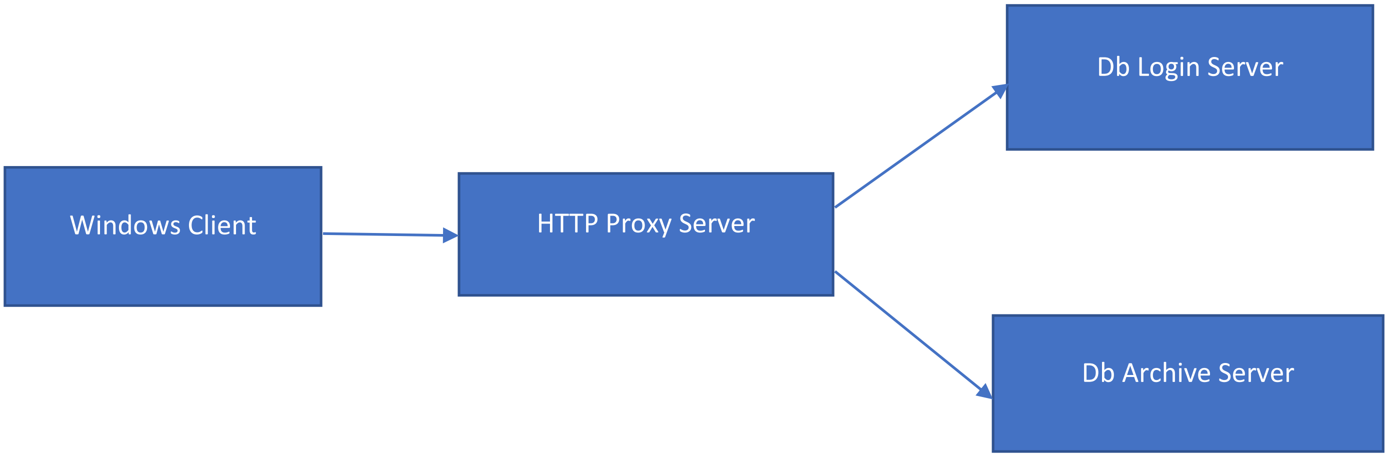
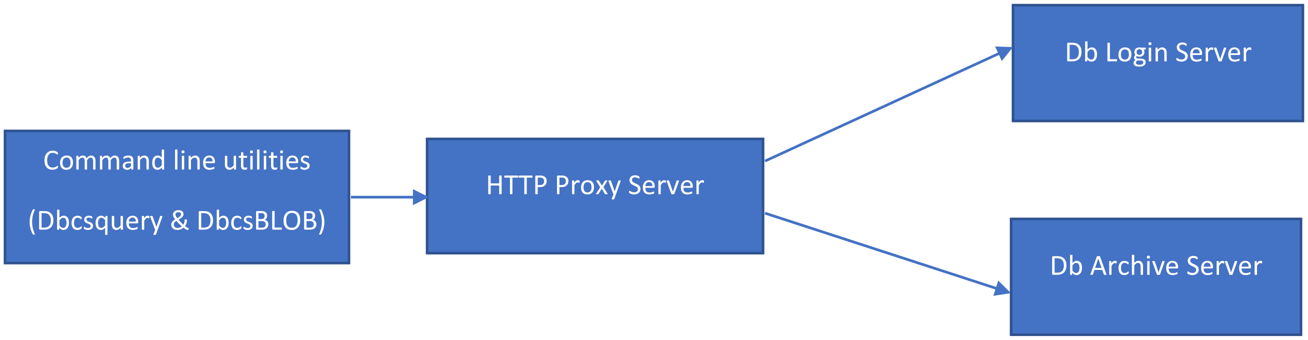
HTTP(S) COMMUNICATION

- From 4.6 onwards, communication between any windows client & Db Login Server or Db Archive server will be done via HTTP proxy Server.

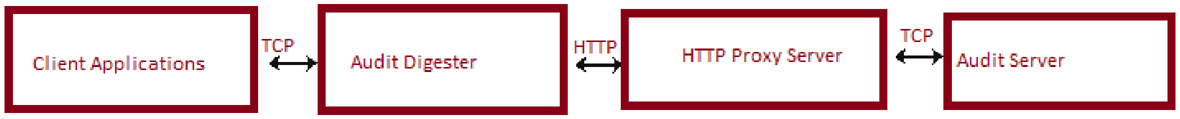


- Communication between command line utilities **like Dbcsquery,DbcsBLOB** with Db Login Server or Db Archive server will be done via HTTP proxy Server.



DbAudit On HTTP(S)

- Communication between Audit Digester & Audit Server will be done on http(s) using HTTP proxy server



- Steps to Configure DbAudit on http(s) in Audit Digester
  1. Manually delete DbAuditDigester.exe that is on "C:\Program Files (x86)\Common Files\V1"
  2. Run AuditDigesterSetup.msi
  3. Open DbAuditDigester.exe.config that is on "C:\Program Files (x86)\Common Files\V1"

     > If we want to use Over HTTP

     UseHttp = True
     HttpProxyServer = "http://localhost:3001"
     isselfsigned = false

     > If we want to use Over HTTPS with self signed certificate

     UseHttp = True
     HttpProxyServer = "https://localhost:3001"
     isselfsigned = True

     > If we want to use Over HTTPS with trusted certificate

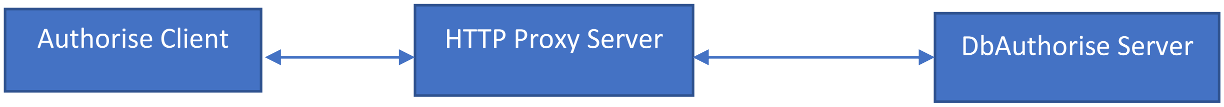
     UseHttp = True
     HttpProxyServer = "https://localhost:3001"
     isselfsigned = false

     > If we want to use Over TCP then make value false of UseHttp key.

     UseHttp = false
     HttpProxyServer = "http://localhost:3001"
     isselfsigned = false

DbAuthorise On HTTP(S)

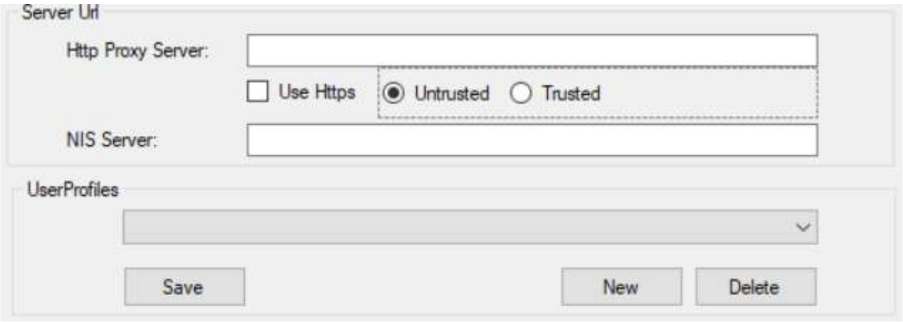
- Communication between Authorise client & Authorise server will be done on http(s) using HTTP proxy server



❖ How to configure HTTP Proxy Server?

->During Installation ,user has to enter http proxy server URL.URL will be http://ServerAdress:Port **OR**

https://ServerAdress:Port



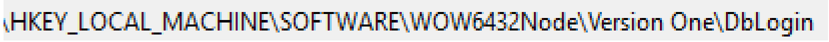
Server Url

Http Proxy Server:

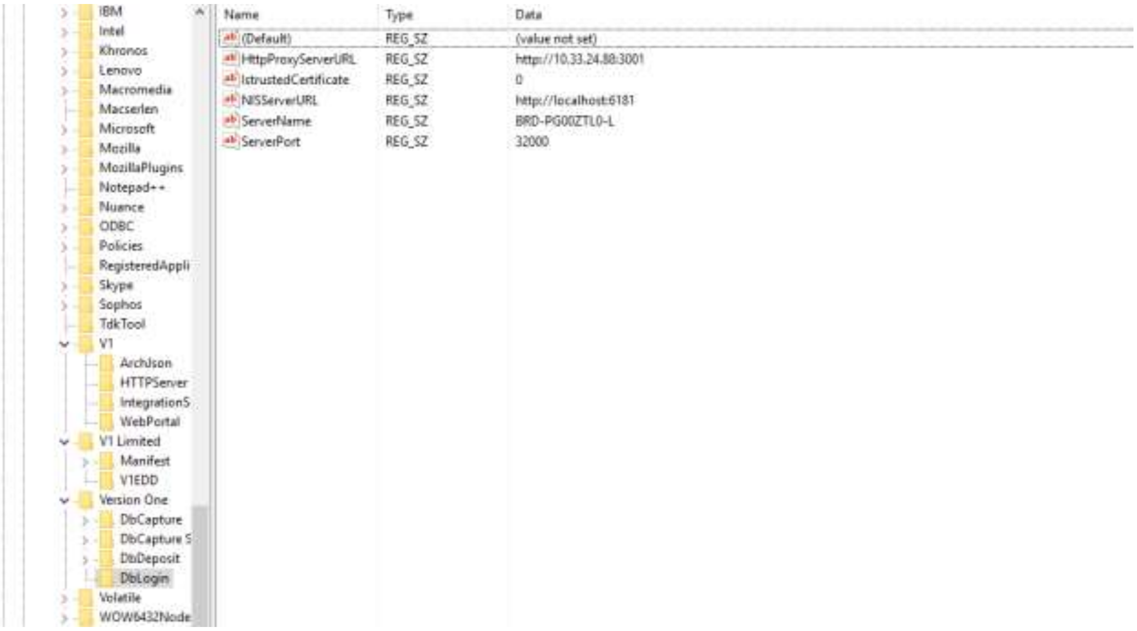
□ Use Https ● Untrusted ○ Trusted

NIS Server:

UserProfiles



->Http Proxy server URL is stored in Registry.User can change URL from registry.(\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Version One\DbLogin)

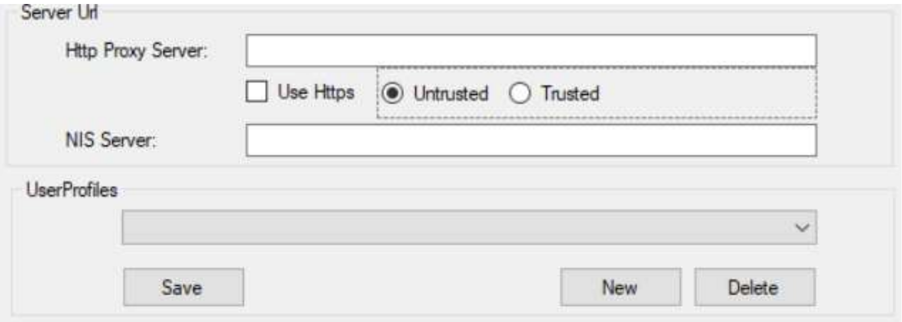


Name	Type	Data
(Default)	REG_SZ	(value not set)
HttpProxyServerURL	REG_SZ	http://10.33.24.88:3001
IstrustedCertificate	REG_SZ	0
NISServerURL	REG_SZ	http://localhost:6181
ServerName	REG_SZ	BRD-PG00ZTL0-L
ServerPort	REG_SZ	32000

- Is it possible to establish connection on https?

->Yes,it is possible to establish communication over https instead of http.

->During Installation, User has to select “Use https” checkbox.Now user is having two option.



Server Url

Http Proxy Server:

□ Use Https ● Untrusted ○ Trusted

NIS Server:

UserProfiles

1.Upon Selecting Untrusted Mode

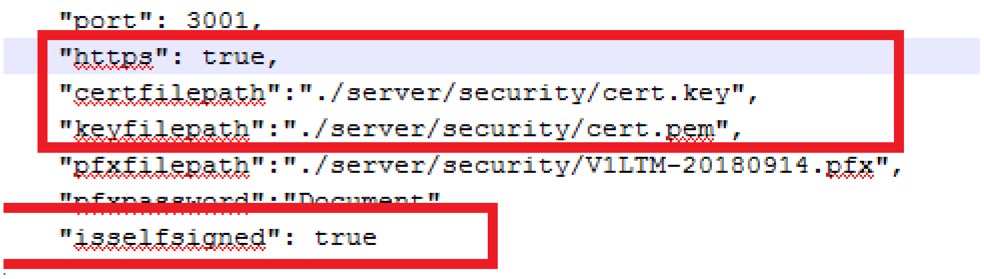
->During Untrusted mode,Self-signed certificate will be considered & it has not been signed by a trusted Certificate Authority. By default,untrusted certificate will be used from following path.

- Certificate Path:- "./server/security/cert.key",
- Key Path:- "./server/security/cert.pem"

->User can also use their pem & key file in this mode

->Certificate Internal path can be changed from ./HTTPServer/config.local.json

->Set “isselfsigned” value to true



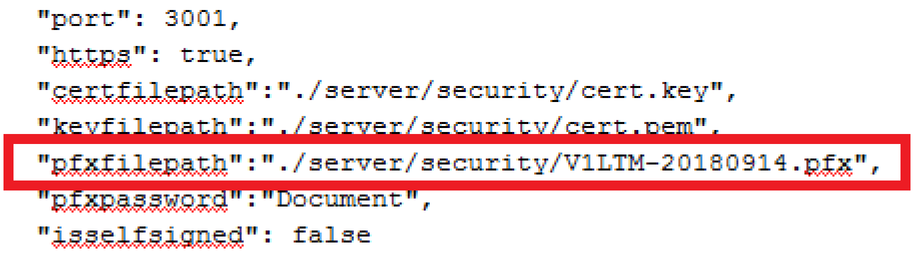
```
    "port": 3001,
    "https": true,
    "certfilepath":"./server/security/cert.key",
    "keyfilepath":"./server/security/cert.pem",
    "pfxfilepath":"./server/security/V1LTM-20180914.pfx",
    "pfxpassword":"Document"
    "isselfsigned": true
```

2.Upon Selecting Trusted Mode

->During trusted mode, certificate which has been signed by trusted authority will be uploaded on following path.

->Note that only PFX type certificate is supported in trusted mode.

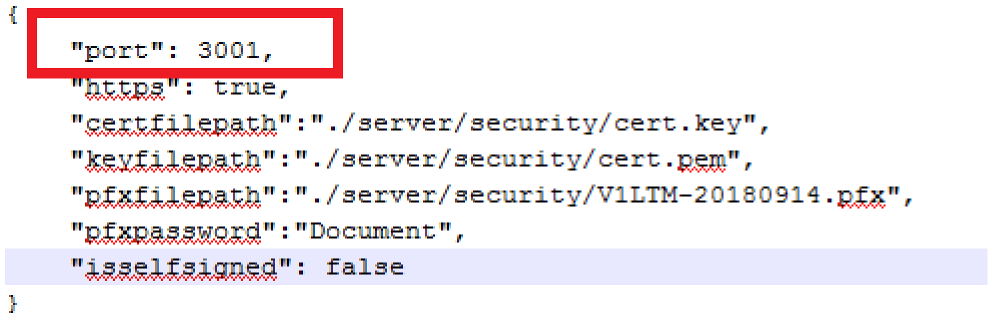
->Certificate Internal path can be changed from ./HTTPServer/config.local.json



```
   "port": 3001,
   "https": true,
   "certfilepath":"./server/security/cert.key",
   "keyfilepath":"./server/security/cert.pem",
   "pfxfilepath":"./server/security/V1LTM-20180914.pfx",
   "pfxpassword":"Document",
   "isselfsigned": false
```

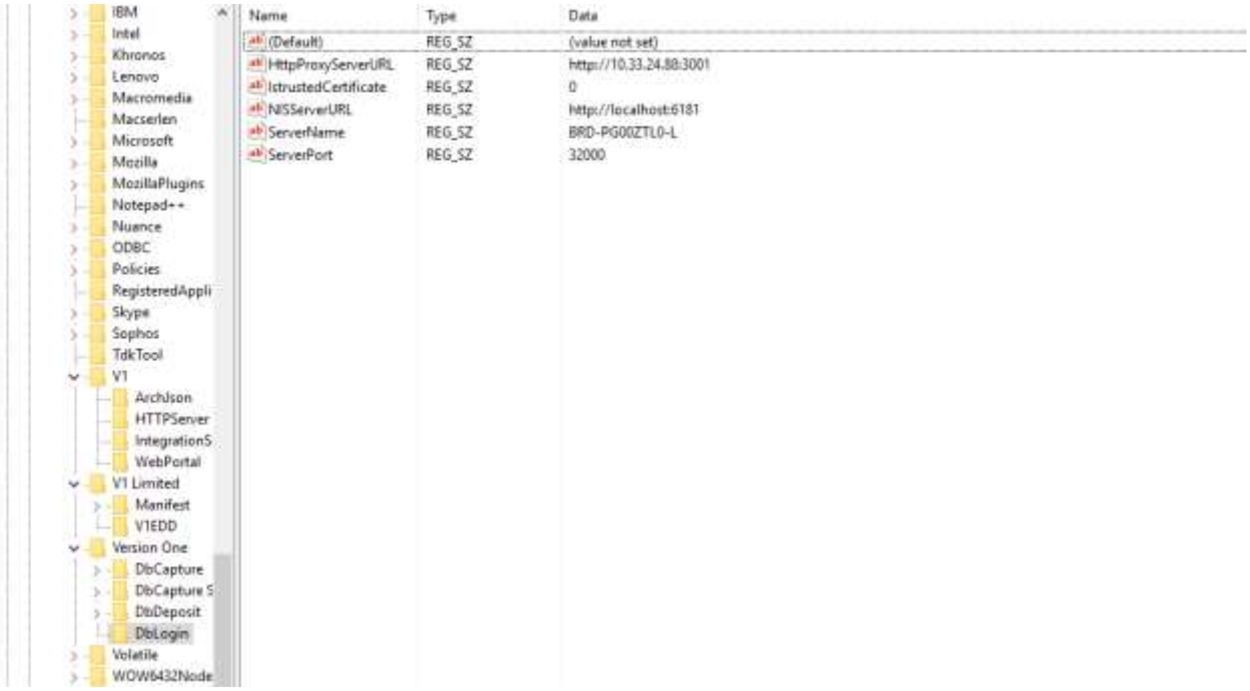
- Is it possible to change http proxy server port?

->Yes, we can change port of http proxy server from ./HTTPServer/config.local.json



```
{
    "port": 3001,
    "https": true,
    "certfilepath":"./server/security/cert.key",
    "keyfilepath":"./server/security/cert.pem",
    "pfxfilepath":"./server/security/V1LTM-20180914.pfx",
    "pfxpassword":"Document",
    "isselfsigned": false
}
```

->Make sure to Change http proxy server URL from registry after changing port in config.local.json .(\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Version One\DbLogin)

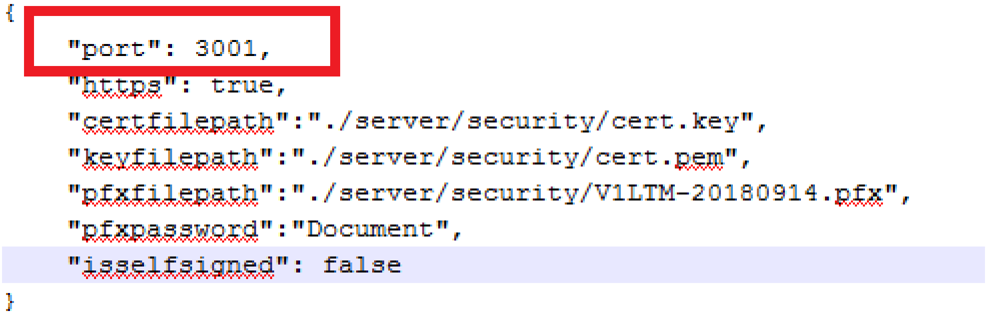


Name	Type	Data
(Default)	REG_SZ	(value not set)
HttpProxyServerURL	REG_SZ	http://10.33.24.88:3001
IstrustedCertificate	REG_SZ	0
NISServerURL	REG_SZ	http://localhost:6181
ServerName	REG_SZ	BRD-PG00ZTL0-L
ServerPort	REG_SZ	32000

- Is It possible to switch communication mode from HTTP to HTTP(S)?

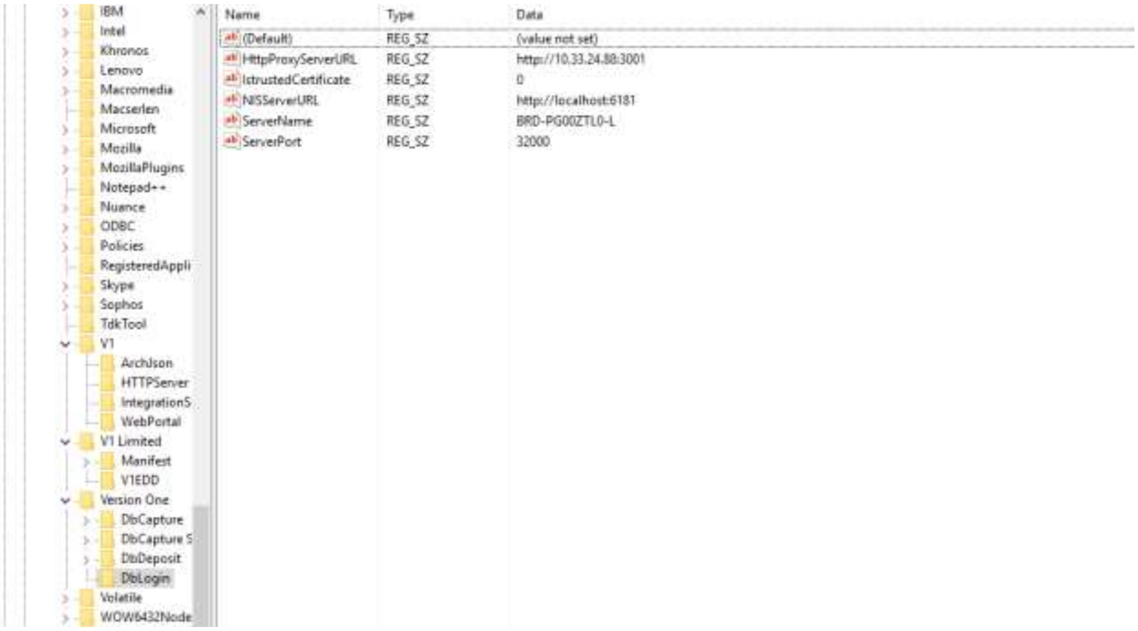
->Yes,it is possible to switch communication mode from HTTP to HTTP(S).

->Set value true in "https" .In case of Self signed certificate set "isselfsigned" value to true. In case of trusted certificate set "isselfsigned" value to false.



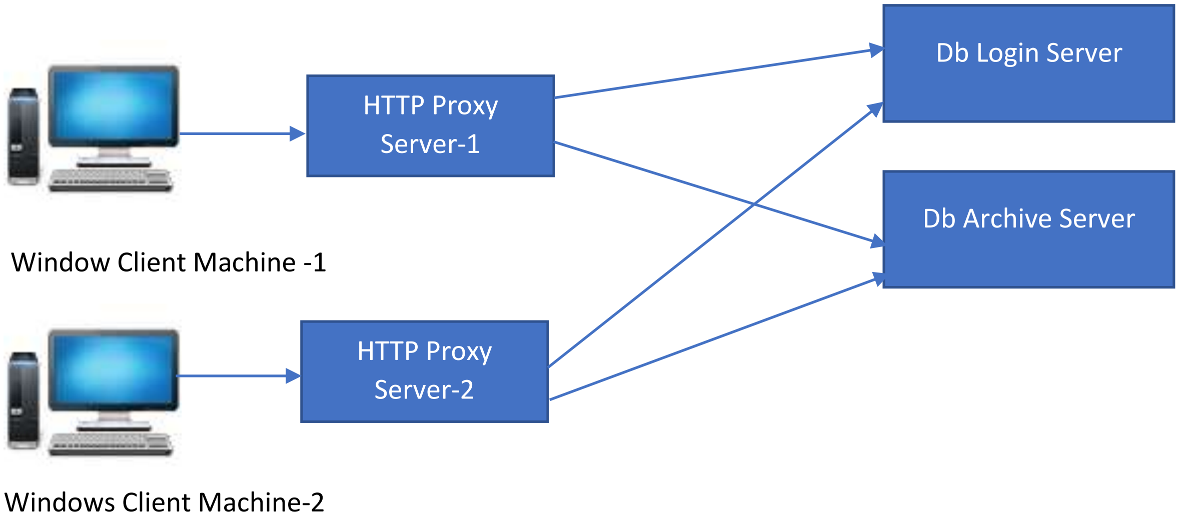
```
{
    "port": 3001,
    "https": true,
    "certfilepath":"./server/security/cert.key",
    "keyfilepath":"./server/security/cert.pem",
    "pfxfilepath":"./server/security/V1LTM-20180914.pfx",
    "pfxpassword":"Document",
    "isselfsigned": false
}
```

->Change HTTP Server URL from **http://serveraddress:port** to **https://serveraddress:port**. In case of Self signed certificate set “IstrustedCertificate” value to 0. In case of trusted certificate set “isselfsigned” value to 1.

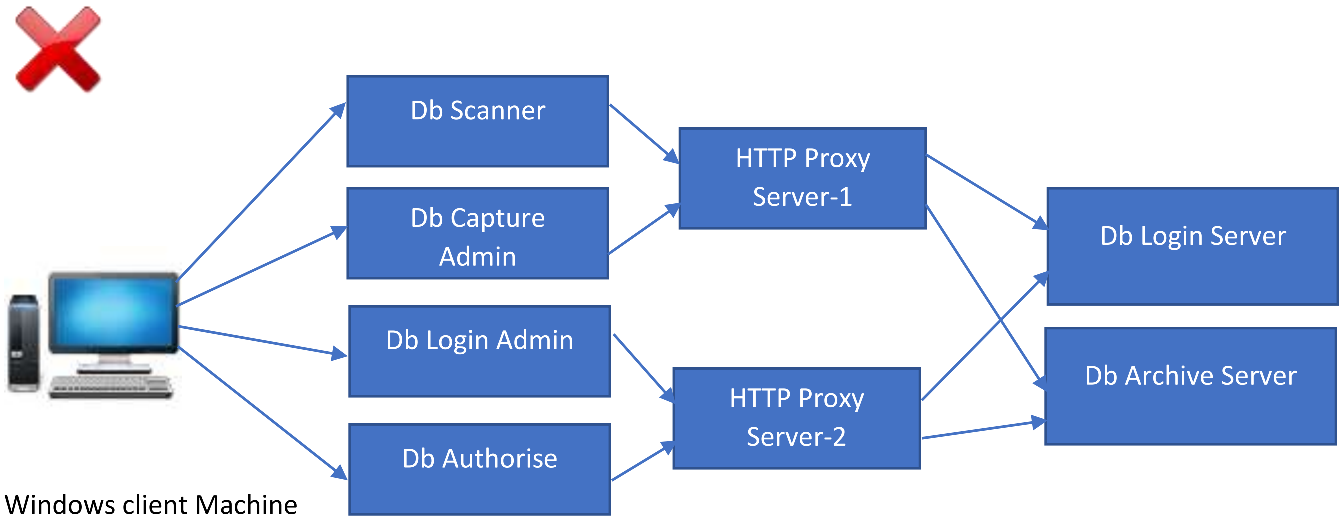


Name	Type	Data
(Default)	REG_SZ	(value not set)
HttpProxyServerURL	REG_SZ	Http://10.33.24.88:3001
IstrustedCertificate	REG_SZ	0
NISServerURL	REG_SZ	Http://localhost:6181
ServerName	REG_SZ	BRD-PG00ZTL0-L
ServerPort	REG_SZ	32000

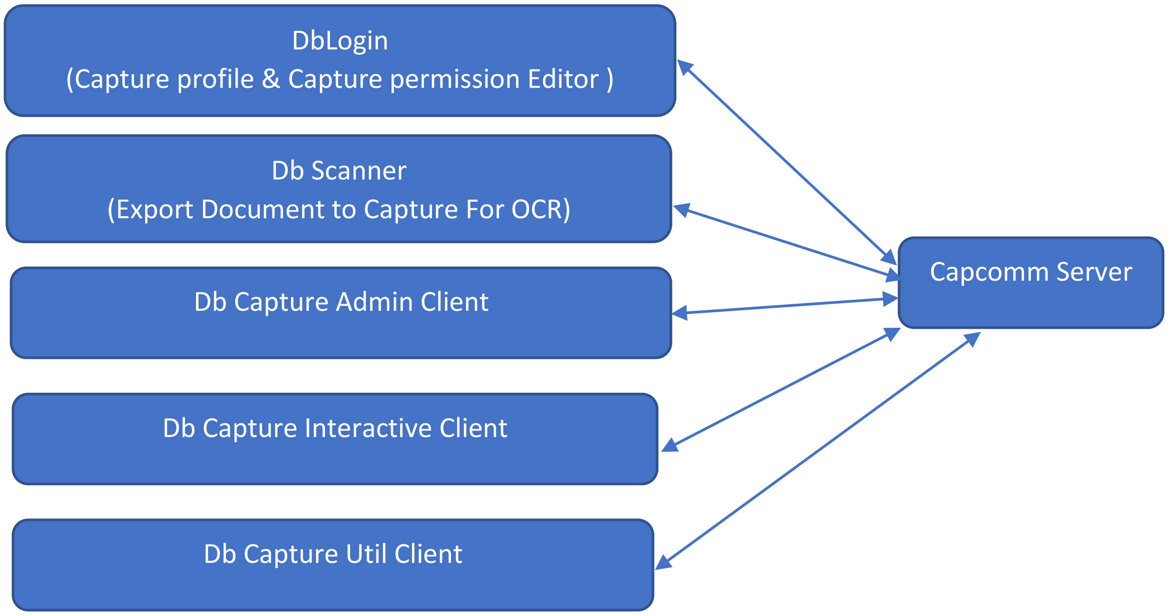
- We can deploy multiple proxy server for load balancing.



Note:-We cannot divide windows client of same machine between Multiple HTTP Proxy Server.



WCF HTTPS


DbLogin
(Capture profile & Capture permission Editor)

Db Scanner
(Export Document to Capture For OCR)

Db Capture Admin Client

Db Capture Interactive Client

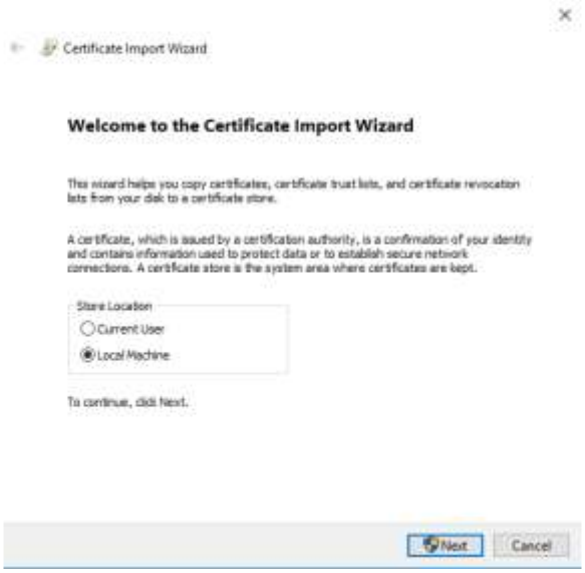
Db Capture Util Client

Capcomm Server

1. **Install certificate .PFX file in "Personal" & "Trusted Root Certification Authorities"**

For Installation in Personal

- Select Local Machine for store location



Welcome to the Certificate Import Wizard

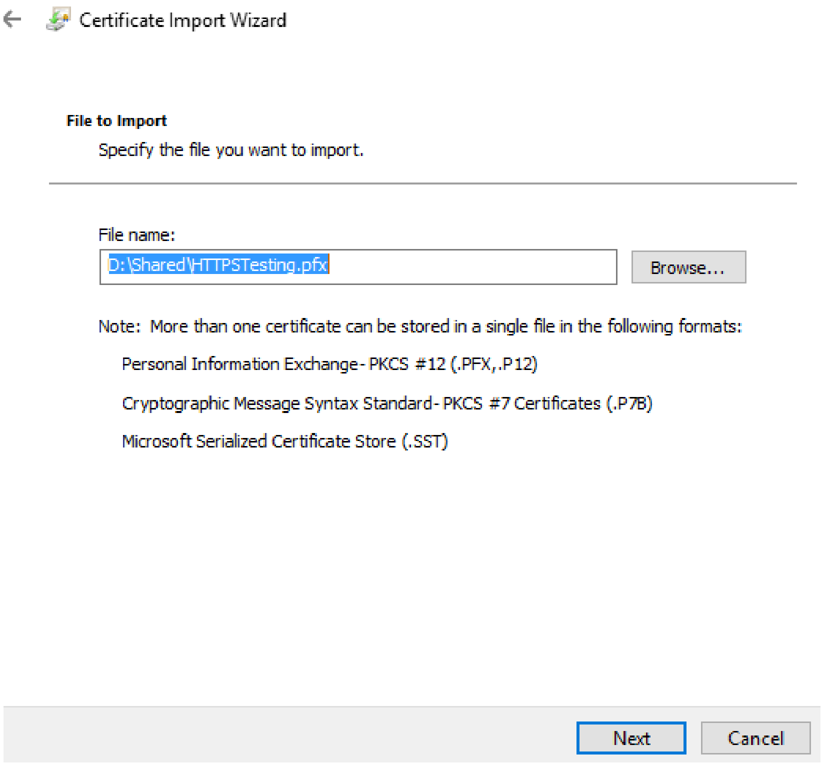
This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.

A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

Store Location
○ Current User
● Local Machine

To continue, click Next.

- Browse certificate Path & click on next



Certificate Import Wizard

File to Import

Specify the file you want to import.

File name:

D:\Shared\HTTPSTesting.pfx

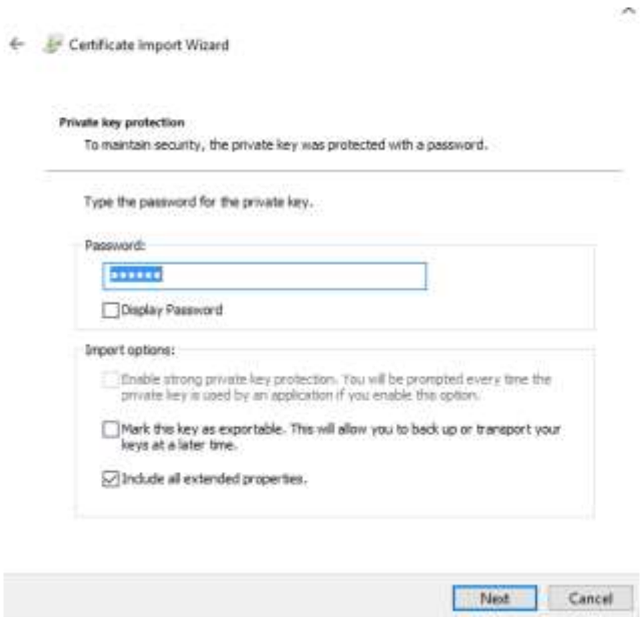
Note: More than one certificate can be stored in a single file in the following formats:

Personal Information Exchange- PKCS #12 (.PFX,.P12)

Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)

Microsoft Serialized Certificate Store (.SST)

- Enter certificate private key & click on next



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

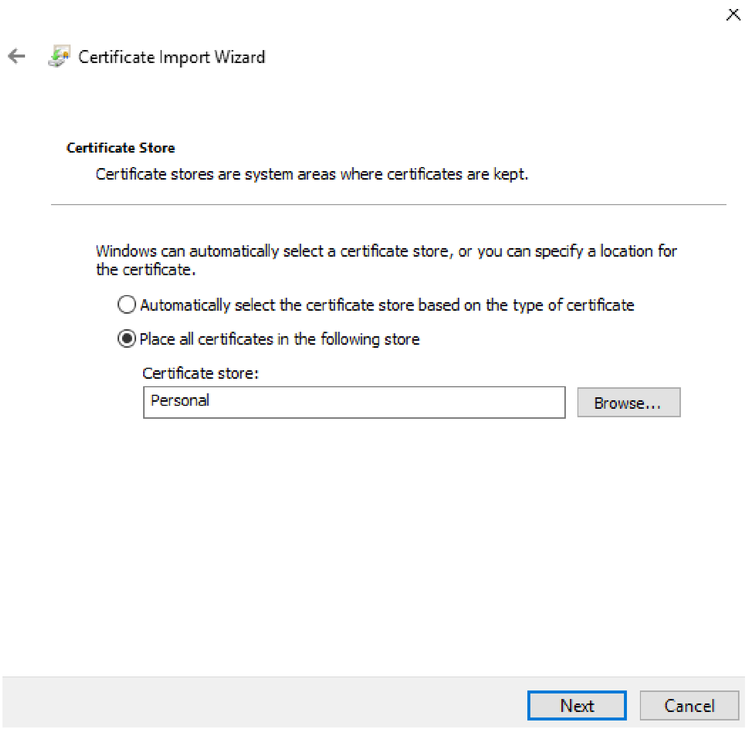
Import options:

□ 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.

☑ Include all extended properties.

- Select **Place all certificate in following store & Browse 'Personal' Folder & click on next**



Certificate Import Wizard

Certificate Store

Certificate stores are system areas where certificates are kept.

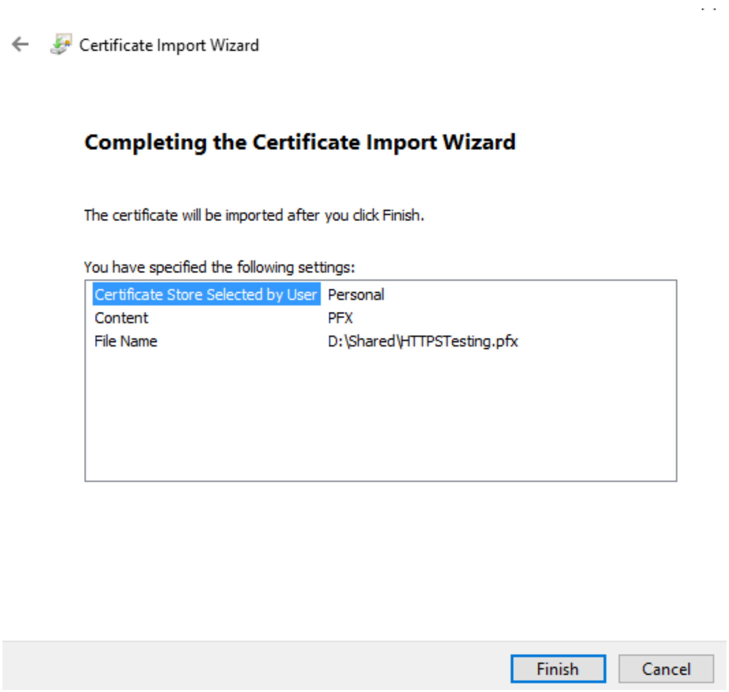
Windows can automatically select a certificate store, or you can specify a location for the certificate.

○ Automatically select the certificate store based on the type of certificate

● Place all certificates in the following store

Certificate store: Personal

- Click on finish to complete certificate Installation



Certificate Import Wizard

Completing the Certificate Import Wizard

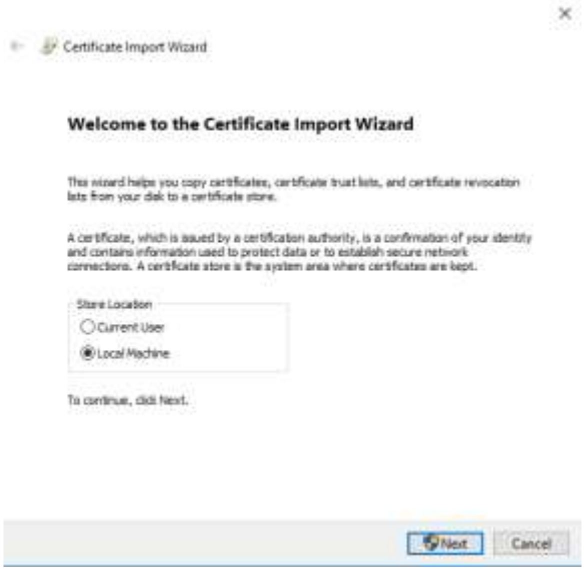
The certificate will be imported after you click Finish.

You have specified the following settings:

Certificate Store Selected by User	Personal
Content	PFX
File Name	D:\Shared\HTTPSTesting.pfx

For Installation in Trusted Root Certification Authorities

- Select Local Machine for store location



Welcome to the Certificate Import Wizard

This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.

A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.

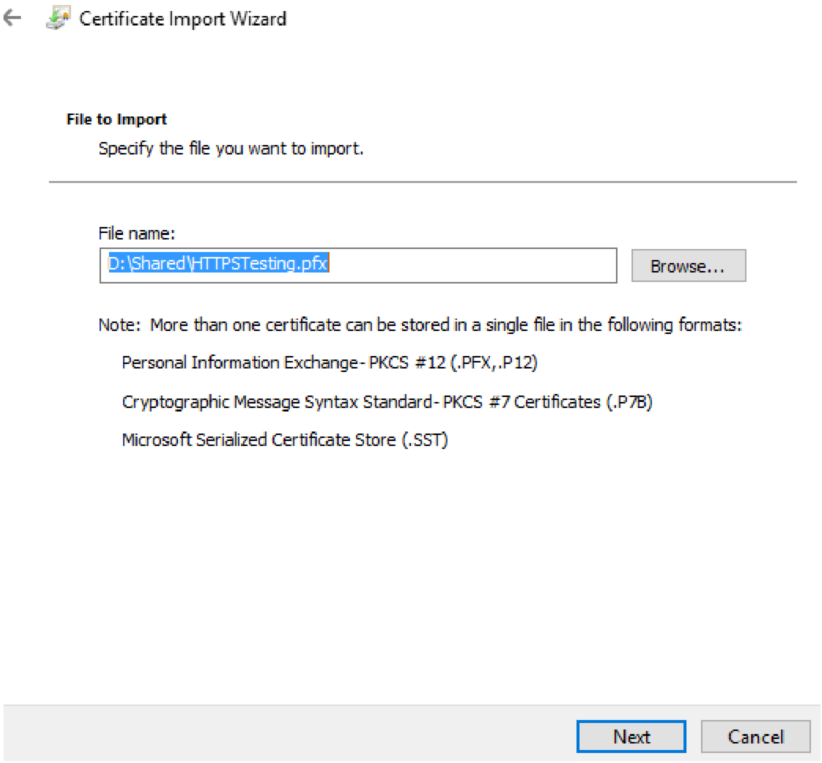
Store Location

○ Current User

● Local Machine

To continue, click Next.

- Browse certificate Path & click on next



File to Import

Specify the file you want to import.

File name: D:\Shared\HTTPSTesting.pfx

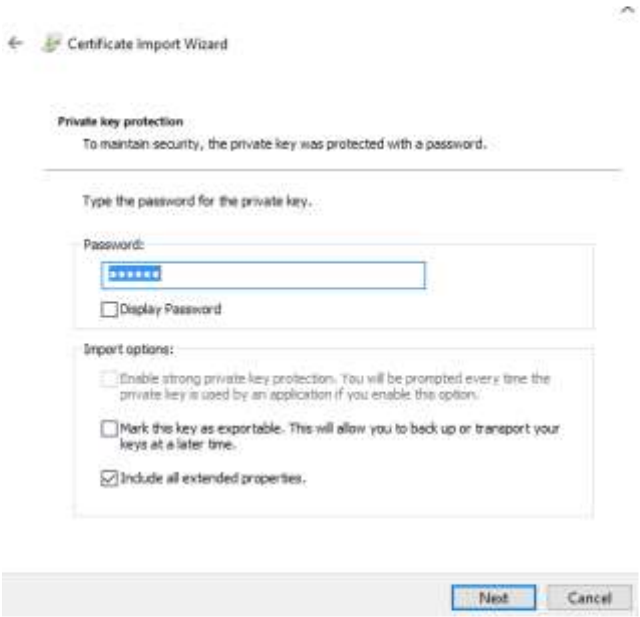
Note: More than one certificate can be stored in a single file in the following formats:

Personal Information Exchange- PKCS #12 (.PFX,.P12)

Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)

Microsoft Serialized Certificate Store (.SST)

- Enter certificate private key & click on next



Private key protection

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

Type the password for the private key.

Password:

••••••

□ Display Password

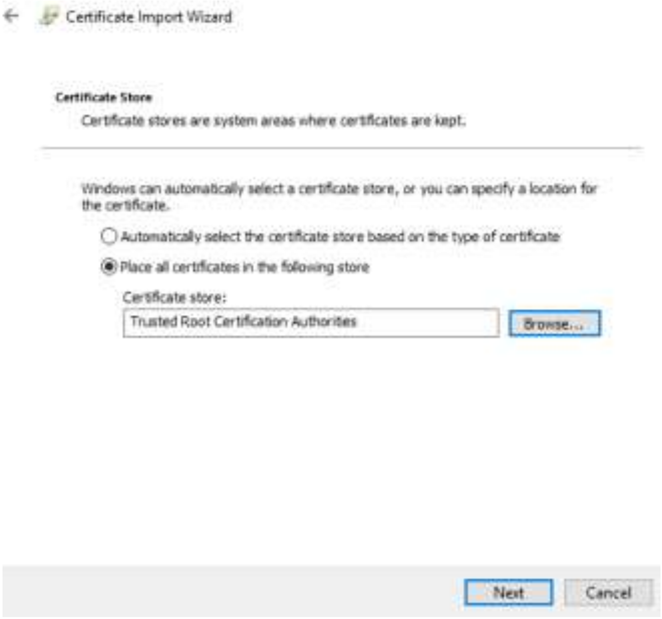
Import options:

□ 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.

☑ Include all extended properties.

- Select **Place all certificate in following store & Browse 'Trusted Root Certification Authorities' Folder & click on next**



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.

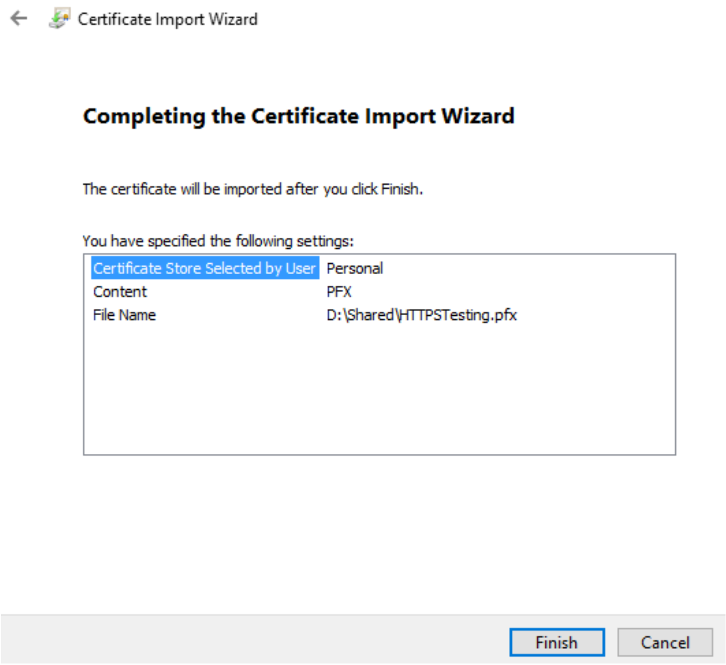
○ Automatically select the certificate store based on the type of certificate

● Place all certificates in the following store

Certificate store:

Trusted Root Certification Authorities

- Click on finish to complete certificate Installation



Certificate Import Wizard

Completing the Certificate Import Wizard

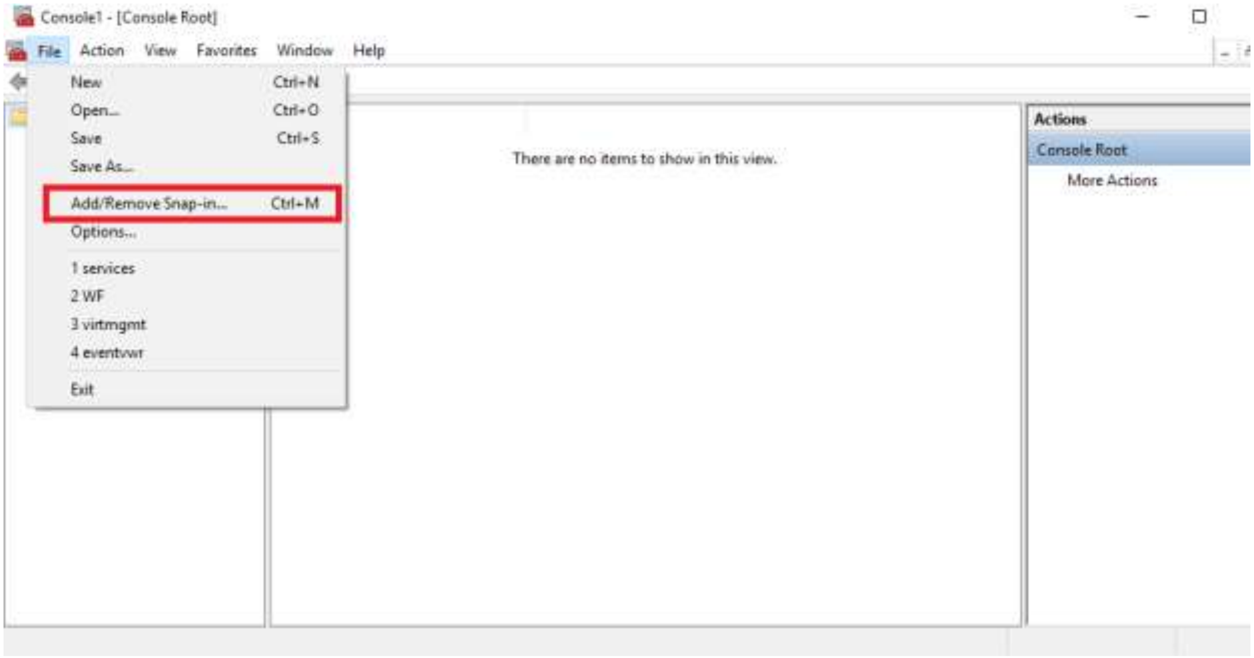
The certificate will be imported after you click Finish.

You have specified the following settings:

Certificate Store Selected by User	Personal
Content	PFX
File Name	D:\Shared\HTTPSTesting.pfx

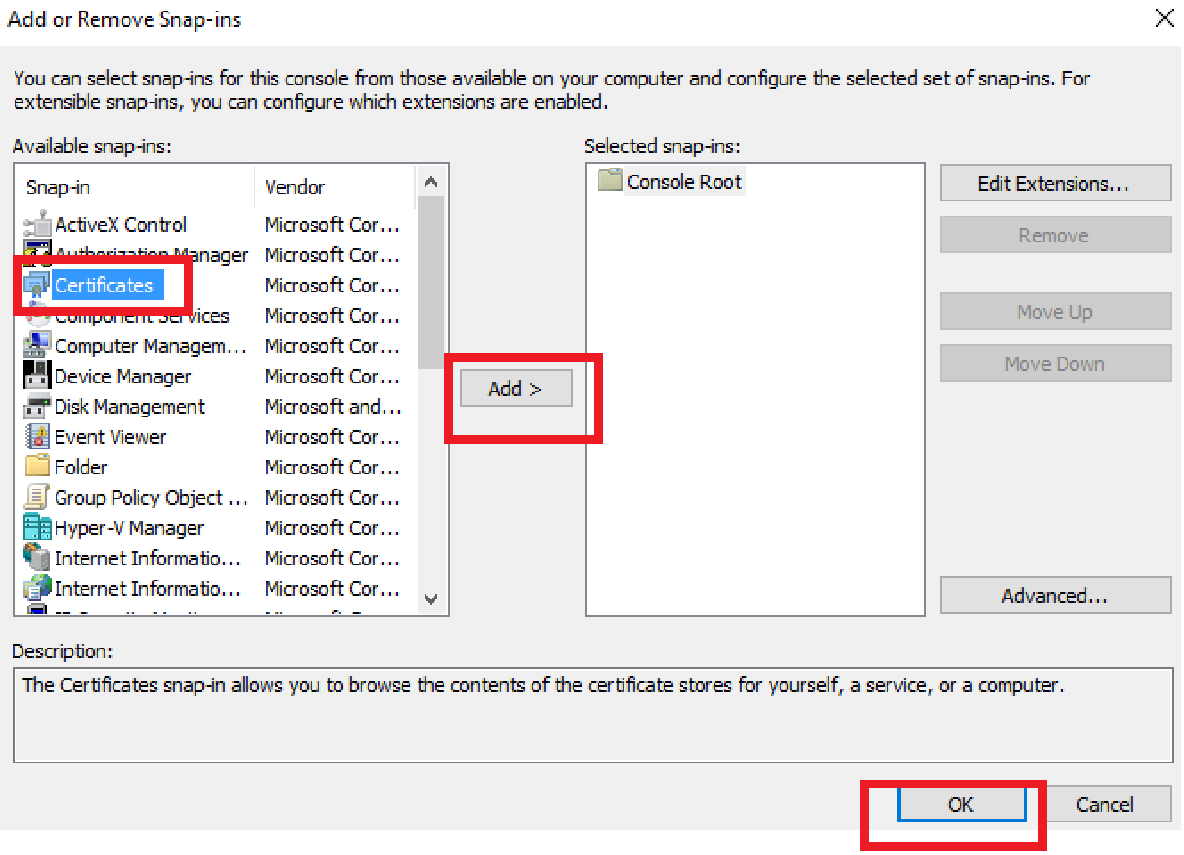
2.Get Thumbprint of SSL certificate

- Type mmc(Microsoft Management console) in run
- Click on file & select **Add/remove Snap-in option**



There are no items to show in this view.

- Click on **Certificates & Click on Add button. Then Click on OK**



Add or Remove Snap-ins

You can select snap-ins for this console from those available on your computer and configure the selected set of snap-ins. For extensible snap-ins, you can configure which extensions are enabled.

Available snap-ins:

Snap-in	Vendor
ActiveX Control	Microsoft Cor...
Authorization Manager	Microsoft Cor...
Certificates	Microsoft Cor...
Component Services	Microsoft Cor...
Computer Managem...	Microsoft Cor...
Device Manager	Microsoft Cor...
Disk Management	Microsoft and...
Event Viewer	Microsoft Cor...
Folder	Microsoft Cor...
Group Policy Object ...	Microsoft Cor...
Hyper-V Manager	Microsoft Cor...
Internet Informatio...	Microsoft Cor...
Internet Informatio...	Microsoft Cor...

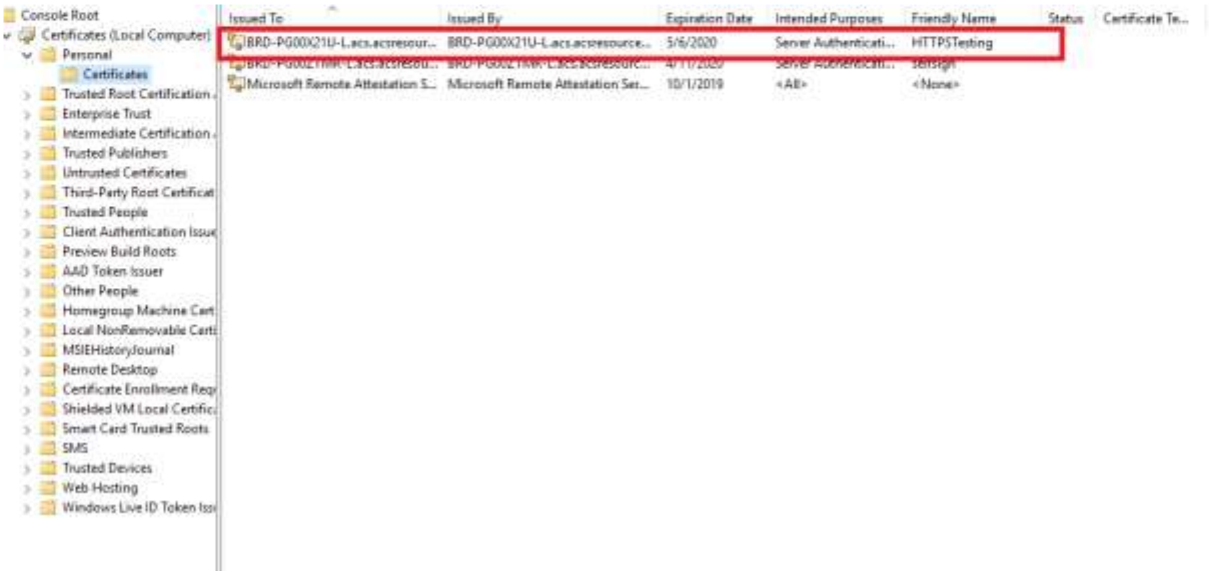
Selected snap-ins:

Console Root

Description:

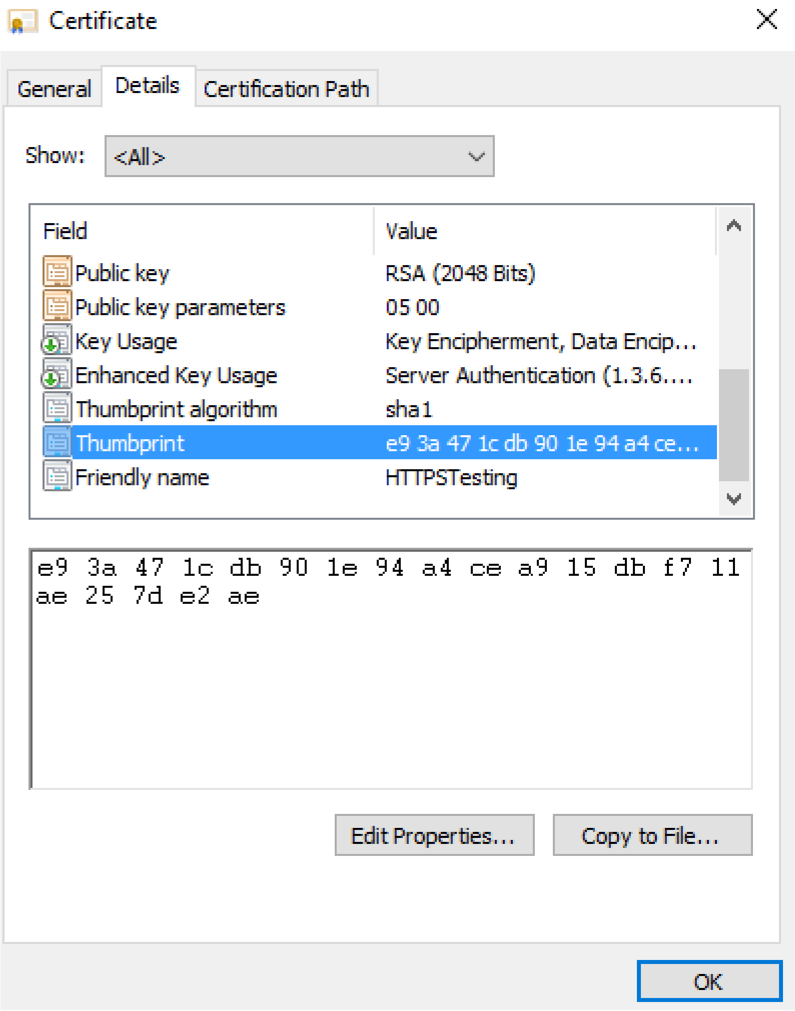
The Certificates snap-in allows you to browse the contents of the certificate stores for yourself, a service, or a computer.

- After adding certificate in snap-in ,Expand certificates ,then Expand Personal & click on Certificates. Your certificate will be displayed in list in right pane.



Issued To	Issued By	Expiration Date	Intended Purposes	Friendly Name	Status	Certificate Te...
BRD-PG00X21U-L.acs.acsresour...	BRD-PG00X21U-L.acs.acsresource...	5/6/2020	Server Authenticati...	HTTPSTesting		
BRD-PG00Z1MK-L.acs.acsresou...	BRD-PG00Z1MK-L.acs.acsresourc...	4/17/2020	Server Authenticati...	selfsign		
Microsoft Remote Attestation S...	Microsoft Remote Attestation Ser...	10/1/2019	<All>	<None>		

- Double click on certificate in list & Go to **Details** tab.Select **Thumbprint** field



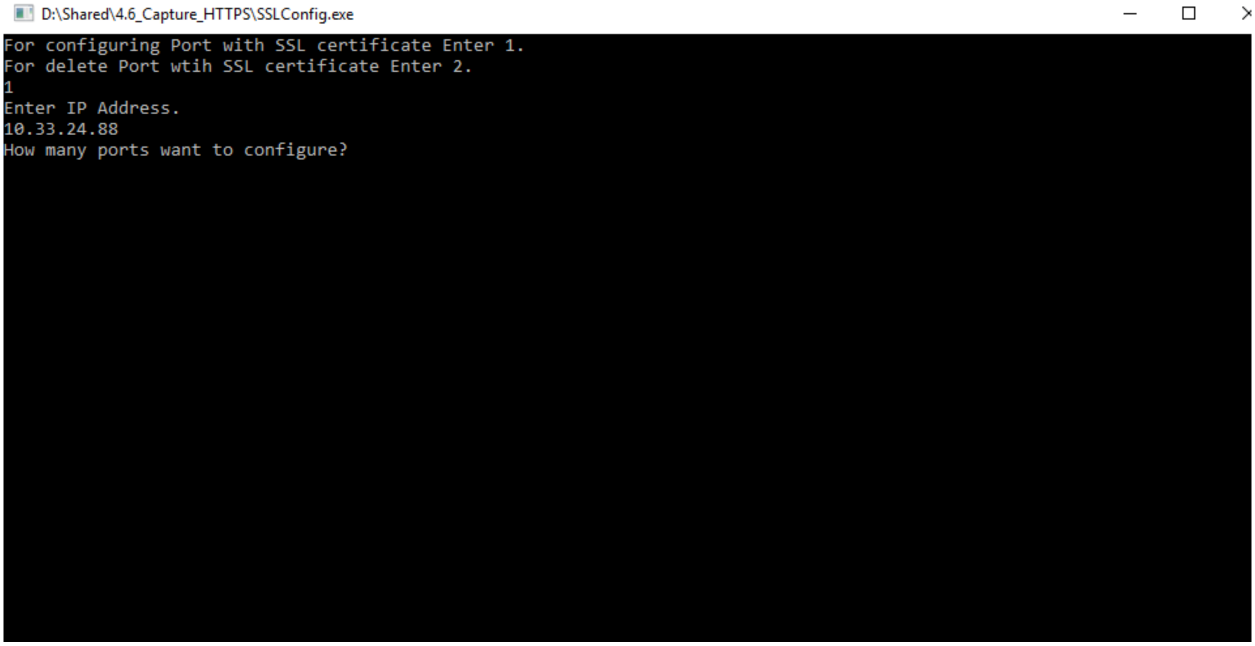
Field	Value
Public key	RSA (2048 Bits)
Public key parameters	05 00
Key Usage	Key Encipherment, Data Encip...
Enhanced Key Usage	Server Authentication (1.3.6....
Thumbprint algorithm	sha1
Thumbprint	e9 3a 47 1c db 90 1e 94 a4 ce...
Friendly name	HTTPSTesting

```
e9 3a 47 1c db 90 1e 94 a4 ce a9 15 db f7 11
ae 25 7d e2 ae
```

- Copy Thumbprint value. Be noted that remove space from thumbprint value if available . It should look like **e93a471cdb901e94a4cea915dbf711ae257de2ae**

3.**Bind SSL certificate**

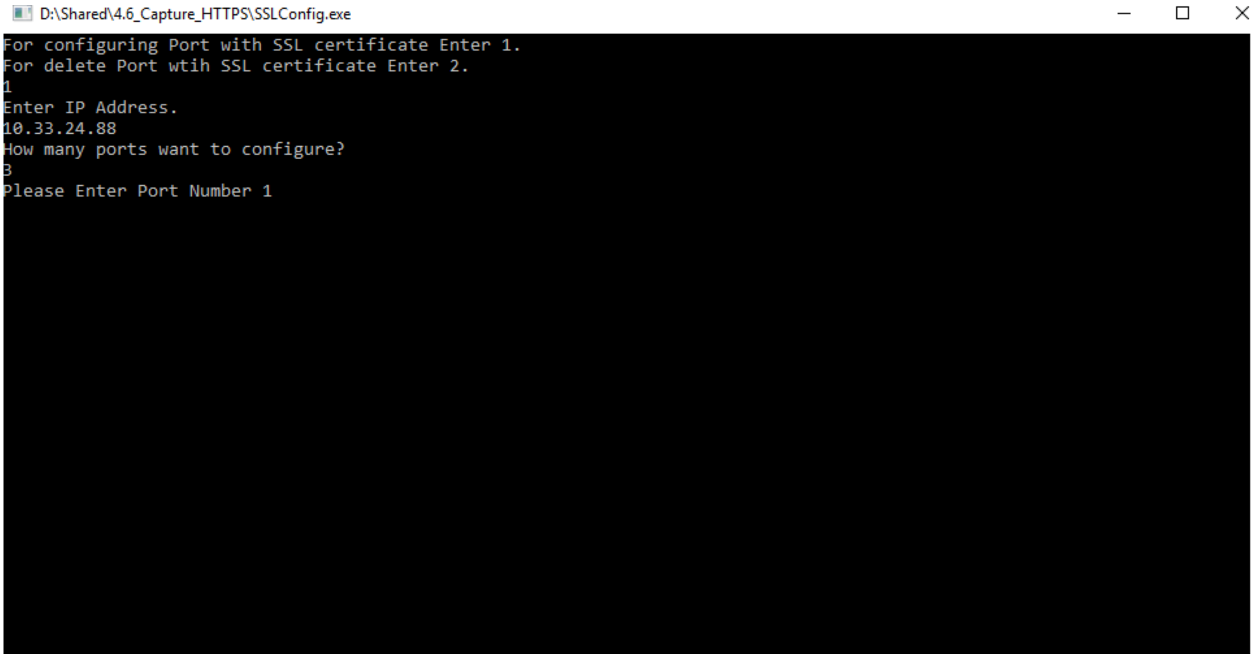
- Run SSL config exe (**In Distrib:** Release-4.6\Utils OR **In Cut:** \DbCapture) as **Run as administrator** on machine where Capcomm service is installed
- Select 1 for Binding SSL certificate & 0 for remove binding
- Upon clicking on 1, enter IP address of machine & click enter



D:\Shared\4.6_Capture_HTTPS\SSLConfig.exe

```
For configuring Port with SSL certificate Enter 1.
For delete Port wtih SSL certificate Enter 2.
1
Enter IP Address.
10.33.24.88
How many ports want to configure?
```

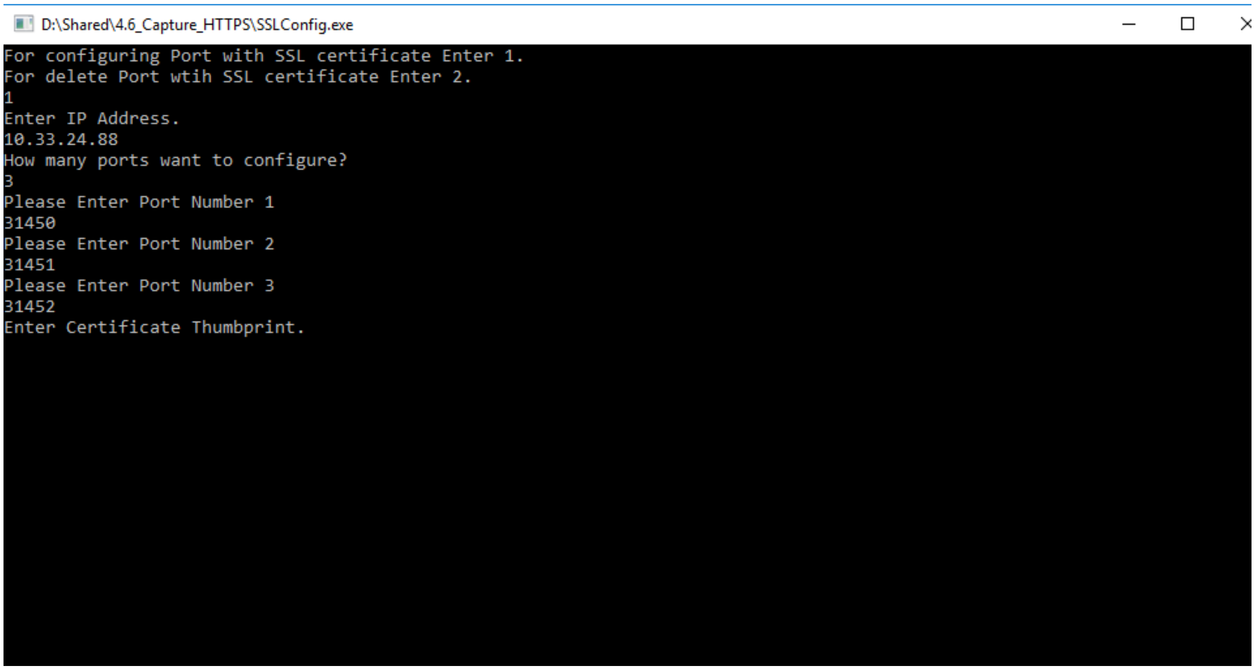
- Then Enter port number you want to configure (For Example -3)



D:\Shared\4.6_Capture_HTTPS\SSLConfig.exe

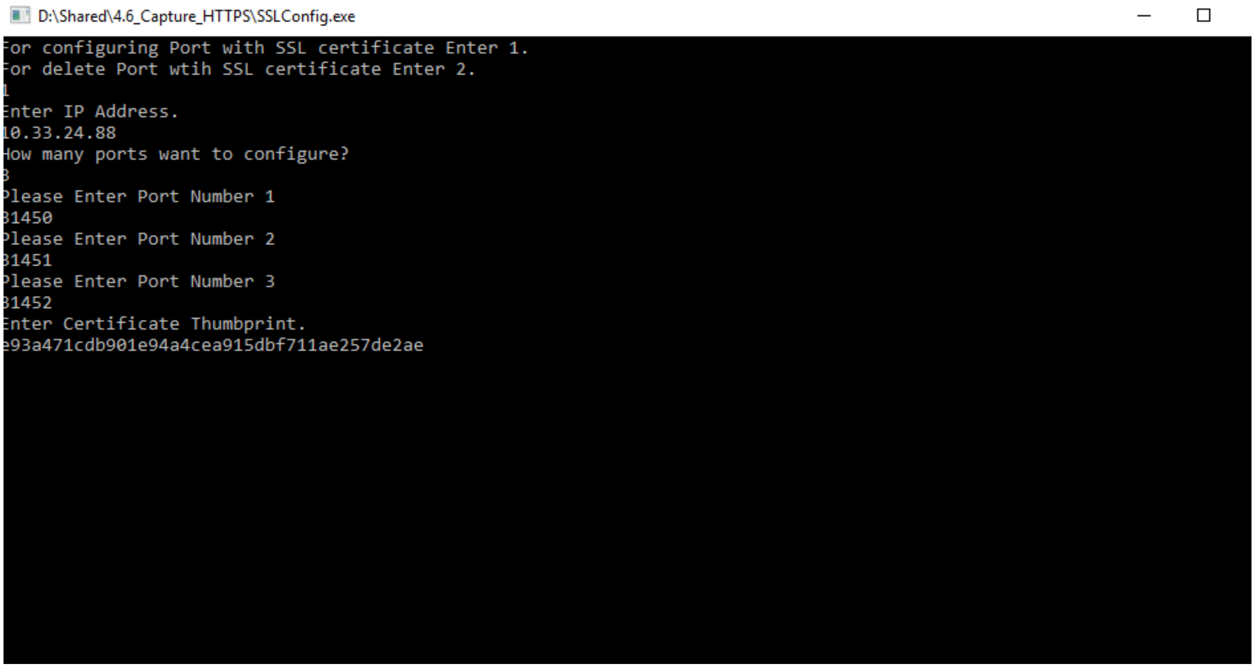
```
For configuring Port with SSL certificate Enter 1.
For delete Port wtih SSL certificate Enter 2.
1
Enter IP Address.
10.33.24.88
How many ports want to configure?
3
Please Enter Port Number 1
```

- Enter Port numbers(Enter31450 ->Click Enter->Enter 31451->Click Enter->Enter 31452-Click Enter)one by one



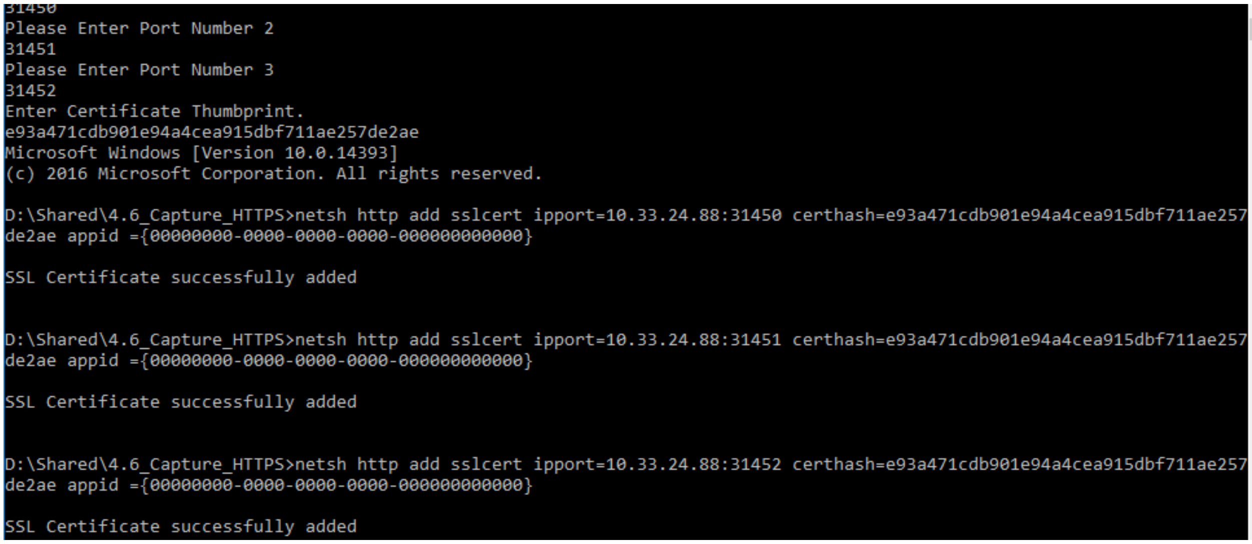
```
For configuring Port with SSL certificate Enter 1.
For delete Port wtih SSL certificate Enter 2.
1
Enter IP Address.
10.33.24.88
How many ports want to configure?
3
Please Enter Port Number 1
31450
Please Enter Port Number 2
31451
Please Enter Port Number 3
31452
Enter Certificate Thumbprint.
```

- Enter Certificate thumb print(For example - **e93a471cdb901e94a4cea915dbf711ae257de2ae**) & click enter



```
For configuring Port with SSL certificate Enter 1.
For delete Port wtih SSL certificate Enter 2.
1
Enter IP Address.
10.33.24.88
How many ports want to configure?
3
Please Enter Port Number 1
31450
Please Enter Port Number 2
31451
Please Enter Port Number 3
31452
Enter Certificate Thumbprint.
e93a471cdb901e94a4cea915dbf711ae257de2ae
```

- Message will be displayed If SSL certificate is successfully added

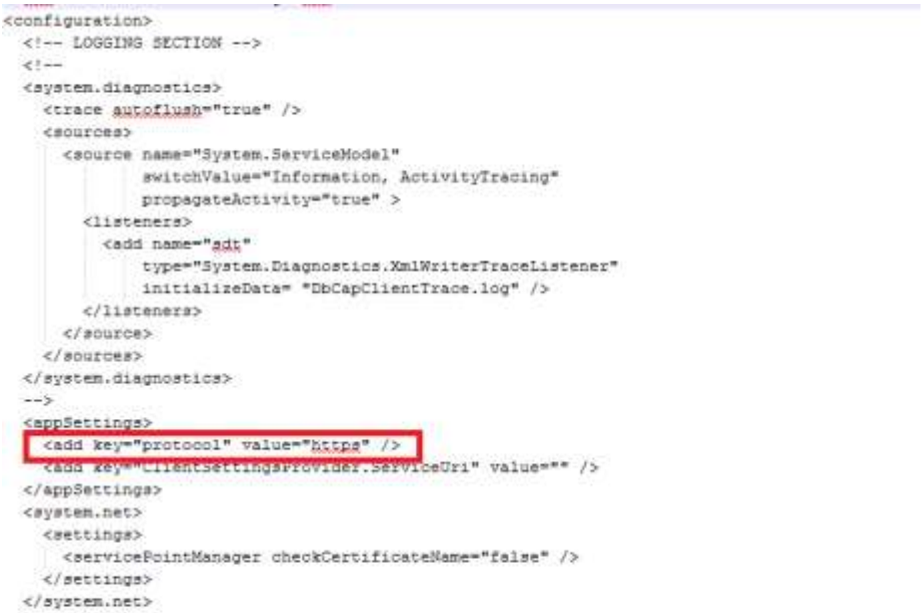


```
31450
Please Enter Port Number 2
31451
Please Enter Port Number 3
31452
Enter Certificate Thumbprint.
e93a471cdb901e94a4cea915dbf711ae257de2ae
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

D:\Shared\4.6_Capture_HTTPS>netsh http add sslcert ipport=10.33.24.88:31450 certhash=e93a471cdb901e94a4cea915dbf711ae257
de2ae appid ={00000000-0000-0000-0000-000000000000}

SSL Certificate successfully added


D:\Shared\4.6_Capture_HTTPS>netsh http add sslcert ipport=10.33.24.88:31451 certhash=e93a471cdb901e94a4cea915dbf711ae257
de2ae appid ={00000000-0000-0000-0000-000000000000}

SSL Certificate successfully added


D:\Shared\4.6_Capture_HTTPS>netsh http add sslcert ipport=10.33.24.88:31452 certhash=e93a471cdb901e94a4cea915dbf711ae257
de2ae appid ={00000000-0000-0000-0000-000000000000}

SSL Certificate successfully added
```

4.Modify Config Files

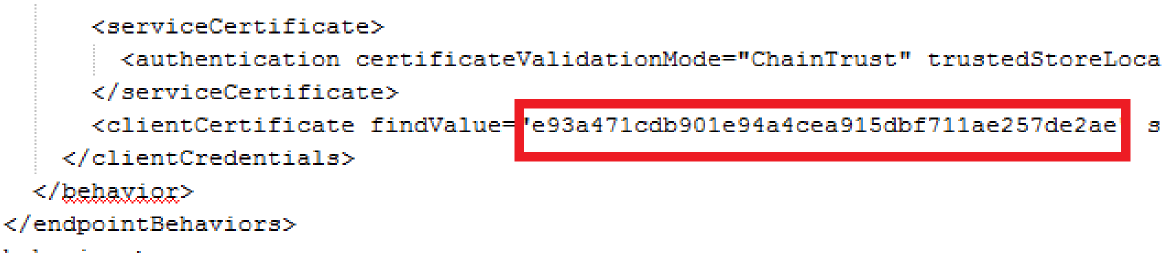
- Following modification needs to be done in below mention Config files.

1.Change protocol to **https**



```
<configuration>
  <!-- LOGGING SECTION -->
  <!--
  <system.diagnostics>
    <trace autoflush="true" />
    <sources>
      <source name="System.ServiceModel"
              switchValue="Information, ActivityTracing"
              propagateActivity="true" >
        <listeners>
          <add name="sdt"
              type="System.Diagnostics.XmlWriterTraceListener"
              initializeData= "DbCapClientTrace.log" />
        </listeners>
      </source>
    </sources>
  </system.diagnostics>
  -->
  <appSettings>
    <add key="protocol" value="https" />
    <add key="ClientSettingsProvider.ServiceUri" value="" />
  </appSettings>
  <system.net>
    <settings>
      <servicePointManager checkCertificateName="false" />
    </settings>
  </system.net>
```

2.Copy your certificate thumbprint value

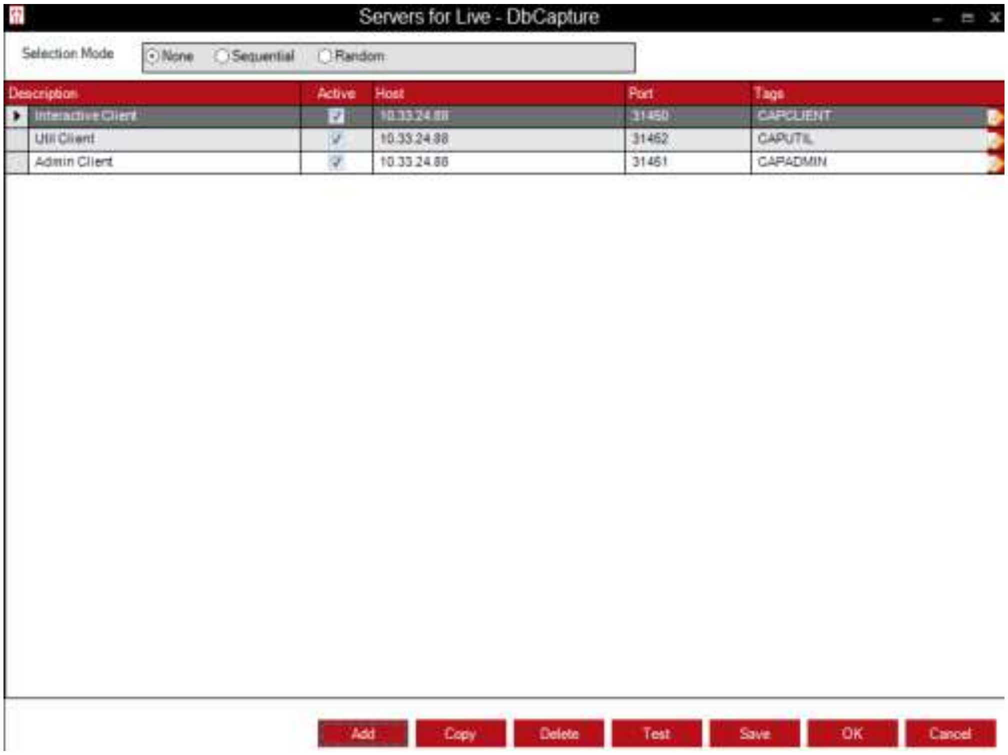


```
      <serviceCertificate>
        <authentication certificateValidationMode="ChainTrust" trustedStoreLoca
      </serviceCertificate>
      <clientCertificate findValue="e93a471cdb901e94a4cea915dbf711ae257de2ae  s
    </clientCredentials>
  </behavior>
</endpointBehaviors>
```

- Modify Following Config Files
  1. C:\Program Files (x86)\V1\DbCapture Admin\DbCapAdmin.exe
  2. C:\Program Files (x86)\V1\DbCapture Client\DbCapClient.exe
  3. C:\Program Files (x86)\V1\DbScanner\DbScanner.exe
  4. C:\Program Files (x86)\V1\DbLogin Admin Console\DbLogin Admin Console.exe
  5. C:\V1Home\DbCapture\DbCapture Communications Server\DbCapComms.exe
  6. C:\V1Home\DbCapture\DbCapture Util\DbCapUtil.exe

5.Replace Hostname with IP Address

- Login in DbLogin & Go to Db capture Server
- Change Server Host name with IP address of Server & Save it.



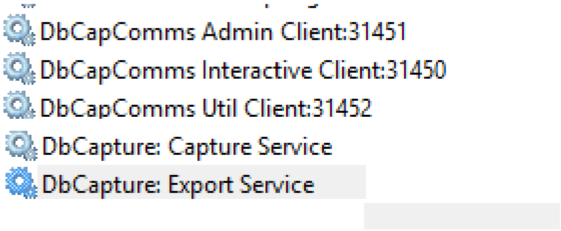
Selection Mode ● None ○ Sequential ○ Random

Description	Active	Host	Port	Tags
Interactive Client	☑	10.33.24.88	31450	CAPCLIENT
Util Client	☑	10.33.24.88	31462	CAPUTIL
Admin Client	☑	10.33.24.88	31461	CAPADMIN

Note:-Ignore this step If Host name is already defined with IP address

6.Restart following Services

- Restart Db Login service & then restart all below services



DbCapComms Admin Client:31451
DbCapComms Interactive Client:31450
DbCapComms Util Client:31452
DbCapture: Capture Service
DbCapture: Export Service