PRINTERON
PRINT SIMPLY ANYWHERE

PrinterOn Development

Setting up a Local Certificate Authority

mobile printing solutions | enterprise | education | public printing locations

Contents

1

Introduction

This guide is intended to guide you through the process of setting up a local Certificate Authority (CA) which you can use to issue and sign certificates.

By default, when you install PrinterOn, all components are configured to communicate over TLS-enabled ports. In a production environment, it is recommended that you always use trusted certificates issued by one of several available Certificate Authorities, such as Verisign, Thawte, or RSA Security, among others.

These CAs typically charge a fee to sign certificates, which can vary in cost depending on the nature of the certificate being signed, the validity period, and other factors.

However, in non-production scenarios—for example, in testing environments, or when performing proof-of-concept analysis—the certified protection you are paying third-party authorities to provide is unnecessary. Because both Windows and macOS provide tools that allow you to create and configure a local CA, you can avoid the costs associate with public CAs.

Creating your own local CA allows you to issue certificates and validate users so that you can have a secure, protected testing environment for non-production development or proof of concept analysis. This is a one-time task that, once completed, can be used to provide certificates for your PrinterOn server and client devices to support secure communication across the PrinterOn service.

> **Note:** A local CA is not a substitute for third-party CA. In production environments, it is always recommended that you use valid trusted certificates signed by a reputable Certificate Authority.

1.1 Overview: Setting up a local Certificate Authority

To set up your environment to use a local Certificate Authority that you can use with a non-production PrinterOn service, you'll need to complete the following tasks:

1. Create and configure your local Certificate Authority. This process creates the root certificate and a set of public and private keys.

   This process differs depending on whether you are installing it on Windows or macOS:

   - Creating a local Certificate Authority on Windows Server.
   - Creating a local Certificate Authority on macOS
2. Install the server certificate on the PrinterOn Server.
3. Install the root certificate on each client device that needs to communicate with the PrinterOn server:
   - Installing the root certificate on iOS devices.
   - Installing the root certificate on Android devices.
   - Installing the CA root certificate on Windows devices.

2

Creating a local Certificate Authority on Windows Server

To create a local Certificate Authority and set up and deploy your certificates from a Windows Server, you must complete the following tasks:

1. Create the local Certificate Authority.
2. Create and export the server certificate.
3. Export the CA root certificate.

Although there are different ways of accomplishing these tasks, this tutorial will use a variety of tools on one Windows server to complete them, including:

- The Windows Server Manager
- Internet Explorer (or some other browser)
- The Certificates Snap-In in the Microsoft Management Console

Important! The Certificates Snap-in is not added to the MMC by default; you must add it yourself. If it has not already been added, add the Certificates Snap-in to the server's Microsoft Management Console before continuing.

2.1 Creating the local Certificate Authority

In Windows, the Certificate Authority installed as a feature of Active Directory. You can install this feature through Server Manager.

Creating a local Certificate Authority and setting up your certificates on Windows requires you to complete the following tasks:

1. First, make sure that you have met the system prerequisites.
2. Then you install the Active Directory Certificate Authority on the server.
3. Finally, you configure the service to create the root certificate.

2.1.1 System prerequisites

Before you create your CA on a Windows Server, you must make sure that:

- The server is a member of the domain. You cannot create a CA on an independent server that is not within your domain.
- You have domain administrator privileges, and be logged in as the domain administrator.

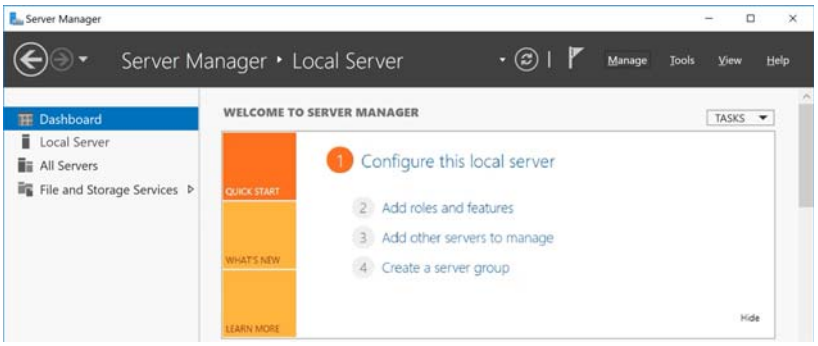
Important! DO NOT install your local CA on the same Windows Server that is hosting your PrinterOn server. The local CA can cause conflicts with PrinterOn's installation of Apache Tomcat.

2.1.2 Installing the Active Directory Certificate Authority

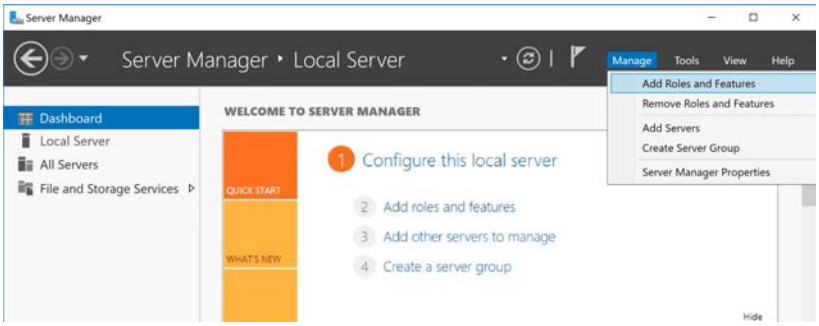
Windows Active Directory lets you set up a Certificate Authority as part of its Certificate Services.

To set up an Active Directory Certificate Services on Windows Server:

1. In Windows server, click **Start** > **Server Manager**. The Server Manager window opens.



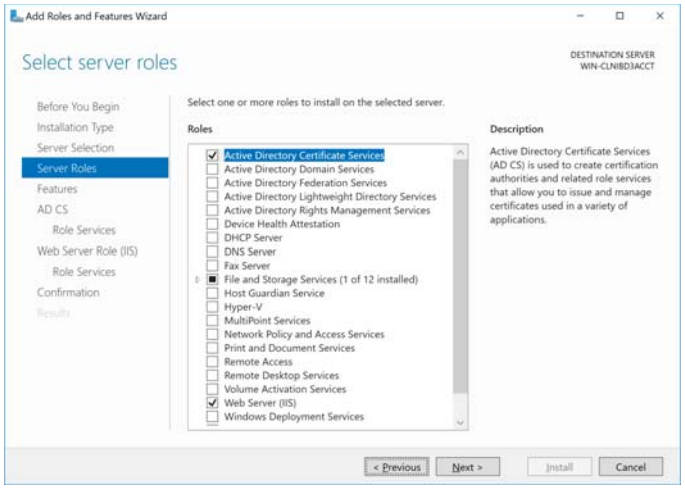
2. From the top menu, click **Manage** > **Add Roles and Features**.



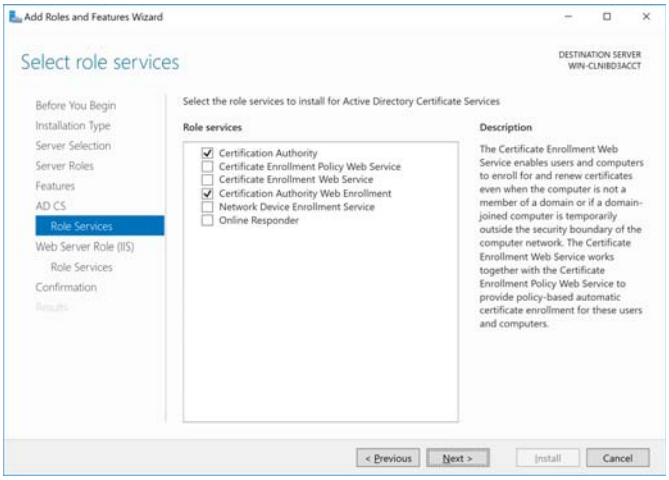
The Add Roles and Features wizard opens.

3. In the Add Roles and Features wizard, click **Next** for the next several screens to accept the default values and proceed through the wizard until you reach the **Server Roles** screen.

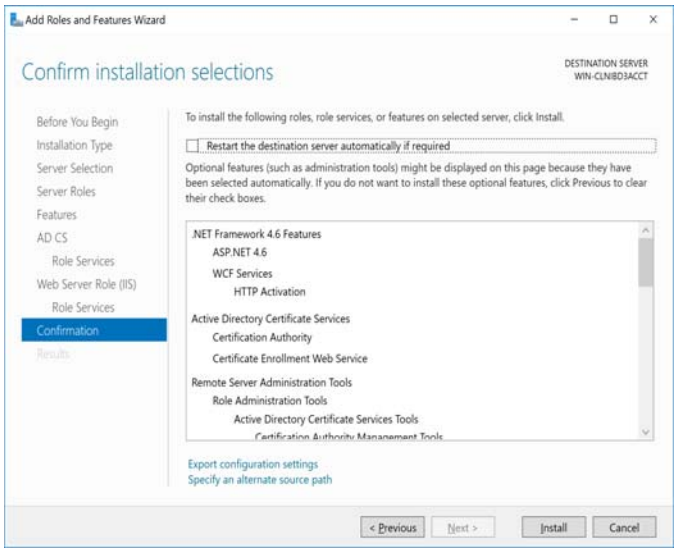
4. In the **Roles** list of the Server Roles screen, select **Active Directory Certificate Services**, then click **Next**.



5. If necessary, click **Add Features** to confirm the additions, then click **Next** for the next several screens to accept the default values and proceed through the wizard until you reach the **AD CA Role Services** screen.
6. In the Role Services screen, select the following options:
   - **Certification Authority**
   - **Certification Authority Web Enrollment**



7. If necessary, click **Add Features** to confirm the additions, then click **Next** for the next several screens to accept the default values and proceed through the wizard until you reach the **Confirm Installation selections** screen.



8. Click **Install**. The Server Manager installs the Certificate Authority. Once the installation process is finished, the Server Manager displays a notification requesting you to configure the Certificate Service to create the root certificate.

You can now configure the service to create the root certificate.

2.1.3 Configuring the AD Certificate Service

After successfully installing the Certificate Authority, you'll need to configure the service to set up the root certificate and public/private keys.

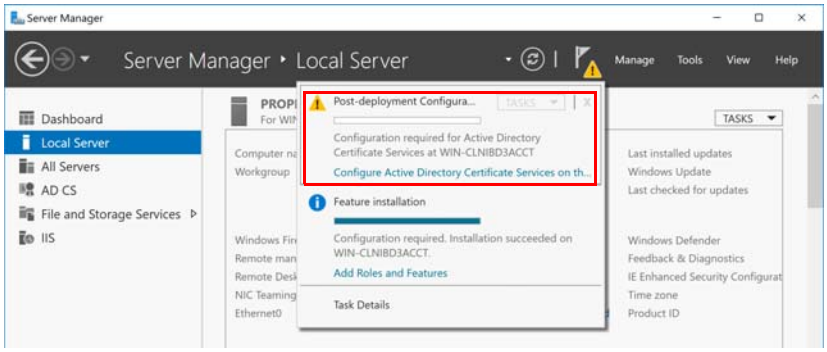
To configure the Active Directory Certificate Services:

1. After the Certificate Authority installation, the Server Manager displays a notification alert on the top menu. Click the notification flag to view the notifications.

   Two notifications should be present:

   - **Post-deployment configuration**: Indicates that some configuration is required for the deployment.
   - **Feature installation**: Indicates that a new feature was installed.

2. In the Post-deployment Configuration notification, click **Configure Active Directory Certificate Services on the Destination Server**.



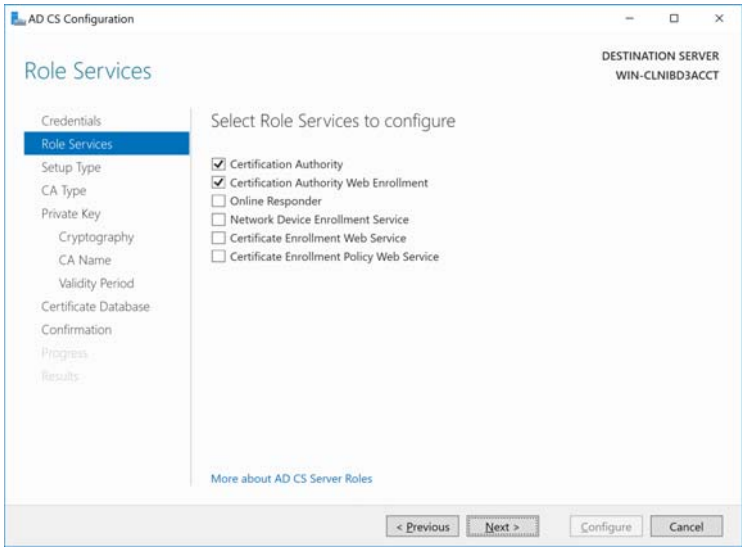
The AD CS Configuration wizard opens.

3. In the Credentials screen, locate the **Credentials** field and confirm that it displays the Domain Administrator account.

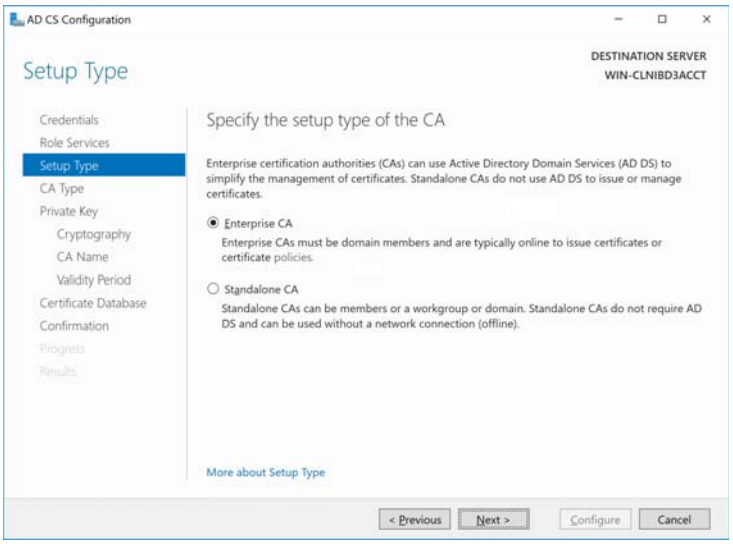
> **Important:** The **Credentials** field shows which administrator account is being used to configure the CA service. To ensure that you can correctly configure the Certificate Authority, this field *must* display the Domain Administrator account.
>
> If the **Credentials** field does not display the Domain Administrator account:
>
> 1. Click **Change**.
> 2. In the dialog that appears, enter the **Username** and **Password** for the Domain Administrator.

4. Click **Next** to proceed to the **Role Services** screen.

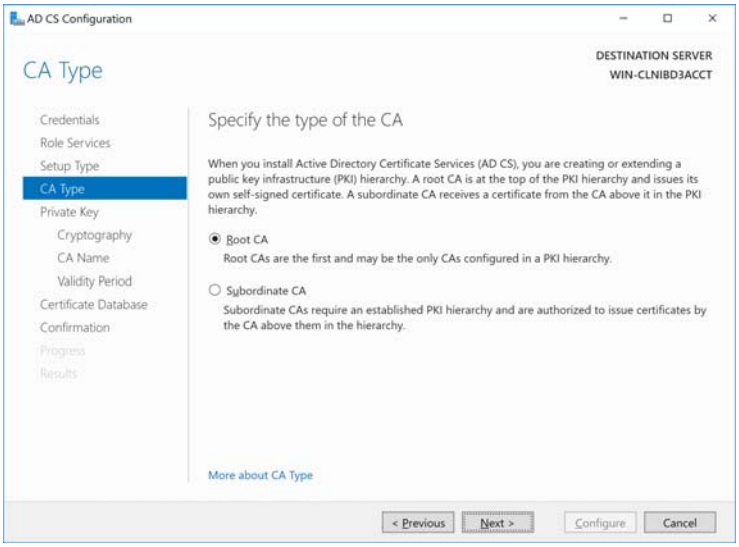
5. In the Role Services screen, select the following services, then click **Next**:
   - **Certification Authority**
   - **Certification Authority Web Enrollment**



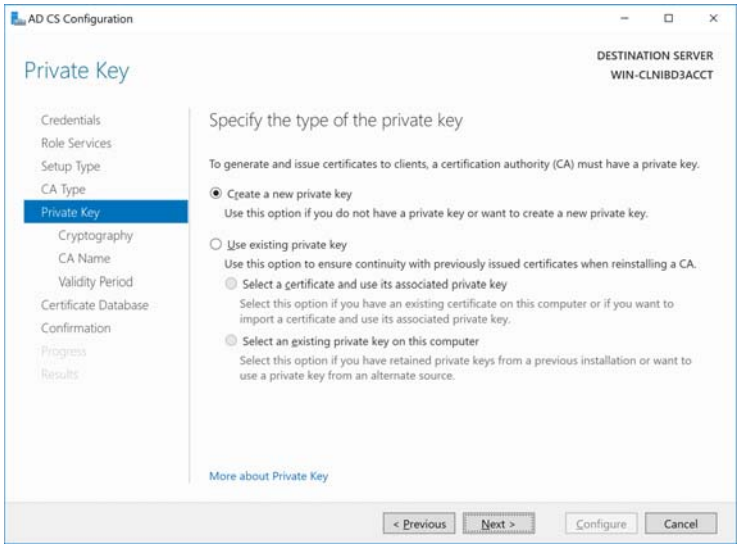
6. In the Setup Type screen, choose **Enterprise CA**, then click **Next**.



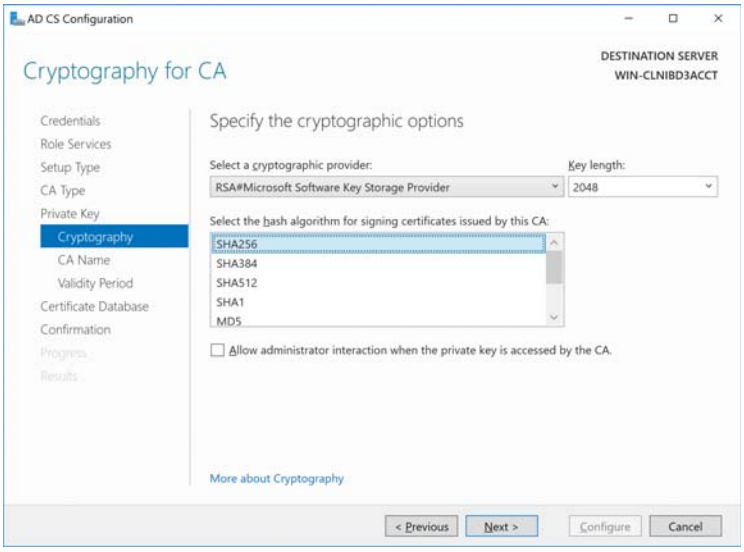
7. In the CA Type screen, choose **Root CA**, then click **Next**.



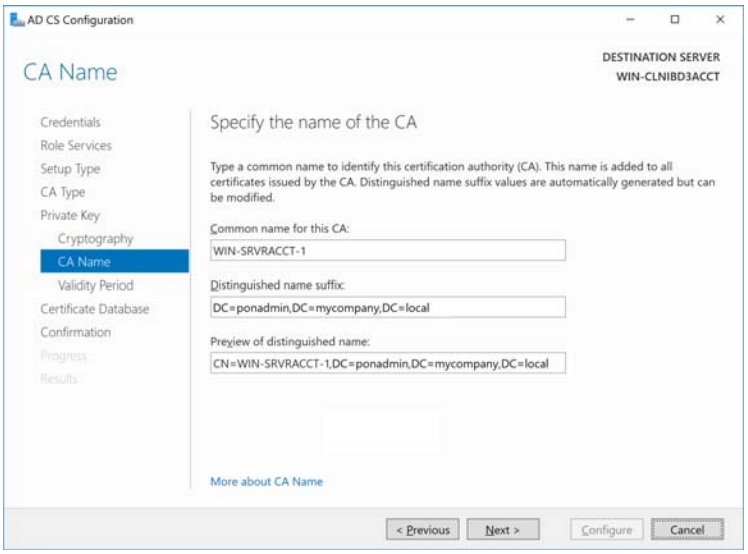
8. In the Private Key screen, choose **Create a new private key**, then click **Next**.



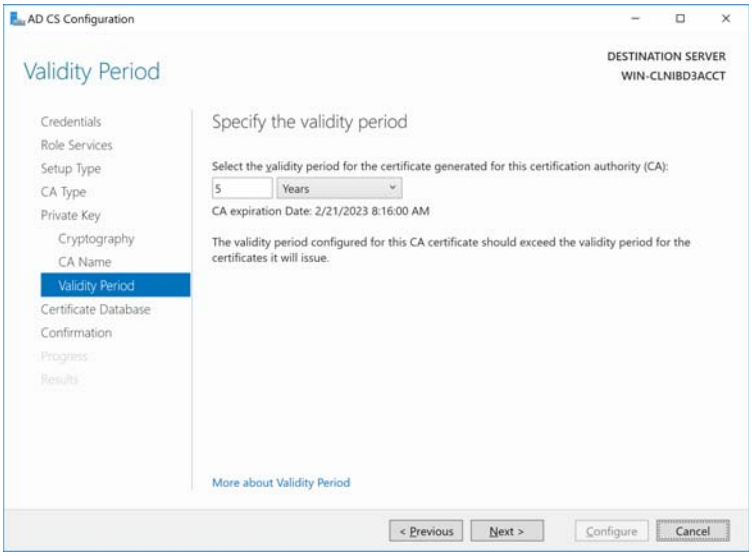
9. In the Cryptography screen, select the cryptography settings you want to use, then click **Next**.



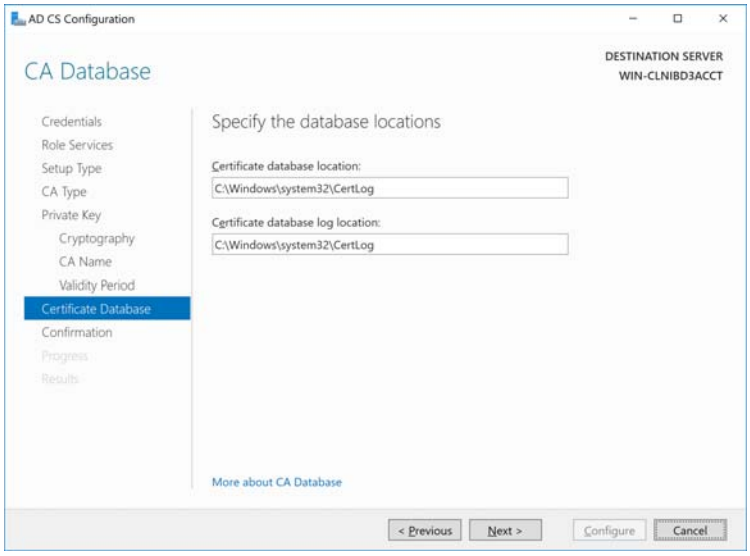
10. In the CA Name screen, define the CA name, then click **Next**.



11. In the Validity Period screen, the length of time the root certificate of the CA is valid for, then click **Next**.

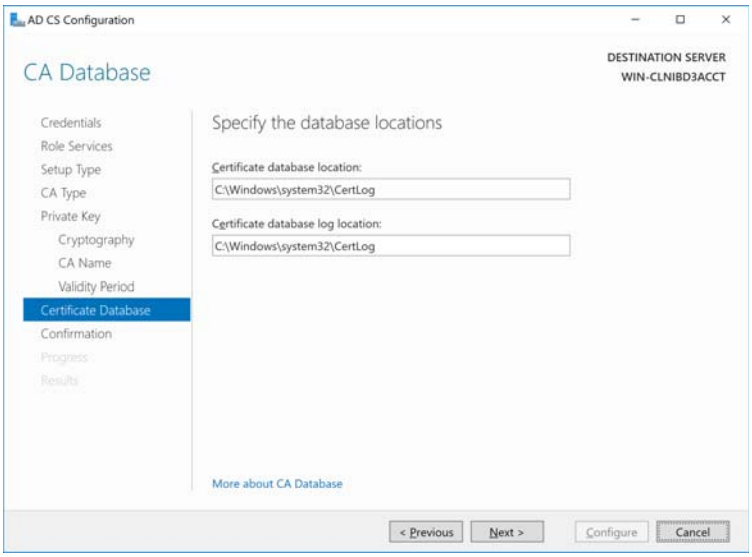


12. In the Certificate Database screen, specify the location of the logs, then click **Next**. Typically the default values are sufficient.



13. In the Confirmation screen, confirm your settings, and if correct, click **Configure**.

    Once the configuration is applied, the Results screen appears, indicating that the CA was successfully configured.



With the CA created, you can now:

- Create a server certificate for the PrinterOn Server.
- Export the root certificate to distribute it to client devices.

2.2 Creating and exporting a signed server certificate

There are several ways to request a server certificate for use on the PrinterOn Server. To simplify the process and minimize the need to switch between computers for each step, in this tutorial, we'll simply submit the request from the CA computer itself, then export it with the private key and install it on the PrinterOn Server.

To issue a server certificate to your PrinterOn server(s), you'll need to complete the following tasks:

1. Create a certificate signing request.
2. Request the server certificate from your Certificate Authority.
3. Export the server certificate with the private key.

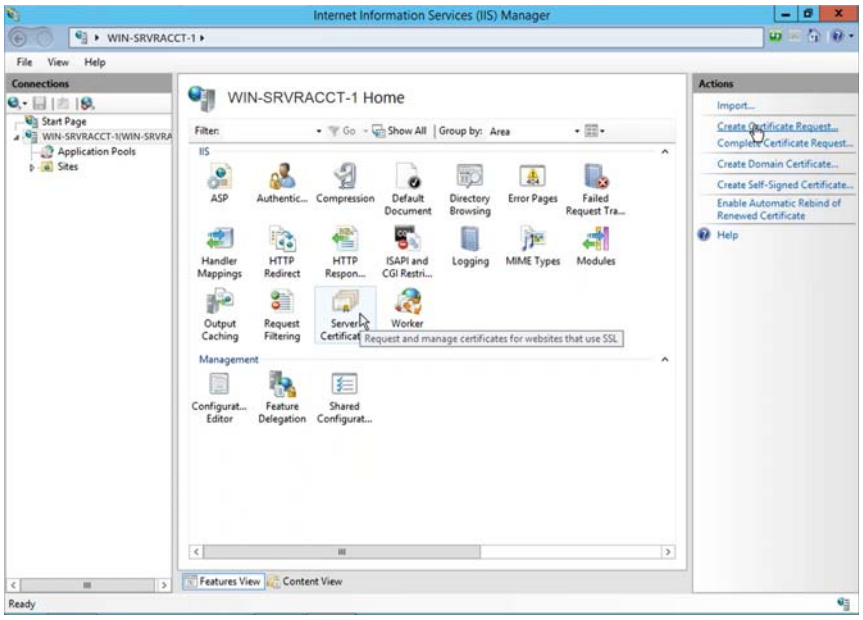
2.2.1 Creating a certificate signing request

To request a server certificate for use by the PrinterOn server, you first need to create a Certificate Signing Request (CSR). The CSR is an encrypted text file containing some

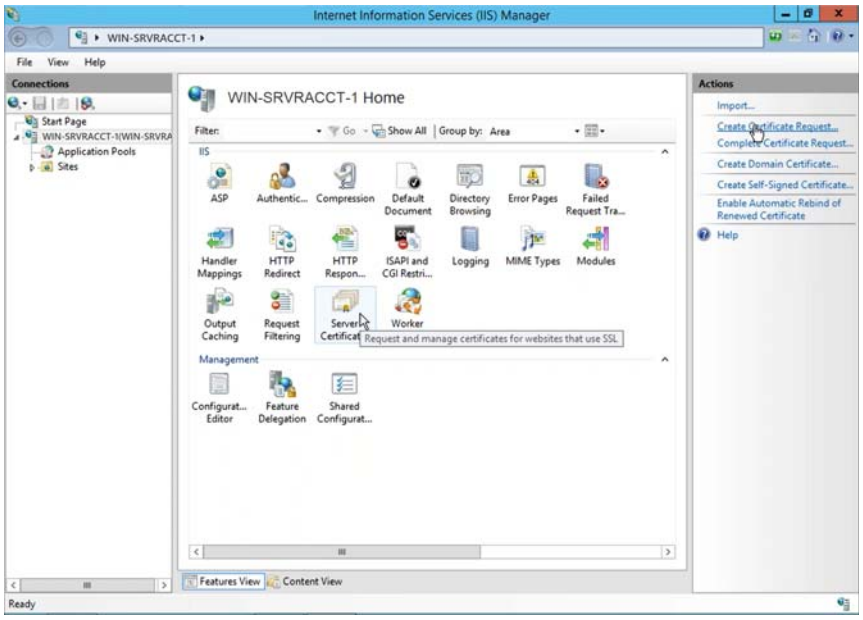
indentifying information, including the private key and a digital signature. Once you have created a CSR, you can use it to request the server certificate.

To create a Certificate Signing Request:

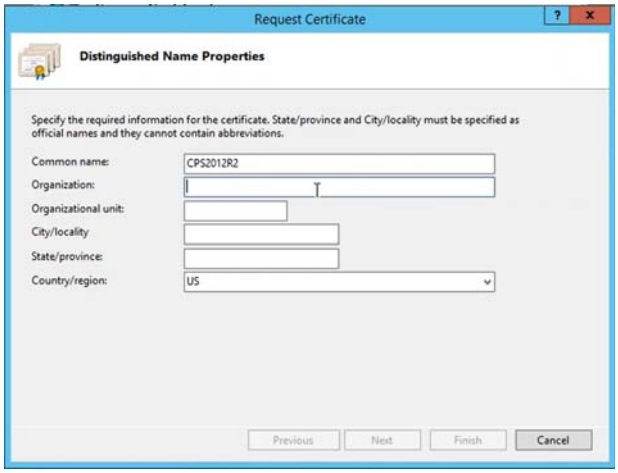
1. On the CA computer, open the IIS Manager.
2. In the **Connections** list on the left, you should see the Certificate Authority you just created. Select your Certificate Authority.



3. In the central pane, select **Server Certificates**.

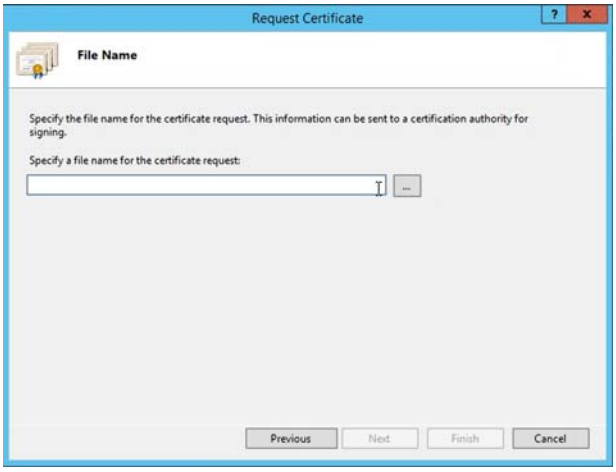


4. In the **Actions** pane, select **Create Certificate Request**. The Request Certificate wizard opens.
5. In the Distinguished Name Properties screen, complete the required information in the form, the click **Next**.



6. In the Cryptographic Service Provider Properties screen, specify the service provider and bit length that should be used to encrypt the certificate, then click **Next**.

7. In the File Name screen, specify the filename and location of the certificate request, then click **Finish**.



8. After completing the certificate request process, locate the text file the CA just created for you at the location you specified in Step 7.

9. Open this file an a text editor. The contents should appear similar to the following:

Keep this file open. You'll need the contents of this certificate request when you request the certificate from the Certificate Authority.

2.2.2 Request the server certificate from the Certificate Authority

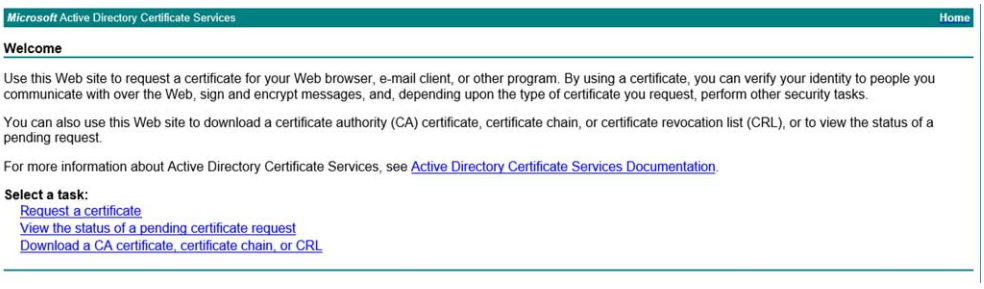
To submit the certificate request to the Certificate Authority

1. In your browser, navigate to the following URL:

   http://<CA_IP_address>/certsrv

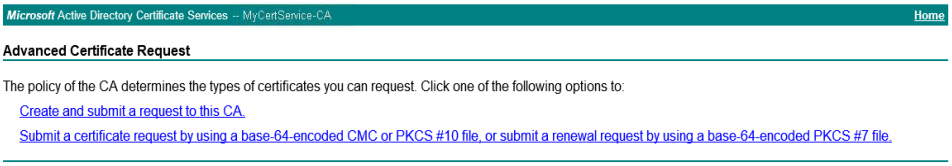
   where <CA_IP_address> is the IP address of the computer where you installed your Certificate Authority.

   The browser should display the following web page:

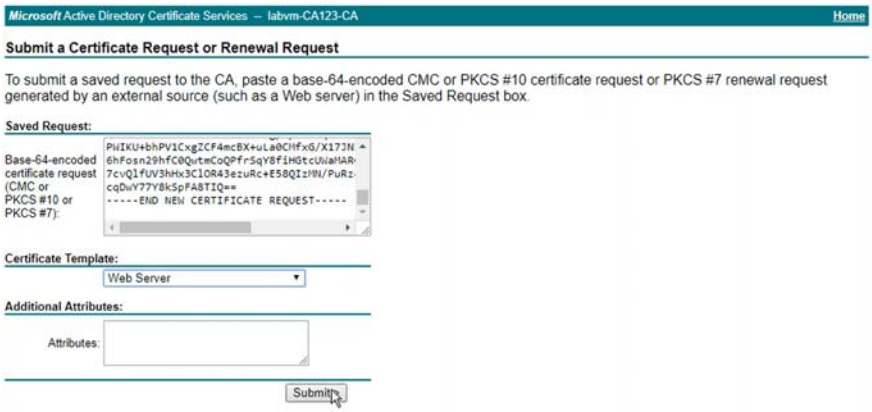


2. Select **Request a Certificate**. The Request a Certificate page appears.

3. On the Request a Certificate page, click **Advanced Certificate Request**. The Advanced Certificate Request page appears.



4. On the Advanced Certificate Request page, select **Submit a certificate request by using a base-64-encoded CMC or PKCS #10 file...**. The Submit a Certificate Request or Renewal Request page appears.



5. In the **Saved Request** field insert the contents of the CSR:
   a) Return to your text editor and copy the contents of the certificate request file.
   b) In the Saved Request section, paste the contents of the CSR file you received from your Certificate Authority.
6. From the Certificate Template drop-down, select **Web Server**.

7. Click **Submit**. The Certificate Authority issues the certificate, and the Certificate Issued page appears.

8. Click **Download certificate**. The certificate is downloaded to your browser's download folder.

Next, you'll need to attach the private key to the certificate and export it.

2.2.3 Exporting the server certificate

At this stage in the process, you should have a signed server certificate file in your Download folder. Before this certificate can be copied to and installed on the PrinterOn Server, you must attach the private key to it.

To attach the private key to the certificate, you can use the Certificates Snap-in in the Microsoft Management Console (MMC).

> **Important!** The Certificates Snap-in is not added to the MMC by default; you must add it yourself. If it has not already been added, add the Certificates Snap-in to the server's Microsoft Management Console before continuing.

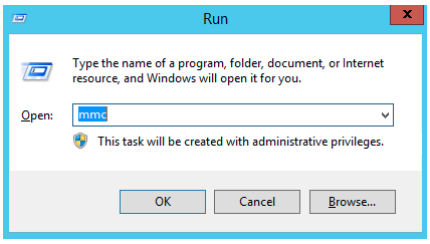
To attach the private key to the server certificate, you'll need to complete the following tasks:.

- Import the server certificate into the Certificate Snap-in.
- Export the server certificate with the private key.

2.2.3.1 Importing the server certificate into the Certificates Snap-in

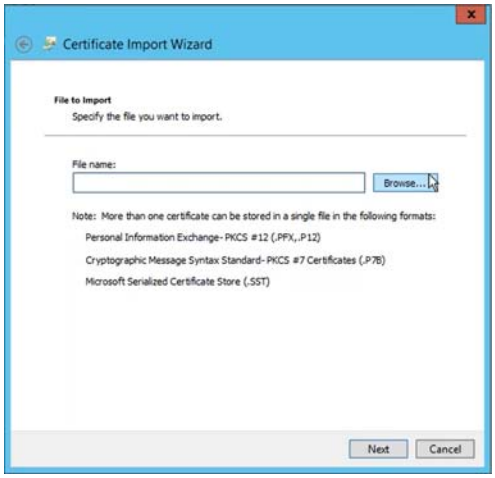
To import your server certificate:

1. Open the Microsoft Management Console:
   a) On your keyboard, press the Windows key + R (**Run)**. The Run dialog appears.

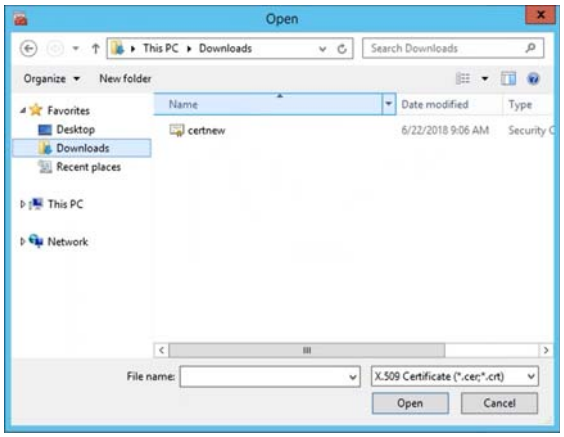


   b) In the **Open** field, enter **mmc**, then click **OK**. The Microsoft Management Console opens.

   If the Certificates Snap-in has been added, you should see **Certificates (Local Computer)** listed in the left pane.
2. Click **Certificates (Local Computer**, then right-click **Personal** > **All Tasks** > **Import...**. The Certificate Import Wizard appears.
3. Click **Next** to display the File To Import screen.



4. Click **Browse**, then navigate to and select your server certificate file.



5. Click **Open** to return to the wizard, then continue through the wizard until the final screen and click **Finish**.

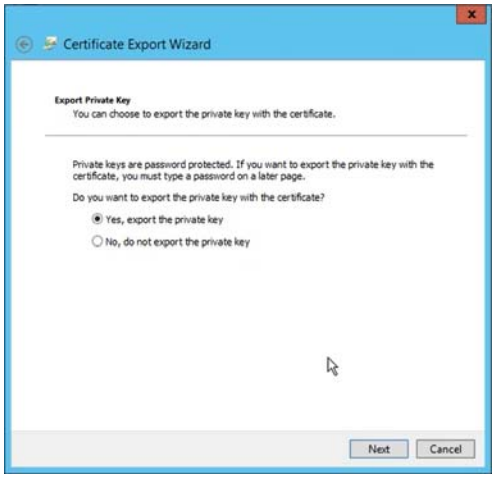
2.2.3.2 Exporting the certificate with the private keys

Now that you have imported the server certificate, the next step is to export it with the private key.

To export the server certificate with the private keys:

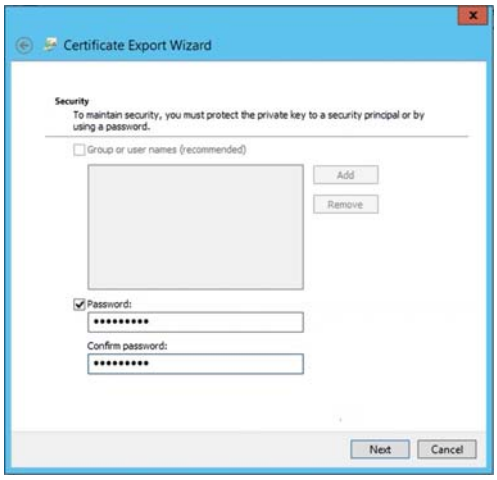
1. In the left pane of the MMC, click **Personal** > **Certificates**. The server certificate should now be listed.
2. Right-click the server certificate and select **All Tasks** > **Export**. The Certificate Export Wizard appears.
3. Click **Next** to display the Export Private Key screen.

4. In the Export Private Key screen, select **Yes, export the private key**, then click **Next**.



5. In the Export File Format screen, select **Export all extended properties**, then click **Next**.

6. In the Security screen, specify and confirm a password that will be used to protect the certificate, then click **Next**.



7. In the File to export screen, specify the location and filename you want to export the certificate to, then click **Next**.
8. Click **Finish** to complete the export process.
9. Locate the server certificate in the location you exported it to, then transfer the .pfx certificate file to the PrinterOn server. You can email the certificate file, or save it to a location that is accessible to the PrinterOn Server.

Later, you'll install this certificate on the PrinterOn Server. For more information, see Chapter 4: Configuring your PrinterOn service to use the server certificate.

2.3 Exporting the CA root certificate

You have two options to secure client devices:

- Use the CA to create and export a client certificate and install it on all client devices.
- Import the CA root certificate on all client devices.

In a development scenario, it is simpler to simply export the CA root certificate and install it on the client device; there is no security benefit gained by creating an extra certificate specifically for client devices.

You can export the root certificate from the CA using the Certificates Snap-In in the Microsoft Management Console (MMC).

Important! The Certificates Snap-in is not added to the MMC by default; you must add it yourself. If it has not already been added, add the Certificates Snap-in to the server's Microsoft Management Console before continuing.

To export the root certificate:

1. In the left pane of the MMC, click **Trusted Root Certification Authorities** > **Certificates**.
2. Locate the root certificate generated by the local CA you installed.
3. Right-click the root certificate and select **All Tasks** > **Export**. The Certificate Export Wizard appears.
4. Click **Next** to accept the default values in the next few screens, until you reach the File to Export screen.
5. In the File to Export screen, specify the location and filename you want to export the certificate to, then click **Next**.
6. Click **Finish** to complete the export process.

Later, you'll distribute this certificate to all client devices. For more information, see Chapter 5: Installing your local CA on client devices.

3

Creating a local Certificate Authority on macOS

To create a local Certificate Authority and set up and deploy your certificates on macOS, you must complete the following tasks:

1. Create the local Certificate Authority.
2. Create and export the server certificate.
3. Export the CA root certificate.

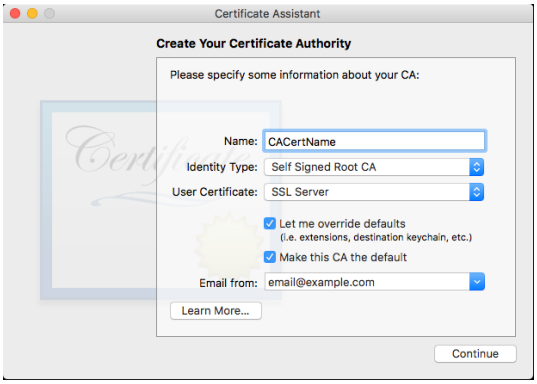
You can use the Keychain Access utility to complete all of these tasks.

3.1 Creating a local Certificate Authority on macOS

To create your own local Certification Authority on macOS:

1. In Finder, choose **Go** > **Utilities** > **Keychain Access**. The Keychain Access utility launches.
2. In Keychain Access, choose **Keychain Access** > **Certificate Assistant** > **Create a Certificate Authority**. This launches the Certificate Assistant wizard, which leads you through the process of creating a Certification Authority .

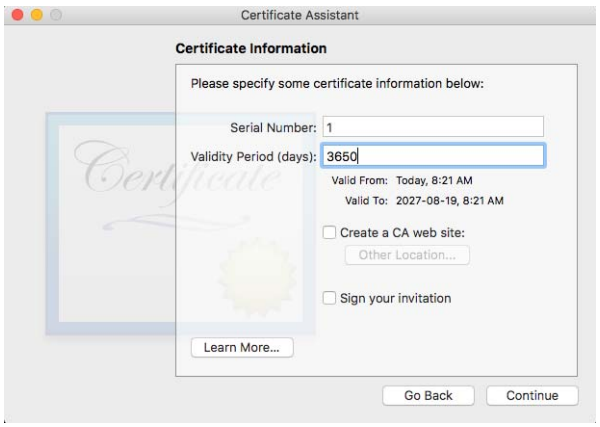
3. In Certificate Assistant, complete the Create Your Certification Authority screen then click **Continue**.



Setting	Description
Name	A unique name for the CA.
Identity type	Select **Self Signed Root CA**.
User Certificate	Select **SSL Server**.
Let me override defaults	Enable this setting.
Make this CA the default	Enable this setting.
Email from:	The email address used by this CA to distribute certificates.

4. In the **Validity Period** field of the Certification Information screen, specify the number of days the certificate will remain valid for, then click **Continue**.

> **Important!** Don't modify Serial Number.

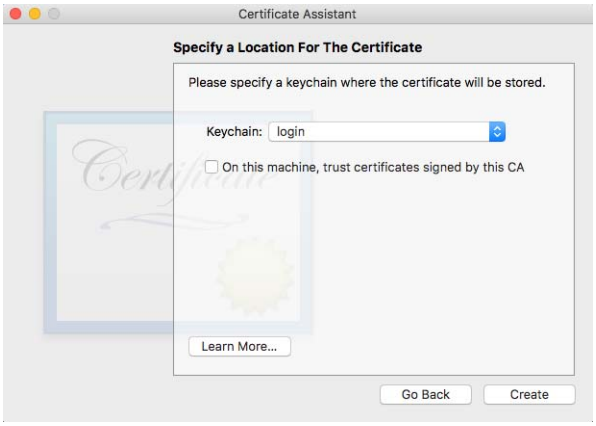


5. Click **Continue**, then, in the following screen, specify your personal identifying information, if you choose.

   If you are simply using this certificate for non-production tasks (for example, proof of concept or testing), then in most cases, this information is unnecessary, and the defaults should be suitable.

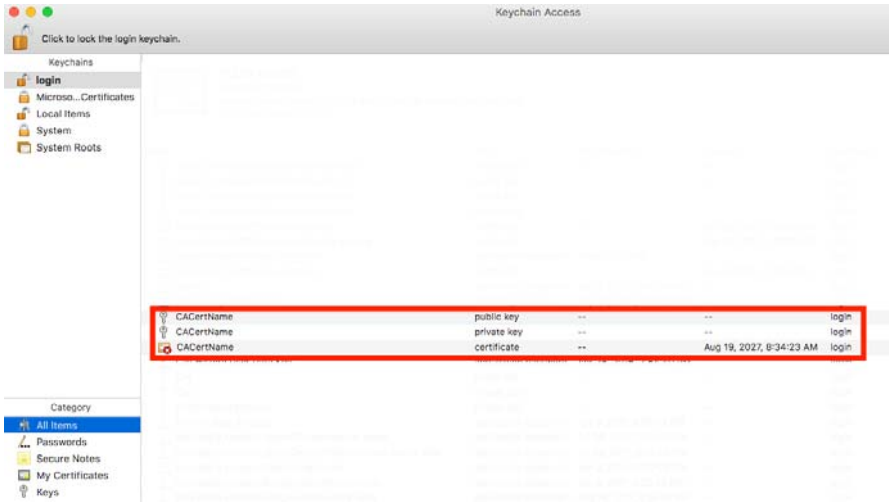
6. Proceed through the remaining screens. Again, in most cases, the default values should be suitable.

7. In the Specify a Location For The Certificate screen, screen, select **login** as the keychain where your certificate is stored, then click **Create**.



   Keychain Access creates the certificate. Once it is complete, you can close the Certificate Assistant window and confirm your keychain items.

8. To confirm the keychain items, return to the Keychain Access window, then open the **login** keychain and locate your CA's root certificate, public key, and private key.



9. Confirm that the certificate is trusted:
    a) Double-click the certificate to open the Certificate Options dialog.
    b) For the **When using this certificate** option, choose **Always Trust**.
    c) Close the dialog.

With the CA created, you can now:

- Create a server certificate for the PrinterOn Server.
- Export the root certificate to distribute it to client devices.

3.2 Creating and exporting a signed server certificate

Once you've created your Certificate Authority and have the root certificate, you can use it to issue the server certificate for the PrinterOn server. This section describes the process for creating a certificate for the PrinterOn server from your local Certification Authority.

You'll need to complete the following tasks:

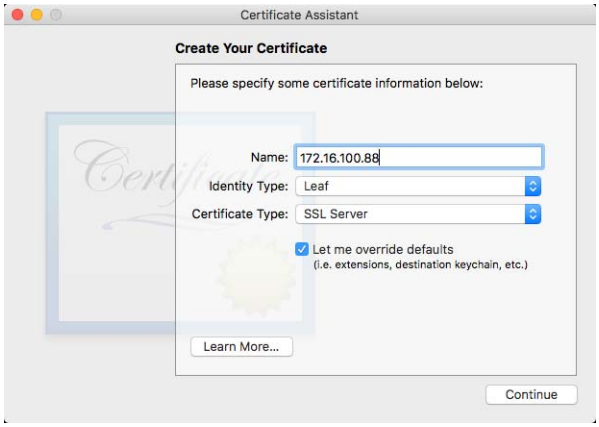
- Create the server certificate.
- Export the server certificate.

3.2.1 Creating the server certificate

To create a server certificate on macOS:

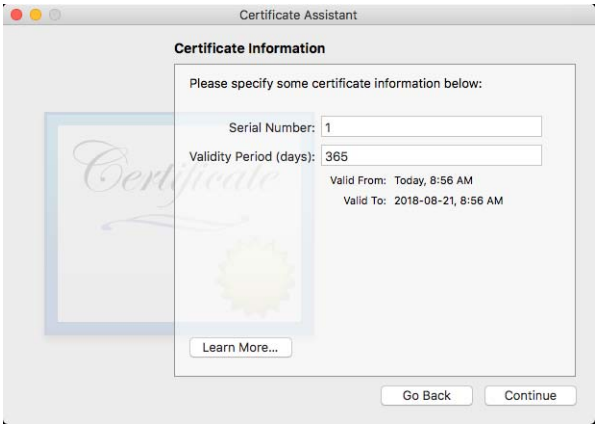
1. In Finder, choose **Go** > **Utilities** > **Keychain Access**. The Keychain Access utility launches.
2. In Keychain Access, choose **Keychain Access** > **Certificate Assistant** > **Create a Certificate**. This will launch Certificate Assistant, which leads you through the process of creating a certificate.

3. In Certificate Assistant, complete the Create Your Certificate screen, then click **Continue**.



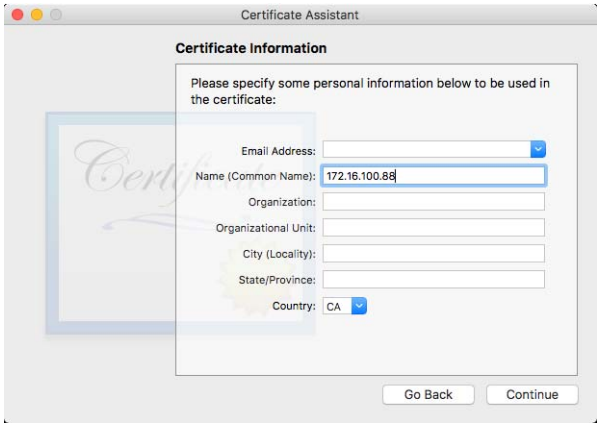
Setting	Description
Name	The IP address of the PrinterOn Server. This value must be an IP address, not a hostname.
Identity Type	Select **Leaf**.
Certificate Type	Select **SSL Server**.
Let me override details	Enable this setting.

4. Complete the Certificate Information screen, then click **Continue**.



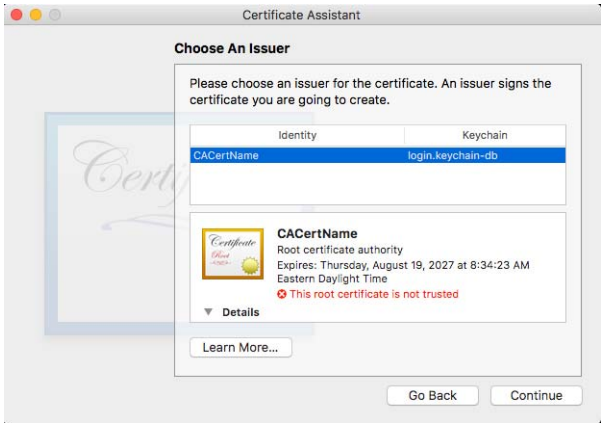
Setting	Description
Serial Number	Enter any value.
Validity Period	Specify the length of time you want the certificate to remain valid.

5. Complete the Certificate Information screen, then click **Continue**.



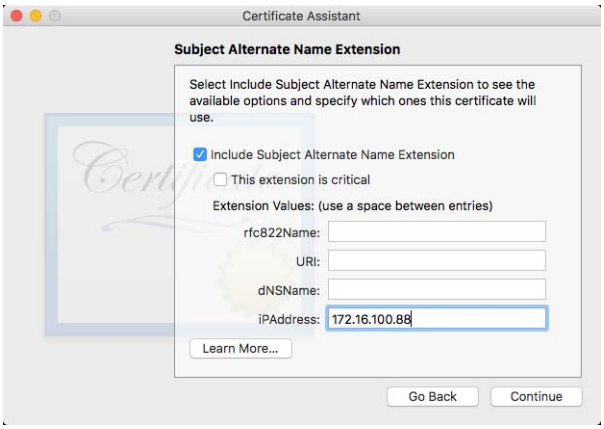
> **Note:** If you are only using this certificate for non-production tasks (for example, proof of concept or testing), then only the **Name (Common Name)** setting needs to be defined.
>
> The **Name** value must be the IP address of the PrinterOn Server, that is, it must match the **Name** value in Step 3.

6. In the Choose an Issuer screen, select the Certification Authority that you created in Creating a Certificate Authority on MacOS, then click **Continue**.



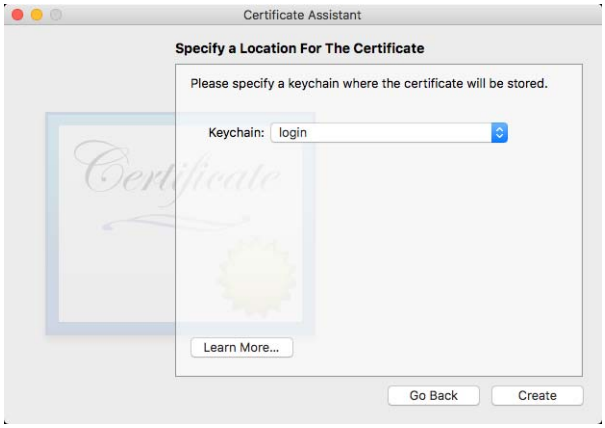
7. Click **Continue** to proceed through the next four screens. until you arrive at the **Subject Alternative Name Extension** screen. In most cases, the default values should be suitable.

8. In the Subject Alternative Name Extension screen, check the Include **Subject Alternative Name Extension**, then enter the same IP address for the PrinterOn server and click **Continue**.



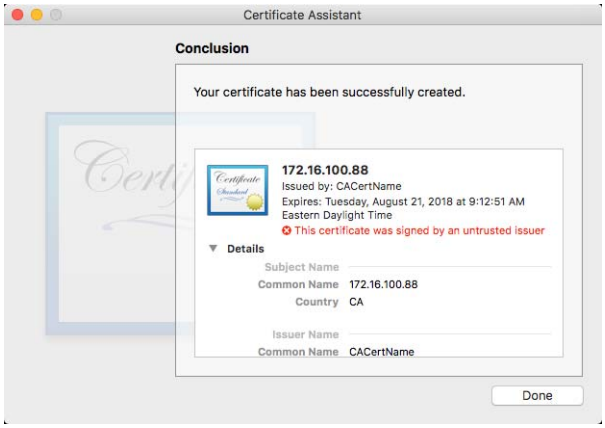
> **Note:** The IP address should be the same address entered in Step 3 and Step 5. The remaining fields can be left blank.

9. In the Specify a Location for the Certificate screen, select **login** as the keychain where your certificate is stored, then click **Create**.

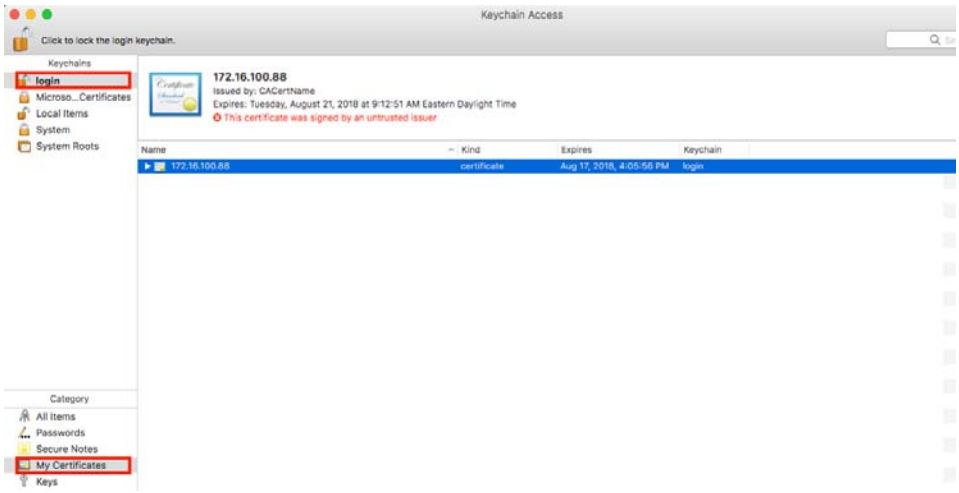


Keychain Access creates the certificate.

10. In the Conclusion screen, click **Done** to close the Certificate Assistant window and confirm your keychain items.



11. To confirm the kechain items, return to the Keychain Access window, then open the **login** keychain and locate your server certificate (identified by the IP address of the PrinterOn server).

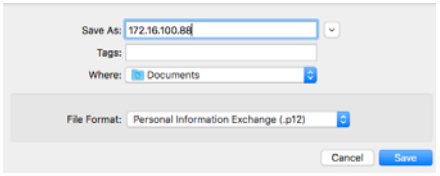


You can now export the server certificate so that it can be copied to and imported on the PrinterOn server.

3.2.2 Exporting the server certificate

Once you have the server certificate in your keychain, you can export to the PrinterOn server for use in your tests. This section describes various export scenarios.

1. In Keychain Access, select the server certificate (identified by the PrinterOn servers IP address).
2. Choose **File** > **Export** Items. The Export Certificate dialog appears.



3. Configure your export options.
4. Click **Save**.
5. Transfer the .pfx certificate file to the PrinterOn server. You can email the certificate file, or save it to a location that is accessible to the PrinterOn Server.

Later, you'll install this certificate on the PrinterOn Server. For more information, see Chapter 4: Configuring your PrinterOn service to use the server certificate.

3.3 Exporting the root certificate

With the CA created, you have two options for using it to secure client devices:

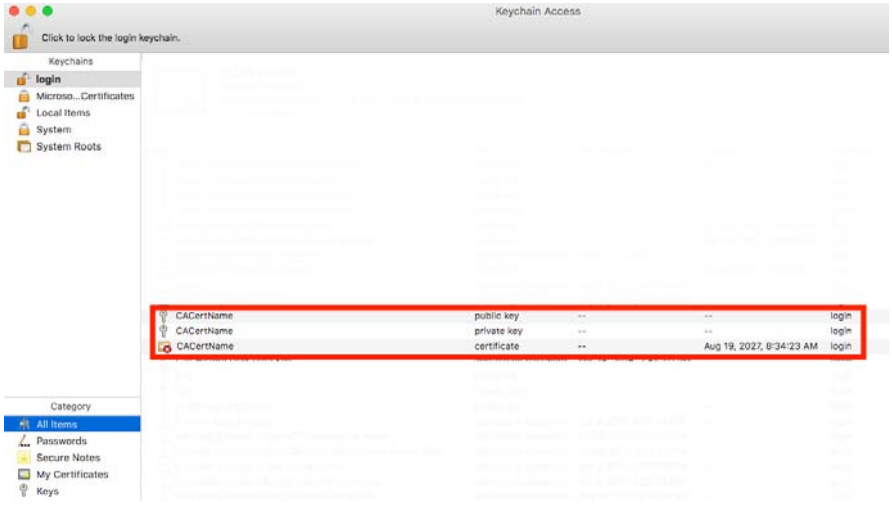
- Use the CA to create and export a client certificate and install it on all client devices.
- Export the CA itself and install it on all client devices.

In a development scenario, it is simpler to simply export the CA; there is no security benefit gained by creating an extra certificate specifically for client devices.

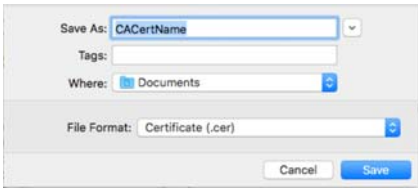
To export the CA:

1. In the Keychain Access window, then open the **login** keychain.

2. Locate and select your CA's root certificate and public/private keys.



3. Choose **File** > **Export** Items.



4. In the Export dialog, confirm the export options, then click **Save**.

Later, you'll need distribute this certificate to all client devices. For more information, see Chapter 5: Installing your local CA on client devices.

4

Configuring your PrinterOn service to use the server certificate

To enable the PrinterOn server to use the server certificate issued from your local Certificate Authority, you'll need to complete the following tasks.

- Installing the server certificate on the PrinterOn server.
- Modifying the PrinterOn configuration files to use point to the server certificate.

4.1 Installing the server certificate on the PrinterOn server

To install the server certificate on the PrinterOn server, you can install the you'll need to complete the following tasks:

1. If it has not already been added, add the Certificates Snap-in to the server's Microsoft Management Console.
2. Import the server certificate to the PrinterOn Server.

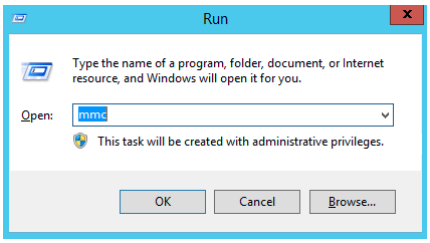
4.1.1 Importing the server certificate

If the Certificates Snap-in is added to the Microsoft Management Console, you can import the server certificate.

Important! Before you begin, ensure that you have transferred the server certificate from the CA computer to the PrinterOn Server.

To import the server certificate:

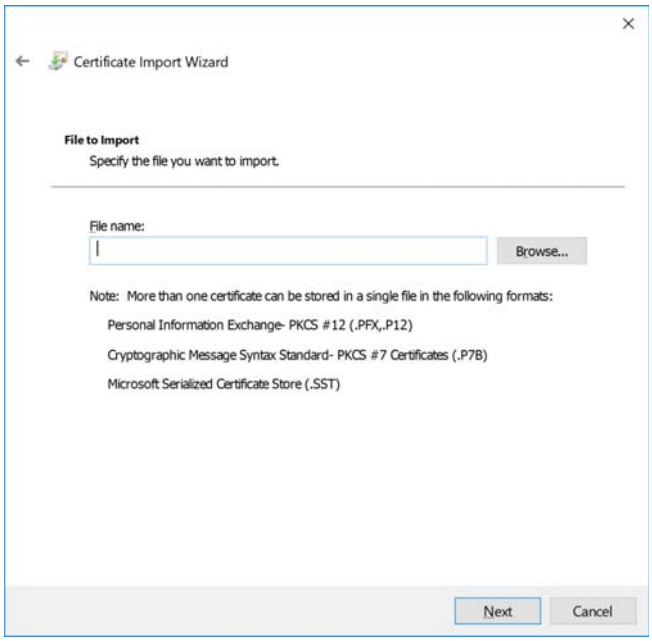
1. Open the Microsoft Management Console:
   a) On your keyboard, press the Windows key + R (**Run)**. The Run dialog appears.



   b) In the **Open** field, enter **mmc**, then click **OK**. The Microsoft Management Console opens.

   If the Certificates Snap-in has been added, you should see **Certificates (Local Computer)** listed in the left pane.
2. Click **Certificates (Local Computer**, then right-click **Personal** > **All Tasks** > **Import...**. The Certificate Import Wizard appears.
3. At the Welcome screen of the Certificate Import Wizard, click **Next**.

4. In the File to Import screen, browse to the root certificate, then click **Next**.



5. In the Certificate Store screen, choose the location where the Import Wizard will store the certificate, then click **Finish**.

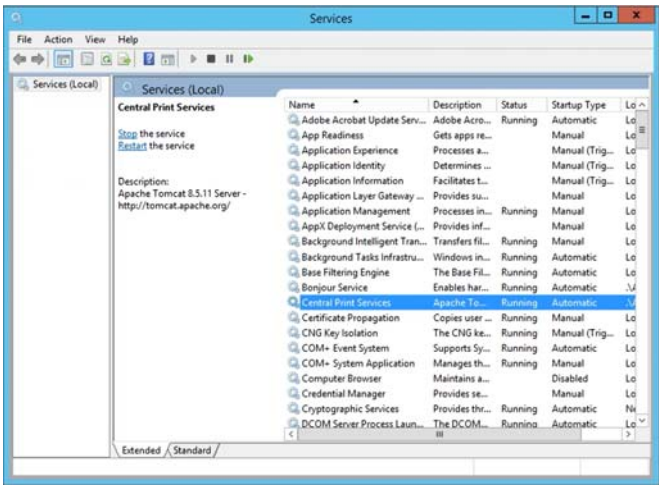
After importing the certificate to the PrinterOn server, you can modify the PrinterOn server configuration files so that PrinterOn uses the server certificate from the local CA.

4.2 Modifying the PrinterOn configuration files to use point to the server certificate

After you installed the server certificate from your local Certificate Authority on the PrinterOn server, you'll need to make a small modification to PrinterOn's Tomcat configuration file to ensure that the PrinterOn server is using this certificate for incoming TLS requests from clients.

To modify the PrinterOn Tomcat configuration file:

1. In the Windows Server Managers, click Tools > Services. The Services dialog appears:



2. In the list of services, locate and stop the Central Print Services.
3. In a text editor, open C:\Program Files (x86)\PrinterOn Corporation\Apache Tomcat\Conf\server.xml.
4. Locate the following entry:

```
<!-- Define a SSL HTTP/1.1 Connector on port 443
<Connector port="443"
    protocol="com.printeron.tomcat.http11.Http11NioProtocol"
    SSLEnabled="true" maxThreads="150" scheme="https"
    secure="true" clientAuth="false"
    sslEnabledProtocols="TLSv1.1,TLSv1.2"
    keystoreFile="${pon.data.root}\KeyStore\keystore"
    keystorePass="rz6KZSpMD7fy7Co6UfIBmw%3D%3D"
/>
```

5. Locate the keystore properties. Modify them as follows:

```
<!-- Define a SSL HTTP/1.1 Connector on port 443
<Connector port="443"
    protocol="com.printeron.tomcat.http11.Http11NioProtocol"
    SSLEnabled="true" maxThreads="150" scheme="https"
    secure="true" clientAuth="false"
    sslEnabledProtocols="TLSv1.1,TLSv1.2"
    keystoreType="PKCS12"
    keystoreFile="C:\Certs\<server_cert_name>"
    keystorePass="<server_cert_pw>"
/>
```

where <*server_cert_name*> and <*server_cert_pw*> are the name and password you defined when you created the server certificate with your Windows CA or macOS CA.

6. Save the file.
7. Return to the Windows Server Manager Service dialog and restart the Central Print Services.

5

Installing your local CA on client devices

With your local CA installed, and the PrinterOn server properly configured with a server certificate, the last step is to secure the the client devices that need to communicate with the server.

You have two options to secure client devices:

- Use the CA to create and export a client certificate and install it on all client devices.
- Import the CA on all client devices.

In a development scenario, it is simpler to simply export the CA and install it on the client CA; there is no security benefit gained by creating an extra certificate specifically for client devices.

The process for installing the CA depends on the OS of the client device:

- Installing the CA root certificate on Windows devices
- Installing the root certificate on iOS devices
- Installing the root certificate on Android devices

5.1 Installing the CA root certificate on Windows devices

To import the certificates to client Windows computers, you can install the you'll need to complete the following tasks:

1. If it has not already been added, add the Certificates Snap-in to the server's Microsoft Management Console.
2. Import the CA root certificate.

5.1.1 Importing the CA root certificate

Once the Certificates Snap-in is added to the Microsoft Management Console, you can import the certificate root.

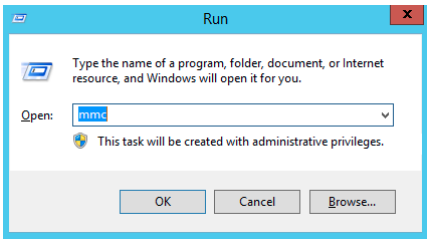
To install the root certificate on Windows devices, you must first export the certificate and transfer the certificate file to the device. You can make the certificate accessible to the client Windows device by:

- emailing the exported certificates to an account that is accessible from the client Windows device.
- putting the exported certificates on cloud storage in an account that is accessible from the client Windows device.

Important! This task only makes the root certificate available to Internet Explorer. If you are using Firefox, Google Chrome, or some other browser, you'll need to import the root certificate separately for that application.

To import the root certificate:

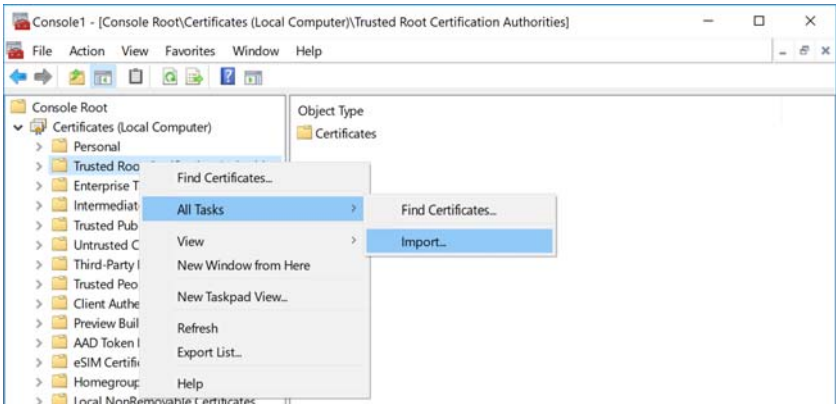
1. Open the Microsoft Management Console:
   a) On your keyboard, press the Windows key + R (**Run)**. The Run dialog appears.



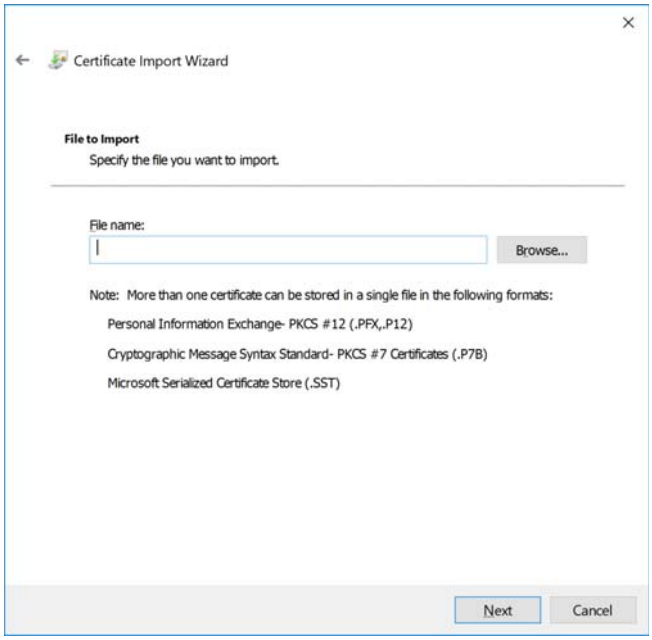
   b) In the **Open** field, enter **mmc**, then click **OK**. The Microsoft Management Console opens.

If the Certificates Snap-in has been added, you should see **Certificates (Local Computer)** listed in the left pane.

2. Right-click **Trusted Root Certification Authorities**, then select **All Tasks** > **Import...**.



3. At the Welcome screen of the Certificate Import Wizard, click **Next**.
4. In the File to Import screen, browse to the root certificate.



5. Click **Next**.
6. Click **Finish**.

5.2 Installing the root certificate on iOS devices

To install the root certificate on iOS devices, you must first export the certificate and transfer the certificate file to the device. You can make the certificate accessible to the client iOS device by:

- emailing the exported certificates to an account that is accessible from the client iOS device.
- putting the exported certificates on cloud storage in an account that is accessible from the client iOS device.

To install the root certificate:

1. Locate the 's root certificate.
2. Tap the certificate.
3. Click **Install**.
4. Click **Done**.
5. Verify that the certificate has been installed successfully:
   a) Go to **Settings** > **General** > **Profiles & Device Management**.
   b) Click the certificate. It should you should see Verified.
6. Ensure that the root certificate has full trust enabled:
   a) Go to **Settings** > **General** > **About** > **Certificate Trust Settings**.
   b) If full trust is not enabled, enable it.
7. On Safari, browse to the PrinterOn Web Print URL. You should see a lock symbol under the address bar.

5.3 Installing the root certificate on Android devices

To install the root certificate on Android devices, you must first export the certificate and transfer the certificate file to the device. You can make the certificate accessible to the client Android device by:

- emailing the exported certificates to an account that is accessible from the client Android device.
- putting the exported certificates on cloud storage in an account that is accessible from the client Android device.

To install the root certificate:

1. On your Android device, open **Settings**.

2. Locate and open the **Security** settings.
3. In the Security settings, under **Credential storage**, tap **Install from device storage**.
4. In the top left, open the menu. The **Open from** list appears.
5. In the **Open from** list, tap the location where you saved the certificate.
6. Locate and tap the certificate file.

> **Note:** If necessary, enter the key store password and tap **OK**.

The Name the certificate dialog appears.

7. In the **Certificate Name** field, type a name for the certificate.
8. In the **Credential Use** drop-down, choose **VPN and apps**.
9. Click **OK**.

> **Note:** If you haven't already set a PIN, pattern, or password for your device, you'll be asked to set one up.

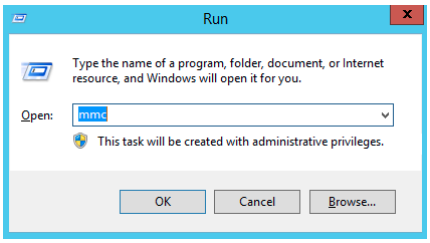
A

Adding the Certificates Snap-in to the Microsoft Management Console

Several tasks in this guide use the Certificates Snap-In in the Microsoft Management Console. By default, this snap-in is not available in the console; to access it, you first need to add it.

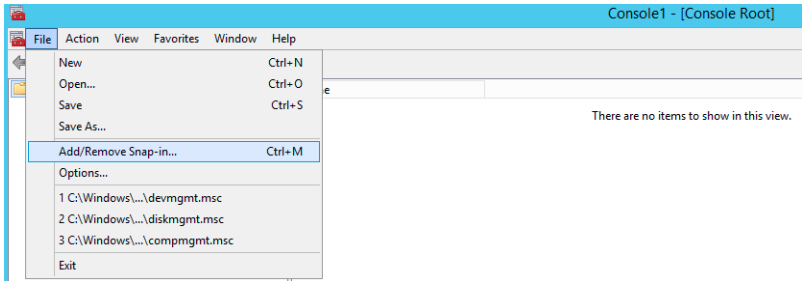
To add the Certificates Snap-In:

1. On the PrinterOn server computer, open the Microsoft Management Console:
   a) On your keyboard, press the Windows key + R (**Run)**. The Run dialog appears.

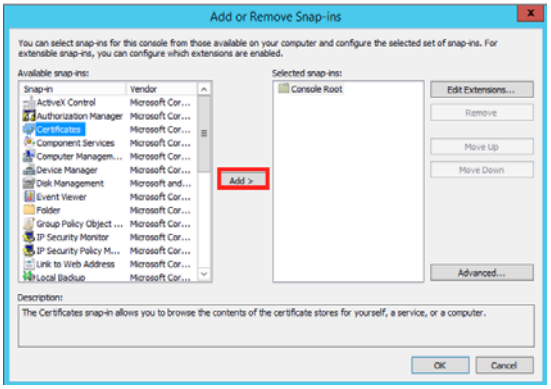


   b) In the **Open** field, enter **mmc**, then click **OK**. The Microsoft Management Console opens.

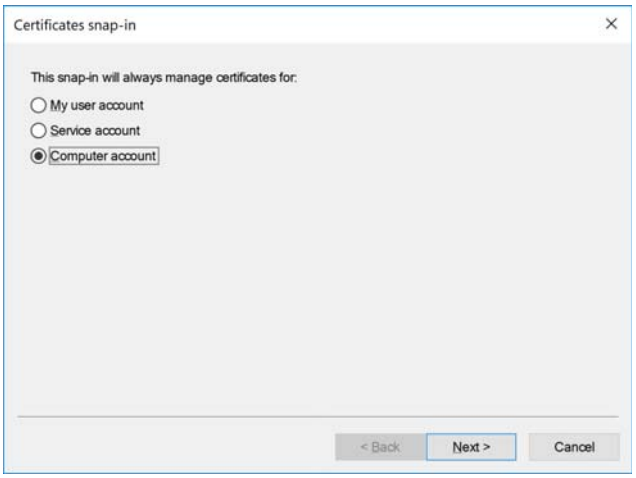
2. In the Console, click **File** > **Add/Remove Snap-in**. The Add or Remove Snap-ins dialog appears.



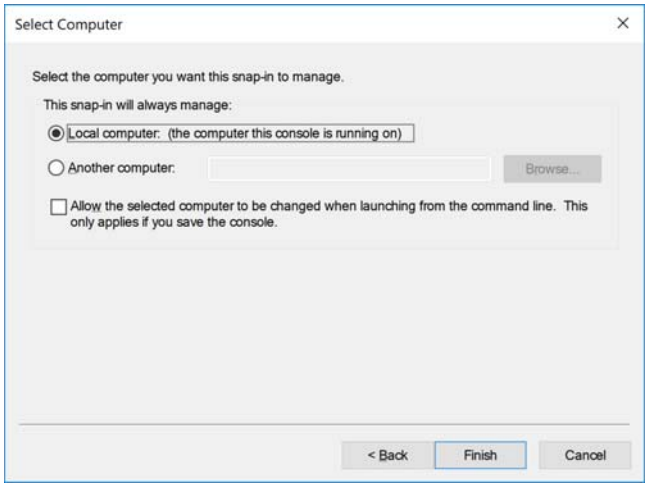
3. From the **Available Snap-ins** list, select **Certificates**, then click **Add** to move it to the **Selected Snap-ins** list.



4. Once added to the Selected Snap-ins list, a dialog appears to allow you to specify which accounts the Certificates are managed for. As a best practice, you should select **Computer Account**.



5. In the Select Computer screen, select **Local computer**, since this is the computer that is hosting the PrinterOn server.



6. Click **Finish**.
7. In the Add or Remove Snap-ins dialog, click **OK**.

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