Purpose

This document will describe how to setup Nagios Log Server to use SSL/TLS to provide encrypted connections to the Nagios Log Server. This document can also be used as an initial point for troubleshooting SSL/TLS connections.

Target Audience

This document is intended for use by Nagios Log Server Administrators who require encrypted connections to their Nagios Log Server. SSL/TLS provides security between the end user's web browser and Nagios Log Server by encrypting the traffic.

Terminology

For your information:

- SSL = Secure Sockets Layer
- TLS = Transport Layer Security

TLS replaces SSL, however the tools used to implement both generally use SSL in their name/directives. For simplicity reasons, the rest of this document will use the term SSL.

To implement SSL you need to generate a certificate. When you generate a certificate, you create a request that needs to be signed by a Certificate Authority (CA). This CA can be:

- A trusted company like VeriSign
- An internal CA that is part of your IT infrastructure, like a Microsoft Windows CA
- The Nagios Log Server itself (self signed)

The CA will then provide you with a signed certificate.

This documentation can used to generate a request that can be submitted to any of these CA types.

Editing Files

In many steps of this documentation you will be required to edit files. This documentation will use the vi text editor. When using the vi editor:

- To make changes press **i** on the keyboard first to enter insert mode
- Press **Esc** to exit insert mode
- When you have finished, save the changes in vi by typing **:wq** and press Enter

Installing Necessary Components

Establish a terminal session to your Nagios Log Server and as root and execute the following command:

```
yum install -y mod_ssl openssl
```

All of the remaining steps will be performed from within the root user's home directory to ensure the files you create are not accessible to anyone except the root user. Change into the home directory with this command:

```
cd ~
```

You will continue to use this terminal session throughout this documentation.

Generate Private Key File

The first step is to generate the private key file, execute the following command:

```
openssl genrsa -out keyfile.key 2048
```

That would have generated some random text.

Generate Certificate Request File

Next you will generate the certificate request file by executing the following command:

```
openssl req -new -key keyfile.key -out certrequest.csr
```

You will need to supply some values, some can be left blank, however the most important value is the **Common Name**. In the example below you can see that `nls-c7x-x64.domain.local` has been used which means that when you access the Nagios Log Server in your web browser, this is the address you will need to use. This is particularly important, if these don't match then you will get warnings in your web browser. More detailed information about this can be found in the following KB article:
https://support.nagios.com/kb/article.php?id=598

The following is an example:

```
Country Name (2 letter code) [XX]:AU
State or Province Name (full name) []:NSW
Locality Name (eg, city) [Default City]:Sydney
Organization Name (eg, company) [Default Company Ltd]:My Company Pty Ltd
Organizational Unit Name (eg, section) []:
Common Name (eg, your name or your server's hostname) []:nls-c7x-
x64.domain.local
Email Address []:
Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:
An optional company name []:
```

As you can see above, I did not supply an `Organizational Unit Name`, `email address`, `password` or optional `company name`. Specifically, providing a `password` is not necessary.

Sign Certificate Request

At this point you have created a certificate request that needs to be signed by a CA.

Using A Trusted CA Company

If you are going to use a trusted company like VeriSign to provide you with a certificate you will need to send them a copy of the certificate request. This can be viewed by executing the following command:

```
cat certrequest.csr
```

You'll get a lot of random text, this is what you will need to provide to your trusted CA. You must provide the CA with everything including the `-----BEGIN CERTIFICATE REQUEST-----` and `-----END CERTIFICATE REQUEST-----` lines.

Once they send you the signed certificate you will need to copy the certificate into a new file called `certfile.crt`. The certificate you receive will also be a lot of random text, so you can just paste that text into the new file which you can open with the vi editor:

```
vi certfile.crt
```

You must paste everything including the `-----BEGIN CERTIFICATE -----` and `-----END CERTIFICATE -----` lines when pasting them into the file.

Save the file and close vi.

You can now proceed to the Copy Files section of this document.

Using A Microsoft Windows CA

If you are going to use a Microsoft Windows CA to sign your certificate request please follow the steps in this KB article:
https://support.nagios.com/kb/article.php?id=597

After following the KB article you will have the `certfile.crt` file and you can proceed to the Copy Files section of this document.

Self Signing The Certificate

You can also self-sign the certificate by executing the following command:

```
openssl x509 -req -days 365 -in certrequest.csr -signkey keyfile.key -out certfile.crt
```

Which should produce output saying the Signature was OK and it was Getting Private Key.

Note: When you self sign a certificate you will get warnings in your web browser. More detailed information about this can be found in the following KB article: https://support.nagios.com/kb/article.php?id=598

Copy Files

You need to copy the certificate files to the correct location and set permissions, execute the following commands:

```
cp certfile.crt /etc/pki/tls/certs
cp keyfile.key /etc/pki/tls/private/
chmod go-rwx /etc/pki/tls/certs/certfile.crt
chmod go-rwx /etc/pki/tls/private/keyfile.key
```

Update Apache Configuration

Now you have to tell the Apache web server (httpd) where to look for it. Open the `/etc/httpd/conf.d/ssl.conf` file in vi by executing the following command:

```
vi /etc/httpd/conf.d/ssl.conf
```

Find these lines and update them as follows:

```
SSLCertificateFile /etc/pki/tls/certs/certfile.crt
SSLCertificateKeyFile /etc/pki/tls/private/keyfile.key
```

Tip: typing `/eFile` and pressing Enter in vi should take you directly to this section in the file.

In that same file, navigate to the end (press **SHIFT** + **G**) and before the line `</VirtualHost>` add the following lines:

```
<IfModule mod_rewrite.c>
RewriteEngine on
RewriteCond $1 !^(index\.php|scripts|media|app|js|css|img|font|vendor|config.js)
RewriteCond %{REQUEST_FILENAME} !-f
RewriteCond %{REQUEST_FILENAME} !-d
RewriteRule nagioslogserver/(.*)$ /var/www/html/nagioslogserver/www/index.php/$1 [L,QSA]
</IfModule>
```

Save the changes, you have finished editing this file.

Open the `/etc/httpd/conf/httpd.conf` file in vi by executing the following command:

```
vi /etc/httpd/conf/httpd.conf
```

Add the following lines to the end of the file (press **SHIFT** + **G**):

```
RewriteEngine On
RewriteCond %{HTTPS} off
RewriteRule (.*) https://%{HTTP_HOST}%{REQUEST_URI}
```

Save the changes, you have finished editing this file.

Restart Apache

You need to restart the Apache for the new certificate key to be used.

RHEL/CentOS 6.x:

```
service httpd restart
```

RHEL/CentOS 7.x:

```
systemctl restart httpd.service
```

Firewall Rules

The following firewall rules may need to be added. If you cannot access the Nagios Log Server in the next step (Test Certificate) then it's likely you'll need to run these commands:

RHEL/CentOS 6.x:

```
iptables -I INPUT -p tcp --dport 443 -j ACCEPT
service iptables save
```

RHEL/CentOS 7.x:

```
firewall-cmd --zone=public --add-port=443/tcp
firewall-cmd --zone=public --add-port=443/tcp --permanent
```

Test Certificate

Now test your connection to the server by directing your web browser to:

```
https://yourservername/
```

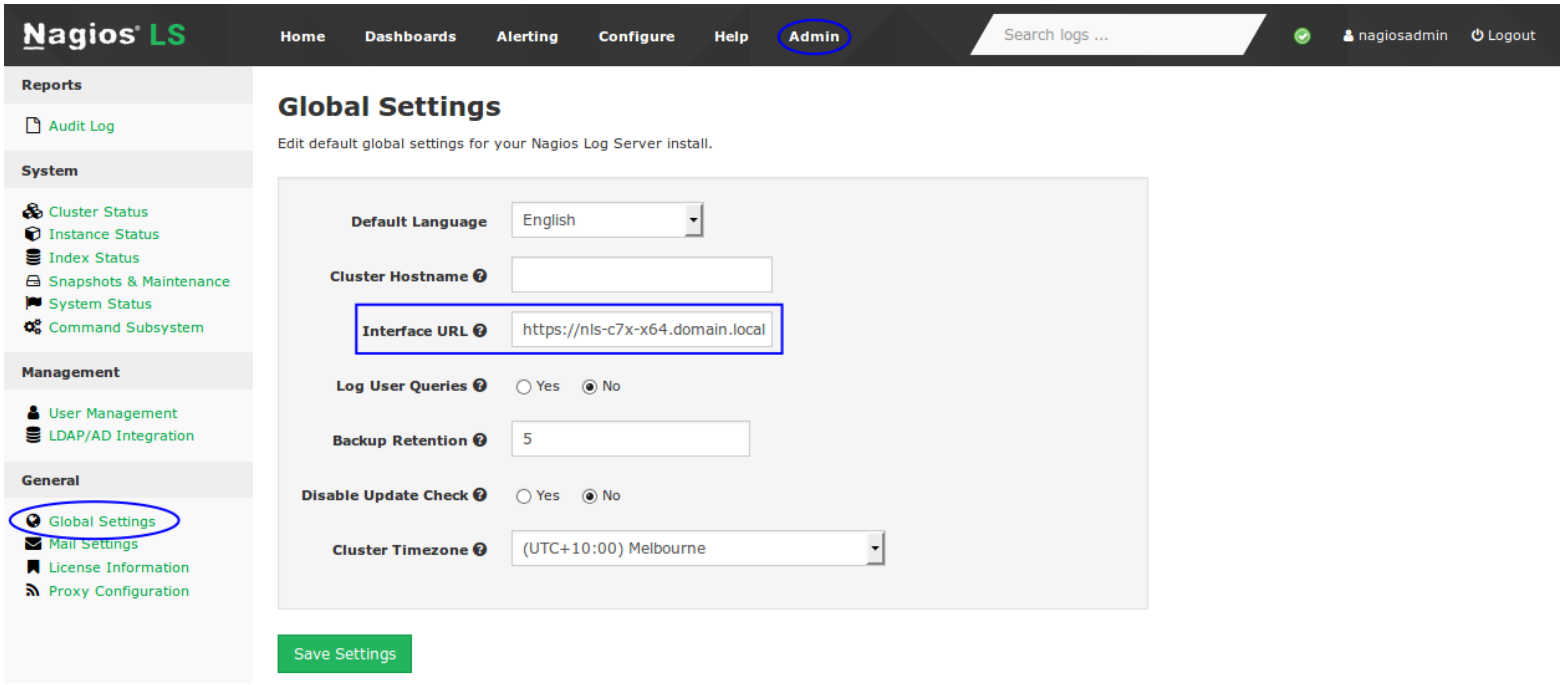
Note: There is no `nagioslogserver/` extension in the URL, we are just testing a connection to Apache to see if the certificate works.

You may get a self signed certificate warning, but that is OK, you can just add a security exception. If is working you'll see the Nagios Log Server welcome page. More detailed information about this can be found in the following KB article: https://support.nagios.com/kb/article.php?id=598

If it returns an error check your firewall and backtrack through this document, making sure you've performed all the steps listed.

Update Nagios Log Server Configuration

The Nagios Log Server GUI settings also need updating. Open up the Nagios Log Server interface to `https://yourservername/nagioslogserver/` and navigate to **Admin** > **General** > **Global Settings**.



Change the **Interface URL** to `https` instead of the default `http` and click the **Save Settings** button.

Note: It's very important that the IP Address / DNS name is the same here as it was typed in the certificate key "common name".

You are now set to use https with your Nagios Log Server web interface.

Notes On Redirecting

With this configuration, if a user types `http://logserver` in their web browser, it will redirect them to `https://logserver` which can cause certificate warnings in certain scenarios. If you wanted to redirect them to `https://logserver.yourdomain.com` then you simply need to change the RewriteRule in the `/etc/httpd/conf/httpd.conf` file:

```
RewriteRule (.*) https://logserver.yourdomain.com%{REQUEST_URI}
```

Then restart the `httpd` service.

More detailed information about this can be found in the following KB article:
https://support.nagios.com/kb/article.php?id=598

Repeat On All Instances

This procedure needs to be applied to all instances in your Nagios Log Server cluster to ensure you always have an encrypted connection. You can copy the files from this server to your other instances in the Copy Files section and then follow the Update Apache Configuration, Restart Apache, and Firewall Rules sections.
Note: You should create the certificate request with a generic **Common Name** like `nls.domain.local` and create multiple DNS A records for `nls.domain.local` that are the IP addresses for each server instance.

Finishing Up

This completes the documentation on how to Configure Nagios Log Server for SSL/TLS.
If you have additional questions or other support related questions, please visit us at our Nagios Support Forums:

https://support.nagios.com/forum

The Nagios Support Knowledgebase is also a great support resource:

https://support.nagios.com/kb