

EXPORTING PUBLIC KEY

PJM only allows public keys to be uploaded to the Account Manager application to keep private certificate keys secure. Normally a Certificate Authority (CA) delivers certificates in PFX format containing both private and public keys. Company Account Managers (CAMs) and authorized users will need to export public keys from the PFX format and then upload to Account Manager.

There are many ways to export the public key. This document show two easy ways. While [OpenSSL Command](#) is best suited for developers and technical users, the [Browser Extraction](#) method would be best suited for any user with minimal technical experience.

1. *OpenSSL Command:*

This requires the openssl package to be installed on your machine. You can download this from <https://sourceforge.net/projects/openssl/> and unzip the package on your computer.

- a. Navigate to \bin folder and double-click the openssl.exe, which should open an OpenSSL command window.
- b. Use the commands below to convert your file into a compatible PJM format. The below code strips out your private key and creates a certificate extension with only a public key.

```
pkcs12 -in "C:\filePath\certFileName.pfx" -clcerts -nokeys -out
"C:\ filePath \certFileName.crt"
```

- c. You will be prompted for the certificate password. Enter the password and hit the <Enter> key.

```
Enter Import Password: <password>
```

- d. You should see the message below indicating a new .crt file was successfully created at the location specified after the -out.

```
MAC verified OK
```

The new .crt can be uploaded to Account Manager.

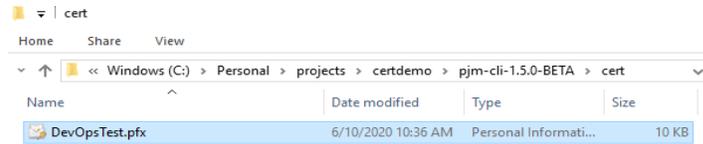
2. *Extracting the public keys from browser:*

One Simple way is to install the PFX certificate within your browser and then extract the public key from browser. This method doesn't need any extra packages/tools on your machine.

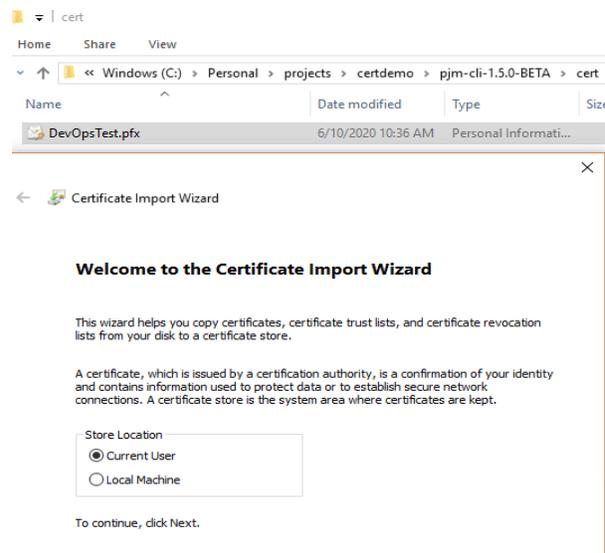
Installing the certificate within the browser:

The instructions below will install the PFX certificate within both Internet Explorer, Edge and Chrome browsers.

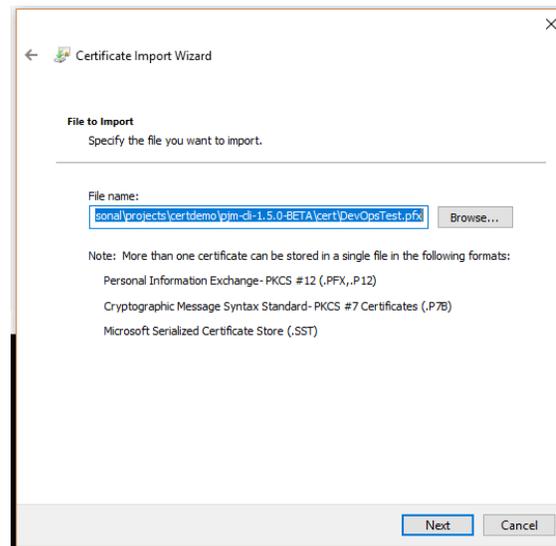
- 1) Double-click on the certificate PFX file and follow the steps within the Certificate Import Wizard, selecting the default options in Steps 1 through 3. At Step 4, you will need provide the certificate password.



- 2)



- 3)



4)

← Certificate Import Wizard

Private key protection
To maintain security, the private key was protected with a password.

Type the password for the private key.

Password:

Display Password

Import options:

- Enable strong private key protection. You will be prompted every time the private key is used by an application if you enable this option.
- Mark this key as exportable. This will allow you to back up or transport your keys at a later time.
- Protect private key using virtualized-based security(Non-exportable)
- Include all extended properties.

Next Cancel

5)

← Certificate Import Wizard

Certificate Store
Certificate stores are system areas where certificates are kept.

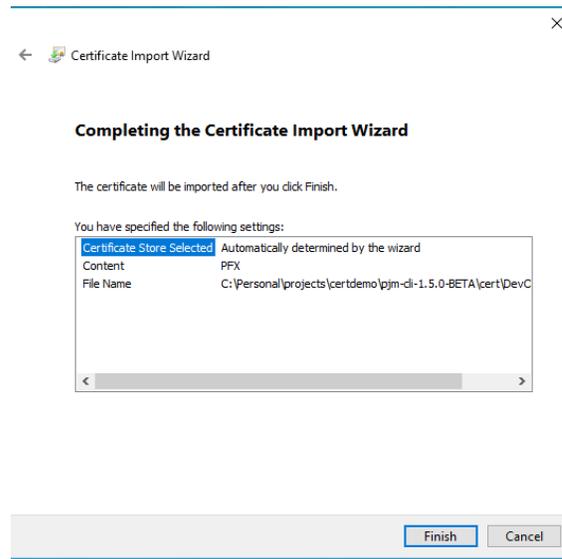
Windows can automatically select a certificate store, or you can specify a location for the certificate.

- Automatically select the certificate store based on the type of certificate
- Place all certificates in the following store

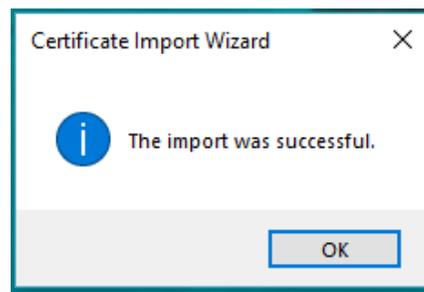
Certificate store:
 Browse...

Next Cancel

6)



7)



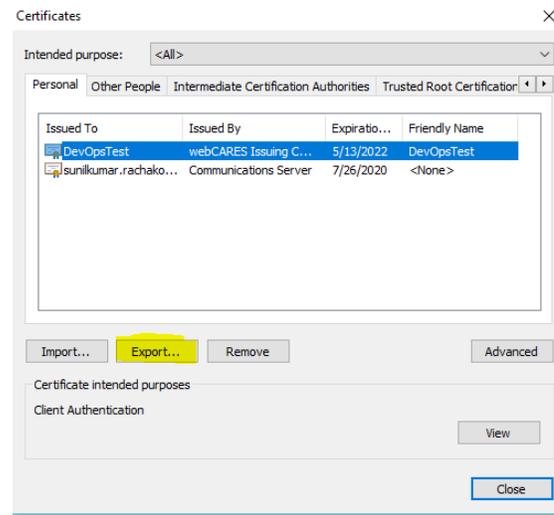
Exporting public keys from browser

You can open installed certificates from a browser and select the one that needs to be exported

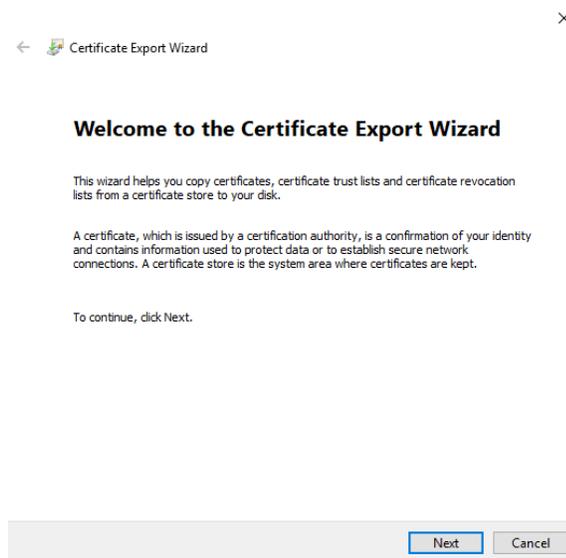
- IE or Edge
 - From the Tools menu, select *Internet options*.
 - Go to the Content tab and click the Certificates button. This will display the installed certificate(s) previously installed.
 - Select the certificate you just installed.
- Chrome
 - Select *Settings* from the menu.
 - From the left navigation, select *Privacy and Security*.
 - From the Privacy and security panel, select *Security*

- Scroll down to the Advanced section and select *Manage Certificates*. This will display the installed certificate(s) installed previously.
- Select the certificate you just installed.

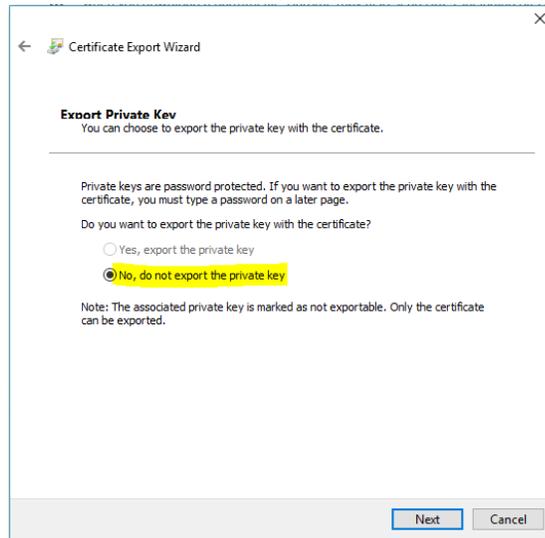
1) Click the Export button to display the Certificate Export Wizard. Select the default options throughout.



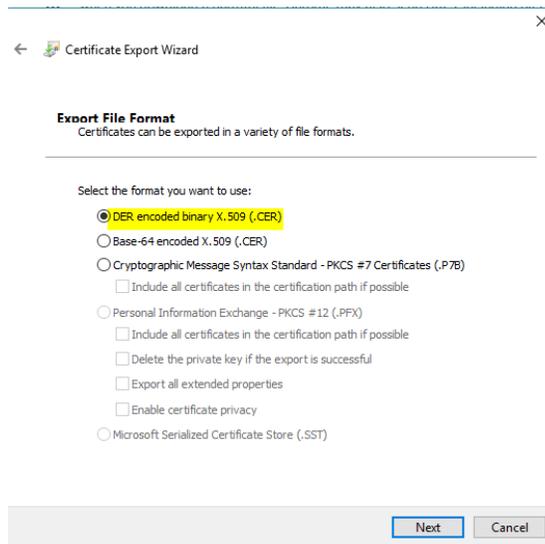
2)



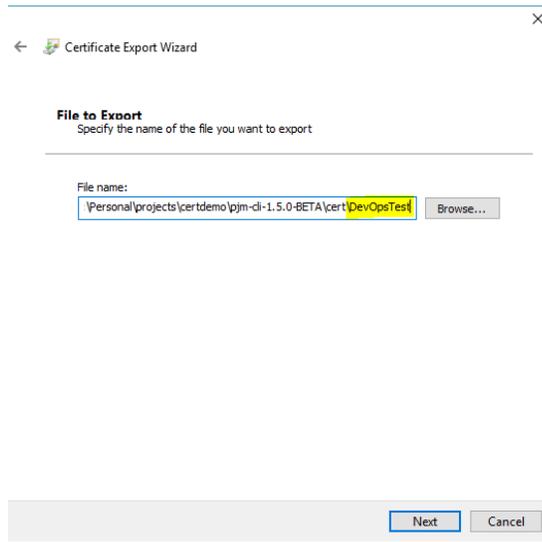
3)



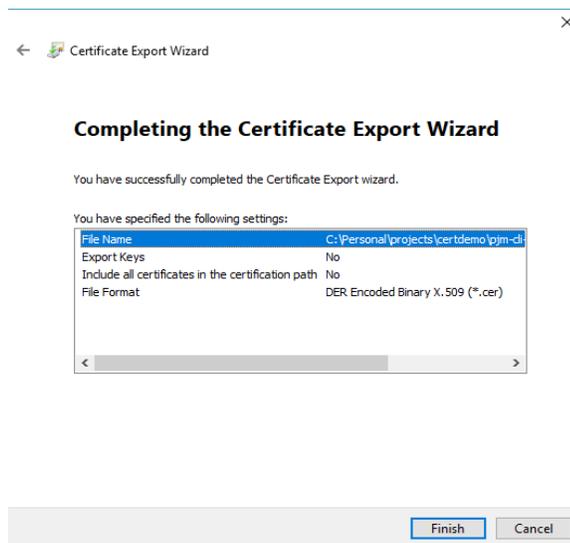
4)



5)



6)



7)

