Microsoft Lync 2013 Integration

1. Pre-requirements

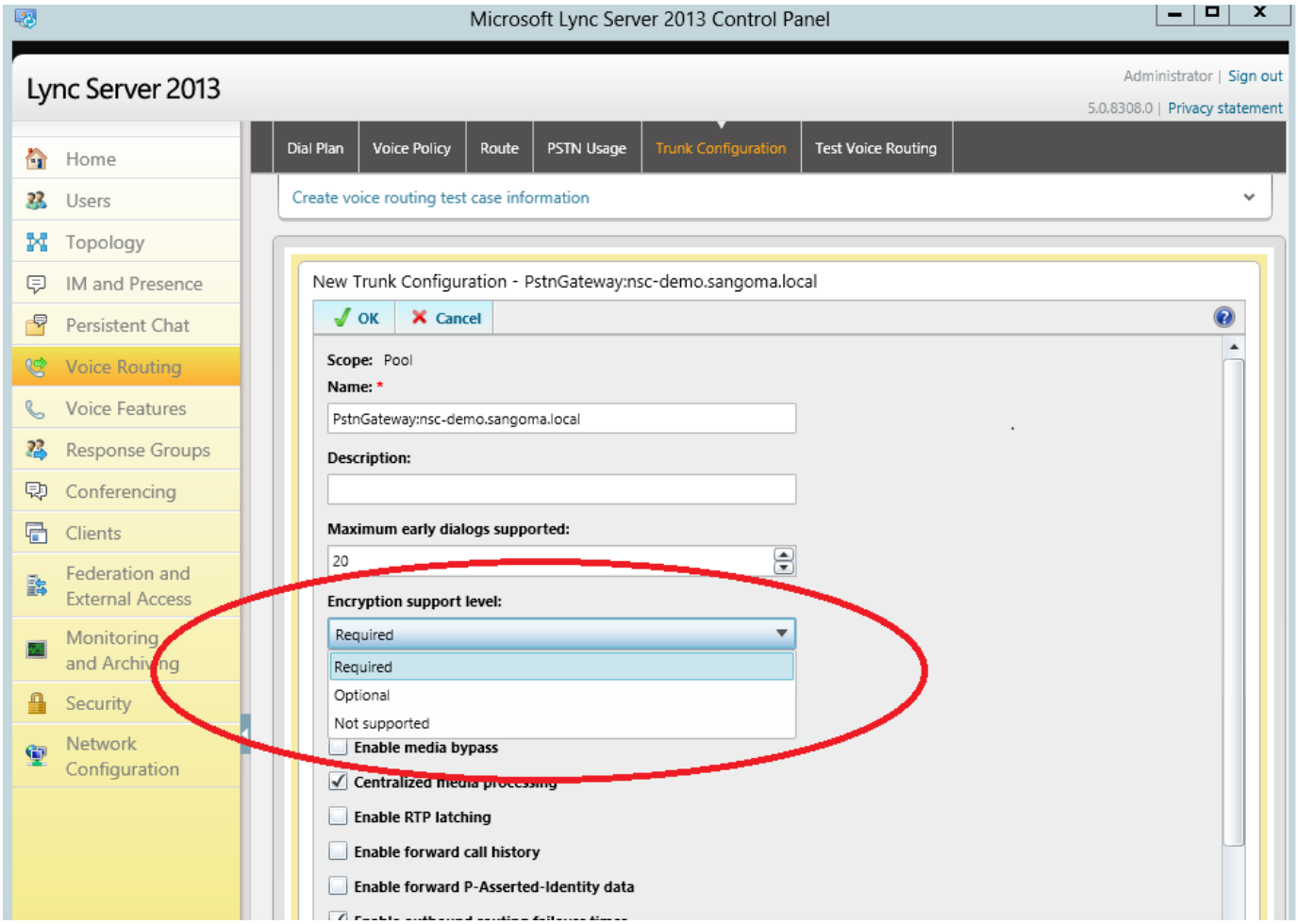
Before you start to configure NSC to connect with Lync Server, you need to know some information first:

a. ***Transport type*** to use for SIP signalling (TCP or TLS. Lync Mediation Server doesn't support UDP for SIP signalling);

b. Lync Server ***Mediation Server*** SIP listening ***port*** (By default, 5067 for TLS or 5068 for TCP);

c. ***NSC*** SIP listening ***port***, e.g. I use port 5081 here for either TCP or TLS;

d. Lync Server Trunk Configuration **"*Encryption support level*"**: Required, Optional or Not Supported



e. ***FQDN*** or ***IP address*** of Lync Server Mediation Server

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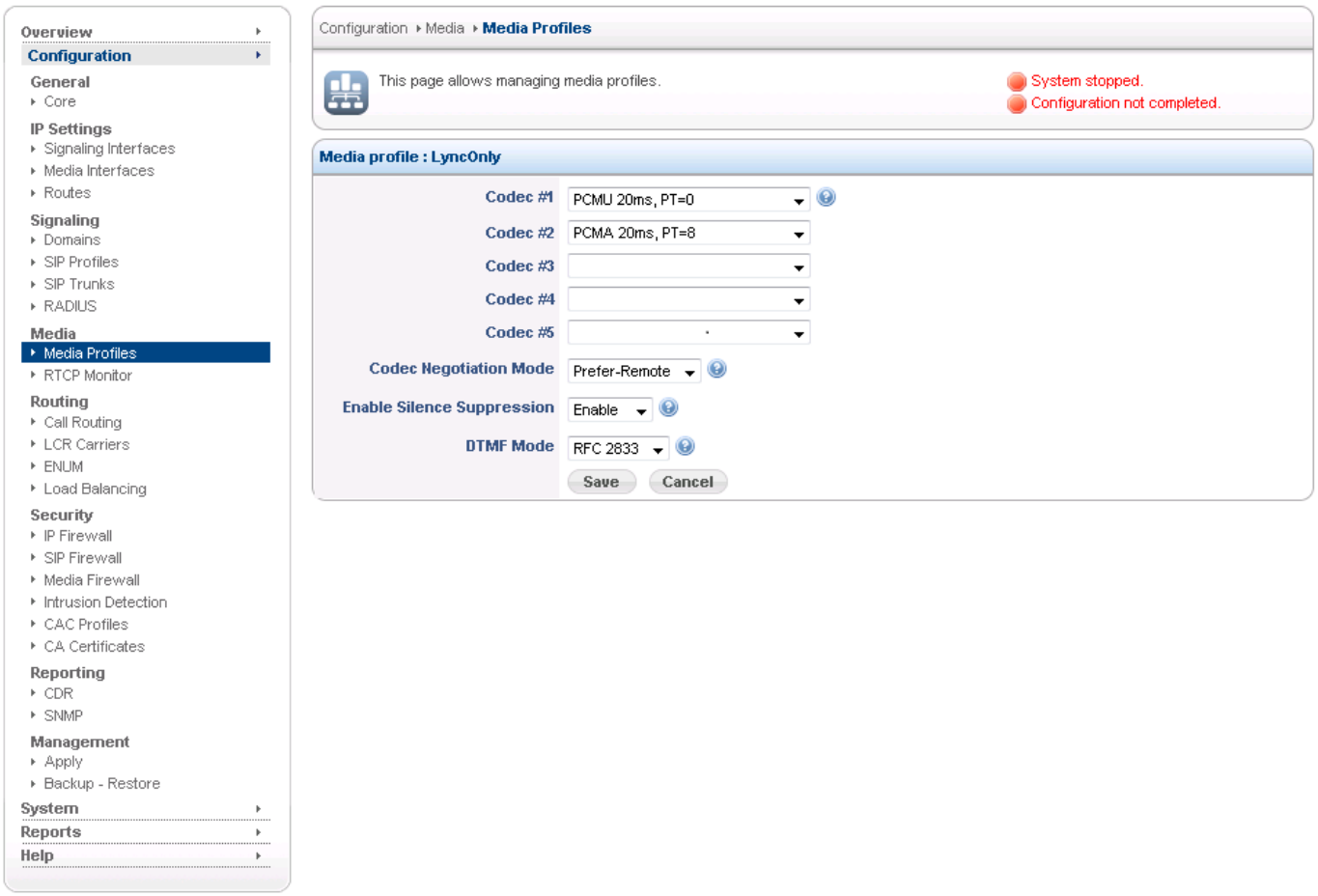
2. Media Profile

Because Lync only supports G711 codecs (**PCMU** and **PCMA**), it is suggested that you create a media profile that only includes PCMU and PCMA.

- Go to **"Configuration -> Media -> Media Profiles"**, create a new media profile named "LyncOnly" (of course you can use other name you like);
- Make sure that only **"PCMU 20ms, PT=0"** and **"PCMA 20ms, PT=8"** are selected;
- Set **"Enable Silence Suppression"** to "Enabled";
- Save the media profile.



3. Outbound Call

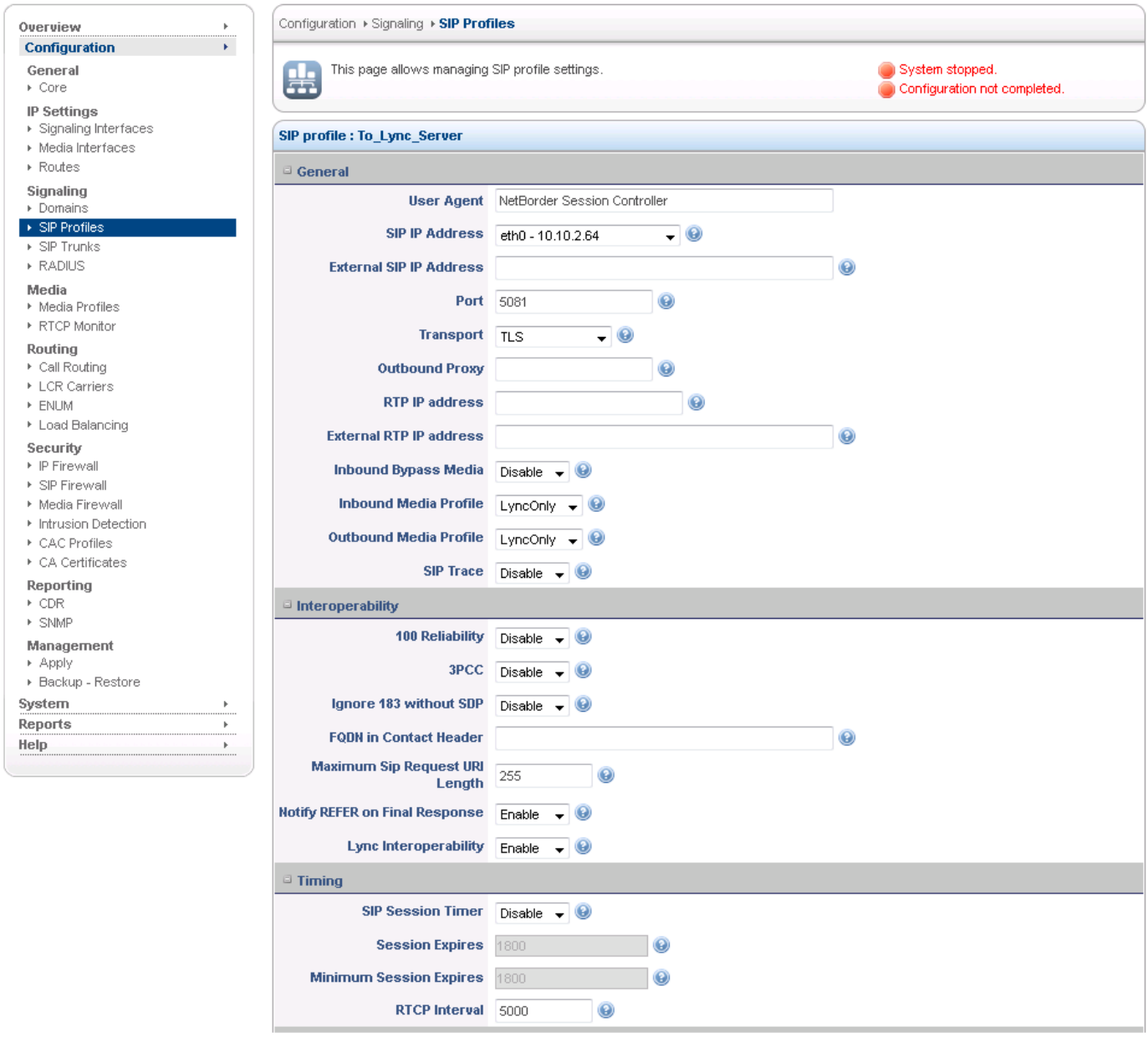
For a call from Mediation Server to NSC, we call it an outbound call; what we need to do is to create NSC SIP Profile.

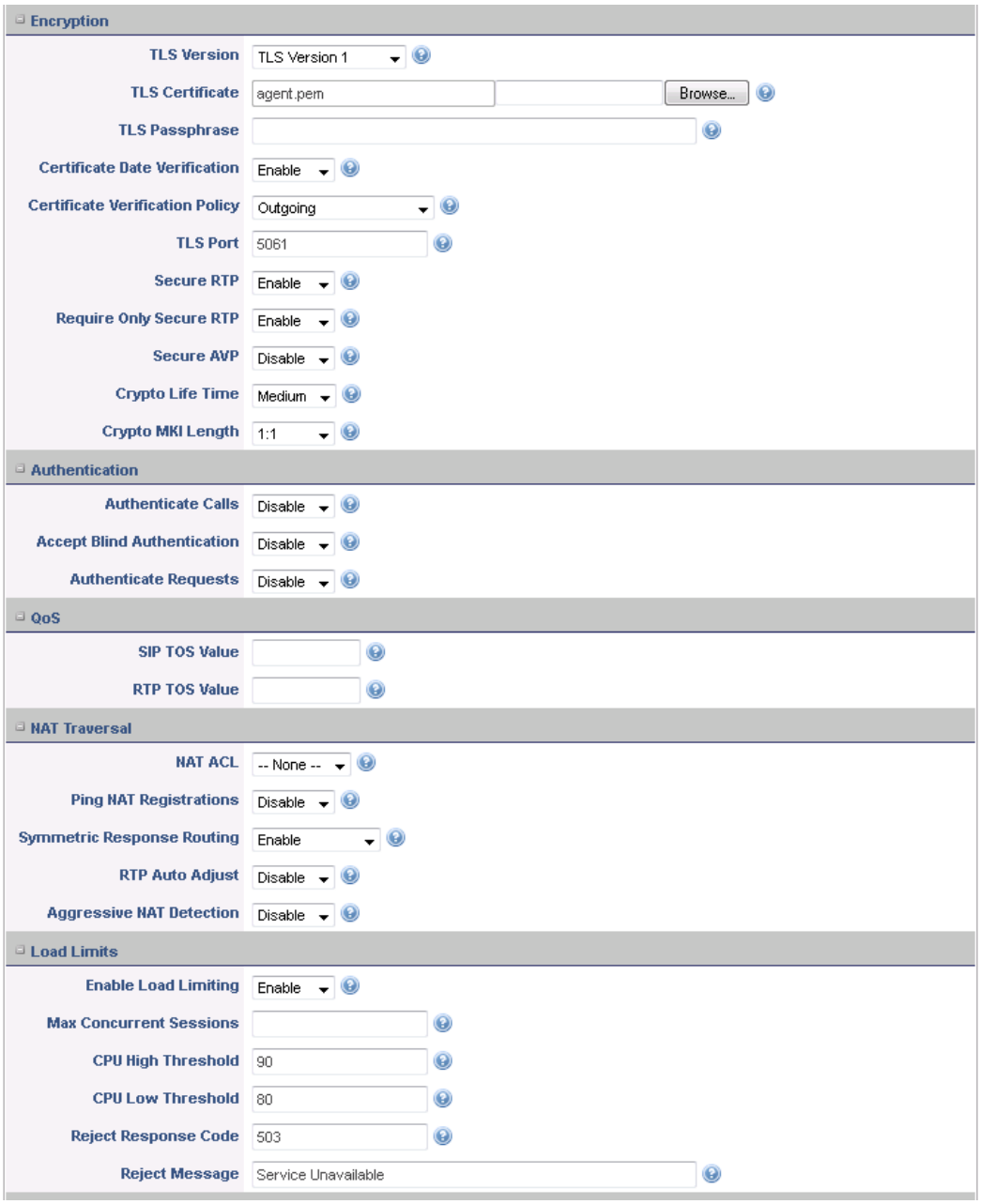
- Go to **"Configuration -> Signalling -> SIP Profiles"**, add a new sip profile;
- You will have a default configuration, and do the following changes:

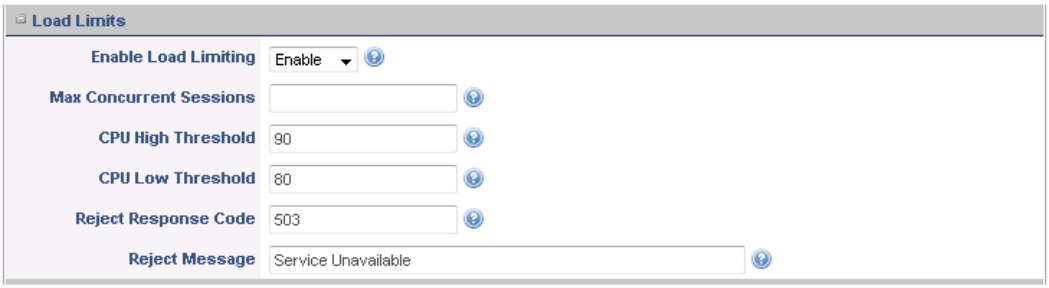
1. **"SIP IP Address"**: choose the NIC you want to use for SIP listening;
2. **"Transport"**: choose "TCP" or "TLS" depending on 1-a;
    1. If "Transport" is "TCP", set the value of 1-c (e.g. 5081) into item **"Port"**;
    2. if "Transport" is "TLS", set the value of 1-c (5081) to item **"TLS Port"**;
    3. note: that when TCP is the only transport, "Port" will be used; if TLS is the only transport, only "TLS Port" is used.
3. Set both **"Inbound Media Profile"** and **"Outbound Media Profile"** to "LyncOnly"
4. Set **"Maximum Sip Request URI Length"** to "*255*"
5. Set **"Notify REFER on Final Response"** to "Enabled"

6. Set **"Lync Interoperability"** to "Enabled"
7. Upload TLS Server Certificate in **"TLS Certificate"**; (check Annex A for more details about Certificate Generation)
8. Set **"Authenticate Calls"** to "Disabled"
9. Depends on the value of 1-d (Encryption support level):(In real world, if you want a call to be completely secure, please pick TLS and Encryption level "Required")
    1. when it is "Not Supported": **"Secure RTP"** = "Disabled";
    2. when it is "Required": **"Secure RTP"** = "Enabled"; **"Require Only Secure RTP"** = "Enabled"; **"Secure AVP"** = "*Disabled*"; **"Crypto Life Time"** = "Medium"; **"Crypto MKI Length"** = "1:1";
    3. when it is "Optional": **"Secure RTP"** = "Enabled"; **"Require Only Secure RTP"** = "Enabled"; **"Secure AVP"** = "*Enabled*"; **"Crypto Life Time"** = "Medium"; **"Crypto MKI Length"** = "1:1"

Here below I attach a set of screen shots for TLS configuration:





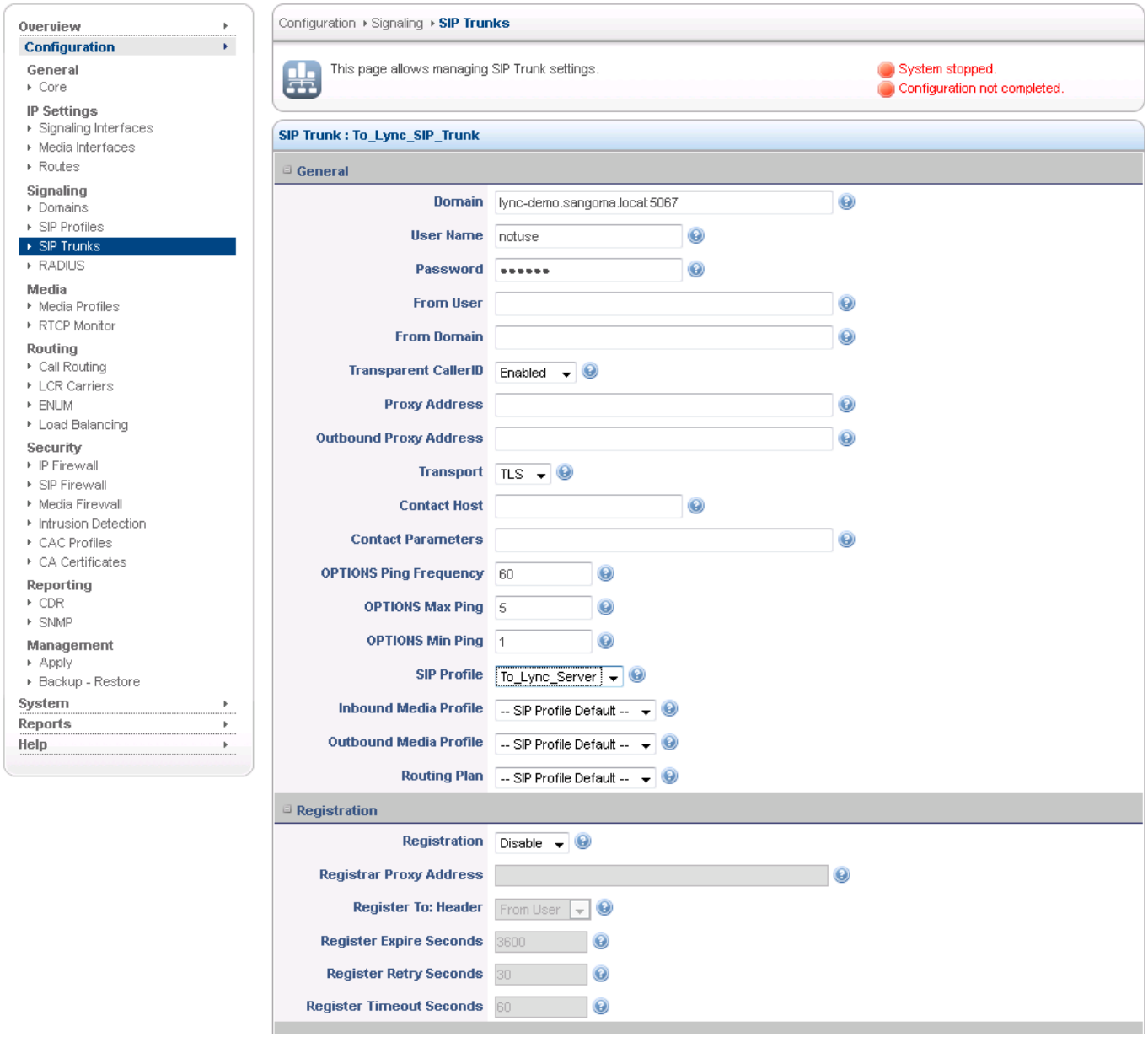


Don't forget to link this sip profile to the correct dial plan.

4. Inbound Call

For a call from NSC to Mediation Server, we call it an inbound call; besides the sip profile we defined in section 3, we need to create a new sip trunk

- Go to **"Configuration -> Signalling -> SIP Trunks"**, add a new sip trunk;
- Get the value of 1-e(Mediation Server IP or FQDN) and 1-b(Mediation Server port), create <ip>:<port> format string, e.g. "lync-demo.sangoma.local:5067", and then fill into **"Domain"**;
- Fill in **"User Name"** and **"Password"** with dummy string, like "notuse" and "notuse";
- Fill in **"Transport"** with the value from 1-a;
- **"Options Ping Frequency"** = "60";
- **"Options Max Ping"** = "5";
- **"Options Min Ping"** = "1";
- In Sip Profile, choose the sip profile created in section 3;
- Keep **"Registration"** to "Disabled"
- Save the sip trunk configuration.



Annex A. Certificates for TLS

To make NSC work with Lync Server Mediation Server through TLS, you need to have 2 certificates in hand: CA Root Certificate and Server Certificate.

Get CA Root Certificate from whoever can access your CA authority, rename the extension of the file to ".pem" and then you can upload it into NSC "**CA Certificates**".

For TLS Server Certificate, you need to prepare 2 files: one is your private key (never give file to others); the other is Certificate Request.

A.1 Generation of Certificate Request

To generate a certificate request SSH into the SBC and run the command below. The FQDN being used here is "testsbc.sangoma.com".

```
cd /usr/local/nsc/conf/ssl/
/usr/local/nsc/bin/gentls_cert create_server_req -cn testsbc.sangoma.com -alt DNS:testsbc.sangoma.com -org sangoma.com
cat myreq.req
```

At this point your certificate request will be displayed on the SSH window. Copy and paste the text to your CA to generate the certificate.

A.2 Uploading Certifciate to SBC.

NSC only supports BASE 64 format, we don't support DER format.

WINSCP into the SBC and copy the certificate file from your CA into /usr/local/nsc/conf/ssl/. Ensure this file is in the Base64 format. As well ensure the file is renamed to "certificate.pem". Once this is done run the commands below to create the agent.pem file. This will contain both the certificate and the private key.

```
cd /usr/local/nsc/conf/ssl/
cat certificate.pem myreq.key > agent.pem
```

At this point WINSCP the agent.pem to your local desktop and log into the SBC via the webUI and go to Configuration -> Security -> Certificates. Upload the agent.pem as a Server certificate.