing a third-party firmware. Always select it when doing so. When upgrading to a new OpenWrt image, the JFFS2 partition is always erased.

Firmware Image:
You can choose any compatible BIN or TRX image.

NVRAM

Add System Setting

New Variable Name

Add new variable

Add System Setting:
Enter the name of the new variable into the input box. The value cannot contain spaces, the single quote ' (apostrophe) and quotes " symbols.

General System Settings:
General System Settings are stored in the NVRAM. NVRAM stands for Non-Volatile RAM, in this case the last 64K of the flash chip used to store various configuration information in a name=value format.

General System Settings

Warning: Changing these settings may result in permanent damage to your device.
Changes will not take effect until you choose: "Apply Changes".

Change Variable	Current Value	Action	Nr.
boardflags	0x0110	Delete	1
boardnum	45	Delete	2
boardrev	0x10	Delete	3
boardtype	0x042f	Delete	4
boot_wait	on	Delete	5
bridge_disable	0	Delete	6
cfe_wait_led_gpio	1	Delete	7
cfe_wait_on_restore	0	Delete	8
clkfreq	264	Delete	9
cron_enable	1	Delete	10
custom_shutdown_command	stoprcasus	Delete	11
ddns_enable	1	Delete	12
ddns_hostname	test.dyndns.org	Delete	13
ddns_max_interval	2196000	Delete	14
ddns_passwd	test	Delete	15
ddns_service_type	dyndns	Delete	16
ddns_username	test	Delete	17
ddns_wildcard	0	Delete	18

Packages

Add Repository

Repo. Name
Repo. URL

Add Repository

Current Repositories:

remove	0.9-backports	http://downloads.openwrt.org/backports/0.9
remove	whiterussian	http://downloads.openwrt.org/whiterussian/packages
remove	non-free	http://downloads.openwrt.org/whiterussian/packages/non-free
remove	local	http://192.168.96.2/xwrt/packages
remove	X-Wrt	http://download2.berlios.de/pub/xwrt/packages

Add Repository:
A repository is a server that contains a list of packages that can be installed on your OpenWrt device. Adding a new one allows you to list packages here that are not shown by default.

Backports Tip:
For a much larger assortment of packages, see if there is a backports repository available for your firmware.

Install Package From URL

URL of Package

Install Package From URL

Install Package:
Normally one installs a package by clicking on the install link in the list of packages below. However, you can install a package not listed in the known repositories here.

Packages Available

Update package lists

Installed Packages

Action	Package	Version	Description
Uninstall	base-files	10	OpenWrt filesystem structure and scripts
Uninstall	base-files-brcm	2	Board/architecture specific files
Uninstall	bc	1.06-1	Arbitrary precision calculator language
Uninstall	bridge	1.0.6-1	Ethernet bridging tools
Uninstall	busybox	1.4.2-1	Core utilities for embedded Linux systems
Uninstall	ctorrent	dnh3.2-2	

Interfaces

WAN

MAC Address	00:17:31:00:17:31
IP Address	192.168.0.239
DNS Server 1	192.168.0.1
DNS Server 2	192.168.0.3
Received	20.48k pkts (2.4 MiB)
Transmitted	4.28k pkts (808.1 KiB)
Duration	17:46:47

WAN:
WAN stands for Wide Area Network and is usually the upstream connection to the internet.

Duration:
The field displays the time of the connection in case the time was known shortly after establishing the link (+/- several seconds).

LAN

MAC Address	00:17:31:00:17:31
IP Address	192.168.96.1
Received	32.74k pkts (1.5 MiB)
Transmitted	57.17k pkts (7.4 MiB)

LAN:
LAN stands for Local Area Network.

WLAN

Access Point	00:17:31:00:17:31
Mode	Master
ESSID	XWrt
Frequency	2.472 GHz
Transmit Power	2 dBm
Noise Level	dBm
Encryption Key	*7FF1-5BF8-58C2-67B2-DB47-8374-49AC-DBDE [3]*

WLAN:
WLAN stands for Wireless Local Area Network.

Raw Information

Show raw statistics

Configured Hosts

Host Names

IP Address	Host Name	
127.0.0.1	localhost	Remove
192.168.96.1	XWrt	Remove
192.168.96.2	lubek	Remove
	lubek.we.net	Remove
192.168.96.16	test	Remove
192.168.96.17	test	Remove
	test2	Remove
	test4	Remove
		Add

Host Names:
The file /etc/hosts is used to look up the IP address of a device connected to a computer network. The hosts file describes a many-to-one mapping of device names to IP addresses. When accessing a device by name, the networking system attempts to locate the name within the hosts file before accessing the Internet domain name system.

Static IP addresses (for DHCP)

MAC Address	IP Address	
00:E0:7D:00:E0:7D	192.168.96.2	Remove
FF:E0:7D:8C:E0:7D	192.168.96.16	Remove
FF:E0:7D:8C:7D:8C	192.168.96.17	Remove
F1:E0:7D:8C:E0:7D	192.168.96.255	Remove
		Add

Static IP addresses:
The file /etc/ethers contains database information regarding known 48-bit ethernet addresses of hosts on an Internetwork. The DHCP server uses the matching IP address instead of allocating a new one from the pool for any MAC address listed in this file.

Active DHCP Leases

MAC Address	IP Address	Name	Expires in
00:18:84:29:1e:29	192.168.97.86	fonka	11h 59min 1sec

WAN-LAN Configuration

WAN Configuration

Connection Type: DHCP

more...

IP Settings

WAN IP Address:
Netmask:

WAN IP Settings:
IP Settings are optional for DHCP and PPTP. They are used as defaults in case the DHCP server is unavailable.

OpenDNS Service

Utilize OpenDNS: ○ Yes ◉ No

OpenDNS:
Enabling use of OpenDNS means that instead of your ISP's DNS servers your router will utilize the OpenDNS service for name resolution.

more...

LAN Configuration

LAN IP Address: 192.168.96.1
Netmask: 255.255.255.0
Default Gateway:

IP Address:
This is the address you want this device to have on your LAN.

Netmask:
This bitmask indicates what addresses are included in your LAN.

LAN DNS Servers

192.168.96.1 Add

Note:
You need save your settings on this page before adding/removing DNS servers

Save Changes

Wireless Configuration

Wireless Configuration

Wireless Interface	Enabled
ESSID Broadcast	Show
ESSID	XWrt
Channel	13
Mode	Access Point
Wireless Mode	802.11g
G-mode Protection	Disabled

WLAN Mode:
This sets the operation mode of your wireless network. Selecting 'Client (Bridge)' will not change your network interface settings. It will only set some parameters in the wireless driver that allow for limited bridging of the interface.

G-mode Protection:
Set this in a mixed network when some stations can not hear.

more...

Encryption Settings

Encryption Type	WPA (PSK)
WPA Mode	☑ WPA1 ☑ WPA2
WPA Algorithms	☑ RC4 (TKIP) ☑ AES
WPA PSK	**********
NAS Package	Installed.

Encryption Type:
WPA (RADIUS) is only supported in Access Point mode. WPA (PSK) does not work in Ad-Hoc mode. WEP keys can not end with a zero.

Wireless Bridge Configuration

Enable/Disable Unbridged Wireless

Split WLAN From Switch Bridge: Enable

Enable/Disable:
When this is enabled it will remove your wireless interface from the bridge with your switch and put it in its own bridge on a separate subnet.

Wireless LAN Configuration

IP Address	192.168.97.1
Netmask	255.255.255.0
Default Gateway	
Wifi to LAN Communication	(•) Allow ( ) Deny

IP Address:
This is the address you want this device to have on your Wireless LAN.

Netmask:
This bitmask indicates what addresses are included in your Wireless LAN. For those who don't know what a bitmask is, just think of "255" as 'match this part' and "0" as 'any number here'.

Wifi to LAN Communication:
Allows or denies communication from devices connected to wireless to send traffic to devices on the LAN.

DNS Servers

192.168.1.1 Add

Note:
You need save your settings on this page before adding/removing DNS servers

Diagnostics

Network Utilities

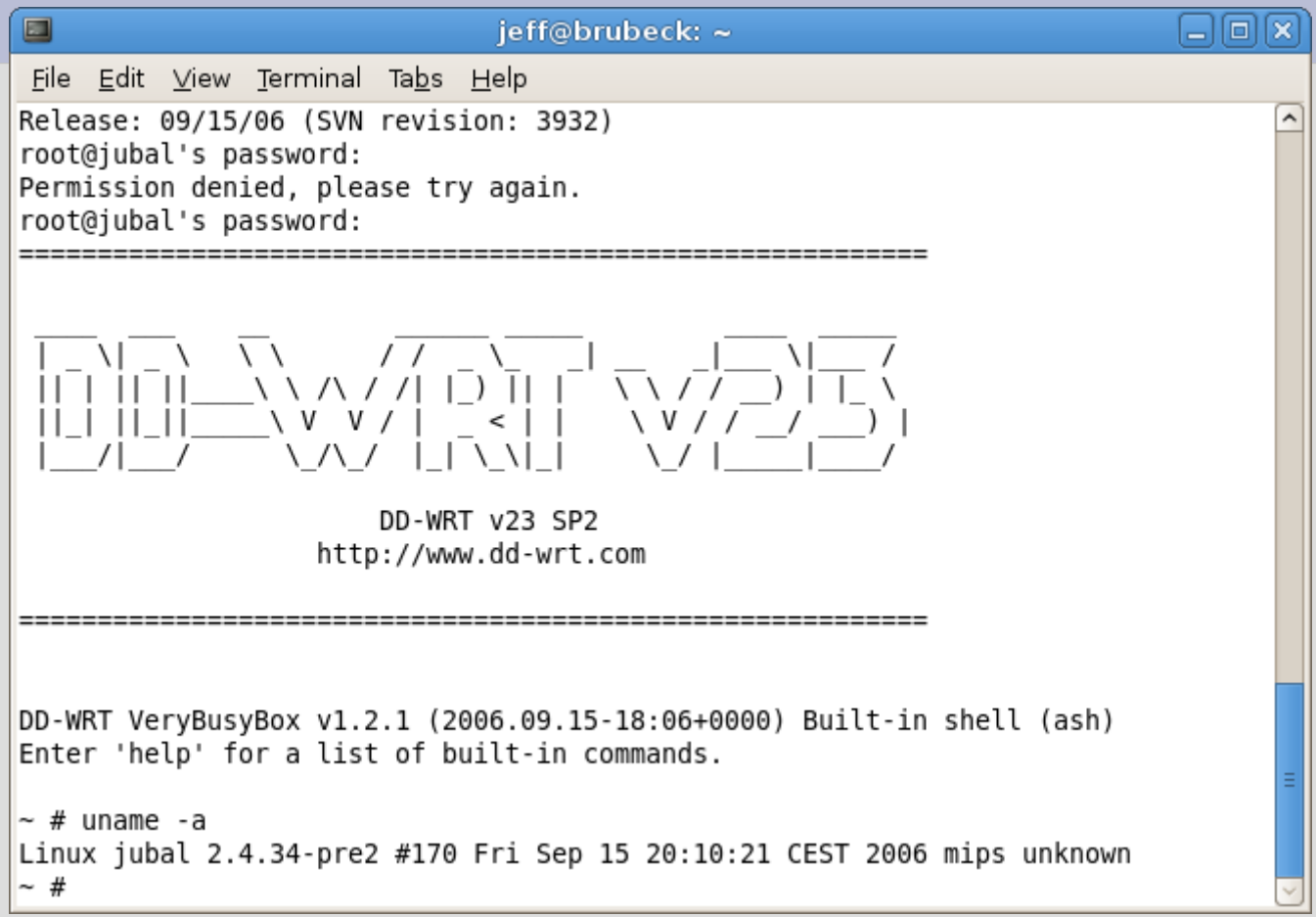
google.com Ping

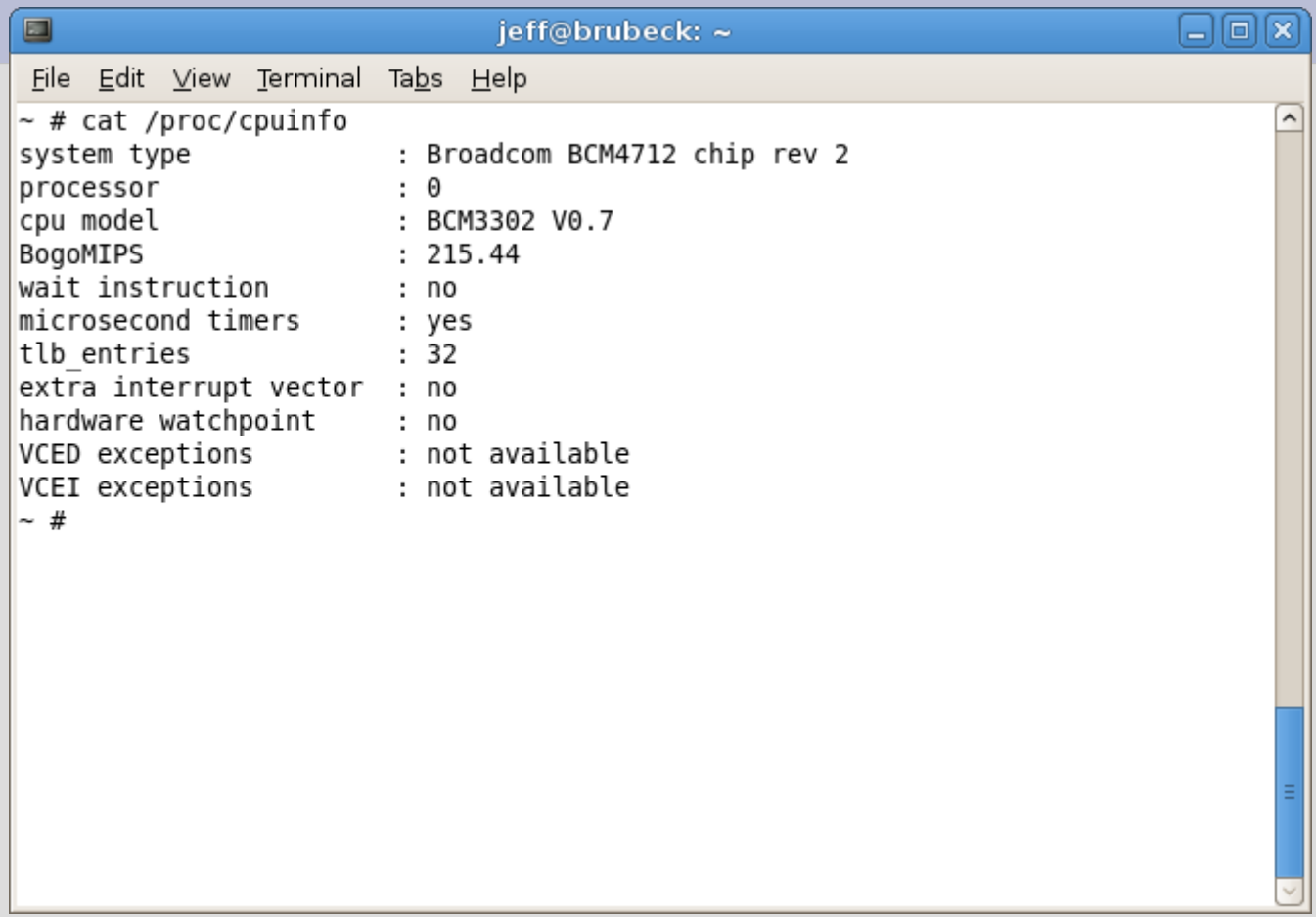
google.com TraceRoute

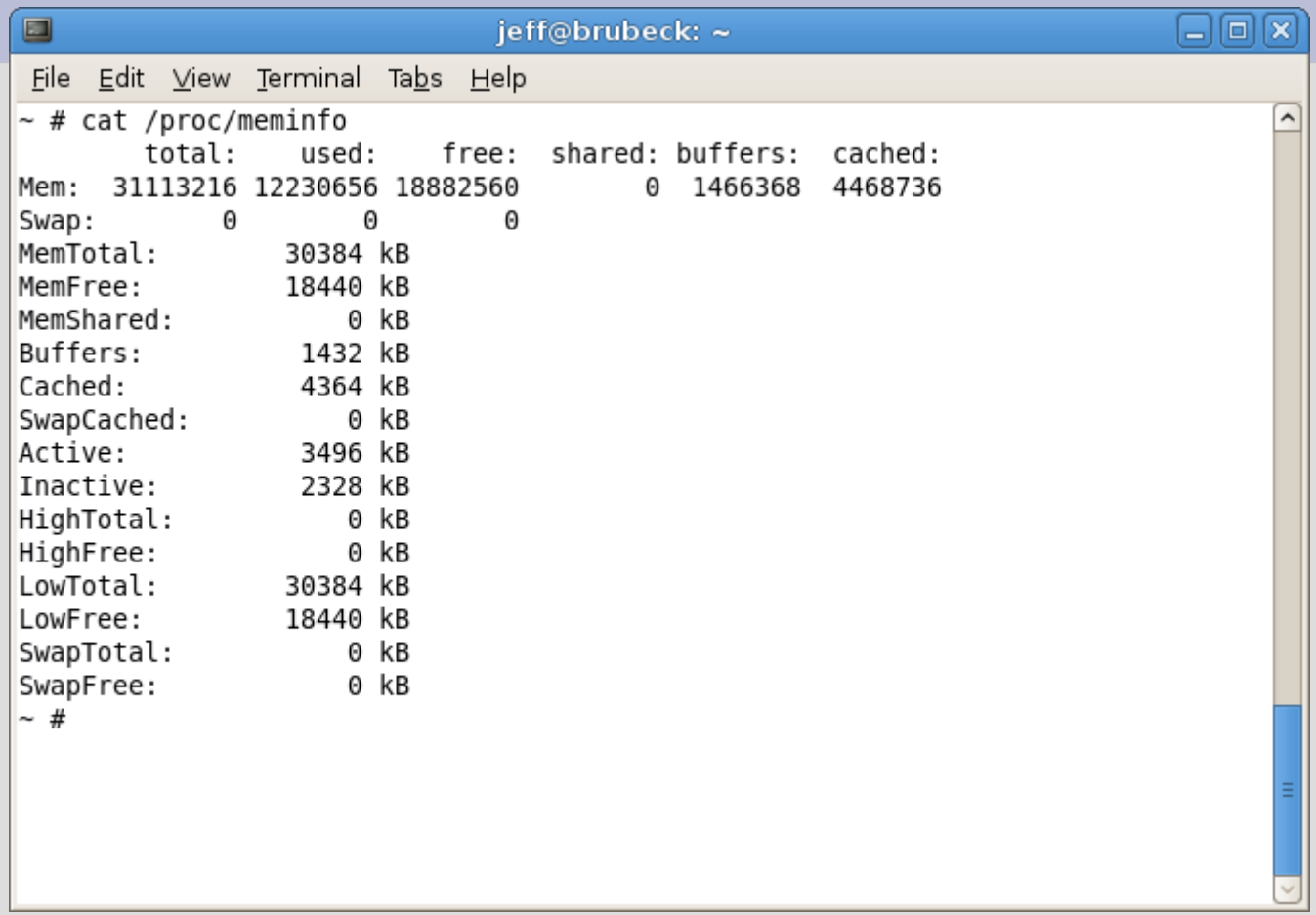
Please wait for output of "ping -c 4 google.com" ...

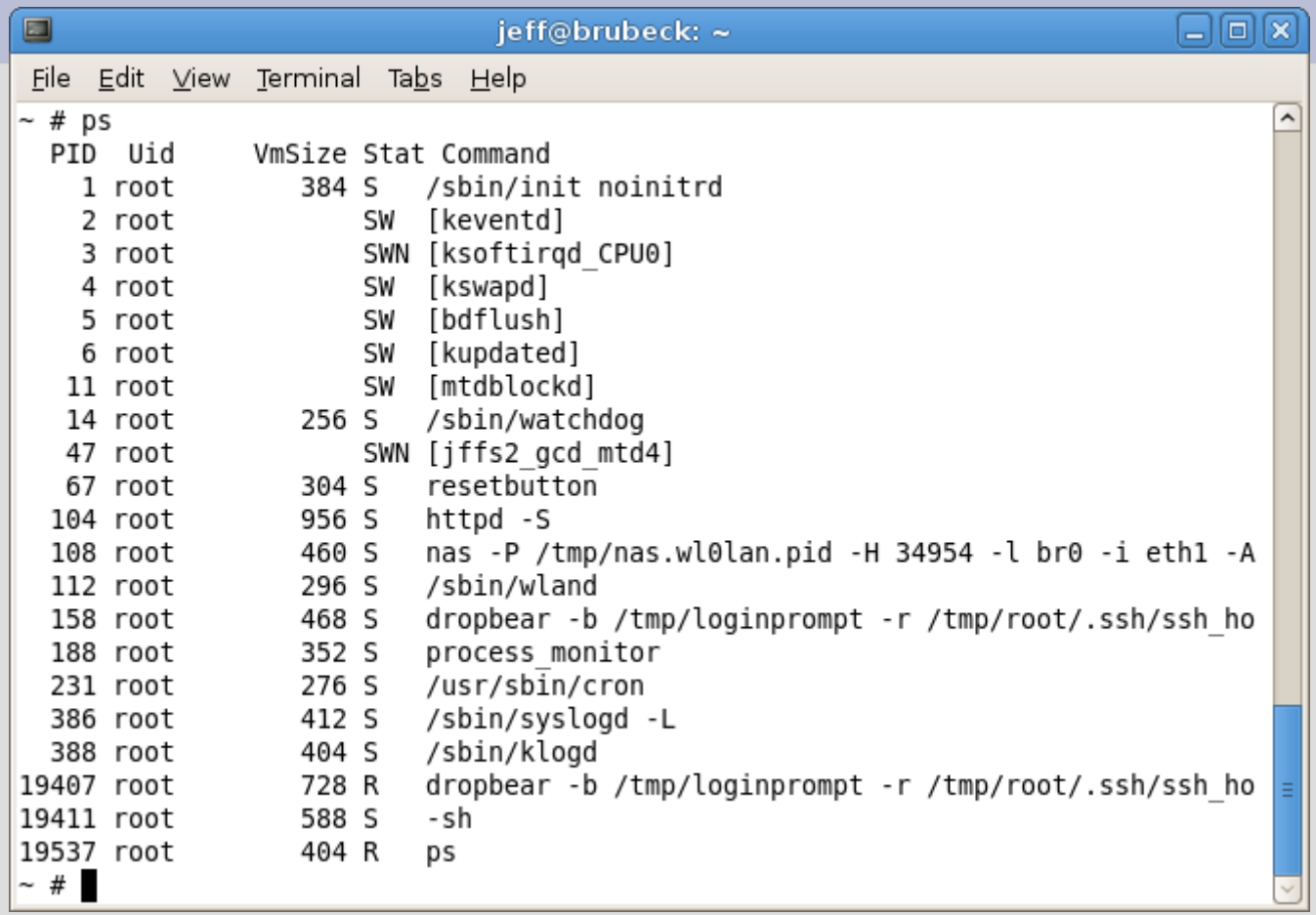
```
PING google.com (72.14.207.99): 56 data bytes
64 bytes from 72.14.207.99: icmp_seq=0 ttl=241 time=128.1 ms
64 bytes from 72.14.207.99: icmp_seq=1 ttl=241 time=114.9 ms
64 bytes from 72.14.207.99: icmp_seq=2 ttl=241 time=153.9 ms
64 bytes from 72.14.207.99: icmp_seq=3 ttl=241 time=122.8 ms

--- google.com ping statistics ---
4 packets transmitted, 4 packets received, 0% packet loss
round-trip min/avg/max = 114.9/129.9/153.9 ms
```

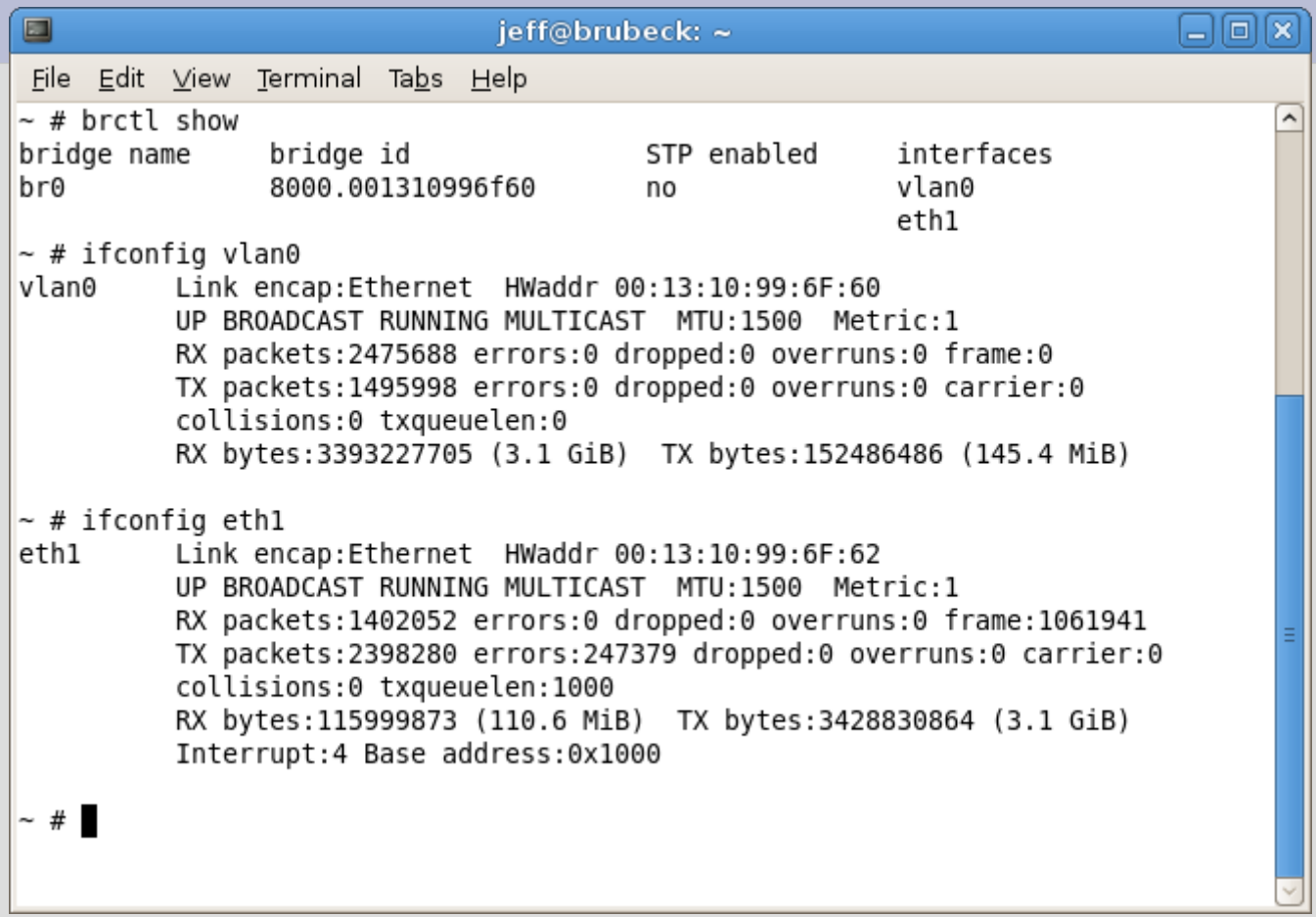
And on to dd-wrt!

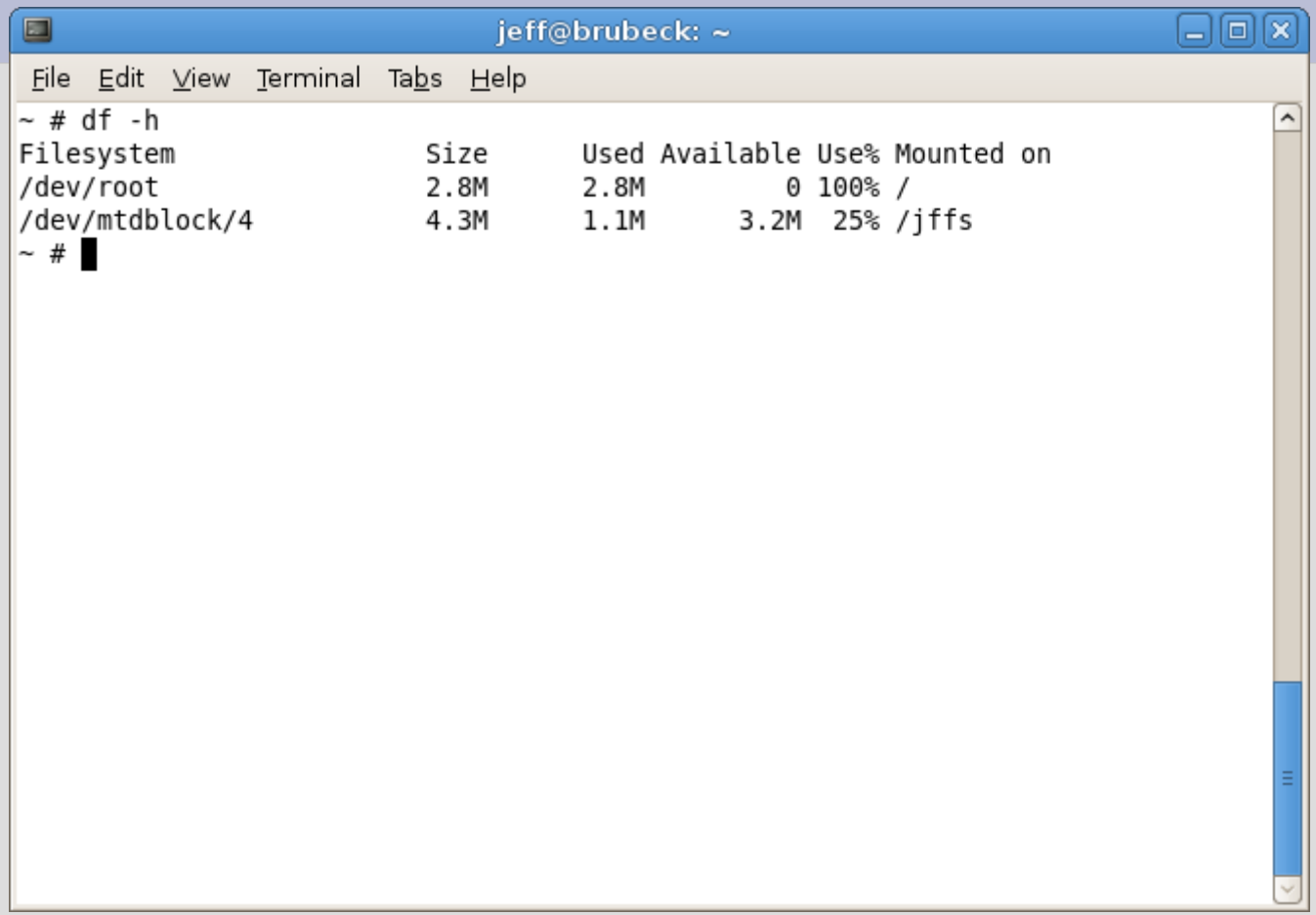

jeff@brubeck: ~
File Edit View Terminal Tabs Help
Release: 09/15/06 (SVN revision: 3932)
root@jubal's password:
Permission denied, please try again.
root@jubal's password:
DD-WRT v23 SP2
http://www.dd-wrt.com
DD-WRT VeryBusyBox v1.2.1 (2006.09.15-18:06+0000) Built-in shell (ash)
Enter 'help' for a list of built-in commands.
~ # uname -a
Linux jubal 2.4.34-pre2 #170 Fri Sep 15 20:10:21 CEST 2006 mips unknown
~ #


jeff@brubeck: ~
File Edit View Terminal Tabs Help
~ # cat /proc/cpuinfo
system type : Broadcom BCM4712 chip rev 2
processor : 0
cpu model : BCM3302 V0.7
BogoMIPS : 215.44
wait instruction : no
microsecond timers : yes
tlb_entries : 32
extra interrupt vector : no
hardware watchpoint : no
VCED exceptions : not available
VCEI exceptions : not available
~ #


jeff@brubeck: ~
File Edit View Terminal Tabs Help
~ # cat /proc/meminfo
total: used: free: shared: buffers: cached:
Mem: 31113216 12230656 18882560 0 1466368 4468736
Swap: 0 0 0
MemTotal: 30384 kB
MemFree: 18440 kB
MemShared: 0 kB
Buffers: 1432 kB
Cached: 4364 kB
SwapCached: 0 kB
Active: 3496 kB
Inactive: 2328 kB
HighTotal: 0 kB
HighFree: 0 kB
LowTotal: 30384 kB
LowFree: 18440 kB
SwapTotal: 0 kB
SwapFree: 0 kB
~ #


jeff@brubeck: ~
File Edit View Terminal Tabs Help
~ # ps
PID Uid VmSize Stat Command
1 root 384 S /sbin/init noinitrd
2 root SW [keventd]
3 root SWN [ksoftirqd_CPU0]
4 root SW [kswapd]
5 root SW [bdflush]
6 root SW [kupdated]
11 root SW [mtdblockd]
14 root 256 S /sbin/watchdog
47 root SWN [jffs2_gcd_mtd4]
67 root 304 S resetbutton
104 root 956 S httpd -S
108 root 460 S nas -P /tmp/nas.wl0lan.pid -H 34954 -l br0 -i eth1 -A
112 root 296 S /sbin/wland
158 root 468 S dropbear -b /tmp/loginprompt -r /tmp/root/.ssh/ssh_ho
188 root 352 S process_monitor
231 root 276 S /usr/sbin/cron
386 root 412 S /sbin/syslogd -L
388 root 404 S /sbin/klogd
19407 root 728 R dropbear -b /tmp/loginprompt -r /tmp/root/.ssh/ssh_ho
19411 root 588 S -sh
19537 root 404 R ps
~ #


jeff@brubeck: ~
File Edit View Terminal Tabs Help
~ # brctl show
bridge name bridge id STP enabled interfaces
br0 8000.001310996f60 no vlan0
eth1
~ # ifconfig vlan0
vlan0 Link encap:Ethernet HWaddr 00:13:10:99:6F:60
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:2475688 errors:0 dropped:0 overruns:0 frame:0
TX packets:1495998 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:3393227705 (3.1 GiB) TX bytes:152486486 (145.4 MiB)
~ # ifconfig eth1
eth1 Link encap:Ethernet HWaddr 00:13:10:99:6F:62
UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
RX packets:1402052 errors:0 dropped:0 overruns:0 frame:1061941
TX packets:2398280 errors:247379 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:115999873 (110.6 MiB) TX bytes:3428830864 (3.1 GiB)
Interrupt:4 Base address:0x1000
~ #


jeff@brubeck: ~
File Edit View Terminal Tabs Help
~ # df -h
Filesystem Size Used Available Use% Mounted on
/dev/root 2.8M 2.8M 0 100% /
/dev/mtdblock/4 4.3M 1.1M 3.2M 25% /jffs
~ #

DD-WRT CONTROL PANEL

Time: 03:10:41 up 9 days, 3:10, load average: 0.21, 0.09, 0.01
WAN IP: 192.168.3.2

Setup | Wireless | Security | Access Restrictions | Applications & Gaming | Administration | Status

System Information

Router

Router Name	WRT54GS
Router Model	Linksys WRT54G/GL/GS
LAN MAC	00:13:10:99:6F:60
WAN MAC	00:13:10:99:6F:61
Wireless MAC	00:13:10:99:6F:62
WAN IP	192.168.3.2
LAN IP	192.168.3.2

Services

DHCP Server	Disabled
WRT-radauth	Disabled
WRT-rflow	Disabled
MAC-upd	Disabled
Samba Mount	Disabled
Sputnik Agent	Disabled

Wireless

Radio	Radio is On
Mode	AP
Network	G-Only
SSID	jamplace
Channel	1
Xmit	28 mW
Rate	36 Mbps

Memory

Total Available	29.7 MB / 32.0 MB
Free	18.4 MB / 29.7 MB
Used	11.3 MB / 29.7 MB
Buffers	1.4 MB / 11.3 MB
Cached	4.3 MB / 11.3 MB
Active	3.5 MB / 11.3 MB
Inactive	2.3 MB / 11.3 MB

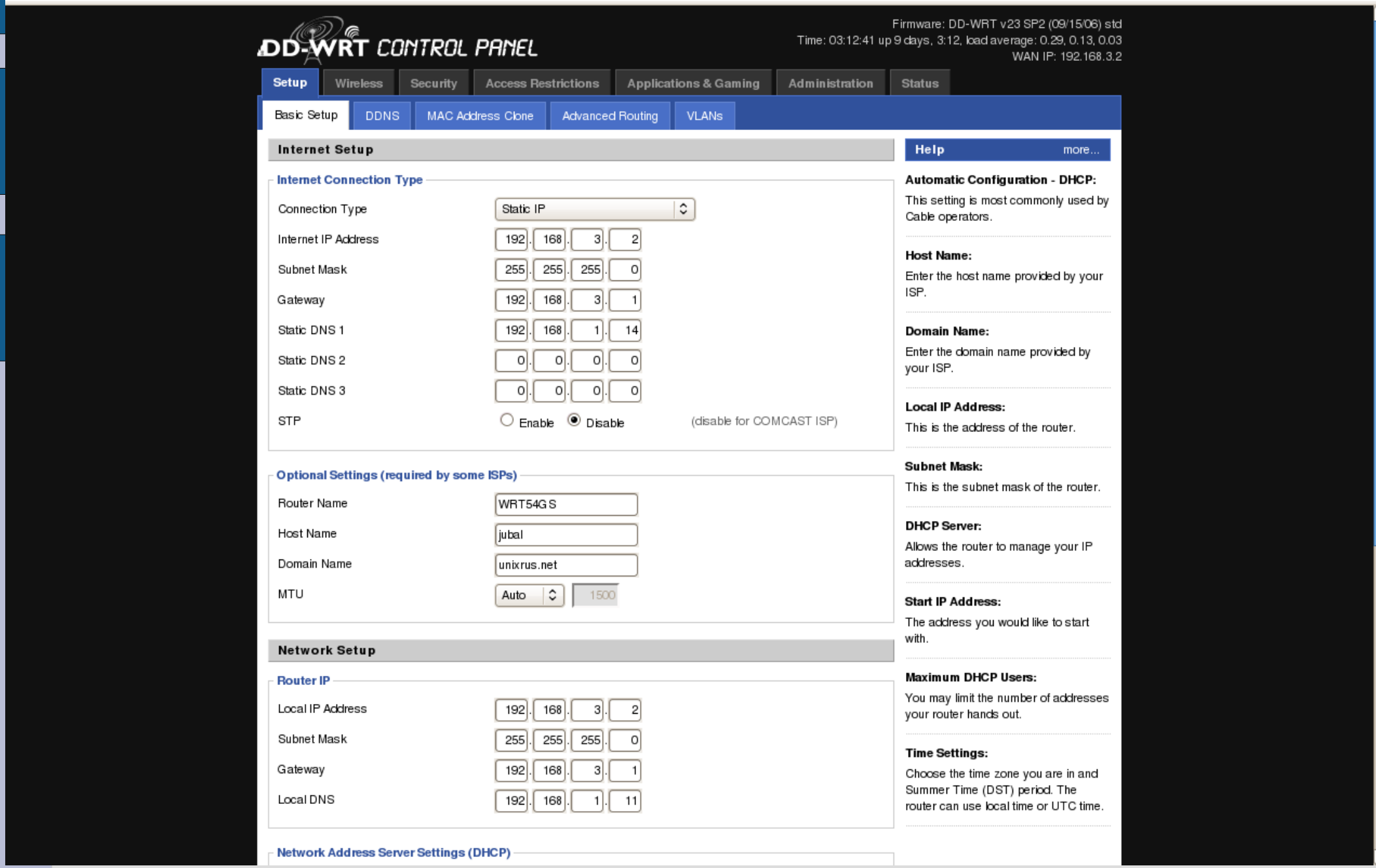
Wireless Packet Info

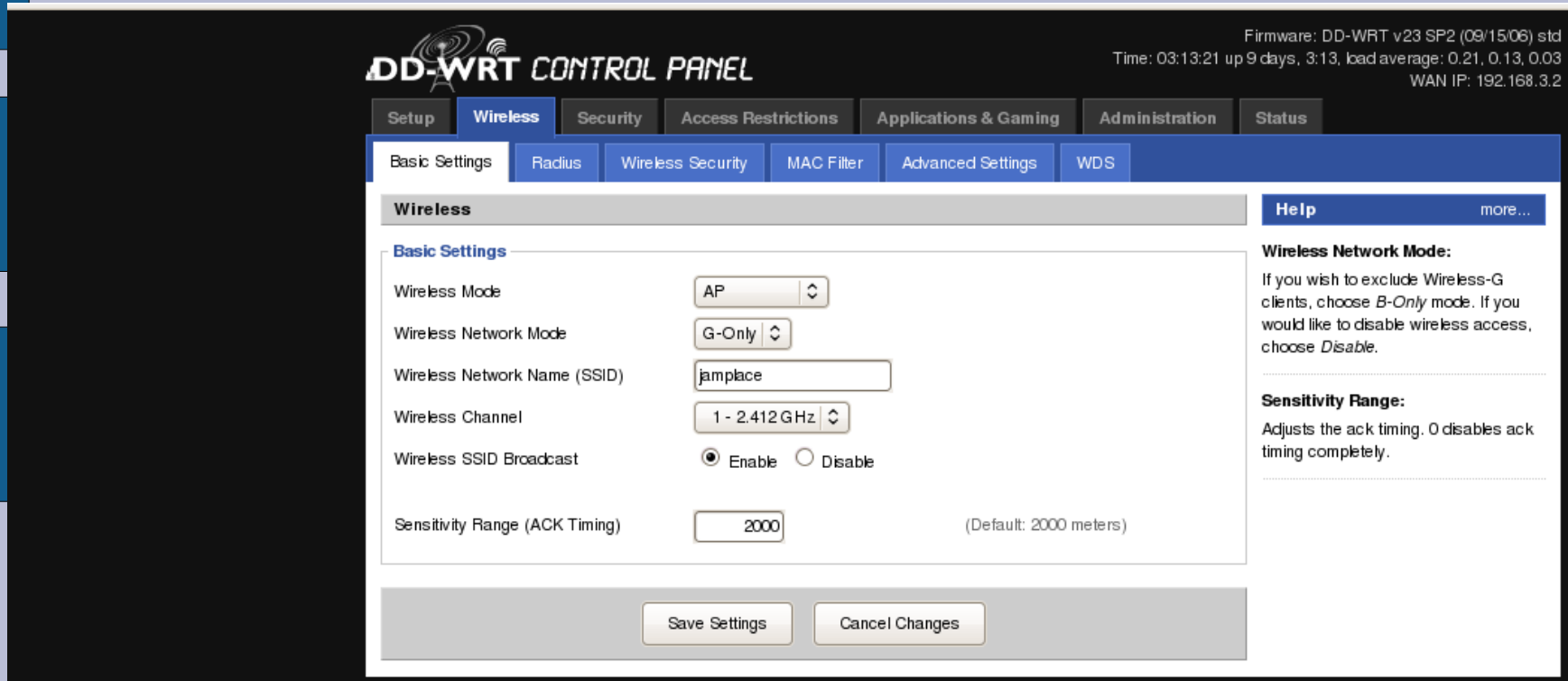
Received (RX)	1797289 OK, no error
Transmitted (TX)	2919192 OK, 247402 errors

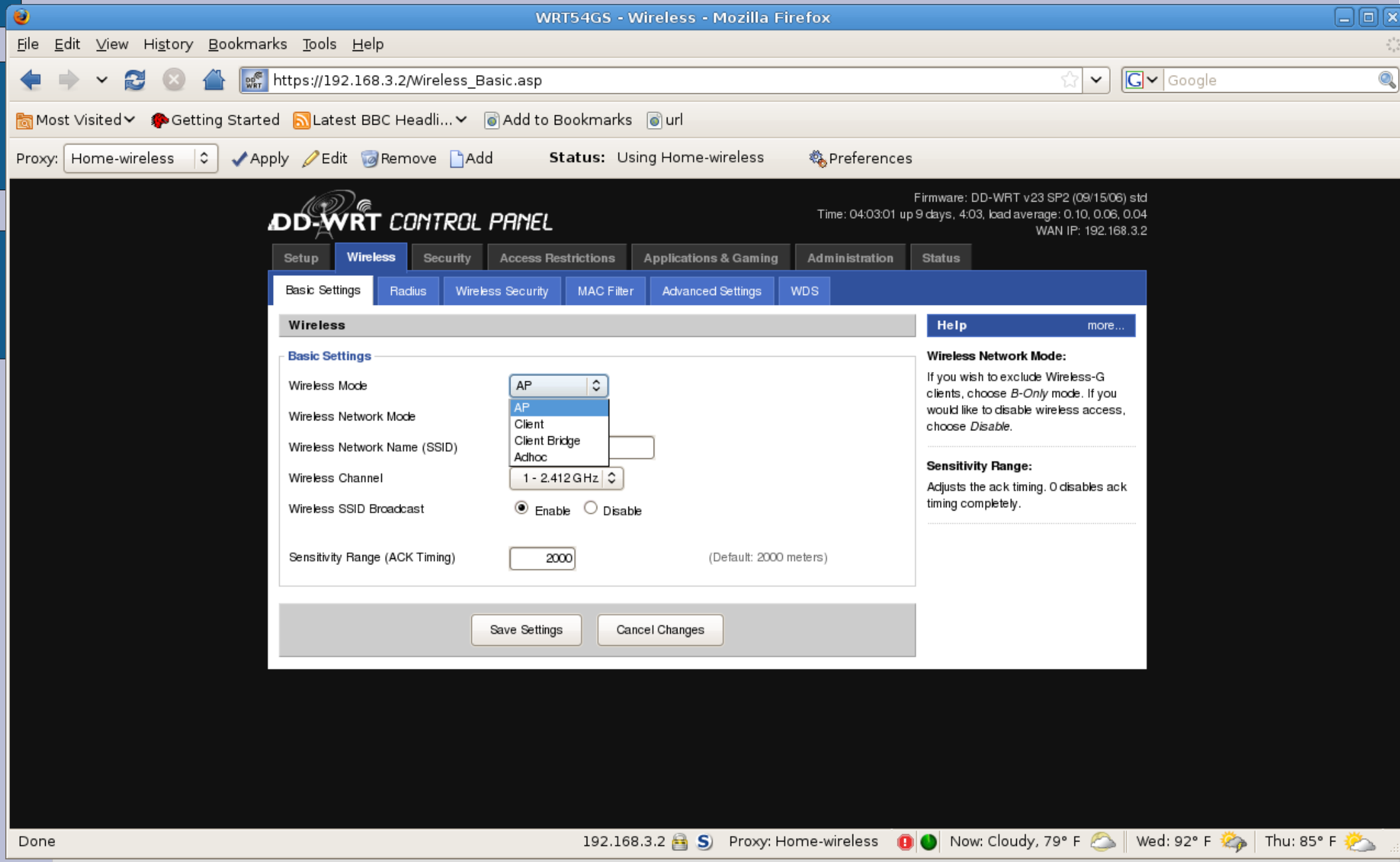
Wireless

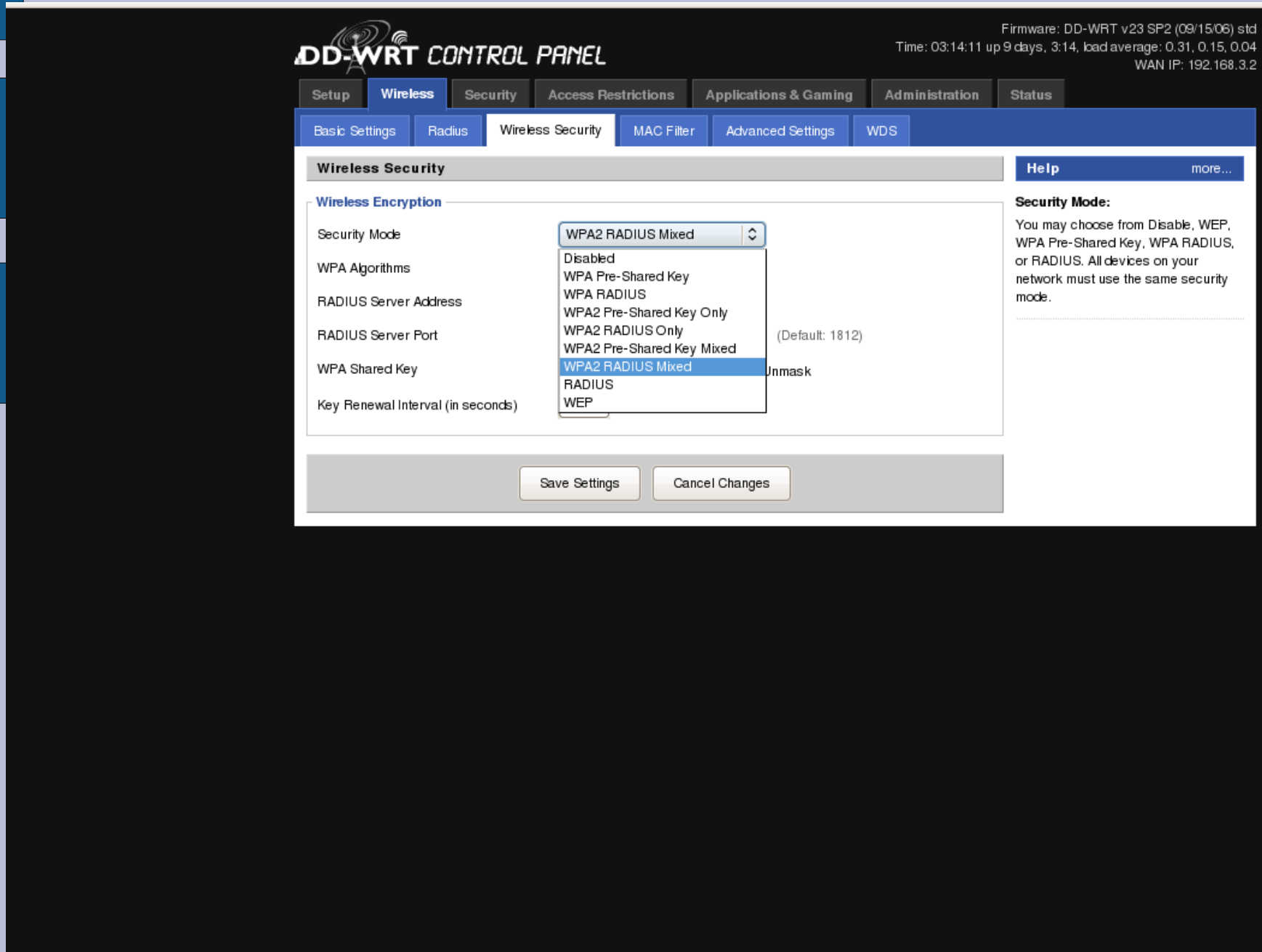
Clients

MAC Address	Signal	Noise	SNR	Signal Quality
xx:xx:xx:xx:BB:D6	-82	-98	16	14%
xx:xx:xx:xx:B3:EE	-19	-98	79	92%


DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:12:41 up 9 days, 3:12, load average: 0.29, 0.13, 0.03
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Basic Setup
DDNS
MAC Address Clone
Advanced Routing
VLANs
Internet Setup
Internet Connection Type
Connection Type
Static IP
Internet IP Address
192 . 168 . 3 . 2
Subnet Mask
255 . 255 . 255 . 0
Gateway
192 . 168 . 3 . 1
Static DNS 1
192 . 168 . 1 . 14
Static DNS 2
0 . 0 . 0 . 0
Static DNS 3
0 . 0 . 0 . 0
STP
Enable
Disable
(disable for COMCAST ISP)
Optional Settings (required by some ISPs)
Router Name
WRT54GS
Host Name
jubal
Domain Name
unixrus.net
MTU
Auto
1500
Network Setup
Router IP
Local IP Address
192 . 168 . 3 . 2
Subnet Mask
255 . 255 . 255 . 0
Gateway
192 . 168 . 3 . 1
Local DNS
192 . 168 . 1 . 11
Network Address Server Settings (DHCP)
Help
more...
Automatic Configuration - DHCP:
This setting is most commonly used by Cable operators.
Host Name:
Enter the host name provided by your ISP.
Domain Name:
Enter the domain name provided by your ISP.
Local IP Address:
This is the address of the router.
Subnet Mask:
This is the subnet mask of the router.
DHCP Server:
Allows the router to manage your IP addresses.
Start IP Address:
The address you would like to start with.
Maximum DHCP Users:
You may limit the number of addresses your router hands out.
Time Settings:
Choose the time zone you are in and Summer Time (DST) period. The router can use local time or UTC time.


DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:13:21 up 9 days, 3:13, load average: 0.21, 0.13, 0.03
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Basic Settings
Radius
Wireless Security
MAC Filter
Advanced Settings
WDS
Wireless
Basic Settings
Wireless Mode
AP
Wireless Network Mode
G-Only
Wireless Network Name (SSID)
jamplace
Wireless Channel
1 - 2.412 GHz
Wireless SSID Broadcast
Enable
Disable
Sensitivity Range (ACK Timing)
2000
(Default: 2000 meters)
Save Settings
Cancel Changes
Help
more...
Wireless Network Mode:
If you wish to exclude Wireless-G clients, choose B-Only mode. If you would like to disable wireless access, choose Disable.
Sensitivity Range:
Adjusts the ack timing. 0 disables ack timing completely.


WRT54GS - Wireless - Mozilla Firefox
File Edit View History Bookmarks Tools Help
https://192.168.3.2/Wireless_Basic.asp
Google
Most Visited
Getting Started
Latest BBC Headli...
Add to Bookmarks
url
Proxy: Home-wireless
Apply
Edit
Remove
Add
Status: Using Home-wireless
Preferences
DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 04:03:01 up 9 days, 4:03, load average: 0.10, 0.06, 0.04
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Basic Settings
Radius
Wireless Security
MAC Filter
Advanced Settings
WDS
Wireless
Basic Settings
Wireless Mode
AP
Wireless Network Mode
AP
Client
Client Bridge
Adhoc
Wireless Network Name (SSID)
Wireless Channel
1 - 2.412 GHz
Wireless SSID Broadcast
Enable
Disable
Sensitivity Range (ACK Timing)
2000
(Default: 2000 meters)
Save Settings
Cancel Changes
Help
more...
Wireless Network Mode:
If you wish to exclude Wireless-G clients, choose B-Only mode. If you would like to disable wireless access, choose Disable.
Sensitivity Range:
Adjusts the ack timing. 0 disables ack timing completely.
Done
192.168.3.2
Proxy: Home-wireless
Now: Cloudy, 79° F
Wed: 92° F
Thu: 85° F


DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:14:11 up 9 days, 3:14, load average: 0.31, 0.15, 0.04
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Basic Settings
Radius
Wireless Security
MAC Filter
Advanced Settings
WDS
Wireless Security
Wireless Encryption
Security Mode
WPA2 RADIUS Mixed
WPA Algorithms
RADIUS Server Address
RADIUS Server Port
(Default: 1812)
WPA Shared Key
Unmask
Key Renewal Interval (in seconds)
Disabled
WPA Pre-Shared Key
WPA RADIUS
WPA2 Pre-Shared Key Only
WPA2 RADIUS Only
WPA2 Pre-Shared Key Mixed
WPA2 RADIUS Mixed
RADIUS
WEP
Save Settings
Cancel Changes
Help
more...
Security Mode:
You may choose from Disable, WEP, WPA Pre-Shared Key, WPA RADIUS, or RADIUS. All devices on your network must use the same security mode.

DD-WRT CONTROL PANEL

WAN IP: 192.168.3.2

Setup | Wireless | Security | Access Restrictions | Applications & Gaming | Administration | Status

Basic Settings | Radius | Wireless Security | MAC Filter | Advanced Settings | WDS

Advanced Wireless Settings

Advanced Settings

Authentication Type	(•) Auto ( ) Shared Key	(Default: Auto)
Basic Rate	Default	(Default: Default)
Transmission Rate	Auto	(Default: Auto)
CTS Protection Mode	( ) Auto (•) Disable	(Default: Disable)
Frame Burst	(•) Enable ( ) Disable	(Default: Disable)
Beacon Interval	100	(Default: 100ms, Range: 1 - 65535)
DTIM Interval	1	(Default: 1, Range: 1 - 255)
Fragmentation Threshold	2346	(Default: 2346, Range: 256 - 2346)
RTS Threshold	2347	(Default: 2347, Range: 0 - 2347)
Max Associated Clients	128	(Default: 128, Range: 1 - 256)
AP Isolation	( ) Enable (•) Disable	(Default: Disable)
TX Antenna	Auto	(Default: Auto)
RX Antenna	Right	(Default: Auto)
Preamble	Long	(Default: Long)
Xmit Power	28	(Default: 28, Range: 0 - 251mW)
Noise Reference	-98	(Default: -98, Range: 0 - -100dB)
Afterburner	Auto	(Default: Disable)
Wireless GUI Access	(•) Enable ( ) Disable	(Default: Enable)

Radio Time Restrictions

Radio Scheduling	( ) Enable (•) Disable	(Default: Disable)

Wireless Multimedia Support Settings

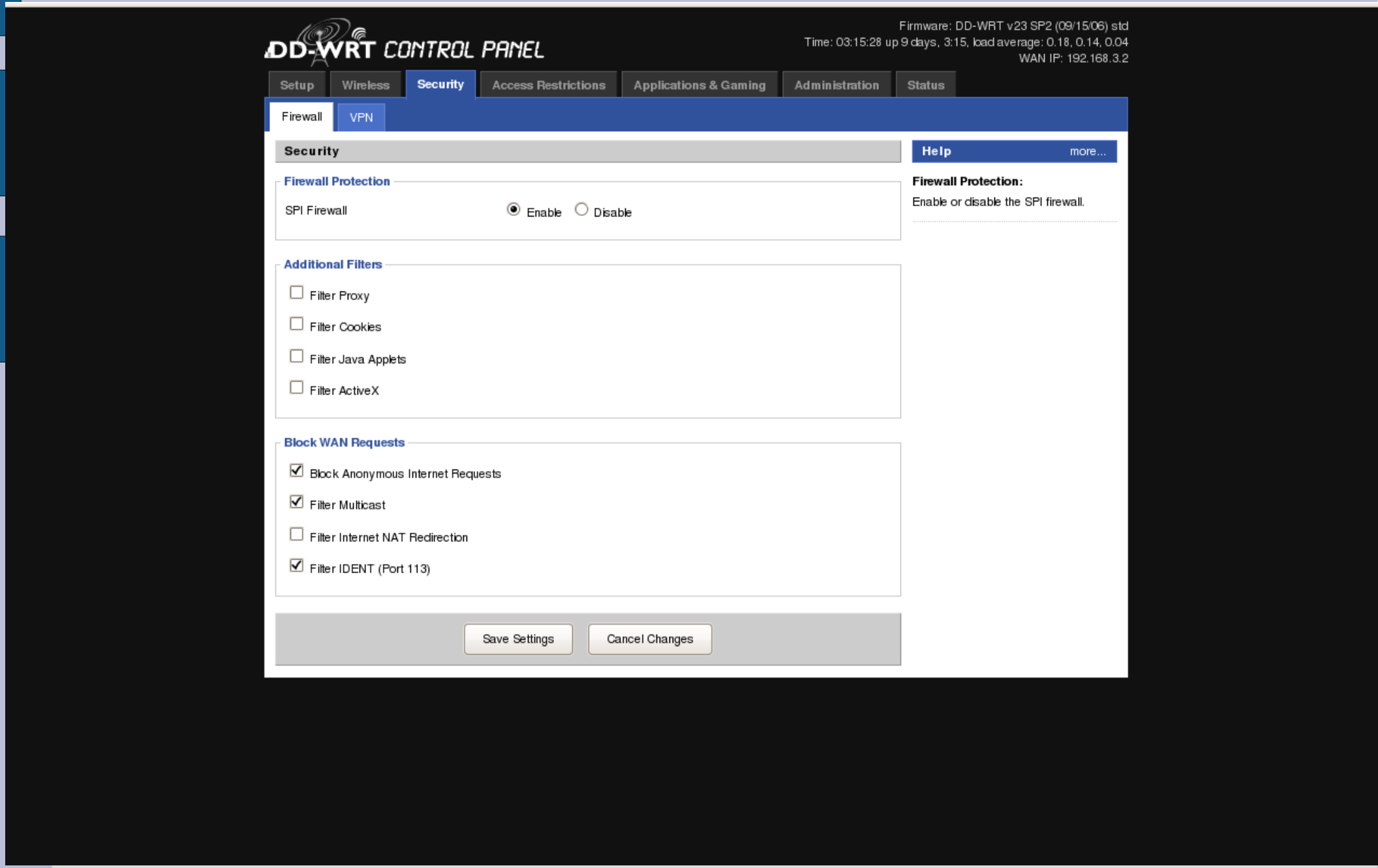
Help more...

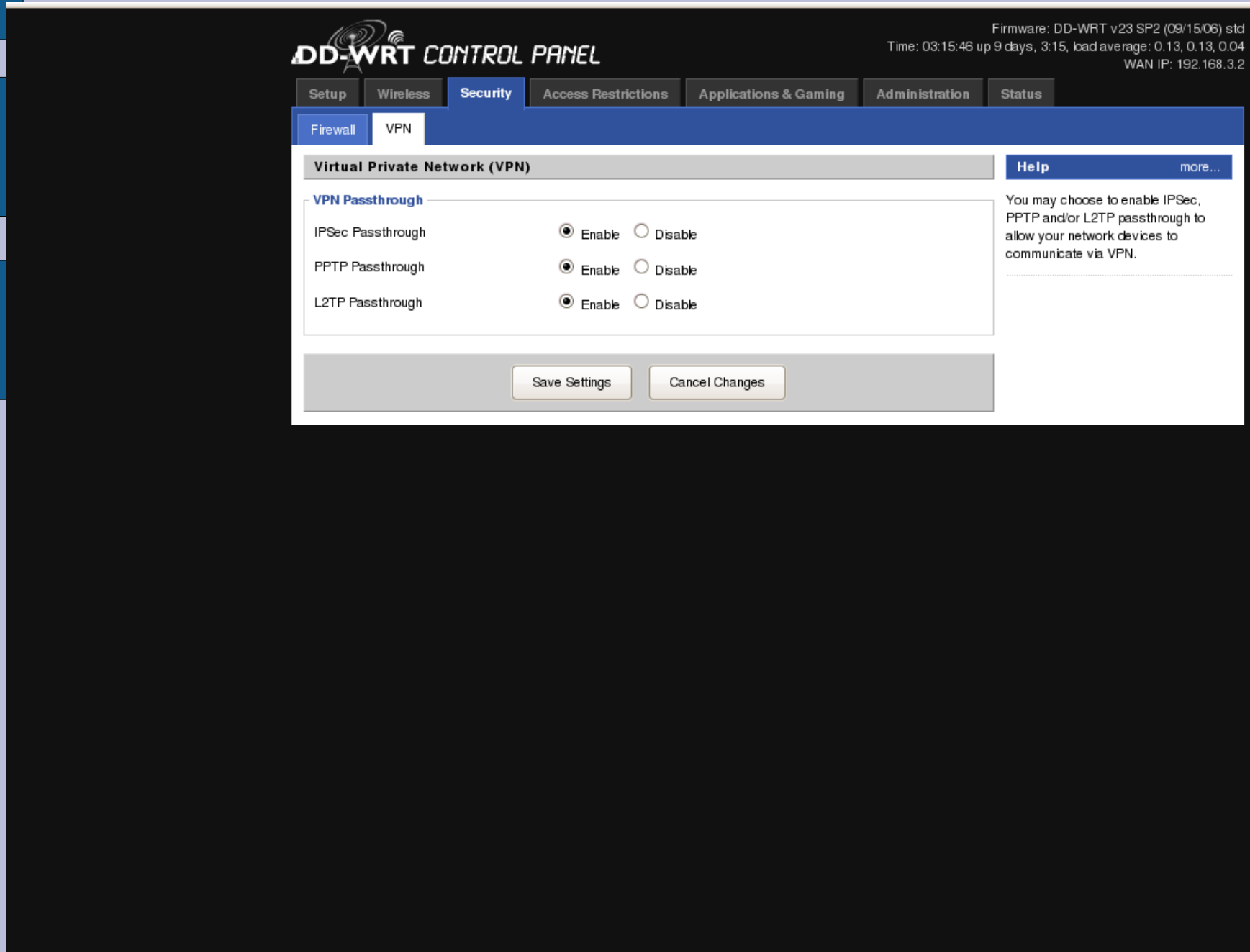
Authentication Type:

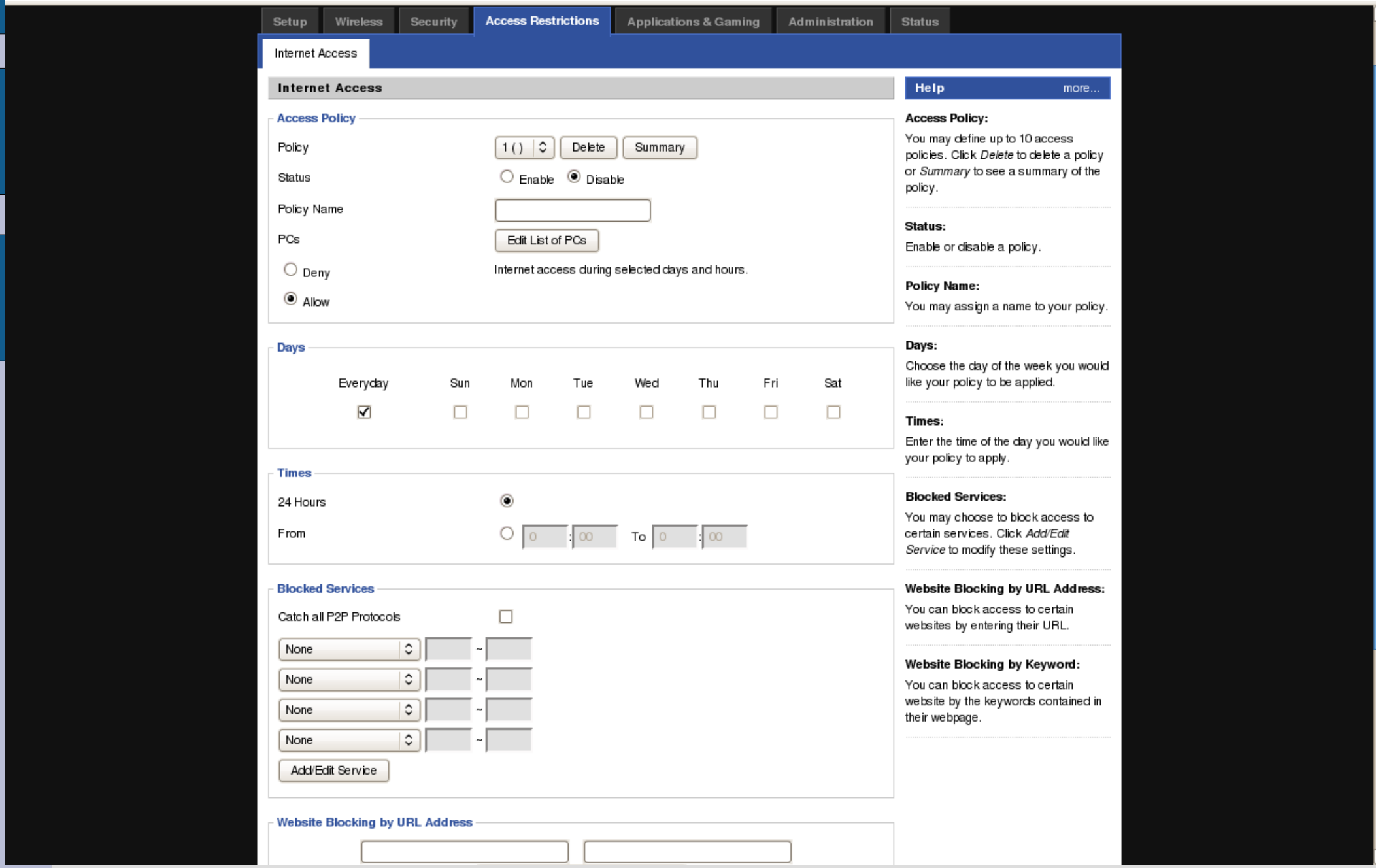
You may choose from Auto or Shared Key. Shared key authentication is more secure, but all devices on your network must also support Shared Key authentication.

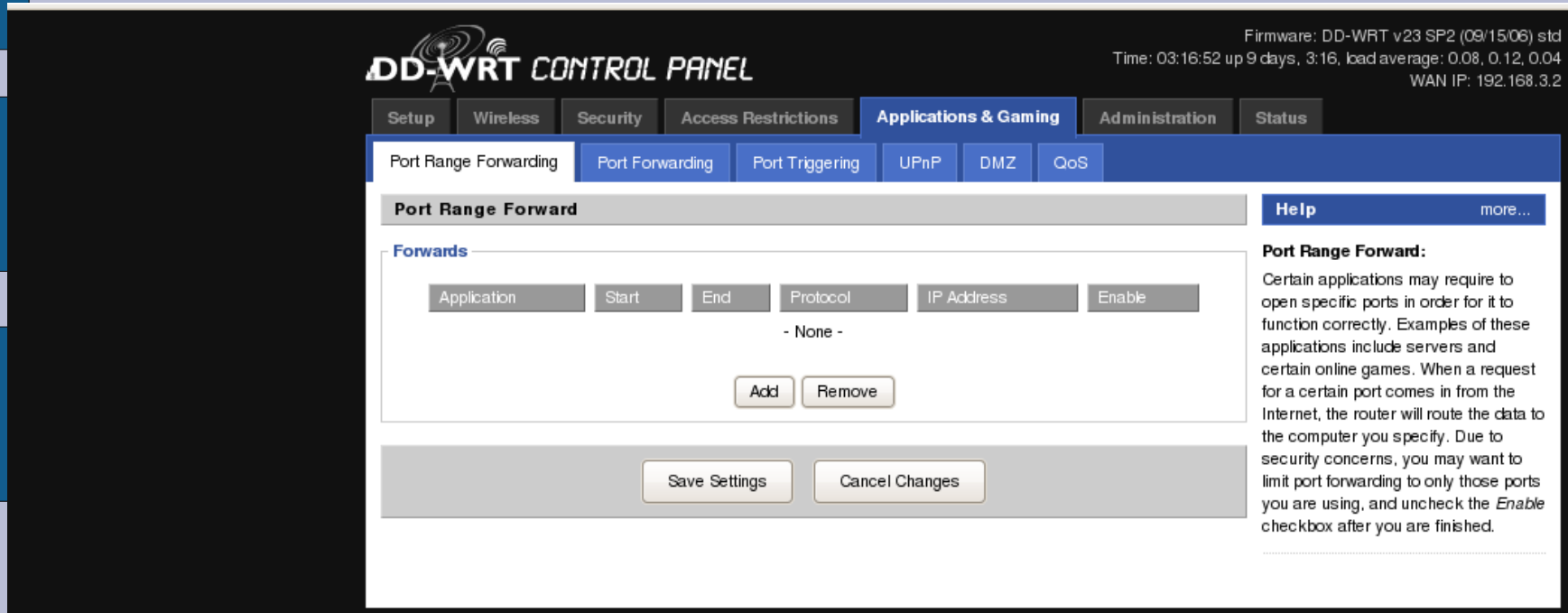
Radio Time Restrictions:

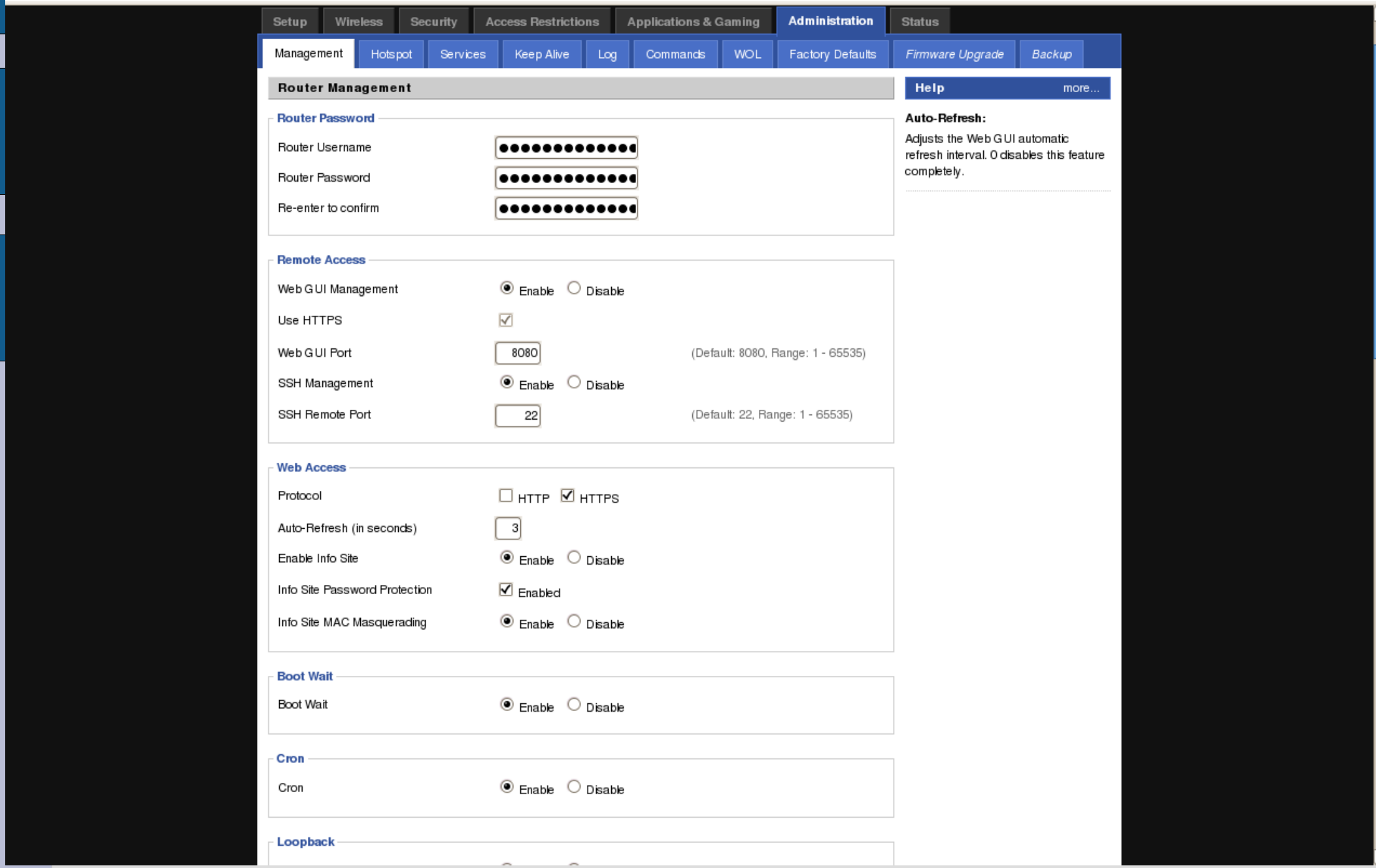
Click any hour to enable or disable the radio signal (*green* indicates allowed Wireless access, and *red* indicates blocked Wireless access)

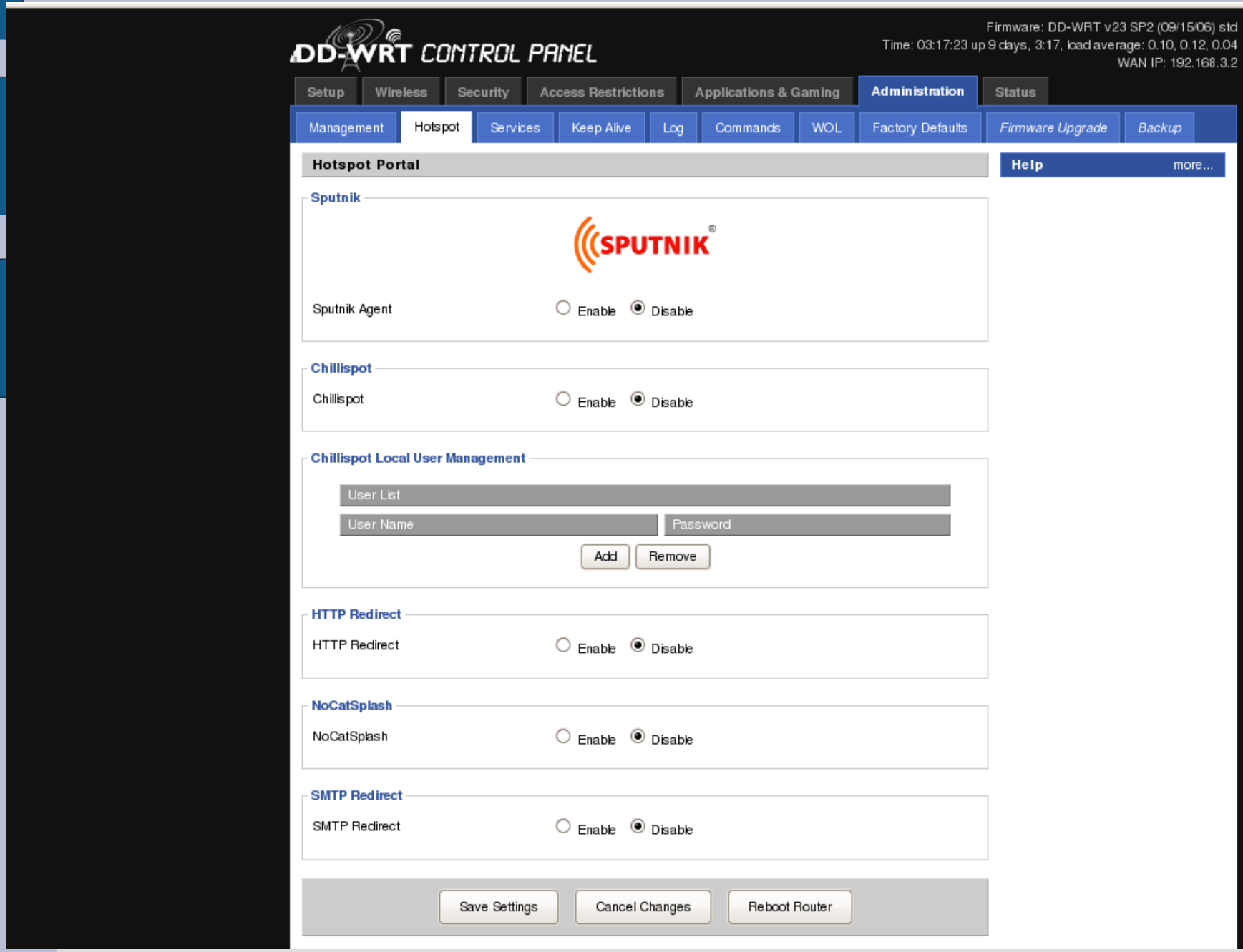

DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:15:28 up 9 days, 3:15, load average: 0.18, 0.14, 0.04
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Firewall
VPN
Security
Firewall Protection
SPI Firewall
Enable
Disable
Additional Filters
Filter Proxy
Filter Cookies
Filter Java Applets
Filter ActiveX
Block WAN Requests
Block Anonymous Internet Requests
Filter Multicast
Filter Internet NAT Redirection
Filter IDENT (Port 113)
Save Settings
Cancel Changes
Help
more...
Firewall Protection:
Enable or disable the SPI firewall.

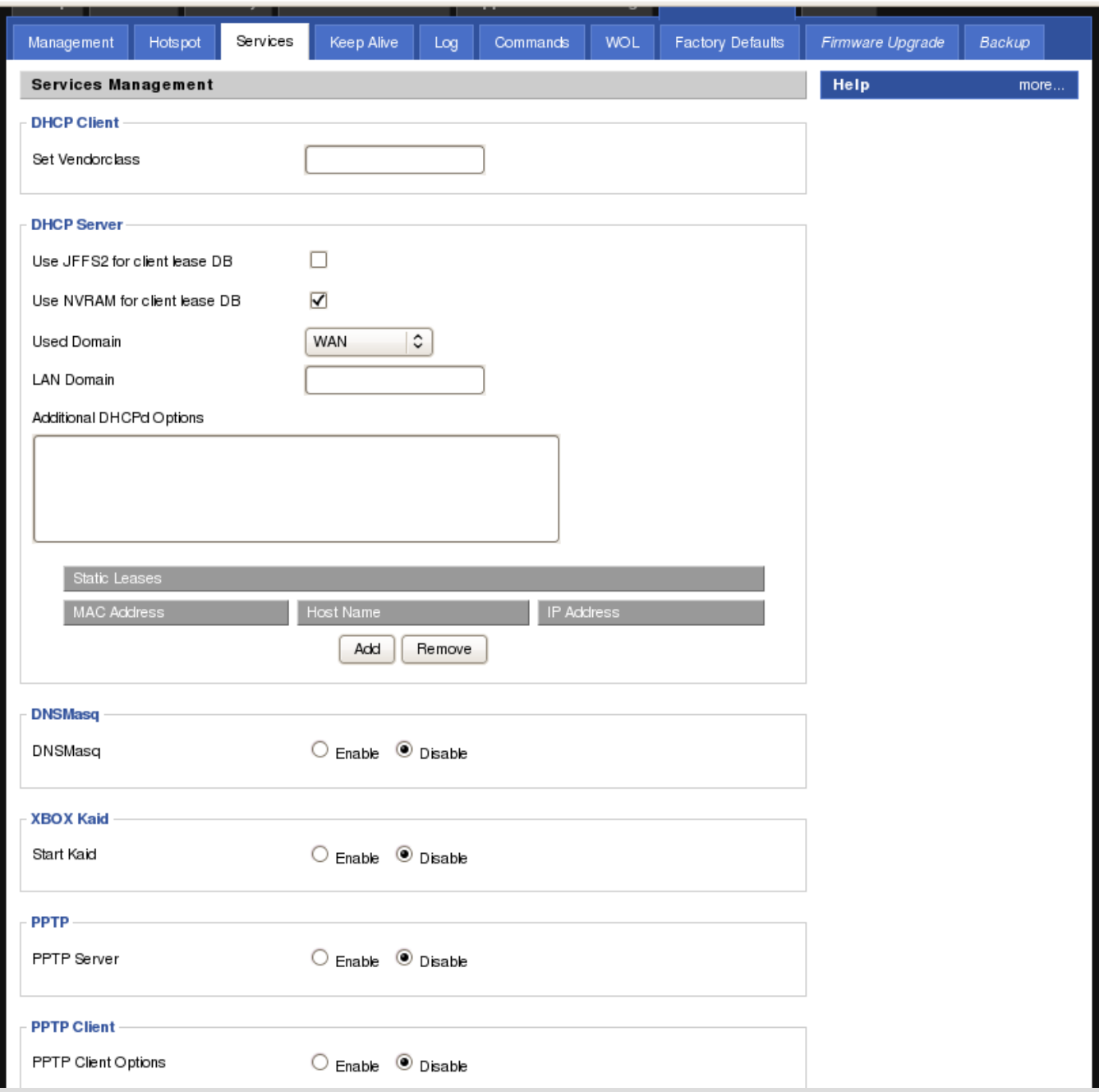

DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:15:46 up 9 days, 3:15, load average: 0.13, 0.13, 0.04
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Firewall
VPN
Virtual Private Network (VPN)
VPN Passthrough
IPSec Passthrough
Enable
Disable
PPTP Passthrough
Enable
Disable
L2TP Passthrough
Enable
Disable
Save Settings
Cancel Changes
Help
more...
You may choose to enable IPSec, PPTP and/or L2TP passthrough to allow your network devices to communicate via VPN.

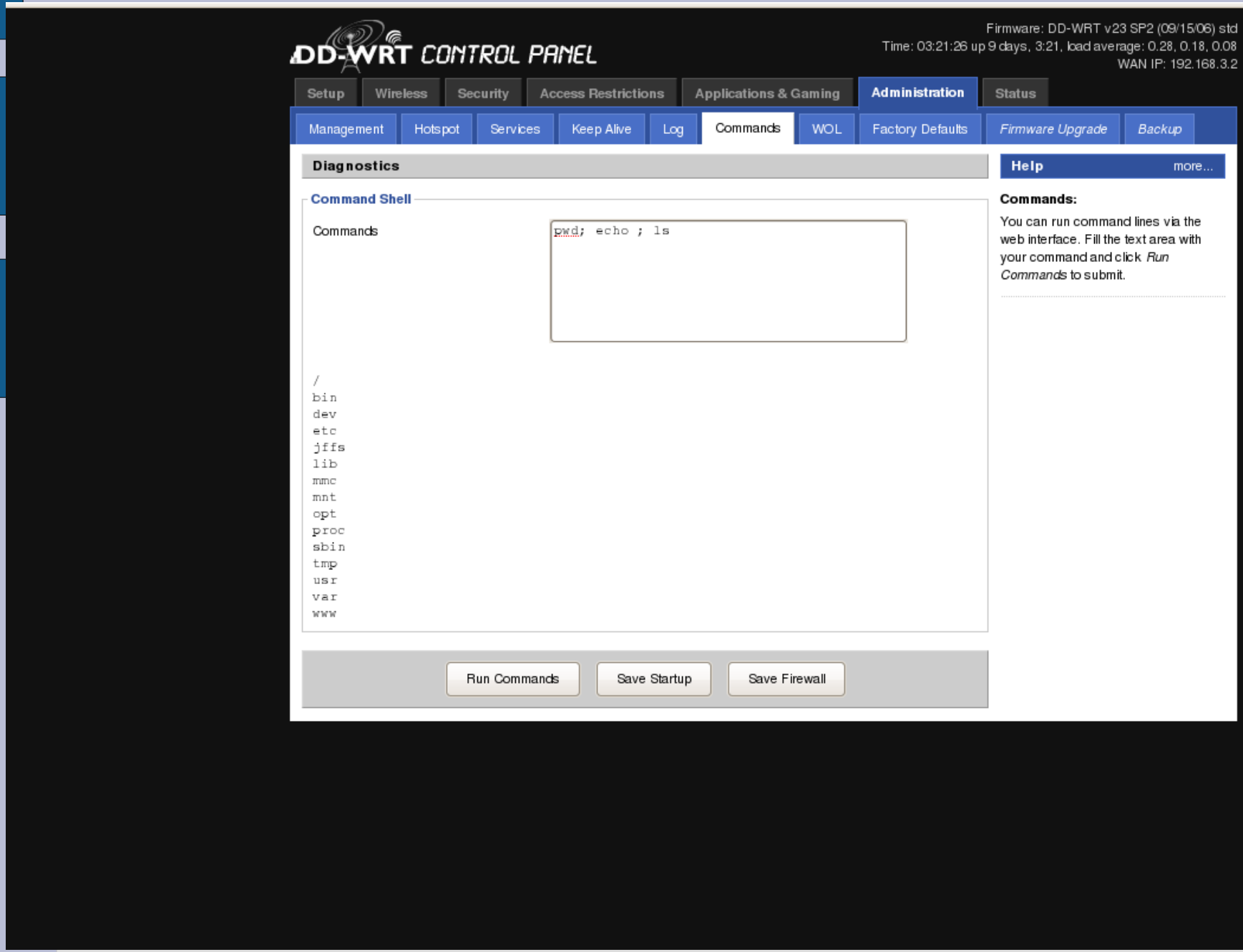

Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Internet Access
Internet Access
Access Policy
Policy
1 ( )
Delete
Summary
Status
Enable
Disable
Policy Name
PCs
Edit List of PCs
Deny
Allow
Internet access during selected days and hours.
Days
Everyday
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Times
24 Hours
From
To
Blocked Services
Catch all P2P Protocols
None
Add/Edit Service
Website Blocking by URL Address
Help
more...
Access Policy:
You may define up to 10 access policies. Click Delete to delete a policy or Summary to see a summary of the policy.
Status:
Enable or disable a policy.
Policy Name:
You may assign a name to your policy.
Days:
Choose the day of the week you would like your policy to be applied.
Times:
Enter the time of the day you would like your policy to apply.
Blocked Services:
You may choose to block access to certain services. Click Add/Edit Service to modify these settings.
Website Blocking by URL Address:
You can block access to certain websites by entering their URL.
Website Blocking by Keyword:
You can block access to certain website by the keywords contained in their webpage.

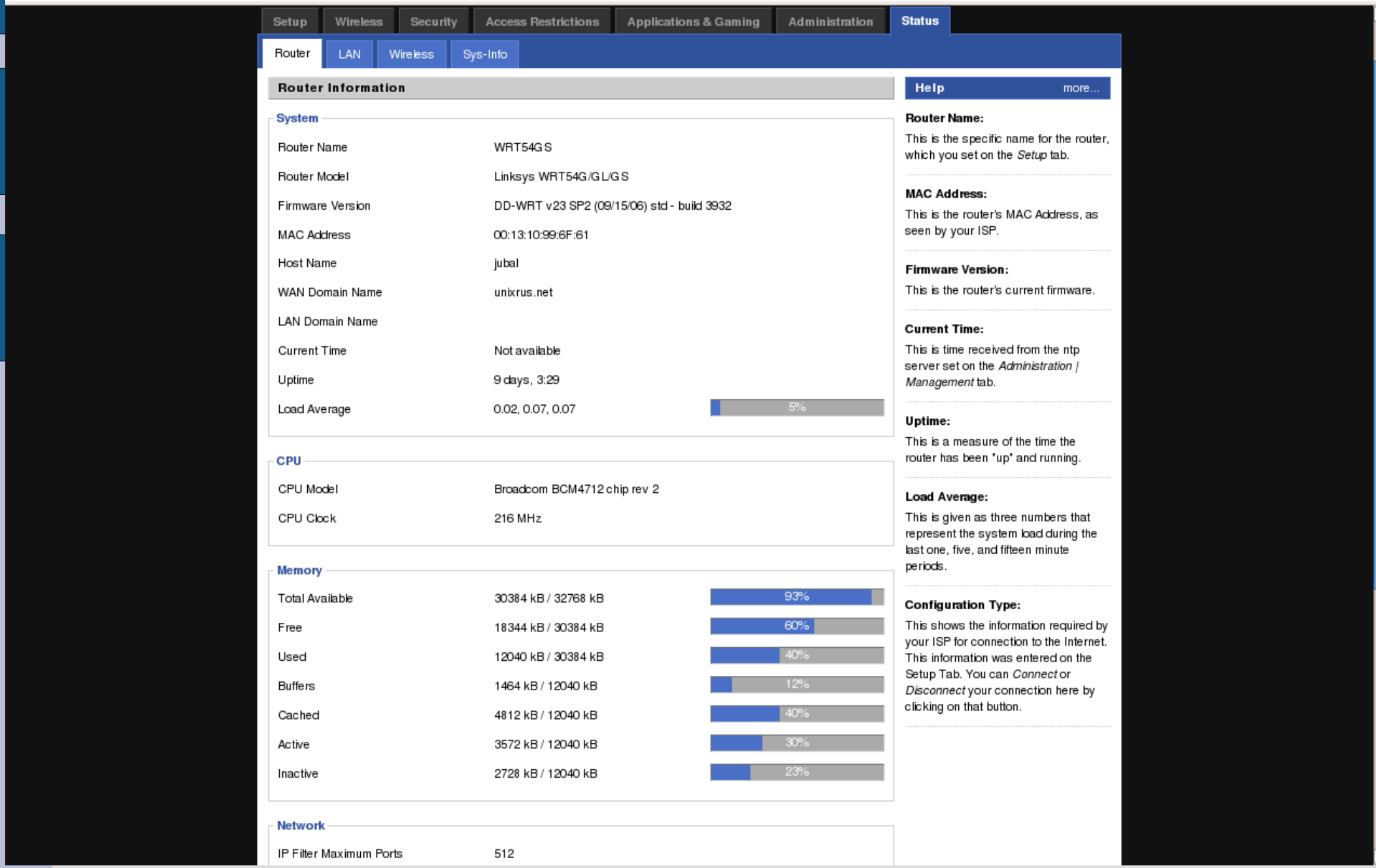

DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:16:52 up 9 days, 3:16, load average: 0.08, 0.12, 0.04
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Port Range Forwarding
Port Forwarding
Port Triggering
UPnP
DMZ
QoS
Port Range Forward
Forwards
Application
Start
End
Protocol
IP Address
Enable
- None -
Add
Remove
Save Settings
Cancel Changes
Help
more...
Port Range Forward:
Certain applications may require to open specific ports in order for it to function correctly. Examples of these applications include servers and certain online games. When a request for a certain port comes in from the Internet, the router will route the data to the computer you specify. Due to security concerns, you may want to limit port forwarding to only those ports you are using, and uncheck the Enable checkbox after you are finished.

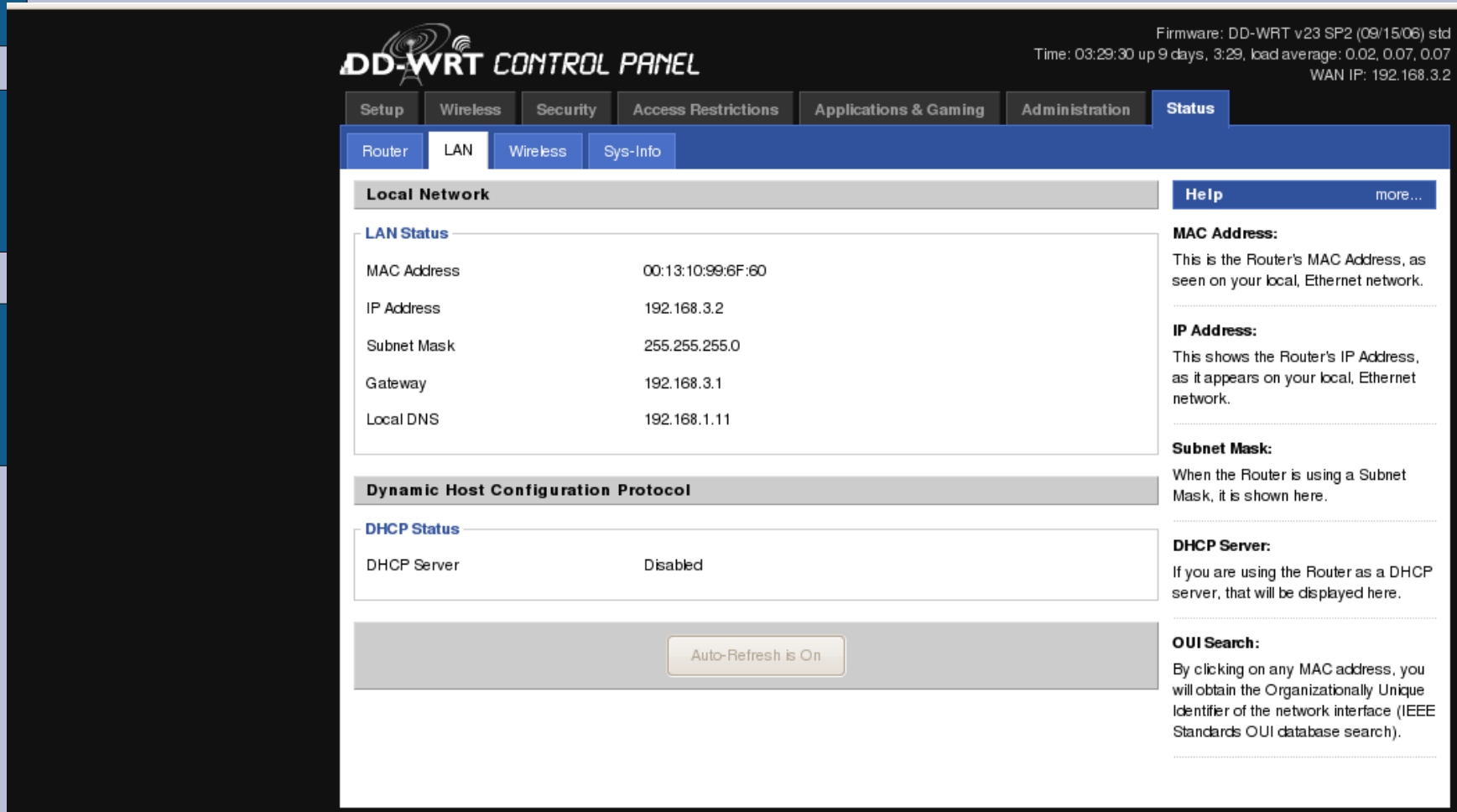

Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Management
Hotspot
Services
Keep Alive
Log
Commands
WOL
Factory Defaults
Firmware Upgrade
Backup
Router Management
Router Password
Router Username
Router Password
Re-enter to confirm
Remote Access
Web GUI Management
Enable
Disable
Use HTTPS
Web GUI Port
8080
(Default: 8080, Range: 1 - 65535)
SSH Management
Enable
Disable
SSH Remote Port
22
(Default: 22, Range: 1 - 65535)
Web Access
Protocol
HTTP
HTTPS
Auto-Refresh (in seconds)
3
Enable Info Site
Enable
Disable
Info Site Password Protection
Enabled
Info Site MAC Masquerading
Enable
Disable
Boot Wait
Boot Wait
Enable
Disable
Cron
Cron
Enable
Disable
Loopback
Help
more...
Auto-Refresh:
Adjusts the Web GUI automatic refresh interval. 0 disables this feature completely.


DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:17:23 up 9 days, 3:17, load average: 0.10, 0.12, 0.04
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Management
Hotspot
Services
Keep Alive
Log
Commands
WOL
Factory Defaults
Firmware Upgrade
Backup
Hotspot Portal
Help
more...
Sputnik
SPUTNIK
Sputnik Agent
Enable
Disable
Chillispot
Chillispot
Enable
Disable
Chillispot Local User Management
User List
User Name
Password
Add
Remove
HTTP Redirect
HTTP Redirect
Enable
Disable
NoCatSplash
NoCatSplash
Enable
Disable
SMTP Redirect
SMTP Redirect
Enable
Disable
Save Settings
Cancel Changes
Reboot Router


Management
Hotspot
Services
Keep Alive
Log
Commands
WOL
Factory Defaults
Firmware Upgrade
Backup
Services Management
Help
more...
DHCP Client
Set Vendorclass
DHCP Server
Use JFFS2 for client lease DB
Use NVRAM for client lease DB
Used Domain
WAN
LAN Domain
Additional DHCPd Options
Static Leases
MAC Address
Host Name
IP Address
Add
Remove
DNSMasq
DNSMasq
Enable
Disable
XBOX Kaid
Start Kaid
Enable
Disable
PPTP
PPTP Server
Enable
Disable
PPTP Client
PPTP Client Options
Enable
Disable


DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:21:26 up 9 days, 3:21, load average: 0.28, 0.18, 0.08
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Management
Hotspot
Services
Keep Alive
Log
Commands
WOL
Factory Defaults
Firmware Upgrade
Backup
Diagnostics
Command Shell
Commands
pwd; echo ; ls
/
bin
dev
etc
jffs
lib
mmc
mnt
opt
proc
sbin
tmp
usr
var
www
Run Commands
Save Startup
Save Firewall
Help
more...
Commands:
You can run command lines via the web interface. Fill the text area with your command and click Run Commands to submit.


Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Router
LAN
Wireless
Sys-Info
Router Information
System
Router Name WRT54GS
Router Model Linksys WRT54G/GL/GS
Firmware Version DD-WRT v23 SP2 (09/15/06) std - build 3932
MAC Address 00:13:10:99:6F:61
Host Name jubal
WAN Domain Name unixrus.net
LAN Domain Name
Current Time Not available
Uptime 9 days, 3:29
Load Average 0.02, 0.07, 0.07 5%
CPU
CPU Model Broadcom BCM4712 chip rev 2
CPU Clock 216 MHz
Memory
Total Available 30384 kB / 32768 kB 93%
Free 18344 kB / 30384 kB 60%
Used 12040 kB / 30384 kB 40%
Buffers 1464 kB / 12040 kB 12%
Cached 4812 kB / 12040 kB 40%
Active 3572 kB / 12040 kB 30%
Inactive 2728 kB / 12040 kB 23%
Network
IP Filter Maximum Ports 512
Help more...
Router Name:
This is the specific name for the router, which you set on the Setup tab.
MAC Address:
This is the router's MAC Address, as seen by your ISP.
Firmware Version:
This is the router's current firmware.
Current Time:
This is time received from the ntp server set on the Administration | Management tab.
Uptime:
This is a measure of the time the router has been "up" and running.
Load Average:
This is given as three numbers that represent the system load during the last one, five, and fifteen minute periods.
Configuration Type:
This shows the information required by your ISP for connection to the Internet. This information was entered on the Setup Tab. You can Connect or Disconnect your connection here by clicking on that button.


DD-WRT CONTROL PANEL
Firmware: DD-WRT v23 SP2 (09/15/06) std
Time: 03:29:30 up 9 days, 3:29, load average: 0.02, 0.07, 0.07
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Router
LAN
Wireless
Sys-Info
Local Network
LAN Status
MAC Address 00:13:10:99:6F:60
IP Address 192.168.3.2
Subnet Mask 255.255.255.0
Gateway 192.168.3.1
Local DNS 192.168.1.11
Dynamic Host Configuration Protocol
DHCP Status
DHCP Server Disabled
Auto-Refresh is On
Help more...
MAC Address:
This is the Router's MAC Address, as seen on your local, Ethernet network.
IP Address:
This shows the Router's IP Address, as it appears on your local, Ethernet network.
Subnet Mask:
When the Router is using a Subnet Mask, it is shown here.
DHCP Server:
If you are using the Router as a DHCP server, that will be displayed here.
OUI Search:
By clicking on any MAC address, you will obtain the Organizationally Unique Identifier of the network interface (IEEE Standards OUI database search).


DD-WRT CONTROL PANEL
Time: 03:29:50 up 9 days, 3:29, load average: 0.14, 0.10, 0.08
WAN IP: 192.168.3.2
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administration
Status
Router
LAN
Wireless
Sys-Info
Wireless
Wireless Status
MAC Address 00:13:10:99:6F:62
Radio Radio is On
Mode AP
Network G-Only
SSID jamplace
Channel 1
Xmit 28 mW
Rate 36 Mbps
Encryption Enabled, WPA2 RADIUS Mixed
PPTP Status Disconnected
Wireless Packet Info
Received (RX) 1807728 OK, no error 100%
Transmitted (TX) 2931113 OK, 247402 errors 92%
Wireless Nodes
Clients
MAC Address Signal Noise SNR Signal Quality
00:90:4B:B6:BB:D6 -87 -98 11 8%
00:0F:B5:26:B3:EE -80 -98 18 17%
Site Survey
Auto-Refresh is On
Help more...
MAC Address:
This is the Router's MAC Address, as seen on your local, wireless network.
Network:
As selected from the Wireless tab, this will display the wireless mode (Mixed, G-Only, B-Only or Disabled) used by the network.
OUI Search:
By clicking on any MAC address, you will obtain the Organizationally Unique Identifier of the network interface (IEEE Standards OUI database search).

References

- http://en.wikipedia.org/wiki/Linksys_WRT54G_
- http://www.dd-wrt.com/wiki/index.php/Main_P
- http://wiki.openwrt.org/OpenWrtDocs
- http://www.techreviewcentral.com/?p=47

Credits

OpenWRT screenshots were taken from
http://wiki.x-wrt.org

Questions?