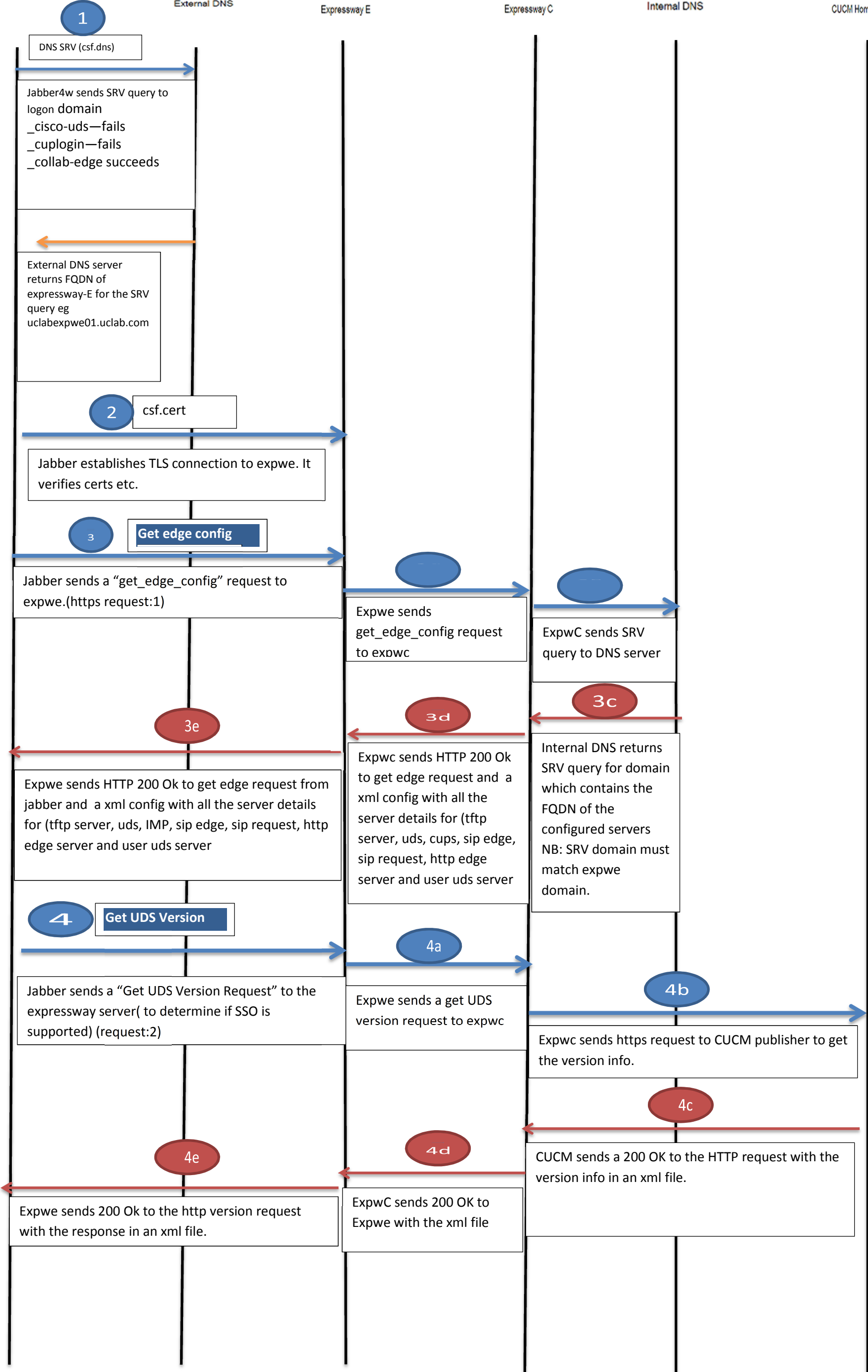


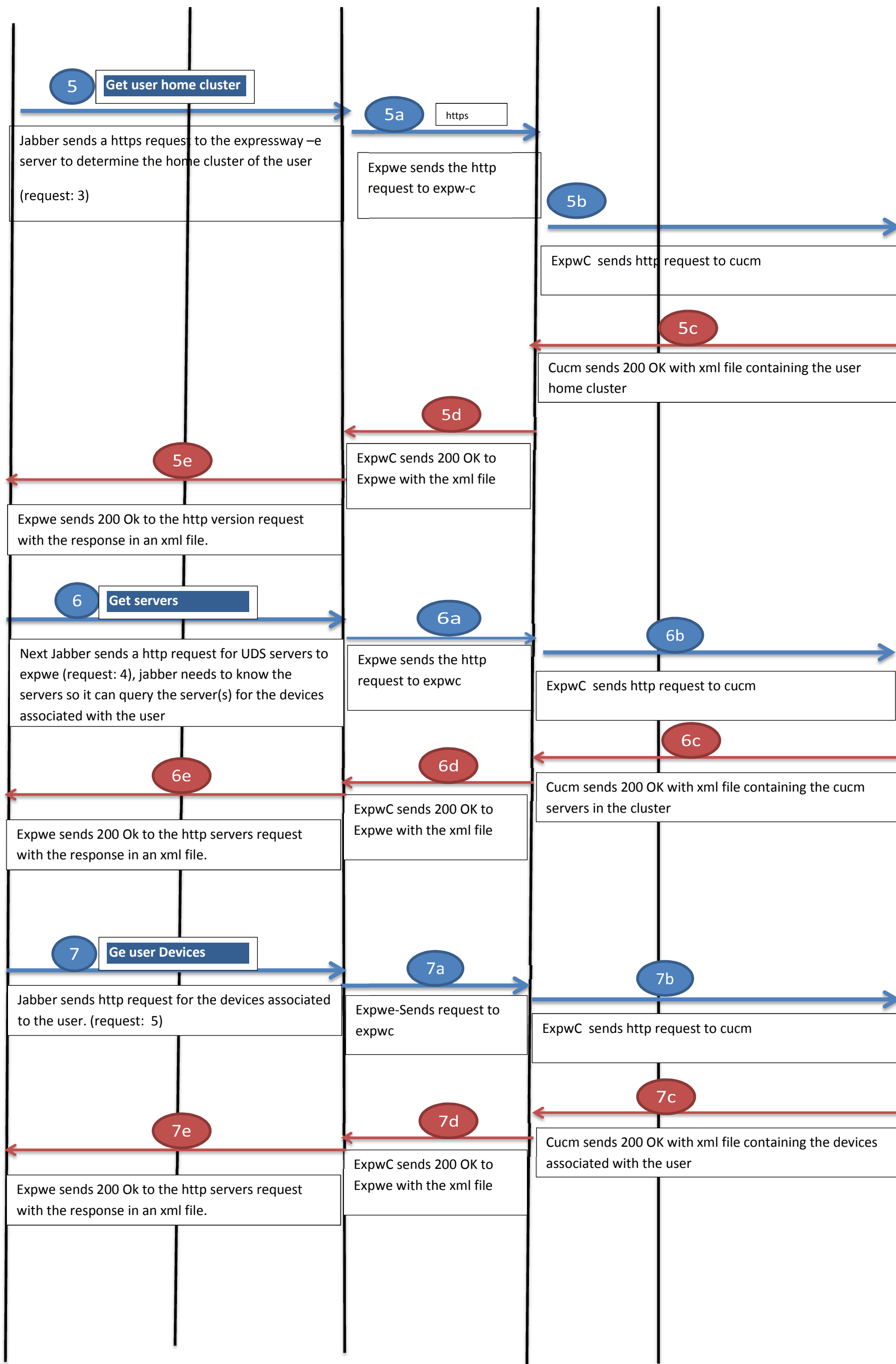
JABBER MRA DETAILED CALL FLOW

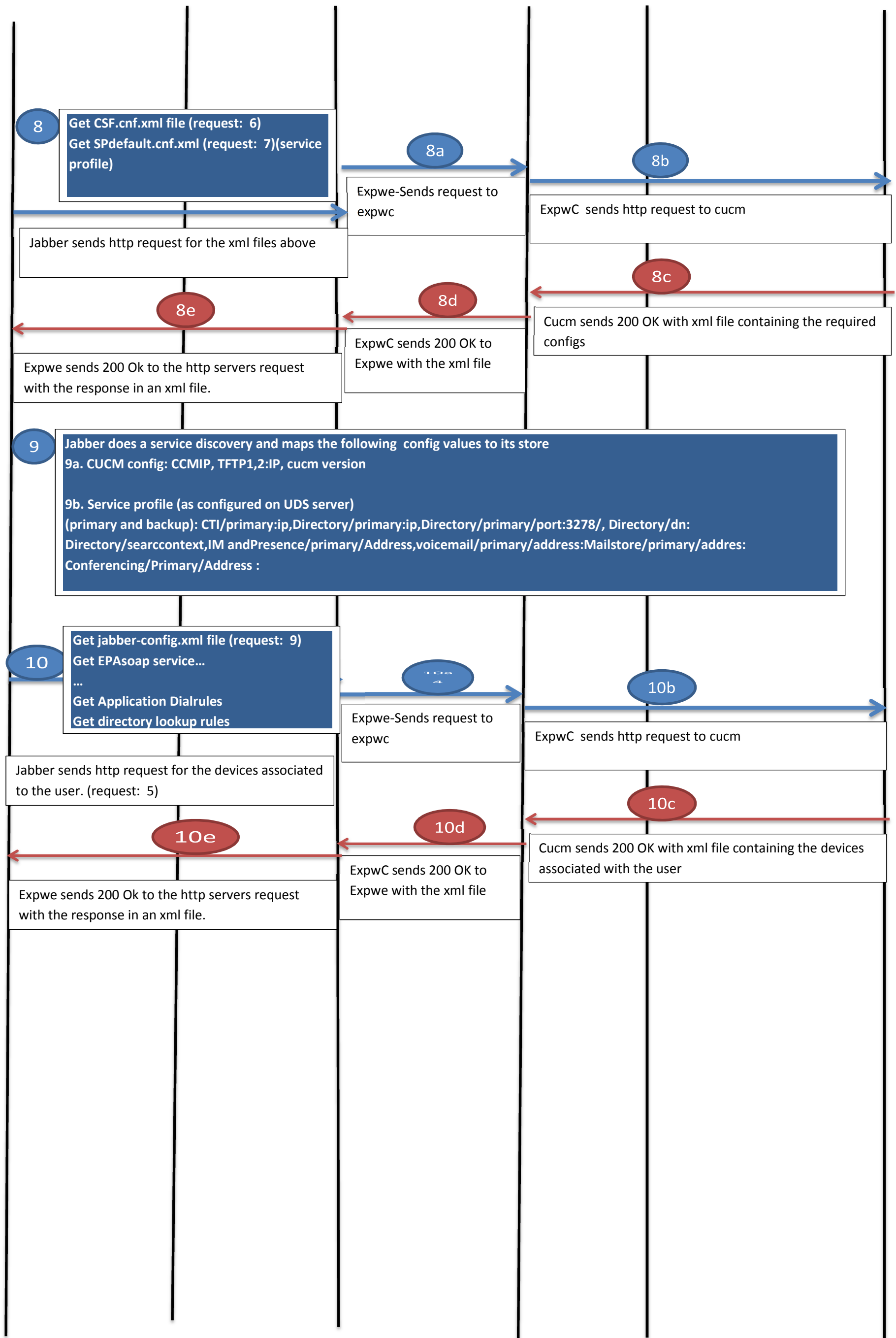
This document details the call flow involved with Jabber mobile remote access feature. It delves into the underlying elements of each phase of how jabber discovers services, interacts with expressway-e server, registers with CUCM etc. This document provides a great insight into deploying and troubleshooting the Jabber MRA

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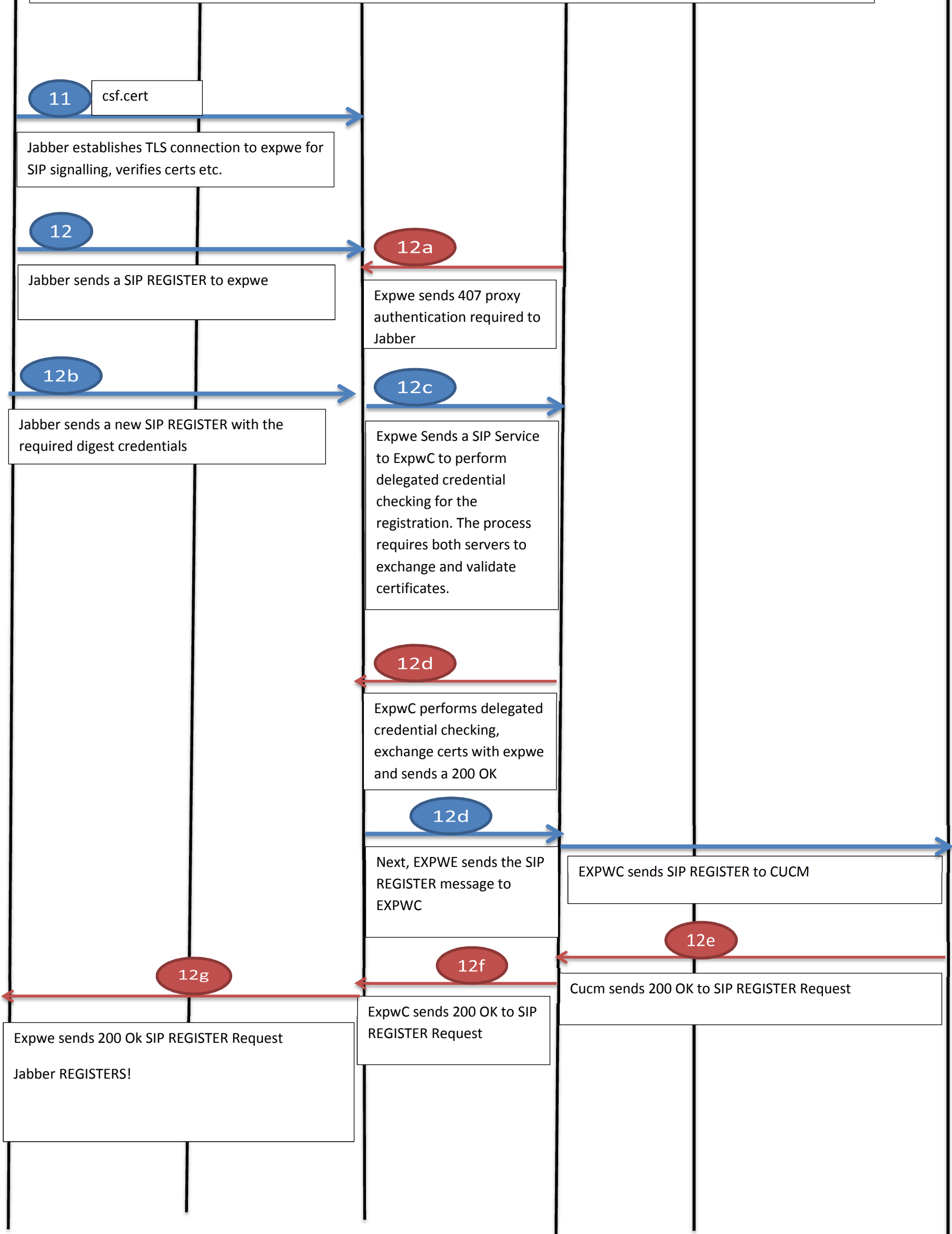
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JABBER REGISTRATION BEGINS:
 AT this point user is successfully authenticated, however the process of registering the CSF device begins here. NB user may successfully authenticate but the CSF device may not register.
 Up until now, all messaging between Jabber and Expwe has been via secure https tunnel. Jaber needs to build a secure SIP tunnel for sip signalling now..



1. DNS SRV Query

Jabber sends SRV query to DNS server for the domain user attempts to login with eg mac.donald@uclab.com
Excerpts from jabber logs are show below:

- [csf.dns] [dns::mapFromWindowsDNSResult] - *-----* DNS query _cisco-uds._tcp.uclab.com. has failed: DNS name does not exist.
- [csf.dns] [dns::DnsUtils::executeSRVRecordQuery] - About to make DNS SRV record query '_cuplogin._tcp.uclab.com.'
- [csf.dns] [dns::mapFromWindowsDNSResult] - *-----* DNS query _cuplogin._tcp.uclab.com. has failed: DNS name does not exist.
- [csf.dns] [dns::DnsUtils::executeSRVRecordQuery] - About to make DNS SRV record query '_collab-edge._tls.uclab.com.'
- [csf.dns] [dns::mapFromWindowsDNSResult] - *-----* DNS query _collab-edge._tls.uclab.com. has succeeded.

Jabber has successfully received SRV records for collab edge. Hence Jabber needs to send a get_edge_config, however because this is sent over a secure http tunnel (https), jabber needs to setup a TLS connection to Expressway-E

2. SECURE HTTP CONNECTION (TLS CONNECTION)

Jabber sets up a TLS connection to expressway-E before sending edge https request. Excerpts of certificate exchange and verification shown below:

```
--
--
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(261)] [csf.httpclient] [http::CurlHttpUtils::curlSSLCallback] - fqdn : uclabexpwe01.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(348)] [csf.httpclient] [http::CurlHttpUtils::verifyCb] - Using strict identity match for certificate
csf.cert] [cert::CertVerifier::verifyCertificate] - verifyCertificate from uclabexpwe01.uclab.com using ctx
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [ls\src\cert\common\CertVerifier.cpp(264)] [csf.cert] [cert::CertVerifier::verifyCertificate] - verifyCertificate from uclabexpwe01.uclab.com
using ctx
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\common\CertificateData.cpp(145)] [csf.cert] [cert::CertificateData::parseSubjectCNField] - size of Subject CN field : 28
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\common\CertificateData.cpp(159)] [csf.cert] [cert::CertificateData::parseSubjectCNField] - Subject CN field : uclabexpwe-
cluster.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(174)] [csf.cert.utils] [cert::AltNameParserImpl::parse] - parsing a cert chain
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(185)] [csf.cert.utils] [cert::AltNameParserImpl::parse] - parsing a leaf cert
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(192)] [csf.cert.utils] [cert::AltNameParserImpl::parse] - parsing Subject CN field
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(118)] [csf.cert.utils] [cert::parseSubjectCNField] - size of Subject CN field : 28
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(132)] [csf.cert.utils] [cert::parseSubjectCNField] - Subject CN field : uclabexpwe-cluster.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(195)] [csf.cert.utils] [cert::AltNameParserImpl::parse] - parsing Subject Alt Name
2014-09-01 21:59:13,624 INFO [0x000002bc] [rc\cert\utils\AltNameParserImpl.cpp(228)] [csf.cert.utils] [cert::AltNameParserImpl::parse] - number of Subject Alt Name fields : 4
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\utils\AltNameParserImpl.cpp(62)] [csf.cert.utils] [cert::parseDNSField] - parsed dnsName : uclabexpwe-cluster.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\utils\AltNameParserImpl.cpp(62)] [csf.cert.utils] [cert::parseDNSField] - parsed dnsName : uclabexpwe02.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\utils\AltNameParserImpl.cpp(62)] [csf.cert.utils] [cert::parseDNSField] - parsed dnsName : uclabexpwe01.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\utils\AltNameParserImpl.cpp(89)] [csf.cert.utils] [cert::parseOtherNameField] - OID : 1.3.6.1.5.5.7.8.7
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [src\cert\utils\AltNameParserImpl.cpp(95)] [csf.cert.utils] [cert::parseOtherNameField] - parsed SRVName : _collab-edge._tls.uclab.com
2014-09-01 21:59:13,624 DEBUG [0x000002bc] [ls\src\cert\common\CertVerifier.cpp(378)] [csf.cert] [cert::CertVerifier::doVerifyCertificate] - About to verify the certificate.
2014-09-01 21:59:13,733 DEBUG [0x000002bc] [rc\cert\win32\Win32CertVerifier.cpp(241)] [csf.cert.win32] [cert::Win32CertVerifier::verifyCertificate] - Certificate validation response is
'valid'
```

3. Get_Edge_Config

Once the https tunnel is setup jabber proceeds to request edge configuration from Expressway-E

```
csf.edge] [edge::RecentlyFailedServers::isRecentlyFailed] - server [uclabexpwe01.uclab.com] has not recently failed
[csf.edge] [edge::GlobalEdgeStateImpl::attemptServer] - Attempting request with host name:uclabexpwe01.uclab.com, port:8443
[csf.httpclient] [http::BasicHttpClientImpl::execute] - Edge policy enforced successfully with transformed Url:
https://uclabexpwe01.uclab.com:8443/dWNsYWluY29t/get\_edge\_config?service\_name=cisco-uds&service\_name=cuplogin
```

```
csf.httpclient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to:
https://uclabexpwe01.uclab.com:8443/dWNsYWluY29t/get_edge_config?service_name=cisco-uds&service_name=cuplogin.
```

3a. Expw-E sends HTTP get edge config to Expway-C

```
2014-09-01T20:59:13+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:13,777" Module="network.http.trafficserver"
Level="DEBUG": Detail="Sending Request" Txn-id="368" Dst-ip="127.0.0.1" Dst-port="34306" Tunnel-dst-host="uclabexpwc02"
HTTPMSG:
|GET http://vcs_control.uclab.com:8443/dWNsYWluY29t/get_edge_config?service_name=cisco-uds&service_name=cuplogin HTTP/1.1
Authorization: xxxxx
Host: vcs_control.uclab.com:8443
Accept: */*
```

User-Agent: Jabber-Win-879
X-Forwarded-For: 10.106.4.73
Via: https/1.1 vcs[0A6A0451] (ATS)
5. Expwpc performs SRV query

3d. Expw-C sends a HTTP 200 OK to expw-E and the resulting edge_server_config details in an XML format as shown below:

```
<?xml version='1.0' encoding='UTF-8'?>
<getEdgeConfigResponse version="1.0">
<serviceConfig><service><name>_cisco-phone-tftp</name><error>NameError</error></service>
<service><name>_cuplogin</name><server><priority>0</priority><weight>0</weight><port>8443</port><address>cimp-pub.uclab.com</address></server>
<server><priority>0</priority><weight>0</weight><port>8443</port><address>cimp-sub.uclab.com</address></server></service>
<service><name>_cisco_uds</name><server><priority>0</priority><weight>0</weight><port>8443</port><address>uclabcucm-sub.uclab.com</address></server>
<server><priority>0</priority><weight>0</weight><port>8443</port><address>uclabcucm-pub.uclab.com</address></server></service>
<service><name>tftpServer</name><address>10.106.4.82</address><address>10.106.4.84</address></service></serviceConfig>
<edgeConfig><sipEdgeServer><server><address>uclabexpwe01.uclab.com</address><tlsPort>5061</tlsPort></server>
<server><address>uclabexpwe02.uclab.com</address><tlsPort>5061</tlsPort></server></sipEdgeServer>
<sipRequest><route>&lt;sip:10.106.4.85:5061;transport=tls;zone-id=1;directed;lr&gt;</route>
<route>&lt;sip:10.106.4.80:5061;transport=tls;zone-id=1;directed;lr&gt;</route></sipRequest>
<xmppEdgeServer><server><address>uclabexpwe01.uclab.com</address><tlsPort>5222</tlsPort></server>
<server><address>uclabexpwe02.uclab.com</address><tlsPort>5222</tlsPort></server></xmppEdgeServer>
<httpEdgeServer><server><address>uclabexpwe01.uclab.com</address><tlsPort>8443</tlsPort></server>
<server><address>uclabexpwe02.uclab.com</address><tlsPort>8443</tlsPort></server></httpEdgeServer><turnEdgeServer/>
<userUdsServer><server><address>uclabcucm-pub</address><tlsPort>8443</tlsPort></server></userUdsServer></edgeConfig></getEdgeConfigResponse>
```

3e. Expw-e sends HTTP 200 OK to jabber

+++Jabber receives 200 OK from expw-E+++

```
[csf.httpClient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [200] for request [1].
[csf.httpClient] [http::executeImpl] - *-----* HTTP response from:
https://uclabexpwe01.uclab.com:8443/dWNsYWluY29t/get_edge_config?service_name=_cisco-uds&service_name=_cuplogin[1] -> 200.
```

10.

+++Next Jabber sends Devices request for the user, before this happens jabber must authenticate the user again the CCMIP address.. as shown below..

```
2014-09-01 21:59:26,593 DEBUG [0x00000a8c] [src\config\CCMIPClient.cpp(54)] [csf.ecc] [ecc::CCMIPClient::fetchDevices] - Result is OK getting
```

```
httpResult
```

```
2014-09-01 21:59:26,593 DEBUG [0x00000a8c] [fig\AbstractDeviceListRetriever.cpp(218)] [csf.ecc]
```

```
[ecc::AbstractDeviceListRetriever::createDeviceListFromXML] - XML: "<?xml version="1.0"?>
```

```
<devices>
```

```
<device>
```

```
<name>MDonald</name>
```

```
<description></description>
```

```
<model>Cisco Unified Client Services Framework</model>
```

```
</device>
```

```
</devices>"
```

```
2014-09-01 21:59:26,593 INFO [0x00000a8c] [src\callcontrol\Authenticator.cpp(435)] [csf.ecc] [ecc::Authenticator::doCcmcipLogin] - Successfully authenticated the user with CCMCIP
```

```
2014-09-01 21:59:26,593 DEBUG [0x00000a8c] [src\callcontrol\Authenticator.cpp(305)] [csf.ecc] [ecc::Authenticator::authenticate] - authenticate() succeeded with real user='mac.donald', server=uclabcucm-pub', usernameFormat: eUserPortionOnly
```

```
2014-09-01T20:59:14+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,237" Module="network.http.trafficserver" Level="INFO":
```

```
Detail="Receive Request" Txn-id="372" Src-ip="10.106.4.73" Src-port="49243" Msg="GET
```

```
https://dWNsYWluY29tL2h0dHBzL3VjbGFyY3VjbS1zdWlvODQ0Mw/cucm-uds/user/mac.donald/devices HTTP/1.1"
```

```
2014-09-01T20:59:14+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,237" Module="network.http.trafficserver"
```

```
Level="DEBUG": Detail="Receive Request" Txn-id="372" Src-ip="10.106.4.73" Src-port="49243"
```

```
HTTPMSG:
```

```
|GET https://dWNsYWluY29tL2h0dHBzL3VjbGFyY3VjbS1zdWlvODQ0Mw/cucm-uds/user/mac.donald/devices HTTP/1.1
```

```
Authorization: xxxxx
```

```
Host: uclabexpwe01.uclab.com:8443
```

```
Accept: */*
```

```
Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122
```

```
User-Agent: Jabber-Win-879
```


++++Again Request is sent to EXPWC and response is sent to Jabber+++

```
2014-09-01T20:59:14+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,237" Module="network.http.trafficserver" Level="INFO":
Detail="Sending Request" Txn-id="372" Dst-ip="127.0.0.1" Dst-port="34306" Tunnel-dst-host="uclabexpwc02" Msg="GET
http://vcs_control.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFy3VjbS1zdWlvODQ0Mw/cucm-uds/user/mac.donald/devices HTTP/1.1"
2014-09-01T20:59:14+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,237" Module="network.http.trafficserver"
Level="DEBUG": Detail="Sending Request" Txn-id="372" Dst-ip="127.0.0.1" Dst-port="34306" Tunnel-dst-host="uclabexpwc02"
HTTPMSG:
|GET http://vcs_control.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFy3VjbS1zdWlvODQ0Mw/cucm-uds/user/mac.donald/devices HTTP/1.1
Authorization: xxxxx
Host: vcs_control.uclab.com:8443
Accept: */*
Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122
User-Agent: Jabber-Win-879
X-Forwarded-For: 10.106.4.73
Via: https/1.1 vcs[0A6A0451] (ATS)
```

```
2014-09-01T20:59:14+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,458" Module="network.http.trafficserver" Level="INFO":
Detail="Sending Response" Txn-id="372" Dst-ip="10.106.4.73" Dst-port="49243" Msg="HTTP/1.1 200 OK"
2014-09-01T20:59:14+00:00 uclabexpwe01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,458" Module="network.http.trafficserver"
Level="DEBUG": Detail="Sending Response" Txn-id="372" Dst-ip="10.106.4.73" Dst-port="49243"
HTTPMSG:
|HTTP/1.1 200 OK
Cache-Control: private
Expires: Thu, 01 Jan 1970 00:00:00 GMT+00:00
Set-Cookie: JSESSIONIDSSO=2E429403A45703317E39E6426D1F8CD4; Path=/; Secure; HttpOnly
Set-Cookie: JSESSIONID=6D3E898E3AE5B6025987386F11FFC54D; Path=/cucm-uds/; Secure; HttpOnly
X-Frame-Options: SAMEORIGIN
Content-Type: application/xml
Date: Mon, 01 Sep 2014 20:59:14 GMT
Server:
Age: 0
Content-Length: 2059
Connection: keep-alive
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?><devices version="9.1.2" uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/devices"><device hasPrimaryNumber="true" uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/device/29e15ce2-637f-
c0bc-edbd-34515e83acec"><id>29e15ce2-637f-c0bc-edbd-34515e83acec</id><name>MDonald</name><model>Cisco Unified Client Services
Framework</model><product>390</product><description></description><protocol>SIP</protocol><provision><uri>http://uclabcucm-
pub:6970/MDonald.cnf.xml</uri><uri>http://uclabcucm-
sub:6970/MDonald.cnf.xml</uri></provision><hasSoftkeyTemplate></hasSoftkeyTemplate><hasPhoneTemplate></hasPhoneTemplate><supportsFeatures
><audibleMwi>>false</audibleMwi><dnd
configurable="false">true</dnd><dualMode>>false</dualMode><phoneTemplate>true</phoneTemplate><softkeyTemplate>>false</softkeyTemplate><lineT
extLabel>true</lineTextLabel><localization>true</localization><logMissedCallsOption>>false</logMissedCallsOption><mobility>true</mobility><mwIPolicy>
false</mwIPolicy><onlineUserGuide>>false</onlineUserGuide><supportsIpPhoneServices>>false</supportsIpPhoneServices><serviceProfile>true</servicePro
file></supportsFeatures><userGuide uri=""><userLocale typeTableUri="https://uclabcucm-sub:8443/cucm-
uds/typeTables/typeUserLocale">0</userLocale><defaultLocale>1</defaultLocale><doNotDisturbSettings uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec/dndsettings"/><speeddials uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec/speedDials"/><subscribedServices uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec/subscribedServices"/><phoneButtons uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec/phoneButtons"/><numbers uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec/numbers"/><requirecerlocation>>false</requirecerlocation></device></devices>
```

4. Get UDS request/response

++Jabber sends a get UDS version request to Expw-E and gets a 200 OK with the required config in XML file++

2014-09-01 21:59:14,061 INFO [0x00002bc] [netutils\src\http\CurlHttpUtils.cpp(708)] [csf.httpclient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to:
https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/version.

--

4a. EXPW-E receives request and sends it to EXPW-C02

2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,090" Module="network.http.trafficserver" Level="INFO": Detail="Receive Request" Txn-id="369" Src-ip="10.106.4.73" Src-port="49243" Msg="GET https://dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/version HTTP/1.1"
2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,090" Module="network.http.trafficserver" Level="DEBUG": Detail="Receive Request" Txn-id="369" Src-ip="10.106.4.73" Src-port="49243"
HTTPMSG:
|GET https://dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/version HTTP/1.1
Host: uclabExpw-E01.uclab.com:8443
Accept: */*
Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122
User-Agent: Jabber-Win-879

|

2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,090" Module="network.http.trafficserver" Level="INFO": Detail="Sending Request" Txn-id="369" Dst-ip="127.0.0.1" Dst-port="34306" Tunnel-dst-host="uclabExpw-C02" Msg="GET
http://vcs_control.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/version HTTP/1.1"
2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,090" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Request" Txn-id="369" Dst-ip="127.0.0.1" Dst-port="34306" Tunnel-dst-host="uclabExpw-C02"
HTTPMSG:
|GET http://vcs_control.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/version HTTP/1.1
Host: vcs_control.uclab.com:8443
Accept: */*
Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122
User-Agent: Jabber-Win-879
X-Forwarded-For: 10.106.4.73
Via: https/1.1 vcs[0A6A0451] (ATS)

4b. Expw-C02 sends the request to CUCM

2014-09-04T10:46:14+00:00 uclabExpw-C02 traffic_server[8612]: UTCTime="2014-09-04 10:46:14,660" Module="network.http.trafficserver" Level="INFO": Detail="Sending Request" Txn-id="1530" Dst-ip="10.106.4.82" Dst-port="8443" Msg="GET /cucm-uds/version HTTP/1.1"
2014-09-04T10:46:14+00:00 uclabExpw-C02 traffic_server[8612]: UTCTime="2014-09-04 10:46:14,660" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Request" Txn-id="1530" Dst-ip="10.106.4.82" Dst-port="8443"
HTTPMSG:
|GET /cucm-uds/version HTTP/1.1
Host: uclabcucm-pub:8443
Accept: */*
Cookie: X-Auth=575d85fc-2f75-4c1d-b5c2-c918687ffb0d
User-Agent: Jabber-Win-831
X-Forwarded-For: 10.106.4.73, 127.0.0.1
Via: https/1.1 vcs[0A6A0451] (ATS), http/1.1 vcs[0A6A0455] (ATS)
+++Expw-C receives response from CUCM+++
2014-09-04T10:46:14+00:00 uclabExpw-C02 traffic_server[8612]: UTCTime="2014-09-04 10:46:14,705" Module="network.http.trafficserver" Level="DEBUG": Detail="Receive Response" Txn-id="1530" Src-ip="10.106.4.82" Src-port="8443"
HTTPMSG:
|HTTP/1.1 200 OK
X-Frame-Options: SAMEORIGIN
Content-Type: application/xml
Content-Length: 367
Date: Thu, 04 Sep 2014 10:46:14 GMT
Server:

4e. Next EXPW-E receives response from Expw-C02 and sends 200 OK with the xml config to Jabber

2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,167" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Response" Txn-id="369" Dst-ip="10.106.4.73" Dst-port="49243"
HTTPMSG:
|HTTP/1.1 200 OK
X-Frame-Options: SAMEORIGIN
Content-Type: application/xml
Date: Mon, 01 Sep 2014 20:59:14 GMT
Server:
Age: 0
Content-Length: 377
Connection: keep-alive

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?><versionInformation version="9.1.2" uri="https://uclabcucm-pub.uclab.com:8443/cucm-uds/version"><name>Cisco User Data Service</name><version>9.1.2</version><installedProducts><product>Cisco Unified Communications Manager</product><product>Cisco Enterprise License Manager</product></installedProducts></versionInformation>|
+++Finally Jabber receives the get version response from Expw-e+++
+++Jabber receives 200 Ok to Request++
```

```
2014-09-01 21:59:14,171 DEBUG [0x000002bc] [f-ucm-config\src\http\HttpUtils.cpp(193)] [csf.config] [ucm90::HttpUtils::doGet] - HTTP request returned with result: SUCCESS
2014-09-01 21:59:14,171 INFO [0x000002bc] [sf-ucm-config\src\http\HttpUtils.cpp(70)] [csf.config] [ucm90::mapToHttpUtilsResult] - csf::http::HttpClientResult=[SUCCESS]
HttpUtilsResult=[SUCCESS]
2014-09-01 21:59:14,171 DEBUG [0x000002bc] [m-config\src\uds\UdsVersionQuery.cpp(79)] [csf.config] [ucm90::UdsVersionQuery::run] - Response body: <?xml version="1.0"
encoding="UTF-8" standalone="yes"?><versionInformation version="9.1.2" uri="https://uclabcucm-pub.uclab.com:8443/cucm-uds/version"><name>Cisco User Data
Service</name><version>9.1.2</version><installedProducts><product>Cisco Unified Communications Manager</product><product>Cisco Enterprise License
Manager</product></installedProducts></versionInformation>

2014-09-01 21:59:14,171 INFO [0x000002bc] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpClient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-
E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/version[2] -> 200.
2014-09-01 21:59:14,171 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(186)] [csf.httpClient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [200] for request [2]
```

```
2014-09-01 21:59:14,171 DEBUG [0x000002bc] [f-ucm-config\src\http\HttpUtils.cpp(193)] [csf.config] [ucm90::HttpUtils::doGet] - HTTP request returned with result: SUCCESS
2014-09-01 21:59:14,171 INFO [0x000002bc] [sf-ucm-config\src\http\HttpUtils.cpp(70)] [csf.config] [ucm90::mapToHttpUtilsResult] - csf::http::HttpClientResult=[SUCCESS]
HttpUtilsResult=[SUCCESS]
2014-09-01 21:59:14,171 DEBUG [0x000002bc] [m-config\src\uds\UdsVersionQuery.cpp(79)] [csf.config] [ucm90::UdsVersionQuery::run] - Response body: <?xml version="1.0"
encoding="UTF-8" standalone="yes"?><versionInformation version="9.1.2" uri="https://uclabcucm-pub.uclab.com:8443/cucm-uds/version"><name>Cisco User Data
Service</name><version>9.1.2</version><installedProducts><product>Cisco Unified Communications Manager</product><product>Cisco Enterprise License
Manager</product></installedProducts></versionInformation>
```

5. User Home cluster Discovery

+++Jabber sends hHttps request to get the user home cluster+++

```
2014-09-01 21:59:14,186 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(708)] [csf.httpClient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to:
https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/clusterUser?username=mac.donald.
```

5a. Expw-E receives a Get ClusterUser?username=user from Jabber

```
2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,179" Module="network.http.trafficserver" Level="INFO": Detail="Receive Request" Txn-
id="370" Src-ip="10.106.4.73" Src-port="49243" Msg="GET https://dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/clusterUser?username=mac.donald
HTTP/1.1"
2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,179" Module="network.http.trafficserver" Level="DEBUG": Detail="Receive Request" Txn-
id="370" Src-ip="10.106.4.73" Src-port="49243"
HTTPMSG:
|GET https://dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/clusterUser?username=mac.donald HTTP/1.1
Host: uclabExpw-E01.uclab.com:8443
Accept: */*
Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122
User-Agent: Jabber-Win-879
```

5b. Expw-E sends request to Expw-C and gets response back from Expw-C

```
2014-09-04T10:46:14+00:00 uclabExpw-C02 traffic_server[8612]: UTCTime="2014-09-04 10:46:14,866" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Response" Txn-
id="1534" Dst-ip="127.0.0.1" Dst-port="32921"
HTTPMSG:
|HTTP/1.1 200 OK
X-Frame-Options: SAMEORIGIN
Content-Type: application/xml
Date: Thu, 04 Sep 2014 10:46:14 GMT
Server:
Content-Length: 764
Age: 0
Connection: keep-alive
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?><users totalCount="1" returnedCount="1" requestedCount="4" start="0" version="9.1.2" uri="https://uclabcucm-pub:8443/cucm-
uds/users"><user uri="https://uclabcucm-pub:8443/cucm-
uds/user/mac.donald"><userName>mac.donald</userName><firstName>Mac</firstName><lastName>Donald</lastName><middleName></middleName><nickName></nickName><phoneN
umber>5002</phoneNumber><homeNumber></homeNumber><mobileNumber></mobileNumber><mobileConnect>false</mobileConnect><userLocale
xmlns: xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:nil="true"/><email></email><msUri></msUri><department></department><manager></manager><title></title><pager></pager><useLdapAuth>true</useLdapAuth><directoryUri></dir
ectoryUri></user></users>|
++Jabber receives response back from Expw-E+++
2014-09-01 21:59:14,202 INFO [0x000002bc] [ls\src\http\CurlAnswerEvaluator.cpp(108)] [csf.httpClient] [http::CurlAnswerEvaluator::curlCodeToResult] - curlCode=[0] result=[SUCCESS]
2014-09-01 21:59:14,202 INFO [0x000002bc] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpClient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-
E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFiY3VjbS1wdWludWNsYWluY29tLz0NDM/cucm-uds/clusterUser?username=mac.donald[3] -> 200.
```

2014-09-01 21:59:14,202 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(186)] [csf.httpclient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [200] for request [3].

6. Servers Query

++++Jabber sends a new http request for servers++++

2014-09-01 21:59:14,202 DEBUG [0x000002bc] [etutils\src\http\HttpRequestData.cpp(63)] [csf.httpclient] [http::HttpRequestData::HttpRequestData] - Created new instance of transfer data, with request: 4

2014-09-01 21:59:14,202 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(708)] [csf.httpclient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to: <https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGF5I3VjbS1wdWludWNsYWluY29tLzG0NDM/cucm-uds/servers>.

6a.Expw-E receives http request from Jabber

2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,209" Module="network.http.trafficserver" Level="DEBUG": Detail="Receive Request" Txn-id="371" Src-ip="10.106.4.73" Src-port="49243"

HTTPMSG:

|GET https://dWNsYWluY29tL2h0dHBzL3VjbGF5I3VjbS1wdWludWNsYWluY29tLzG0NDM/cucm-uds/servers HTTP/1.1

Host: uclabExpw-E01.uclab.com:8443

Accept: */*

Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122

User-Agent: Jabber-Win-879

+++Expw-C sends this to CUCM +++

2014-09-04T10:46:11+00:00 uclabExpw-C02 traffic_server[8612]: UTCTime="2014-09-04 10:46:11,948" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Request" Txn-id="1508" Dst-ip="10.106.4.84" Dst-port="8443"

HTTPMSG:

|GET /cucm-uds/servers HTTP/1.1

Host: uclabcucm-sub.uclab.com:8443

Accept: */*

Cookie: X-Auth=575d85fc-2f75-4c1d-b5c2-c918687ffb0d

User-Agent: Jabber-Win-831

X-Forwarded-For: 10.106.4.73, 127.0.0.1

Via: https/1.1 vcs[0A6A0451] (ATS), http/1.1 vcs[0A6A0455] (ATS)

6d.Expw-C sends 200 OK response from cucm to Expw-E

2014-09-04T10:46:11+00:00 uclabExpw-C02 traffic_server[8612]: UTCTime="2014-09-04 10:46:11,954" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Response" Txn-id="1508" Dst-ip="127.0.0.1" Dst-port="32908"

HTTPMSG:

|HTTP/1.1 200 OK

X-Frame-Options: SAMEORIGIN

Content-Type: application/xml

Date: Thu, 04 Sep 2014 10:46:11 GMT

Server:

Content-Length: 210

Age: 0

Connection: keep-alive

<?xml version="1.0" encoding="UTF-8" standalone="yes"?><servers version="9.1.2" uri="https://uclabcucm-sub.uclab.com:8443/cucm-uds/servers"><server>uclabcucm-pub</server><server>uclabcucm-sub</server></servers>|

6e.Jabber gets a 200 OK from Expw-E

2014-09-01 21:59:14,233 INFO [0x000002bc] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpclient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGF5I3VjbS1wdWludWNsYWluY29tLzG0NDM/cucm-uds/servers[4] -> 200.

2014-09-01 21:59:14,233 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(186)] [csf.httpclient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [200] for request [4].

2014-09-01 21:59:14,233 DEBUG [0x000002bc] [-config\src\uds\UdsServersQuery.cpp(114)] [csf.config] [ucm90::UdsServersQuery::run] - Response body: <?xml version="1.0" encoding="UTF-8" standalone="yes"?><servers version="9.1.2" uri="https://uclabcucm-sub.uclab.com:8443/cucm-uds/servers"><server>uclabcucm-pub</server><server>uclabcucm-sub</server></servers>

7. Devices.

+++Next Jabber sends https request to get devices associated with user+++

```
2014-09-01 21:59:14,233 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(706)] [csf.httpClient] [http::CurlHttpUtils::configureEasyRequest] - Configuring a CURL Easy request for:
https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFYI3VjbS1zdWVvODQ0Mw/cucm-uds/user/mac.donald/devices
+++Expw-E receives http request++
2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,237" Module="network.http.trafficserver" Level="DEBUG": Detail="Receive Request" Txn-
id="372" Src-ip="10.106.4.73" Src-port="49243"
HTTPMSG:
|GET https://dWNsYWluY29tL2h0dHBzL3VjbGFYI3VjbS1zdWVvODQ0Mw/cucm-uds/user/mac.donald/devices HTTP/1.1
Authorization: xxxxx
Host: uclabExpw-E01.uclab.com:8443
Accept: */*
Cookie: X-Auth=d7be94ee-6f59-40d9-9614-1557e87bb122
User-Agent: Jabber-Win-879
```

7a. Expw-E sends https request to Expw-C, Expw-C forwards to cucm, cucm sends 200 OK with xml config and Expw-E sends 200 OK with xml config file

```
2014-09-01T20:59:14+00:00 uclabExpw-E01 traffic_server[11402]: UTCTime="2014-09-01 20:59:14,458" Module="network.http.trafficserver" Level="DEBUG": Detail="Sending Response"
Txn-id="372" Dst-ip="10.106.4.73" Dst-port="49243"
HTTPMSG:
|HTTP/1.1 200 OK
Cache-Control: private
Expires: Thu, 01 Jan 1970 00:00:00 GMT+00:00
Set-Cookie: JSESSIONID=2E429403A45703317E39E6426D1F8CD4; Path=/; Secure; HttpOnly
Set-Cookie: JSESSIONID=6D3E898E3AE5B6025987386F11FFC54D; Path=/cucm-uds/; Secure; HttpOnly
X-Frame-Options: SAMEORIGIN
Content-Type: application/xml
Date: Mon, 01 Sep 2014 20:59:14 GMT
Server:
Age: 0
Content-Length: 2059
Connection: keep-alive
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?><devices version="9.1.2" uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/devices"><device
hasPrimaryNumber="true" uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec"><id>29e15ce2-637f-c0bc-edbd-
34515e83acec</id><name>MDonald</name><model>Cisco Unified Client Services
Framework</model><product>390</product><description></description><protocol>SIP</protocol><provision><uri>http://uclabcucm-
pub:6970/MDonald.cnf.xml</uri><uri>http://uclabcucm-
sub:6970/MDonald.cnf.xml</uri></provision><hasSoftkeyTemplate></hasSoftkeyTemplate><hasPhoneTemplate></hasPhoneTemplate><supportsFeatures><audibleMwi>>false</audibleMwi
><dnd
configurable="false">true</dnd><dualMode>>false</dualMode><phoneTemplate>true</phoneTemplate><softkeyTemplate>>false</softkeyTemplate><lineTextLabel>true</lineTextLabel><loc
alization>true</localization><logMissedCallsOption>>false</logMissedCallsOption><mobility>true</mobility><mwlpolicy>>false</mwlpolicy><onlineUserGuide>>false</onlineUserGuide><supp
ortsIpPhoneServices>>false</supportsIpPhoneServices><serviceProfile>true</serviceProfile></supportsFeatures><userGuide uri=""><userLocale typeTableUri="https://uclabcucm-
sub:8443/cucm-uds/typeTables/typeUserLocale">0</userLocale><defaultLocale>1</defaultLocale><doNotDisturbSettings uri="https://uclabcucm-sub:8443/cucm-
uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-34515e83acec/dndsettings"/><speeddials uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/device/29e15ce2-637f-c0bc-
edbd-34515e83acec/speedDials"/><subscribedServices uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-
34515e83acec/subscribedServices"/><phoneButtons uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-
34515e83acec/phoneButtons"/><numbers uri="https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/device/29e15ce2-637f-c0bc-edbd-
34515e83acec/numbers"/><requireRelocation>>false</requireRelocation></device></devices>
```

7e. Jabber receives 200 OK to http request for devices

```
2014-09-01 21:59:14,468 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(186)] [csf.httpClient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [200] for request [5].
2014-09-01 21:59:14,468 INFO [0x000002bc] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpClient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-
E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFYI3VjbS1zdWVvODQ0Mw/cucm-uds/user/mac.donald/devices[5] -> 200.
```

8. Get CSF XML configuration file

+++Next Jabber sends a http request to download the xml configuration for the CSF device of the user+++

```
2014-09-01 21:59:14,468 INFO [0x000002bc] [netutils\src\http\CurlHttpUtils.cpp(708)] [csf.httpClient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to:
https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFYI3VjbS1zdWVvODQ0Mw/cucm-uds/user/mac.donald/devices
++Jabber gets a 200 OK to the request+++
2014-09-01 21:59:14,499 INFO [0x000002bc] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpClient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-
E01.uclab.com:8443/dWNsYWluY29tL2h0dHBzL3VjbGFYI3VjbS1zdWVvODQ0Mw/cucm-uds/user/mac.donald/devices[6] -> 200.
++Jabber adds xml config+++
```

2014-09-01 21:59:14,499 DEBUG [0x000002bc] [-config\src\UcmUserConfiguration.cpp(98)] [csf.config] [ucm90::UcmUserConfiguration::addXmlConfiguration] - Added DEVICE_XML configuration:
UCM version: 9.1.2
UCM domain: uclab.com
UCM publisher: uclabcucm-sub
Current Home UDS URL: https://uclabcucm-sub:8443/cucm-uds/user/mac.donald

```
[DEVICE_XML]
[URL]          http://uclabcucm-pub:6970/MDonald.cnf.xml
[URL]          http://uclabcucm-sub:6970/MDonald.cnf.xml
[Host]         uclabcucm-pub
[Host]         uclabcucm-sub
[Filename]     MDonald.cnf.xml
[XML]          <device xsi:type="axl:XIPPhone" ctiid="11" uuid="..."
```

```
[HOME_CLUSTER_XML]
[URL]          https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/devices
[Host]         uclabcucm-sub
[XML]          <?xml version="1.0" encoding="UTF-8" standalone="y..."
```

```
[UDS_SERVERS]
[1]            uclabcucm-pub
[2]            uclabcucm-sub
```

```
[HOME_UDS_NODES]
[1]            https://uclabcucm-pub:8443/cucm-uds/user/mac.donald
[2]            https://uclabcucm-sub:8443/cucm-uds/user/mac.donald
```

```
[TFTP_SERVERS]
[1]            uclabcucm-pub
[2]            uclabcucm-sub
```

8. Service profile configuration

+++Jabber sends a get SPdefault.cnf.xml and gets a response back..++

014-09-01 21:59:14,514 DEBUG [0x000002bc] [-config\src\UcmUserConfiguration.cpp(98)] [csf.config] [ucm90::UcmUserConfiguration::addXmlConfiguration] - Added SERVICE_PROFILE_XML configuration:
UCM version: 9.1.2
UCM domain: uclab.com
UCM publisher: uclabcucm-sub
Current Home UDS URL: https://uclabcucm-sub:8443/cucm-uds/user/mac.donald

```
[DEVICE_XML]
[URL]          http://uclabcucm-pub:6970/MDonald.cnf.xml
[URL]          http://uclabcucm-sub:6970/MDonald.cnf.xml
[Host]         uclabcucm-pub
[Host]         uclabcucm-sub
[Filename]     MDonald.cnf.xml
[XML]          <device xsi:type="axl:XIPPhone" ctiid="11" uuid="..."
```

```
[HOME_CLUSTER_XML]
[URL]          https://uclabcucm-sub:8443/cucm-uds/user/mac.donald/devices
[Host]         uclabcucm-sub
[XML]          <?xml version="1.0" encoding="UTF-8" standalone="y..."
```

```
[SERVICE_PROFILE_XML]
[URL]          http://uclabcucm-pub:6970/SPDefault.cnf.xml
[URL]          http://uclabcucm-sub:6970/SPDefault.cnf.xml
[Host]         uclabcucm-pub
[Host]         uclabcucm-sub
[Filename]     SPDefault.cnf.xml
[XML]          <serviceProfile>
<versionStamp>1408549266-e219250...
```

```
[UDS_SERVERS]
[1]            uclabcucm-pub
[2]            uclabcucm-sub
```

```
[HOME_UDS_NODES]
[1]            https://uclabcucm-pub:8443/cucm-uds/user/mac.donald
[2]            https://uclabcucm-sub:8443/cucm-uds/user/mac.donald
```

```
[TFTP_SERVERS]
[1]            uclabcucm-pub
[2]            uclabcucm-sub
```

+++ Config Store Map+++++

+++Next Jabber stores the following details in its config store+++

```
2014-09-01 21:59:14,530 DEBUG [0x000002bc] [\Ucm90ConfigProviderWrapperImpl.cpp(371)] [service-discovery] [mapUcm90ConfigValuesToConfigStoreMap] - Retrieved and Mapped UCM90 Config Values
2014-09-01 21:59:14,530 DEBUG [0x000002bc] [\Ucm90ConfigProviderWrapperImpl.cpp(372)] [service-discovery] [mapUcm90ConfigValuesToConfigStoreMap] - CCMCIP Server 1 == uclabcucm-pub
2014-09-01 21:59:14,530 DEBUG [0x000002bc] [\Ucm90ConfigProviderWrapperImpl.cpp(373)] [service-discovery] [mapUcm90ConfigValuesToConfigStoreMap] - TFTP Server 1 == uclabcucm-pub
2014-09-01 21:59:14,530 DEBUG [0x000002bc] [\Ucm90ConfigProviderWrapperImpl.cpp(374)] [service-discovery] [mapUcm90ConfigValuesToConfigStoreMap] - TFTP Server 2 == uclabcucm-sub
2014-09-01 21:59:14,530 DEBUG [0x000002bc] [\Ucm90ConfigProviderWrapperImpl.cpp(375)] [service-discovery] [mapUcm90ConfigValuesToConfigStoreMap] - TFTP Server 3 ==
2014-09-01 21:59:14,530 DEBUG [0x000002bc] [\Ucm90ConfigProviderWrapperImpl.cpp(376)] [service-discovery] [mapUcm90ConfigValuesToConfigStoreMap] - Version == 9.1.2
```

9. Jabber does a service discovery for the service profile and stores configuration its config store

10. Jabber-config.xml

++Jabber requests jabber-config.xml file++

```
2014-09-01 21:59:14,593 INFO [0x000005e8] [netutils\src\http\CurlHttpUtils.cpp(708)] [csf.httpclient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to:
https://uclabExpw-E01.uclab.com:8443/dWNsYWluY29tL2h0dHAvdWNsYWJkdWNTLXB1Yi82OTcw/jabber-config.xml.
```

Jabber sign on to Presence server (NB result:0 means signon successful, a value of 1 means it fails)

12. Next Jabber attempts to sign in to presence server

```
2014-09-01 21:59:14,608 INFO [0x000009cc] [ters\imp\commands>LoginCommands.cpp(149)] [imp.service] [IMPStackCap::LoginCommands::SignOn] -
```

```
*****
```

```
2014-09-01 21:59:14,608 INFO [0x000009cc] [ters\imp\commands>LoginCommands.cpp(150)] [imp.service] [IMPStackCap::LoginCommands::SignOn] - Signing into Presence Server. Server:
10.106.4.83;10.106.4.87, login mode: ON_PREM, result: 0
```

```
2014-09-01 21:59:14,608 INFO [0x000009cc] [ters\imp\commands>LoginCommands.cpp(151)] [imp.service] [IMPStackCap::LoginCommands::SignOn] -
```

```
*****
```

```
2014-09-01 21:59:14,608 DEBUG [0x000009cc] [apters\imp\commands>LoginCommands.cpp(0)] [imp.service] [IMPStackCap::LoginCommands::SignOn] - Exit
```

```
2014-09-01 21:59:14,608 DEBUG [0x000009cc] [sets\adapters\imp\DispatcherImpl.cpp(92)] [imp.service] [DispatcherImpl::doExecuteWithWrappedStackManager] - LoginCommands::SignOn
complete, Result: 0
```

13. Next Jabber gets a response to jabber-config.xml request (this returned 0 because it doesn't exist)

```
2014-09-01 21:59:14,639 INFO [0x000005e8] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpclient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-
E01.uclab.com:8443/dWNsYWluY29tL2h0dHAvdWNsYWJkdWNTLXB1Yi82OTcw/jabber-config.xml[8] -> 0.
```

```
2014-09-01 21:59:14,639 INFO [0x000005e8] [netutils\src\http\CurlHttpUtils.cpp(186)] [csf.httpclient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [404] for request [8].
```

--
--

10. Jabber requests application dial rules and gets response

```
2014-09-01 21:59:26,671 INFO [0x00000a8c] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpclient] [http::executeImpl] - *-----* HTTP response from: https://uclabExpw-
E01.uclab.com:8443/dWNsYWluY29tL2h0dHAvdWNsYWJkdWNTLXB1Yi82OTcw/CUPC/AppDialRules.xml[17] -> 200.
```

```
2014-09-01 21:59:26,671 INFO [0x00000a8c] [netutils\src\http\CurlHttpUtils.cpp(186)] [csf.httpclient] [http::CurlHttpUtils::getResponseCode] - Http Response Code = [200] for request [17].
```

10. Jabber requests application Directory Lookup rules and gets response

```
2014-09-01 21:59:26,671 INFO [0x00000a8c] [netutils\src\http\CurlHttpUtils.cpp(708)] [csf.httpclient] [http::CurlHttpUtils::configureEasyRequest] - *-----* Making HTTP request to:
https://uclabexpwe01.uclab.com:8443/dWNsYWluY29tL2h0dHAvdWNsYWJkdWNTLXB1Yi82OTcw/CUPC/DirLookupDialRules.xml.
```

++Jabber gets http 200 OK to directory lookup rule request and jabber noted that there is no XML file attached to the lookup rule because none was configured++

```
2014-09-01 21:59:26,718 INFO [0x00000a8c] [ls\src\http\BasicHttpClientImpl.cpp(373)] [csf.httpclient] [http::executeImpl] - *-----* HTTP response from:
https://uclabexpwe01.uclab.com:8443/dWNsYWluY29tL2h0dHAvdWNsYWJkdWNTLXB1Yi82OTcw/CUPC/DirLookupDialRules.xml[18] -> 200.
```

--

```
2014-09-01 21:59:26,749 WARN [0x00000a8c] [src\config\DialRules.cpp(161)] [csf.ecc] [parseDialRulesXML] - Missing <DialRule> element in XML. There are no dial rules contained in the
<DialRules> element.
```

11. SIP TLS Connection for sip signalling

++Jabber creates a secure connection for sip signalling++

```
014-09-01 21:59:27,780 DEBUG [0x00000a34] [oftphonewrapper\CC_SIPCCService.cpp(342)] [csf.ecc.sipcc] [_SIPCCLoggerFunction] - SIPCC-SIP_TLS: sip_tls_create_connection: Creating
secure connection
```

2014-09-01 21:59:27,796 DEBUG [0x0000a34] [onewrapper\ccapi_plat_api_impl.cpp(1087)] [csf.ecc.sipcc] [platSecSocConnect] - platSecSocConnect(): displayHost=uclabExpw-E01.uclab.com, server=10.106.4.81:5061, blocking=true, plat_soc_connection_mode=1, plat_secure_connection_type=1

++jabber does certificate verification to use for the secure connection++

2014-09-01 21:59:28,405 DEBUG [0x0000a34] [rc\cert\win32\Win32CertVerifier.cpp(241)] [csf.cert.win32] [cert::Win32CertVerifier::verifyCertificate] - Certificate validation response is 'valid'

++SSL connection is successful+++

2014-09-01 21:59:28,905 INFO [0x0000a34] [ndyiron\src\security\sec_ssl_api.c(1512)] [csf.ecc.handyiron] [secSSLIsConnected] - Sec SSL Connection - Handshake successful.

12. Device Registration

+++Next Jabber sends a SIP REGISTER message+++

2014-09-01 21:59:30,014 DEBUG [0x0000a34] [oftphonewrapper\CC_SIPCCService.cpp(342)] [csf.ecc.sipcc] [_SIPCCLoggerFunction] - sipio-sent--> REGISTER sip:uclabcucm-sub SIP/2.0
Via: SIP/2.0/TLS 10.106.4.73:49256;branch=z9hG4bK000015e5
From: <sip:5002@uclabcucm-sub>;tag=0050568b4cc4000200004517-00001bb6
To: <sip:5002@uclabcucm-sub>
Call-ID: 0050568b-4cc40003-00002a4f-00004692@10.106.4.73
Max-Forwards: 70
Date: Mon, 01 Sep 2014 20:59:30 GMT
CSeq: 101 REGISTER
User-Agent: Cisco-CSF
Contact: <sip:96446082-3aa2-435b-9c73-671751df5635@10.106.4.73:49256;transport=tls>;+sip.instance="urn:uuid:00000000-0000-0000-0000-0050568b4cc4";+u.sip!devicename.ccm.cisco.com="MDonald";+u.sip!model.ccm.cisco.com="503";video
Supported: replaces,join,sdp-anat,norefersub,resource-priority,extended-refer,X-cisco-callinfo,X-cisco-serviceuri,X-cisco-escapecodes,X-cisco-service-control,X-cisco-srtp-fallback,X-cisco-monrec,X-cisco-config,X-cisco-sis-7.0.0,X-cisco-xsi-8.5.1,X-cisco-graceful-reg,X-cisco-duplicate-reg
Reason: SIP;cause=200;text="cisco-alarm:25 Name=MDonald ActiveLoad=Jabber_for_Windows-10.5.0 InactiveLoad=Jabber_for_Windows-10.5.0 Last=initialized"
Route: <sip:uclabExpw-E01.uclab.com;transport=tls;lr>;<sip:10.106.4.85:5061;transport=tls;zone-id=1;directed;lr>;<sip:uclabcucm-sub;transport=tcp;lr>
Expires: 3600
Content-Type: multipart/mixed; boundary=uniqueBoundary
Mime-Version: 1.0
Content-Length: 1211

12a. Expw-E sends a 407 proxy authentication required

++++Next Expw-E sends a SIP service request to perform delegated credential checking to Expw-C++

NB: certificates are exchanged for this: If the certificates are wrong, then registration will fail here even though user may be successfully logged in to UDS and IMP servers+++

2014-09-01T20:59:30+00:00 uclabExpw-E01 tvcs: UTCTime="2014-09-01 20:59:30,039" Module="network.sip" Level="DEBUG": Action="Sent" Local-ip="10.106.4.81" Local-port="7002"
Dst-ip="10.106.4.80" Dst-port="25000" Msg-Hash="17112633129096939036"
SIPMSG:
|SERVICE sip:serviceserver@uclabcucm-sub SIP/2.0
Via: SIP/2.0/TLS 10.106.4.81:7002;egress-zone=TZone;branch=z9hG4bK12f99a7328ee4387916722f8d3c4791737.9ce0df7414ae88dbcd8afca5d0c8fa4f;proxy-call-id=3bccd7c4-92b6-4906-9eea-284b7782d6e6;rport
Via: SIP/2.0/TCP 127.0.0.1:5060;branch=z9hG4bK91f7194d4f9c0775306c8d7bd62735f636;received=127.0.0.1;rport=25001;ingress-zone=DefaultZone
Call-ID: 3f90bf8e640d6c6b@127.0.0.1
CSeq: 29793 SERVICE
Contact: <sip:serviceproxy@uclabcucm-sub>
From: <sip:serviceproxy@uclabcucm-sub>;tag=8f9dc2af76d47910
To: <sip:serviceserver@uclabcucm-sub>
Max-Forwards: 15
Route: <sip:127.0.0.1:22210;transport=tcp;vcs-cate;lr>
User-Agent: TANDBERG/4130 (X8.2.1)
Date: Mon, 01 Sep 2014 20:59:30 GMT
Event: service
P-Asserted-Identity: <sip:serviceproxy@uclabcucm-sub>
X-TAATag: 16d0f68b-646e-4618-a0ff-83d508a36b5f
Identity:
"AQJXb4F7XJCWJbKRZn8+kpsNXMziZTK2IX2WzZRVZ/SnS/Jz7EDuLAMZ8Hy3SKTM18WAlv9kLX+x/RXvNTqjHtJ+6MMkHhN/etZl75rx6SrrWbvtGojg2qGlxv1V25JsqL7W0gk2oDFZO4MxBI3Vg2xGA
gsV01EufRvcNYpN05u/aTCQTEmpPefVvli8cqArkQGeccatehS7YbdLLKnuFCz39eerpSO2Yyg798s4/ulx7eFft39j9FISDPUpHtb6QE13wplvcfDZ/3DaW+kB2d0T16cf+IV4clQrCrPRh8307i82Lp4sh
RKWolo+ozfdQwW/IT4JtZjk57XiUaRZZ8IG0nSpDVwRulxifF8YdMaKNLwO2Xv2KSSKpd1M4PCFBamwUnSxTeG+8KLhF5OWimklQvL4c/vKRbDfz5ReARkNkXrt5enLtB4pmlvZcbfmVvle0rTjyTLzXNB
RuqmhGBvIF1Oc6iV+I3IDbUXCZNRRLtHwLPxULUCRmt6Fc/ogFjzASZyiVThW5gQTX4MSEtmCh0IXN+n69ZA2ZqsQcQppkE13NakJL1Xg6CR9gkqhGn1G7XxqFkdY4j/Uu2DG7RdDI/ZFA72fdqplvLaA
RIGS5HTKSZ2beoLrv7pznmhTRVPU9z/4oF9Du9ASWmdZwnKtORkHbiNLxCyc="

Content-Type: multipart/mixed; boundary=boundary-2902199a-937d-11e1-a1d4-a4badbf02afd
Content-Length: 3496

--boundary-2902199a-937d-11e1-a1d4-a4badbf02afd

Content-Type: application/text

<?xml version="1.0" encoding="utf-8"?><methodCall><params><peerid>0C002E2E</peerid><id>72417797</id><username>mac.donald</username><realm>uclabExpw-E01.uclab.com</realm><reqtype>collab-edge</reqtype></params><methodName>DigestSA</methodName><version>1.0</version><msgid>1409605170</msgid><sipdomain>uclabcucm-sub</sipdomain></methodCall>

--boundary-2902199a-937d-11e1-a1d4-a4badbf02afd

Content-Type: application/x-x509-ca-cert

12d. After delegation credential checking is done and certificates verification is complete in the process Expw-E sends the Registration request to Expw-C

```
2014-09-01T20:59:30+00:00 uclabExpw-E01 tvcs: UTCTime="2014-09-01 20:59:30,079" Module="network.sip" Level="DEBUG": Action="Sent" Local-ip="10.106.4.81" Local-port="7002"
Dst-ip="10.106.4.85" Dst-port="25000" Msg-Hash="522442250895370276"
SIPMSG:
|REGISTER sip:uclabcucm-sub SIP/2.0
Via: SIP/2.0/TLS 10.106.4.81:7002;egress-zone=TZone;branch=z9hG4bK6424a9921843db980278f77b26d6307538.4f507815eba31d807530fec9de57375e;proxy-call-id=55cea992-f5f2-4a8a-
a914-e533c6245773;rport
Via: SIP/2.0/TLS 10.106.4.73:49256;branch=z9hG4bK0000453e;received=10.106.4.73;ingress-zone=CollaborationEdgeZone
Call-ID: 0050568b-4cc40003-00002a4f-00004692@10.106.4.73
CSeq: 102 REGISTER
Contact: <sip:96446082-3aa2-435b-9c73-671751df5635@10.106.4.73:49256;transport=tls>;+sip.instance="<urn:uuid:00000000-0000-0000-0000-
0050568b4cc4>";+u.sip!devicename.ccm.cisco.com="MDonald";+u.sip!model.ccm.cisco.com="503";video
From: <sip:5002@uclabcucm-sub>;tag=0050568b4cc4000200004517-00001bb6
To: <sip:5002@uclabcucm-sub>
Max-Forwards: 15
Route: <sip:uclabcucm-sub;transport=tcp;lr>
Path: <sip:10.106.4.81:7002;transport=tls;lr>
Path: <sip:10.106.4.73:49256;transport=tls;apparent;ds;lr>
User-Agent: Cisco-CSF
Expires: 3600
Date: Mon, 01 Sep 2014 20:59:30 GMT
Supported: replaces,join,sdp-anat,norefersub,resource-priority,extended-refer,X-cisco-callinfo,X-cisco-serviceuri,X-cisco-escapecodes,X-cisco-service-control,X-cisco-srtp-fallback,X-cisco-
monrec,X-cisco-config,X-cisco-sis-7.0.0,X-cisco-xsi-8.5.1,X-cisco-graceful-reg,X-cisco-duplicate-reg
P-Asserted-Identity: <sip:5002@uclabcucm-sub>
X-TAATag: 38705e6f-896f-410d-9c8d-4006db94be99
Reason: SIP ;cause=200;text="cisco-alarm:25 Name=MDonald ActiveLoad=Jabber_for_Windows-10.5.0 InactiveLoad=Jabber_for_Windows-10.5.0 Last=initialized"
Mime-Version: 1.0
Content-Type: multipart/mixed;boundary=uniqueBoundary
Content-Length: 1211
```

12f. Expw-E gets a 200 Ok from EXPW-C

```
2014-09-01T20:59:30+00:00 uclabExpw-E01 tvcs: UTCTime="2014-09-01 20:59:30,091" Module="network.sip" Level="DEBUG": Action="Received" Local-ip="10.106.4.81" Local-port="7002"
Src-ip="10.106.4.85" Src-port="25000" Msg-Hash="13110973678136728541"
SIPMSG:
|SIP/2.0 200 OK
Via: SIP/2.0/TLS 10.106.4.81:7002;egress-zone=TZone;branch=z9hG4bK6424a9921843db980278f77b26d6307538.4f507815eba31d807530fec9de57375e;proxy-call-id=55cea992-f5f2-4a8a-
a914-e533c6245773;received=10.106.4.81;rport=7002;ingress-zone=UCTraversalZone,SIP/2.0/TLS 10.106.4.73:49256;branch=z9hG4bK0000453e;received=10.106.4.73;ingress-
zone=CollaborationEdgeZone
Call-ID: 0050568b-4cc40003-00002a4f-00004692@10.106.4.73
CSeq: 102 REGISTER
Contact: <sip:96446082-3aa2-435b-9c73-671751df5635@10.106.4.85:5060;transport=tcp;orig-hostport=10.106.4.73:49256>;+sip.instance="<urn:uuid:00000000-0000-0000-0000-
0050568b4cc4>";+u.sip!devicename.ccm.cisco.com="MDonald";+u.sip!model.ccm.cisco.com="503";video;x-cisco-newreg
From: <sip:5002@uclabcucm-sub>;tag=0050568b4cc4000200004517-00001bb6
To: <sip:5002@uclabcucm-sub>;tag=100691671
Expires: 120
Date: Mon, 01 Sep 2014 20:59:30 GMT
Supported: X-cisco-srtp-fallback,X-cisco-sis-6.0.0
Content-Type: application/x-cisco-remotecall-response+xml
Content-Length: 381
```

```
<x-cisco-remotecall-response> <response> <code>200</code> <optionsind> <combine max="6"> <remotecall><status/></remotecall> <service-control/> </combine> <dialog usage="hook
status"><not/></dialog> <dialog usage="shared line"><not/></dialog> <presence usage="blf speed dial"><not/></presence> <joinreq/></joinreq> </ix/> <bfcf/> </optionsind>
</response> </x-cisco-remotecall-response>
```

|

+++Expw-E sends 200 Ok to Jabber++++

```
2014-09-01 21:59:30,155 DEBUG [0x0000a34] [oftphonewrapper\CC_SIPCCService.cpp(342)] [csf.ecc.sipcc] [_SIPCCLoggerFunction] - sipio-recv<--- SIP/2.0 200 OK
Via: SIP/2.0/TLS 10.106.4.73:49256;branch=z9hG4bK00006bce;received=10.106.4.73;ingress-zone=CollaborationEdgeZone
Call-ID: 0050568b-4cc40003-00002a4f-00004692@10.106.4.73
CSeq: 103 REGISTER
Contact: <sip:96446082-3aa2-435b-9c73-671751df5635@10.106.4.85:5060;transport=tcp;orig-hostport=10.106.4.73:49256>;+sip.instance="<urn:uuid:00000000-0000-0000-0000-
0050568b4cc4>";+u.sip!devicename.ccm.cisco.com="MDonald";+u.sip!model.ccm.cisco.com="503";video;bfcf
From: <sip:5002@uclabcucm-sub>;tag=0050568b4cc4000300003d32-00004e73
To: <sip:5002@uclabcucm-sub>;tag=2085210886
Expires: 120
Date: Mon, 01 Sep 2014 20:59:30 GMT
Supported: X-cisco-srtp-fallback,X-cisco-sis-6.0.0
Content-Length: 0
```

NB: This process of delegated credential checking is very crucial to jabber registering with CUCM.

If the certificate exchange fails, the jabber wont register, hence the user will not have any softphone or desk phone control..

“Example of failure is shown below:

+++Here Jabber complains that the Expw-E cert is not supported. (this is because the CA used MD5 algorithm to sign certificates, which expressway no longer supports). Once this happens, Expw-E-e does not proceed to send the SIP REGISTER message to Expw-C.+++

2014-09-01T18:00:45+00:00 uclabExpw-C01 tvcs: UTCTime="2014-09-01 18:00:45,646" Module="network.sip" Level="DEBUG": Action="Sent" Local-ip="10.106.4.80" Local-port="25008" Dst-ip="10.106.4.86" Dst-port="7002" Msg-Hash="17447956336816506777"

SIPMSG:

|SIP/2.0 437 Unsupported Certificate

Via: SIP/2.0/TLS 10.106.4.86:7002;egress-zone=TZone;branch=z9hG4bK00aa0358406e3f19e132823d345f345d96.169e09b430aad4a5d81b0c05e7dc43c0;proxy-call-id=cee9cd13-b343-4fa2-bc63-d374f9d97f3c;received=10.106.4.86;rport=7002;ingress-zone=UCTraversalZone;ingress-zone-id=4

Via: SIP/2.0/TCP 127.0.0.1:5060;branch=z9hG4bK49db5e04c393d41c75b0064ac8779ce295;received=127.0.0.1;rport=25000;ingress-zone=DefaultZone

Call-ID: f4e80666e4acd5a2@127.0.0.1

CSeq: 23344 SERVICE

From: <sip:serviceproxy@uclabcucm-pub>;tag=cb58680a70d3d937

To: <sip:serviceserver@uclabcucm-pub>;tag=c6fcdaa1d875db06

Server: TANDBERG/4130 (X8.2.1)

Content-Length: 0