

Release Notes

FortiAuthenticator 6.4.3



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FortiAuthenticator 6.4.3 Release Notes

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Change log

Date	Change Description
2022-03-26	Initial release.
2022-04-01	Removed bug 793940 from Known issues on page 16 .
2022-04-21	Removed bug 744940 from Known issues on page 16 .
2022-06-15	Updated Product integration and support on page 12 .
2023-05-12	Updated Upgrade instructions on page 8 .

FortiAuthenticator 6.4.3 release

This document provides a summary of new features, enhancements, support information, installation instructions, caveats, and resolved and known issues for FortiAuthenticator 6.4.3, build 0993.

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 6.4.3 is a patch release. There are no new features. See [Resolved issues on page 15](#) and [Known issues on page 16](#) 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 6.4.3 supports:

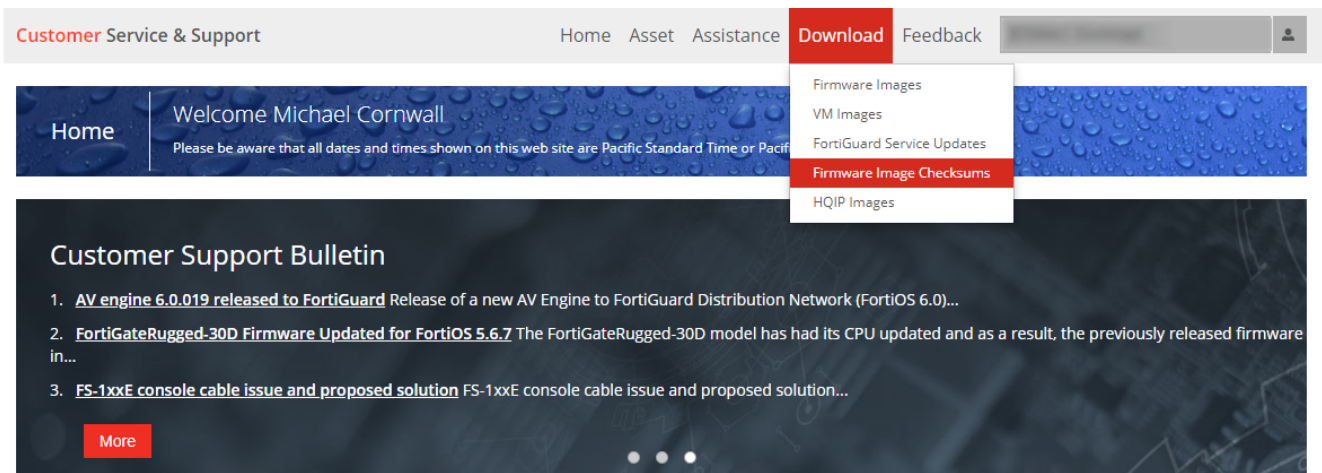
- FortiAuthenticator 200D
- FortiAuthenticator 200E
- FortiAuthenticator 300F
- FortiAuthenticator 400C
- FortiAuthenticator 400E
- FortiAuthenticator 800F
- FortiAuthenticator 1000D
- FortiAuthenticator 2000E
- FortiAuthenticator 3000D
- FortiAuthenticator 3000E
- FortiAuthenticator 3000F
- FortiAuthenticator 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 6.4.3 build 0993 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 6.4.3, 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, then upgrade to 6.4.3 directly.
- If currently running FortiAuthenticator between 6.1.0 and 6.2.0, first upgrade to 6.3.3, then upgrade to 6.4.3.
- If currently running FortiAuthenticator between 6.2.1 and 6.3.x, then upgrade to 6.4.3 directly.



When upgrading existing **KVM** and **Xen** virtual machines to FortiAuthenticator 6.4.3 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](#).



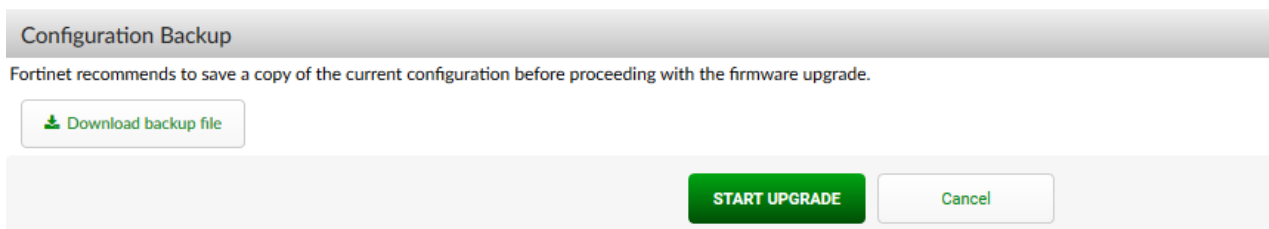
Upgrade to and from FortiAuthenticator 6.0.6 is not recommended.

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 6.4.3, 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 6.4.3

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 6.4.3:

- Microsoft Edge version 99
- Mozilla Firefox version 98
- Google Chrome version 99

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

FortiOS support

FortiAuthenticator 6.4.3 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 6.4.3 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.

Note: FortiAuthenticator Agent for Microsoft Windows 4.0 and above required to support emergency offline access. Also, FortiAuthenticator Agent for Microsoft Windows below 4.0 compatible for all other features.

Virtualization software support

FortiAuthenticator 6.4.3 supports:

- VMware ESXi / ESX 6/7
- Microsoft Hyper-V 2010, Hyper-V 2016, and Hyper-V 2019
- 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
791622	Unable to import remote LDAP user because limit of 0 has been reached.
792555	After upgrading to FortiAuthenticator 6.4.2, administrators cannot log into the admin GUI unless realm configured for legacy self service portal.
792848	Support URL encoded in the REST API.

Known issues

This section lists the known issues of this release, but is not a complete list. For inquiries about a particular bug, please visit the [Fortinet Support](#) website.

Bug ID	Description
566145	Usage Profile "TIME USAGE=Time used" is not triggering COA or disconnect request to FortiGate.
637028	SSL connection fails in case when the expired certificate issue is not explicit enough.
638374	SCEP - Encryption/hash compatibility with clients.
643810	CLI restore-admin command needs improvement.
646299	Nutanix AHV KVM based Hypervisor- upgrading FortiAuthenticator from 6.0.4 to 6.1.x fails and hangs on "Waiting for Database".
655350	The lockout policy does not appear to apply to username/token submissions to the /auth API endpoint.
676532	When FortiAuthenticator has RADIUS client set as subnet, RADIUS accounting disconnect messages are not sent.
749422	Rest API script is unable to modify the user info when yubikey is assigned.
750134	FortiAuthenticator as an LDAP server cannot export admin users from local user base.
751108	FortiAuthenticator does not support admin OIDs from FORTINET-CORE-MIB properly.
755752	Power supplies show voltage input fault on both CLI and GUI.
757460	Enable Django auto-translation for any end-user pages.
758516	FortiAuthenticator HA: cluster out of sync if the custom RADIUS dictionary is uploaded, auth breaks.
767745	SNMP facSysCpuUsage returns wrong type.
767935	A-P cluster forms when configured from the GUI, it does not when from CLI without a restart.
769183	FortiAuthenticator VMs need greater resiliency / improved recovery when connectivity lost to the remote data drives.
770593	Minimize the use of CBC ciphersuites.
773009	FortiAuthenticator does not expand disk properly - system status shows old size, expand-partition shows new size.
773083	Enable/disable FortiToken Cloud push notification button shuts down all the authentication methods.
773131	FortiAuthenticator-3000F: HW Monitor PSU widget supports PSU placed in top/bottom orientation.
775006	Occasionally, multiple SMS are received after an LDAP user import instead of just one.
775083	FortiAuthenticator FSSO detects FortiAuthenticator domain-join as a login event, resolves workstation name to 127.0.0.1 and forwards that login.
775542	Admin logon with 2FA gets "Access denied" before typing the token, auth OK.

Bug ID	Description
777392	FortiAuthenticator displays the entire LDAP tree when testing filter in remote user sync rule. This can freeze the GUI.
779771	500 internal error when editing an LDAP entry.
779796	SAML IDP proxy for Azure is not working with the current Azure Portal.
780611	OAuth Token API returns error when calling API /oauth/token/ with FortiToken Cloud user, but FortiToken Cloud had sent the push to FortiToken Mobile.
781506	High memory consumption on unused FortiAuthenticator-VM.
782799	FortiToken Cloud manual sync timeouts when user > 1000, but users are already synced.
783685	"Obtained access token from Azure" takes too much time to process.
783765	SAML requests in form of POST with bindings will result in 403 error.
785164	Remote admin unable to create self-service portal security question.
785585	HA load balancing anomaly for the registered captive portal user.
785634	Remote user without any FIDO keys for a FIDO enabled portal is unable to change password.
787013	Changing the username attribute will cause the remote sync rule to remove existing remote users and eventually re-import them.
787678	FortiAuthenticator TACACS+ behavior with ASCII and PAP.
788819	FortiAuthenticator 6.4.1 LDAP filters not being applied when importing groups from SSO > SSO groups.
790570	Admin password change on the RADIUS client logon does not work with MFA.
791127	Sometimes(randomly) FortiAuthenticator fails to send the email notification.
791347	Internal server error 500 happens when viewing RADIUS account sessions, probably caused by the Called-Station-Id attribute.
792031	SAML IdP with LDAP for Google SP randomly fails with Internal Server Error (Error 500).
792230	Encoding migration error after upgrade to 6.4.0-6.4.2 - no space left on the device.
792723	FortiAuthenticator -Internal Server Error - Table fac_auth_facgroup is replicated and cannot be modified on a subscriber node.
793191	Override session.
793478	SAML SSLVPN Auth fails because FortiAuthenticator cuts parts of the DN when using group LDAP filter.
793868	Onboarding message feature sends SMS via unexpected SMS gateway.

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
Administration	SNMP Hosts	20	20	20	20	20	20	20
	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 Services	50	150	200	800	1000	2000	4000
	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

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 Services	2	Users / 10	10	500
	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

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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