Mkcert - Create SSL Certificates for Local Development

wechris.github.io/tips-tutorials/openssl/certificate/security/development/https/tls/root-ca/2018/09/30/Mkcert-Create-SSL-Certificates-for-Local-Development

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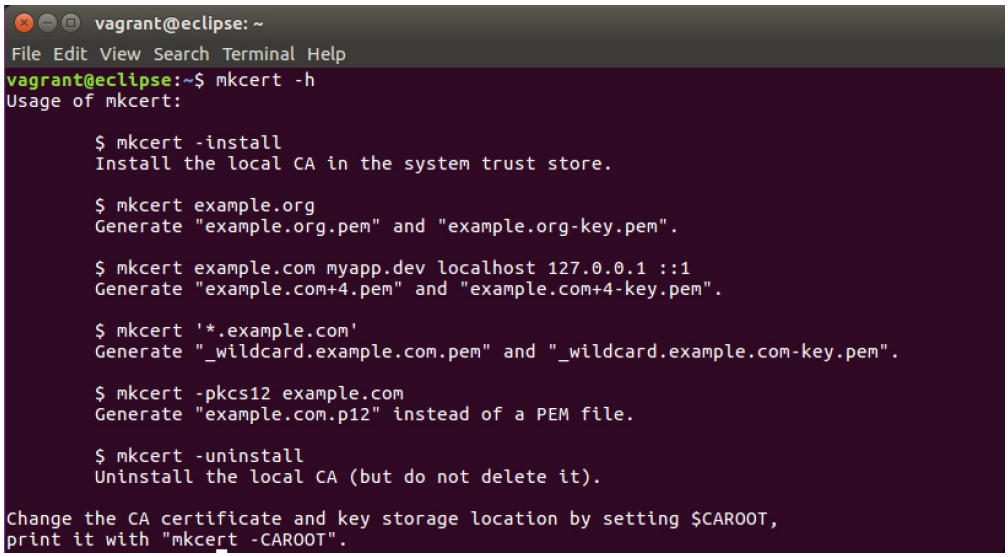
Posted by Christian Weiß on September 30, 2018

Mkcert is a simple tool which can be used in making locally trusted certificates. It doesn't require any configuration. It is always dangerous or impossible to use certificates from real Certificate Authorities for `localhost or 127.0.0.1`. Even using self-signed certificates are equally not recommended as they cause trust errors.

Mkcert provides us with the best solution to this by managing its own CA. This will automatically create and installs a local CA in the system root store and generates locally-trusted certificates.



Installation

> **Warning**: the `rootCA-key.pem` file that mkcert automatically generates gives complete power to intercept secure requests from your machine. Do not share it.

Github Repo

FiloSottile/mkcert

Linux

On Linux, first install `certutil`.

```
sudo apt install libnss3-tools
    -or-
sudo yum install nss-tools
    -or-
sudo pacman -S nss
```

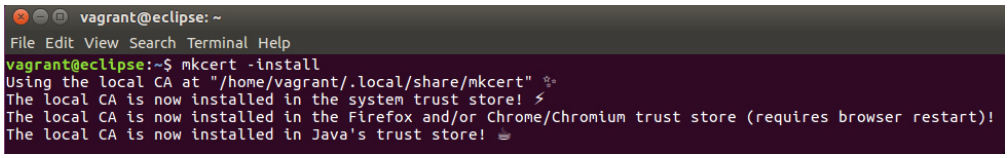
Then you can install using Linuxbrew

```
brew install mkcert
```

Getting Start

Open a terminal and use the following command:

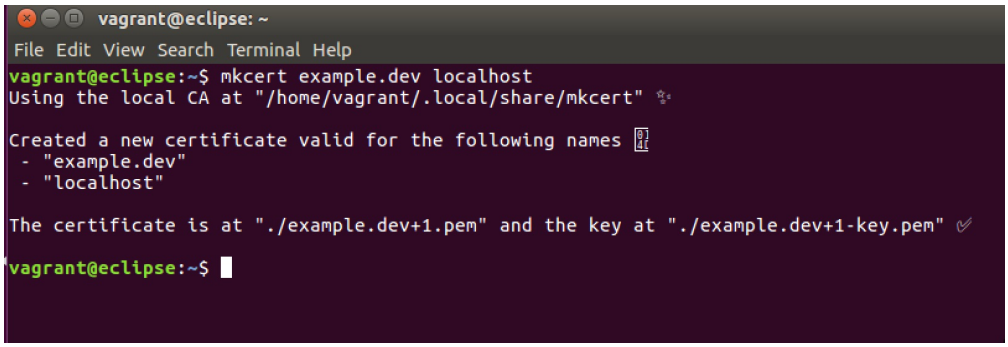
```
mkcert -install
```



```
vagrant@eclipse:~$ mkcert -install
Using the local CA at "/home/vagrant/.local/share/mkcert" ✨
The local CA is now installed in the system trust store! ⚡
The local CA is now installed in the Firefox and/or Chrome/Chromium trust store (requires browser restart)!
The local CA is now installed in Java's trust store! ☕
```

Create a Certificate

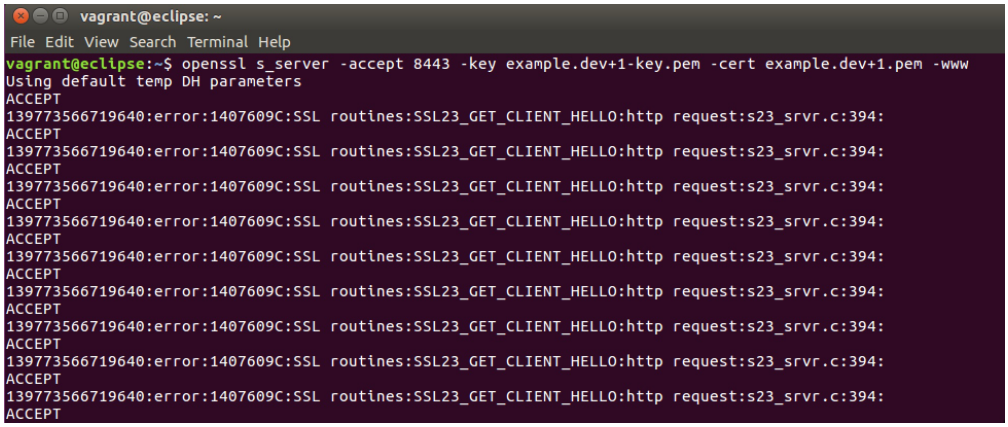
```
mkcert example.dev localhost
```



```
vagrant@eclipse:~$ mkcert example.dev localhost
Using the local CA at "/home/vagrant/.local/share/mkcert" ✨

Created a new certificate valid for the following names
 - "example.dev"
 - "localhost"

The certificate is at "./example.dev+1.pem" and the key at "./example.dev+1-key.pem" ✅

vagrant@eclipse:~$ 
```

Start a test server with openssl s_server and the mkcert certificates

```
openssl s_server -accept 8443 -key example.pev+1-key.pem -cert example.pev+1.pem -www
```



```
vagrant@eclipse:~$ openssl s_server -accept 8443 -key example.dev+1-key.pem -cert example.dev+1.pem -www
Using default temp DH parameters
ACCEPT
139773566719640:error:1407609C:SSL routines:SSL23_GET_CLIENT_HELLO:http request:s23_srvr.c:394:
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139773566719640:error:1407609C:SSL routines:SSL23_GET_CLIENT_HELLO:http request:s23_srvr.c:394:
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ACCEPT
```
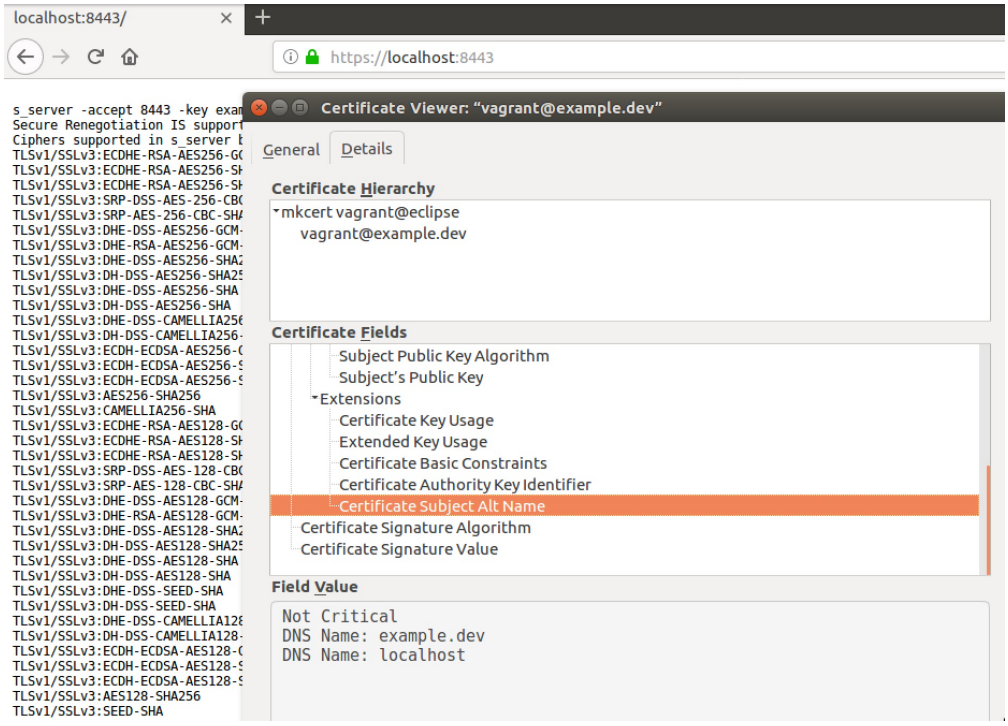

Open your browser and start `https://localhost:8443`



Supported root stores

mkcert supports the following root stores:

- macOS system store
- Windows system store
- Linux variants that provide either
  - `update-ca-trust` (Fedora, RHEL, CentOS) or
  - `update-ca-certificates` (Ubuntu, Debian) or
  - `trust` (Arch)
- Firefox (macOS and Linux only)
- Chrome and Chromium
- Java (when `JAVA_HOME` is set)

Changing the location of the CA files

The CA certificate and its key are stored in an application data folder in the user home. You usually don't have to worry about it, as installation is automated, but the location is printed by `mkcert -CAROOT`.

If you want to manage separate CAs, you can use the environment variable `$CAROOT` to set the folder where mkcert will place and look for the local CA files.

Installing the CA on other systems

Installing in the trust store does not require the CA key, so you can export the CA certificate and use mkcert to install it in other machines.

- Look for the `rootCA.pem` file in `mkcert -CAROOT`
- copy it to a different machine
- set `$CAROOT` to its directory
- run `mkcert -install`

Remember that mkcert is meant for development purposes, not production, so it should not be used on end users' machines, and that you should *not* export or share `rootCA-key.pem`.