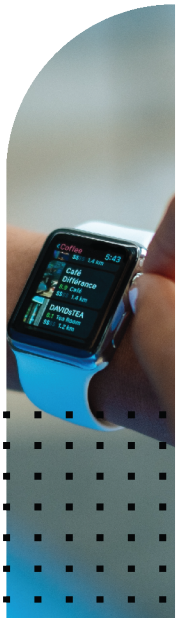
FORTINET

# Release Notes

## FortiOS 7.0.15



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April 4, 2024
FortiOS 7.0.15 Release Notes
01-7015-1009370-20240404

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# Change Log

| Date | Change Description |
| --- | --- |
| 2024-04-04 | Initial release. |

# Introduction and supported models

This guide provides release information for FortiOS 7.0.15 build 0632.

For FortiOS documentation, see the Fortinet Document Library.

## Supported models

FortiOS 7.0.15 supports the following models.

| | |
|---|---|
| **FortiGate** | FG-40F, FG-40F-3G4G, FG-60E, FG-60E-DSL, FG-60E-DSLJ, FG-60E-POE, FG-60F, FG-61E, FG-61F, FG-70F, FG-71F, FG-80E, FG-80E-POE, FG-80F, FG-80F-BP, FG-80F-POE, FG-81E, FG-81E-POE, FG-81F, FG-81F-POE, FG-90E, FG-91E, FG-100E, FG-100EF, FG-100F, FG-101E, FG-101F, FG-140E, FG-140E-POE, FG-200E, FG-200F, FG-201E, FG-201F, FG-300E, FG-301E, FG-400E, FG-400E-BP, FG-400F, FG-401F, FG-401E, FG-500E, FG-501E, FG-600E, FG-601E, FG-600F, FG-601F, FG-800D, FG-900D, FG-1000D, FG-1100E, FG-1101E, FG-1200D, FG-1500D, FG-1500DT, FG-1800F, FG-1801F, FG-2000E, FG-2200E, FG-2201E, FG-2500E, FG-2600F, FG-2601F, FG-3000D, FG-3000F, FG-3001F, FG-3100D, FG-3200D, FG-3300E, FG-3301E, FG-3400E, FG-3401E, FG-3500F, FG-3501F, FG-3600E, FG-3601E, FG-3700D, FG-3800D, FG-3960E, FG-3980E, FG-4200F, FG-4201F, FG-4400F, FG-4401F, FG-5001E, FG-5001E1 |
| **FortiWiFi** | FWF-40F, FWF-40F-3G4G, FWF-60E, FWF-60E-DSL, FWF-60E-DSLJ, FWF-60F, FWF-61E, FWF-61F, FWF-80F-2R, FWF-81F-2R, FWF-81F-2R-POE, FWF-81F-2R-3G4G-POE |
| **FortiGate Rugged** | FGR-60F, FGR-60F-3G4G |
| **FortiFirewall** | FFW-3980E, FFW-VM64, FFW-VM64-KVM |
| **FortiGate VM** | FG-ARM64-AWS, FG-ARM64-KVM, FG-ARM64-OCI, FG-VM64, FG-VM64-ALI, FG-VM64-AWS, FG-VM64-AZURE, FG-VM64-GCP, FG-VM64-HV, FG-VM64-IBM, FG-VM64-KVM, FG-VM64-OPC, FG-VM64-RAXONDEMAND, FG-VM64-SVM, FG-VM64-VMX, FG-VM64-XEN |
| **Pay-as-you-go images** | FOS-VM64, FOS-VM64-HV, FOS-VM64-KVM, FOS-VM64-XEN |

### Special branch supported models

The following models are released on a special branch of FortiOS 7.0.15. To confirm that you are running the correct build, run the CLI command `get system status` and check that the `Branch point` field shows 0632.

| | |
|---|---|
| **FG-80F-DSL** | is released on build 7338. |
| **FG-90G** | is released on build 7342. |

| | |
|---|---|
| **FG-91G** | is released on build 7342. |
| **FG-120G** | is released on build 7334. |
| **FG-121G** | is released on build 7334. |
| **FG-900G** | is released on build 7329. |
| **FG-901G** | is released on build 7329. |
| **FG-1000F** | is released on build 7330. |
| **FG-1001F** | is released on build 7330. |
| **FG-3200F** | is released on build 7331. |
| **FG-3201F** | is released on build 7331. |
| **FG-3700F** | is released on build 7331. |
| **FG-3701F** | is released on build 7331. |
| **FG-4800F** | is released on build 7331. |
| **FG-4801F** | is released on build 7331. |
| **FGR-70F** | is released on build 7332. |
| **FGR-70F-3G4G** | is released on build 7332. |
| **FWF-80F-2R-3G4G-DSL** | is released on build 7338. |
| **FWF-81F-2R-3G4G-DSL** | is released on build 7338. |

# Special notices



## Azure-On-Demand image

Starting from FortiOS 6.4.3, the FG-VM64-AZUREONDEMAND image is no longer provided. Both Azure PAYG and Azure BYOL models will share the same FG-VM64-AZURE image for upgrading and new deployments. Remember to back up your configuration before upgrading.

For ONDEMAND models before 6.4.2, upgrade to 6.4.2 using the FG-VM64-AZUREONDEMAND image. Then, upgrade to a later build using the FG-VM64-AZURE image.

## GCP-On-Demand image

Starting from FortiOS 7.0.0, the FG-VM64-GCPONDEMAND image is no longer provided. Both GCP PAYG and GCP BYOL models will share the same FG-VM64-GCP image for upgrading and new deployments. Remember to back up your configuration before upgrading.

For PAYG models with a 6.2.x build, upgrade to the latest 6.4.x build (6.4.5 or later) using the FG-VM64-GCPONDEMAND image. Then, upgrade to 7.0.x using the FG-VM64-GCP image.

## ALI-On-Demand image

Starting from FortiOS 7.0.0, the FG-VM64-ALIONDEMAND image is no longer provided. Both ALI PAYG and ALI BYOL models will share the same FG-VM64-ALI image for upgrading and new deployments. Remember to back up your configuration before upgrading.

For PAYG models with a 6.2.x build, upgrade to the latest 6.4.x build (6.4.5 or later) using the FGT-VM64-ALIONDEMAND image. Then, upgrade to 7.0.x using the FGT-VM64-ALI image.

## Unsupported websites in SSL VPN web mode

The following websites are not supported in SSL VPN web mode in FortiOS 7.0.1 and later:

- Facebook
- Gmail
- Office 365
- YouTube

## RDP and VNC clipboard toolbox in SSL VPN web mode

Press `F8` to access the RDP/VNC clipboard toolbox. The functionality in previous versions with the clipboard toolbox in the right-hand side of the RDP/VNC page has been removed in FortiOS 7.0.1 and later.

## CAPWAP offloading compatibility of FortiGate NP7 platforms

To work with FortiGate NP7 platforms running FortiOS 7.0.1 and later, current FortiAP models whose names end with letter E or F should be upgraded to the following firmware versions:

- FortiAP (F models): version 6.4.7, 7.0.1, and later
- FortiAP-S and FortiAP-W2 (E models): version 6.4.7, 7.0.1, and later
- FortiAP-U (EV and F models): version 6.2.2 and later
- FortiAP-C (FAP-C24JE): version 5.4.3 and later

The CAPWAP offloading feature of FortiGate NP7 platforms is not fully compatible with FortiAP models that cannot be upgraded (as mentioned above) or legacy FortiAP models whose names end with the letters B, C, CR, or D. To work around this issue for these FortiAP models, administrators need to disable `capwap-offload` under `config system npu` and then reboot the FortiGate.

## IP pools and VIPs are now considered local addresses

In FortiOS 7.0.13 and later, all IP addresses used as IP pools and VIPs are now considered local IP addresses if responding to ARP requests on these external IP addresses is enabled (`set arp-reply enable`, by default). For these cases, the FortiGate is considered a destination for those IP addresses and can receive reply traffic at the application layer.

Previously in FortiOS 7.0.1 to 7.0.12, this was not the case. For details on the history of the behavior changes for IP pools and VIPs, and for issues and their workarounds for the affected FortiOS versions, see Technical Tip: IP pool and virtual IP behavior changes in FortiOS 6.4, 7.0, 7.2, and 7.4.

## FEC feature design change

The FEC feature design has the following changes starting in FortiOS 7.0.2:

- FEC enabled on FortiGates running 7.0.2 is not backward compatible with FEC enabled on FortiGates running previous versions.
- In addition to enabling FEC on IPsec interfaces in previous versions, there is a new option, `fec`, that should also be enabled under the related firewall policy so the feature works:

```
config firewall policy
    edit <id>
        set fec enable
    next
end
```

- The `fec` option is not automatically enabled in a firewall policy when upgrading from a previous version. It must be enabled manually.

## Hyperscale incompatibilities and limitations

See Hyperscale firewall incompatibilities and limitations in the Hyperscale Firewall Guide for a list of limitations and incompatibilities with FortiOS 7.0.15 features.

## SMB drive mapping with ZTNA access proxy

In FortiOS 7.0.12 and later, SMB drive mapping on a Windows PC made through a ZTNA access proxy becomes inaccessible after the PC reboots when access proxy with TCP forwarding is configured as FQDN. When configured with an IP for SMB traffic, same issue is not observed.

One way to solve the issue is to enter the credentials into Windows Credential Manager in the form of `domain\username`.

Another way to solve the issue is to leverage the KDC proxy to issue a TGT (Kerberos) ticket for the remote user. See ZTNA access proxy with KDC to access shared drives for more information. This way, there is no reply in Credential Manager anymore, and the user is authenticated against the DC.

# Remote access with write rights through FortiGate Cloud

Remote access with read and write rights through FortiGate Cloud now requires a paid FortiGate Cloud subscription. The FortiGate can still be accessed in a read-only state with the free tier of FortiGate Cloud. Alternatively, you can access your FortiGate through its web interface.

Please contact your Fortinet Sales/Partner for details on purchasing a FortiGate Cloud Service subscription license for your FortiGate device.

For more information see the FortiGate Cloud feature comparison and FortiGate Cloud Administration guide FAQ.

# New features or enhancements

More detailed information is available in the New Features Guide.

| Feature ID | Description |
|---|---|
| 480717 | Add new command to all FortiGate models that have dedicated management (mgmt, mgmt1, mgmt2) ports.<br>`# config system dedicated-mgmt` |
| 685910 | Added SoC4 driver support for the IEEE 802.1ad, also known as QinQ. |
| 930522 | Remote access with read and write rights through FortiGate Cloud now requires a paid FortiGate Cloud subscription. The FortiGate can still be accessed in a read-only state with the free tier of FortiGate Cloud. Alternatively, you can access your FortiGate through its web interface.<br>Please contact your Fortinet Sales/Partner for details on purchasing a FortiGate Cloud Service subscription license for your FortiGate device. |

# Upgrade information

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*.

## Fortinet Security Fabric upgrade

FortiOS 7.0.15 greatly increases the interoperability between other Fortinet products. This includes:

| | |
|---|---|
| **FortiAnalyzer** | • 7.0.11 |
| **FortiManager** | • 7.0.11 |
| **FortiExtender** | • 7.0.3 and later. For compatibility with latest features, use latest 7.4 version. |
| **FortiSwitch OS (FortiLink support)** | • 6.4.6 build 0470 or later |
| **FortiAP**<br>**FortiAP-S**<br>**FortiAP-U**<br>**FortiAP-W2** | • See Strong cryptographic cipher requirements for FortiAP on page 15 |
| **FortiClient* EMS** | • 7.0.0 build 0042 or later |
| **FortiClient* Microsoft Windows** | • 7.0.0 build 0029 or later |
| **FortiClient* Mac OS X** | • 7.0.0 build 0022 or later |
| **FortiClient* Linux** | • 7.0.0 build 0018 or later |
| **FortiClient* iOS** | • 6.4.6 build 0507 or later |
| **FortiClient* Android** | • 6.4.6 build 0539 or later |
| **FortiSandbox** | • 2.3.3 and later |

* If you are using FortiClient only for IPsec VPN or SSL VPN, FortiClient version 6.0 and later are supported.

When upgrading your Security Fabric, devices that manage other devices should be upgraded first.

When using FortiClient with FortiAnalyzer, you should upgrade both to their latest versions. The versions between the two products should match. For example, if using FortiAnalyzer 7.0.0, use FortiClient 7.0.0.

Upgrade the firmware of each device in the following order. This maintains network connectivity without the need to use manual steps.

1. FortiAnalyzer
2. FortiManager
3. Managed FortiExtender devices
4. FortiGate devices
5. Managed FortiSwitch devices
6. Managed FortiAP devices
7. FortiClient EMS
8. FortiClient
9. FortiSandbox
10. FortiMail
11. FortiWeb
12. FortiADC
13. FortiDDOS
14. FortiWLC
15. FortiNAC
16. FortiVoice
17. FortiDeceptor
18. FortiAI/FortiNDR
19. FortiTester
20. FortiMonitor

If Security Fabric is enabled, then all FortiGate devices must be upgraded to 7.0.15. When Security Fabric is enabled in FortiOS 7.0.15, all FortiGate devices must be running FortiOS 7.0.15.

# 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

- admin user account
- session helpers
- system access profiles

## 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, go to *Support* > *Firmware Image Checksums* (in the *Downloads* section), enter the image file name including the extension, and click *Get Checksum Code*.

## IPsec interface MTU value

IPsec interfaces may calculate a different MTU value after upgrading from 6.4.

This change might cause an OSPF neighbor to not be established after upgrading. The workaround is to set `mtu-ignore` to `enable` on the OSPF interface's configuration:

```
config router ospf
    config ospf-interface
        edit "ipsce-vpnx"
            set mtu-ignore enable
        next
    end
end
```

## HA role wording changes

The term master has changed to primary, and slave has changed to secondary. This change applies to all HA-related CLI commands and output. The one exception is any output related to VRRP, which remains unchanged.

## Strong cryptographic cipher requirements for FortiAP

FortiOS 7.0.0 has removed 3DES and SHA1 from the list of strong cryptographic ciphers. To satisfy the cipher requirement, current FortiAP models whose names end with letter E or F should be upgraded to the following firmware versions:

- FortiAP (F models): version 6.4.3 and later
- FortiAP-S and FortiAP-W2 (E models): version 6.2.4, 6.4.1, and later
- FortiAP-U (EV and F models): version 6.0.3 and later
- FortiAP-C (FAP-C24JE): version 5.4.3 and later

If FortiGates running FortiOS 7.0.1 and later need to manage FortiAP models that cannot be upgraded or legacy FortiAP models whose names end with the letters B, C, CR, or D, administrators can allow those FortiAPs' connections with weak cipher encryption by using compatibility mode:

```
config wireless-controller global
    set tunnel-mode compatible
end
```

# How VoIP profile settings determine the firewall policy inspection mode

When upgrading, all firewall policies with a VoIP profile selected will be converted to proxy-based inspection. All firewall policies that do not have a VoIP profile selected will remain in the same inspection mode after upgrading.

In the case when customers are using the following settings in 6.4:

```
config system settings
    set default-voip-alg-mode proxy-based
end
```

```
config firewall policy
    edit 0
        set inspection-mode flow
        unset voip-profile
    next
end
```

In 6.4, by default, SIP traffic is handled by proxy-based SIP ALG even though no VoIP profile is specified in a firewall policy.

After upgrading, the firewall policy will remain in `inspection-mode flow` but handled is by flow-based SIP inspection.

Due to the difference in which the SIP traffic is handled by flow-based SIP versus proxy-based SIP ALG inspection in 7.0.0 and later, if customers want to maintain the same behavior after upgrading, they can manually change the firewall policy's `inspection-mode` to `proxy`:

```
config firewall policy
    edit 0
        set inspection-mode proxy
        unset voip-profile
    next
end
```

Or prior to upgrading, they can assign a `voip-profile` to the firewall policies that are processing SIP traffic to force the conversion to `inspection-mode proxy` after upgrading.

# L2TP over IPsec configuration needs to be manually updated after upgrading from 6.4.x or 7.0.0 to 7.0.1 and later

If the setting is not manually updated after upgrading, the VPN connection will be established, but it will not be accessible from the internal network (office network). This setting change is necessary regardless of whether route-based or policy-based IPsec is used.

**To make L2TP over IPsec work after upgrading:**

1. Add a static route for the IP range configured in `vpn l2tp`. For example, if the L2TP setting in the previous version's root VDOM is:

```
config vpn l2tp
    set eip 210.0.0.254
    set sip 210.0.0.1
    set status enable
    set usrgrp "L2tpusergroup"
end
```

   Add a static route after upgrading:

```
config router static
    edit 1
        set dst 210.0.0.0 255.255.255.0
        set device "l2t.root"
    next
end
```

2. Change the firewall policy source interface tunnel name to `l2t.VDOM`.

# Add interface for NAT46 and NAT64 to simplify policy and routing configurations

This update simplifies the policy and routing of NAT46 and NAT64 policies by adding the NAT tunnel interface and options in `firewall vip/vip6` and `firewall policy` settings. The `policy46` and `policy64` settings have been merged into `policy`, and `vip46` and `vip64` into `vip` and `vip6`. Most firewall policy options can now be used in policies with NAT46 and NAT64 options enabled.

## Upgrading

When upgrading from FortiOS 6.4.x or 7.0.0 to 7.0.1 and later, the old configurations for `vip46`, `vip64`, `policy46`, `policy64`, `nat64`, and `gui-nat46-64` will be removed. All objects in them will be removed.

The following CLI commands have been removed:

- `config firewall vip46`
- `config firewall vip64`

- `config firewall policy46`
- `config firewall policy64`
- `config system nat64`
- `set gui-nat46-64 {enable | disable}` (under `config system settings`)

The following GUI pages have been removed:

- *Policy & Objects* > *NAT46 Policy*
- *Policy & Objects* > *NAT64 Policy*
- NAT46 and NAT64 VIP category options on *Policy & Objects* > *Virtual IPs* related pages

During the upgrade process after the FortiGate reboots, the following message is displayed:

```
The config file may contain errors,
Please see details by the command 'diagnose debug config-error-log read'
```

The following output is displayed after running the diagnose command:

```
# diagnose debug config-error-log read
>>> "config" "firewall" "policy64" @ root:command parse error (error -
61)
>>> "config" "firewall" "policy46" @ root:command parse error (error -
61)
```

## Creating new policies

After upgrading FortiOS 6.4.x or 7.0.0 to 7.0.1 and later, you will need to manually create new `vip46` and `vip64` policies.

- Create a `vip46` from `config firewall vip` and enable the `nat46` option.
- Create a `vip64` from `config firewall vip6` and enable the `nat64` option.
- Create or modify `ippool` and `ippool6`, and enable the `nat64` or `nat46` option.
- Create a policy and enable the `nat46` option, apply the `vip46` and `ippool6` in a policy.
- Create a policy and enable the `nat64` option, apply the `vip64` and `ippool` in policy.
- Ensure the routing on the client and server matches the new `vip`/`vip6` and `ippool`/`ippool6`.

## Example configurations

`vip46` object:

| Old configuration | New configuration |
|---|---|
| `config firewall vip46`<br>`edit "test-vip46-1"`<br>`set extip 10.1.100.155`<br>`set mappedip 2000:172:16:200::55`<br>`next` | `config firewall vip`<br>`edit "test-vip46-1"`<br>`set extip 10.1.100.150`<br>`set nat44 disable`<br>**`set nat46 enable`** |

| Old configuration | New configuration |
|---|---|
| end | set extintf "port24"<br>**set ipv6-mappedip 2000:172:16:200::55**<br>next<br>end |

`ippool6` object:

| Old configuration | New configuration |
|---|---|
| config firewall ippool6<br>edit "test-ippool6-1"<br>set startip 2000:172:16:201::155<br>set endip 2000:172:16:201::155<br>next<br>end | config firewall ippool6<br>edit "test-ippool6-1"<br>set startip 2000:172:16:201::155<br>set endip 2000:172:16:201::155<br>**set nat46 enable**<br>next<br>end |

NAT46 policy:

| Old configuration | New configuration |
|---|---|
| config firewall policy46<br>edit 1<br>set srcintf "port24"<br>set dstintf "port17"<br>set srcaddr "all"<br>set dstaddr "test-vip46-1"<br>set action accept<br>set schedule "always"<br>set service "ALL"<br>set logtraffic enable<br>set ippool enable<br>set poolname "test-ippool6-1"<br>next<br>end | config firewall policy<br>edit 2<br>set srcintf "port24"<br>set dstintf "port17"<br>set action accept<br>**set nat46 enable**<br>set srcaddr "all"<br>set dstaddr "test-vip46-1"<br>set srcaddr6 "all"<br>set dstaddr6 "all"<br>set schedule "always"<br>set service "ALL"<br>set logtraffic all<br>set ippool enable<br>set poolname6 "test-ippool6-1"<br>next<br>end |

`vip64` object

| Old configuration | New configuration |
|---|---|
| config firewall vip64<br>edit "test-vip64-1"<br>set extip 2000:10:1:100::155<br>set mappedip 172.16.200.155<br>next | config firewall vip6<br>edit "test-vip64-1"<br>set extip 2000:10:1:100::155<br>set nat66 disable<br>**set nat64 enable** |

| Old configuration | New configuration |
|---|---|
| end | **set ipv4-mappedip 172.16.200.155**<br>next<br>end |

`ippool` object

| Old configuration | New configuration |
|---|---|
| config firewall ippool<br>edit "test-ippool4-1"<br>set startip 172.16.201.155<br>set endip 172.16.201.155<br>next<br>end | config firewall ippool<br>edit "test-ippool4-1"<br>set startip 172.16.201.155<br>set endip 172.16.201.155<br>**set nat64 enable**<br>next<br>end |

NAT64 policy:

| Old configuration | New configuration |
|---|---|
| config firewall policy64<br>edit 1<br>set srcintf "wan2"<br>set dstintf "wan1"<br>set srcaddr "all"<br>set dstaddr "test-vip64-1"<br>set action accept<br>set schedule "always"<br>set service "ALL"<br>set ippool enable<br>set poolname "test-ippool4-1"<br>next<br>end | config firewall policy<br>edit 1<br>set srcintf "port24"<br>set dstintf "port17"<br>set action accept<br>**set nat64 enable**<br>set srcaddr "all"<br>set dstaddr "all"<br>set srcaddr6 "all"<br>set dstaddr6 "test-vip64-1"<br>set schedule "always"<br>set service "ALL"<br>set logtraffic all<br>set ippool enable<br>set poolname "test-ippool4-1"<br>next<br>end |

# ZTNA configurations and firewall policies

Since FortiOS 7.0.2, ZTNA configurations no longer require a firewall policy to forward traffic to the access proxy VIP. This is implicitly generated based on the ZTNA rule configuration.

When upgrading from FortiOS 7.0.1 or below:

- If an `access-proxy` type `proxy-policy` does not have a `srcintf`, then after upgrading it will be set to `any`.
- To display the `srcintf` as *any* in the GUI, *System* > *Feature Visibility* should have *Multiple Interface Policies* enabled.
- All full ZTNA firewall policies will be automatically removed.

## Default DNS server update

Starting in FortiOS 7.0.4, if both primary and secondary DNS servers are set to use the default FortiGuard servers prior to upgrading, the FortiGate will update them to the new servers and enable DoT after upgrading. If one or both DNS servers are not using the default FortiGuard server, upgrading will retain the existing DNS servers and DNS protocol configuration.

## VDOM link and policy configuration is lost after upgrading if VDOM and VDOM link have the same name

Affected versions:

- FortiOS 6.4.9 and later
- FortiOS 7.0.6 and later
- FortiOS 7.2.0 and later

When upgrading to one of the affected versions, there is a check within the set `vdom-links` function that rejects `vdom-links` that have the same name as a VDOM. Without the check, the FortiGate will have a kernel panic upon bootup during the upgrade step.

A workaround is to rename the `vdom-links` prior to upgrading, so that they are different from the VDOMs.

## BIOS-level signature and file integrity checking during downgrade

When downgrading to a version of FortiOS prior to 6.4.13, 7.0.12, and 7.2.5 that does not support BIOS-level signature and file integrity check during bootup, the following steps should be taken if the BIOS version of the FortiGate matches the following versions:

- 6000100 or greater
- 5000100 or greater

**To downgrade or upgrade to or from a version that does not support BIOS-level signature and file integrity check during bootup:**

1. If the current security level is 2, change the security level to 0. This issue does not affect security level 1 or below.
2. Downgrade to the desired FortiOS firmware version.
3. If upgrading back to 6.4.13, 7.0.12, 7.2.5, 7.4.0, or later, ensure that the security level is set to 0.

4. Upgrade to the desired FortiOS firmware version.
5. Change the security level back to 2.

**To verify the BIOS version:**

The BIOS version is displayed during bootup:

```
Please stand by while rebooting the system.
Restarting system
FortiGate-1001F (13:13-05.16.2023)
Ver:06000100
```

**To verify the security level:**

```
# get system status
Version: FortiGate-VM64 v7.4.2,build2571,231219 (GA.F)
First GA patch build date: 230509
Security Level: 1
```

**To change the security level:**

1. Connect to the console port of the FortiGate.
2. Reboot the FortiGate (`execute reboot`) and enter the BIOS menu.
3. Press [`I`] to enter the *System Information* menu
4. Press [`U`] to enter the *Set security level* menu
5. Enter the required security level.
6. Continue to boot the device.

# GUI firmware upgrade does not follow the recommended upgrade path

When performing a firmware upgrade that requires multiple version jumps, the Follow upgrade path option in the GUI does not respect the recommended upgrade path, and instead upgrades the firmware directly to the final version. This can result in unexpected configuration loss. To upgrade a device in the GUI, upgrade to each interim version in the upgrade path individually.

For example, when upgrading from 7.0.7 to 7.0.12 the recommended upgrade path is 7.0.7 -> 7.0.9 -> 7.0.11 -> 7.0.12. To ensure that there is no configuration loss, first upgrade to 7.0.9, then 7.0.11, and then 7.0.12.

# Product integration and support

The following table lists FortiOS 7.0.15 product integration and support information:

| | |
|---|---|
| **Web browsers** | • Microsoft Edge 114<br>• Mozilla Firefox version 113<br>• Google Chrome version 114<br>Other browser versions have not been tested, but may fully function.<br>Other web browsers may function correctly, but are not supported by Fortinet. |
| **Explicit web proxy browser** | • Microsoft Edge 114<br>• Mozilla Firefox version 113<br>• Google Chrome version 114<br>Other browser versions have not been tested, but may fully function.<br>Other web browsers may function correctly, but are not supported by Fortinet. |
| **FortiController** | • 5.2.5 and later<br>Supported models: FCTL-5103B, FCTL-5903C, FCTL-5913C |
| **Fortinet Single Sign-On (FSSO)** | • 5.0 build 0315 and later (needed for FSSO agent support OU in group filters)<br>  • Windows Server 2022 Standard<br>  • Windows Server 2022 Datacenter<br>  • Windows Server 2019 Standard<br>  • Windows Server 2019 Datacenter<br>  • Windows Server 2019 Core<br>  • Windows Server 2016 Datacenter<br>  • Windows Server 2016 Standard<br>  • Windows Server 2016 Core<br>  • Windows Server 2012 Standard<br>  • Windows Server 2012 R2 Standard<br>  • Windows Server 2012 Core<br>  • Windows Server 2008 64-bit (requires Microsoft SHA2 support package)<br>  • Windows Server 2008 R2 64-bit (requires Microsoft SHA2 support package)<br>  • Windows Server 2008 Core (requires Microsoft SHA2 support package)<br>  • Novell eDirectory 8.8 |
| **AV Engine** | • 6.00298 |
| **IPS Engine** | • 7.00181 |

# Virtualization environments

The following table lists hypervisors and recommended versions.

| Hypervisor | Recommended versions |
|---|---|
| **Citrix Hypervisor** | • 8.1 Express Edition, Dec 17, 2019 |
| **Linux KVM** | • Ubuntu 18.0.4 LTS<br>• Red Hat Enterprise Linux release 8.4<br>• SUSE Linux Enterprise Server 12 SP3 release 12.3 |
| **Microsoft Windows Server** | • 2012R2 with Hyper-V role |
| **Windows Hyper-V Server** | • 2019 |
| **Open source XenServer** | • Version 3.4.3<br>• Version 4.1 and later |
| **VMware ESX** | • Versions 4.0 and 4.1 |
| **VMware ESXi** | • Versions 6.5, 6.7, and 7.0. |

# 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 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) | Mozilla Firefox version 113<br>Google Chrome version 113 |
| Microsoft Windows 10 (64-bit) | Microsoft Edge<br>Mozilla Firefox version 113<br>Google Chrome version 113 |
| Ubuntu 20.04 (64-bit) | Mozilla Firefox version 113<br>Google Chrome version 113 |
| macOS Ventura 13 | Apple Safari version 15<br>Mozilla Firefox version 113<br>Google Chrome version 113 |
| iOS | Apple Safari<br>Mozilla Firefox<br>Google Chrome |
| Android | Mozilla Firefox<br>Google Chrome |

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

# Resolved issues

The following issues have been fixed in version 7.0.15. To inquire about a particular bug, please contact Customer Service & Support.

## Application Control

| Bug ID | Description |
|---|---|
| 952307 | FG-400F sees increased packet loss when using an application list in the policy. |

## FortiGate 6000 and 7000 platforms

| Bug ID | Description |
|---|---|
| 949175 | During FIM failover from FIM2 to FIM1, the NP7 PLE sticks on a cache invalidation, stopping traffic. |

## HA

| Bug ID | Description |
|---|---|
| 869557 | Upgrading or re-uploading an image to the HA secondary node causes the OS to be `un-certified`. |
| 1011674 | Upgrading from 7.0.14 GA to 7.2.8 GA from an HA secondary node fails with BIOS security level 2. The new image is unrecognized as `un-certified` and aborts the upgrade process. The HA cluster is unaffected. |

## Hyperscale

| Bug ID | Description |
|---|---|
| 936747 | Connections per second (CPS) performance of SIP sessions accepted by hyperscale firewall policies with EIM and EIF disabled that include overload with port block allocation (PBA) GCN IP pools is lower than expected. |

| Bug ID | Description |
|---|---|
| 949188 | ICMP reply packets are dropped by FortiOS in a NAT64 hyperscale policy. |
| 961684 | When DoS policies are used and the system is under stress conditions, BGP might go down. |
| 976972 | New primary can get stuck on failover with HTTP CC sessions. |

## Intrusion Prevention

| Bug ID | Description |
|---|---|
| 968367 | IPS engine high memory usage can cause FortiOS to go into conserve mode. |

## Limitations

| Bug ID | Description |
|---|---|
| 961992 | The buffer and description queue limitation of Marvell switch ports causes a performance limitation. |

## Routing

| Bug ID | Description |
|---|---|
| 935370 | SD-WAN performance SLA `tcp-connect` probes clash with user sessions. |

## Security Fabric

| Bug ID | Description |
|---|---|
| 887967 | Fabric crashes when synchronizing objects with names longer than 64 characters. |
| 988526 | Address object changes from the CLI of the root FortiGate in Security Fabric are not synchronized with downstream devices. |

## SSL VPN

| Bug ID | Description |
|---|---|
| 821240 | SSLVPNVD 11 signal failure due to attempt to read out of bounds memory. |

## System

| Bug ID | Description |
|---|---|
| 828557 | FortiGate as DHCP relay is not showing a DHCP decline in the debugs when there is an IP conflict in the network. |
| 888941 | Some sessions are still reported as offloaded when `auto-asic-offload` is disabled. |
| 910829 | Degraded traffic bandwidth for download passing from 10G to 1G interfaces. |
| 937500, 969083 | FortiOS does not accept an installation script from FortiManager when creating an extender-profile with `login-password-change` is set to `yes`. |
| 938449 | In the 4.19 kernel, when a neighbor's MAC is changed, the session and IPsec tunnel cannot be flushed from the NPU. |
| 943090 | Buffer and description queue limitation of Marvell switch port will cause a performance limitation. |
| 947935 | When web applications traffic is heavy the FortiOS offload CP hardware can be interrupted. |
| 949481 | The `tx_collision_err` counter in the FortiOS CLI keeps increasing on both 10G SFP+ X1 and X2 interfaces. |
| 956107 | On the FortiGate 400F and 600F, the buffer and description queue limitation of the Marvell switch port causes a performance limitation. |
| 984696 | Network usage is not accurately reported by the `get system performance status` command. |
| 986698 | The NP7 should use the updated MAC address from the ARP table to forward traffic to the destination server. |
| 1001938 | Support Kazakhstan time zone change to a single time zone, UTC+5. |

## User & Authentication

| Bug ID | Description |
|---|---|
| 1000108 | Guest-management administrators cannot see or print guest user passwords in plain text; the password is masked as `ENC XXXX` string. |

## WiFi Controller

| Bug ID | Description |
|---|---|
| 821320 | FG-1800F drops wireless client traffic in L2 tunneled VLAN with `capwap-offload` enabled. |

# Known issues

The following issues have been identified in version 7.0.15. To inquire about a particular bug or report a bug, please contact Customer Service & Support.

## Firewall

| Bug ID | Description |
|---|---|
| 843554 | If the first firewall service object in the service list (based on the order in the command line table) has a protocol type of *IP*, the GUI may incorrectly modify its protocol number whenever a new firewall service of the same protocol type *IP* is created in the GUI.<br>This silent misconfiguration can result in unexpected behavior of firewall policies that use the impacted service. For example, some 6K and 7K platforms have firewall service *ALL* (protocol type *IP*) as the first service, and this can cause the *ALL* service to be modified unexpectedly.<br>**Workaround**: create a new service in the CLI, or move a non-IP type services to the top of the firewall service list. For example, if `ALL` is the first firewall service in the list:<br>`config firewall service custom`<br>`edit "unused"`<br>`set tcp-portrange 1`<br>`next`<br>`move "unused" before "ALL"`<br>`end` |
| 912740 | On a FortiGate managed by FortiManager, after upgrading to 7.0.13, the *Firewall Policy* list may show separate sequence grouping for each policy because the `global-label` is updated to be unique for each policy.<br>**Workaround**: drag and drop the policy to the correct sequence group in the GUI, or remove the `global-label` for each member policy in the group except for the leading policy.<br>• Policy 1 (`global-label "group1"`)<br>• Policy 2<br>• Policy 3 (`global-label "group2"`)<br>• Policy 4 |
| 951984 | The best output route may not be found for local out DNAT traffic. |

## FortiView

| Bug ID | Description |
|---|---|
| 941521 | On the *FortiView Web Sites* page, the *Category* filter does not work in the Japanese GUI. |

# GUI

| Bug ID | Description |
|---|---|
| 440197 | On the *System* > *FortiGuard* page, the override FortiGuard server for *AntiVirus & IPS Updates* shows an *Unknown* status, even if the server is working correctly. This is a display issue only; the override feature is working properly. |
| 677806 | On the *Network* > *Interfaces* page when VDOM mode is enabled, the *Global* view incorrectly shows the status of IPsec tunnel interfaces from non-management VDOMs as up. The VDOM view shows the correct status. |
| 685431 | On the *Policy & Objects* > *Firewall Policy* page, the policy list can take around 30 seconds or more to load when there is a large number (over 20 thousand) of policies.<br>**Workaround**: use the CLI to configure policies. |
| 707589 | *System* > *Certificates* list sometimes shows an incorrect reference count for a certificate, and incorrectly allows a user to delete a referenced certificate. The deletion will fail even though a success message is shown. Users should be able to delete the certificate after all references are removed. |
| 708005 | When using the SSL VPN web portal in the Firefox, users cannot paste text into the SSH terminal emulator.<br>**Workaround**: use Chrome, Edge, or Safari as the browser. |
| 755177 | When upgrading firmware from 7.0.1 to 7.0.2, the GUI incorrectly displays a warning saying this is not a valid upgrade path. |
| 810225 | An *undefined* error is displayed when changing an administrator password for the first time. Affected models: NP7 platforms. |
| 853352 | On the *View/Edit Entries* slide-out pane (*Policy & Objects* > *Internet Service Database* dialog), users cannot scroll down to the end if there are over 100000 entries. |
| 898902 | In the *System* > *Administrators* dialog, when there are a lot of VDOMs (over 200), the dialog can take more than one minute to load the *Two-factor Authentication* toggle. This issue does not affect configuring other settings in the dialog.<br>**Workaround**: use the CLI to configure `two-factor-authentication` under `config system admin`. |
| 974988 | FortiGate GUI should not show a license expired notification due to an expired device-level FortiManager Cloud license if it still has a valid account-level FortiManager Cloud license (function is not affected). |

# HA

| Bug ID | Description |
|---|---|
| 810286 | FGSP local sessions exist after rebooting an HA pair with A-P mode, and the HW SSE/session count is incorrect. |

# Hyperscale

| Bug ID | Description |
|---|---|
| 795853 | VDOM ID and IP addresses in the IPL table are incorrect after disabling EIF/EIM. |
| 811109 | FortiGate 4200F, 4201F, 4400F, and 4401F HA1, HA2, AUX1, and AUX2 interfaces cannot be added to an LAG. |
| 836976 | Sessions being processed by hyperscale firewall policies with hardware logging may be dropped when dynamically changing the `log-processor` setting from `hardware` to `host` for the hardware log sever added to the hyperscale firewall policy. To avoid dropping sessions, change the `log-processor` setting during quiet periods. |
| 838654 | Hit count not ticking for implicit deny policy for hardware session in case of NAT46 and NAT64 traffic. |
| 842659 | `srcaddr-negate` and `dstaddr-negate` are not working properly for IPv6 traffic with FTS. |
| 843132 | Access control list (ACL) policies added to a hyperscale firewall VDOM that is processing traffic may take longer than expected to become effective. During a transition period, traffic that should be blocked by the new ACL policy will be allowed. |
| 843197 | Output of `diagnose sys npu-session list/list-full` does not mention policy route information. |
| 843266 | Diagnose command should be available to show `hit_count/last_used` for policy route and NPU session on hyperscale VDOM. |
| 843305 | Get `PARSE SKIP ERROR=17 NPD ERR PBR ADDRESS` console error log when system boots up. |
| 844421 | The `diagnose firewall ippool list` command does not show the correct output for overload type IP pools. |
| 846520 | NPD/LPMD process killed by out of memory killer after running mixed sessions and HA failover. |
| 941784 | Hardware session synchronization does not work on FG-480xF devices in hyperscale. |
| 986656 | On the HA primary unit, the npu-session list shows many sessions, but the npu-session state shows `0`. |

# IPsec VPN

| Bug ID | Description |
|---|---|
| 761754 | IPsec aggregate static route is not marked inactive if the IPsec aggregate is down. |

## Log & Report

| Bug ID | Description |
|---|---|
| 850642 | Logs are not seen for traffic passing through the firewall caused by numerous simultaneous configuration changes. |
| 872493 | Disk logging files are cached in the kernel, causing high memory usage. |

## Proxy

| Bug ID | Description |
|---|---|
| 1001497 | FortiGate may enter conserve mode when posting a non or invalid HTTP date through web proxy. |

## Remote Access

| Bug ID | Description |
|---|---|
| 837391 | FortiClient does not send the public IP address for SAML, resulting in *0.0.0.0* being shown in FortiOS and SASE. |

## Security Fabric

| Bug ID | Description |
|---|---|
| 614691 | Slow GUI performance in large Fabric topology with over 50 downstream devices. |
| 794703 | Security Rating report for *Rogue AP Detection* and *FortiCare Support* checks show incorrect results. |
| 862424 | On a FortiGate that has large tables (over 1000 firewall policies, address, or other tables), security rating reports may cause the FortiGate to go into conserve mode. |

## System

| Bug ID | Description |
|---|---|
| 847664 | Console may display `mce: [Hardware Error]` error message after fresh image burn or reboot. |
| 861962 | When configuring an 802.3ad aggregate interface with a 1 Gbps speed, the port's LED is off and traffic cannot pass through. Affected platforms: 110xE, 220xE, 330xE, 340xE, and 360xE. |
| 901721 | In a certain edge case, traffic directed towards a VLAN interface could trigger a kernel panic. |
| 934708 | The cmdbsvr could not secure the var_zone lock due to another process holding it indefinitely. |

## User & Authentication

| Bug ID | Description |
|---|---|
| 765184 | RADIUS authentication failover between two servers for high availability does not work as expected. |

## VM

| Bug ID | Description |
|---|---|
| 800935 | ESXi VLAN interface based on LACP does not work. |

## Web Filter

| Bug ID | Description |
|---|---|
| 766126 | Block replacement page is not pushed automatically to replace the video content when using a video filter. |

## WiFi Controller

| Bug ID | Description |
|---|---|
| 814541 | When there are extra large number of managed FortiAP devices (over 500) and large number of WiFi clients (over 5000), the *Managed FortiAPs* page and *FortiAP Status* widget can take a long time to load. This issue does not impact FortiAP operation. |
| 903922 | Physical and logical topology is slow to load when there are a lot of managed FortiAP (over 50). This issue does not impact FortiAP management and operation. |

## ZTNA

| Bug ID | Description |
|---|---|
| 819987 | SMB drive mapping made through a ZTNA access proxy is inaccessible after rebooting. |
| 848222 | ZTNA TCP forwarding is not working when a real server is configured with an FQDN address type.<br>An FQDN address type that can resolve public IPs is not recommended for ZTNA TCP forwarding on real servers because the defined internal DNS database zone is trying to override it at the same time. By doing so, the internal private address may not take effect after rebooting, and causes a ZTNA TCP forwarding failure due to the real server not being found. |

# Built-in AV Engine

AV Engine 6.00295 is released as the built-in AV Engine. Refer to the AV Engine Release Notes for information.

# Built-in IPS Engine

IPS Engine 7.00180 is released as the built-in IPS Engine. Refer to the IPS Engine Release Notes for information.

# 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.

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