

Document Release Notes WeOS 5.30.0	
Date July 1, 2026	Document No 224004-g6ce9560

WeOS 5.30.0
Release Notes

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Important User Information

This section details important user information, directed in particular to new users of WeOS 5:

For help with getting started using WeOS 5, refer to the Quick Start Guide in section 5.

User Guide

In WeOS 5, the primary user documentation is referred to as the *WeOS 5 User Guide* which you can find as a PDF document in the release Zip file in the sub-directory: `docs/weos/`.

The *User Guide* is also available online at <https://docs.westermo.com/weos/weos-5/>.

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1 Summary of Changes

This section details new features added in this minor release.

Users new to WeOS 5 are recommended to read section 7 carefully, as it highlights some of the major differences between WeOS 4 and WeOS 5.

1.1 News in 5.30.0

The subsection below describe news in WeOS 5.30. In addition, section 2.1 includes information on fixed issues.

1.1.1 Firewall - DSCP Marking

The WeOS Firewall now supports DSCP (Differentiated Services Code Point) marking through a new prerouting rule type. This allows packets to be classified and marked with a DSCP value before the routing decision, enabling QoS handling further along the forwarding path. Prerouting DSCP rules support matching on inbound interface, source/destination address, source/destination port, and protocol, and can be combined with counters, comments, and logging.

For more information see the WeOS User Guide section *Configuration Guides → Firewall and NAT → Firewall*.

1.1.2 Storm Control

Storm Control is a new feature that protects the network by automatically bringing down a physical port when traffic exceeds a configured ingress rate limit threshold, thereby preventing network storms from disrupting the device. This feature is supported on Viper-3508 and the Lynx-3000 series products.

For more information see the WeOS User Guide section *Configuration Guides → Ethernet Ports → CLI Configuration Command Syntax → Port Rate Limit*.

1.1.3 Link Health Monitor

Link Health Monitor is a new feature that can protect a network by automatically shutting down a physical port that is experiencing a high number of link state changes. When physical equipment degrades over time, a faulty SFP or a faulty cable may cause a port to flap, i.e. rapidly change between up and down states. Such flapping can cause disruptions in the network, and through the use of Link Health Monitor, a port that is flapping can be automatically shut down to prevent further disruptions.

For more information see the WeOS User Guide section *Configuration Guides → Ethernet Ports → CLI Configuration Command Syntax → Health Monitor*.

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1.1.4 SNMP

IMPORTANT!

SNMP commands now have a fixed order with reboot on index 1 and factory-reset on index 2. Previously the existing behavior of the SNMP commands was dynamic and dependent on how the commands was configured.

If the SNMP commands are previously used, the usage must be updated to reflect the new fixed order. If not, SNMP commands will not work as expected and may even cause unexpected reboots or factory resets.

1.1.5 User Guide as PDF Document

The WeOS User Guide has been given an extensive overhaul and starting in this release comes bundled with the WeOS .ZIP archive as a PDF document for easy reading instead of as a collection of HTML documents.

The HTML version of the documentation has also seen a complete make-over and can, just like before, be found on the *westermo.com* website by selecting *Solutions* → *WeOS* → *WeOS User Guides* in the top navigation.

1.1.6 Support for New Lynx 3000 Models

WeOS 5.30.0 introduces support for two additional models in the Lynx 3000 family, extending the range of available port configurations. The devices feature 14 RJ45 ports and 4 SFP ports, with one model supporting 2.5 Gb/s SFP modules.

Both models are available as both Layer 2 and Layer 3 switches:

- Lynx-3518-(E)-F4G-T14G-LV
- Lynx-3518-(E)-F2G2.5-F2G-T14G-LV

1.1.7 Byron Platform Support Temporarily Excluded

Support for the Byron products (Lynx RedBox) is not included in 5.30.0. Work is in progress, but outside the 5.30.0 release.

1.1.8 GNS3 Support

WeOS 5 virtual products for GNS3 are now formally released. This makes it possible to run WeOS 5 appliances in GNS3 topologies for lab work, training, configuration testing, and early network design without requiring physical hardware.

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The GNS3 support is intended for lab and testing purposes only. It is not intended for production use, and should not be used as a replacement for physical WeOS products in operational networks.

Note: The virtual products are not a 1:1 simulator of the corresponding physical products. Hardware-dependent functionality and characteristics may differ from physical products or be unavailable, including PoE, physical port behavior, SFP/media handling, hardware offloading, timing-sensitive behavior, and performance characteristics.

For more information see the *WeOS Virtual Products User Guide*.

2 Fixed Issues

2.1 WeOS 5.30.0

Fixed issues in WeOS 5.30.0 (as relative to 5.29).

Issue	Category	Description
WEOS5-5331	VLAN	VLAN Q-in-Q: Untagged, or VID 0 tagged, frames entering on a VLAN Nest port gets double tagged if switched by the SW bridge
WEOS5-5313	MRP	Potential full forwarding scenario during startup, reboot and big re-configuration situations
WEOS5-5298	General	Intermittent DNS Resolution Failure
WEOS5-5276	TCN	Sporadic failure to inaugurate
WEOS5-5273	System	Ports sometimes not going to Forwarding on Dagger based products
WEOS5-5102	System	Generic file transfer: Extra password prompt may be shown while setting host key
WEOS5-5082	TCN	Incorrect acting on obsolete/invalid ETB CTRL telegrams
WEOS5-5081	TCN	Incorrect calculation of operational direction
WEOS5-5020	PTP	1-step TC in 2-step network generates error messages in the log
WEOS5-4991	System	Redfox and Lynx 5000 underutilization of switching buffers
WEOS5-2901	System	DNS Server responds with 127.0.1.1 for its own hostname
21196	DHCP	DHCP Client not working on Layer 2 Lynx-5000 and Redfox
21179	Documentation	Port monitor: Placeholder text in user guide
21175	General	Port monitor: Unclear help text in CLI
21146	VPN	Log spammed with Wireguard messages if no connection to peer
21135	AAA	ssh ignores password policy setting 'prevent-reuse: Enabled' when password is expired
21063	SNMP	SNMP commands depend on order they are defined
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Issue	Category	Description
20888	Ports	Redfox and Lynx 5000 SFP handler can fail to setup the correct low level duplex settings for Gbps SFPs
20868	System	Ports Eth1-Eth4 on Redfox can become unable to transmit packets after sustained CPU routing overload
20617	VLAN	Packets seen on different VLAN in specific circumstances

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2.1.1 Vulnerabilities

Fixed vulnerabilities in 5.30.0.

- CVE-2026-40528
- CVE-2026-40510
- CVE-2025-66215
- CVE-2025-66038
- CVE-2025-66037
- CVE-2025-49010
- CVE-2025-13763

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3 Known Limitations

This section describes known limitations in WeOS.

3.1 Ring Coupling version 2 not supported

Support for FRNT Ring Coupling (RiCo) version 2 was removed in 5.15.0 due to problems with the stability of the function. Most of the use cases for RiCo version 2 can be covered today through the use of FRNTv2 and RiCo v3.

For information around FRNT v2 and RiCo v3 usage please contact local Westermo support.

3.2 Port Access Control (IEEE 802.1X and MAC Authentication)

Wake-on-LAN is currently not possible on controlled ports. The reason is that broadcast traffic is not allowed to egress a controlled port until there is at least one MAC address authenticated on the port.

3.3 RMON

Some Hardware platforms are unable to provide certain RMON counters due to problems with the hardware chipset.

- RCV Error counter does not work on Viper 3512 and 3520
- FC Received (rx_pause) does not work on Lynx 5000 and Redfox

3.4 Login

Known limitations related to the Login service.

Side-effect of disabling console login

When disabling login from console, login via telnet is also prohibited (even when telnet login is enabled).

SSH Public Key Lost When Disabling Built-in User

WeOS 5.13.0 introduces support for importing SSH public key for built-in users, as well as the ability to enable/disable a user. When disabling a user, the intention is that the user shall be prohibited from logging in, while other user configuration is till kept in the configuration file.

However, the disabling of a user currently implies that any SSH public key associated with the user is removed and needs to be imported again upon enabling the user.

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3.5 Setting Date Manually

Setting a manual date on the WeOS unit before 1 January 2000 will render an error message.

3.6 Available ports for boot specific functionality

The boot loader rescue mode only supports regular copper ports, not SFP ports. On RedFox-5528, ports 1-4 are also not supported until the system has booted. This is also true for the expander ports on the Lynx-3518 platform.

3.7 Routing Hardware Offloading

The routing Hardware Offloading support for Viper-TBN introduced in WeOS 5.8 has shown to have instabilities. In particular, when used with dynamic routing, there are issues not yet solved. Therefore hardware offloading has temporarily been Disabled by default.

```
viper:/#> configure
viper:/config/#> ip
viper:/config/ip/#> offload
viper:/config/ip/#> leave
```

When Offloading is Enabled, regular IPv4 forwarding is handled in hardware with some exceptions, see the WeOS 5 User Manual for details (section 'Configuration Guides'/'Routing'/'Offloading').

For Redfox and Lynx-5000 initial Offloading support in 5.23.0. Functionality only cover a very small subset of use cases yet and has a list of restrictions.

The Known limitations for offloading on Redfox and Lynx-5000:

- Routed IPv6 traffic is handled by the CPU
- IP multicast traffic will be routed by the CPU
- Firewall forwarding chain will not impact any routed Unicast traffic
- NAT will not be performed on any routed traffic
- Only VLAN interfaces can be used, usage of Port-interfaces will not perform any traffic forwarding
- Policy-Based Routing will not function
- SSL-tunnel will function to some extent via the CPU but is strongly discouraged from being used in this release

Tracking vrrp instances with mroutes is not supported when offloading is enabled. If this feature is used it is recommended to disable offloading. (opposite steps to the example above).

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Use of the WeOS Firewall together Hardware Offloading is not supported and the behaviour of doing so is undefined. The exception is when firewall configuration is limited to *filter input* rules.

Hence, if the Firewall is use to configure *filter forwarding* rules, *NAPT* rules or *port forwarding* rules on a Viper-TBN, it is necessary to disable the Hardware Offloading (opposite steps to the example above).

```
viper:/#> configure
viper:/config/#> ip
viper:/config/ip/#> no offload
viper:/config/ip/#> leave
viper:/#>
```

3.8 Redundancy protocols on Relay ports

It is only supported to run link-aggregation as the selected option for redundancy on Relay ports. This is due to the fact that any other protocol can end up in very uncertain situations in cases where the bypass-relays are used.

In the future WeOS may refuse enabling these protocols on relay ports.

3.9 FRNT

Fastlink must be enabled manually for FRNT (gigabit Ethernet) ring ports.

Fastlink is a unique feature of Westermo products to optimise gigabit Ethernet link-down fail-over times in layer-2 redundancy protocols such as FRNT.

3.10 RSTP

WeOS 5 supports RSTP, compliant to IEEE 802.1D-2004. Due to limitations in the WeOS 4 implementation of RSTP, a WeOS 4 unit will keep ports in blocking mode longer than needed when connected to a WeOS 5 node.

Hence, mixing WeOS 4 and WeOS 5 units in RSTP topologies may exhibit relatively long periods with limited connectivity during topology changes, this applies to both link failure and when a link comes up again.

Link aggregate path-cost use the configured port speed value(s) and not the negotiated speed value. This can lead to RSTP making the non-optimal path selection. Work-around this issue by setting a fixed path-cost in the spanning-tree port configuration.

3.11 IEC 61375

In this release, not all of the recovery use cases, nor the optional cases, are supported.

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TTDP and non-TTDP multicast can be used simultaneously in this release, but is considered unstable and is strongly recommended to be avoided.

"Automatic Gap Insertions", when several vehicles have the same name, can lead to unexpected behaviour.

When recovery-mode is set to deferred/wait, an ECSC must be running on the configured multicast address. If no ECSC is running and sending data on the configured multicast address, no node will come up at all.

It is strongly recommended to enable inauguration inhibition on all nodes to reduce spurious re-inaugurations and guarantee a stable train communication.

The "ECSP inhibit sync" function should only be enabled in consists with simple or straightforward ECN configurations. In complex configurations with non-symmetric ETBN/ECN connections and/or configurations where different ETBNs are master routers for different ECNs simultaneously, the backup ETBNs will not be able to unambiguously determine which ETBN is the master router/ECSP, which can in turn lead to unexpected behaviour with regards to the local inauguration inhibition value. In these cases, manually setting the local inauguration inhibition values on the backup ETBNs, via the ETBN_CTRL telegram, should instead be performed.

VRRP virtual IP address ("VIP") is primarily intended to be used as a gateway/router address, and not as a host address. However, using the VIP as a host address, that at any one time belongs to the currently active ECSP is a common use case. When using the VIP in this way, for ECSC-ECSP communication, it is recommended that the "vmac" option in the VRRP configuration be turned off for all VRRP instance whose VIPs are used in this way.

3.12 Custom TRDP telegrams

The implementation of Custom TRDP telegrams has some limitations:

- Data from up to 32 device ports can be included across all defined datasets.
- Data from up to 8 VLANs can be included across all defined datasets.
- Data from up to 4 FRNTv2 rings can be included across all defined datasets. FRNTv2 is the only supported ring protocol for which data can be included.

3.13 LLDP

When using Link Aggregation, the individual member ports will transmit LLDP frames using the MAC address of the link aggregation interface, i.e. all member links in an aggregate will be using the same MAC address.

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3.14 Port Monitoring

It is not possible to utilise port monitoring directly on a link aggregation port interface. However it is still fully possible to monitor the individual member ports that constitute any given link aggregate.

Therefore, in order to fully monitor an aggregate, monitoring must be configured for each of the aggregate member ports.

3.14.1 Cross switch core limitation

It is not possible to use port-monitor where the source and destination ports are split between switchcore 2 and 3 on Viper-120 and Viper-220 products.

Having the source and Destination port on the same switch core or one of the source or destination ports on ports ethX7, ethX8, ethX14 or ethX20 while the other resides on one of the other switchcores is possible.

3.14.2 Resource allocation

Thresholds for dropping packets going through Port Mirroring instances may be lower than for regular streams during network congestion. Drops may therefore occur earlier (with lower load) for port mirroring instances.

3.15 Media Redundancy Protocol (MRP)

- *MRM not supported for MRP 30 profile:* WeOS 5 units can be configured to operate in MRP 200 or MRP 30 profile. However, for MRP 30 profile, configuring the WeOS 5 unit as MRP Master (MRM) is not supported. A WeOS 5 unit can be used as MRP Client (MRC) with MRP 30 profile with MRMs from other vendors.

More details: When a link comes up between two MRP clients, the clients send *link-up* messages to the MRP master. The MRP 30 ms profile only gives the MRP master 4 ms to block its secondary port from the time the MRP clients send their first *link-up* message. The WeOS 5 MRP Master is not always capable of doing that, resulting in a short transient loop in the MRP ring when the ring is healed.

To avoid this, it is recommended to use the MRP 200 ms profile instead. For link-down scenarios, MRP 200 ms profile conducts failover as fast as the 30 ms profile, given that MRCs in the ring are capable of sending MRP *link-down* messages (WeOS units have this capability).

- *Use of MRP with virtual L2 ports (SSL VPN ports):* MRP is specified for use with Ethernet ports (full duplex, 100 Mbit/s or higher). WeOS enables the use of running MRP over SSL L2 VPNs, but requires the VPN to run over a high-performance network to work well. Furthermore, only the MRP '200 profile' can be used with SSL VPNs.

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3.16 10G SFP Ports

The 10G SFP ports on RedFox-7528 have the following limitations:

- IEEE 1588/PTP is currently not supported on 10G SFP ports.
- 10G SFP ports are only to be used for 10G Fiber SFPs or 1G Fiber SFPs, not copper SFPs or 100 Mbit/s Fiber SFPs.
- Status of MDI/MDIX and polarity shows value 'Invalid' ('N/A' or 'Not Applicable' would be more appropriate).

3.17 RedBox PTP Boundary Clock

RedBoxes running Boundary Clock in an HSR ring must be connected with all A ports in the same direction. As the BC prioritizes synchronizing from the A port, if two BC are synchronizing towards each other neither of them may end up in a stable state.

Connect devices as shown below:

```
ethA-RB-ethB <-> ethA-RB-ethB <-> ethA-RB-ethB ....
```

3.18 Ingress rate limiting

On Viper-3000 series and Lynx-3000 series, ingress rate limiting of multicast traffic includes broadcast.

3.19 Static unicast MAC filters for link aggregates

Static unicast FDB filters are known to not work as expected when the port associated with the filter is a link aggregate that spans multiple switch cores.

3.20 Barebox System Recovery ports

The Lynx-3518 family has limitations on which ports can be used in Barebox System Recovery, only eth11-eth16 are valid.

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4 Known Issues

4.1 List of known issues

Issue	Category	Description
#WEOS5-5330	VPN	Unable to configure MTU size for ssl tunnel interfaces
#WEOS5-5320	System	Configuration not applied properly on boot with broken SD-card
#WEOS5-5017	Routing	During routing of packets a single packet is frequently lost on viperA
#21198	System	netd generates segfault and cause system to lose default gateway at boot
#21197	System	FW upgrade towards a HTTPS server does not work
#21194	IP Multicast	MROUTE tracking maps to interface set as tracking and not input vlan making rule fail on system level
#21193	System	During long term test with link down/up the device lose it's static ip address
#21191	System	Active SSH session remains active after disabling SSH
#21184	System	Installing invalid wmopkg in package context can lead to soft-locked device
#21183	General	Symlink on external media can point to internal files and allow modifying them
#21178	General	Arbitrary command execution through ddns hostname
#21158	Ports	Unable to configure egress rate limit when a LAG exists
#21148	System	System start input validation for system hostname refuse underscore
#21141	Alarm	Files in config validation may break system from storing config
#21140	Alarm	Alarm fails to map to frntv0 service on configuration restore
#21134	VPN	IPsec: selecting bundle as local-cert might not work
#21123	Offloading	Offloading of multicast fails within 1min after streams start on Viper platform
#21122	Port Access Control	Authorized entries can become black hole in software bridge fdb
#21115	Ports	RedBox: IRQ spam sometimes when SFP is inserted but not in use
#21086	System	Show fdb includes unexisted enteries
#21078	System	Setting static speed/duplex works only the first time (Viper 3000)
#21068	Alarm	Alarm instance is not restarted when doing a config restore
#21063	SNMP	SNMP commands depend on order they are defined
#21040	VLAN	Creating lots of VLANs can lose LAN settings
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Issue	Category	Description
#21037	Link Aggregation	"no lag <X>" does not removing lag <X> from "show running configuration"
#21016	Ports	Redfox and Lynx 5000 autoneg to 1Gbps/s may fail and fall back to 100Mbps
#20957	System	Lynx 5000 and Redfox inconsistent hotswap of External media disk without partitions
#20919	General	certificate store isn't findable by client utilities
#20896	Any	mDNS discovery not working on Redbox
#20891	Kernel	Port priority does not work across switchcores (DSA)
#20828	System	Deactivating Watchdog in Lynx + RedFox 5000 & 7000 series reboots the unit continuously
#20771	WEB	WEB page is sporadically not updated after configuration
#20749	TCN	TCN can fail to build TTDB properly in the extremity 2 backup TBN when cstinfo have same cstID and/or vehID
#20748	System	RMON does not show Filtered/Discarded values
#20662	Any	no boot does not reset allow-untrusted/unlock-license
#20627	Port Access Control	Inconsistent and delay in MAC Address Authentication
#20603	System	Upgrade command can hang device forever in runlevel 9
#20578	NTP	RTC may lock at wrong time at power down if backwards time jump has happened
#20574	Logging	Excessive logging during configuration change
#20410	DHCP	Unable to bind IP address when short DHCP leasetime is provided
#20312	AAA	Possible to get locked out if lockout policy is set and no valid connection to Radius server
#20309	System	Firmware upgrade could reset the user password
#20281	System	The error message "Failed to add audit entry to audit daemon" is spammed when applying large configs
#20249	System	Repeated connections via telnet may cause the telnet service to become unresponsive
#20233	HW	RTC: System time might not be stored correctly
#20231	WEB	Fail with restoring config in WEB but no fault messages
#20201	System	Rebooting after disabling offloading will remove all traffic policies
#20150	System	DHCP Reply seems to be offloaded, cannot accept address
#20047	WEB	The user is redirected to the login page when editing firewall rules is tried
#19958	Boot Loader	Envoy Barebox uses precompiled ATF
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Issue	Category	Description
#19928	TCN	Offloading with TCN does not allow for fragmented packets to be forwarded
#19903	System	configuration restore do not clear previous added route from system
#19880	WEB	Refreshing page when upgrade of bootloader or secondary restarts the upgrade if it's done
#19878	CLI	Config abort do not work correctly with an in valid configuration
#19870	IGMP	Multicast Snooping Boundary for MLD does not work on Dagger based systems
#19826	System	Large amount of authenticated SSH sessions causes denial-of-service condition
#19777	WEB	Upgrading primary image from web ui does not report flashing done in http response
#19756	VRRP	The vmac of VRRP causes strange log messages and VRRP not to work properly
#19711	WEB	Cannot access help in some menus in webGUI when browser tree menu has gone past the bottom of the screen
#19517	Logging	When PoE-chip goes repetitively down many Kernel logs is generated and stored
#19410	IGMP	Missmatch between MDB and ATU for mc group 239.193.0.1 when etbn is acting as router, sender and consumer of data
#19323	FRNT	FRNT Focal point Topology Counter rush with LACP links (Dagger)
#19262	Ports	Traffic not handled on Envoy ports using Copper SFPs
#19251	PoE	Lynx 3510 PoE leds continuously blinking in case of LV supply
#18675	Link Aggregation	Long failover time (aggregate member link up/down) in link-aggregate interoperability case (WeOS5 'Dagger' vs WeOS4)
#18163	OSPF	Routes to 'redistributed connected E1 routes' lost within NSSA areas upon topology change
#18151	Logging	Long-running programs log events to syslog with the wrong time stamp on timezone changes
#18076	MRP	Probing MRP status (30 ms profile) during heavy load may cause reboot (Viper-TBN)
#18069	QoS	ARP packets treated with lowest priority and may be missed/dropped under load
#17995	System	Service discovery not available in safe-config

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4.2 #18163: Work-around for OSPF NSSAs convergence issue

When using OSPF Not-So-Stubby Areas (NSSAs), failover when a router goes down may take a lot longer time than expected. There are two possible work-arounds until this bug is fixed:

- Alternative 1: Let each router get an address on its loopback interface, and include them in the OSPF area, e.g., use OSPF setting “network 192.168.1.5/32 area 1” for a router in (NSSA) area 1 with address 192.168.1.5/32 assigned to its loopback interface (lo).
- Alternative 2: Use 'regular' OSPF areas instead of NSSA areas.

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5 Quick Start Guide

WeOS 5 devices are intended to be usable out-of-the-box as a switch. All access ports are assigned to the same VLAN (untagged) and the device tries to acquire a management IP address via DHCP. It also acquires a link-local address (in the 169.254.x.x range). These addresses are advertised with mDNS (Linux/Apple), SSDP (Windows), and LLDP.

5.1 Default User and Password

user: admin

password: admin

5.2 General

Apple, Linux, and Windows users with mDNS installed, can either use an mDNS client to find the device's IP address, or connect using a web browser:

- <http://weos.local>
- <http://redfox-4d-3b-20.local>

The first example is not available if there are many WeOS devices on the same LAN. The latter, and more reliable address, is a combination of the hostname and the last three octets of the device's MAC address in that LAN. In this example the hostname is `redfox` and the MAC address is `00:07:7c:4d:3b:20`.

Windows users without mDNS have SSDP to discover WeOS devices. In Windows 7 there is the *Network and Sharing Center* where a clickable icon for each discovered WeOS device should appear under *Network Infrastructure*. The PC must, however, be in the same subnet (DHCP or link-local) for this to work. Windows users also have the Westermo WeConfig tool to manage their WeOS devices.

Expert users can also use `nmap`, a port scanner, to scan the network for the device. Be aware though that this might be frowned upon should your device be located on a shared network.

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5.3 CLI

WeOS comes with a Command Line Interface (CLI) that can be accessed via a console port at 115200@8N1, or Secure Shell (SSH). Only SSH protocol version 2 is supported. To gain access to the CLI using SSH you need:

- An SSH client, see below
- The device's IP address or DNS/mDNS name, see above
- The user name and password, default user: admin, password: admin

SSH Clients

There are many of SSH clients available, some of them can even be used to connect to the devices using a (USB) serial console port. A few free clients are listed below. Please follow the directions for installation and usage applicable to your operating system and client.

UNIX, Linux, Apple macOS OpenSSH, <https://www.openssh.com>

Apple macOS Termius, <https://www.termius.com>

Windows PuTTY, <https://www.chiark.greenend.org.uk/~sgtatham/putty/>

CLI Overview

The CLI has two main scopes: `admin-exec` and `configure` context. The former is what the user lands in after initial login.

```
redfox-4d-3b-20 login: admin
```

Password: *****

```

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

```

```
\\ Westermo WeOS v5.3 5.3.x-g7890bde -- Oct 24 19:30 CEST 2018
```

```
Type: 'help' for help with commands, 'exit' to logout or leave a context.
```

```
redfox-4d-3b-20: /#> help
```

Central concepts in WeOS are: ports, VLANs, and interfaces. To see status of each in admin-exec context, use `show ports`, `show vlans`, and `show ifaces`.

To change settings, enter the configuration context with the command `config`. The same commands as above also apply here, but now display the configured settings. Notice how the CLI prompt changes to show the current scope.

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```
redfox-4d-3b-20:/config/#> iface vlan2
```

To show or change the interface and VLAN properties the user enters the command: `iface vlan2` and `vlan 2`, respectively, with an optional “show” as prefix. E.g. `show iface vlan2`.

```
redfox-4d-3b-20:/config/iface-vlan2#> help inet
```

The help command is always available. Use it stand-alone or with a context-specific setting to get more detailed help.

To leave a level use the command `end` to save or `abort` (or Control-D) to cancel. To save and exit all levels, and go back to admin-exec, use `leave` (or Control-Z).

```
redfox-4d-3b-20:/config/iface-vlan2#> leave
```

Applying configuration.

Configuration activated. Remember "copy run start" to save to flash (NVRAM).

The CLI, unlike the WebUI and WeConfig, has a concept of a running configuration. This is an activated but volatile (RAM only) file that must be saved to built-in flash (non-volatile storage) before rebooting. Many separate config files can be saved, but only one can be the selected startup-config. For details, see the built-in help text for the admin-exec `copy` and `show` commands.

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6 Firmware Upgrade

Firmware upgrade is supported from the CLI, WebUI, and WeConfig tool. The CLI only supports FTP/TFTP upgrade but the WebUI and WeConfig tool can also upgrade via CGI upload – making them the ultimate choice if you have no FTP/TFTP server available or do not care to set one up.

6.1 Upgrading from WeOS 5.21 or earlier

WeOS 5.22 introduced a new firmware image format to support secure boot products, something that resulted in significant changes in the upgrade process and affecting all products. To upgrade from 5.21 or earlier, please review our *WeOS 5 Upgrade and Transition Guide* that you can find on westermo.com by selecting *Solutions* → *WeOS* → *WeOS firmware history* and then clicking the link in the top paragraph.

6.2 WeOS Image

WeOS devices run from a built-in flash disk and usually comes with three partitions: primary, secondary, and boot. The latter is for the boot loader (see below) and the primary is the main WeOS image partition. Should this ever get corrupted, e.g. due to power-loss during upgrade, the device will boot using an image from the secondary (or backup) partition. This is a very appreciated, but mostly unknown, robustness feature.

Starting with WeOS 5.28.1, a **boot loader upgrade is required** if you are running Barebox v2024.03.0-3 or earlier to remediate a vulnerability affecting devices with Secure Boot. This means you need to run `upgrade boot` before running `upgrade primary` or `upgrade secondary`. See section 6.3 for details about `upgrade boot`.

Please note that a bug in WeOS versions 5.27.0, 5.27.1 and 5.28.0 will set the device in a state that requires a power cycle if you try to upgrade WeOS without first having upgraded the boot loader. Doing so might also trigger a success or error message that does not accurately reflect the upgrade status.

An alternative is to run `upgrade all` which upgrades all partitions in the correct sequence, not triggering the bug described above, regardless of which WeOS version you are currently running.

To upgrade the primary partition, run:

```
redfox-4d-3b-20: /#> upgrade primary <SERVER-ADDRESS> WeOS-5.30.0.pkg
```

The system must reboot when upgrading the partition image the system started on. This protects against flash corruption issues seen in earlier releases, caused by simultaneous access to the flash during programming or when starting new processes after an upgrade. Also, WeOS warns when one of the partitions has an image with invalid CRC. Attempting to upgrade the partition with the OK CRC is discouraged, upgrade the partition with the invalid CRC first.

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

Note: The version string listed in the output from the `show system-information` command in the CLI, or the System Details page in the WebUI, is only updated after reboot.

Note: Starting with WeOS 5.28.1, if you try to downgrade both WeOS and the boot loader from a WeOS package including a Barebox version older than v2024.03.0-4 by running `upgrade all`, you will in effect only downgrade the secondary partition as the `upgrade all` command installs partitions in the following sequence:

- Secondary
- Boot loader
- Primary

Since it is not possible to downgrade the boot loader to a vulnerable version starting in WeOS 5.28.1, the upgrade process will stop after having downgraded the secondary partition.

6.3 Boot Loader

The boot loader firmware has its own version numbering scheme and is CPU platform specific. Unless the release notes explicitly recommend it, there is usually no need to upgrade the boot loader. This and future WeOS releases, however, require a boot loader upgrade if the device is running Barebox v2024.03.0-3 or earlier.

The boot loader firmware is included in the WeOS-5.30.0.pkg.

- Viper-3000 Series (Coronet): Barebox 2024.03.0-5
- RedFox-5000/7000 and Lynx-5000 Series (Dagger): Barebox 2024.03.0-5
- Lynx-3000 Series (Envoy): Barebox 2024.03.0-5
- Lynx-RB (Byron): Uboot 2024.04.0-1

```
redfox-4d-3b-20:/#> upgrade boot <SERVER-ADDRESS> WeOS-5.30.0.pkg
```

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7 Significant differences between WeOS 4 and WeOS 5

Some aspects of the CLI are different between WeOS 4 and WeOS 5. Here are some examples:

- Access port names have changed, e.g. `Eth 1` is now `eth1`. Similarly, on products with M12 ports, `Eth X1` is now `ethX1`.
- Port ranges (lists) have changed, e.g. `Eth 1-8` is now `eth1..eth8`
- Server and Internet port settings are now usually input as `ADDR:PORT`
- IGMP settings have been renamed from `igmp-foo` to `multicast-foo` due to the included MLD snooping support. Hidden compatibility aliases exist to ease the transition
- Stateless NAT (NAT 1-to-1) has moved out from the firewall context
- Enabling management services per interface has moved to each specific service
- Configuration of management services have moved to a separate management sub-context
- New discovery services, in addition to LLDP, are mDNS and SSDP. The latter is for discovery on Windows systems, see also section 5
- The DHCP relay agent CLI syntax has changed considerably
- The `show running-config` command now lists an actual file, in JSON format as mentioned previously. An optional keyword now lists the first level JSON object, and more advanced keywords can also be given in `jq` syntax¹. For more information, see the CLI online help text for `help running-config`

¹For more information on `jq`, a JSON query tool, see <https://stedolan.github.io/jq/>

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