



# SSL Smart Security Scan Virtual appliance quickguide and admin manual

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# 1. Quickguide Introduction and download

The KeyTalk SSL Smart Security Scan virtual appliance is meant to periodically scan a given network (internal and/or external facing) on a range of ports for active certificates, and provide the admin running the scan, with insight information as to which roots, Intermediate CAs, issuing CAs and end-point certificates are actually in use, and show the relevant certificate meta data.

Additionally, the scanner scans each found end-point for known SSL related vulnerabilities and will report on these accordingly when found using color coding in the output report.

Our offered Smart Security Scan virtual appliance runs either inside or outside your network, and does NOT share any of its scan data with external parties, nor will it share the data with KeyTalk.

The admin can choose to have the scan result data be sent in raw JSON format to a given target over TLS 1.2 for further processing. The KeyTalk Smart Security Scan virtual appliance will also provide a readable format report in HTML (print to PDF), as it is stored on the SSL scanner server for archiving purposes.

While the KeyTalk SSL Smart Security Scan has its roots in Nmap, it goes well beyond the free publicly available version of Nmap, since Nmap does not:

- Offer the same certificate scan speed of over 1 port per 0,001 second
- Take into account Network Intrusion Detection Systems and attempts to bypass them
- Actually analyse found end-point certificate data
- Report on CA chains belonging to the found end-point certificates
- Support scanning of Server Name Indication hosts
- Postback scan data in raw JSON output to a target
- Support scheduled scanning

In addition to reporting on certificate lifetime, CN, SAN etc, the KeyTalk SSL Smart Security Scanner currently also analyses for the following vulnerabilities per end-point:

"Hostname Validation"

"Android CA Store support"

"iOS CA Store support"

"Java CA Store support"

"macOS CA Store support"

"Mozilla CA Store support"

"Windows CA Store support"

"Symantec 2018 Deprecation"

"Verified CA Chain"

"Verified Chain contains MD5"

"Verified Chain contains SHA1"

"OCSP Status"

"Certificate Transparency check"

"CRL status"

"TLSV1 Cipher Suites"

"SSLV3 Cipher Suites"

"TLSV1\_1 Cipher Suites":

"0": "Forward Secrecy",

"1": "RC4",

"2": "TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA",

"3": "TLS\_ECDHE\_RSA\_WITH\_AES\_256\_CBC\_SHA",  
 "4": "TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA",  
 "5": "TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA",  
 "6": "TLS\_RSA\_WITH\_AES\_128\_CBC\_SHA",  
 "Resumption Support With Session IDs"  
 "Resumption Support With TLS Tickets"  
 "ROBOT Attack"  
 "Heartbleed"  
 "Client-initiated Session Renegotiation"  
 "Secure Session Renegotiation"  
 "OpenSSL CCS Injection"  
 "TLS/SSL Downgrade Attacks"  
 "Deflate Compression"

## 2. Quickguide Resource requirements

The KeyTalk Smart Security Scan virtual appliance is based upon CentOS 7 and requires:

- ✓ 20 GB disk space
- ✓ 2 CPU's with 1 core each
- ✓ 4 GB memory
- ✓ 1 IPv4 and/or IPv6 address (default assigned through DHCP)

Virtual appliance formats:

- OVF/VMDK compatible with ESXi, VMware Workstation, AWS

Firewall information:

	Port		Function
Default Gateway	n.a.	In/out	Gateway
IP Address	443	Inbound	Management interface: https://<IP> https://<FQDN>
	443	Outbound	Network HTTP Proxy when applicable
	443	Outbound	License activation and validation to <a href="http://www.smartsecurityscan.com">www.smartsecurityscan.com</a>
	22	Outbound	SSH based firmware upgrade fetch from bitbucket.org
	any	Outbound	Scan target port

### 3. Quickguide initial setup

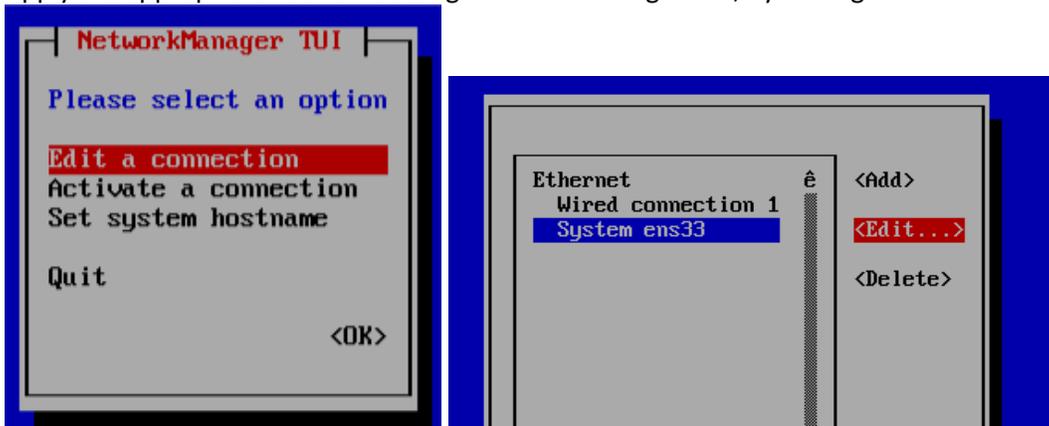
This guide assumes that the person operationalizing the KeyTalk SSL Smart Security Scan virtual appliance, has sufficient knowledge of the Hypervisor/Cloud environment on which the virtual appliance is being deployed on. As such the steps to upload the KeyTalk Smart Security Scan virtual appliance are not described.

#### 3.1 Assigning IP / Networking

Once the virtual appliance has been uploaded, and the VM is started, a DHCP based IP address will be assigned.

Should DHCP not be applicable, the admin can assign networking details manually, by using the following steps:

- a) Login into the Command Line Interface using:  
Username: client  
Password: demouser
- b) Apply the appropriate network settings when not using DHCP, by editing the connection:



After selecting OK, network config settings and assigned IP will be shown:

```
ens168: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 10.0.0.35 netmask 255.255.255.0 broadcast 10.0.0.255
inet6 fe80::6cb4:aa09:5efa:503c prefixlen 64 scopeid 0x20<link>
ether 00:0c:29:4a:5b:b2 txqueuelen 1000 (Ethernet)
RX packets 564 bytes 39354 (38.4 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 12 bytes 1496 (1.4 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

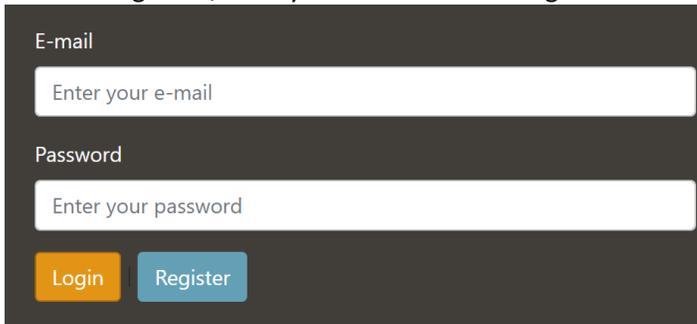
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 4503 bytes 548181 (535.3 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 4503 bytes 548181 (535.3 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

- c) Open a browser and go to: <https://<IP>> or <https://<FQDN>>

**NOTE:** Because the KeyTalk SSL Smart Security Scan virtual appliance comes with a self signed certificate, your browser will give a warning. Provided that company policy allows for it, ignore this warning and continue, allowing you to configure a proper SSL/TLS/HTTPS certificate during the next steps.

### 3.2 Registering and activating the scanner license online and offline

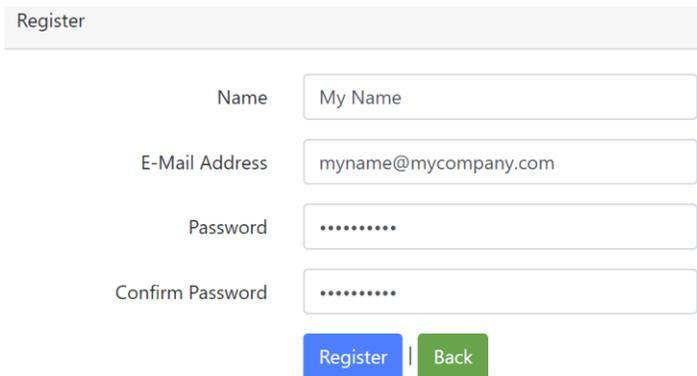
- d) Select “Register”, fill in your initial account login details and select Register again:



E-mail  
Enter your e-mail

Password  
Enter your password

Login Register



Register

Name My Name

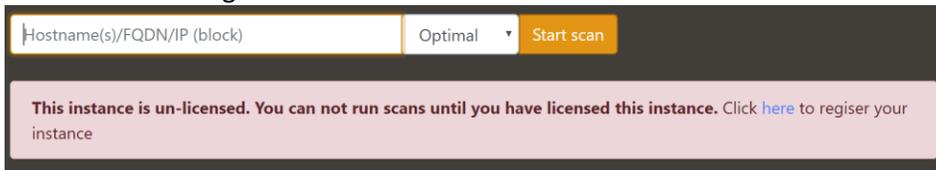
E-Mail Address myname@mycompany.com

Password .....

Confirm Password .....

Register Back

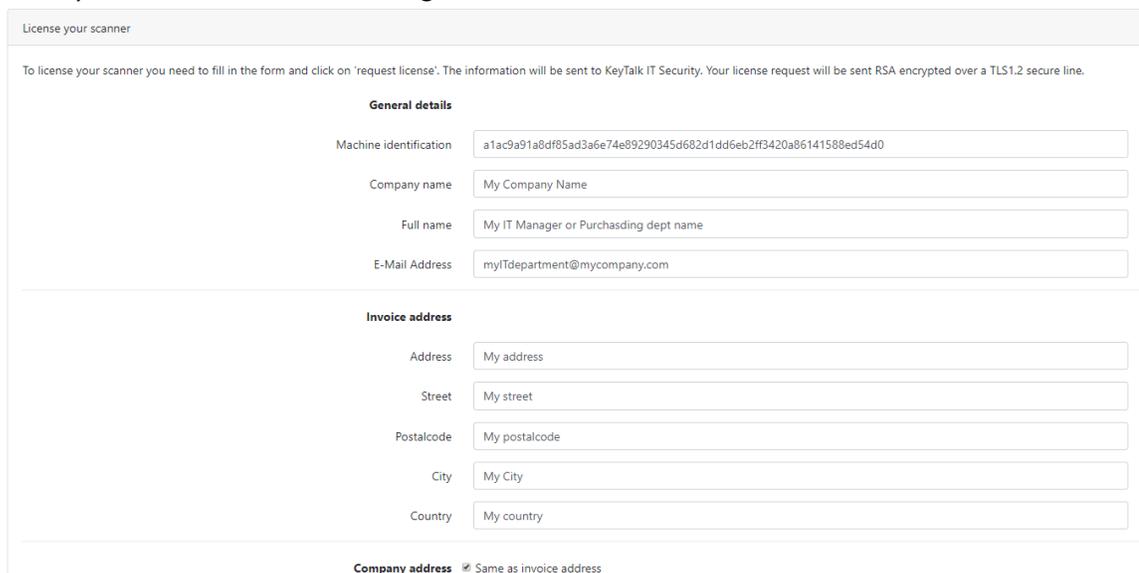
- e) Select “Here” and go to “license”



Hostname(s)/FQDN/IP (block) Optimal Start scan

**This instance is un-licensed. You can not run scans until you have licensed this instance. Click [here](#) to register your instance**

- f) Fill in your administrative and billing address details:



License your scanner

To license your scanner you need to fill in the form and click on 'request license'. The information will be sent to KeyTalk IT Security. Your license request will be sent RSA encrypted over a TLS1.2 secure line.

**General details**

Machine identification a1ac9a91a8df85ad3a6e74e89290345d682d1dd6eb2ff3420a86141588ed54d0

Company name My Company Name

Full name My IT Manager or Purchasing dept name

E-Mail Address myITdepartment@mycompany.com

**Invoice address**

Address My address

Street My street

Postalcode My postalcode

City My City

Country My country

Company address  Same as invoice address

- g) Select the license you wish. For license pricing kindly contact [sales\[at\]keytalk.com](mailto:sales[at]keytalk.com)

**Type of license** There are 2 licensing options.

- Scan pack, where you pay per executed scan
- IP pack where you pay for the number of hosts/IP's you would like to scan

Scan pack (pay per scan)  IP pack (pay per IP address/host)

Choose IP range

- h) When your KeyTalk Smart Security Scan virtual appliance is online, ie connected to the internet, your license information is sent using a TLS 1.2 secured connection to the Smart Security Scan license server.

Once licensed, you will receive a message similar to:

Machine identification: a1ac9a91a8df85ad3a6e74e89290345d682d1dd6eb2ff3420a86141588ed54d0

**Your scanner has a valid license which is valid until 2020-03-13**

You have scanned 0 of the 10000 hosts allowed.

When your KeyTalk Smart Security Scan virtual appliance is offline, ie **NOT** connected to the internet, you will need to send an email to [license\[at\]keytalk.com](mailto:license[at]keytalk.com) with the requested information.

An example offline registration message looks like:

License your scanner

To license your scanner you need to fill in the form and click on 'request license'. The information will be sent to KeyTalk IT Security. Your license request will be sent RSA encrypted over a TLS1.2 secure line.

**We could not connect to the licensing server. Please enable your connection to the internet or contact support@smartsecurityscan.com**

If you want to register manually please contact: license@smartsecurityscan.com. Include the public key (see tab 'Public Key') of this machine and the following machine identification **a1ac9a91a8df85ad3a6e74e89290345d682d1dd6eb2ff3420a86141588ed54d0**

Once you receive through email the returned activation code, upload this value to activate your Smart Security Scan

### 3.3 Enabling proper HTTPS

By default your KeyTalk Smart Security Scan virtual appliance comes with a self signed certificate. To enable a proper trusted HTTPS connection, you will need to provide the virtual appliance with a certificate issued by a Certificate Authority trusted by your (corporate) device(s), and which contains at least a proper Fully Qualified Domain Name as a DNS entry in the SAN value of the certificate.

- i) This release of the virtual appliance does not support the KeyTalk automated certificate management protocol yet. To manually upload a valid certificate and key order one, either directly from your CA, or through your KeyTalk solution (DEVID USERS -> Select/create FQDN entity -> Select Enroll -> Download in PEM format ->Open in Notepad and split into 2 files 1) certificate 2) key )
- j) Upload and apply the certificate and key under

Users Settings Network **SSL certificate** License Public key Database

SSL settings (nGinx)

### 3.4 Create additional users allowed to perform scans

To allow multiple people in your organization to perform scans, you can create multiple users. Your first user is your admin. The other accounts can only start scans.

k) Select the green + and enter relevant details

ID	Name	E-mail	Reg.date
1	KeyTalk Support	support@keytalk.com	2019-03-12 17:16:27

### 3.5 Perform your scan

Select the Smart Security Scan logo, or go to <https://<IP>> or <https://<FQDN>> to perform your first scan.

Hostname(s)/FQDN/IP (block) Optimal Start scan

l) Enter the hostname, or FQDN, or IP address you wish to scan.

Separate each hostname/FQDN/IP by a space to scan multiple targets.

Example: www.keytalk.com downloads.keytalk.com smime.keytalk.com

Add a – to enable a range to be scanned

Example: 192.168.1.1-24  
10.0.0.1-12 10.0.0.100-199

m) Select the port range you wish to scan for:

- ✓ Local Only = Scans all local certificate stores based on end-point which have the Smart Security Scan agent deployed to them
- ✓ Optimal = ports 1-1500
- ✓ Full = all ports
- ✓ Bacnet = scans for SSL certificates based on the Bacnet (IoT) protocol
- ✓ Scheduled enables regular scanning

### 3.6 Raw JSON output for internal analysis

The KeyTalk Smart Security Scan virtual appliance enables its full scan data to be sent to a target server in raw JSON format

To enable this feature, simply add the preferred and valid postback url under:

Settings Network SSL certificate License Public key Database

Post-back URL  
Enter full url, including: https://

Host discovery  
ON

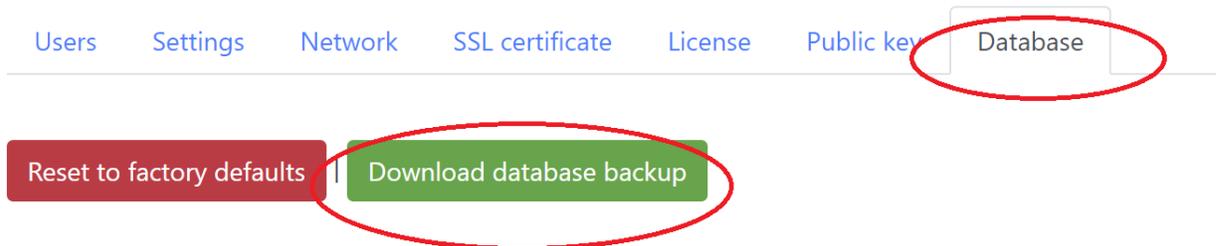
Save

To view the found raw data select the report you wish to examine and add **?raw** behind the report url

A JSON beautifier such as <https://jsonformatter.curiousconcept.com/> can make the JSON data more readable

### 3.5 Backup and factory reset

To backup your settings and existing reports, select DATABASE and choose Download



## 4 KeyTalk contact details and 3<sup>rd</sup> line support

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