Update the CA Identity Manager IMCD UserStore (with CA Directory) to use SSL/TLS & Integrate with SiteMinder Policy Server

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Agenda

- Pre-steps
- Configuration
- Validation
- Troubleshooting Processes
- References

Pre-Steps: openssl cert check

CA SiteMinder uses SSLv3 protocol for non-FIPS communication & TLSv1.x for FIPS communication

- Ensure the IMCD userstore is configured for SSL/TLS communication prior to configuration in Siteminder.

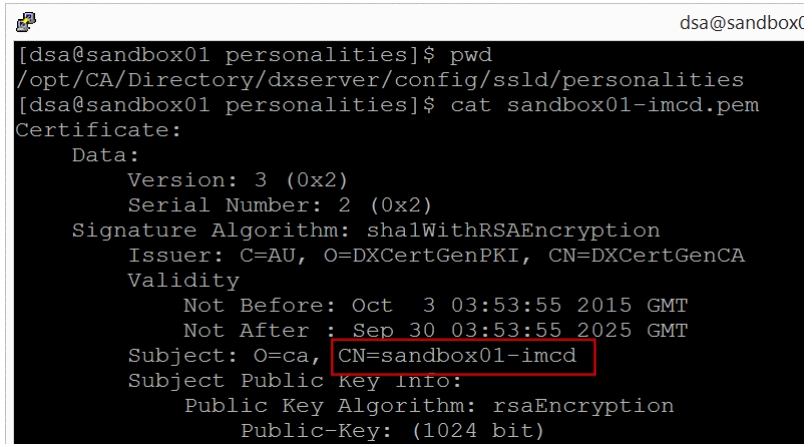
- Use openssl to validate remote connection is available with a public CA root cert & SSLv3 protocol is available. IMCD_HOSTNAME=user store hostname
  - openssl s_client -connect $IMCD_HOSTNAME:$IMCD_PORT –showcerts
  - openssl s_client -connect $IMCD_HOSTNAME:$IMCD_PORT -ssl3

- Only the IMCD's CA Public Certificate is required for IM:SM integration for IMCD over SSL
  - Servers / Personalities Certificates are not required for standard userid/password authentication.
  - If authenticate is to be changed from standard userid/password to SSL client authentication; then copy ONLY the public section of the personalities PEM files to siteminder. Do not copy the personalities AS-IS.

Pre-Steps: CA Directory dxsearch check

LDAP tools; including CA Directory search tool (dxsearch), requires the CN of a server SSL certificate to MATCH the hostname.

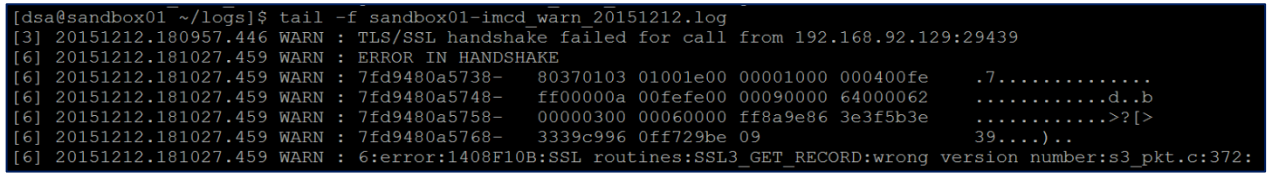
1. Update the local host file entry with a host alias that matches the DSA name. This is a temporary test; and the host alias does **NOT** need to be retained for SiteMinder.
2. CA Directory CLI commands use the DXHOME/config/ssld/dxldap.conf file for pathing to its keystore. Ensure this file is pointing to trusted.pem or other file used by IMCD DSA, to ensure the CA Public Cert is available to validate SSL communication.



NON-SSL QUERY:
dxsearch -L -H ldap://**sandbox01-imcd**:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca' 'uid=diradmin' sn uid“

SSL QUERY
dxsearch -Z -L -H ldaps://**sandbox01-imcd**:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca' 'uid=diradmin' sn uid“

Note: Only –H ldaps is required, but the –Z switch ensure a viewable message that SSL is enabled and used. Ignore ERROR MESSAGE: ldap_start_tls: Operations error (1)



Monitor the WARN log of the IMCD DSA. If SSLv3 protocol or the hostname does NOT match the CN of the certificate

ldap_start_tls: Can't contact LDAP server (-1)
additional info: TLS: hostname does not match CN in peer certificate

Revised Steps to Create SM NSS cert8.db files with IMCD Public CA Cert

Step 1. Validate that IMCD is available to be access over SSL. (Presteps)
- Use either openssl, dxsearch, Jxplorer, Apache Directory Studio, SoftTerra LDAPBrowser, etc.

Step 2: Copy the IMCD's CA Public Certificate from the CA Directory Server to the CA SiteMinder Policy Server
- May use **openssl s_client -connect hostname:port -showcerts** & copy the 2nd cert from BEGIN to END markers
- Or copy the trusted.pem file from DXHOME/config/ssld/trusted.pem {validate this file is reference in the DXI file for IMCD for SSL via default.dxc or custom DSANAME.dxc}

Step 3: Update or check DXHOME/config/ssld/default.dxc {or custom DSANAME.dxc} [Assumes CA Directory is used]
- Ensure this file allows for SSLv3 protocol to be used for SiteMinder with the update of: protocol=ssl
- Validate with **openssl s_client –connect hostname:port –ssl3**

Step 4: Create the NSS Certificate Keystore files to be used by SiteMinder
- Make a new folder under siteminder, e.g. /opt/CA/siteminder/ldap_tls (or certs, etc.)
- Under that folder issue the following command, as smuser: **certutil - N -d /opt/CA/siteminder/ldap_tls**
- Enter a password twice

Step 5: Add the IMCD's CA Public Certificate to the NSS keystore
- Execute: **certutil -A -n "IMCD_TRUSTED_CA_PUBLIC_CERT" -t "C,," -i trusted.pem –d /opt/CA/siteminder/ldap_tls**

Step 6: Validate the IMCD's CA Public Certificate is loaded fine in the NSS keystore
- Execute**: certutil -L -d /opt/CA/siteminder/ldap_tls or certutil -L -a -n IMCD_TRUSTED_CA_PUBLIC_CERT –d /opt/CA/siteminder/ldap_tls**

Step 7: Update SiteMinder to use the new NSS keystore file of cert8.db
- Use either SMCONSOLE GUI & Update Data Tab for Netscape Certificate Database File Entry
- Alternative: Use SM CLI XPSConfig, select SM, and # for LdapObjCertDbPath OR directly edit/sed of the sm.registry file for CertDbPath under HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LdapPolicyStore

Step 8: Bounce SiteMinder for the smpolicy service: stop-ps & start-ps

Step9: Validate SiteMinder is able to communicate with IMCD userstore over Secure Connection (SSL)
- Open SM User Interface of SMWAMUI or SMFSSUI and select the user store & update the connection to use Secure Connection; ensure that Contents are returned.
- Open CA Directory IMCD warn log; and monitor for any failed SSL connections.

Step 10: Done. Will be able to update the CA Identity Manager IMCD entry from non-SSL to SSL communications.
- Perform similar steps for the **IME's IMPS/IMPD** using the impd_trusted.pem as the IMPD's CA Public Certificate to be added to the NSS keystore.
- IMPS service uses the same CA Public Cert as IMPD. This CA Public cert may be changed via the IMPS\data\tls folder & batch processes.

Revised Steps used in a shell script

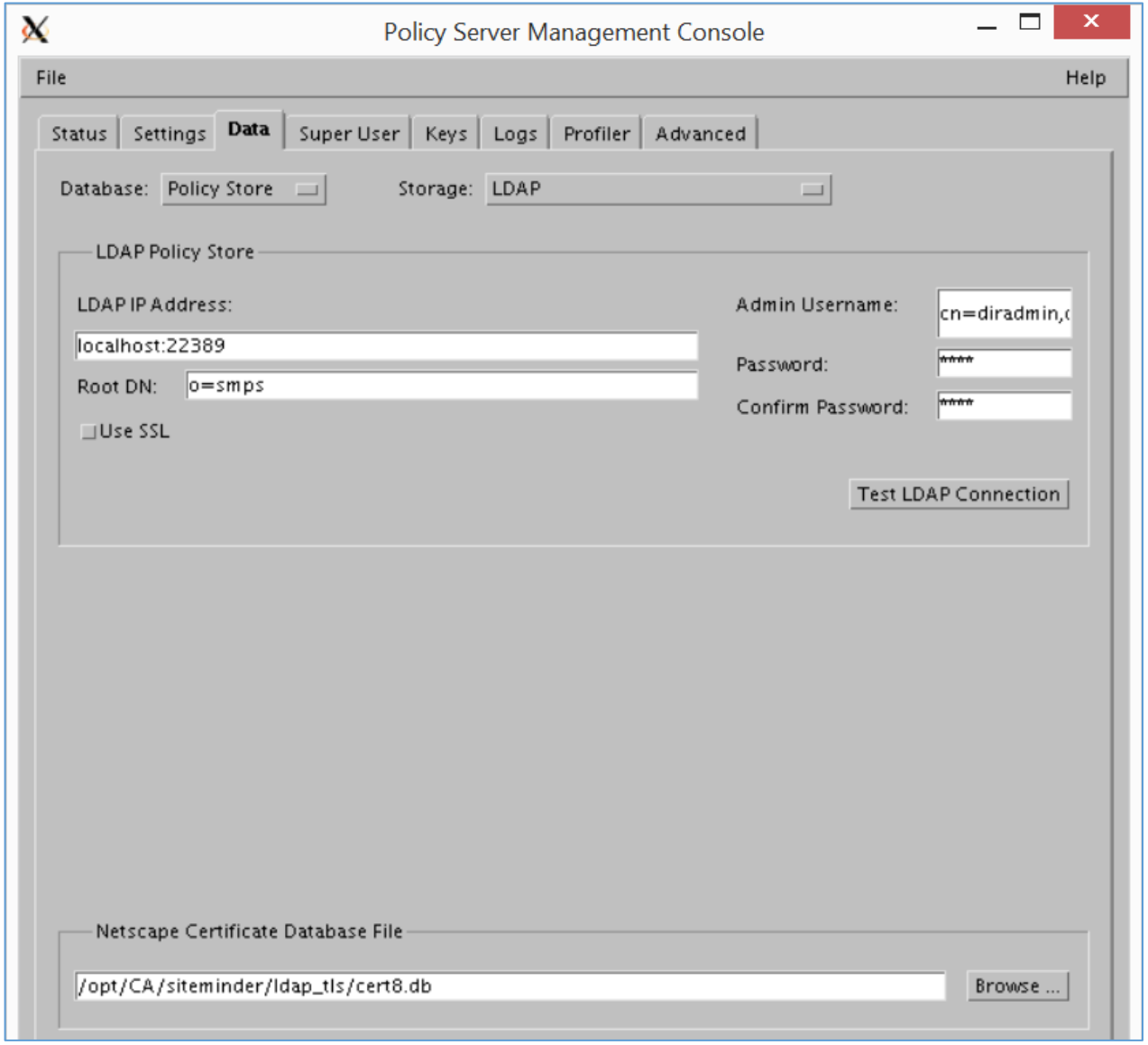
```
bash-4.2$ cat step001_-smuser-_create_ssl_certs_db.sh
#!/bin/bash
##################################################
# Add IMCD SSL CERT to SiteMinder to enable TLS
# Only need CA Public Cert
# No need to copy the Server Certs (personalities)
# SM will use userid/password for authentication
##################################################
IMCD_HOSTNAME=sandbox01
IMCD_PORT=41389
SMHOME=/opt/CA/siteminder
LDAP_TLS=$SMHOME/ldap_tls
DXHOME=/opt/CA/Directory/dxserver/config/ssld
PATH=$SMHOME/bin:$PATH
PASSWORD=Password01
USER=smuser
GROUP=smuser

echo ""
echo "Step00:  Clean up Prior NSS DB files under $LDAP_TLS"
mkdir -p $LDAP_TLS
cd $LDAP_TLS
rm -rf *.db
rm -rf trusted-root-ca-public-for-imcd.*
# Note:  pem format may includes cer (public format) + ascii + optional (private key)

echo ""
echo "# Step01: Check if the CA Public Cert exists AND that SSLv3 protocol is available"
echo "# Siteminder uses SSLv3 protocol for non-FIPS encryption & TLS for FIPS encryption"
echo ""
echo "The CA Public Cert should display as the 2nd cert in this list with -showcerts"
echo "openssl s_client  -connect $IMCD_HOSTNAME:$IMCD_PORT -showcerts"
echo "The communication will report failure, if SSLv3 protoocl is not enabled."
echo "openssl s_client  -connect $IMCD_HOSTNAME:$IMCD_PORT -ssl3"
echo "Run the above lines as a prestep, they are commented out to avoid impacting readablity of the other lines"
#openssl s_client  -connect $IMCD_HOSTNAME:$IMCD_PORT -showcerts
#openssl s_client  -connect $IMCD_HOSTNAME:$IMCD_PORT -ssl3
echo ""

echo ""
echo "# Step02: Copy IMCD CA Public Cert Only [Not DSA Server Certs (Personalities)]"
echo "# Ensure that the user of this script has access to the CA Directory SSLD folder"
cd $LDAP_TLS
echo "cp -r -p $DXHOME/trusted.pem $LDAP_TLS/trusted.pem"
cp -r -p $DXHOME/trusted.pem $LDAP_TLS/trusted.pem
echo "Strip any extra commentary from CA Directory PEM Format.  Keep BEGIN CERTIFICATE / END CERTIFICATE markers"
echo ""
echo "openssl x509 -outform der -in trusted.pem -out trusted-root-ca-public-for-imcd.der"
openssl x509 -outform der -in trusted.pem -out trusted-root-ca-public-for-imcd.der
echo "Strip any extra commentary from CA Directory PEM Format.  Keep BEING / END"
echo "openssl x509 -inform der -in trusted-root-ca-public-for-imcd.der -out trusted-root-ca-public-for-imcd.cer"
openssl x509 -inform der -in trusted-root-ca-public-for-imcd.der -out trusted-root-ca-public-for-imcd.cer

echo ""
echo "# Step03: Create a NSS keystore for Siteminder with CertUtil  (cert8.db, key3.db, secmod.db)"
echo " NSS = Netscape Network Security Services & ensure SM version of certutil is being used in the path"
echo ""
echo "( echo $PASSWORD ) > $LDAP_TLS/pwdfile.txt"
( echo $PASSWORD ) > $LDAP_TLS/pwdfile.txt
echo "( echo "$PASSWORD"; echo "$PASSWORD" ) | $SMHOME/bin/certutil -N -d $LDAP_TLS  -f $LDAP_TLS/pwdfile.txt"
( echo "$PASSWORD"; echo "$PASSWORD" ) | $SMHOME/bin/certutil -N -d $LDAP_TLS    -f $LDAP_TLS/pwdfile.txt
```

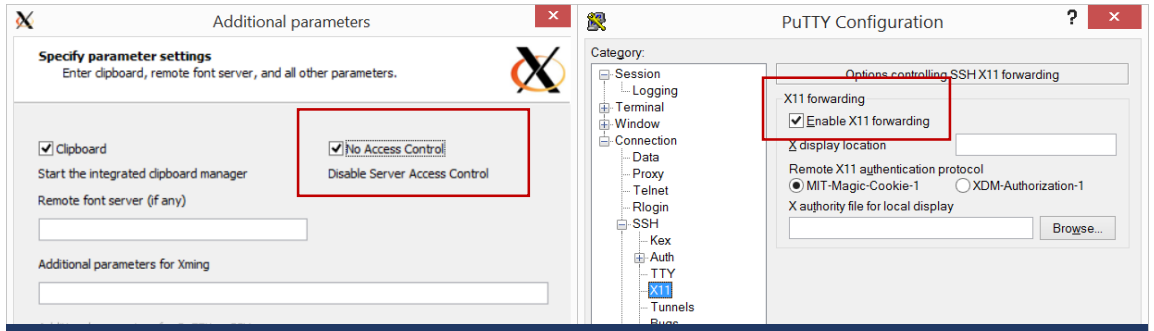
```
echo ""
echo "# Step04: Store the IMCD ROOT CA Certificate from CA Directory 'clean version' of IMCD trusted-root-ca-public-for-imcd.pem"
echo "$SMHOME/bin/certutil -A -n "IMCD_TRUSTED_CA_PUBLIC_CERT"  -t "C,," -i $LDAP_TLS/trusted-root-ca-public-for-imcd.cer -d $LDAP_TLS"
$SMHOME/bin/certutil -A -n "IMCD_TRUSTED_CA_PUBLIC_CERT"  -t "C,," -i $LDAP_TLS/trusted-root-ca-public-for-imcd.cer -d $LDAP_TLS

echo ""
echo "# Step05: Store IMCD DSA Server Public Cert from IMCD personalities IMCD_DSA_HOSTNAME.pem"
echo "$SMHOME/bin/certutil -A -n "IMCD_DSA_HOSTNAME_PUBLIC_CERT"  -t "P,," -i $LDAP_TLS/$IMCD_HOSTNAME-imcd-public.cer -d $LDAP_TLS"
echo "### Confirmed this step from bookshelf is NOT required for standard userid/password authentication over SSL/TLS"
echo "### Confirmed this step from bookshelf is NOT required for standard userid/password authentication over SSL/TLS"
echo "### Confirmed this step from bookshelf is NOT required for standard userid/password authentication over SSL/TLS"
echo ""

echo ""
echo "# Step06: List all CA and Server Public Certs in NLS Keystore"
echo "$SMHOME/bin/certutil -L -d $LDAP_TLS"
$SMHOME/bin/certutil -L -d $LDAP_TLS

echo ""
echo "# Step06b: Update ownership of the DB files of $LDAP_TLS/cert8.db"
chown -R $USER:$GROUP $LDAP_TLS
chmod -R 640 $LDAP_TLS/*.db

echo ""
echo "# Step07: Use XPSConfig to update the  SM:LdapObjCertDbPath  to $LDAP_TLS/cert8.db"
echo "# su - smuser ;  XPSConfig   ;  Select SM  ; Select # for LdapObjCertDbPath  Likely #83"
echo ""
echo "# Alternatives:  Use SMCONSOLE on the Data Tab for Netscape certificate file or"
echo "# edit the SMHOME/registry/smregistry.xml file & update CertDbPath under "
echo "# HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LdapPolicyStore"
echo ""

echo ""
echo "# Step08: Start / Stop SM Policy Server"
echo "# Shown below for manual step AFTER the above update is done"
echo "$SMHOME/stop-ps"
echo "$SMHOME/start-ps"

echo ""
echo "##################################################"
echo ""
echo "Validate NON-SSL/TLS to directory"
echo " if running this script as root, it will have access to run dxsearch as dsa"
echo " if running this script as smuser, you will need to type the password for dsa account"
echo ""
echo "dxsearch  -L -H ldap://sandbox01:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca' 'uid=diradmin' sn uid"
echo ""
su - dsa -c "dxsearch -L -H ldap://sandbox01:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w $PASSWORD -b 'ou=cam,o=ca' 'uid=diradmin' sn uid"
```

```
echo ""
echo "Validate SSL/TLS to directory"
echo "Update /etc/hosts to have alias where DSA_NAME = HOSTNAME"
echo "Example:  192.168.92.129  sandbox01 sandbox01.im.dom sandbox01-imcd"
echo "Note:  CA Directory CLI commands use DXHOME\config\ssld\dxldap.conf file"
echo ""
echo " if running this script as root, it will have access to run dxsearch as dsa"
echo " if running this script as smuser, you will need to type the password for dsa account"
echo ""
echo "dxsearch -Z -L -H ldaps://sandbox01-imcd:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca' 'uid=diradmin' sn uid"
echo ""
#su - dsa -c "dxsearch -d 1 -Z -L -H ldaps://sandbox01-imcd:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca' 'uid=diradmin' sn uid"
su - dsa -c "dxsearch  -Z -L -H ldaps://sandbox01-imcd:41389 -c -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w $PASSWORD -b 'ou=cam,o=ca' 'uid=diradmin' sn uid"

# Ignore ERROR MESSAGE:  ldap_start_tls: Operations error (1)
# This message occurs when using both the -Z switch & -H ldaps://hostname:port  URI
# This script uses both to confirm that SSL/TLS is being used; and can be seen visually without the need of debug switches.

# Note:  If error returned is:

#dxsearch -Z -H ldaps://sandbox01:41389 -c -x -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca'
#ldap_start_tls: Can't contact LDAP server (-1)
#       additional info: TLS: hostname does not match CN in peer certificate

# Add the DSA_HOSTNAME as an alias to the local host file to ensure the CN matches the HOSTNAME=DSA_NAME
#dxsearch -Z -H ldaps://sandbox01-imcd:41389 -c -x -D 'cn=diradmin,ou=serviceaccount,ou=cam,o=ca' -w Password01 -b 'ou=cam,o=ca'

echo ""
echo "# View certs in cert8.db file for CA PUBLIC CERT"
echo ""
echo "$SMHOME/bin/certutil -L -a -n IMCD_TRUSTED_CA_PUBLIC_CERT -d $LDAP_TLS"
echo ""
$SMHOME/bin/certutil -L -a -n IMCD_TRUSTED_CA_PUBLIC_CERT -d $LDAP_TLS
echo ""

# As a test to ensure the CA cert was added correctly
#$SMHOME/bin/certutil -L -a -n IMCD_TRUSTED_CA_PUBLIC_CERT -d $LDAP_TLS > test_ca.cer
echo ""
# diff test_ca.cer  trusted-root-ca-public-for-imcd.cer
```

H:\
smuser-_create_ssl_

Option 1: Update SM Policy Server to use certificate database via smconsole GUI; Data Tab; Netscape Certificate Database File Checkbox





For remote use of the SM smconsole GUI

1. Download & use open Source Xming on workstation & No Access Control is checked.
2. Ensure smuser has DISPLAY variable populated with workstation's IP address DISPLAY=192.168.92.1:0.0
3. Ensure putty profile for connection uses X11 Forwarding Feature (checked)

Option 2: Update SM Policy Server to use certificate database via use SM CLI Process: /opt/CA/siteminder/XPSConfig

```
$ XPSConfig
[XPSConfig - XPS Version 12.52.0001.154]
Log output: XPSConfig.2015-12-13_070918.log

PRODUCTS MENU*************************************************************CA

CDS  - CertificateDataStore                    12 Parameters
EPM  - Enterprise Policy Management             3 Parameters
FED  - Federation                               3 Parameters
SM   - SiteMinder                             162 Parameters
XPS  - Extensible Policy Store                 25 Parameters

------------------------------------------------------------------
  X - xTrace
------------------------------------------------------------------
  Q - Quit
------------------------------------------------------------------
Enter Option (id or X or Q):SM
```

```
Enter Option (D, V, F,  # or Q): 83

PARAMETER MENU*************************************CA.SM::$LdapObjCertDbPath

  Name:           LdapObjCertDbPath [CA.SM::$LdapObjCertDbPath]
  Type:           String
  Scope:          Managed
  Export?         yes
  Report?         no
  Remote Access:     None
  Description:       The certificate used by the LDAP stores' SSL connections.
  License Type:      None
  Default Value: (not set)

  Current Value:     "/opt/CA/siteminder/ldap_tls/cert8.db"

------------------------------------------------------------------
  C  - Change value
  Q  - Quit
------------------------------------------------------------------
Enter Option (C, or Q):C
```

```
Enter Option (id or X or Q): SM

PARAMETERS MENU************************************************************CA.SM

 1-AccTcpPort                Type: Numeric Scope: Managed
                    Desc: The TCP port used by the SiteMinder Policy Server's Accounting service.
                  Current Value:"0“

<REMOVED SECTION FOR CLARITY>

83-LdapObjCertDbPath            Type: String  Scope: Managed
                    Desc: The certificate used by the LDAP stores' SSL connections.
                  Current Value:"/opt/CA/siteminder/ldap_tls/cert8.db"

<REMOVED SECTION FOR CLARITY>

162-WorkerThreadPriorityRatio       Type: Numeric Scope: Managed
                    Desc: The worker thread priority ratio, from -100 to 100.
                  Current Value:"0"

------------------------------------------------------------------
  D - Hide Descriptions
  V - Hide Values
  F - Filter (currently none)
  Q - Quit
------------------------------------------------------------------
Enter Option (D, V, F,  # or Q):83
```

Option 3: Update SM Policy Server to use certificate database via directly update SMHOME/registry/sm.registry file

```
HKEY_LOCAL_MACHINE\SOFTWARE\Netegrity\SiteMinder\CurrentVersion\LdapPolicyStore=857188358
AdminDN=          cn=diradmin,ou=serviceaccount,ou=SiteMinder,ou=Netegrity,o=smps;      REG_SZ
AdminPW=          {RC2}BZJN06X8IKUFFuAMKQCyhOmBXACyAmIS;  REG_SZ
AppSdk=                    0;  REG_DWORD
CertDbPath=       /opt/CA/siteminder/ldap_tls/cert8.db;   REG_SZ
Enabled=                  0x1;  REG_DWORD
PSRootDN=                 o=smps;  REG_SZ
Server=           localhost:22389;  REG_SZ
Use SSL=                   0;  REG_DWORD
Version=                  5.0;  REG_SZ
```

Option 4: Update SM Policy Server to use certificate database via Unix/Linux sed command to update SMHOME/registry/sm.registry file

Update the string that manages the connection path to the NSS cert8.db file

FROM:

CertDbPath= ; REG_SZ

TO:

CertDbPath= /opt/CA/siteminder/ldap_tls/cert8.db; REG_SZ

```
grep "^CertDbPath=          " sm.registry                    [Check search criteria for sed.    Eleven spaces?]
grep '^CertDbPath=.*REG_SZ$' sm.registry
grep '^CertDbPath=       .*. ;.*REG_SZ$' sm.registry     [If entry is not populated, this will display the line; assumes a space prior to ;]
```

```
sed -i 's|^CertDbPath=       .*. ;.*REG_SZ$|CertDbPath=     /opt/CA/siteminder/ldap_tls/cert8.db;   REG_SZ|g' sm.registry
```

Note: The path of the cert8.db file has no space that separates the semi-colon (;) from the file name.
& number of spaces has no impact prior to path.

A view of IMCD's CA Public Certificate (SMPS certutil versus DSA trusted.pem)

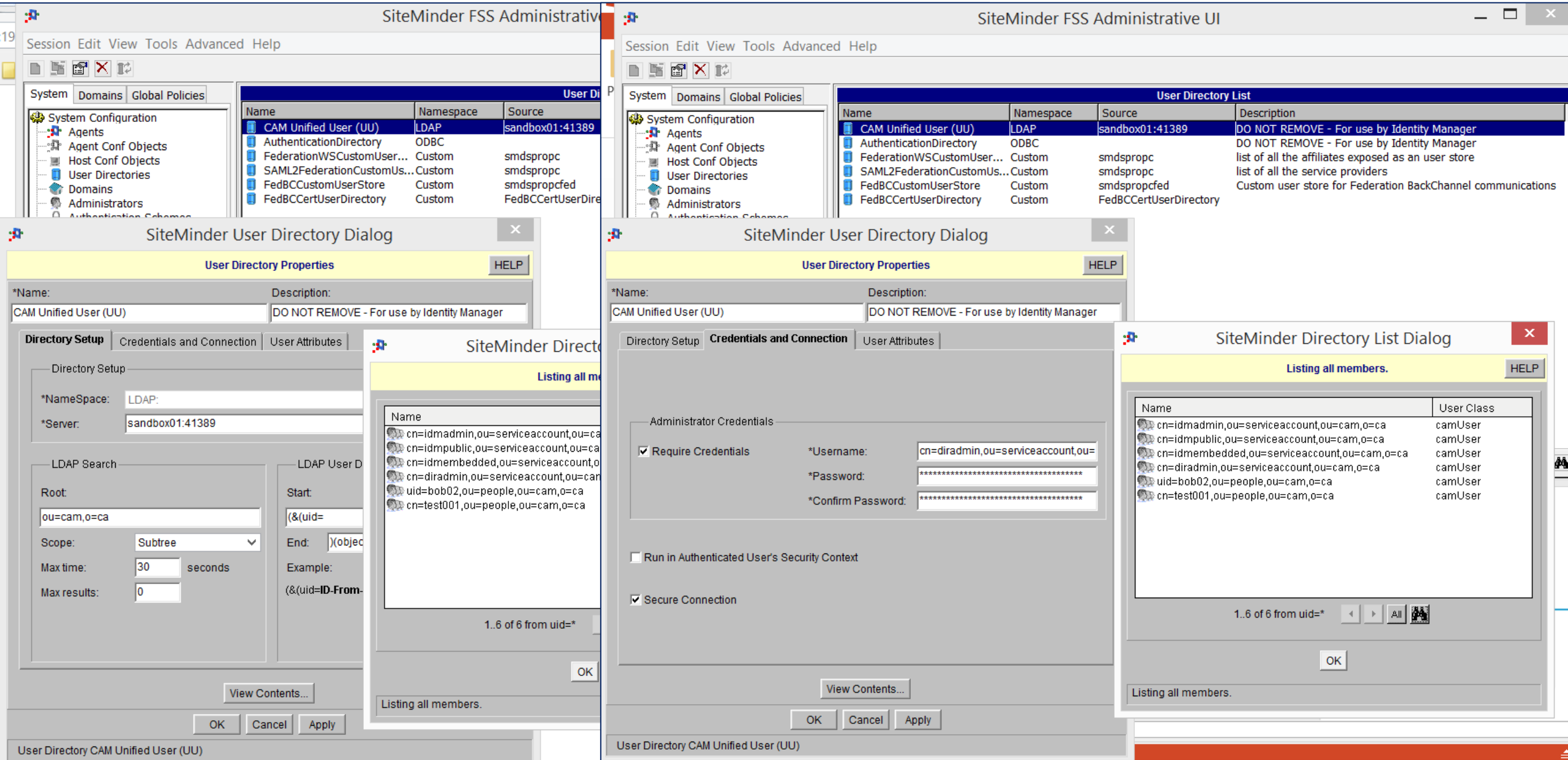
IMCD CA Public Cert pulled via certutil from cert8.db file
Note: Only the BEGIN CERTIFICATE / END CERTIFICATE section is retained/stored.

```
bash-4.2$ pwd
/opt/CA/siteminder/ldap_tls
bash-4.2$ certutil -L -a -n IMCD_TRUSTED_CA_PUBLIC_CERT -d  .
-----BEGIN CERTIFICATE-----
MIIDEjCCAfqgAwIBAgIBATANBgkqhkiG9w0BAQUFADA6MQswCQYDVQQGEwJBVTEV
MBMGA1UECgwMRFhDZXJ0R2VuUEtJMRQwEgYDVQQDDAtEWENlcnRHZW5DQTAeFw0x
NTEwMDMwMzUzNTRaFw0yNTA5MzAwMzUzNTRaMDoxCzAJBgNVBAYTAkFVMRUwEwYD
VQQKDAxEWENlcnRHZW5QS0kxFDASBgNVBAMMC0RYQ2VydEdlbkNBMIIBIjANBgkq
hkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAhdcYA8HaiAg7GWZ5aapLzF8Zsp8HkPbO
pA+NEQEzu+YhquhQwXR9lqhHYSOY01P/na3C7+U0VAve0x2+QMlgRgnc62xvCL8H
XW8q2q8wOnGYW6wFEuDQV2sk847jmPf5zN3SAelixqjn9pUxNBTKjfxClsa0R3Kc
DHcvV5MAwniP639HPjwy8Wx08H3pEGPvOmCNqDACj1ilrAiKcfJHJVUaC6RBV/oF
FQ4cAjMRVOF9tGPpOwe0/gS0Y4idojvnq+I5lAhjDpX0MBISNQ2J4TEvlO3iviL+
zi3QTZ4ETLc87CSo8KDjJrbFo3gACDHj0CB29TeOaeDoFd8eoB0BewIDAQABoyMw
ITAOBgNVHQ8BAf8EBAMCAQYwDwYDVR0TAQH/BAUwAwEB/zANBgkqhkiG9w0BAQUF
AAOCAQEAVld+SREdFlBGjzY0EKZgYM20CbzMLvOb6VYYido+MI3Bt10/+P0jyuex
Zf420a0y2iO5kJ65XgXjYArfyD/48jeB9VbRs4xdSXfvq6yU4JCeHX3zsHet4fNT
zylBYvM9reD/R9QXZZuGheAFH3u2ThrGlpCxaSa02/6lj6BC9eAdh3HoV5xtyaSH
uxinhbY7tdGe8iwj3ggW02BbFa/fejLICHfRlJl3wbMAOk9IMjIB7LL7S21g/Bz2
Tkwunm5c+w9P1pt8H7IEiALekk6aqtDWKuR7Qb+W699NJqHhHJZ9n78NLYYx1Ly7
E5/Y3Pbn/talVpUdXGOAcHeVBX/eYw==
-----END CERTIFICATE-----
bash-4.2$
```

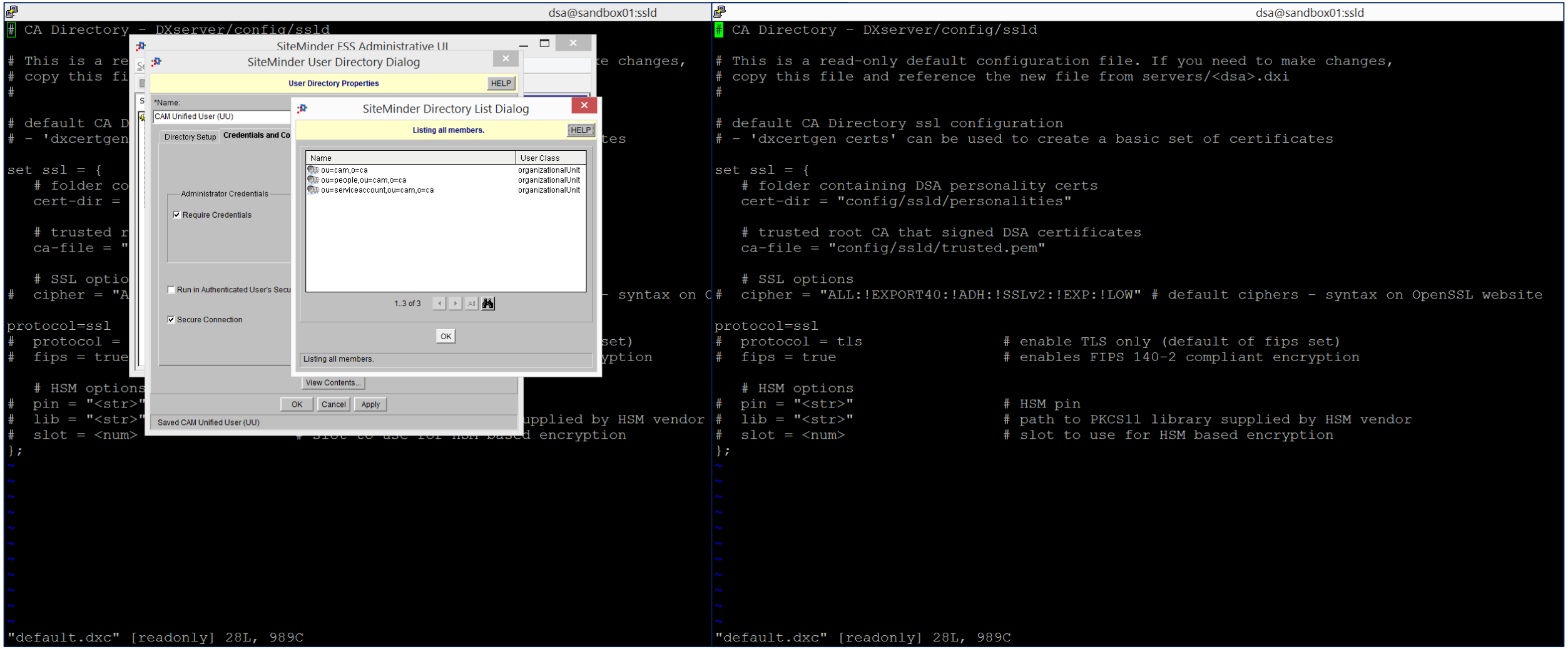
IMCD CA Public Cert from DXHOME/ssld/trusted.pem
The PEM file contains the ASCII text header, as well as the BEGIN CERTIFICATE / END CERTIFICATE section.

```
-----BEGIN CERTIFICATE-----
MIIDEjCCAfqgAwIBAgIBATANBgkqhkiG9w0BAQUFADA6MQswCQYDVQQGEwJBVTEV
MBMGA1UECgwMRFhDZXJ0R2VuUEtJMRQwEgYDVQQDDAtEWENlcnRHZW5DQTAeFw0x
NTEwMDMwMzUzNTRaFw0yNTA5MzAwMzUzNTRaMDoxCzAJBgNVBAYTAkFVMRUwEwYD
VQQKDAxEWENlcnRHZW5QS0kxFDASBgNVBAMMC0RYQ2VydEdlbkNBMIIBIjANBgkq
hkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAhdcYA8HaiAg7GWZ5aapLzF8Zsp8HkPbO
pA+NEQEzu+YhquhQwXR9lqhHYSOY01P/na3C7+U0VAve0x2+QMlgRgnc62xvCL8H
XW8q2q8wOnGYW6wFEuDQV2sk847jmPf5zN3SAelixqjn9pUxNBTKjfxClsa0R3Kc
DHcvV5MAwniP639HPjwy8Wx08H3pEGPvOmCNqDACj1ilrAiKcfJHJVUaC6RBV/oF
FQ4cAjMRVOF9tGPpOwe0/gS0Y4idojvnq+I5lAhjDpX0MBISNQ2J4TEvlO3iviL+
zi3QTZ4ETLc87CSo8KDjJrbFo3gACDHj0CB29TeOaeDoFd8eoB0BewIDAQABoyMw
ITAOBgNVHQ8BAf8EBAMCAQYwDwYDVR0TAQH/BAUwAwEB/zANBgkqhkiG9w0BAQUF
AAOCAQEAVld+SREdFlBGjzY0EKZgYM20CbzMLvOb6VYYido+MI3Bt10/+P0jyuex
Zf420a0y2iO5kJ65XgXjYArfyD/48jeB9VbRs4xdSXfvq6yU4JCeHX3zsHet4fNT
zylBYvM9reD/R9QXZZuGheAFH3u2ThrGlpCxaSa02/6lj6BC9eAdh3HoV5xtyaSH
uxinhbY7tdGe8iwj3ggW02BbFa/fejLICHfRlJl3wbMAOk9IMjIB7LL7S21g/Bz2
Tkwunm5c+w9P1pt8H7IEiALekk6aqtDWKuR7Qb+W699NJqHhHJZ9n78NLYYx1Ly7
E5/Y3Pbn/talVpUdXGOAcHeVBX/eYw==
-----END CERTIFICATE-----
[dsa@sandbox01 ssld]$ pwd
/opt/CA/Directory/dxserver/config/ssld
[dsa@sandbox01 ssld]$ cat trusted.pem
```

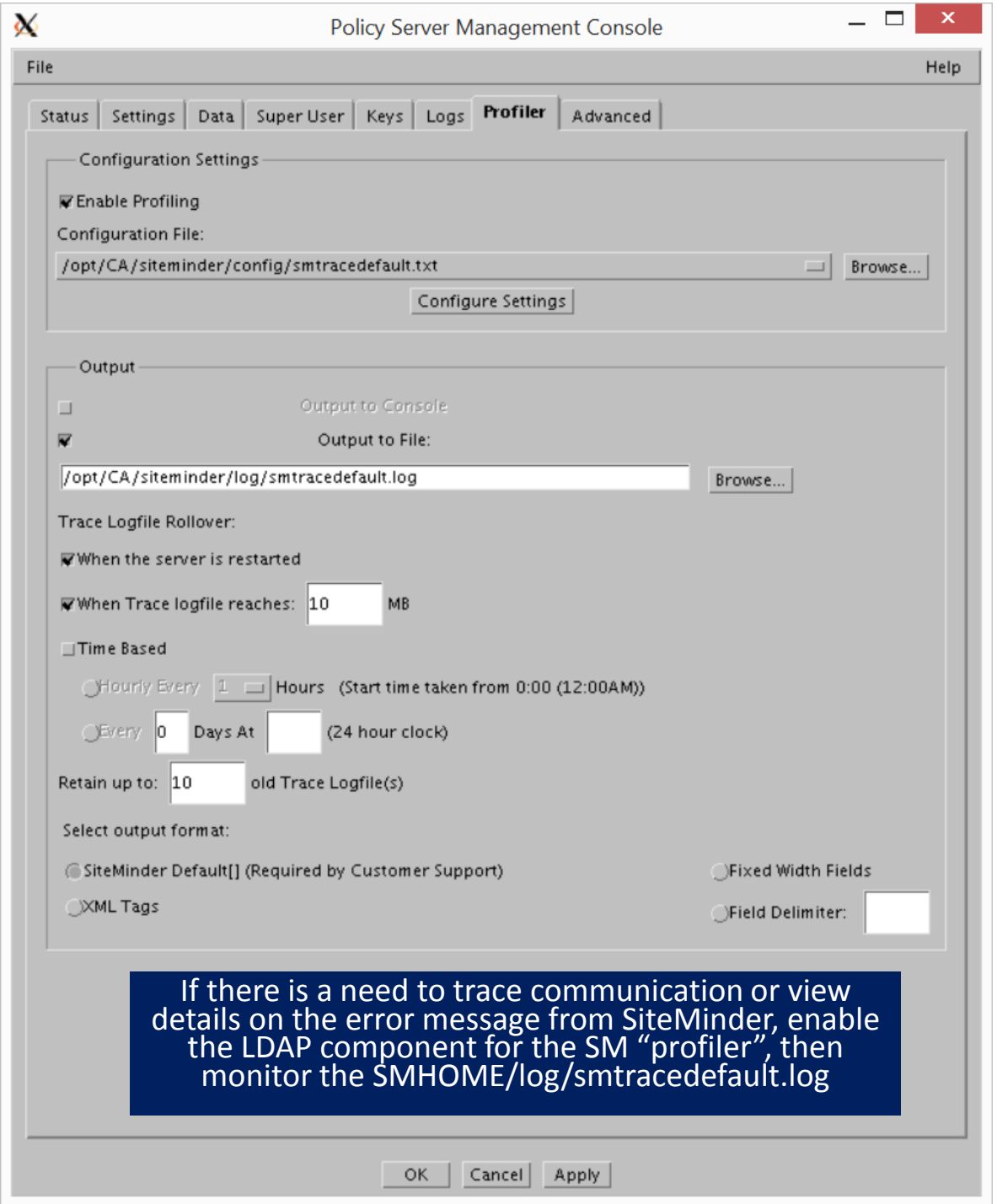
USE SM UI (WAMUI/FSSUI) To Validate Query over SSL (Secure Connection)



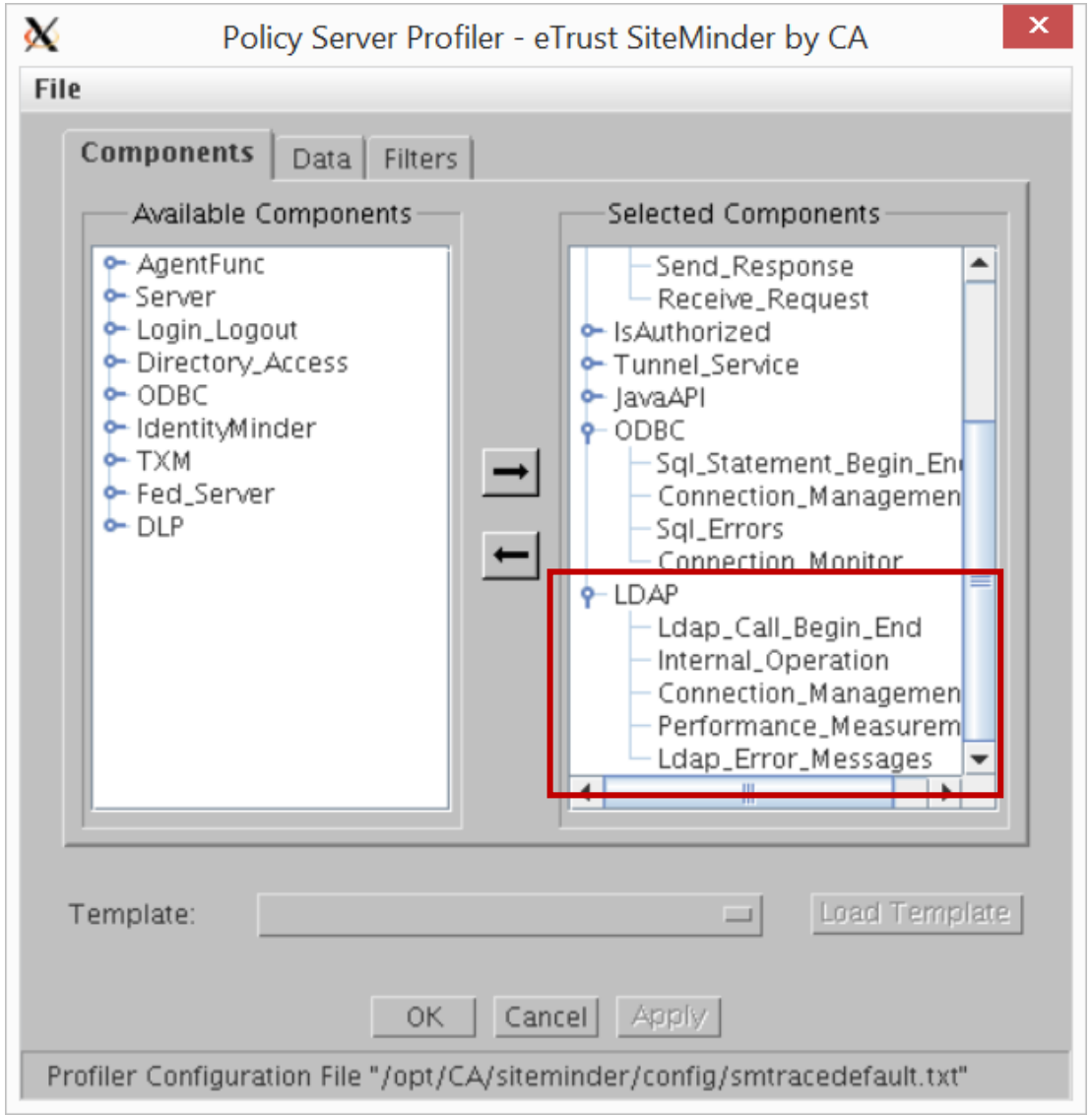
A view of the CA IMCD DSA Use of SSLv3 Protocol & SM able to communicate to IMCD



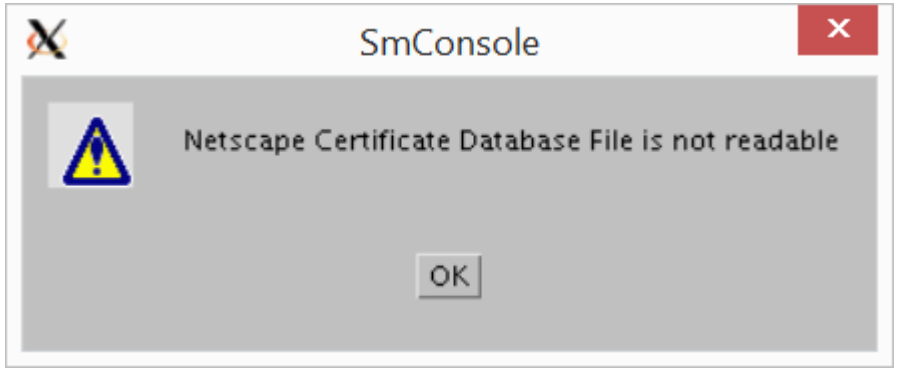
Troubleshoot Processes: SM Trace Log for LDAP



If there is a need to trace communication or view details on the error message from SiteMinder, enable the LDAP component for the SM "profiler", then monitor the SMHOME/log/smtracedefault.log



Troubleshoot Processes:
Ensure File Permission & Ownership for Certs db files are correct for smuser



chmod –R 644 *.db
chown –R smuser:smuser *.db

```
-rw-------.  1    644 smuser 16384 Dec 11 18:29 secmod.db
drwxrwxr-x.  2 smuser smuser  4096 Dec 11 18:29 .
-rw-------.  1    644 smuser 16384 Dec 11 18:29 key3.db
-rw-------.  1    644 smuser 65536 Dec 11 18:29 cert8.db
drwxr-xr-x. 31 smuser smuser  4096 Dec 12 16:02 ..
[root@sandbox01 ldap_tls]# chown -R smuser:smuser *.db
```

References

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http://firstyear.id.au/entry/15
https://developer.mozilla.org/en-US/docs/Mozilla/Projects/NSS/tools/NSS_Tools_certutil

Various SSL/TLS Certificate File Types/Extensions (pem,der,cer)
http://blogs.msdn.com/b/kaushal/archive/2010/11/05/ssl-certificates.aspx

CA SM Documentation (LDAP over SSL with NSS cert8.db)
https://docops.ca.com/ca-single-sign-on-1251sp1/en/administrating/configuring-policy-server-data-storage-options/how-to-configure-ssl-support
https://docops.ca.com/ca-siteminder-federation-standalone/en/configuring/user-directory-connections-for-authentication/how-to-connect-to-an-ldap-user-directory-over-ssl

CA SM Tech Tips
https://ca-tech.jiveon.com/thread/241734151

CA Directory r12sp14 Note about SSLv3 versus TLS (default settings)
https://communities.ca.com/thread/241739401