Cybersecurity 701

Certificates Lab

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Certificate Materials

- Materials needed
  - Windows Server 22 Virtual Machine
- Software Tool used
  - mmc

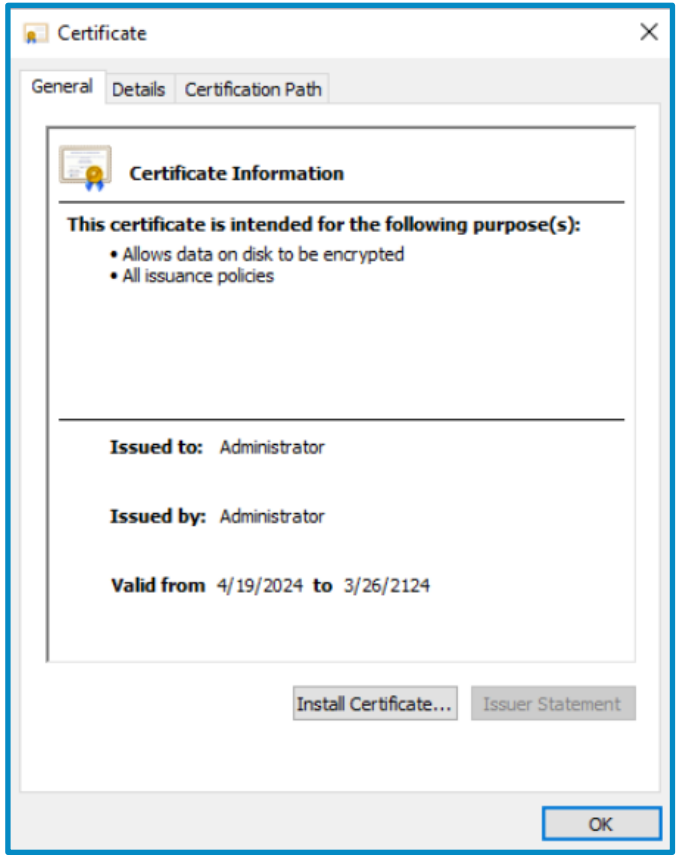
Objectives Covered

- Security+ Objectives (SY0-701)
  - Objective 1.4 - Explain the importance of using appropriate cryptographic solutions.
    - Public Key
    - Private Key
    - Certificates
      - Self-signed

What are digital certificates?

- Digital certificates are an electronic document used to prove the ownership of a public key

- There are many different formats including: DER, PEM, PFX, .cer, P12, and P7B



Certificates Lab Overview

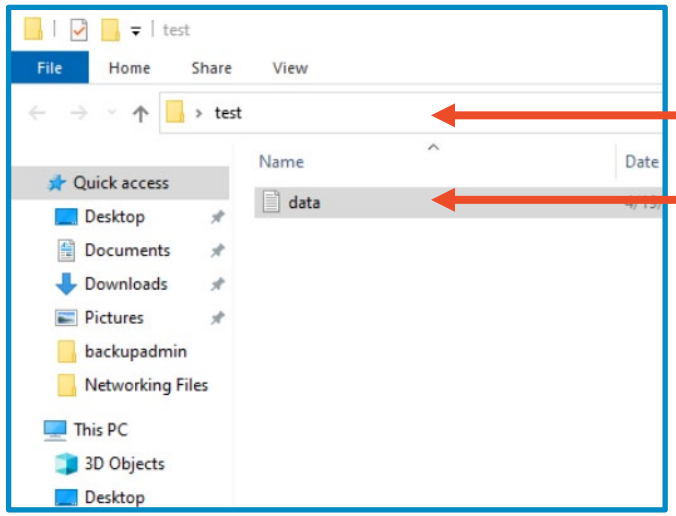
1. Set up VM Environment
2. Create a Folder and File
3. Encrypt the Folder and File with EFS
4. Open mmc
5. Setup Software for Exporting Certificates
6. Export Private Key Certificate
7. Export Public Key Certificate

Set up Environments

- Log into your range
- Open the Windows Server 22 Environment
  - You should be on your Windows Desktop

Create a Folder and File

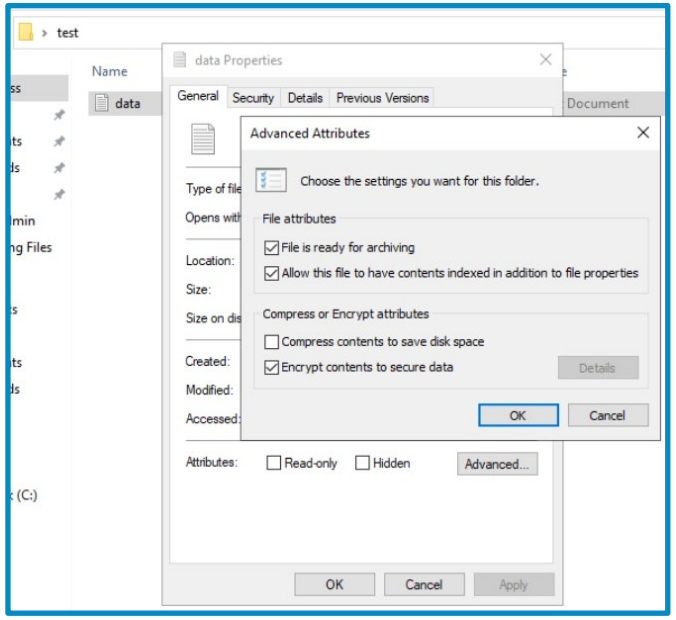
- On the desktop, right-click, hover over New, then select Folder
- Name the folder, "test"
- Open the test folder, right-click, hover over New, then select Text Document
- Name the text document, "data"



Verify there's a text file titled data inside the test folder

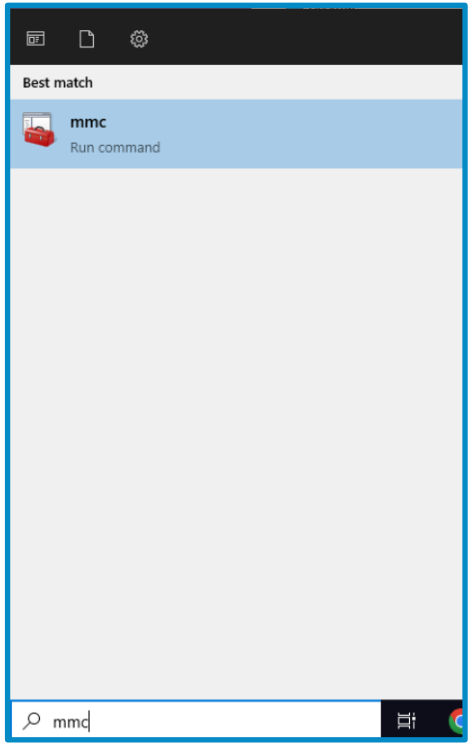
Encrypt the Folder and File with EFS

- Right-click the data file, select "Properties"
- Click "Advanced", then select the "Encrypt contents to secure data" box
- Click "OK“, then “Apply”
  - Then click “OK again (twice)

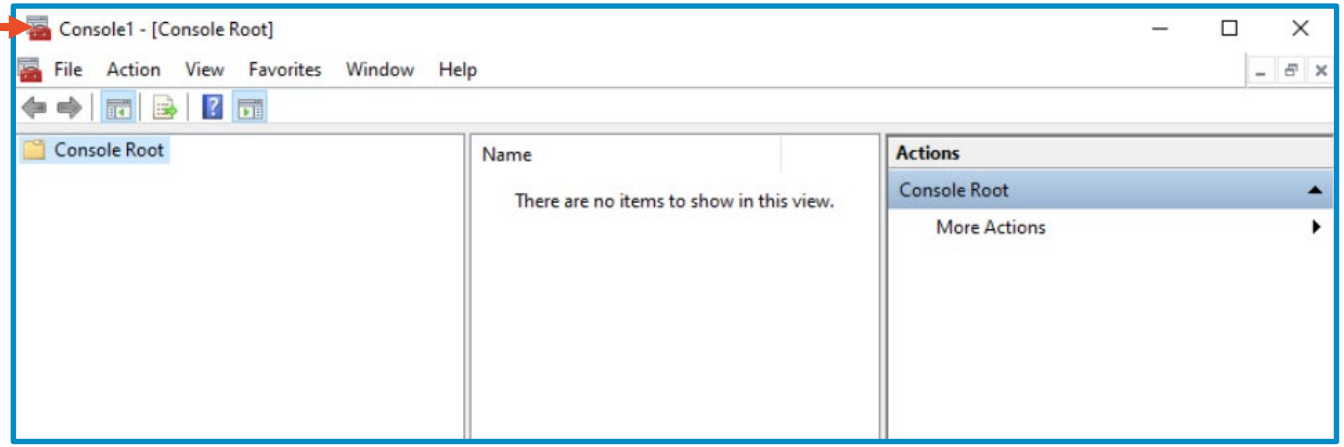


Open mmc

- Click the **Start** button, type **mmc**, and select the icon with the red suitcase.

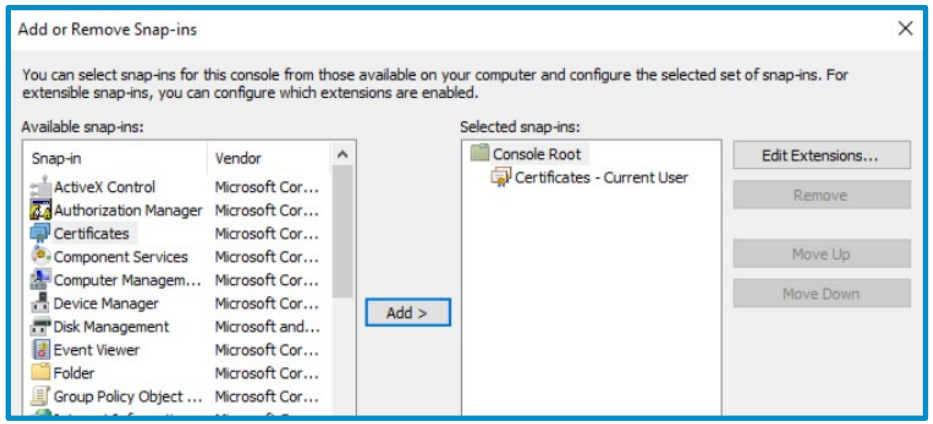


You should see the Microsoft Management Console open

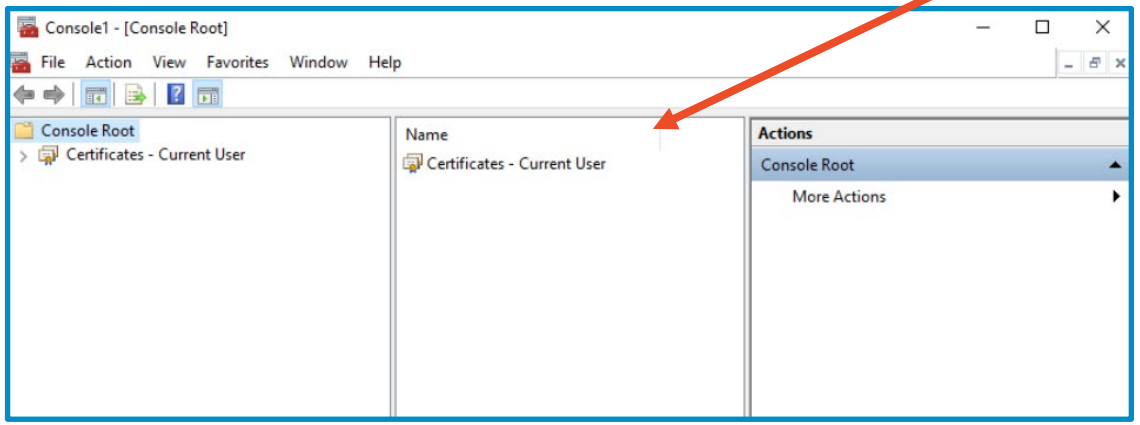


Setup Software for Exporting Certificates

- With Console1 open, select **File**, then select **Add/Remove Snap-In**
- Select **Certificates**, then click **Add**, followed by **Finish**, and then **Ok**.
- Console1 should now include a "Certificates – Current User" tab



Verify the "Certificates - Current User" appears



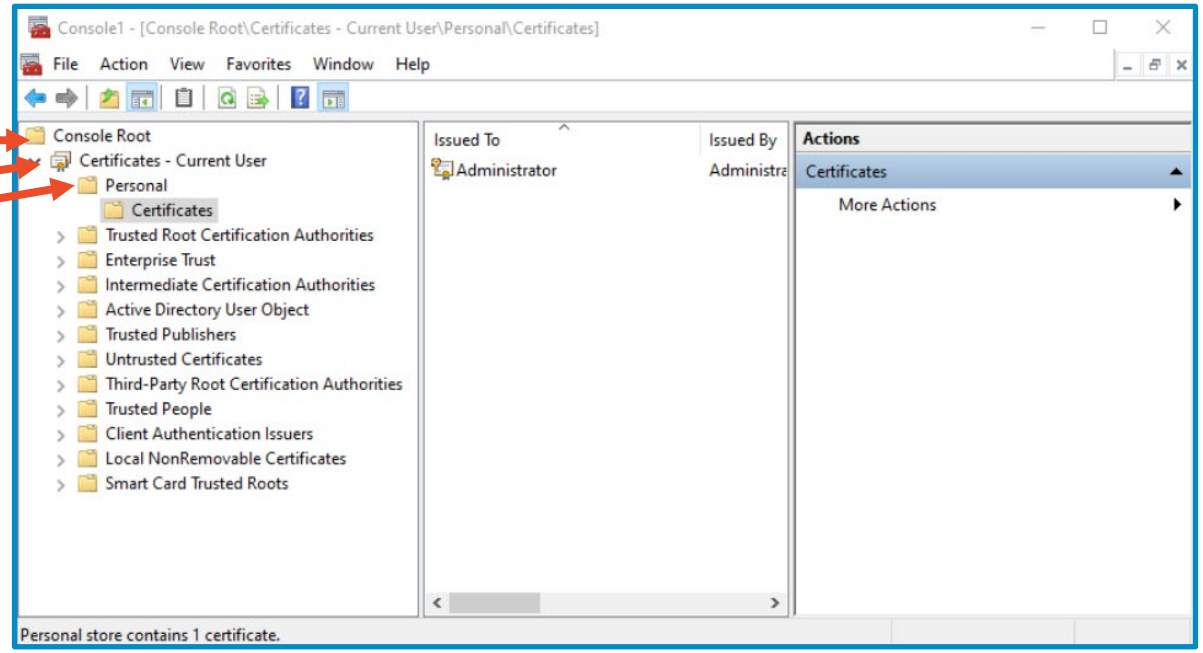
Export Private Key Certificate Step 1

- Click the + beside "Certificates – Current User"
- Click the + beside "Personal"
- Click the "Certificates" folder that appears

Certificates - Current User

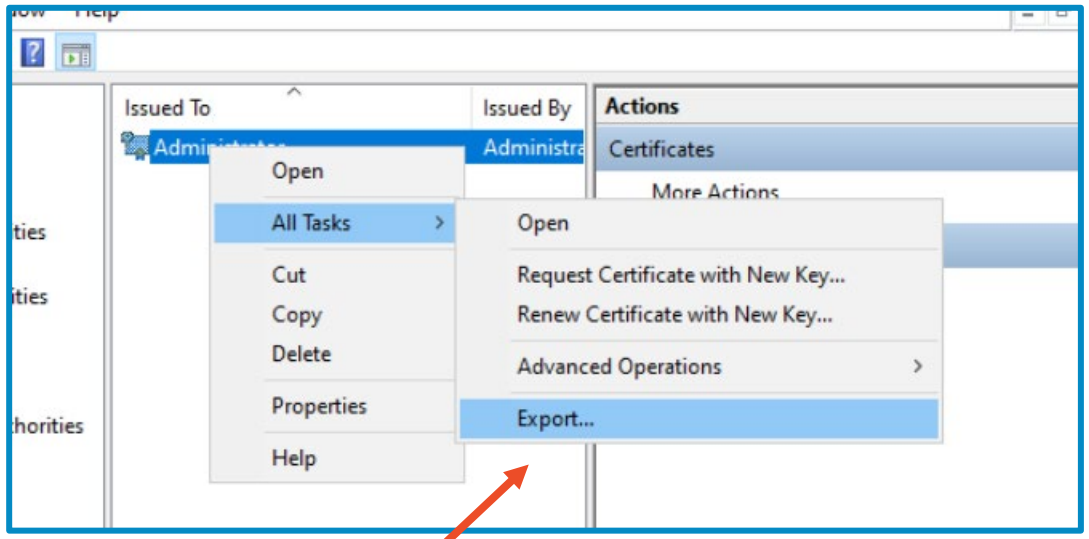
Personal

Certificates

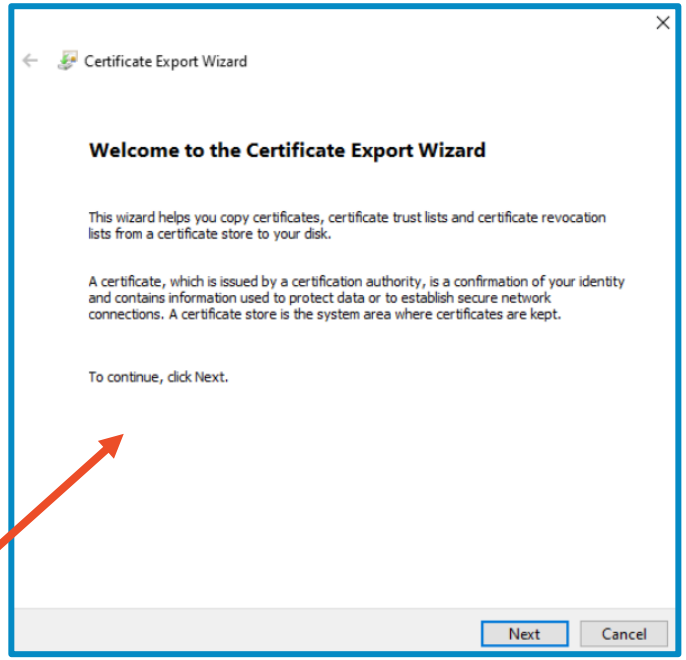


Export Private Key Certificate Step 2

- In the center display, right-click “Administrator".
- Hover over the "All Tasks" option and click "Export"



Click on Export…

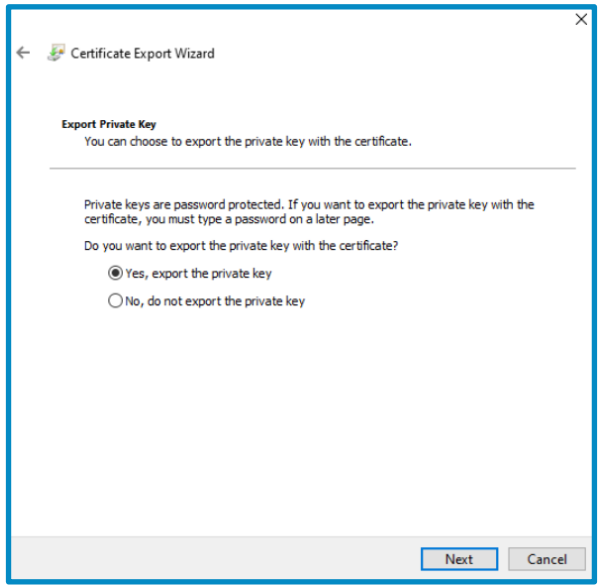


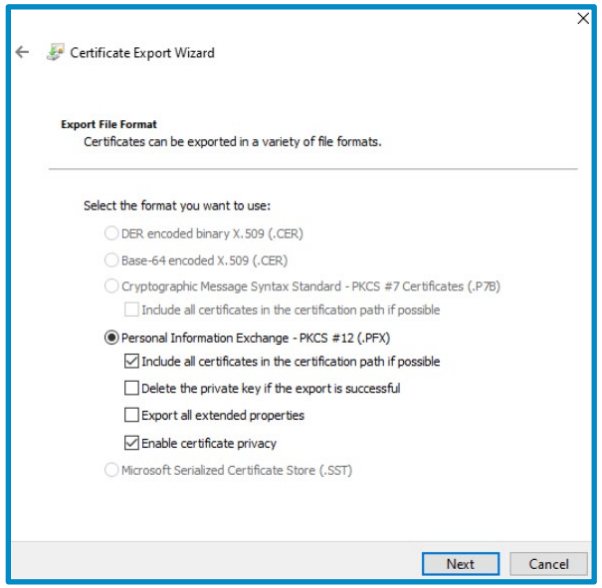
Verify the Certificate Export Wizard appears

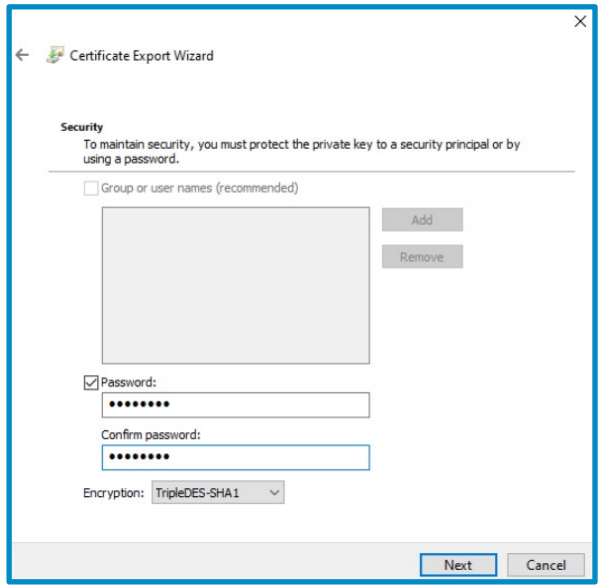
Export Private Key Certificate Step 3

The certification export wizard appears.

- Click "Next"
- Click "Yes, export the private key"
- Click "Next" (twice)
- Create a password, and click “Next”



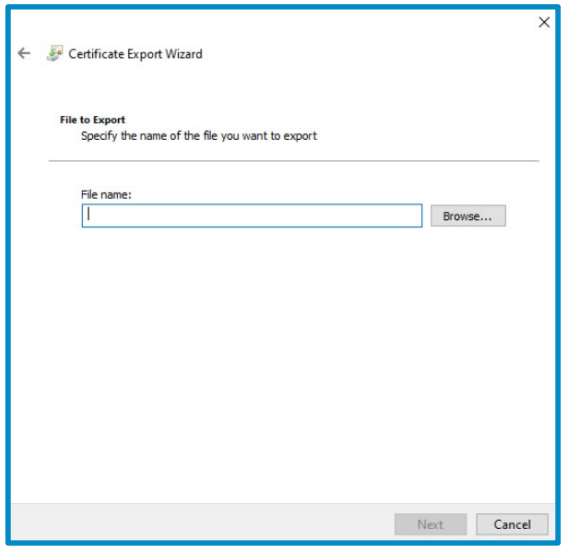


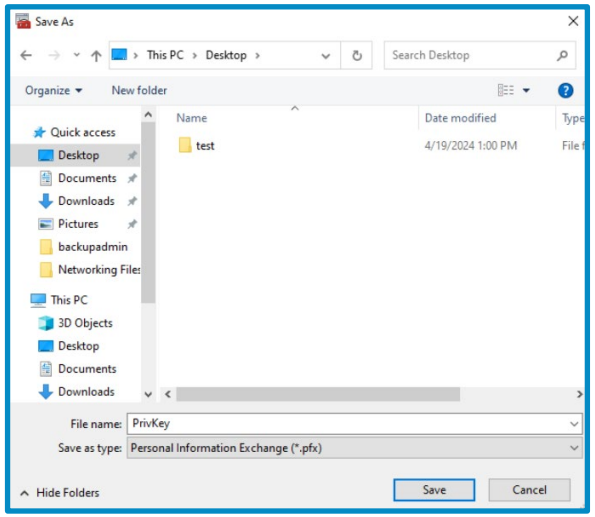


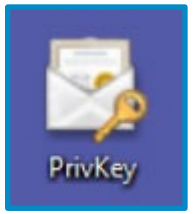
You should see a “File to Export” appear

Export Private Key Certificate Step 4

- Click "Browse"
- Navigate to the Desktop
- Save the File as "PrivKey"
- Click "Next"
- Click "Finish"







Save to the Desktop, and you should see the PrivKey appear on the Desktop

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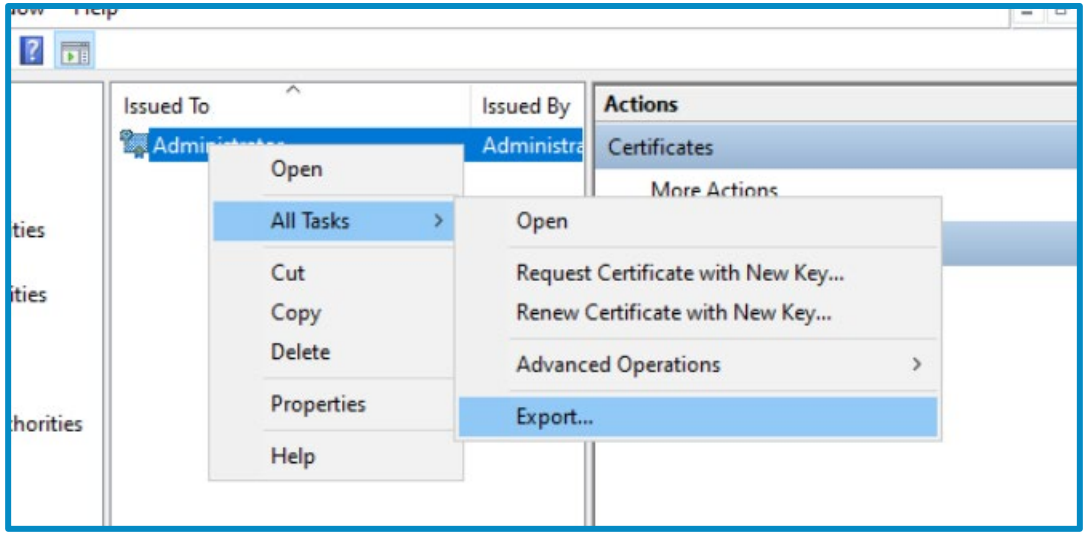
Export Public Key Certificate Step 1

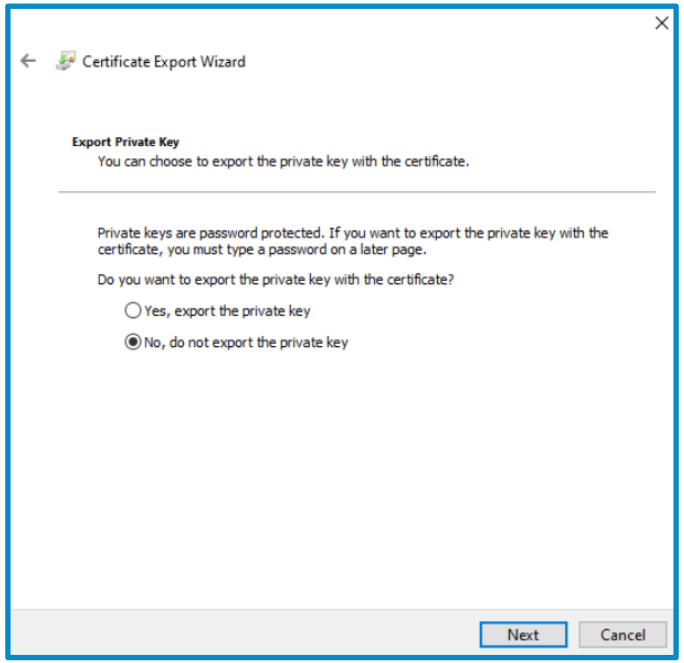
- In the center display, right-click “windows"
- Hover over the "All Tasks" option and click "Export"



Export Public Key Certificate Step 2

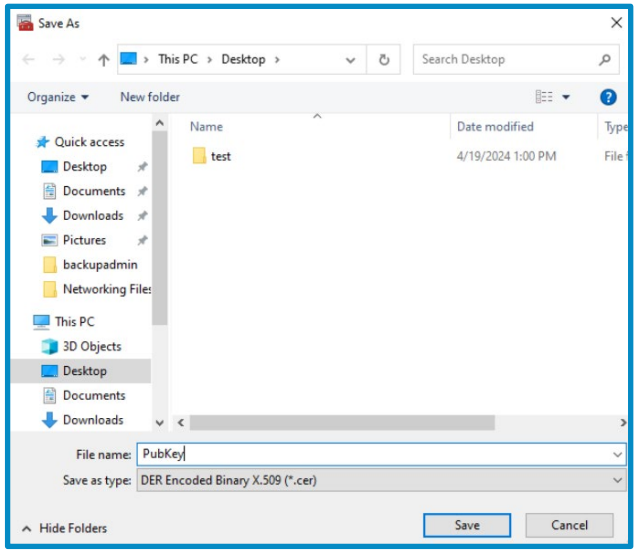
The certificate export wizard appears.

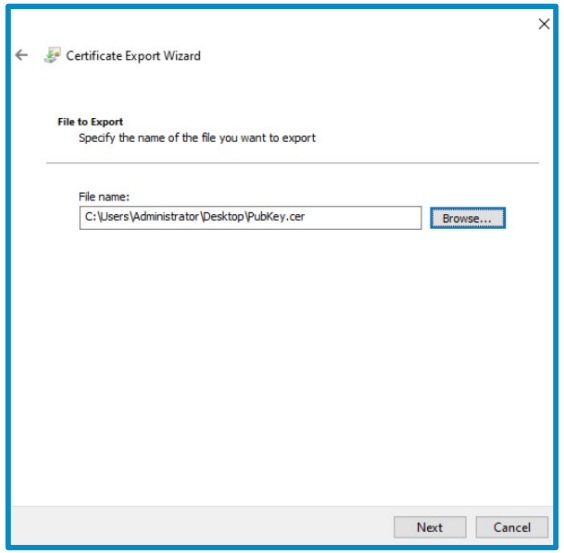
- Click "Next"
- Click "No, do not export the private key"
- Click "Next" (twice)

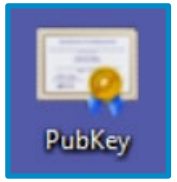


Export Public Key Certificate Step 3

- Click "Browse"
- Navigate to the Desktop
- Save the File as "PubKey"
- Click "Next"
- Click "Finish"







Save it to the Desktop, and you should see the PubKey appear on the Desktop

Investigate the Certificates

- Notice, if you open the PrivKey file, an Import wizard appears, however, if you open the PubKey file, information about the certificate is readily available.