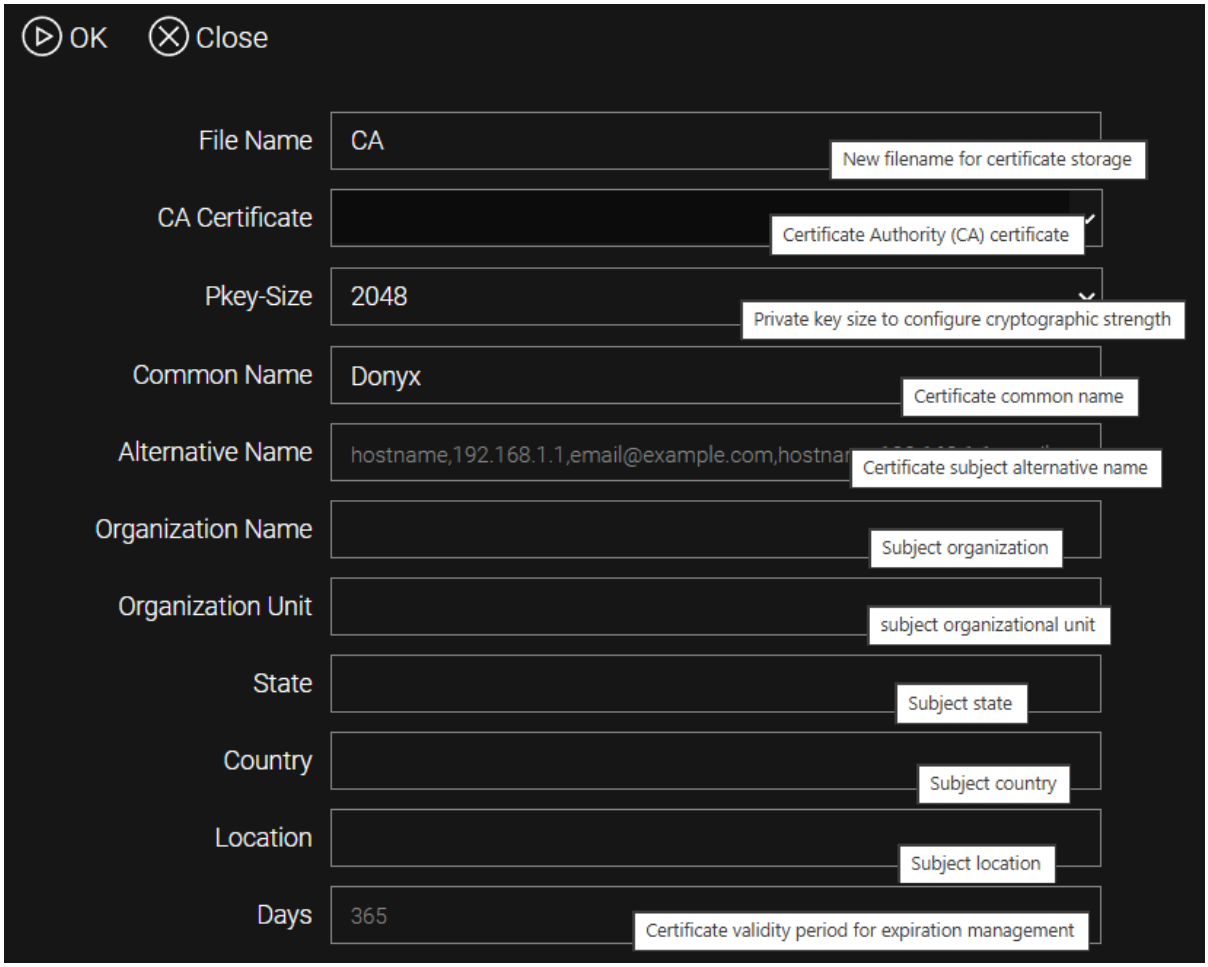
TLS Certificate Generation for OpenVPN on Donyx Routers

Routers running *dnxOS* feature integrated tools for generating, importing, and exporting **TLS** certificates, which are utilized to secure tunneling protocols such as **OpenVPN**.

Specifically, implementing **TLS** for **OpenVPN** requires the creation of a local **Certification Authority (CA)**, a server certificate, and one or more client certificates for the devices connecting to the router acting as the server.

TLS Certificate Generation Instructions

1. Navigate to the */storage/certificate* section and click **Cert Create**.



2. Complete the displayed form with the following parameters:
   - **File Name** — The internal identifier for the certificate file.
   - **Common Name** — The name of the new **CA** (e.g., *Donyx*).
   - **CA Certificate** — Leave blank for the **CA** creation.
   - **Pkey-Size** — The encryption key size (default: *2048* bits).

   Optional fields may be completed as needed.
   Click **OK**. After a brief period, the new certificate will be displayed in the certificate list.

CLI Configurations

```
/storage certificate cert-create name=CA pkey-size=2048 cn=Donyx
```

3. To create the server certificate, click **Cert Create** again and configure the following settings:
   - **File Name** — The certificate filename (e.g., *server*).
   - **CA Certificate** — Select the **CA** created in the previous step.
   - **Common Name** — The common name (**CN**) for the certificate. This typically represents the name of the router where the certificate will be installed. In this example, *server* is used.
     Click **OK**.

CLI Configuration

```
/storage certificate cert-create name=server ca=CA pkey-size=2048 cn=server
```

4. To create the client certificate, click **Cert Create** and configure the following settings:
   - **File Name** — The certificate filename (e.g., *client*).
   - **CA Certificate** — Select the previously created **CA**.
   - **Common Name** — An identification string, name, or other identifier. In this example, *client* is used.
     Click **OK**.

CLI Configuration

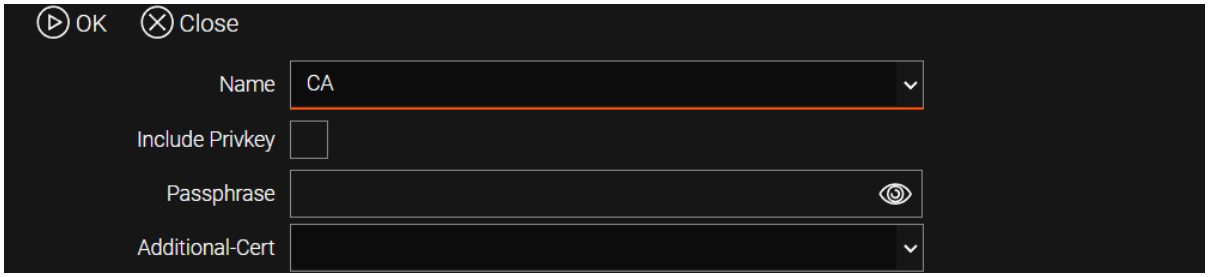
```
/storage certificate cert-create name=client ca=CA pkey-size=2048 cn=client
```

The certificates have been generated. To use them on a different device, specific files must be exported.

All modifications are permanently saved to the router configuration only after executing the */system config commit* command or clicking the **commit** button in the web interface.

Export

1. Click **Cert Export**. To export the public **CA** certificate, select the assigned **CA** name in the **Name** field (in this example, *CA*). Click **OK**.



CLI Configuration

```
/storage certificate cert-export name=CA
```

2. Navigate to the */storage/file* section, where the *CA.pfx* file is now located. Click the file and select **Download**.
3. Export the client certificate:
   - Return to the */storage/certificate* section and click **Cert Export**.
   - Select the *client* certificate from the **Name** list, enable the **Include Privkey** option, and specify a password of at least 8 characters in the **Passphrase** field.
     Click **OK**.

CLI Configuration

```
/storage certificate cert-export name=client include-pkey=true passphrase=password
```

The value *password* is provided as an example passphrase. A minimum length of 8 characters is required for all passphrases.

4. Download the *client.pfx* file from the */storage/file* section.
   Files can also be downloaded using a command-line client. For example, in Linux, use the **scp** utility to download to the current directory:

```
scp admin@ROUTER_IP:CA.pfx ./
scp admin@ROUTER_IP:client.pfx ./
```

Import

1. Perform the certificate import on the second router. Navigate to the */storage/file* section.
2. Click **Upload**, then **Choose**, and select the previously saved *CA.pfx* and *client.pfx* files.
3. Click **Upload** again. Once uploaded, the files will appear in the list with the type *temporary*.

Files can also be uploaded using a command-line client. For example, in Linux, use the **scp** utility:

```
scp CA.pfx admin@ROUTER_IP:CA.pfx
scp client.pfx admin@ROUTER_IP:client.pfx
```

4. Navigate to the */storage/certificate* section and click **Cert Import**.
5. In the **Name** list, select *CA.pfx* and click **OK**.

CLI Configuration

```
/storage certificate cert-import name=CA.pfx
```

6. Click **Cert Import**.
7. In the **Name** list, select *client.pfx* and enter the passphrase specified during the export process.
8. Click **OK**. After a short period, the certificate will be displayed in the */storage/certificate* section.

CLI Configuration

```
/storage certificate cert-import name=client.pfx passpharase=password
```

All modifications are permanently saved to the router configuration only after executing the */system config commit* command or clicking the **commit** button in the web interface.

TLS Auth Key (ta.key)

If a **TLS Auth Key** (*ta.key*) is utilized on the **OpenVPN** server, it must also be uploaded and imported into the system.

The upload and import process can be performed using the following methods:

Web Interface:

In the */storage/file* section, select the *ta.key* file and click the *Import* button.

SCP:

```
scp ta.key admin@ROUTER_IP:ta.key
```

CLI:

```
/storage file ta.key import
```

The *ta.key* file will then be available for selection in the **OpenVPN** server configuration.