

FortiWeb Release Notes

VERSION 6.3.7



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Change log

September 14,

Initial release.

2020

Introduction 5

Introduction

This document provides information about new and enhanced features, installation instructions, resolved issues, and known issues for FortiWeb 6.3.7, build 1102.

FortiWeb is a web application firewall (WAF) that protects hosted web applications from attacks that target known and unknown exploits. Using multi-layered and correlated detection methods, FortiWeb defends applications from known vulnerabilities and zero-day threats. The Web Application Security Service from FortiGuard Labs uses information based on the latest application vulnerabilities, bots, suspicious URL and data patterns, and specialized heuristic detection engines to keep your applications safe.

FortiWeb also offers a machine-learning function that enables it to automatically detect malicious web traffic. In addition to detecting known attacks, the feature can detect potential unknown zero-day attacks to provide real-time protection for web servers.

FortiWeb allows you to configure these features:

- · Vulnerability scanning and patching
- IP reputation, web application attack signatures, credential stuffing defense, anti-virus, and FortiSandbox Cloud powered by FortiGuard
- · Real-time attack insights and reporting with advanced visual analytics tools
- Integration with FortiGate and FortiSandbox for ATP detection
- · Behavioral attack detection
- · Advanced false positive and negative detection avoidance

FortiWeb hardware and virtual machine platforms are available for medium and large enterprises, as well as for service providers.

For additional documentation, please visit the FortiWeb documentation:

http://docs.fortinet.com/fortiweb/

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What's new

FortiWeb 6.3.7 is a patch release, and no new features and enhancements are covered in this release. See Known issues and Resolved issues for details.

Upgrade instructions

Hardware, VM, cloud platforms, and browsers support

Supported Hardware:

- FortiWeb 100D
- FortiWeb 400C
- FortiWeb 400D
- FortiWeb 400E
- FortiWeb 600D
- FortiWeb 600E
- FortiWeb 1000D
- FortiWeb 1000E
- FortiWeb 2000E
- FortiWeb 3000D/3000DFsx
- FortiWeb 3000E
- FortiWeb 3010E
- FortiWeb 4000D
- FortiWeb 4000E
- FortiWeb 100E

Supported hypervisor versions:

- VMware vSphere Hypervisor ESX/ESXi 4.0/4.1/5.0/5.1/5.5/6.0/6.5/6.7
- Citrix XenServer 6.2/6.5/7.1
- Open source Xen Project (Hypervisor) 4.9 and higher versions.
- Microsoft Hyper-V (version 6.2 or higher, running on Windows 8 or higher, or Windows Server 2012/2016/2019)
- KVM (Linux kernel 2.6, 3.0, or 3.1)
- OpenStack Queens 17.0.5
- Docker Engine CE 18.09.1 or higher versions, and the equivalent Docker Engine EE versions; Ubuntu18.04.1 LTS or higher versions.
- Nutanix AHV

FortiWeb is tested and proved to function well on the hypervisor versions listed above. Later hypervisor releases may work but have not been tested yet.

Supported cloud platforms:

- · AWS (Amazon Web Services)
- · Microsoft Azure
- Google Cloud
- OCI (Oracle Cloud Infrastructure)
- Alibaba Cloud

Supported web browsers:

- · Microsoft Edge 41
- Mozilla Firefox version 59
- · Google Chrome version 65

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

Image checksums

To verify the integrity of the firmware file, use a checksum tool to compute the firmware file's MD5 checksum. Compare it with the checksum indicated by Fortinet. If the checksums match, the file is intact.

MD5 checksums for software releases are available from Fortinet Customer Service & Support:

https://support.fortinet.com

To download the Customer Service & Support image checksum tool

After logging in to the website, in the menus at the top of the page, click **Download**, and then click **Firmware Image Checksums**.

Alternatively, near the bottom of the page, click the **Firmware Image Checksums** button. This button appears only if one or more of your devices has a current support contract. In the **File Name** field, enter the firmware image file name including its extension, then click **Get Checksum Code**.

Upgrading from previous releases



- For FortiWeb-VM with a license purchased earlier than February 2019, you must upgrade to 6.3.4 or higher. Do not use a lower patch.
- The VLAN, 802.3ad Aggregate, and Redundant interfaces are not supported anymore on FortiWeb-VMs deployed on public cloud platforms since 6.3.6. If you upgrade from versions earlier than that, these configurations will be removed.
- For FortiWeb-VM deployed in KVM environment, if you upgrade from 6.3.5 and earlier, the HA active-active standard mode will be automatically switched to HA active-active high volume mode after upgrade, and the related settings will be lost. You need to manually re-configure them. We will fix this issue in 6.4.0.

To upgrade from FortiWeb 6.3.x

Upgrade directly.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

To upgrade from FortiWeb 6.1.x and 6.2.x

Upgrade directly.

The machine learning data will be lost after the upgrade as the database format is enhanced in 6.3.0. Machine Learning will automatically start collecting data again after the upgrade.



For FortiWeb-VM on docker platform, it's not supported to upgrade to 6.3.7 from versions earlier than 6.3.0. You need to install FortiWeb-VM 6.3.7 instead of upgrading to 6.3.7. For how to install, see FortiWeb-VM on docker.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

To upgrade from FortiWeb 6.0 or 6.0.x

After the upgrade:

- If you upgrade from 6.0, there might be database compatibility issue after the upgrade, because the MarisDB database version is upgraded to 10.3.8 since FortiWeb 6.0.2.
 - Run get system status to check the Database Status.
 - If it shows Available, it means the database works well. If it shows Not Available, you need to run execute db rebuild to solve the database compatibility issue. Please note in HA mode running execute db rebuild on master appliance will take effect on all slaves simultaneously.
- If you upgrade from 6.0.1, it's not necessary to run <code>execute db rebuild</code> because the database format has already been enhanced in 6.0.1, so that it's compatible with the new database.



The machine learning data will be lost after the upgrade as the database format is enhanced in 6.3.0. Machine Learning will automatically start collecting data again after the upgrade.



For FortiWeb-VM on docker platform, it's not supported to upgrade to 6.3.7 from versions earlier than 6.3.0. You need to install FortiWeb-VM 6.3.7 instead of upgrading to 6.3.7. For how to install, see FortiWeb-VM on docker.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

To upgrade from FortiWeb 5.5.x, 5.6.x, 5.7.x, 5.8.x, or 5.9.x

Before the upgrade:

• If you upgrade from a version of FortiWeb previous to 5.9.0 on Azure platform, first change the addressing mode to DHCP in **System > Network > Interface**, then upgrade to FortiWeb 6.1.1, because FortiWeb on Azure platform has enforced the DHCP addressing mode since release 5.9.0.

After the upgrade:

- There might be database compatibility issue after the upgrade, because the MarisDB database version is upgraded to 10.3.8 since FortiWeb 6.0.2.
 - Run get system status to check the Database Status.
 - If it shows Available, it means the database works well. If it shows Not Available, you need to run execute db rebuild to solve the database compatibility issue. Please note in HA mode, running execute db rebuild on master appliance will take effect on all slaves simultaneously.



If you upgrade from a version of FortiWeb previous to 5.5.4, the upgrade process deletes any HTTP content routing policies that match X509 certificate content. You can re-create these policies using the new, enhanced X509 certificate settings.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

To upgrade from FortiWeb 5.4.x

Before the upgrade:

Resize your FortiWeb hard disk partitions. See Repartitioning the hard disk.

After the upgrade:

 There might be database compatibility issue after the upgrade, because the MarisDB database version is upgraded to 10.3.8 since FortiWeb 6.0.2.

- Run get system status to check the Database Status.
- If it shows Available, it means the database works well. If it shows Not Available, you need to run execute db rebuild to solve the database compatibility issue. Please note in HA mode, running execute db rebuild on master appliance will take effect on all slaves simultaneously.



The upgrade process deletes any HTTP content routing policies that match X509 certificate content. You can re-create these policies using the new, enhanced X509 certificate settings.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

To upgrade from FortiWeb 5.3.x

Before the upgrade:

• Resize your FortiWeb hard disk partitions. See Repartitioning the hard disk.

After the upgrade:

- There might be database compatibility issue after the upgrade, because the MarisDB database version is upgraded to 10.3.8 since FortiWeb 6.0.2.
 - Run get system status to check the Database Status.
 - If it shows Available, it means the database works well. If it shows Not Available, you need to run execute db rebuild to solve the database compatibility issue. Please note in HA mode, running execute db rebuild on master appliance will take effect on all slaves simultaneously.
 - If you are upgrading FortiWeb-VM on a hypervisor other than VMware vSphere, see FortiWeb-VM license validation after upgrade from pre-5.4 version.
 - The upgrade process deletes any HTTP content routing policies that match X509 certificate content. You can re-create these policies using the new, enhanced X509 certificate settings.



- If you upgrade from a version of FortiWeb previous to 5.3.4 and your server policy
 configuration includes settings that customize an attack blocking or server unavailable error
 page, the upgrade deletes these server-based settings. The functionality is replaced by the
 global, default FortiWeb pages.
- If you upgrade from a version of FortiWeb previous to 5.3.6, the upgrade process deletes any V-zone IP addresses, which are no longer required. This operation has no impact on routing or connectivity after the upgrade.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

To upgrade from a version previous to FortiWeb 5.3

FWB5.3.exe is a Microsoft Windows executable script that automatically migrates your FortiWeb 5.2.x configuration settings to a 5.3.x configuration.

- 1. If your version is 5.0.x or 5.1.x, upgrade to FortiWeb 5.2.x.
- 2. Use **System > Maintenance > Backup & Restore** to back up your FortiWeb configuration. Fortinet recommends that you use the **Backup entire** configuration option.

Note: If you forget to back up the configuration before you upgrade to FortiWeb 5.3, you can use the **Boot into** alternate firmware option to downgrade to the previous version, and then backup its configuration. For details, see the *FortiWeb Administration Guide*:

http://docs.fortinet.com/fortiweb/admin-guides

3. To obtain the upgrade script, log in to the Fortinet Customer Service & Support website: https://support.fortinet.com

In the menus at the top of the page, click Download, and then click Firmware Images.

- **4.** For product, select **FortiWeb**. Then, on the Download tab, navigate to the following folder: /FortiWeb/v5.00/5.3/Upgrade script/
- **5.** Download the .zip compressed archive (for example, FWB5.3Upgrade_v1.9.zip) to a location you can access from your Windows PC.
- **6.** In Windows, extract the .zip archive's contents, and then use a command line interface to execute the upgrade script.

For example, in the directory where the file FWB5.3Upgrade.exe and your backup configuration file are located, execute the following command:

```
FWB5.3Upgrade.exe -i YOUR CONFIG NAME.conf -o 5.3 new.conf
```

The script removes the Domain Server, Physical Server, Server Farm, Content Routing policy configurations and generates a new configuration file named 5.3 new.conf.

- 7. Resize your FortiWeb hard disk partitions. See Repartitioning the hard disk.
- 8. Upgrade to FortiWeb 6.1.1.
- Use System > Maintenance > Backup & Restore to restore the configuration file you created using the script (for example, 5.3 new.conf).
- **10.** There might be database compatibility issue after the upgrade, because the MarisDB database version is upgraded to 10.3.8 since FortiWeb 6.0.2:
 - Run get system status to check the Database Status.
 - If it shows Available, it means the database works well. If it shows Not Available, you need to run execute db rebuild to solve the database compatibility issue. Please note in HA mode, running execute db rebuild on master appliance will take effect on all slaves simultaneously.

 If you are upgrading FortiWeb-VM on a hypervisor other than VMware vSphere, see FortiWeb-VM license validation after upgrade from pre-5.4 version.



- The upgrade process deletes any HTTP content routing policies that match X509 certificate content. You can re-create these policies using the new, enhanced X509 certificate settings.
- If your server policy configuration includes settings that customize an attack blocking or server unavailable error page, the upgrade deletes these server-based settings. The functionality is replaced by the global, default FortiWeb pages.
- The upgrade process deletes any V-zone IP addresses, which are no longer required. This operation has no impact on routing or connectivity after the upgrade.



The "Bad Robot" and "SQL Injection (Syntax Based Detection)" signatures had been integrated into WAF modules "Bot Mitigation > Known Bots" and "SQL/XSS Syntax Based Detection" since 6.3.3. If you upgrade from a version earlier than 6.3.3, all settings of these two signatures will be merged to corresponding modules except the exception list.

Make sure to **add the exception list manually** after the upgrade, otherwise certain traffic will be blocked unexpectedly because of the missing of the exception list.

Note: To upgrade from 4.0 MR4, Patch x or earlier, please contact Fortinet Technical Support.

Repartitioning the hard disk

To upgrade from a version of FortiWeb previous to 5.5, you must first resize your FortiWeb operating system's disk.

In most cases, you'll have to install a special firmware image to repartition the disk. For details, see To use the special firmware image to repartition the operating system's disk on page 14.

For the following FortiWeb-VM tools, you cannot install the special firmware image to repartition the hard disk:

- Citrix XenServer
- Open-source Xen Project
- Microsoft Hyper-V
- KVM

For these platforms, to repartition the disk you must deploy a new virtual machine and restore the configuration and log data you backed up earlier. See To repartition the operating system's disk without the special firmware image on page 14.



Repartitioning affects the operating system's disk (USB/flash disk), not the hard disk. Existing data such as reports and event, traffic, and attack logs, which are on the hard disk, are not affected.

You can use this image to upgrade an HA cluster by following the same procedure you use for a regular firmware upgrade. For details, see "Updating firmware on an HA pair" in the *FortiWeb Administration Guide*:

http://docs.fortinet.com/fortiweb/admin-guides

To use the special firmware image to repartition the operating system's disk

- Perform a complete backup of your FortiWeb configuration.
 Although the repartitioning firmware image automatically saves your FortiWeb configuration, Fortinet recommends that you also manually back it up. For details, see the FortiWeb Administration Guide:
 http://docs.fortinet.com/fortiweb/admin-guides
- Contact Fortinet Technical Support to obtain the special repartitioning firmware image: special build 5.4.1, build 6066.
- 3. Follow one of the same procedures that you use to install or upgrade firmware using a standard image:
- In the Web UI, go to System > Status > Status. Locate the System Information widget. Beside Firmware Version, click [Update].
- In the Web UI, go to System > Maintenance > Backup & Restore. Select the Restore option in System Configuration.
- In the CLI, enter the execute restore config command.

FortiWeb backs up the current configuration, resizes the hard drive partitions, and boots the system.

Continue with the instructions in Upgrading from previous releases on page 8.

To repartition the operating system's disk without the special firmware image

- 1. Perform a complete backup of your FortiWeb configuration. For details, see the *FortiWeb Administration Guide*: http://docs.fortinet.com/fortiweb/admin-guides
- 2. Use the instructions for your hypervisor platform to detach the log disk from the VM:
 - To detach the log disk from a Citrix XenServer VM on page 14
 - To detach the log disk from a Microsoft Hyper-V VM on page 14
 - To detach the log disk from a KVM VM on page 15
- 3. Deploy a new FortiWeb 5.5 or later virtual machine on the same platform.
- 4. Use the instructions for your hypervisor platform to attach the log disk you detached earlier to the new VM:
 - To attach the log disk to a Citrix XenServer VM on page 15
 - To attach the log disk to a Microsoft Hyper-V VM on page 15
 - To attach the log disk to a KVM VM on page 15
- 5. Restore the configuration you backed up earlier to the new VM.
- 6. When you are sure that the new VM is working properly with the required configuration and log data, delete the old VM.

To detach the log disk from a Citrix XenServer VM

- 1. In Citrix XenCenter, connect to the VM.
- 2. In the settings for the VM, on the Storage tab, select Hard disk 2, and then click Properties.
- 3. For **Description**, enter a new description, and then click **OK**.
- 4. Select Hard disk 2 again, and then click Detach.
- 5. Click Yes to confirm the detach task.

To detach the log disk from a Microsoft Hyper-V VM

- 1. In the Hyper-V Manager, select the FortiWeb-VM in the list of machines, and then, under Actions, click Settings.
- 2. Select Hard Drive (data.vhd), and then click Remove.

3. Click Apply.

To detach the log disk from a KVM VM

1. In Virtual Machine Manager, double-click the FortiWeb-VM in the list of machines.

- 2. Click Show virtual hardware details (the "i" button).
- 3. Click VirtIO Disk 2, and then click Remove.

To attach the log disk to a Citrix XenServer VM

- 1. In Citrix XenCenter, connect to the VM.
- 2. In the settings for the new, FortiWeb 5.5 or later VM, on the Storage tab, select Hard disk 2, and then click Delete.
- 3. Click Yes to confirm the deletion.
- 4. On the Storage tab, click Attach Disk.
- 5. Navigate to the hard disk you detached from the old VM to attach it.
- 6. Start your new virtual machine.

To attach the log disk to a Microsoft Hyper-V VM

- 1. In the Hyper-V Manager, select the new, FortiWeb 5.5 or later virtual machine in the list of machines, and then, under Actions, click **Settings**.
- 2. Select Hard Drive (log.vhd), and then click Browse.
- 3. Browse to the hard drive you detached from the old virtual machine to select it.
- 4. Click Apply.
- 5. Start the new virtual machine.

To attach the log disk to a KVM VM

For KVM deployments, you remove an existing virtual disk from the new VM before you attach the disk detached from the original VM.

- 1. In Virtual Machine Manager, double-click the new, FortiWeb 5.5 or later VM in the list of machines.
- 2. Click Show virtual hardware details (the "i" button).
- 3. Click VirtIO Disk 2, and then click Remove.
- 4. Click Add Hardware.
- 5. Click Storage, select Select managed or other existing storage, and then click Browse.
- 6. Click Browse Local.
- 7. Navigate to the log disk file for the original machine to select it, and then click **Open**.
- 8. For Device type, select Virtio disk, for Storage format, select qcow2, and then click Finish.
- 9. Start the new virtual machine.

Upgrading an HA cluster

If the HA cluster is running FortiWeb 4.0 MR4 or later, the HA cluster upgrade is streamlined. When you upgrade the active appliance, it automatically upgrades any standby appliance(s), too; no manual intervention is required to upgrade

the other appliance(s). This includes upgrading using the special hard disk repartitioning firmware image for upgrading to 5.5 or later from earlier releases.

If the HA cluster is running FortiWeb 4.0 MR3 Patch x or earlier, contact Fortinet Technical Support for assistance.

Downgrading to a previous release

When you downgrade to version 5.1 or 5.0, the basic configuration for your appliance's connections to the network (e.g., IP address and route configuration) is preserved.

Please note that the machine learning data will be lost if you downgrade to versions lower than 6.2.0. It cannot be recovered because the database architecture is changed since 6.2.0.

FortiWeb-VM license validation after upgrade from pre-5.4 version

On some virtual machine deployments, upgrading FortiWeb-VM from a version previous to 5.4 changes the virtual machine's universal unique identifier (UUID). Because of this change, the first time you upload your existing FortiWeb-VM license, the FortiGuard Distribution Network (FDN) server reports that it is invalid.

To solve this problem, after you have uploaded the license, wait 90 minutes, and then upload the license again.

This issue does not affect FortiWeb-VM deployed on a VMware vSphere hypervisor.

Resolved issues 17

Resolved issues

This section lists issues that have been fixed in version 6.3.7. For inquires about a particular bug, please contact Fortinet Customer Service & Support:

https://support.fortinet.com

Bug ID	Description
0663481	Certain sessions cannot be released even tcp_recv_timeout is enabled.
0660993	In high volume HA mode, the bot-deamon is always in waiting mode.
0660755	SNMP OIDs fwTotalConnectNumber (PerSecond) returns inaccurate value when executing session-cleanup.
0659895	The password for Server Pool for ADFS is stored as clear text in the configuration.
0659889	System > Config > Replacement Message page fails to be loaded.
0659877	Internal Server Error is returned on Threat Map, and internal email address of the server administrator is displayed on the browser console.
0659032	Unable to check users against the CRL files because the file size limit is too small.
0658967	Restricted user can execute arbitrary commands, which it is not allowed on system with root privileges using Command Injection.
0644899	Crash occurs when a same memory space is freed twice in an application process.

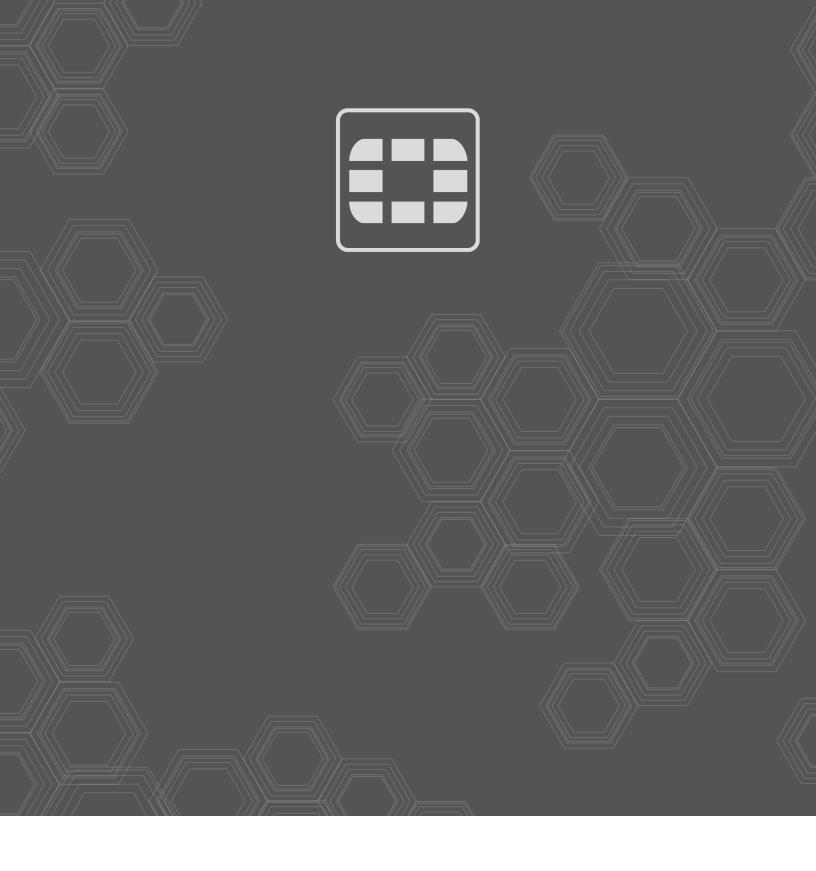
Known issues 18

Known issues

This section lists known issues in version 6.3.7, but may not be a complete list. For inquires about a particular bug, please contact Fortinet Customer Service & Support:

https://support.fortinet.com

Bug ID	Description
0665507	The exception list of WAF signatures under "Bad Robot" and "SQL Injection (Syntax Based Detection)" will be lost if you upgrade from a version earlier than 6.3.3.
0656630	Network > Packet Capture: the selected packet capture page automatically flushes and the capture item fails to be deleted.
0656002	The diagnose debug flow filter client-ip/server-ip function fails to work well for http-detail/session-detail.
0604053	FortiWeb 100D devices reboot for unknown reasons in rare cases.
0597351	In machine learning, for certain domain types with multiple patterns, it costs very long time to finish the sample collection.
0596000	Users with privileges to a certain ADOM can access contents restricted to other ADOMs through CLI.
0578585	In active-active high volume HA mode, if the physical port IP address and the VIP address are in the same network segment, the physical port's mac address instead of the VIP's mac address will be learned by the switch.
0556301	FortiWeb responds with different TCP ports when running sudo nmap towards a physical interface.



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