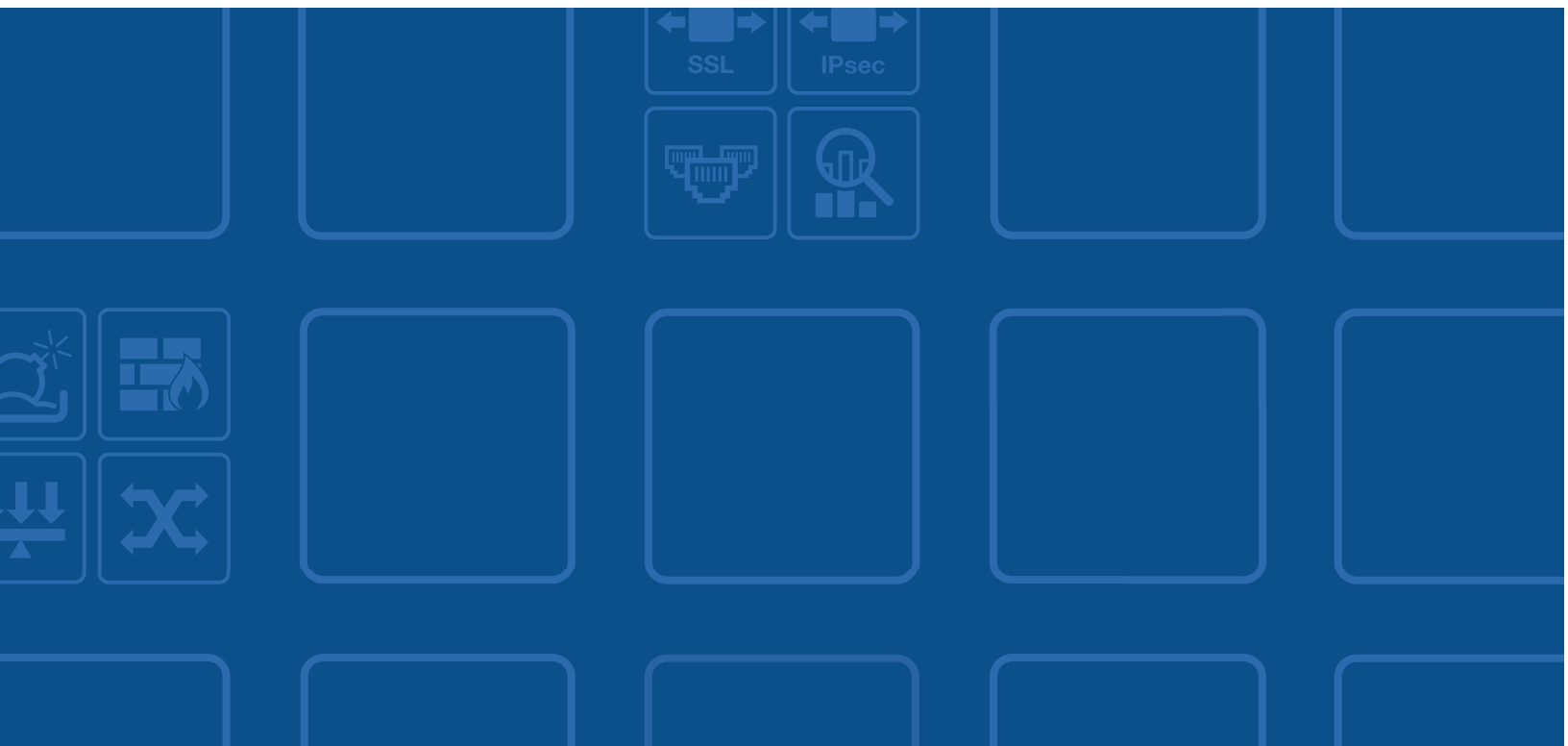
FORTINET
High Performance Network Security

FortiOS - Release Notes

VERSION 5.4.8



FORTINET DOCUMENT LIBRARY

http://docs.fortinet.com

FORTINET VIDEO GUIDE

http://video.fortinet.com

FORTINET BLOG

https://blog.fortinet.com

CUSTOMER SERVICE & SUPPORT

https://support.fortinet.com

FORTIGATE COOKBOOK

http://cookbook.fortinet.com

FORTINET TRAINING SERVICES

http://www.fortinet.com/training

FORTIGUARD CENTER

http://www.fortiguard.com

END USER LICENSE AGREEMENT

http://www.fortinet.com/doc/legal/EULA.pdf

FEEDBACK

Email: techdocs@fortinet.com

November 26, 2018

FortiOS 5.4.8 Release Notes

01-548-467892-20181126

TABLE OF CONTENTS

Change Log **5**
Introduction **6**
Supported models 6
Special branch supported models 7
What's new in FortiOS 5.4.8 8
Special Notices **9**
Built-In Certificate 9
Default log setting change 9
Policy list display changes 9
FortiAnalyzer support 9
Removed SSL/HTTPS/SMTPS/IMAPS/POP3S 9
FortiGate and FortiWiFi-92D hardware limitation 10
FG-900D and FG-1000D 10
FG-3700DX 10
FortiGate units managed by FortiManager 5.0 or 5.2 10
FortiClient support 11
FortiClient (Mac OS X) SSL VPN requirements 11
FortiGate-VM 5.4 for VMware ESXi 11
FortiClient profile changes 11
FortiPresence 12
Log disk usage 12
SSL VPN setting page 12
FG-30E-3G4G and FWF-30E-3G4G MODEM firmware upgrade 12
Use of dedicated management interfaces (mgmt1 and mgmt2) 12
DLP, AV 12
Using ssh-dss algorithm to log in to FortiGate 13
Upgrade Information **14**
Upgrading to FortiOS 5.4.8 14
Upgrading to FortiOS 5.6.0 and later 14
LDAP server 15
Cooperative Security Fabric upgrade 15
Firewall Policies with Wildcard FQDNs are Deleted 15
FortiGate-VM 5.4 for VMware ESXi 15
Downgrading to previous firmware versions 16

Amazon AWS enhanced networking compatibility issue 16
FortiGate VM firmware 16
Firmware image checksums 17
Product Integration and Support 18
FortiOS 5.4.8 support 18
Language support 21
SSL VPN support 21
SSL VPN standalone client 21
SSL VPN web mode 22
SSL VPN host compatibility list 22
Resolved Issues 24
Known Issues 28
Limitations 34
Citrix XenServer limitations 34
Open Source XenServer limitations 34

Change Log

Date	Change Description
2018-01-18	Initial release of FortiOS 5.4.8.
2018-01-22	Updated *Introduction* > *What's new in FortiOS 5.4.8*.
2018-01-31	Added 421423 and 470399 to *Known Issues*.
2018-02-09	Added model FG-VM64-OPC *Introduction* > *Special branch supported models*.
2018-02-14	Added *Upgrade Information* > *Firewall Policies with Wildcard FQDNs are Deleted*.
2018-02-23	Deleted 369155 from *Known Issues* as it's fixed in a previous release. Added 389780 and 398125 to *Known Issues*.
2018-04-05	Updated *Upgrade Information* > *Upgrading to FortiOS 5.4.8*. Added 439068 and 455284 to *Resolved Issues*.
2018-04-12	Added 477581 to *Known Issues*.
2018-04-27	Added 369437 to *Known Issues*.
2018-05-15	Deleted 440744 in *Resolved Issues*.
2018-06-01	Updated *Upgrade Information* > *Upgrading to FortiOS 5.6.0 and later*.
2018-06-27	Deleted *Special Notices* > *Policy list display changes* > *In Policy & Objects lists*.
2018-11-26	Added 517996 to *Resolved Issues*.

Introduction

This document provides the following information for FortiOS 5.4.8 build 1183:

- Special Notices
- Upgrade Information
- Product Integration and Support
- Resolved Issues
- Known Issues
- Limitations

See the Fortinet Document Library for FortiOS documentation.

Supported models

FortiOS 5.4.8 supports the following models.

FortiGate	FG-30D, FG-30E, FG-30D-POE, FG-50E, FG-51E, FG-60D, FG-60D-POE, FG-70D, FG-70D-POE, FG-80C, FG-80CM, FG-80D, FG-90D, FG-90D-POE, FG-92D, FG-94D-POE, FG-98D-POE, FG-100D, FG-140D, FG-140D-POE, FG- 200D, FG-200D-POE, FG-240D, FG-240D-POE, FG-280D-POE, FG-300D, FG-400D, FG-500D, FG-600C, FG-600D, FG-800C, FG-800D, FG-900D, FG-1000C, FG-1000D, FG-1200D, FG-1500D, FG-1500DT, FG-3000D, FG-3100D, FG-3200D, FG-3240C, FG-3600C, FG-3700D, FG-3700DX, FG-3800D, FG-3810D, FG-3815D, FG-5001C, FG-5001D
FortiWiFi	FWF-30D, FWF-30E, FWF-30D-POE, FWF-50E, FWF-51E, FWF-60D, FWF-60D-POE, FWF-80CM, FWF-81CM, FWF-90D, FWF-90D-POE
FortiGate Rugged	FGR-60D, FGR-90D
FortiGate VM	FG-SVM, FG-VM64, FG-VM64-AWS, FG-VM64-AWSONDEMAND, FG-VM64-AZURE, FG-VM64-AZUREONDEMAND, FG-VM64-HV, FG-VM64-KVM, FG-VMX, FG-VM64-XEN FortiOS 5.4.8 supports the additional CPU cores through a license update on the following VM models: • VMware 16, 32, unlimited • KVM 16 • Hyper-V 16, 32, unlimited
Pay-as-you-go images	FOS-VM64, FOS-VM64-KVM
FortiOS Carrier	FortiOS Carrier 5.4.8 images are delivered upon request and are not available on the customer support firmware download page.

Special branch supported models

The following models are released on a special branch of FortiOS 5.4.8. To confirm that you are running the correct build, run the CLI command `get system status` and check that the `Branch point` field shows 1183.

FGR-30D	is released on build 7734.
FGR-30D-A	is released on build 7734.
FGR-35D	is released on build 7734.
FG-30E-MI	is released on build 6486.
FG-30E-MN	is released on build 6486.
FWF-30E-MI	is released on build 6486.
FWF-30E-MN	is released on build 6486.
FWF-50E-2R	is released on build 7730.
FG-52E	is released on build 6497.
FG-60E	is released on build 6501.
FG-60E-POE	is released on build 6501.
FG-60E-DSL	is released on build 6500.
FWF-60E	is released on build 6501.
FWF-60E-DSL	is released on build 6500.
FG-61E	is released on build 6501.
FWF-61E	is released on build 6501.
FG-80E	is released on build 6501.
FG-80E-POE	is released on build 6501.
FG-81E	is released on build 6501.
FG-81E-POE	is released on build 6501.
FG-90E	is released on build 6492.
FG-91E	is released on build 6492.

FWF-92D	is released on build 7727.
FG-100E	is released on build 6501.
FG-100EF	is released on build 6501.
FG-101E	is released on build 6501.
FG-140E	is released on build 6501.
FG-140E-POE	is released on build 6501.
FG-200E	is released on build 6490.
FG-201E	is released on build 6490.
FG-300E	is released on build 4108.
FG-301E	is released on build 4108.
FG-500E	is released on build 4108.
FG-501E	is released on build 4108.
FG-2000E	is released on build 6489.
FG-2500E	is released on build 6489.
FG-3960E	is released on build 6491.
FG-3980E	is released on build 6491.
FG-5001E	is released on build 6488.
FG-5001E1	is released on build 6488.
FG-VM64-AZURE	is released on build 6498.
FG-VM64-AZUREONDEMAND	is released on build 6498.
FG-VM64-OPC	is released on build 3380.

What's new in FortiOS 5.4.8

FortiOS 5.4.8 is a bug fix release with no new features.

Special Notices

Built-In Certificate

FortiGate and FortiWiFi D-series and above have a built in Fortinet_Factory certificate with an RSA 2048-bit key; and FortiOS supports DH group 14 for key-exchange.

Default log setting change

For FG-5000 blades, log disk is disabled by default. It can only be enabled via CLI. For all 2U & 3U models (FG-3600/FG-3700/FG-3800), log disk is also disabled by default. For all 1U models and desktop models that supports SATA disk, log disk is enabled by default.

Policy list display changes

To improve performance, FortiOS 5.4.6 implemented the following changes when displaying lists in *Policy & Objects*.

In *Policy & Objects* > *Addresses*:

- The *Address* | *Group* | *All* option at the top is removed and all addresses and groups are displayed in sections.
- Paging options at the bottom are removed.
- The group member count is moved to the *Details* column.

FortiAnalyzer support

In version 5.4, encrypting logs between FortiGate and FortiAnalyzer is handled via SSL encryption. The IPsec option is no longer available and users should reconfigure in GUI or CLI to select the SSL encryption option as needed.

Removed SSL/HTTPS/SMTPS/IMAPS/POP3S

SSL/HTTPS/SMTPS/IMAPS/POP3S options were removed from server-load-balance on low end models below FG-100D except FG-80C and FG-80CM.

FortiGate and FortiWiFi-92D hardware limitation

FortiOS 5.4.0 reported an issue with the FG-92D model in the *Special Notices > FG-92D High Availability in Interface Mode* section of the release notes. Those issues, which were related to the use of port 1 through 14, include:

- PPPoE failing, HA failing to form
- IPv6 packets being dropped
- FortiSwitch devices failing to be discovered
- Spanning tree loops may result depending on the network topology

FG-92D and FWF-92D do not support STP. These issues have been improved in FortiOS 5.4.1, but with some side effects with the introduction of a new command, which is enabled by default:

```
config system global
   set hw-switch-ether-filter <enable | disable>
```

When the command is enabled:

- ARP (0x0806), IPv4 (0x0800), and VLAN (0x8100) packets are allowed
- BPDUs are dropped and therefore no STP loop results
- PPPoE packets are dropped
- IPv6 packets are dropped
- FortiSwitch devices are not discovered
- HA may fail to form depending the network topology

When the command is disabled:

- All packet types are allowed, but depending on the network topology, an STP loop may result

FG-900D and FG-1000D

CAPWAP traffic will not offload if the ingress and egress traffic ports are on different NP6 chips. It will only offload if both ingress and egress ports belong to the same NP6 chip.

FG-3700DX

CAPWAP Tunnel over the GRE tunnel (CAPWAP + TP2 card) is not supported.

FortiGate units managed by FortiManager 5.0 or 5.2

Any FortiGate unit managed by FortiManager 5.0.0 or 5.2.0 may report installation failures on newly created VDOMs, or after a factory reset of the FortiGate unit even after a retrieve and re-import policy.

FortiClient support

Only FortiClient 5.4.1 and later is supported with FortiOS 5.4.1 and later. Upgrade managed FortiClients to 5.4.1 or later before upgrading FortiGate to 5.4.1 or later.

Consider the FortiClient license before upgrading. Full featured FortiClient 5.2 and 5.4 licenses will carry over into FortiOS 5.4.1 and later. Depending on your organization's needs, you might need to purchase a FortiClient EMS license for endpoint provisioning. Contact your sales representative for guidance on the appropriate licensing for your organization.

The perpetual FortiClient 5.0 license (including the 5.2 limited feature upgrade) will not carry over into FortiOS 5.4.1 and later. You need to purchase a new license for either FortiClient EMS or FortiGate. A license is compatible with 5.4.1 and later if the SKU begins with FC-10-C010.

FortiClient (Mac OS X) SSL VPN requirements

When using SSL VPN on Mac OS X 10.8, you must enable SSLv3 in FortiOS.

FortiGate-VM 5.4 for VMware ESXi

Upon upgrading to FortiOS 5.4.8, FortiGate-VM v5.4 for VMware ESXi (all models), no longer supports the VMXNET2 vNIC driver.

FortiClient profile changes

With introduction of the Fortinet Cooperative Security Fabric in FortiOS, FortiClient profiles will be updated on FortiGate. FortiClient profiles and FortiGate are now primarily used for Endpoint Compliance, and FortiClient Enterprise Management Server (EMS) is now used for FortiClient deployment and provisioning.

In the FortiClient profile on FortiGate, when you set the *Non-Compliance Action* setting to *Auto-Update*, the FortiClient profile supports limited provisioning for FortiClient features related to compliance, such as AntiVirus, Web Filter, Vulnerability Scan, and Application Firewall. When you set the *Non-Compliance Action* setting to *Block* or *Warn*, you can also use FortiClient EMS to provision endpoints, if they require additional other features, such as VPN tunnels or other advanced options. For more information, see the *FortiOS Handbook – Security Profiles*.

When you upgrade to FortiOS 5.4.1 and later, the FortiClient provisioning capability will no longer be available in FortiClient profiles on FortiGate. FortiGate will be used for endpoint compliance and Fortinet Cooperative Security Fabric integration, and FortiClient Enterprise Management Server (EMS) should be used for creating custom FortiClient installers as well as deploying and provisioning FortiClient on endpoints. For more information on licensing of EMS, contact your sales representative.

FortiPresence

FortiPresence users must change the FortiGate web administration TLS version in order to allow the connections on all versions of TLS. Use the following CLI command.

```
config system global
   set admin-https-ssl-versions tlsv1-0 tlsv1-1 tlsv1-2
end
```

Log disk usage

Users are able to toggle disk usage between Logging and WAN Optimization for single disk FortiGates.

To view a list of supported FortiGate models, refer to the FortiOS 5.4.0 Feature Platform Matrix.

SSL VPN setting page

The default server certificate has been changed to the `Fortinet_Factory` option. This excludes FortiGate-VMs which remain at the `self-signed` option. For details on importing a CA signed certificate, please see the How to purchase and import a signed SSL certificate document.

FG-30E-3G4G and FWF-30E-3G4G MODEM firmware upgrade

The 3G4G MODEM firmware on the FG-30E-3G4G and FWF-30E-3G4G models may require updating. Upgrade instructions and the MODEM firmware have been uploaded to the Fortinet Customer Service & Support site. Log in and go to *Download* > *Firmware*. In the *Select Product* list, select *FortiGate*, and click the *Download* tab. The upgrade instructions are in the following directory:

.../FortiGate/v5.00/5.4/Sierra-Wireless-3G4G-MODEM-Upgrade/

Use of dedicated management interfaces (*mgmt1* and *mgmt2*)

For optimum stability, use management ports (*mgmt1* and *mgmt2*) for management traffic only. Do not use management ports for general user traffic.

DLP, AV

In 5.2, Block page was sent to client with HTTP status code `200` by default. In 5.4 and later, Block page is sent to client with a clearer HTTP status code of `403 Forbidden`.

Using ssh-dss algorithm to log in to FortiGate

In version 5.4.5 and later, using `ssh-dss` algorithm to log in to FortiGate via SSH is no longer supported.

Upgrade Information

Upgrading to FortiOS 5.4.8

Supported upgrade path information is available on the Fortinet Customer Service & Support site.

To view supported upgrade path information:

1. Go to https://support.fortinet.com.
2. From the *Download* menu, select *Firmware Images*.
3. Check that *Select Product* is *FortiGate*.
4. Click the *Upgrade Path* tab and select the following:
   - *Current Product*
   - *Current FortiOS Version*
   - *Upgrade To FortiOS Version*
5. Click *Go*.

When upgrading from a firmware version beyond those mentioned in the Release Notes, a recommended guide for navigating the upgrade path can be found on the Fortinet documentation site.

There is a separate version of the guide describing the safest upgrade path to the latest patch of each of the supported versions of the firmware. To upgrade to this build, go to FortiOS 5.4 Supported Upgrade Paths.

Upgrading to FortiOS 5.6.0 and later

This only applies if you are upgrading to version 5.6.0 or 5.6.3. If you are upgrading to version 5.6.1, 5.6.2 or 5.6.4, you don't need to reconfigure IPsec settings.

If you have configured IPsec in version 5.4.8 and you upgrade to 5.6.0 or 5.6.3, you must reconfigure all IPsec phase1 `psksecret` settings after upgrading in order to establish an IPsec tunnel.

LDAP server

Starting with FortiOS 5.4.6, `dn` is a mandatory field for LDAP servers. You should set the `dn` field before upgrading to FortiOS 5.4.6 and later to retain the LDAP server configuration. Otherwise, the LDAP server configuration is removed during the upgrade. You can use one of the following methods to prepare for the upgrade:

- Set the `dn` field before upgrading to FortiOS 5.4.6 and later
- Edit the FortiOS backup config to set the `dn` field, and then load the backup config after upgrading to FortiOS 5.4.6 and later

Cooperative Security Fabric upgrade

FortiOS 5.4.1 and later greatly increases the interoperability between other Fortinet products. This includes:

- FortiClient 5.4.1 and later
- FortiClient EMS 1.0.1 and later
- FortiAP 5.4.1 and later
- FortiSwitch 3.4.2 and later

The upgrade of the firmware for each product must be completed in a precise order so the network connectivity is maintained without the need of manual steps. Customers must read the following two documents prior to upgrading any product in their network:

- *Cooperative Security Fabric - Upgrade Guide*
- *FortiOS 5.4.x Upgrade Guide for Managed FortiSwitch Devices*

  This document is available in the Customer Support Firmware Images download directory for FortiSwitch 3.4.2.

Firewall Policies with Wildcard FQDNs are Deleted

Firewall policies cannot contain wildcard FQDNs. Firewall rules that use wildcard FQDNs are deleted when you upgrade from 5.2.x to 5.4.x. So if you have firewall rules that use wildcard FQDNs, you must reconfigure those rules to remove the wildcards.

FortiGate-VM 5.4 for VMware ESXi

Upon upgrading to FortiOS 5.4.8, FortiGate-VM v5.4 for VMware ESXi (all models), no longer supports the VMXNET2 vNIC driver.

Downgrading to previous firmware versions

Downgrading to previous firmware versions results in configuration loss on all models. Only the following settings are retained:

- operation mode
- interface IP/management IP
- static route table
- DNS settings
- VDOM parameters/settings
- admin user account
- session helpers
- system access profiles

When downgrading from 5.4 to 5.2, users will need to reformat the log disk.

Amazon AWS enhanced networking compatibility issue

Due to this new enhancement, there is a compatibility issue with older AWS VM versions. After downgrading a 5.4.1 or later image to an older version, network connectivity is lost. Since AWS does not provide console access, you cannot recover the downgraded image.

Downgrading to older versions from 5.4.1 or later running the enhanced nic driver is not allowed. The following AWS instances are affected:

- C3
- C4
- R3
- I2
- M4
- D2

FortiGate VM firmware

Fortinet provides FortiGate VM firmware images for the following virtual environments:

Citrix XenServer and Open Source XenServer

- `.out`: Download the 64-bit firmware image to upgrade your existing FortiGate VM installation.
- `.out.OpenXen.zip`: Download the 64-bit package for a new FortiGate VM installation. This package contains the QCOW2 file for Open Source XenServer.
- `.out.CitrixXen.zip`: Download the 64-bit package for a new FortiGate VM installation. This package contains the Citrix XenServer Virtual Appliance (XVA), Virtual Hard Disk (VHD), and OVF files.

Linux KVM

- `.out`: Download the 64-bit firmware image to upgrade your existing FortiGate VM installation.
- `.out.kvm.zip`: Download the 64-bit package for a new FortiGate VM installation. This package contains QCOW2 that can be used by `qemu`.

Microsoft Hyper-V

- `.out`: Download the 64-bit firmware image to upgrade your existing FortiGate VM installation.
- `.out.hyperv.zip`: Download the 64-bit package for a new FortiGate VM installation. This package contains three folders that can be imported by Hyper-V Manager on Hyper-V 2012. It also contains the file `fortios.vhd` in the Virtual Hard Disks folder that can be manually added to the Hyper-V Manager.

VMware ESX and ESXi

- `.out`: Download either the 64-bit firmware image to upgrade your existing FortiGate VM installation.
- `.ovf.zip`: Download either the 64-bit package for a new FortiGate VM installation. This package contains Open Virtualization Format (OVF) files for VMware and two Virtual Machine Disk Format (VMDK) files used by the OVF file during deployment.

Firmware image checksums

The MD5 checksums for all Fortinet software and firmware releases are available at the Customer Service & Support portal, https://support.fortinet.com. After logging in select *Download* > *Firmware Image Checksums*, enter the image file name including the extension, and select *Get Checksum Code*.

Product Integration and Support

FortiOS 5.4.8 support

The following table lists 5.4.8 product integration and support information:

Web Browsers	• Microsoft Edge 38 • Mozilla Firefox version 53 • Google Chrome version 58 • Apple Safari version 9.1 (For Mac OS X) Other web browsers may function correctly, but are not supported by Fortinet.
Explicit Web Proxy Browser	• Microsoft Edge 40 • Mozilla Firefox version 53 • Apple Safari version 10 (For Mac OS X) • Google Chrome version 58 Other web browsers may function correctly, but are not supported by Fortinet.
FortiManager	For the latest information, see the FortiManager and FortiOS Compatibility. You should upgrade your FortiManager prior to upgrading the FortiGate.
FortiAnalyzer	For the latest information, see the FortiAnalyzer and FortiOS Compatibility. You should upgrade your FortiAnalyzer prior to upgrading the FortiGate.
FortiClient Microsoft Windows and FortiClient Mac OS X	• 5.4.1 and later If FortiClient is being managed by a FortiGate, you must upgrade FortiClient before upgrading the FortiGate.
FortiClient iOS	• 5.4.1 and later
FortiClient Android and FortiClient VPN Android	• 5.4.0 and later

FortiAP	• 5.4.1 and later • 5.2.5 and later Before upgrading FortiAP units, verify that you are running the current recommended FortiAP version. To do this in the GUI, go to the *WiFi Controller > Managed Access Points > Managed FortiAP*. If your FortiAP is not running the recommended version, the *OS Version* column displays the message: *A recommended update is available*.
FortiAP-S	• 5.4.1 and later
FortiSwitch OS (FortiLink support)	• 3.5.0 and later
FortiController	• 5.2.0 and later Supported models: FCTL-5103B, FCTL-5903C, FCTL-5913C • 5.0.3 and later Supported model: FCTL-5103B
FortiSandbox	• 2.1.0 and later • 1.4.0 and later

Fortinet Single Sign-On (FSSO)	• 5.0 build 0264 and later (needed for FSSO agent support OU in group filters)
	  • Windows Server 2016 Server Edition
	  • Windows Server 2016 Datacenter
	  • Windows Server 2008 (32-bit and 64-bit)
	  • Windows Server 2008 R2 64-bit
	  • Windows Server 2012 Standard
	  • Windows Server 2012 R2 Standard
	  • Novell eDirectory 8.8
	• 4.3 build 0164 (contact Support for download)
	  • Windows Server 2003 R2 (32-bit and 64-bit)
	  • Windows Server 2008 (32-bit and 64-bit)
	  • Windows Server 2008 R2 64-bit
	  • Windows Server 2012 Standard Edition
	  • Windows Server 2012 R2
	  • Novell eDirectory 8.8
	FSSO does not currently support IPv6.

FortiExplorer	• 2.6.0 and later. Some FortiGate models may be supported on specific FortiExplorer versions.

FortiExplorer iOS	• 1.0.6 and later Some FortiGate models may be supported on specific FortiExplorer iOS versions.
FortiExtender	• 3.0.0 • 2.0.2 and later
AV Engine	• 5.247
IPS Engine	• 3.438
Virtualization Environments	
Citrix	• XenServer version 5.6 Service Pack 2 • XenServer version 6.0 and later
Linux KVM	• RHEL 7.1/Ubuntu 12.04 and later • CentOS 6.4 (qemu 0.12.1) and later
Microsoft	• Hyper-V Server 2008 R2, 2012, 2012 R2, and 2016
Open Source	• XenServer version 3.4.3 • XenServer version 4.1 and later
VMware	• ESX versions 4.0 and 4.1 • ESXi versions 4.0, 4.1, 5.0, 5.1, 5.5, 6.0, and 6.5
VM Series - SR-IOV	The following NIC chipset cards are supported: • Intel 82599 • Intel X540 • Intel X710/XL710

FortiGate-VM v5.4 for VMware ESXi (all models), no longer supports the VMXNET2 vNIC driver.

Language support

The following table lists language support information.

Language support

Language	GUI
English	✔
Chinese (Simplified)	✔
Chinese (Traditional)	✔
French	✔
Japanese	✔
Korean	✔
Portuguese (Brazil)	✔
Spanish	✔

SSL VPN support

SSL VPN standalone client

The following table lists SSL VPN tunnel client standalone installer for the following operating systems.

Operating system and installers

Operating System	Installer
Linux CentOS 6.5 / 7 (32-bit & 64-bit) Linux Ubuntu 16.04	2335. Download from the Fortinet Developer Network https://fndn.fortinet.net.

Other operating systems may function correctly, but are not supported by Fortinet.

SSL VPN standalone client no longer supports the following operating systems:

- Microsoft Windows 7 (32-bit & 64-bit)
- Microsoft Windows 8 / 8.1 (32-bit & 64-bit)
- Microsoft Windows 10 (64-bit)
- Virtual Desktop for Microsoft Windows 7 SP1 (32-bit)

SSL VPN web mode

The following table lists the operating systems and web browsers supported by SSL VPN web mode.

Supported operating systems and web browsers

Operating System	Web Browser
Microsoft Windows 7 SP1 (32-bit & 64-bit) Microsoft Windows 8 / 8.1 (32-bit & 64-bit)	Microsoft Internet Explorer version 11 Mozilla Firefox version 53 Google Chrome version 58
Microsoft Windows 10 (64-bit)	Microsoft Edge Microsoft Internet Explorer version 11 Mozilla Firefox version 53 Google Chrome version 58
Linux CentOS 6.5 / 7 (32-bit & 64-bit)	Mozilla Firefox version 53
Mac OS 10.11.1	Apple Safari version 9 Mozilla Firefox version 53 Google Chrome version 58
iOS	Apple Safari Mozilla Firefox Google Chrome
Android	Mozilla Firefox Google Chrome

Other operating systems and web browsers may function correctly, but are not supported by Fortinet.

SSL VPN host compatibility list

It is recommended to verify the accuracy of the GUID for the software you are using for SSLVPN host check. The following Knowledge Base article at http://kb.fortinet.com/ describes how to identify the GUID for antivirus and firewall products: How to add non listed 3rd Party AntiVirus and Firewall product to the FortiGate SSL VPN Host check.

After verifying GUIDs, you can update GUIDs in FortiOS by using this command:

```
config vpn ssl web host-check-software
```

Following is an example of how to update the GUID for AVG Internet Security 2017 on Windows 7 and Windows 10 by using the FortiOS CLI.

The GUIDs in this example are only for AVG Internet Security 2017 on Windows 7 and Windows 10. The GUIDs might be different for other versions of the software and other operation systems.

To update GUIDs in FortiOS:

1. Use the `config vpn ssl web host-check-software` command to edit the `AVG-Internet-Security-AV` variable to set the following GUID for AVG Internet Security 2017: `4D41356F-32AD-7C42-C820-63775EE4F413`
2. Edit the `AVG-Internet-Security-FW` variable to set the following GUID: `757AB44A-78C2-7D1A-E37F-CA42A037B368`

Resolved Issues

The following issues have been fixed in version 5.4.8. For inquires about a particular bug, please contact Customer Service & Support.

AntiVirus

Bug ID	Description
456704	When signature update runs on a FortiGate device, the `scanunit` process shows `busy` and `drop`.

Application Control

Bug ID	Description
402773	AppCtrl signatures are blocked after rebooting FortiGate.
438759	TeamViewer not blocked with explicit proxy application control with SSL “deep inspection”.
458177	Hairpin VIP traffic fails when application control is enabled on firewall policy.

DLP

Bug ID	Description
454112	HIBUN file with `*.exe` extension is detected as `exe` file.

Firewall

Bug ID	Description
388040	Creating address object gives errors but still creates the object.
448158	DNS traffic does not refer to user but refers to 'source user' field.
449195	DNAT not working for SCTP -Multi-homing Traffic.

GUI

Bug ID	Description
372943	Explicit proxy policy may show a blank for default authentication method.

Bug ID	Description
405021	In the *Policy* list page, FQDN object that is just applied to the policy always shows as unresolved unless the whole page is refreshed.
456566	The firewall *Policy* list page needs to have support for custom sections.
458586	In the *Policy* list page, *Interface Pair View* always displays as expand-all.

HA

Bug ID	Description
438374	HA reserved management interface unable to access or ping.
439068, 455284	The sshd daemon is not started when only ssh option is allowed in `ha-mgmt-interface`.
439152	FGSP - standalone config sync - synchronizes BGP neighbor.
449147	No security database update on slave unit in FGSP environment.
452052	`vcluster2`'s VMAC on VLAN Interface is not persistent after `vcluster1` fails over.
452715	`ha-mgmt-interface` on slave unit is overwritten when backed up and restored.
455738	FortiGate does not failover when the ping server is down.
457554	FortiGate does not send syslog after `ha-mgmt-interface` link goes down and then up.
459252	When creating firewall policy or modifying interface settings, some HA processes such as `Hasync` and `Hatalk` go into D state.
461589	HA checksum changes after each reboot.
461731	HA dedicated management port settings are modified and unreachable after restoring the configuration backup.

IPS

Bug ID	Description
443418	User is not listed in quarantine list in case `block duration` value is set long enough.

IPsec VPN

Bug ID	Description
441267	FortiGate static remote-gateway can change if peer sends ESP traffic with different IP address.
461989	ESP traffic is not forwarded out over intervdom link.

Logging

Bug ID	Description
445839	Disabled logging shows action=close traffic.

Proxy

Bug ID	Description
392542	WAD returns `403 Forbidden` when scanunit daemon is killed or crashed.
435332	Keepalive Exempted HTTPs traffic keeps on kernal and proxy.
439925	Webproxy does not update the WAD user's list when new users log in.
441284	`www.nieporet.pl` website loads very slowly in proxy mode when AV is applied.
444095	Proxy-Authorization: NTLM Requests for HTTPS sites closed by FortiGate with Proxy mode and SSL Certificate Inspection.
445312	`tcp-timewait-timer` does not have any effect when WAD is running.
445328	WAD crashes after upgrading to 5.6.1.
445374	Proxies should preserve DSCP flags.
447274	Specific web page fails to load when proxy-based AV profile is enabled on Explicit web proxy policy.

Router

Bug ID	Description
441506	BGP Aggregate address results in blackhole for incoming traffic.
448291	Packets taking different routes from the same subnet even when a specific route is in place.

SSL VPN

Bug ID	Description
423415	Incorrectly resolved membership for group members using SSL VPN.
441068	SSL VPN unable to connect in tunnel mode, seeing multiple stale sessions for the same user.
450128	MAC address list is lost when aborting `unselect` command on CLI.

System

Bug ID	Description
402162	`fgSysVersionIps` SNMP queries do not always reflect used databases.
438944	BPDU frames are not changed in TP mode when one arm is connected to multiple VLANs.
443019	After running for some time, the FG-30E console keep printing memory leak error messages.
444090	Cannot get SNMP values for NP6 counters.
452456	Memory leak on FG-100D slave unit.

Common Vulnerabilities and Exposures

Bug ID	CVE references
458880	FortiOS 5.4.8 is no longer vulnerable to the following CVE Reference: • 2017-14190 Visit https://fortiguard.com/psirt for more information.
517996	FortiOS 5.4.8 is no longer vulnerable to the following CVE Reference: • 2018-13376 Visit https://fortiguard.com/psirt for more information.

Known Issues

The following issues have been identified in version 5.4.8. For inquires about a particular bug or to report a bug, please contact Customer Service & Support.

AntiVirus

Bug ID	Description
374969	FortiSandbox FortiView may not correctly parse the FSA v2.21 tracer file(.json).

Application Control

Bug ID	Description
389780	Some Forward Traffic log is missing UTM info, including `utmaction`, `countapp`, and `utmref`.

Endpoint Control

Bug ID	Description
374855	Third party compliance may not be reported if FortiClient has no AV feature.
375149	FortiGate does not auto update AV signature version while Endpoint Control (`fortiheartbeat`) is enabled but no AV profile is used.
391537	Buffer size is too small when sending large vulnerability list to FortiGate.

Firewall

Bug ID	Description
364589	LB VIP slow access when cookie persistence is enabled.

FortiGate-90E/91E

Bug ID	Description
393139	Software switch span doesn't work on this platform.
424212	FG-90E can't receive packets from span ports.

FortiGate-300E/301E and 500E/501E

Bug ID	Description
470399	The FG-300E/301E and FG-500E/501E reboots with kernel panic errors.

FortiGate-3815D

Bug ID	Description
385860	FortiGate-3815D does not support 1 GE SFP transceivers.

FortiRugged-60D

Bug ID	Description
375246	`invalid hbdev dmz` may be received if the default `hbdev` is used.

FortiSwitch-Controller/FortiLink

Bug ID	Description
304199	Using HA with FortiLink can encounter traffic loss during failover.
357360	DHCP snooping may not work on IPv6.
369099	FortiSwitch authorizes successfully but fails to pass traffic until you reboot FortiSwitch.

FortiView

Bug ID	Description
368644	*Physical Topology: Physical Connection* of stacked FortiSwitch may be incorrect.
372350	*Threat view: Threat Type and Event* information is missing in the last level of the threat view.
373142	*Threat: Filter* result may not be correct when adding a filter on a threat and threat type on the first level.
375187	Using realtime auto update may increase chrome browser memory usage.

GUI

Bug ID	Description
289297	Threat map may not be fully displayed when screen resolution is not big enough.

Bug ID	Description
297832	Administrator with read-write permission for *Firewall Configuration* is not able to read or write firewall policies.
355388	The *Select* window for remote server in remote user group may not work as expected.
365223	In Security Fabric topology, a downstream FortiGate may be shown twice when it uses hardware switch to connect upstream.
365317	Unable to add new AD group in second FSSO local polling agent.
365378	You may not be able to assign `ha-mgmt-interface` IP address in the same subnet as another port from the GUI.
368069	Cannot select `wan-load-balance` or members for incoming interface of IPsec tunnel.
372908	The interface tooltip keeps loading the VLAN interface when its physical interface is in another VDOM.
373363	Multicast policy interface may list the `wan-load-balance interface`.
373546	Only 50 security logs may be displayed in the *Log Details* pane when more than 50 are triggered.
374081	`wan-load-balance interface` may be shown in the address associated interface list.
374162	GUI may show the modem status as `Active` in the `Monitor` page after setting the modem to disable.
374224	The *Ominiselect* widget and *Tooltip* keep loading when clicking a newly created object in the *Firewall Policy* page.
374320	Editing a user from the *Policy* list page may redirect to an empty user edit page.
374322	*Interfaces* page may display the wrong MAC Address for the hardware switch.
374363	Selecting *Connect to CLI* from managed FAP context menu may not connect to FortiAP.
374373	*Policy View: Filter* bar may display the IPv4 policy name for the IPv6 policy.
374397	Should only list `any` as destination interface when creating an explicit proxy in the TP VDOM.
374521	Unable to *Revert* revisions in GUI.
374525	When activating the *FortiCloud/Register-FortiGate*, clicking *OK* may not work the first time.
375036	The *Archived Data* in the *Sniffer Traffic* log may not display detailed content and download.

Bug ID	Description
375227	You may be able to open the dropdown box and add new profiles even though errors occur when editing a *Firewall Policy* page.
375259	`Addrgrp` editing page receives a `js` error if `addrgrp` contains another group object.
375346	You may not be able to download the application control packet capture from the forward traffic log.
375369	May not be able to change IPsec `manualkey config` in GUI.
375383	The *Policy* list page may receive a `js` error when clicking the search box if the policy includes `wan-load-balance interface`.
379050	User Definition intermittently not showing assigned token.
398397	Slowness in accessing *Policy and Address* page in GUI after upgrading from 5.2.2 to 5.4.1.
402831	DNS Filter and Interface page botnet DB check should be updated.
403146	Slow GUI *Policy* tab when there are more than 600 policies.
421423	Cannot download certificate in *Security Profiles* > *SSL/SSH Inspection*. Workaround: Go to *System* > *Certificates* to download.
454259	The *Policy* list page does not display tooltips for policy comments.
465562	When using another super_admin profile, the *Firmware Version* line does not show the *Update* option.

HA

Bug ID	Description
369437	HA Sync status icon is missing for Slave's GUI.
398125	After upgrading from 5.2 to 5.4, HA configurations with FAP220A WTP profiles get HA sync errors. Workarounds: Either remove all FAP220A WTP profiles before upgrade or reboot all cluster members after upgrade.
477581	`SessionSync dev stats` of `get system ha status` shows incorrect rx/tx counters.

IPsec

Bug ID	Description
393958	Shellshock attack succeeds when FGT is configured with `server-cert-mode replace` and an attacker uses `rsa_3des_sha`.
435124	Cannot establish IPsec phase1 tunnel after upgrading from version 5.4.5 to 5.6.0. Workaround: After upgrading to 5.6.0, reconfigure all IPsec phase1 `psksecret` settings.
439923	IKE static tunnels using `set peertype one` may fail to negotiate.

Router

Bug ID	Description
299490	During and after failover, some multicast groups take up to 480 seconds to recover.

SSL VPN

Bug ID	Description
303661	The Start Tunnel feature may have been removed.
304528	SSL VPN Web Mode PKI user might immediately log back in even after logging out.
374644	SSL VPN tunnel mode Fortinet bar may not be displayed.
382223	SMB/CIFS bookmark in SSL VPN portal doesn't work with DFS Microsoft file server error "Invalid HTTP request".

System

Bug ID	Description
287612	Span function of software switch may not work on FortiGate-51E/FortiGate-30E.
290708	`nturbo` may not support CAPWAP traffic.
295292	If `private-data-encryption` is enabled, when restoring config to a FortiGate, the FortiGate may not prompt the user to enter the key.
304199	FortiLink traffic is lost in HA mode.
371320	`show system interface` may not show the *Port* list in sequential order.
372717	Option `admin-https-banned-cipher` in `sys global` may not work as expected.

Bug ID	Description
392960	FOS support for V4 BIOS.
445383	Traffic cannot go through LACP static mode interface with NP6 offload enabled.

Upgrade

Bug ID	Description
289491	When upgrading from 5.2.x to 5.4.0, port-pair configuration may be lost if the `port-pair` name exceeds 12 characters.

Visibility

Bug ID	Description
374138	FortiGate device with VIP configured may be put under Router/NAT devices because of an address change.

Limitations

Citrix XenServer limitations

The following limitations apply to Citrix XenServer installations:

- XenTools installation is not supported.
- FortiGate-VM can be imported or deployed in only the following three formats:
  - XVA (recommended)
  - VHD
  - OVF
- The XVA format comes pre-configured with default configurations for VM name, virtual CPU, memory, and virtual NIC. Other formats will require manual configuration before the first power on process.

Open Source XenServer limitations

When using Linux Ubuntu version 11.10, XenServer version 4.1.0, and libvir version 0.9.2, importing issues may arise when using the QCOW2 format and existing HDA issues.

FORTINET®

High Performance Network Security

Copyright© 2018 Fortinet, Inc. All rights reserved. Fortinet®, FortiGate®, FortiCare® and FortiGuard®, and certain other marks are registered trademarks of Fortinet, Inc., in the U.S. and other jurisdictions, and other Fortinet names herein may also be registered and/or common law trademarks of Fortinet. All other product or company names may be trademarks of their respective owners. Performance and other metrics contained herein were attained in internal lab tests under ideal conditions, and actual performance and other results may vary. Network variables, different network environments and other conditions may affect performance results. Nothing herein represents any binding commitment by Fortinet, and Fortinet disclaims all warranties, whether express or implied, except to the extent Fortinet enters a binding written contract, signed by Fortinet's General Counsel, with a purchaser that expressly warrants that the identified product will perform according to certain expressly-identified performance metrics and, in such event, only the specific performance metrics expressly identified in such binding written contract shall be binding on Fortinet. For absolute clarity, any such warranty will be limited to performance in the same ideal conditions as in Fortinet's internal lab tests. In no event does Fortinet make any commitment related to future deliverables, features or development, and circumstances may change such that any forward-looking statements herein are not accurate. Fortinet disclaims in full any covenants, representations, and guarantees pursuant hereto, whether express or implied. Fortinet reserves the right to change, modify, transfer, or otherwise revise this publication without notice, and the most current version of the publication shall be applicable.