Release Notes WeOS 4.4.0

Contents

Organisation

Westermo Research & Development

1 About

Westermo WeOS is a network operating system specifically designed for industrial grade rugged Ethernet switches and routers. It is based on the Cricket 3rd generation software platform with support for RedFox, 2nd generation Wolverine, Lynx+ switches and the Falcon VDSL2 router.

The Linux based platform has been in operation since 2006 on custom made RedFox Mil, RedFox Aero and RedFox Rail products. With the advent of the RedFox Industrial line of products the platform was given a major overhaul to improve standards compliance as well as compatibility requirements with existing Westermo product offerings. The result is WeOS, the Westermo Operating System.

Westermo has several projects underway to boost hardware capability to be able to roll out WeOS on even more products than the current offering. There is also a wide range of software features on the road map for WeOS itself.

For more information about Westermo and our product offerings see `http://westermo.com`.

Version Number Format

WeOS version numbers have three digits. The main reason for the third digit is to emphasize the difference between feature and bug fix releases.

The generally available (GA) releases are named 4.X.Y. The number four (4) denotes the platform generation, which currently is Cricket. The X is the feature release number, where new functionality is introduced, and Y is the patch revision number, reserved for security and bug fix releases. E.g., 4.4.1 would be the first patch release in the 4.4.0 series.

For customers in our beta release program it is worth pointing out that previously version numbers 9.00 – 9.99 were used for beta releases and developer builds. This custom has now been replaced by the more common –betaN notation, for internal and limited distribution beta releases, and –rcN, for release candidates. We believe this to be easier to keep track of since the base release version is visible in all stages of the release cycle.

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

2   Summary of Changes

WeOS 4.4.0 is the first release with support for the exciting new Falcon VDSL/ADSL router! For the Wolverine SHDSL series we also managed to sneak in the new Westermo Turbo Speed feature. Other major changes are listed below, for details on bug fixes, see section 5.

Firewall Improvements

This release hosts the first phase of a series of planned updates and improvements to the WeOS firewall. For instance, it is now possible to reorder rules as well as create so called "deny rules". Further improvements in both functionality and usability is to be expected in coming releases.

VRRP vMAC Support

VRRP has been updated with "Virtual MAC" (vMAC) support. Closes issue #4694. This will make the handover between upstream routers seamless to clients on the inside (LAN), since they no longer need to allow gratuitous ARP to receive updates on what MAC address the gateway currently has.

Wolverine SHDSL Turbo Speed

The Wolverine DDW-225 and 226 series come with a unique Westermo feature called Turbo Speed! This makes it possible to reach data rates of up to 15.3 Mbps.

Scheduled Reboot

Another addition to WeOS is the ability to schedule a system reboot on a daily basis. The support is currently only available in the CLI, but has been added to the Alarm & Event system so it will soon become a regular feature.

```
falcon:/#> configure
falcon:/config/#> alarm
falcon:/config/alarm/#> trigger timer
Created trigger 2
falcon:/config/alarm/trigger-2/#> timeout daily 02:20
falcon:/config/alarm/trigger-2/#> action 2
falcon:/config/alarm/trigger-2/#> end
falcon:/config/alarm/#> action 2
falcon:/config/alarm/action-2/#> target custom
falcon:/config/alarm/action-2/#> custom 'reboot'
falcon:/config/alarm/action-2/#> leave
falcon:/#> copy run start
```

Please note, the above is the recommended setup. Action scripts with a command other than *reboot* has not been tested. Also, connecting a custom action, like the one above, to anything but a timer trigger is not recommended at the moment.

	Organisation
	Westermo Research & Development

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

2.1 Platform

- DNS proxy support is now a default feature. It is no longer necessary to enable a DHCP server on the LAN interface. Simply setup a name server and your non–primary interface is now able to forward DNS requests. Issue #5230.

- PPPoE support. The new Falcon unit has a dedicated simplified WAN setup where PPPoE is integrated. However, PPPoE support is also available on all other WeOS enabled devices. (Remember to set your external (WAN) interface as primary!)

- In #5207 support for CPU port(s) bandwidth limitation added. This is very useful when using the same device for both routing traffic between VLANs and at the same time running time critical protocols like FRNT. Because when too much traffic is being routed FRNT signalling risk being lost, issue #4951.

```
falcon:/#>  configure
falcon:/config/#>  system
falcon:/config/system/#>  cpu-bandwidth-limit 8M
falcon:/config/system/#>  leave
falcon:/#>  copy run start
```

The above example sets a bandwidth limit for incoming traffic to 8 Mbps. See the Management Guide for more information.

- Possible to set the NTP server address as a domain name, not just an IP address. Fixed in issue #3601.

- As a spin-off to a bug fix (#5288) WeOS 4.4.0 includes support for static MAC filters. This is a necessary feature for setups where, e.g., OSPF/RIP/VRRP routers do not send out IGMP membership reports to subscribe to multicast groups in the 224.0.0.x range.

  Note: This is currently limited to *mulitcast* MAC filters, even though the syntax and online help says otherwise. This is due to automatic learning enabled on all ports by default today.

  The system `factory-config` for WeOS 4.4.0 has been updated to include default MAC filters for commonly used services. If you do not want to restart your setup from factory settings, simply `show factory` and paste in the relevant lines like this:

```
falcon:/#>  configure
falcon:/config/#>  fdb
falcon:/config/fdb/#>  mac 01:00:5e:00:00:09 port ALL,CPU
falcon:/config/fdb/#>  leave
falcon:/#>  copy run start
```

This example adds a filter for the RIPv2 multicast address 224.0.0.9. The fdb mac command only accepts MAC addresses, so you need to translate using RFC1112. Due to the limitations of this IP to MAC mapping the resulting address also maps to 225.0.0.9, 226.0.0.9, etc.

	Organisation
	Westermo Research & Development

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

- The DDNS client, inadyn, suffered from a socket leak causing it to fail to update the system IP address at the DDNS service provider. Fixed in issue #5573.

- The firewall NAT rule really does allow all traffic from the internal interface to the external (as well as related replies from the outside coming back in). In 4.4.0 initial support for filtering source networks per each NAT rule and also support for deny rules.

2.2 CLI

- Support for completely disabling the Web session timeout.

- Removing firewall rules is now possible using "no <access|deny|pf|nat> <NUM>".

- Online help for firewall commands updated.

- From WeOS 4.3.0 and later it is possible to use the `abort` command even in the top-level configuration context. Disabling services, e.g. spanning-tree, or removing all VLANs can now safely be aborted. Remember to try the Ctrl-d key combo.

- When attempting to leave configuration context in interactive mode, the CLI now performs a simplistic sanity check and warns the user if:

  1. All ports have been disabled, or
  2. All VLANs have been disabled, or
  3. All interfaces have been disabled (`no up`), or when
  4. Any other subsystem returns an error during the "pre commit phase".

  Unfortunately this does not cover all faulty scenarios, but the hope is that it covers at least the most common ones.

- When leaving configuration context using the `leave` or `end` commands a friendly "heads up" reminder about `copy run start` is displayed. This is currently shown regardless if the user has made any changes or not. Improvements to this are planned for a later release.

- When configuring interfaces the `inet static` stanza is now mandatory to be able to access commands to set static IPv4 address. This is in preparation for the upcoming `inet6 static`, for IPv6 configuration.
  Note: The WeOS .cfg configuration files have used this syntax since 4.0.0, hence this change only affects interactive use.

- A long standing issue with the awkward use of `no vlans`, et consortes, in .cfg configuration files has been resolved. When loading a configuration file the database is now first cleared and system defaults are used. This could affect users that are used to load "diff configurations", however that is still supported by pasting in into an non–interactive CLI session's configuration context.

Organisation		
Westermo Research & Development		

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

- The recommended way of pasting in configurations into the terminal is to use the `copy con run` command.

- In an effort to become even more compliant with existing CLIs on the market, only differences to the WeOS defaults are saved in the .cfg files. This is still an ongoing effort, so not all subsystems have been updated yet.
  This is a backwards compatible change.

- When issuing, e.g., `show running` not all settings are shown. This is due to WeOS 4.3.0 and later only showing differences to the system default. Support for `show running [all]`, where the optional 'all' keyword would list everything, is planned for a later release.

- When entering the configure context the ON LED will flash on the unit, similar to what the IPConfig tool does. Useful for locating a device or verifying the correct unit is being configured.

- The CLI format version has been stepped up to v1.4 in all .cfg files saved using WeOS 4.4.0.

2.3 SNMP

- Wrong DSL port type used in ifTable. Issue #5224.

- Occasionally the SNMP sub-agent caused "Out of memory" conditions on Wolverine units. Fixed in issue #5256.

- FRNT traps always showed port state as forward. Fixed in issue #5293.

2.4 Web

- A Basic Setup page has been added for Falcon. It wraps most common settings needed for WAN access in one page.

- DHCP Server now possible to configure in Web.

- The location indicator ("Here I am!") blink with the ON LED is now also possible to access from the Web UI. See Tools –> IPConfig for "Flash On LED".

- Support for firewall deny rules.

- Support for adding new firewall rules at a specific position.

- Possible to reorder firewall rules.

- New generic WeOS header image. With product name, firmware version and hostname@location displayed for easy identification purposes.

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

2.5 SHDSL

- Turbo Speed now available, up to 15.3 Mbps data rate.

- Possible to disable SHDSL ports. Useful to check link traps on the other side of a link. Issue #5238.

2.6 Firewall

- Support for deny rules and rule reordering, both CLI and Web.

- Sometimes the forward chain policy did not stay set after a reboot. Fixed in issue #5193.

2.7 VPN

- IPsec/IKEv1 support in WeOS has been upgraded to Openswan v2.6.26.

- In some (invalid) setups the IPsec daemon "pluto" crashed and did not recover, issue #5056. Improved documentation and online validation of the configuration has been added to WeOS 4.4.0.

  Symptoms: First the user notices that all tunnels go down, then the CLI command `show tunnel ipsec` gives no output at all, even if there are multiple tunnels configured.

  To be sure this bug is the problem, in the CLI issue the command `show log` and look for the line `ipsec__plutorun:  Segmentation fault`:

```
Feb  4 01:12:00 lynx pluto[2824]: "ipsec0" #1: ignoring informational payload,
      type NO_PROPOSAL_CHOSEN msgid=00000000
Feb  4 01:12:00 lynx pluto[2824]: "ipsec0" #1: received and ignored informational
      message
Feb  4 01:12:00 lynx pluto[2824]: "ipsec0" #1: received Delete SA payload: deleting
      ISAKMP State #1
Feb  4 01:12:00 lynx pluto[2824]: packet from 10.0.0.1:500: received and ignored
      informational message
 Feb  4 01:12:00 lynx ipsec__plutorun: Segmentation fault
Feb  4 01:12:00 lynx ipsec__plutorun: !pluto failure!:  exited with error status
      139 (signal 11)
Feb  4 01:12:00 lynx ipsec__plutorun: restarting IPsec after pause...
Feb  4 01:12:06 lynx login[3354]: root login on 'ttyS0'
```

Organisation
Westermo Research & Development

3 Known Limitations

This section includes known reported bugs and missing features, which may not necessarily be *limitations*, in many cases they may constitute severe operational drawbacks.

3.1 Platform

- A system with many VLANs setup requires more time at boot. This was first reported in #3291, but even after having fully optimized all data paths there still remains a significant delay. E.g., creating 128 VLANs on a RedFox Industrial takes apx. 6 seconds longer than creating a single VLAN.

- The new alarm configuration lacks support for RMON triggers. Furthermore the community string that can be configured for each SNMP alarm action is missing in the actual trap.

- The SHDSL SNR monitoring trigger does not use HI/LO levels, issue #4961.
  Fixed in WeOS 4.5.0-beta1.

- FRNT is limited to having both its ring ports in the same slot. There is a feature request documented for this in issue #3391. Fix planned for 4.5.0.

- Issues #4494, #4502 and #4508 concern continued caveats with the feature preview link aggregation support.

- Running an FRNT ring over copper SFPs is currently not supported, or recommended, due to slow response time from copper SFPs.

- No support (yet) for image upgrades from USB stick.

- No CLI configuration support for managing multiple users and their capabilities.

- No CLI configuration support for static multicast routes.

- No LACP support in link aggregation.

- RSTP, IGMP Snooping, FRNT, etc. not supported over link aggregates.

- No support for any port authentication, either MAC nor IEEE 802.1x based.

- No support for low–level interaction with PHYs and link partners.

- WeOS allows multiple logins to manage a device. But there is no warning, or other functionality available, to alert the user of this. Issue #3248.

- The SNMP Q-BRIDGE VLAN MIB implementation of StaticEgressPorts is incorrect. Fixed in WeOS 4.5.0-beta1.

		Organisation	
		Westermo Research & Development	

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

- Issue #5501 details a problem when disabling and reenabling a VLAN interface with an xDSL port as the only untagged member. In WeOS 4.4.x the system status reports the interface as UP but no traffic can pass and the xDSL port LED is off. Fix planned for WeOS 4.5.0.

- Moving ports from one VLAN to another can change the MAC address of the corresponding VLAN interface leading to loss of connectivity. The symptoms are that Web and SSH connections to the device suddenly "freeze" due to stale ARP caches. The effects of which can take several minutes to resolve.

  WeOS 4.3.0, and later, include support for gratuitous ARP on MAC address changes. However, not all client systems allow gratuitous ARP, although configurable, for security reasons. For cases where this effect is undesirable, e.g. a management interface, it is recommended to set a static MAC address using the CLI.

- Port monitoring fails to preserve the VLAN priority. Fix planned for a later release.

- SHDSL link can sometimes be lost due to slowly dropping SNR margin, issue #5317. This seems to be caused by high traffic load on the link. Fix currently unknown.

- When toggling bridge priority on the elected root bridge storm is easily provoked, issue #4203. Fix planned for a later release.

- In some setups when RSTP gets link up it has been reported to take very long to reconfigure, issue #4707. This may however be fixed in #5625.

- LLDP does not work correctly in all configurations. It has been disabled in the Westermo factory defaults, issue #4067. Fix planned for WeOS 4.6.0.

- When downgrading to a release < 4.1.0 the user must perform a password reset due to password cryptography enhancements from 4.1.0 and later. A password reset is only allowed on the console port, simply login with user "password" and password "reset", see the Management Guide for details.

  If a console port access is not available a crossed cable factory reset may be the only way to regain access.

  Note: In most cases the downgrade results in the password being reset to system default.

3.2 CLI

- Tab completion only works for commands in current context, not global, parent or even local show commands. Feature request registered in issue #4906.

- The '?' key does not work as expected. It only lists alternatives and does not include any online help. Full support is underway. In the meantime the user can use the 'help [command]' for online help. Also covered by issue #4906.

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

Organisation

Westermo Research & Development

- The repeat prefix to some show commands does not work, issue #5684. Symptoms include, either it does not work at all, no repeat only a single run, or the output is garbled. Fixed in WeOS 4.5.0-beta2.

- The on–line help is not only insufficient, it is sometimes even misleading. E.g., some commands do not support the `no` prefix. The help system will be restructured in a later release.

- No support for displaying SNTP status, NTP server stats. Best way currently is to manually check system time against another SNTP synchronized computer. The syslog is also a possible location to see what is going on. See "show log".

- No support for scheduled upgrades, i.e. ability to upgrade @02:30 to limit downtime during regular office hours. Feature request registered in issue #3363. Support planned for a later release.

3.3 Web

- Inspecting RMON counters in the Port Statistics page may need a manual reload before the actual values are displayed.

3.4 IPConfig Tool

Limitations in current v10.4.0 of IPConfig Tool for Windows™.

- The WeOS version is encoded in the old version numbering format to be fully compliant in all Windows™ releases. E.g., version 4.3.0 is encoded as 4.03 and version 4.3.1 is also encoded as 4.03. Hence, version 4.10.0 would be encoded as 4.10.

- Due to limitations in the version field of IPConfig the patch level of the WeOS version is not visible in the tool. No fix planned.
  Workaround: Verify patch revision from Web, CLI or SNMP.

- Limitations in field length causes problem with upgrade from IPConfig Tool, i.e. too long file names are not supported. No fix planned.
  Workaround: Rename image file name to a shorter name before attempting upgrade. Note, the file name is *not* used in any way to encode any information for the upgrade process.

3.5 Firewall

- Changing the input policy to allow makes it currently possible to access management services *not* enabled in the interface management setting. I.e., if http is disabled on an interface it is possible to access it anyway by changing the input policy to allow. Issue detailed in #5369. Fix planned for 4.5.0.

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

- Port forwarding does not work well with interfaces using DHCP assigned IP addresses. A fix is planned for a later release.

	Organisation
	Westermo Research & Development

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

3.6 VPN

- In some cases when one of the IPsec endpoints closes the tunnel the connection cannot be reestablished automatically. This may occur when the connection is configured with static peer IP addresses on both end points and the tunnel uses NAT traversal.
  Workaround: The IPsec connection on one or both peers have to be restarted by first disabling and the reenabling it in the configuration.

- The IPsec MTU override does not work when a WeOS devices sends traffic, issue #5733. Use the interace MTU setting on both outbound and inbound (WAN and LAN) interfaces to work around this problem. Fix planned for 4.5.0.

- Sometimes when updating an existing IPsec tunnel the changes does not take effect. This is documented in issue #5036. The IPsec daemon "pluto" can be manually restarted, without having to resort to restarting the whole device. Both the CLI and Web UI have this implemented. Fixed in WeOS 4.5.0-beta2.

- When using L2TP IPsec over NAT, only one connection from the NAT:ed network can be established.

- The VPN LED (previously ST2), visible on all new products, is not supported in WeOS 4.4.0. Full support expected in WeOS 4.5.0.

3.7 Link aggregation

Link aggregation is only provided as an unsupported technology preview feature. All use of the link aggregation feature except for testing is discouraged.

WeOS supports basic link aggregation in line with IEEE 802.3ad. However, the current support for link aggregation contains several limitations such as:

- Aggregation control: Link aggregates can be configured statically or be managed dynamically via the Westermo FLHP protocol. LACP is currently **not** supported.

- VLAN support: There is no support to add a link aggregate to a VLAN. Instead, each of the individual member links need to be added to the appropriate VLANs.

- Port settings: There is no support to configure port settings for the link aggregate. Instead, each of the individual member ports need to be configured uniformly, e.g., with respect to port speed/duplex mode.

- Layer-2 protocols: Layer-2 redundancy protocols such as FRNT or RSTP cannot be used on a link aggregate or any of its member ports. Neither can IGMP snooping, thus VLANs where any link aggregate has a member port must have IGMP disabled.

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

When configuring link aggregation on switches in an operational network, there is a potential risk for a broadcast storm to occur. WeOS currently does not support the use of RSTP or FRNT on aggregated ports. The operator must therefore ensure that no layer-2 forwarding loop is established when connecting switches via aggregated links.

	Organisation
	Westermo Research & Development

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

4   Known Issues

Issue	Category	Description
#3139	QoS	QoS interboard contention
#3248	System	No warning in CLI/Web when other users are managing the system
#3572	SNMP	Q-BRIDGE VLAN implementation of StaticEgressPorts incorrect
#4067	System	LLDP sends incorrect data.
#4203	RSTP	Storm occurs quite frequently when toggling RSTP bridge priority
#4494	FLHP	Aggregated SHDSL Link does not work after FLHP reboot
#4502	FLHP	Traffic across link aggregation breaks when a physical link is removed
#4508	FLHP	Link aggregation with FLHP does not start when activated, needs reboot
#4707	RSTP	Long reconfiguration time for RSTP at link up, up to 32 sec
#4823	System	Unable to reboot or access web after failed upgrade
#4856	Ports	SHDSL link up indicated on LEDs and CLI/Web before link is fully qualified
#4895	LED	RSTP show blocked port on LED when port is in forwarding state
#4929	RSTP	Looping admin edge ports causing a storm
#4951	FRNT	FRNT goes down during sustained high network load
#4961	Alarm	SHDSL SNR-monitoring does not use high and low value
#5501	System	Interface vlan1006 shows UP but connection is down
#5014	Ports	SFP 1000BASE-T does not autonegotiate to 10Base-T or 100Base-T
#5036	System	Configuration of VPN does not (always) take effect
#5092	VPN	IPsec: ID type inet fails in aggressive mode WeOS to WeOS
#5317	DSL	SHDSL SNR Margin falls with high load over the link
#5365	DSL	Ping fails for SHDSL turbo rates 8248k, 8760k and 9272k
#5369	Firewall	Input policy "allow" opens backdoor to "disabled" management services
#5376	System	Unknown multicast traffic gets forwarded to the CPU every 42-47 second
#5684	CLI	Partial output, or not working, show commands with repeat
#5733	VPN	IPsec MTU does not apply when WeOS is sender

	Organisation
Westermo	Westermo Research & Development

Prepared by	Document
Joachim Nilsson	Release Notes WeOS 4.4.0

Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

5   Fixed Issues

This includes all -beta releases leading up to 4.4.0 from 4.3.x.

Issue	Category	Description
#3358	CLI	Support destination interface address in "ip route" command
#3385	System	libCFG: Implement support for ordering of lists
#3403	WEB	Firewall: Let user select ports by name
#3410	WEB	Port range for firewall access rules
#3443	WEB	HTTPS: Secure Connection Failed with ssl_error_no_cypher_overlap
#3518	Firewall	Refactor how connection tracking is flushed
#3554	SNMP	Unable to change VLAN interface settings static/DHCP in Inet4BaseIfaceTable
#3601	System	Not possible to set DNS address as NTP server, only IP address
#3689	CLI	Temperatures below 0°C displayed wrong
#3812	Firewall	Changed handling of default firewall rules
#4024	CLI	Insufficient check on SNMPv3 rouser and rwuser settings
#4106	Alarm	Removing sensor from power alarm trigger does not take effect.
#4334	Firewall	It's possible to define the same interface for both in and out of a access rule
#4448	System	Implement firewall extensions for deny rules and rule reordering
#4597	CLI	Status of configured ALGs in firewall not shown in admin-exec context
#4629	Alarm	Possible to create a snr-margin trigger on units with no xDSL-port
#4633	WEB	Traceroute running from the web locking up the web
#4694	VRRP	VRRP not using virtual MAC
#4735	WEB	New generic Westermo/WeOS header image for Web interface
#4774	CLI	Command "show port serial" missing in configuration context
#4791	Serial	Serial character frame error
#4810	System	Interface IPv4 address for dummies
#4857	CLI	Port qualifier (ether, dsl) support in VLAN and elsewhere
#4873	Serial over IP	Migrate "latest sender as destination" feature from EDW-100 into WeOS
#4880	DSL	Implement WeOS support for SHDSL turbo speed on DDW-225 and DDW-226
#4884	CLI	Firewall: allow rule require proto keyword when port is selected
#4886	CLI	Files w/o proper .cfg suffix get obfuscated when copying to cfg://
#4889	WEB	Address field for Local/Peer ID shows when they should be hidden
#4890	WEB	IPsec: "Warning" should be shown when changing to Initiator
#4891	WEB	VPN: Help text for Auto for Local/Peer ID is not shown
#4903	CLI	IPsec: "Warning" should be shown when changing to Initiator
#4910	CLI	CLI channel setting gives no error for non-existing CPU channels
#4914	CLI	no error message if incorrect priority is set
#4945	Alarm	Mismatch in port status between Web and CLI
#4963	System	Change REQ: Remove default system contact and location in factory.cfg

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

Issue	Category	Description
#4969	WEB	Possible to set DSL SNR alarm on non-DSL ports
#4983	VPN	Upgrade to Openswan 2.6.26
#4991	Kernel	Upgrade to Linux 2.6.32.14 to fix iMX serial driver problems.
#5008	WEB	"out-of-range" value shows faulty page in serial-over-ip web-configuration
#5010	LED	ON LED always RED on RedFox Mil
#5024	WEB	Interface with no ports show as UP in Web but DOWN in CLI
#5025	System	Implement CLI support for PPPoE in WeOS
#5040	Firewall	Firewall blocks DHCP server, no allow rules created if started after firewall
#5056	VPN	IPsec daemon "pluto" crashes and does not recover in some setups
#5057	Firewall	Add web support for deny rules, and order/reorder of FW rules
#5105	Alarm	Possible to change read-only configuration for hw-failure trigger
#5120	CLI	Commands "show ip route", "show ip ospf ...", etc. displays only partial information
#5127	System	IPsec: Extend configuration validation with more cases
#5131	PPP	PPPoE/VLAN automatic property inheritance
#5132	Alarm	Lynx: Digital out gives a short close on a trigger event
#5141	WEB	IPsec - extend check of user input
#5146	WEB	Add DHCP server support in Web
#5147	System	Enable DHCP server in Falcon factory.cfg
#5148	DSL	Falcon VDSL/ADSL port restrictions with respect to RSTP and FRNT
#5149	System	Implement new libCFG API for WAN port profiles
#5151	SNMP	SNMPv3 engine ID error in Castlerock SNMPc when power cycled
#5152	SNMP	ifMau speed and duplex still not working
#5186	Serial	Enable sw flow control "XON/XOFF" generates stty error
#5192	System	DNS from provider not working on ETH ports
#5193	Firewall	Forward chain policy setting does not always stay set after a reboot or power cycle
#5198	CLI	Output from show in trigger context is not consistent with show from other contexts
#5199	Alarm	Add support for the SNR alarm for the Falcon device
#5207	System	Add CLI-only support for bandwidth limiting of CPU port(s)
#5212	WEB	Timezone has no effect
#5218	PPP	Add ability to restart PPP session (CLI)
#5224	SNMP	Wrong DSL port type in ifTable (IF-MIB)
#5230	System	Add ability to run DNS proxy without starting a DHCP server
#5234	DHCP	Restrict DHCP server interface to LAN interfaces
#5238	DSL	Configuring a SHDSL port as disabled does not work.
#5239	NTP	NTP reply from server has no effect (strata 0)
#5246	CLI	DSL functions displayed on Lynx
#5256	SNMP	Unit runs out of memory due to continuously generated SNR traps
#5266	WEB	Ambiguous interface address configuration information

Issue	Category	Description
#5267	CLI	Visualize PPP VLAN ownership (CLI)
#5268	WEB	Visualize PPP VLAN ownership (Web)
#5278	System	Add support for scheduled (cron) reboot
#5288	System	VRRP, OSPF, RIPv2 et al cannot communicate transparently over WeOS devices
#5293	SNMP	FRNT trap always show port state as forward
#5300	PPP	Limit number of PPP interfaces to one (4.4.x)
#5305	IGMP	Election process of IGMP querier fails when using static MR ports
#5308	System	Prune DHCP server configurations for invalid interfaces
#5309	CLI	Add support for an xDSL retrain command in the CLI
#5311	WEB	Add a DSL retrain button
#5318	DSL	SHDSL SNR Margin higher on established link with Manual rate than with Auto rate
#5319	Firewall	ALG modules not loaded
#5323	WEB	Webgui crashes when saving changes to vlans.
#5341	DSL	CLI informs that ADSL link is up (sync state) after disconnection of cable.
#5358	Alarm	Use temperature sensor ID 1 by default for temperature triggers
#5359	FRNT	FRNT ring ports not stored with proper qualifier
#5368	CLI	"show ipconfig" require interface to have an address
#5373	WEB	VLANs dynamically assigned to a port are not listed in web.
#5374	WEB	Bad error message when creating new access rule with no interface
#5375	VLAN	AVT dynamic port association problem when identifying trunk-ports using RSTP
#5385	DSL	xDSL port shown as "UP" when disabled
#5386	CLI	Disabled interface does not show OWNED(ppp0) when owned by a ppp interface
#5390	CLI	CLI cmd "show domain" logs you out/terminate session.
#5395	Firewall	Unable to ping LAN IP address
#5397	DHCP	DHCP lease-time cannot be set below 120 sec
#5401	Firewall	PIM protocol in FW default list
#5402	WEB	WEB connections in https locked
#5408	PPP	Faulty PPP connection created
#5409	CLI	"copy ru usb" make clish crash
#5410	System	Non approved SFP's working fine
#5415	WEB	DSL connection speed not reset on link down in Web
#5416	WEB	Default gateway presented as 0.0.0.0 with PPPoE on primary interface
#5431	System	copy usb:// run result in invalid configuration
#5434	DSL	DSL daemon sometimes hangs after config changes.
#5438	CLI	The command "copy FILE cfg://" results in a hidden file called cfg://.cfg
#5439	WEB	CVE-2009-4490/4491: Acme thttpd command injection vulnerability
#5440	CLI	OSPF neighbour code uses RIP API, does not work and could cause data loss
#5441	CLI	debug>ospf or rip locks up the CLI

Organisation

Westermo Research & Development

Issue	Category	Description
#5443	System	No port settings saved, whole port missing in .cfg file, after change in CLI or Web
#5448	System	Port default-vid set to 1 instead of none for unconfigured ports
#5454	Firewall	Unable to establish a VPN tunnel when firewall is enabled.
#5457	WEB	Firewall is not disabled after changing to wan profile 'bridged'
#5458	WEB	Different firewall rules when applying without changes in basic setup
#5460	System	Linkd behaves mysteriously on Falcon
#5466	System	Upgrade of bootloader can fail; error from TFTP download ignored
#5469	Firewall	Lingering connection tracking of old access rule after change from UDP to TCP
#5470	VRRP	Virtual IP address doesn't work as gateway
#5471	DSL	DSL daemon always restarts on ANY configuration changes.
#5473	System	VRRP enabled interface responds with faulty MAC address
#5474	PPP	When configuring tunnel ppp0 another incorrect tunnel ppp1 is created as well.
#5476	Alarm	Issuing "show" in link/SNR/LFF trigger throws user back to login prompt
#5478	IGMP	IGMP entries not deleted when adding mac-filter
#5480	CLI	DSL rate has inaccurate format in 'show port' and 'show dsl'
#5481	CLI	Missing argument to spanning tree port path-cost throws user back to login prompt
#5483	WEB	WEB screen logs out in DSL statistics page with auto-refresh
#5484	WEB	DDNS enable/disable reports ERROR
#5485	WEB	Password fields shown as clear text instead of hidden
#5486	CLI	Help text for STP commands: max-age-time and forward-delay is not correct
#5494	PPP	PPP authentication does not start automatically
#5495	WEB	When entering ppp password on basic setup, the password is visible in clear text
#5500	VPN	IPsec does not start automatically after restart from Web UI
#5508	VPN	IPsec does not start unless "outbound" is set.
#5510	CLI	Typo in help text for RSTP forward-delay
#5516	CLI	Generated stp-port config is missing ports
#5517	DSL	RFC2684 Padding of Too Short Frames Not Working in ADSL Mode
#5521	CLI	Issuing "no server" in SNTP configration does not disable SNTP
#5522	Web	Firewall: Cancel button not working
#5524	System	Changing to Auto MTU on an interface requires reboot to take effect
#5528	Firewall	Management services ON by default, not silent on WAN interface!
#5538	CLI	route command accepts a faulty "route add ..." format
#5564	System	Possible memory leak in VRRP or IGMP
#5569	System	Primary interface (ppp0) fails to set default route
#5573	System	DDNS client fails to connect to server to update IP
#5574	WEB	Denote FRNT ports "M" and "N" instead of "1" and "2" (Web)
#5576	CLI	Denote FRNT ports "M" and "N" instead of "1" and "2"
#5578	CLI	"show ipconfig" mixes up ports "M" and "N"

Prepared by	Document
Joachim Nilsson	Release Notes WeOS 4.4.0

Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

Issue	Category	Description
#5581	LED	Lynx 1400G: Alarm LEDs do not work on fiber ports
#5586	WEB	Basic Setup: Changing from bridged to routed - static ip fails.
#5590	Firewall	Filters w/o in or out interface set are silently removed from configuration
#5592	CLI	Removing firewall access rules by position not supported
#5599	Firewall	Deleting port forwarding rules via Web GUI leaves rules until restart
#5602	System	FRNT ring uptime shows negative time after NTP time set
#5605	DSL	Enable/disable of xDSL port does not work
#5606	VRRP	Preempt delay does not work when rebooting master router
#5614	Firewall	Firewall rules for virtual VRRP interface not created
#5619	NTP	Fail to set time from TimeTools NTP server
#5622	System	Revert IPsec config reload mechanism for 4.4.x to restart daemon on any change
#5625	RSTP	Problem with RSTP retraining if ports are configured as non-stp
#5626	VRRP	VRRP instances not removed when removing associated VLAN
#5627	System	Bandwith limit to CPU does not seem to work
#5634	WEB	CIDR incorrectly stored when saving NAT rule without any source IP address
#5642	System	Revise Port-map on RFR-12B
#5643	LED	Indications for link alarm behaves strange on RedFox Rail/Mil/Coupler
#5645	DSL	Updated Infineon/Lantiq drivers and firmware
#5646	System	CLI flash-table-update command with bootloader < v2.xx result in bricked unit
#5667	WEB	New time not saved to RTC, lost when power cycling, reboot works
#5675	IGMP	Unit does not forward IGMP queries if interface has no address
#5679	VPN	Out of memory, unit crashes when pressing VPN status on web frequently
#5683	VPN	IPsec keying daemon segfaults and does not successfully restart
#5685	IGMP	IGMP forwarding does not work if VLANs with IGMP disabled exists
#5689	DSL	Disable FCS checksumming on internal switchcore to DSL port
#5690	DSL	DSL command(s) for sending messages to the Vinax chip is not working.
#5720	WEB	IPsec responder should not be possible to configure with DPD action restart
#5727	System	Single link change generates multiple link interrupts on iMX27 platform

	Organisation
	Westermo Research & Development

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

6   Accessing the Command Line Interface

The RedFox switch supports a classic Command Line Interface (CLI) that can be accessed via the console port at 115200@8N1 or Secure Shell (SSH), for details see the Secure Shell RFC4251. WeOS supports protocol version 2 only.

Issue `help` or `show tutorial` at the prompt to access the built–in help and tutorials. See the WeOS Management Guide for more information.

Recommended Clients

UNIX OpenSSH, `http://www.openssh.com`

Win32 PuTTY, `http://www.chiark.greenend.org.uk/~sgtatham/putty/`, note that PuTTY is also useful for connecting to serial port consoles.

Please follow the directions for installation and usage applicable to your system and client.

Logging In

To gain access to the CLI you need:

- An SSH client

- The switch IP#

- The user name and password

Units shipping with WeOS have by default all ports assigned untagged to VLAN 1, RSTP enabled on all ports and a static IP address: 192.168.2.200 with netmask 255.255.255.0.

Use the IPConfig tool, an LLDP client or nmap to find your device. If you have a DHCP server available you can set it up to hand out a known IP addresses for the registered devices MAC addresses. Each unit comes with 16 or 32 MAC addresses assigned, depending on the port count, the base address should be printed on the box and on the unit itself.

The unit is fairly quick to boot, in under 10 seconds is the unit up requesting an IP address — depending on the existence of a DHCP server the fall back to link–local address can take a while. To be on the safe side while scanning for your device, expect it to take anything from 30 seconds to one minute after power–on.

The following example illustrates how to login to the switch using OpenSSH from a GNU/Linux based host system. The process is similar with PuTTY or other SSH clients.

The operator lists the running configuration with the command `show running`, an overview of ports, vlans and interfaces is available by typing `show ports`, `show vlans` and `show ifaces`. See the `help` or the `show tutorial` for more on line help.

Organisation	
Westermo Research & Development	

Prepared by	Document
Joachim Nilsson	Release Notes WeOS 4.4.0

Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

To change some settings, enter the configuration context with the command `conf`, short for "configure". The same commands as shown above also apply here, but now display configured settings.

To show or change the interface and VLAN properties the operator uses the command: `interface vlan2` and `vlan 2`, respectively, with an optional "show" as prefix. E.g. `show iface vlan2`.

To leave a level the operator must use the command `end` to save and `abort` to cancel.

Any new settings are activated only when the operator leaves the configuration context, using "end".

To save settings to non–volatile RAM (flash disk), the operation uses `copy run start` from admin–exec context.

```
$  ping -b 192.168.2.255
PING 192.168.2.255 (192.168.2.255) 56(84) bytes of data.
64 bytes from 192.168.2.200: icmp_seq=1 ttl=64 time=10.4 ms
64 bytes from 192.168.2.200: icmp_seq=2 ttl=64 time=0.895 ms
^C

$  swping -i eth1
MAC               IP               Ver.        Type     Status
================================================================================
00:07:7c:86:04:b5  192.168.2.200/24   4.0.        RedFox   ------------SI

$  ssh admin@192.168.2.200
The authenticity of host '192.168.2.200 (192.168.2.200)' can't be established.
RSA key fingerprint is 1d:ce:fe:4b:8e:c2:73:42:11:68:73:02:e5:a6:e4:8b.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.2.200' (RSA) to the list of known hosts.
admin@192.168.2.200's password: westermo

.--.--.--.-----.-----.------.-----.-.--.--------.-----.
| | | | | -__|__ --|_    _| -__|  _| .  .  | _  | http://www.westermo.com
 \__/\__/|_____|_____| |__| |_____|__| |__|__|__|_____|          info@westermo.se
   Robust Industrial Data Communications -- Made Easy

Westermo/RedFox Version 4.0.0 cricket/4.0.x@13930 -- May 18 14:20 CEST 2009
redfox:/#> ^D
$
```

This is a typical session where broadcast ping is first used to locate the device, followed by an IPConfig scan and then SSH login using the default user and password.

Prepared by	Document	
Joachim Nilsson	Release Notes WeOS 4.4.0	
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

7   Firmware Upgrade

Firmware upgrade is supported from the CLI, Web and IPConfig tool. All of them support FTP/TFTP upgrade, but the Web also supports CGI upload from the browser – making it the ultimate choice if you have no FTP/TFTP server available or do not care to set one up.

Note, the secondary CPU image and the boot loader firmewares can only be upgraded from the CLI. The version string listed in the output from the `show system-information` command is only updated after reboot.

7.1   What Firmware Image to Use

The image file names are currently limited in length to what the IPConfig tool is capable of handling. This is an intermediate limitation before introducing support for longer human–readable file names in a future IPConfig replacement. The file names are built around the product name and the model, or operating system, it is based upon.

Primary and Secondary

List of primary and secondary CPU firmware images.

fw4XY.img: Falcon, WeOS 4.X.Y

lw4XY.img: Lynx+, WeOS 4.X.Y

lm4XY.img: Lynx 1400G, WeOS 4.X.Y (customer specific)

rw4XY.img: RedFox, WeOS 4.X.Y

ww4XY.img: Wolverine DDW-225/226, WeOS 4.X.Y

Boot Loader

The boot loader firmware can only be upgraded from the CLI. The current version (updated at boot) is visible in the output from the `show system-information` command.

Please note, the boot loader firmware does not follow the WeOS version numbers, it has its own version numbering scheme and is also very CPU platform specific. Also, unless the release notes explicitly recommends it you should not upgrade the boot loader. List of bootloader firmware images:

imx27-redboot-4.XX.bin: Falcon, Lynx+, Lynx 1400G, Wolverine DDW-225/226

xscale-redboot-2.XX.bin: All RedFox products

Use the command `upgrade boot <ip-addr> <firmware>` to upgrade the bootloader.

| Organisation |
| Westermo Research & Development |

Prepared by	Document
Joachim Nilsson	Release Notes WeOS 4.4.0
Approved by	Date	Document No
Raimo Gester	November 25, 2010	089604-r19562

7.2 Upgrading early RedFox units to 4.3.0 or later

Early RedFox units (Industrial and Rail) delivered with WeOS 4.0.0, comes with a flash memory partition unsuitable for the larger firmware image size of WeOS 4.3.0 and later.

You find information on your product's type of *model*, *article number*, and *serial number* via the Web interface (Menu path: Home ⇒ Details), or via the CLI `show system-information` command.

Model	Article number	Serial number
RFI-18-F4G-T4G	3641-3300	< 1190
RFI-14P-F4G	3641-3200	< 1180
RFI-10P	3641-3110	< 1220
RFI-18P	3641-3100	< 1111

See the management guide for details on how to safely upgrade the system flash table.

7.3 Upgrading From the CLI

To be able to upgrade the switch firmware the user must install and run an FTP server or a TFTP server on a network connected to the device. The (T)FTP upgrade uses anonymous login with the password 'support@westermo.se'.

The example below shows that the upgrade command, in CLI, Web and IPConfig first tries FTP and then TFTP, should the FTP connection fail.

```
redfox:/#>  upgrade pri 192.168.2.42 rw400.img
Reading MTD partition information from FLASH
netflash: login to remote host 192.168.2.42
ftp: connect: Connection refused
netflash: ftping file "rw400.img" from 192.168.2.42
No control connection for command: Connection refused
netflash: failed to load new image
Trying TFTP instead...
Reading MTD partition information from FLASH
netflash: fetching file "rw400.img" from 192.168.2.42
...................................................................
netflash: got "rw400.img", length=5918720
netflash: Signature OK - Sig = RFox
netflash: CramFS OK - CRC = 0x194F663B
netflash: Flashing primary image, reboot is forced.
netflash: Killing processes to protect FLASH during upgrade...
netflash: programming FLASH device /dev/mtd1
.................................
netflash: Updating RedBoot FIS directory
Writing updated MTD partition information to FLASH
netflash: Rebooting.
Restarting system.
```

The system will force a reboot when upgrading the primary image. This to protect against flash corruption issues seen in earlier releases, caused by simultaneous access to the flash during programming or when starting new processes after upgrade.

Organisation

Westermo Research & Development

As usual, when upgrading from an earlier release, we always recommend saving your startup configuration beforehand.

This is how far the release notes goes, please see the management guide for details. Or get in touch with your local distributor, or Westermo for any questions, support or course material.

Good Luck! //The WeOS Team