

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

WeOS 5.24.0 Release Notes

Contents

1	Summary of Changes	5
1.1	News in 5.24.0	5
1.1.1	Changes to RiCov3	5
1.1.2	ECN over ETB	5
1.1.3	Changes to Lockout Policy	5
1.1.4	Port Provisioning	5
1.1.5	RedBox PTP Transparent Clock improvements	6
1.1.6	AAA	6
1.1.7	RADIUS	6
1.1.8	Port Access	6
1.1.9	Auditable Events	6
1.1.10	Jumbo Frames Switching - Redfox and Lynx 5000	7
1.1.11	Flow Control - Redfox and Lynx 5000	7
2	Fixed Issues	7
2.1	WeOS 5.24.0	7
3	Known Limitations	10
3.1	Ring Coupling version 2 not supported	10
3.2	Port Access Control	10
3.3	Firewall	10
3.4	Login	10
3.5	Setting Date Manually	11
3.6	Available ports for boot specific functionality	11
3.7	Routing Hardware Offloading	11
3.8	Redundancy protocols on Relay ports	12
3.9	FRNT	12
3.10	RSTP	12
3.11	IEC 61375	12
3.12	LLDP	13

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

3.13	Port Monitoring	13
3.13.1	Cross switch core limitation	13
3.14	Media Redundancy Protocol (MRP)	14
3.15	MIB Counters	14
3.16	10G SFP Ports	14
3.17	Search function in User Guide	15
4	Known Issues	16
4.1	List of known issues	16
4.2	#18163: Work-around for OSPF NSSAs convergence issue	19
5	Quick Start Guide	21
5.1	Default User and Password	21
5.2	General	21
5.3	CLI	22
6	Firmware Upgrade	24
6.1	WeOS Image	24
6.2	Boot Loader	24
7	Significant differences between WeOS 4 and WeOS 5	25



Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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*. Compared to the *WeOS 4 Management Guide*, the User Guide is a web first publication focusing on use-cases, documented in stand-alone “HowTo:s”, and configuration guides for all supported sub-systems.

The User Guide is included in the release Zip file in the sub-directory: `doc/weos/user-guide/`. To access the documentation, open the following file in your web browser:

`file://Downloads/WeOS-5.24.0/doc/weos/user-guide/index.html`

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

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

1 Summary of Changes

This section details new features added in this major 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 5.24.0

The subsections below describe news in WeOS 5.24. In addition, section 2.1 includes information on fixed issues.

1.1.1 Changes to RiCov3

RiCov3 instances, if configured without any coupling ports, will no longer be shown in "show ring" or advertised.

1.1.2 ECN over ETB

For IEC61375 networks, it is now possible to automatically forward ECNs and/or other VLANs over ETB links within the consist. Up to four VLANs can be managed this way.

For more information see the WeOS User Guide section *HowTos* → *Train* → *ECN over ETB (advanced)*.

1.1.3 Changes to Lockout Policy

Lockout Policy has a new option to exclude login interfaces, currently only console is selectable.

For more information see the WeOS user Guide section *Configuration Guides* → *AAA and User Management* → *AAA*.

1.1.4 Port Provisioning

Port Provisioning ensures that no access to the device can be gained by plugging in cables to unused ports.

Port Provisioning feature itself defines a time frame, during which site engineer must ensure that all cables are plugged in, according to network design. When the provisioning timer has run out, ports without cables plugged in will enter disabled state and this change will be reflected in startup-config, meaning that no access to the device can be gained through unused ports.

For more information see the WeOS User Guide section *Configuration Guides* → *Generic Maintenance* → *Provisioning*.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

1.1.5 RedBox PTP Transparent Clock improvements

Lynx RedBox Transparent Clock synchronization and switchover performance has been improved.

1.1.6 AAA

AAA has gained support for RADIUS over EAP methods. Currently implemented is peap-mschapv2 with optional server validation through a ca-cert. This is controlled by the encryption-type option in the remote-server section.

1.1.7 RADIUS

All RADIUS clients in WeOS have been mitigated for the blast-radius vulnerability. This also means, as per vulnerability recommendation, that WeOS will deny servers that does not follow the recommendations of the message-authenticator attribute.

1.1.8 Port Access

802.1X authentication will no longer take precedence over MAC Authentication. If any one of the methods does a successful authentication, subsequent attempts with other methods will be canceled, and the port remains unlocked as long as the first authentication is valid.

Authenticated MAC addresses are no longer subject to FDB ageing.

If a port is configured to belong to several vlans, a successful authentication triggered on any of the vlans will now result in the given MAC address being unlocked on all the vlans the port is a member of. A constraint for 802.1X is that the authentication must be performed on an untagged vlan - this may change in future releases.

1.1.9 Auditable Events

This release introduces the initial step in providing a full-fledged auditable event handling system in WeOS. The purpose of this is to provide traceable events that are bound to unique event IDs, so that the produced events can be traceable and auditable in a predictable manner.

These predictable events should allow for a more detailed record of actions and changes in the system, which can be used for multiple purposes, such as:

- *Security Monitoring:* Tracking login attempts, configuration changes, and other critical actions to detect and respond to potential security threats.
- *Compliance:* Ensuring that the system adheres to regulatory requirements by maintaining a detailed audit trail of all significant events.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

- *Troubleshooting*: Providing a historical record of events that can be used to diagnose and resolve issues within the system.
- *Accounting*: Keeping track of user activities and system changes to ensure accountability and transparency.

This auditable event support will also include full accounting for configuration changes to any configurable setting in the system, allowing for full traceability of any changes made to the system.

All these auditable events will also be logged as syslog messages, so they can be handled like any other log message in the system. This means that they can easily use the existing logging system to be sent to, for instance, a remote syslog server or stored on a connected external media device.

Note: Some of these auditable events that are logged also have regular syslog messages, meaning that multiple messages can originate from the device indicating the same event. The main point of these auditable events is that they are well-known and connected to a unique event ID.

As mentioned, this is the initial step in providing these auditable events. More events will be added in future releases. The intention is that the Event IDs used should not change or be reused for other events. However, in these early stages, there is a possibility that some changes may be necessary to improve the system in the long run. We will, however, try to avoid this as much as possible.

For more information see the WeOS User Guide section *Configuration Guides* → *Alarm, LEDs and Logging* → *Auditable Events*.

1.1.10 Jumbo Frames Switching - Redfox and Lynx 5000

With this release the support for Jumbo Frames switching has been extended to include Redfox and Lynx 5000 products.

1.1.11 Flow Control - Redfox and Lynx 5000

With this release the support for Flow Control has been extended to include Redfox and Lynx 5000 products.

2 Fixed Issues

2.1 WeOS 5.24.0

Fixed issues in WeOS 5.24.0 (as relative to 5.23).

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

Issue	Category	Description
#20263	PTP	'show ptp network' not showing non-WeOS clocks
#20173	CLI	Error message in CLI when configuring Link Aggregate
#20147	TCN	When adding ports to dir1 or dir2 one at the time they are always appended with line A
#20146	System	WeOS do not accept configuration file without "meta" data entry "encrypted-secrets"
#20145	AAA	MAB and RADUIS used over more than 3 ports makes configuration fail after reboot
#20135	Ring Coupling	RiCh PDUs sent with no priority set
#20134	System	Memory leak for netd when changing configuration back and forth from CLI
#20121	TCN	WEB interface to TCN config gets blocked if backbone VLAN is removed while TTDP is configured
#20119	WEB	Auto-refresh does not work in the aggregate status page
#20118	WEB	ECSC addr and ECSP iface are misplaced under com profile in web
#20108	WEB	TCN configuration via WEB blocks adding MROUTE's outside of predefined IEC ranges
#20097	AAA	Providing a password for certificate for non password protected file results in unexpected logout
#20090	IEEE1588/PTP	'show ptp' transmits Management messages to the network when querying local status
#20082	TCN	TCN-DNS does not function at startup
#20078	WEB	Status for TCN and RiCh show empty tables and not "XXXX not active" as other services do when not used
#20077	WEB	RiCh CRC show incorrect value
#20076	TCN	VRRP address on CST-NET shown at a strange offset in WEB
#20075	WEB	TTDP Link aggregates presents incorrect "active" state
#20072	Port Access Control	802.1X loses communication at fdb timeout
#20065	System	SSH key import does not validate input
#20042	Kernel	TC get an exception when deleting the TC rules in IGMP context
#20021	General	'Bind-dev' can be assigned the interface for the ssl tunnel itself
#19993	WEB	Web upgrade does not reload when finished
#19987	System	The unit fails to run a valid MAC auth configuration and instead run fallback configuration
#19954	WEB	Web sessions ID's are weak and vulnerable to HTTP application session hijacking
#19949	AAA	User uids are not persistent

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Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

Continued from previous page		
Issue	Category	Description
#19948	AAA	All Administrator users are created with uid 0
#19926	System	Configuration Hash does not update from <code>cfg://URI</code> copy to <code>startup-config</code>
#19892	IEEE1588/PTP	Cannot set PTP location (part of description) from CLI

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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 Firewall

When using VRRP and firewall it is required to disable vmac on the VRRP instance to allow for the firewall rules to match according to in IFACE vlan.

It is still possible to use IP-Address matching on traffic. This current limitation is restricted to rules matching on incoming interfaces.

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.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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.

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

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.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

Hence, if the Firewall is used 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 uses 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.

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

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

"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 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.

3.13 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.

3.13.1 Cross switch core limitation

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

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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 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.

3.15 MIB Counters

On Redfox and Lynx-5000 systems the MIB counter FC Received (rx_pause) doesn't increase even though pause frames are received and will always be zero.

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).

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

3.17 Search function in User Guide

The User Guide included within the release-zip is Web based. The Search function in the User Guide navigation pane only works if you make the pages available via a Web Server. That is, the Search function does not work when opening the User Guide via your local file system.

At <https://docs.westermo.com/weos/weos-5/> you can browse the WeOS 5 User Guide online, with Search function included.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

4 Known Issues

4.1 List of known issues

Issue	Category	Description
#20269	System	When startup-config is missing, the device may not select configured fallback/failover config
#20220	WEB	Impossible to set peer as a DNS name in SSL client tunnel
#20216	WEB	Cipher cannot be set via WebGUI in the Open VPN settings
#20214	IEEE1588/PTP	Redfox losing PTP Grandmaster when large number of Slaves are connected
#20212	Port Access Control	Valid MAC addresses blocked if too much traffic is sent during link up
#20209	Port Access Control	MAC auth only accept the first wild-card entry in a range
#20201	System	Rebooting after disabling offloading will remove all traffic policies
#20150	System	DHCP Reply seems to be offloaded, cannot accept address
#20148	SNMP	SNMP get request not answered over the VRRP address is VMAC is used
#20144	Alarm	Ping Alarm indicates UNREACHABLE when the destination is reachable
#20136	SNMP	Strange SNMP behavior with multiple inform hosts (targets)
#20132	NTP	NTP restart command is treated as process crash, gives up after 10 times
#20127	System	Metricsd can cause memory leak
#20102	SNMP	SNMP value for frntStatusVid1/2 show no data in tables
#20101	SNMP	SNMP value for frntStatusBlockingPort show wrong data with an offset of "-1"
#20100	SNMP	SNMP value for frntStatusTimeSinceLastChange has wrong format
#20094	VPN	Local database setting in Open VPN lost after reboot
#20092	NTP	Incorrect NTP DSCP Value
#20091	Link Aggregation	LACP Removal of lag when custom fdb filters referenced to the lag fails assertion of the running-config file
#20085	VPN	IPsec kernel panic when source port is set to 32766 in ESP packet
#20067	DHCP	DHCP server send out empty option 121/249 fields to clients not requesting the options if set on any static lease
#20052	WEB	redirect_url users (e.g. Config/System/Date&Time -> Set time and Tools/Ping) are broken

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Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

Continued from previous page		
Issue	Category	Description
#20047	WEB	The user is redirected to the login page when editing firewall rules is tried
#20045	LED	After initiating a 'factory reset' from the web GUI, the ON LED will remain RED after boot
#20042	Kernel	TC get an exception when deleting the TC rules in IGMP context
#19998	General	Metrics for Ports not working on Lynx 5000
#19995	SNMP	Mismatch Between CLI and SNMP Output for RMON Data
#19991	DHCP	Disabling Gateway setting in 'Server-setting' breaks Inherit Gateway in 'Subnet-setting'
#19977	CLI	Custom SNMP engine-id length is not enforced in CLI configuration
#19965	WEB	FRNTv2 is not shown in Status summary page when it is enabled
#19964	LED	The LED indicators for FRNT and RSTP on both Lynx and Redfox do not turn off when the protocol is disabled
#19947	System	IPv6 SCP not working (copy, upgrade)
#19946	System	Upgrade not working using SCP, device also gets soft-locked
#19940	WEB	Broken JavaScript on "Edit IPsec Tunnel X" page
#19932	WEB	IPsec DPD Delay in web input validation error
#19928	TCN	Offloading with TCN does not allow for fragmented packets to be forwarded
#19924	VRRP	VRRP instance is not restarted when doing a config restore
#19909	VPN	Disabling compression does not actually disable compression
#19903	System	Configuration restore do not clear previous added route from system
#19902	VPN	IPSec issues with LAN traffic when NAT rule is applied
#19895	Firewall	FTP Alg helpers isn't working when performing FTP file transfers
#19891	Firewall	When leaving the firewall context strange output is generated
#19882	System	Upgrade from ftp sever with DNS name does not work
#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/MLD	Multicast Snooping Boundary for MLD does not work on Lynx-5000 and Redfox-5000/7000
#19861	VPN	SSL "tun" interface does not work with certificates towards another WeOS device
Continued on next page		

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

Continued from previous page		
Issue	Category	Description
#19856	AAA	MAC Auth reauthentication towards remote-server is delayed after boot
#19850	IEEE1588/PTP	Different link speeds causes higher TC error rate
#19847	System	The unit does not apply configuration after it has been "forcefully" uploaded
#19843	System	Profinet do not respect selected interface and uses the lowed iface ID
#19818	SNMP	Syntax errors in Westermo MIB files for FRNT and EVENT
#19783	System	Coronet: Out-of-order problem on Viper-20 remains
#19777	WEB	Upgrading primary image from web gui does not report flashing done in http response
#19721	TCN	Setting port Admin state as "No Enable" not respected on TTDP LAG ports
#19720	System	Downgrade to weos4 from weos5 using pkg results in infinite loop trying to open the files
#19711	WEB	Cannot access help in some menus in webGUI when browser tree menu has gone past the bottom of the screen
#19692	Firewall	TCP port 53 listening when DNS server functionality disabled
#19524	WEB	Unable to delete VLAN by WEB when FRNT is enabled (Envoy & Dagger)
#19498	IGMP	Duplicate multicast packets over link-aggregates when changing router timeout (Dagger)
#19410	IGMP	Mismatch between MDB and ATU for mc group 239.193.0.1 when etbn is acting as router, sender and consumer of data
#19367	Ports	SFP:s 1100-0554 and 1100-0555 does not work on 5512 and 5528
#19326	Ports	Adminstatus does not affect operstatus of port if the port is it's own interface (i.e. outside a vlan)
#19323	FRNT	FRNT Focal point Topology Counter rush with LACP links (Dagger)
#19288	FRNT	After configuring FRNT2 on Viper 20A, the FRNT leds are flashing red
#19262	Ports	Traffic not handled on Envoy ports using Copper SFPs
#19255	QoS	Priority-mode IP fails when both ingress and egress ports are fiber ports on Envoy platform
#19231	TCN	2-3 inauguration may never reach operational traindir shared
#19181	Ports	Port-Priority-mode IP and Offloading broken with DSCP set field
Continued on next page		

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

Continued from previous page		
Issue	Category	Description
#19024	Link Aggregation	Using link-aggregates as FRNT ring ports gives long failover times in ring topology changes
#18967	System	Joins on SSL ports does not lead to the CPU port being added to the ATU
#18910	TCN	TTDP Topology timeout not adapted for Gigabit ETB, causing ETB inaugurations upon ETBN down event
#18886	IP Multicast	Static multicast route with wildcard source fails to forward when group first heard on other interface
#18808	Alarm	Link-alarm with multiple ports makes status-relay indicate OK when some port is up and others down
#18675	Link Aggregation	Long failover time (aggregate member link up/down) in link-aggregate interoperability case (WeOS5 'Dagger' vs WeOS4)
#18643	IEEE1588/PTP	RedFox 5528/5728 fiber ports (Eth1-4) have more jitter in the correction field accuracy than the other fiber ports
#18638	CLI	CLI does not allow "?" when configuring local user accounts password using clear-text
#18614	TCN	TTDP NAT rules incorrectly modifies packets between local CNs
#18593	QoS	Tagged ports with 'priority-mode ip' is broken
#18377	Logging	Syslog events may be missed during syslogd restart
#18362	TCN	Broken/missing ECSPs in train composition handled incorrectly
#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

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).

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

- Alternative 2: Use 'regular' OSPF areas instead of NSSA areas.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

```
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.

Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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 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.

```
redfox-4d-3b-20: /#> upgrade primary <SERVER-ADDRESS> WeOS-5.24.0.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.

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.

6.2 Boot Loader

The boot loader firmware has its own version numbering scheme and is CPU platform specific. Please note, unless the release notes explicitly recommends it, there is usually no need to upgrade the boot loader.

The boot loader firmware is included in the WeOS-5.24.0.pkg.

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

```
redfox-4d-3b-20: /#> upgrade boot <SERVER-ADDRESS> WeOS-5.24.0.pkg
```


Document Release Notes WeOS 5.24.0	
Date March 27, 2025	Document No 224004-g7ab2f3d

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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