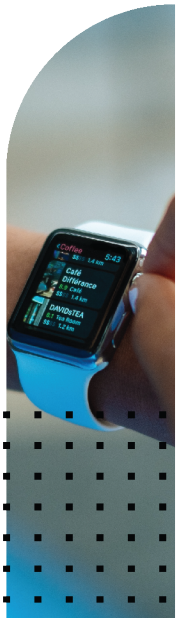
Release Notes

FortiAuthenticator 6.3.4



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January 30, 2024
FortiAuthenticator 6.3.4 Release Notes
23-634-890558-20240130

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Change log

Date	Change Description
2023-03-08	Initial release.
2024-01-23	Update Maximum values for hardware appliances on page 19 and Maximum values for VM on page 23.
2024-01-30	Updated Maximum values for hardware appliances on page 19 and Maximum values for VM on page 23.

FortiAuthenticator 6.3.4 release

This document provides a summary of new features, enhancements, support information, installation instructions, caveats, and resolved and known issues for FortiAuthenticator 6.3.4, build 0694.

FortiAuthenticator is a user and identity management solution that provides strong authentication, wireless 802.1X authentication, certificate management, RADIUS AAA (authentication, authorization, and accounting), and Fortinet Single Sign-On (FSSO).

For additional documentation, please visit: https://docs.fortinet.com/product/fortiauthenticator/

Special notices

TFTP boot firmware upgrade process

Upgrading FortiAuthenticator firmware by interrupting the FortiAuthenticator boot process and installing a firmware image from a TFTP server erases the current FortiAuthenticator configuration and replaces it with factory default settings.

Monitor settings for GUI access

Fortinet recommends setting your monitor to a screen resolution of 1600x1200. This allows for all the objects in the GUI to be viewed properly without the need for scrolling.

Before any firmware upgrade

Save a copy of your FortiAuthenticator configuration before upgrading the firmware. From the administrator dropdown menu in the toolbar, go to **Restore/Backup**, and click **Download Backup File** to backup the configuration.

After any firmware upgrade

Clear your browser cache before logging in to the FortiAuthenticator GUI to ensure the pages display properly.

FortiAuthenticator does not support PEAP-MAB

FortiAuthenticator only supports MAB in clear-text and not the encapsulated MAB.

What's new

FortiAuthenticator version 6.3.4 is a patch release. There are no new features. See Resolved issues on page 15 and Known issues on page 17 for more information.

Upgrade instructions

Back up your configuration before beginning this procedure. While no data loss should occur if the procedures below are correctly followed, it is recommended a full backup is made before proceeding and the user will be prompted to do so as part of the upgrade process.

For information on how to back up the FortiAuthenticator configuration, see the FortiAuthenticator Administration Guide.

Hardware and VM support

FortiAuthenticator 6.3.4 supports:

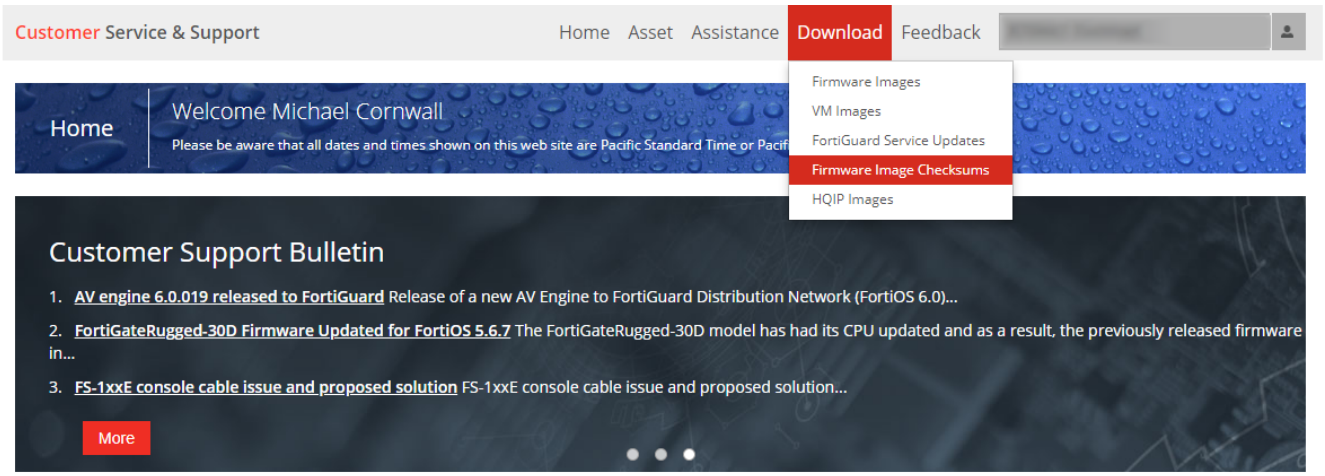
- FortiAuthenticator 200D
- FortiAuthenticator 200E
- FortiAuthenticator 300F
- FortiAuthenticator 400C
- FortiAuthenticator 400E
- FortiAuthenticator 1000D
- FortiAuthenticator 2000E
- FortiAuthenticator 3000D
- FortiAuthenticator 3000E
- FortiAuthenticator 800F
- FortiAuthenticator VM (VMWare, Hyper-V, KVM, Xen, Azure, AWS, Oracle OCI, and Alibaba Cloud)

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 the Fortinet Support website.

Customer service and support image checksum tool



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

In the **Image File Name** field, enter the firmware image file name including its extension, then click **Get Checksum Code**.

Upgrading from FortiAuthenticator 4.x/5.x/6.x

FortiAuthenticator 6.3.4 build 0694 officially supports upgrades from previous versions by following these supported FortiAuthenticator upgrade paths:

- If currently running FortiAuthenticator 6.0.5 or older, first upgrade to 6.0.7, then upgrade to 6.3.4, else the following message will be displayed: `Image validation failed: The firmware image model number is different from the appliance's.`
- If currently running FortiAuthenticator 6.0.7 or newer, then upgrade to 6.3.4 directly.

When upgrading existing **KVM** and **Xen** virtual machines to FortiAuthenticator 6.3.4 from FortiAuthenticator 6.0.7, you must first increase the size of the virtual hard disk drive containing the operating system image (not applicable for AWS & OCI Cloud Marketplace upgrades). See Upgrading KVM / Xen virtual machines on page 10.

Firmware upgrade process

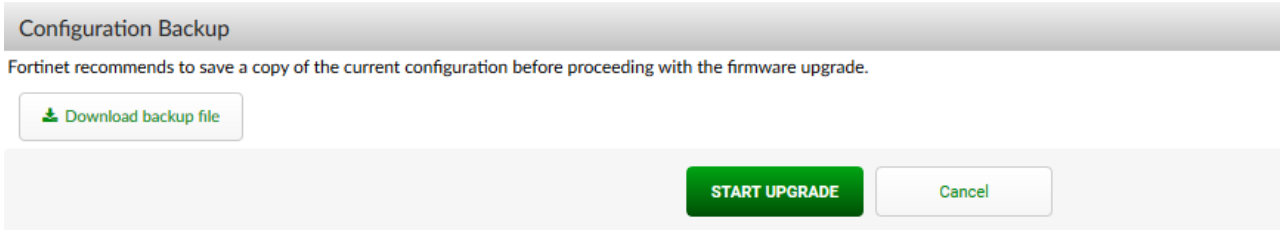
First, back up your configuration, then follow the procedure below to upgrade the firmware.

Before you can install FortiAuthenticator firmware, you must download the firmware image from the Fortinet Support website, then upload it from your computer to the FortiAuthenticator unit.

1. Log in to the Fortinet Support website. In the **Download** section of the page, select the **Firmware Images** link to download the firmware.

2. To verify the integrity of the download, go back to the **Download** section of the login page and click the **Firmware Image Checksums** link.
3. Log in to the FortiAuthenticator unit's web-based manager using the **admin** administrator account.
4. Upload the firmware and begin the upgrade.
   When upgrading from FortiAuthenticator 6.0.4 and earlier:
   a. Go to **System > Dashboard > Status**.
   b. In the **System Information** widget, in the **Firmware Version** row, select **Upgrade**. The **Firmware Upgrade or Downgrade** dialog box opens.
   c. In the **Firmware** section, select **Choose File**, and locate the upgrade package that you downloaded.

   When upgrading from FortiAuthenticator 6.1.0 or later.
   a. Click on the administrator name in the upper-right corner of the GUI to display the dropdown menu, and click **Upgrade**.
   b. In the **Firmware Upgrade or Downgrade** section, select **Upload a file**, and locate the upgrade package that you downloaded.
5. Select **OK** to upload the file to the FortiAuthenticator.
   Your browser uploads the firmware file. The time required varies by the size of the file and the speed of your network connection. When the file transfer is complete, the following message is shown:



   It is recommended that a system backup is taken at this point. Once complete, click **Start Upgrade**.
   Wait until the unpacking, upgrade, and reboot process completes (usually 3-5 minutes), then refresh the page.

Due to a known issue in 6.0.x and earlier releases, the port5 and port6 fiber ports are inverted in the GUI for FAC-3000E models (i.e. port5 in the GUI corresponds to the physical port6 and vice-versa).

This is resolved in 6.1.0 and later, however, the upgrade process does not swap these configurations automatically. If these ports are used in your configuration during the upgrade from 6.0.x to 6.1.0 and later, you will need to physically swap the port5 and port6 fibers to avoid inverting your connections following the upgrade.

Upgrading KVM / Xen virtual machines

When upgrading existing KVM and Xen virtual machines from FortiAuthenticator 6.0.7 to 6.3.4, it is necessary to manually increase the size of the virtual hard disk drive which contains the operating system image before starting the upgrade. This requires file system write-access to the virtual machine disk drives, and must be performed while the virtual machines are in an offline state, fully powered down.

If your virtual machine has snapshots, the resize commands detailed below will exit with an error. You must delete the snapshots in order to perform this resize operation. Please make a separate copy of the virtual disk drives before deleting snapshots to ensure you have the ability to rollback.

Use the following command to run the resize on KVM:

```
qemu-img resize /path/to/fackvm.qcow2 1G
```

Use the following command to run the resize on Xen:

```
qemu-img resize /path/to/facxen.qcow2 1G
```

After this command has been completed, you may proceed with the upgrade from 6.0.7 to 6.3.4

Recovering improperly upgraded KVM / Xen virtual machines

If the upgrade was performed without completing the resize operation above, the virtual machine will fail to properly boot, instead displaying many **initd** error messages. If no snapshots are available, manual recovery is necessary.

To recover your virtual machine, you will need to replace the operating system disk with a good copy, which also requires write-access to the virtual hard disks in the file system while the virtual machines are in an offline state, fully powered down.

To recover an improperly upgraded KVM virtual machine:

1. Download the 6.0.7 GA ZIP archive for KVM, **FAC_VM_KVM-v6-build0059-FORTINET.out.kvm.zip**.
2. Extract the archive, then replace your virtual machine's **fackvm.qcow2** with the one from the archive.
3. Execute the following command:
   `qemu-img resize /path/to/fackvm.qcow2 1G`

To recover an improperly upgraded Xen virtual machine:

1. Download the 6.0.7 GA ZIP archive for Xen, **FAC_VM_XEN-v6-build0059-FORTINET.out.xen.zip**.
2. Extract the archive, then replace your virtual machine's **facxen.qcow2** with the one from the archive.
3. Execute the following command:
   `qemu-img resize /path/to/facxen.qcow2 1G`

Product integration and support

Web browser support

The following web browsers are supported by FortiAuthenticator 6.3.4:

- Microsoft Edge version 110
- Mozilla Firefox version 109
- Google Chrome version 110

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

FortiOS support

FortiAuthenticator 6.3.4 supports the following FortiOS versions:

- FortiOS v7.0.x
- FortiOS v6.4.x
- FortiOS v6.2.x
- FortiOS v6.0.x

Fortinet agent support

FortiAuthenticator 6.3.4 supports the following Fortinet Agents:

- FortiClient v.5.x, v.6.x for Microsoft Windows and macOS (Single Sign-On Mobility Agent)
- For FortiAuthenticator Agents for Microsoft Windows and Outlook Web Access compatibility with FortiAuthenticator, see the *Agents Compatibility Matrix* on the Fortinet Docs Library.
- FSSO DC Agent v.5.x
- FSSO TS Agent v.5.x

Other Agent versions may function correctly, but are not supported by Fortinet.

For details of which operating systems are supported by each agent, please see the install guides provided with the software.

Virtualization software support

FortiAuthenticator 6.3.4 supports:

- VMware ESXi / ESX 6/7
- Microsoft Hyper-V 2010 and Hyper-V 2016
- Linux Kernel-based Virtual Machine (KVM) on Virtual Machine Manager and QEMU 2.5.0
- Xen Virtual Machine (for Xen HVM)
- Nutanix
- Amazon AWS
- Microsoft Azure
- Oracle OCI
- Alibaba Cloud

Support for HA in Active-Passive and Active-Active modes has not been confirmed on the FortiAuthenticator for Xen VM at the time of the release.

See FortiAuthenticator-VM on page 14 for more information.

Third-party RADIUS authentication

FortiAuthenticator uses standards based RADIUS for authentication and can deliver two-factor authentication via multiple methods for the greatest compatibility:

- RADIUS Challenge Response - Requires support by third party vendor.
- Token Passcode Appended - Supports any RADIUS compatible system.

FortiAuthenticator should therefore be compatible with any RADIUS capable authentication client / network access server (NAS).

FortiAuthenticator-VM

For information about FortiAuthenticator-VM deployments and system requirements, see the VM installation guide on the Fortinet Docs Library.

Resolved issues

The resolved issues listed below may not list every bug that has been corrected with this release. For inquiries about a particular bug, please visit the Fortinet Support website.

Bug ID	Description
837219	FortiAuthenticator-VM on same Hyper-V host cannot form HA A/A cluster after July 2022 Windows Updates.
861776	Upgrade OpenSSL from 1.1.1n to 1.1.1s, then again to 1.1.1t.
774147	FortiAuthenticator - [FG-IR-21-254] `Host` header injection.
831595	CLI - Setting timezone and DNS does not clear GUI settings cache.
791452	OpenSSL 1.1.1n - Infinite loop in `BN_mod_sqrt()` reachable when parsing certificates (CVE-2022-0778).
830002	XSS observed in the password reset done page.
800714	[3rd party component upgrade required for security reasons] FortiAuthenticator- OpenLDAP to 2.6.2.
814167	[3rd party component upgrade required for security reasons] FortiAuthenticator- libxml2 to 2.9.14.
805720	[3rd party component upgrade required for security reasons] FortiAuthenticator - `linux_kernel` to 5.10.111/5.4.189/4.19.238/4....
803891	SAML peer certificate expiration issue and XML security issue.
788824	[3rd party component upgrade required for security reasons] FortiAuthenticator - Dirty Pipe Vulnerability on Linux Kernel.

Common Vulnerabilities and Exposures

FortiAuthenticator is no longer vulnerable to the following CVE-Reference(s):

Bug ID	CVE references
791452	CVE-2022-0778

Visit https://fortiguard.com/psirt for more information.

Known issues

This section lists the known issues of this release, but is not a complete list. For inquires about a particular bug, please visit the Fortinet Support website.

Bug ID	Description
737078	Private IPv6 address added to SSO list instead of the public IPv6 when received from a RADIUS accounting source.
730474	FortiAuthenticator IdP proxy fails to proxy SAML assertions received from remote IdP when a user attribute with the same name exists.
730640	When signing a CSR via SCEP, FortiAuthenticator returns "Unable to sign request, Unable to find a unique name".
738349	SAML querying LDAP when the user is admin instead of looking user locally on remote LDAP users.
748818	Device Enrollment in SCEP does not work.
744768	FortiAuthenticator is not logging LDAP group membership changes.
754589	Push service does not recognize the realm from FortiAuthenticator agent.
670317	It is not possible to resize/change columns width in a log table.
632248	Unable to provide publisher details or assign code signing certificate to a Smart Connect profile.
737727	Change in the password complexity rule is not taking effect.
744916	Sort by name in the sponsor list of the self-registration guest portal.
729674	FortiToken Mobile license status on LB nodes shows unknown.
735782	Alcatel RADIUS VSA dictionary needs to be updated.
721189	No update on the number of sent message on the dashboard.
731626	Limit of 64 characters in SAN DNS field for CSR/certificate creation.
754239	LB secondary not syncing when we failover to secondary FortiAuthenticator.
747259	FSAE is using high CPU.
756786	Guest portal authentication request failed with Cisco WLC.
586851	HTTP of FortiAuthenticator cannot be closed.
712251	Column resize or sort does not work properly in FortiAuthenticator tables.
712899	SMTP error messages does not provide accurate information.
731175	Provide skeleton language pack.
711721	Groups sorting differences when importing LDAP groups in SSO groups and FortiGate filtering.

Bug ID	Description
723065	HA connection status is still showing connected even when the primary FortiAuthenticator is already shutdown.
603510	Memory usage is high.
685295	Implement correct handling of VM license in case of configuration conversion.
701758	Problem setting static IP address on a FortiAuthenticator VM installed on a XenServer.
709007	Error when Importing remote LDAP user.
704565	FortiAuthenticator only applies one captive portal policy, ignores RADIUS client IP/AP IP in portal policy selection.
714927	Unable to expand FortiAuthenticator "data drive" beyond 2 TB.
717175	Local users export/import feature does not work if bcrypt hash is used.
592837	Sponsor accounts can add guest user accounts to non-guest groups.
692839	Local cert for GUI rejected despite SAN field.
632629	Smart Connect WPA2-Personal profile fails when WPA2-Enterprise settings are left in place.
622426	MAC address parameter in portal policy should only allow MAC addresses.
697447	Octet/ASCII conversion for all RADIUS attribute-value pair inputs.
693151	Allow deletion of expired user and local service certificates.
725339	Update to 6.3.1 produces 503 server error for GUI under heavy SCEP traffic.
729018	Concatenated style OTP not working with Windows-AD auth enabled.
733115	Authentication using OTP instead FIDO before FIDO token register does not work.
733985	Built-in big switch network RADIUS attributes cause failure to send ACCESS-ACCEPT.
665384	HA failover doesnot work reliably after maintenance mode is disabled on a high priority node.
706701	FortiAuthenticator cluster is inconsistently accessible via HA interfaces from outside the HA subnet.
767387	Unable to issue new certificates through SCEP with large number of revoked certs.
746567	Importing local users from CSV - FortiAuthenticator LB shows "In Sync with Anomalies".
765446	500 Internal server error when adding admin profiles or user groups.
766379	Pending or deleted CSR and revoked certificates do not sync to LB secondary.
763568	The timestamp of the account status for lockout is Greenwich Mean Time 00:00 regardless of system time.
745497	Kerberos not working for AES.
758008	FortiAuthenticator joining domain and using the incorrect domain name (DNS) if the name is the same in several LDAP servers.
756782	FortiAuthenticator GUI cannot show how many users on each group.

Maximum values for hardware appliances

The following table lists the maximum number of configuration objects per FortiAuthenticator appliance that can be added to the configuration database for different FortiAuthenticator hardware models.

The maximum values in this document are the maximum configurable values and are not a commitment of performance.

Feature		Model						
		200E	300F	400E	800F	1000D	2000E	3000E
System								
Network	Static Routes	50	50	50	50	50	50	50
Messages	SMTP Servers	20	20	20	20	20	20	20
	SMS Gateways	20	20	20	20	20	20	20
	SNMP Hosts	20	20	20	20	20	20	20
Administration	Syslog Servers	20	20	20	20	20	20	20
	User Uploaded Images	40	90	115	415	515	1015	2015
	Language Files	50	50	50	50	50	50	50
Realms		20	60	80	320	400	800	1600
Authentication								
General	Auth Clients (NAS)	166	500	666	2666	3333	6666	13333

Feature		Model						
		200E	300F	400E	800F	1000D	2000E	3000E
	Users (Local + Remote)[1]	500	1500	2000	8000	10000	20000	40000
	User RADIUS Attributes	1500	4500	6000	24000	30000	60000	120000
	User Groups	50	150	200	800	1000	2000	4000
	Group RADIUS Attributes	150	450	150	2400	600	6000	12000
	FortiTokens	1000	3000	4000	16000	20000	40000	80000
	FortiToken Mobile Licenses[2]	200	200	200	200	200	200	200
	LDAP Entries	1000	3000	4000	16000	20000	40000	80000
	Device (MAC-based Auth.)	2500	7500	10000	40000	50000	100000	200000
	RADIUS Client Profiles	500	1500	2000	8000	10000	20000	40000
	Remote LDAP Servers	20	60	80	320	400	800	1600
	Remote LDAP Users Sync Rule	50	150	200	800	1000	2000	4000
	Remote LDAP User Radius Attributes	1500	4500	6000	24000	30000	60000	120000
FSSO & Dynamic Policies								

Feature		Model						
		200E	300F	400E	800F	1000D	2000E	3000E
FSSO	FSSO Users	500	1500	2000	8000	10000	20000	200000[3]
	FSSO Groups	250	750	1000	4000	5000	10000	20000
	Domain Controllers	10	15	20	80	100	200	400
	RADIUS Accounting SSO Clients	166	500	666	2666	3333	6666	13333
	FortiGate Group Filtering	250	750	1000	4000	5000	10000	20000
	FSSO Tier Nodes	5	15	20	80	100	200	400
	IP Filtering Rules	250	750	1000	4000	5000	10000	20000
Accounting Proxy	Sources	500	1500	2000	8000	10000	20000	40000
	Destinations	25	75	100	400	500	1000	2000
	Rulesets	25	75	100	400	500	1000	2000
Certificates								
User Certificates	User Certificates	2500	7500	10000	40000	50000	100000	200000
	Server Certificates	50	150	200	800	1000	2000	4000
Certificate Authorities	CA Certificates	10	10	10	50	50	50	50
	Trusted CA Certificates	200	200	200	200	200	200	200
	Certificate Revocation Lists	200	200	200	200	200	200	200
SCEP	Enrollment Requests	2500	7500	10000	40000	50000	100000	200000
Services								
	FortiGate Services	50	150	200	800	1000	2000	4000
	TACACS+ Services	1500	4500	6000	24000	30000	60000	120000

[1] Users includes both local and remote users.

[2] **FortiToken Mobile Licenses** refers to the licenses that can be applied to a FortiAuthenticator, not the number of FortiToken Mobile instances that can be managed. The total number is limited by the FortiToken metric.

[3] For the 3000E model, the total number of concurrent SSO users is set to a higher level to cater for large deployments.

Maximum values for VM

The following table lists the maximum number of configuration objects that can be added to the configuration database for different FortiAuthenticator virtual machine (VM) configurations.

The maximum values in this document are the maximum configurable values and are not a commitment of performance.

The FortiAuthenticator-VM is licensed based on the total number of users and licensed on a stacking basis. All installations must start with a FortiAuthenticator-VM Base license and users can be stacked with upgrade licenses in blocks of 100, 1,000, 10,000 and 100,000 users. Due to the dynamic nature of this licensing model, most other metrics are set relative to the number of licensed users. The **Calculating metric** column below shows how the feature size is calculated relative to the number of licensed users for example, on a 100 user FortiAuthenticator]-VM Base License, the number of auth clients (RADIUS and TACACS+) that can authenticate to the system is:

100 / 3 = 33

Where this relative system is not used e.g. for static routes, the **Calculating metric** is denoted by a "**-**". The supported figures are shown for both the base VM and a 5000 user licensed VM system by way of example.

Feature		Model			
		Unlicensed VM	Calculating metric	Licensed VM (100 users)	Example 5000 licensed user VM
System					
Network	Static Routes	2	50	50	50
Messaging	SMTP Servers	2	20	20	20
	SMS Gateways	2	20	20	20
	SNMP Hosts	2	20	20	20
Administration	Syslog Servers	2	20	20	20
	User Uploaded Images	19	Users / 20	19 (minimum)	250
	Language Files	5	50	50	50
Authentication					
General	Auth Clients (RADIUS and TACACS+)	3	Users / 3	33	1666

Feature		Model			
		Unlicensed VM	Calculating metric	Licensed VM (100 users)	Example 5000 licensed user VM
User Management	Authentication Policy (RADIUS and TACACS+)	6	Users	100	5000
	Users (Local + Remote)[1]	5	**********	100	5000
	User RADIUS Attributes	15	Users x 3	300	15000
	User Groups	3	Users / 10	10	500
	Group RADIUS Attributes	9	User groups x 3	30	1500
	FortiTokens	10	Users x 2	200	10000
	FortiToken Mobile Licenses (Stacked) [2]	3	200	200	200
	LDAP Entries	20	Users x 2	200	10000
	Device (MAC-based Auth.)	5	Users x 5	500	25000
	Remote LDAP Servers	4	Users / 25	4	200
	Remote LDAP Users Sync Rule	1	Users / 10	10	500
	Remote LDAP User Radius Attributes	15	Users x 3	300	15000
FSSO & Dynamic Policies					

Feature		Model			
		Unlicensed VM	Calculating metric	Licensed VM (100 users)	Example 5000 licensed user VM
FSSO	FSSO Users	5	Users	100	5000
	FSSO Groups	3	Users / 2	50	2500
	Domain Controllers	3	Users / 100 (min=10)	10	50
	RADIUS Accounting SSO Clients	10	Users	100	5000
	FortiGate Group Filtering	30	Users / 2	50	2500
	FSSO Tier Nodes	3	Users /100 (min=5)	5	50
	IP Filtering Rules	30	Users / 2	50	2500
	FSSO Filtering Object	30	Users x 2	200	10000
Accounting Proxy	Sources	3	Users	100	5000
	Destinations	3	Users / 20	5	250
	Rulesets	3	Users / 20	5	250
Certificates					
User Certificates	User Certificates	5	Users x 5	500	25000
	Server Certificates	2	Users / 10	10	500
Certificate Authorities	CA Certificates	3	Users / 20	5	250
	Trusted CA Certificates	5	200	200	200
	Certificate Revocation Lists	5	200	200	200
SCEP	Enrollment Requests	5	Users x 5	500	25000
Services					
	FortiGate Services	2	Users /10	10	500
	TACACS+ Services	5	Users x 3	300	15000

[1] Users includes both local and remote users.

[2] **FortiToken Mobile Licenses** refers to the licenses that can be applied to a FortiAuthenticator, not the number of FortiToken Mobile instances that can be managed. The total number is limited by the FortiToken metric.

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