

Healthcare Fraud Prevention - Partner Client Integration Assembly Deployment Guide

Revision History

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1. Organization

This assembly is organized as follows:

- **docs** – contains this document.
- **hfpnetwork** - the root folder of partner client, integrated with “database appliance”/ “conversion”/ “query parsing and generation” modules.
- **decision_module** – contains the decision module.
- **node** – contains the node assembly.
- **conf** – contains “tomcat”/ “partner client application” SSL related configuration files and database ddl files.
- **test** – contains test related files.

2. Environment

The assembly was done and tested under following environment:

- Ubuntu 12.04.3 LTS 64-bit
- Python 3.3.2 <http://www.python.org/download/>
- CherryPy 3.2.4 <http://www.cherrypy.org/>
- isodate 0.4.9 <https://pypi.python.org/pypi/isodate>
- MySQL 5.5
- setuptools 1.4.2 <https://pypi.python.org/pypi/setuptools/>
- CyMySQL 0.6.6 <https://pypi.python.org/pypi/cymysql>
- argparse 1.2.1 <http://code.google.com/p/argparse/downloads/list>
- Ant 1.9.2 <http://ant.apache.org/>
- Qpid 0.22 <http://qpid.apache.org/>
- Tomcat7 <http://tomcat.apache.org/>
- Tomcat-native 1.1.29 <http://tomcat.apache.org/download-native.cgi>
- apr 1.5.0 <http://apr.apache.org/>
- Django 1.6 <https://www.djangoproject.com/>
- curl

Browser used by verification is Firefox.

3. Environment setup

3.1 Partner client dependencies

We assume that you have python3.3 fully installed. If not, run following commands:

```
sudo apt-get install zlib1g-dev
sudo apt-get install openssl
sudo apt-get install libssl-dev
sudo apt-get install libsqlite3-dev
wget http://www.python.org/ftp/python/3.3.2/Python-3.3.2.tar.bz2
tar xvf Python-3.3.2.tar.bz2
cd Python-3.3.2
./configure
make
sudo make install
```

You may run python3 to check it:

```
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration$ python3
Python 3.3.2 (default, Oct 13 2013, 17:54:13)
[GCC 4.6.3] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> █
```

Download CherryPy 3.2.4 and isodate 0.9.4, extract them, and run following commands:

```
cd CherryPy-3.2.4/
sudo python3 setup.py install
cd ../isodate-0.4.9/
sudo python3 setup.py install
```

You may run python3 shell to check they are properly installed:

```
python3
>>> import cherrypy
>>> import isodate
```

3.2 Database dependencies

Run following commands to setup MySQL server and client:

```
sudo apt-get install mysql-server mysql-client
```

You will be asked to input **passphrase** for MySQL server during setup. Remember this passphrase. It will be used to configure the appliance module.

After MySQL been configured during setup, your MySQL server would have following “username/password” pair:

```
root/{passphrase}
```

where **{passphrase}** means the passphrase you input during MySQL setup.

Note that the passphrase used by this submission is “123456”.

*Note that you may choose to use passphrase other than “123456”, but do remember to configure properly in **section 4.4**.*

Download and extract setuptools 1.4.2.

```
wget https://pypi.python.org/packages/source/s/setuptools/setuptools-1.4.2.tar.gz
tar xzvf setuptools-1.4.2.tar.gz
cd setuptools-1.4.2/
sudo python3 setup.py install
```

Download CyMySQL 0.6.6 and argparse 1.2.1, extract them.

```
wget http://argparse.googlecode.com/files/argparse-1.2.1.tar.gz
tar xzvf argparse-1.2.1.tar.gz
wget https://pypi.python.org/packages/source/c/cymysql/cymysql-0.6.6.tar.gz
tar xzvf cymysql-0.6.6.tar.gz
cd argparse-1.2.1/
sudo python3 setup.py install
cd ../cymysql-0.6.6/
sudo python3 setup.py install
```

You may run python3 shell to check they are properly installed:

```
python3
>>> import argparse
>>> import cymysql
```

3.3 Node server dependencies

Setup JDK 6:

```
sudo apt-get install openjdk-6-jdk
```

Check it by running:

```
javac -version
```

Setup Ant:

```
wget http://www.us.apache.org/dist/ant/binaries/apache-ant-1.9.2-bin.zip
```

```
unzip apache-ant-1.9.2-bin.zip
```

Set the **ANT_HOME** environment variable and add ant related files to path.

*Note that You should replace **ANT_HOME** with your real ant install folder.*

```
sudo vi /etc/profile
```

```
export ANT_HOME=/home/tcsassembler/Download/apache-ant-1.9.2
```

```
export PATH=$PATH:$ANT_HOME/bin
```

Export the path by running:

```
source /etc/profile
```

You can check by run

```
ant -version
```

Setup Qpid:

```
wget http://www.us.apache.org/dist/qpid/0.22/qpid-java-0.22.tar.gz
```

```
tar xzvf qpid-java-0.22.tar.gz
```

```
cd qpid-0.22/bin
```

Setup tomcat7:

Below **TOMCAT_HOME** is where you install tomcat7.

```
wget http://apache.dataguru.cn/tomcat/tomcat-7/v7.0.47/bin/apache-tomcat-7.0.47.zip
```

```
unzip apache-tomcat-7.0.47.zip
```

Setup APR:

Download apr-1.5.0, extract it:

```
wget http://mirrors.cnnic.cn/apache/apr/apr-1.5.0.tar.gz
```

```
tar xzvf apr-1.5.0.tar.gz
```

```
cd apr-1.5.0/
```

```
./configure
```

```
make
```

```
sudo make install
```

Setup tomcat-native:

Download tomcat-native 1.1.29, extract it:

```
wget http://apache.fayea.com/apache-mirror/tomcat/tomcat-connectors/native/1.1.29/source/tomcat-native-1.1.29-src.tar.gz
```

```
tar xzvf tomcat-native-1.1.29-src.tar.gz
```

```
cd tomcat-native-1.1.29-src/jni/native/
```

```
./configure --with-apr=/usr/local/apr --with-java-home=/usr/lib/jvm/java-6-openjdk-amd64
```

```
make
```

```
sudo make install
```

Set the **LD_LIBRARY_PATH** environment variable

```
sudo vi /etc/profile
```

```
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/local/apr/lib
```

Export **LD_LIBRARY_PATH** by running:

```
source /etc/profile
```

3.4 Decision module dependencies

Download Django-1.6 and extract it:

```
cd Django-1.6/
sudo python3 setup.py install
```

Checking this by running:

```
python3
>>> import django
>>> print(django.VERSION)
(1, 6, 0, 'final', 0)
```

3.5 Generate SSL private key and self signed certificates

This step is *optional* because we have already created the certificates under *conf/*.

```
openssl req -new -newkey rsa:2048 -out certreq.csr -keyout server.key
```

```
tcsassembler@ubuntu:~/Downloads$ cd ..
tcsassembler@ubuntu:~$ openssl req -new -newkey rsa:2048 -out certreq.csr -keyout server.key
Generating a 2048 bit RSA private key
.+++
.....+++
writing new private key to 'server.key'
Enter PEM pass phrase:
Verifying - Enter PEM pass phrase:
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:
State or Province Name (full name) [Some-State]:
Locality Name (eg, city) []:
Organization Name (eg, company) [Internet Widgits Pty Ltd]:
Organizational Unit Name (eg, section) []:
Common Name (e.g. server FQDN or YOUR name) []: test.com
Email Address []: admin@test.com

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:
An optional company name []:
tcsassembler@ubuntu:~$
```

You MUST input “**test.com**” as the common name.

```
openssl x509 -req -in certreq.csr -out cert.cer -signkey server.key -days 3650
```

```
tcsassembler@ubuntu:~$ openssl x509 -req -in certreq.csr -out cert.cer -signkey server.key -days 3650
Signature ok
subject=C=AU/ST=Some-State/O=Internet Widgits Pty Ltd/CN=test.com/emailAddress=admin@test.com
Getting Private key
Enter pass phrase for server.key:
tcsassembler@ubuntu:~$
```

```
openssl rsa -in server.key -out unsec_server.key
```

```
tcsassembler@ubuntu:~$ openssl rsa -in server.key -out unsec_server.key
Enter pass phrase for server.key:
writing RSA key
tcsassembler@ubuntu:~$
```

Copy `cert.cer` and `server.key` to `TOMCAT_HOME/conf`. And copy `cert.cer`, `server.key` and `unsec_server.key` to “/conf” folder of this submission.

3.6 Redirect test.com

Add `test.com` to hosts:

```
sudo vi /etc/hosts
127.0.0.1 test.com
```

4. Configure and run

4.1 Node assembly configuration

Configure and build node assembly. Assume you are in the `submission` folder.

```
cd node/
```

Configure the `build.properties` file:

| Property Name | Description | Example Setting |
|---------------------------|-------------------------------|---|
| qpid.url | Qpid connection URL | amqp://guest:guest@clientid/default?brokerlist='tcp://localhost:5672' |
| tomcat.home | The Tomcat home | /home/tcsassembler/apache-tomcat-7.0.47 |
| warName | The WAR file name | NetworkNode |
| url_base | The URL base | https://test.com:8443/NetworkNode |
| schemas.path | The schemas path | /home/tcsassembler/tcs/HfppPartnerClientIntegration/node/conf/schemas |
| data_request_callback_url | The data request callback url | https://test.com:8070/callbacks/data_request |

Build node assembly using ant:

```
ant deployWeb
```

Note that this command will copy the compiled .war file to `TOMCAT_HOME/webapps`.

4.2 Tomcat configure and run

Edit `TOMCAT_HOME/conf/server.xml`

Add below configuration after

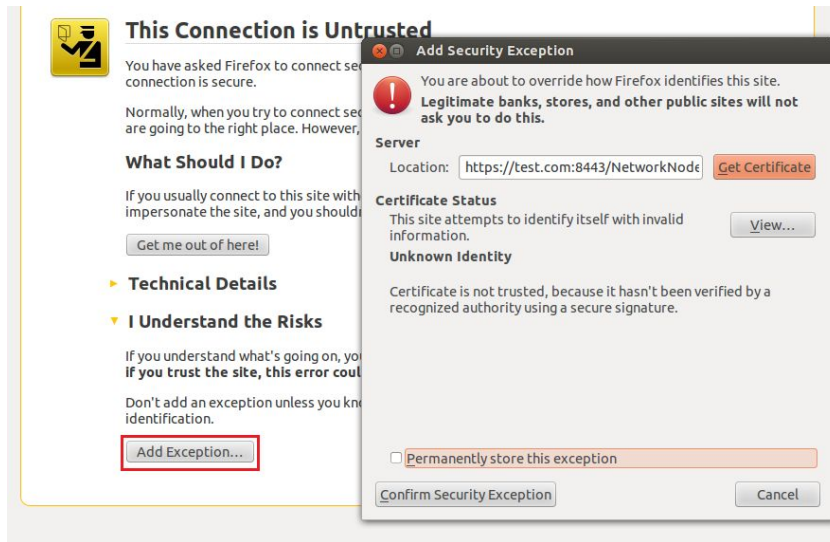
```
<Service name="Catalina">
  <!-- Define a SSL HTTP/1.1 Connector on port 8443
       This connector uses the JSSE configuration, when using APR, the
       connector should be using the OpenSSL style configuration
       described in the APR documentation -->
  <!--
  <Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
    maxThreads="150" scheme="https" secure="true"
    clientAuth="false" sslProtocol="TLS" />
  -->
```

```
<Connector port="8443" SSLEnabled="true"
    maxThreads="150" scheme="https" secure="true" protocol="org.apache.coyote.http11.Http11AprProtocol"
    sslProtocol="TLS"
    SSLPassword="123456"
    SSLCertificateFile="/home/tcsassembler/apache-tomcat-7.0.47/conf/cert.cer"
    SSLCertificateKeyFile="/home/tcsassembler/apache-tomcat-7.0.47/conf/server.key"/>
```

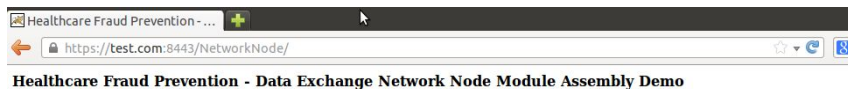
Move to **TOMCAT_HOME/bin** folder and run:

```
source /etc/profile
chmod +x *.sh
./startup.sh
```

Then you can open <https://test.com:8443/NetworkNode/>



Since currently node server uses a self signed certificate, there will be a warn in the browser. Click “**Add Exception**” at the web page to trust this certificate.



4.3 Qpid configure and run

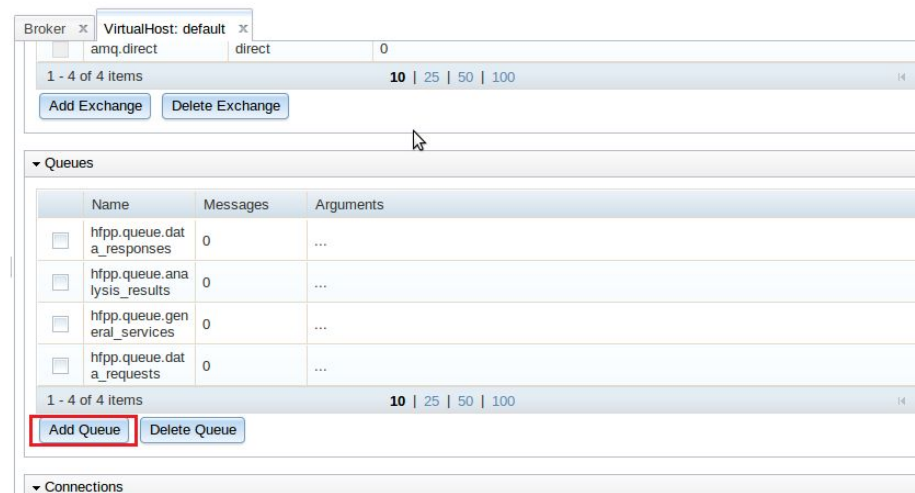
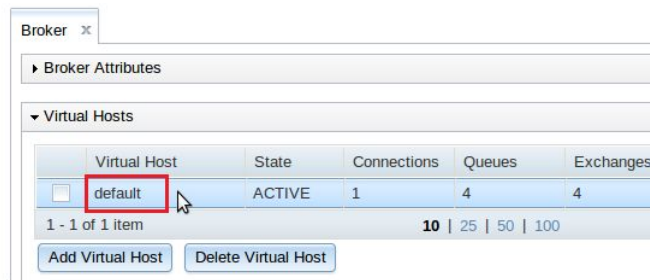
Assume your qpid's is located under your home folder.

```
cd ~/qpid-0.22/bin
./qpid-server -prop "qpid.work_dir=~/.qpid_work" -prop "qpid.http_port=10001"
```

Open <http://localhost:10001> and use **admin/admin**.

| | |
|--------------------------------------|--|
| Login | |
| User name: | <input type="text" value="admin"/> |
| Password: | <input type="password" value="*****"/> |
| <input type="button" value="Login"/> | |

Add the following queues: **hfpp.queue.analysis_results**, **hfpp.queue.data_responses**, **hfpp.queue.data_requests**, **hfpp.queue.general_services** to default virtual host.



4.4 Partner client configure and run

Assume you are in root folder of this submission.

Edit **hfppnetwork/partner/settings.py** file:

| Property Name | Description | Example Setting |
|----------------------------------|---|---|
| HFPP_NODE_HTTP_SERVICE_BASE_URL | Url of the node server. | 'https://test.com:8443/NetworkNode/services' |
| CA_CERTIFICATE_FILE | Certificate of the node server. | '/home/tcsassembler/apache-tomcat-7.0.47/conf/cert.cer' Require. |
| PARTNER_CERTIFICATE | Certificate of the partner client application. | '/home/tcsassembler/tcs/HfppPartnerClientIntegration/conf/cert.cer' Require. |
| PARTNER_PRIVATE_KEY | SSL private key file of the partner client application. | '/home/tcsassembler/tcs/HfppPartnerClientIntegration/conf/unsec_server.key' Require. |
| HFPP_PARTNER_ID | The partner ID. | '091f80d7-8ecb-429c-8f0b-caeaae18dcd8' Require. |
| HFPP_PARTNER_USERNAME | The partner username. | 'Partner_1' Require. |
| HFPP_PARTNER_PASSWORD | The partner password. | 'password' Require. |
| PARTNER_CLIENT_HTTP_SERVICE_PORT | Port used by the partner client application. | 8070 Require. |

| | | |
|--------------------------|---|---|
| PARTNER_IMMEDIATE_FULFIL | Whether process data request immediately. | False. Require. |
| DECISION_MODULE_URL | Url of the decision module | http://localhost:8000/create Require. |

Assume you are in **root** directory of this submission.

Run following command to setup tables in database:

```
mysql -u root -p
```

You will be asked to input the MySQL server **passphrase** you have set when setup MySQL server.

Run following commands in the mysql shell:

```
source conf/db/ddl.sql
```

Edit **hfppnetwork/partner/appliance/config.py**. Set the MySQL server passphrase to the field:

```
dbconfig.password
```

Go to folder **hfppnetwork/partner**, run following commands to store several sample claims into MySQL server:

```
python3 partner_database_appliance.py -o write -t beneficiary -f ../../test/BeneficiarySummary.csv
```

```
python3 partner_database_appliance.py -o write -t carrier -f ../../test/CarrierClaims.csv
```

```
python3 partner_database_appliance.py -o write -t inpatient -f ../../test/InpatientClaims.csv
```

```
python3 partner_database_appliance.py -o write -t outpatient -f ../../test/OutpatientClaims.csv
```

Currently prescription claims are NOT supported yet.

At **hfppnetwork/partner** folder, run:

```
python3 partnercli.py
```

```
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/hfppnetwork/partner$ python3 partner_database_appliance.py -o write -t beneficiary -f ../../test/BeneficiarySummary.csv
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/hfppnetwork/partner$ python3 partner_database_appliance.py -o write -t carrier -f ../../test/CarrierClaims.csv
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/hfppnetwork/partner$ python3 partner_database_appliance.py -o write -t inpatient -f ../../test/InpatientClaims.csv
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/hfppnetwork/partner$ python3 partner_database_appliance.py -o write -t outpatient -f ../../test/OutpatientClaims.csv
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/hfppnetwork/partner$ python3 partnercli.py
2013-12-06 14:42:36 [DEBUG] Entering method hfppnetwork.partner.partnercli.main
2013-12-06 14:42:36 [DEBUG] Input parameters:[]
2013-12-06 14:42:36 [DEBUG] hfpp partner id:091f80d7-8ecb-429c-8f0b-caeaae18dcdb
```

The partner client application starts.

4.5 Decision module configure and run

Go to **/decision_module** folder of this submission.

No configuration is needed. Run following command to start decision module's web interface:

```
python3 manage.py runserver
```

```
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/decision_module$ python3 manage.py runserver
Validating models...

0 errors found
December 06, 2013 - 06:34:38
Django version 1.6, using settings 'decision_module.settings'
Starting development server at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```

Open <http://localhost:8000> to see the empty requests in the page:



5. Verification

Make sure you setup node server, partner client application and decision module properly according to section 3 and section 4. If not, please do **NOT** start verification.

We use curl to test this assembly.

`sudo apt-get install curl`

Note that we always assume you are at `/test` folder of the submission during the whole verification.

*Note that there's easy to use command lines in test folder. You may **Ctrl+C/Ctrl+V** the commands in `/test/test_cmd.txt`.*

5.1 Wrong request method

`curl -i --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request`

```
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/test$ curl -i --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
HTTP/1.1 405 Method Not Allowed
Server: CherryPy/3.2.4
Allow: POST
Content-Type: text/html; charset=utf-8
Content-Length: 1547
Date: Fri, 06 Dec 2013 06:45:41 GMT

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html>
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8"></meta>
  <title>405 Method Not Allowed</title>
  <style type="text/css">
    #powered by {
```

The error message shows that the GET method is not allowed by server.

5.2 Wrong accept type

`curl -i -X POST -H "Accept:application/json" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request`

*Note that there's **NO NEWLINE** after `../conf/cert.cer`. Same for the following verification steps.*

```
tcsassembler@ubuntu:~/tcs/HfppPartnerClientIntegration/test$ curl -i -X POST -H
"Accept:application/json" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
HTTP/1.1 406 Not Acceptable
Server: CherryPy/3.2.4
Allow: POST
Content-Type: text/html; charset=utf-8
Content-Length: 1735
Date: Fri, 06 Dec 2013 06:48:20 GMT

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html>
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8"></meta>
  <title>406 Not Acceptable</title>
  <style type="text/css">
```

The error message shows that json type is not acceptable.

5.3 Empty request body

```
curl -i -X POST -d "" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

See output of the partner client application. Error will be logged showing that request body can NOT be empty.

```
httpservices.py", line 258, in data_request
    raise PartnerClientError("request body can not be empty")
errors.PartnerClientError: request body can not be empty
2013-12-06 14:49:26 [DEBUG] Exiting method hfppnetwork.partner.partnercli.handle_error
2013-12-06 14:49:26 [DEBUG] Output parameters:None
127.0.0.1 - - [06/Dec/2013:14:49:26] "POST /callbacks/data_request HTTP/1.1" 500
- "" "curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.8 libidn/1.23 librtmp/2.3"
2013-12-06 14:49:26 [INFO ] 127.0.0.1 - - [06/Dec/2013:14:49:26] "POST /callbacks/data_request HTTP/1.1" 500 - "" "curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.8 libidn/1.23 librtmp/2.3"
```

5.4 Expired data request

```
curl -i -X POST --data @test1.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

See output of the partner client application. The error was logged showing that the request has expired. Expiration time set in `test1.xml` is "2013-07-11T09:30:10-06:00".

```
2013-12-06 14:50:45 [DEBUG] Input parameters:[{'input_file_name': '/tmp/tmpilx6c4', 'file_type': 'beneficiary', 'output_file_name': '/tmp/tmpfry904'}]
2013-12-06 14:50:45 [DEBUG] Exiting method hfppnetwork.partner.httpservices.data_conversion.convert_data
2013-12-06 14:50:45 [DEBUG] Output parameters:None
2013-12-06 14:50:45 [ERROR] Request expired
2013-12-06 14:50:45 [DEBUG] Exiting method hfppnetwork.partner.httpservices.DataRequestHandler.handle_data_request
2013-12-06 14:50:45 [DEBUG] Output parameters:None
2013-12-06 14:50:45 [DEBUG] Entering method hfppnetwork.partner.httpservices.DataRequestHandler._remove_file
2013-12-06 14:50:45 [DEBUG] Input parameters:[{'self': <httpservices.DataRequestHandler object at 0x7f7150649cd0>, 'file_name': '/tmp/tmpilx6c4'}]
2013-12-06 14:50:45 [DEBUG] Exiting method hfppnetwork.partner.httpservices.DataRequestHandler._remove_file
2013-12-06 14:50:45 [DEBUG] Output parameters:None
2013-12-06 14:50:45 [DEBUG] Entering method hfppnetwork.partner.httpservices.Data
```


5.5 Valid Data Request with query not json

```
curl -i -X POST --data @test2.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

See output of the partner client application. The error was logged showing that the expected JSON string can not be decoded. Json string used in **test2.xml** is "QUERY TEXT" which is not a legal JSON string.

```
obj, end = self.raw_decode(s, idx=_w(s, 0).end())
File "/usr/local/lib/python3.3/json/decoder.py", line 370, in raw_decode
    raise ValueError("No JSON object could be decoded")
ValueError: No JSON object could be decoded
2013-12-06 14:52:33 [DEBUG] Exiting method hfppnetwork.partner.httpservices.PartnerHTTPServices.data_request
2013-12-06 14:52:33 [DEBUG] Entering method hfppnetwork.partner.httpservices.data_request
2013-12-06 14:52:33 [DEBUG] Output parameters:None
127.0.0.1 - - [06/Dec/2013:14:52:33] "POST /callbacks/data_request HTTP/1.1" 200
- "-" "curl/7.22.0 (x86_64-pc-linux-gnu) libcurl/7.22.0 OpenSSL/1.0.1 zlib/1.2.8 libidn/1.23 librtmp/2.3"
```

Check message in Qpid queue **hfpp.queue.data_responses**, you may see that the request was denied.

The screenshot shows a 'View Message' window for a Qpid message. The message details are as follows:

- Message Number: 21
- Message Id: 133242f8-b865-3c15-99f7-75b4adcd6076
- State: Available
- Persistent: true
- Priority: 4
- Arrival Time: Fri 06 Dec 2013 02:52:34 PM CST
- Expiration:
- MIME Type: text/plain
- User: guest
- Headers:

| Header | Value |
|-----------------|-----------|
| x-hfpp-username | Partner_1 |
| x-hfpp-password | password |
- Content:


```
<?xml version="1.0" encoding="utf-8"?><DataResponse>
<RequestID>7a32ff98-a704-41e7-8cdf-059df6c2e8db</RequestID>
<RequestDenied>true</RequestDenied></Data></DataResponse>
```

5.6 Beneficiary request

```
curl -i -X POST --data @test3.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

Check Qpid queue message of **hfpp.queue.data_responses** to see that the request has NOT been denied.

The screenshot shows a 'View Message' window for a Qpid message. The message details are as follows:

- Headers:

| Header | Value |
|-----------------|-----------|
| x-hfpp-username | Partner_1 |
| x-hfpp-password | password |
- Content:


```
<?xml version="1.0" encoding="utf-8"?><DataResponse><RequestID>7a32ff98-a704-41e7-8cdf-059df6c2e8db</RequestID>
<RequestDenied>false</RequestDenied><Data useCache="false">
<I[CDA]t[eN]q[V]s[F]uoz[A]Q[vt]crotz[T]Q[C]p[V]G4[Sk]dBqp[1]V[F]LQ[4]M[C]0[Ap]2NDZVs[1+]/N[r]TBSY[
sX]f[m]WeDDy[C]Jgt8N3WtnOAAeiwT5293w5f1x9Gt47195M+DwijEy2q2LPGeEIP2rgX5OXbv[
lwR]x3HcWydd0gmAyl5j[O]Q298jKl5lVMQvc6QVOq7U9cZuZOR43pj236MDofp61Q/Bn2zR[
T]187zatR7lFUMpxDxTuzTXpgSdrxd5gBZxllUpgeHhY8wZgpQb7jjbsBliSIIVY5b7WY/ahGzE[
V]VWlm4mOb1r0JKRCuZCL6nO+SwwUy54EV6k0Ulp9h/RZB33WTf9FLWQWzyHmcNlxnh[
/qaAOVBKE8h0ERNdc0GJ3ulRrYFjBv7EG/eBwDmCnfyRYVZQyT4YWWuUkuAY/8GEw+
GI+BsmD1dRlx2khFRazwA5ZFlguu9+Jp/C6U1SiwJZCm3w3VGlkQZBtQusMN4Pu7di9kn[
S0ajvazFUoHYChlSy8gH4xq2SqHldW9gEugOJ1QoA56UYPTzIMPReOLu9SLzDt8RAKRai[
f]MSUAlcB54xebmAA3QzY74pSEJuXlPpRN+51rv0AnxrEvAAbkVXOIGM1S7jkTnOK3JlC[
H]VDWZ3jWGeqC/mgkuFqIB6p7GsZzH/m91TQK9C/yhCTyG9FuFHEezThvTfm84XcVJm[
xhcxWhl1quFFjOp+M2664DRYzY3oH3UTNIQ=]]></Data></DataResponse>
```

Copy the data and try to decode it under python:

```

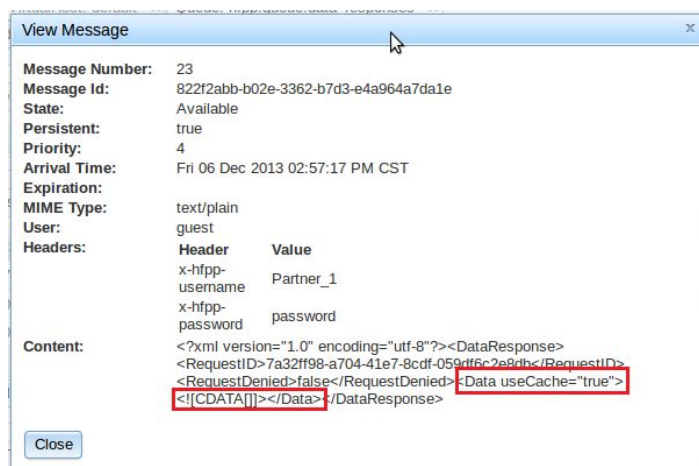
type help ; copyright ; credits or license for more information.
>>> import zlib, base64
>>> zlib.decompress(base64.b64decode('eNqLVsFuozACvfcrotzTQCpVG4LSkdBqo1VFLlQf4M
C0jAp2NDZVs1+/NfTBsYQCLrfwzHsz20P sXf/mWeDDyCJgt8N3Wtn0AAeiwT5293w5flx9Gt47195M
+DwiJey2q2LPGeeIP2rgX50XbvKceyc iWR8x3Hcwyd0gmAyf5j0Q298jKl5IVM0vc6QV0q7U9cZuZOR
43pj236MDoFp61Q/Bn2zR1f2Gr2G T187zatR7IrFUMpxDxTuzTXpgSdrxd5gBZxLIUpgeHY8wZgpQb7
jjbsBliS1lVY5b7Hy/ahGzEXB VwWl4mObI1r0JKRCuZCL6n0+SvUy54EV6k0Ulp9h/RZB33WTF/9FL
WQWzyHmcNLxnhH9LZ/HSbi /qaAOVBK8h0ERNdc0GJ3uIRrYfJBv7EG/eBwDMcnfyRYVZQyT4YwWuUk
uAY/8GEw+5rqQ280W7R GI+B5mDIdRIx2khFrazwA5ZFLguu9+Jp/C6U1SiwJZCm3w3VGlkQZBTQusMN
4Pu7dI9knEK0cVkf S0ajvaZFuoHYChISy8gH4xq2SqHIdW9gEug0J1QoA56UYPZtMPReOLu9SLZdt8R
AKRa/mzCndmuu fMsUALCB54XebmAal3QzY74pSEJuXLLpRN+51rv0AnxrEvvaAbkVXOIGM1S7jkTnOK
3JloTnzF6y HVDfWz3jWgteqC/mgkuFqLB6p7GsZzH/m91TQK9C/yhCTyG9FuFHEezThvTfm84XcVJm7
01vvdCr_xhcxkHl1quFFiOp+M2664DRYzY3oH3UTNF0=''))
'<?xml version="1.0" encoding="UTF-8"?>\n<BeneficiarySummaries>\n <Beneficia
rySummary>\n <BeneficiaryCode>000160D0AA2CE9CD</BeneficiaryCode>\n
<DateOfBirth>1910-12-01</DateOfBirth>\n <DateOfDeath>9999-12-31</DateOfD
eath>\n <Sex>1</Sex>\n <BeneficiaryRaceCode>1</BeneficiaryRaceCode
>\n <EndStageRenalDiseaseIndicator>0</EndStageRenalDiseaseIndicator>\n
<StateCode>16</StateCode>\n <CountyCode>320</CountyCode>\n <P
artACoverageTotalMonths>0</PartACoverageTotalMonths>\n <PartBCoverageTota
lMonths>0</PartBCoverageTotalMonths>\n <HMOCoverageTotalMonths>0</HMOCove

```

5.7 Beneficiary request with useCache response

```
curl -i -X POST --data @test4.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer
https://test.com:8070/callbacks/data_request
```

Check Qpid queue message of `hfpp.queue.data_responses` to see that the useCache response was received. The cache timestamp used in `test4.xml` is “2014-07-11T09:30:10-06:00”.



5.8 Carrier request

```
curl -i -X POST --data @test5.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer
https://test.com:8070/callbacks/data_request
```

Similarly to check Qpid message and the python decoded message:

```

Content: <?xml version="1.0" encoding="utf-8"?><DataResponse><RequestID>7a32ff98-a704-41e
059df6c2e8db</RequestID><RequestDenied>false</RequestDenied><Data useCache="fa
<![CDATA[?Nrt3V1vE1cQBUD7/grEfeDMmfMppa5SU1SkFILR9t6Nt7BSbEu20zb/vnZCGsl
Z9448Ywx0aP24x/+nZ0/+7tZtrf/Pvn9MI8f9bMzxbTdv7h++e//b6KD3/YfT8XlyLbNcnw
aWerOXfPNrvuPHb90NXDPzbz5q/2rJ0sL8eLaTNKhmllbJPL5nX+KRy//PLEbe1V1pvpKLE
zC6n45c3j9+efL+eLNeVJutnZl1JR8Yd2Xz88vbR25M/zaedczePffGVX7WTD/PFqJ1tnxaNl
09f+4kqpzo6Cicn1FdpilY/6arhY43prXLHG99b4Yk3orQnFmthbE4s1qbcmfVZzulz83U6b5ei
y9W2h+ZvJ+tN707Oby68mdLkXOROOXNyyA...>XbkSjV6JJZlsq6VcdLdbpUL0v1utQgS
jbrUJEIvdm6WpWblPBhZ7OacLpeEucr5luGakXLCSDhi1DdjB+ardbu+2J79bflv24vZn82S
cTKRXbgN7j8oC/z8G++/LsvhSo70G3SVHCfM8ZUcL8wJlZwgzImVnCjMSZWcJmZJlZwst
8d6DVEuS9jTVmpqkXU21r4zuL+08+bn8euT8Wi2W8w3ZWfN9GLZJK8+276/XK2bGY1ytr
q4reftOjY6pUqUqfwxOlup0qV6W6nWpQZyadKIRhp1qUmWmnSpWZaalaNgZLF33kAk50l
Eg4YKSeMhCPWeat5O/75dHl5a+brk9niYr6mkTcvzHVW91q51o4GS22lllLa8/YDZe6Sqk
0jBcGiqcbg0VkrTcGmgqObh0lzcCTNe2xmszgEqFnc6igotRbWeakJTdebgsl/unE6W6x9fb
bN3+ed7c9P7/WfWjumgr7bKaJZHa38gTh7tlnFeHu2V0UEeHZTRUR4dlFJHp2U0Vkenbl
Y77hmoHUTIQpRpKOM0mKoSy+TS3b2VxdZbM8nbTT4rvUwFllUFEWE204K8LVPxanCh
oAgP2vCoC/cr/a8kQlT9nwrAjP6iEymiky6njVkkqnlDRjSuo5Jc2gdt7Axot2vryYTuZn3Q9WPc
xbZQbGVFXCiuPm1XKHa1YI8o9rXiUCgOteJYKl614IQoTxiXcJO1SypS4x1fJik1W7JEp
t1Kl4idh5pY88l18+LY+eL DQ0P6T3eYAEfNcDYCLAY3wvPILUDQ26FwNl8PDA11A0l0l0Y

```

```

e10>\n      <LineProcessingIndicatorCode11></LineProcessingIndicatorCode11>\n
      <LineProcessingIndicatorCode12></LineProcessingIndicatorCode12>\n
<LineProcessingIndicatorCode13></LineProcessingIndicatorCode13>\n      <LineDi
agnosisCode1>4779</LineDiagnosisCode1>\n      <LineDiagnosisCode2></LineDiagno
sisCode2>\n      <LineDiagnosisCode3></LineDiagnosisCode3>\n      <LineDiagn
osisCode4></LineDiagnosisCode4>\n      <LineDiagnosisCode5></LineDiagnosisCode
5>\n      <LineDiagnosisCode6></LineDiagnosisCode6>\n      <LineDiagnosisCod
e7></LineDiagnosisCode7>\n      <LineDiagnosisCode8></LineDiagnosisCode8>\n
      <LineDiagnosisCode9></LineDiagnosisCode9>\n      <LineDiagnosisCode10></L
ineDiagnosisCode10>\n      <LineDiagnosisCode11></LineDiagnosisCode11>\n
      <LineDiagnosisCode12></LineDiagnosisCode12>\n      <LineDiagnosisCode13></Li
neDiagnosisCode13>\n    </CarrierClaim>\n</CarrierClaims>'
>>>

```

5.9 Inpatient request

```

curl -i -X POST --data @test6.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer
https://test.com:8070/callbacks/data_request

```

Similarly to check Qpid message and the python decoded message:

```

Content: <?xml version="1.0" encoding="utf-8"?><DataResponse><RequestID>7a32ff98-a704-41e
059df6c2e8db</RequestID><RequestDenied>false</RequestDenied><Data useCache="fa
<![CDATA[?Nrt3V1vE1cQBUD7/grEfeDMmfMppa5SU1SkFILR9t6Nt7BSbEu20zb/vnZCGsl
ijMcWhyd2Dpg7/N/49HBD58X6ST7dAgfxeGBz24nwzS7+3R4fXXasYef4w+9s+whkVOfif1
+MNB9bxd9enibODYZ/7f9DZN8st+ZOHjLYQ+HpwMTpXpSwdRr7sZscqdzXU2jKs4GwFE0
FwMb0v/TzF/6u3G1jBjrmUevXVUGZZKXg6T0MQrmoOAdL3u6uoq8iQbzuaAdAR0hOx1F
5Ec69PIZVpRpOS2WxhLLcTVda/bNLax8PPksV7g0XgyrZduqpv0Ucw/wPOxVeK3/pfzPB
8PK8hN30A2cT7hZTXUlj6dr/r/Go9yL7ltQLTUbL1Q9jZ7Q2IKUyve5eCav5/3nwaTxeH7
7nW2Nmt57/MdM+4KWc22bOGJ4Tgt6afgRYNsCdnYzXqwrD/FIE3uskmRFRo+Vlbp13RLw
+3x67vNB6sfr+9oy/qxB1h6t5dHfj9LdPv179oNxCZLtkrfluf8+rhOepP0qyY5k1267+myfdo
lJaPGx1J3SNW6ngOmQxXC9uj0o6MjVtXVaD/8+aZ2BUVKpDFpVXNNbQRiO0uL1P8jw/Ef
sWyOCz+qhd05JPpw6xRwCwWsz1m22T1Kz14sZAWxrGxgmHTYnYmijE2uX3N4YaktU
qjUxqpbqRONSo9ZEhd8o3ZinW/NMRc023IPtmmdjg67xA9rWPBcr0LYpz7VvvygNb168oE
l9w/9cWCoc+vtuVgYw625jGHNmaoxpzVGIO1JgTteboxpz1rjwP3w29f3qf5/5pRbbxeJ
x1fMv3wvSj+u7ygtncHxWQWUcS60hmHUWso5h1lmKdFIHE+tw+80Q6xhmHUusY511H
gvvgCm4lMhK4TAAqFIBLBAiAbhcACoYgEsGoKIBuGwAKhyA/d+ligfg8gGogAAulYCKC
QC4jKMoI2H9vIH9x4DICqYxALIOQyqjKMGKpEaul5DKCOQyAqmMQC4jKMoI5DIcYxAL
ywhJZYTKMKJSGSHZvy7IPy+4jBURkgulySVEZLLCEllhOQyQlIzlbMkFRGSC4jJURW
4jCJURmhulxQVEYoLIMUIRGK/Q6C/BKCywhFZYsSaM2LJlJoakCNZOGcajvt4MoBjd7Snp
aCnexNLVr3TbLd08Tu1r6UQk1N9/ciwdvINLp5WKqrWBfhtLzXWlUmhV9L59X0qgrJ1xupl/
B+INnJ3QNj7nc4OX+nsVjB5tbNrsDxUZwdKMAfaoUHfKXbOGeA4u2qhyFJ2EDnBUXARl
2VxxI7S7UVqypB2a5pW+jbUTQmuOucOo+ttG0XdVhZgQwrsBuextkse7UZHFIPOCzAsyL
zAsyL8I8IPOCzAsyL8I8IPOCzAsyL8I8IPOCzPu9ZV7/WLu+PZXiaDBwe8q8yM5kntJWyyV
MLZTVyrcfeTOdDa+8idfFeKtC4bwe6cn7kDayDkLCG/j8qrdNZFWExux7dXmrTnmVy0Nlqef
3T03RNJXmlyHh16TULJmFLBMnrEgWCYPjWSdvgONjmmPy0Knmle4yeV10HxPcJfKq
C5bHk2hQsmSeNljhGF4wd8HcBXMxzF0wd8HcBXMxzF0wd8HcBXMxzF0wd8HcBXMxzF0wd8HcBXM
3mliH8Cnw2wYg==]]></Data></DataResponse>

```

```

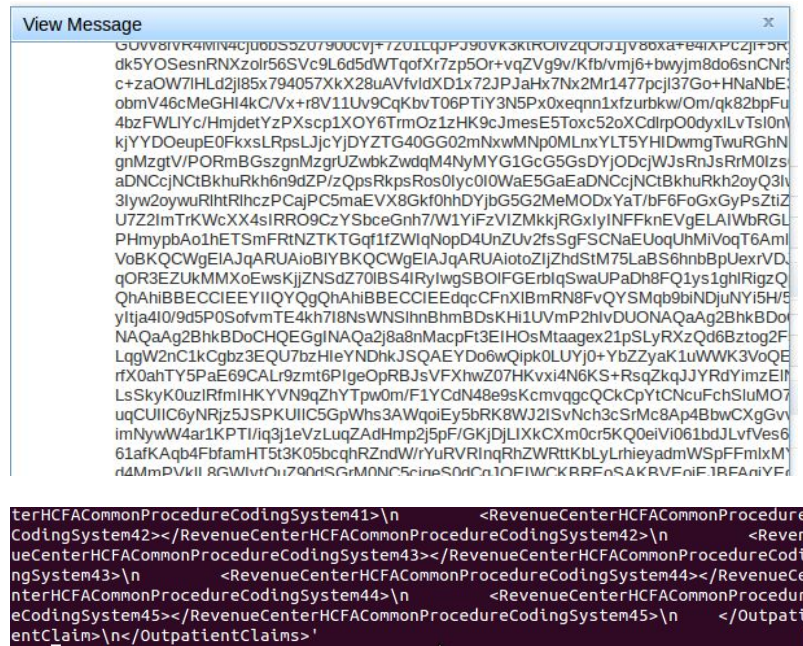
HCFACCommonProcedureCodingSystem40></RevenueCenterHCFACCommonProcedureCodingSystem
40>\n      <RevenueCenterHCFACCommonProcedureCodingSystem41></RevenueCenterHCFAC
CommonProcedureCodingSystem41>\n      <RevenueCenterHCFACCommonProcedureCodingS
ystem42></RevenueCenterHCFACCommonProcedureCodingSystem42>\n      <RevenueCente
rHCFACCommonProcedureCodingSystem43></RevenueCenterHCFACCommonProcedureCodingSyste
m43>\n      <RevenueCenterHCFACCommonProcedureCodingSystem44></RevenueCenterHCF
ACCommonProcedureCodingSystem44>\n      <RevenueCenterHCFACCommonProcedureCoding
System45></RevenueCenterHCFACCommonProcedureCodingSystem45>\n    </InpatientClaim
>\n</InpatientClaims>'
>>>

```


5.10 Outpatient request

```
curl -i -X POST --data @test7.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

Similarly to check Qpid message and the python decoded message:



```

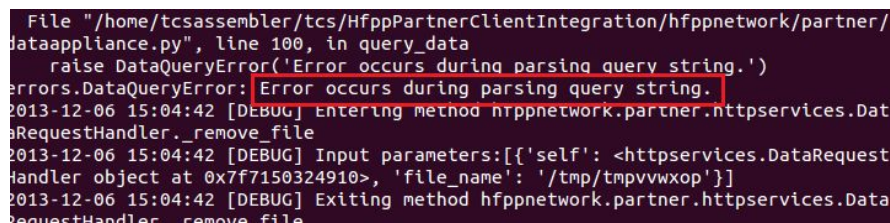
View Message
G0vV8vR4Mv4cj060S5Z07900Cvj+7Z01LQjP390V3K3tRQivzQ0rJqv80xa+84XPCzj+5Rf
dk5YOSesnRXnzolr56SVc9L6d5dWTqofXr7zp5Or+vgZVg9v/Kfb/vmj6+bwyjm8do6snCNRf
c+zaOW7IHLd2j85x794057XkX28uAVfvidXD1x72JPJaHx7Nx2Mr1477pcj37Go+HNaNBfE
obmV46cMeGHI4kCvX+r8V11Uy9CqKbvT06PTIY3N5Px0xeqnn1xfzurbkw/Om/qk82bpFu
4bzFWLIYc/HmjdetYzPXscp1XOY6TmOz1zHK9cJmesE5Toxc52oXCdlrpO0dyxLvTsl0n
kjYYDOeupE0FkxslRpsLJjcYjDYZTG40GG02mNxmMNP0MLnxYLT5YHlDwmngTwwRghN
gnMzgtV/POrmBgSzgnMzgrUzwbkZwdqM4NyMYG1GcG5GsDYjODcJWJsRnJsRrM0lzs
aDNCcJNcBkhuRkh6n9dZP/zQpsRkpsRos0lyc0l0WaE5GaEaDNCcJNcBkhuRkh2oyQ3lN
3lyw2oywuRlhtRlhcZPCajPC5maEVX8Gkf0hhDYjbG5G2MeMODxYaT/bF6FoGxGyPsZtIZ
U7Z2ImTrKWcXX4sIRRO9CzYsbceGnh7/W1YfzVIZMkkjRGxlylNFFknEVgELAlWbRGL
PHmypbAo1hETSmFRtNZTKTgqf1fZWlqNopD4UnZUv2fsSgFSCNaEUoqUhmivVoqT6Aml
VoBKQCWgEIAJqARUAioBIYBKQCWgEIAJqARUAioBIYBKQCWgEIAJqARUAioBIYBKQCWgE
qOR3EZUkMMXoEwsKijZNSdZ70lBS4lRylwgSBOIFGERblqSwaUPaDh8FQ1ys1ghlRigzQ
QhAhiBBECCIEEYIIQYQgQhAhiBBECCIEEEdqcCFnXIBmRN8FvQYSMqb9biNDjuNYi5H/5
yltja4l0/9d5P0SofvmTE4kh7l8NsWNSlhnBhmBdsKHl1UVmP2hlvDUONAQaAg2BhkBDor
NAQaAg2BhkBDorCHQEgglNAQa2j8a8nMacpFt3EIHosMtaagex21pSLyRXzQd6Bztog2F
LqgW2hCk1Cqgz3EQU7bzHleYNDhkJSQAQYEDo6wQipk0LUYj0+YbZzyaK1uWWK3VoQE
rfX0ahTY5PaE69CALr9zmt6PlgeOpRBJSVFXhwZ07HKvxi4N6KS+RsqZkqJJYRdYimzElf
LsSkyK0uzIRfmiHKYVN9qZhYTpW0m/F1YCdN48e9sKcmvqgcQcKcPytCncuFchSluMO7
uqCUIIC6yNRjz5JSPKUIIC5GpWhs3AWqoiEy5bRK8WJ2lSvNch3cSrMc8Ap4BbwCXgGv
imNywW4ar1KPTI/iq3j1eVzLuqZAdHmp2j5pF/GKjDjLIXkCXm0cr5KQ0eivI061bdJLvVes6
61afKAqb4FbAmHT5t3K05bcqhRZndW/rYUVRVlRqRhZWRttKbLyLrhieyadmWSPFFmXMY
rdMmPvkl1 RGWlvtOiu790dSGrM0NC5cineSndCn1OFIWCCKRRFfSAKRvFniF1RFAniYf
terHCFACCommonProcedureCodingSystem41>\n      <RevenueCenterHCFACCommonProcedure
CodingSystem42></RevenueCenterHCFACCommonProcedureCodingSystem42>\n      <Reven
ueCenterHCFACCommonProcedureCodingSystem43></RevenueCenterHCFACCommonProcedureCod
ingSystem43>\n      <RevenueCenterHCFACCommonProcedureCodingSystem44></RevenueCe
nterHCFACCommonProcedureCodingSystem44>\n      <RevenueCenterHCFACCommonProcedur
eCodingSystem45></RevenueCenterHCFACCommonProcedureCodingSystem45>\n      </Output
patientClaims>\n</OutputpatientClaims>'

```

5.11 Invalid logical expressions

```
curl -i -X POST --data @test8.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

Check the partner client application output to see that the query string can NOT be successfully parsed. The logical expressions used in **test8.xml** is “Invalid field' less than or equal to 50”.



```

File "/home/tcsassembler/tcs/HfppPartnerClientIntegration/hfppnetwork/partner/
dataappliance.py", line 100, in query_data
    raise DataQueryError('Error occurs during parsing query string.')
errors.DataQueryError: Error occurs during parsing query string.
2013-12-06 15:04:42 [DEBUG] Entering method hfppnetwork.partner.httpprovider.Data
RequestHandler._remove_file
2013-12-06 15:04:42 [DEBUG] Input parameters:[{'self': <httpprovider.DataRequest
Handler object at 0x7f7150324910>, 'file_name': '/tmp/tmpvwxop'}]
2013-12-06 15:04:42 [DEBUG] Exiting method hfppnetwork.partner.httpprovider.Data
RequestHandler._remove_file

```

5.12 Decision module approval

Terminate partner client application (**partnercli.py**) by **CTRL+C**. Note that you may need to **CTRL+C** twice to terminate it.

Edit **hfppnetwork/partner/settings.py** and set **PARTNER_IMMEDIATE_FULLFIL** to **False**. Restart the partner client application.

Return to **/test** folder under this submission.

```
curl -i -X POST --data @test3.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer
```


https://test.com:8070/callbacks/data_request

Open qpid, to see the message with “Waiting Approval” data returned.

```

Headers:
Header      Value
x-hfpp-username  Partner_1
x-hfpp-password  password

Content:
<?xml version="1.0" encoding="utf-8"?><DataResponse>
<RequestID>7a32ff98-a704-41e7-8cdf-059df6c2e8db</RequestID>
<RequestDenied>true</RequestDenied> <ErrorMessage>Waiting
Approval</ErrorMessage><Data></Data></DataResponse>

```

Now open <http://localhost:8000> to see that this request has come to decision module and waiting for manually approval/deny.



Healthcare Fraud Prevention Decision Module

Pending requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp | |
|--------------------------------------|--|---------------------------|-----------------|---------------------------|---|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["beneficiary"],"logical_expressions":{"Sex' equal to 1"}} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 | <input type="button" value="Approval"/> <input type="button" value="Deny"/> |

Click the **approval** button. Open qpid. You can see the following message received:

```

Content:
<?xml version="1.0" encoding="utf-8"?><DataResponse><RequestID>7a32ff98-a704-41e7-8cdf-059df6c2e8db</RequestID><RequestDenied>false</RequestDenied><ErrorMessage></ErrorMessage><Data useCache="false">
<![CDATA[{"eNqIVsFuozAQvfcrotzTQCpVG4ISkdBqo1VFILQf4MC0jAp2NDZVs1+/NrTBSYsXf/mWeDDyCJgt8N3WtnOAAeiwT5293w5flx9Gt47195M+DwijEy2q2LPGeEIP2rgX5OXbv iwR8x3HcWydg0mAyf5jOQ298jKi5IVMQvc6QVOq7U9cZuZOR43pj236MDofp61Q/Bn2zRT187zatR7lrFUMpxDxTuzTXpgSdrxd5gBZxllUpgEhY8wZgpQb7jjbsBliSIIVY5b7Wwy/ahGzEVVWlm4mObl1r0JKRCuZCL6nO+SwUy54EV6k0Ulp9h/RZB33WTF/9FLWQWzyHmcNlxnh/qAqOVBEK8h0ERNdc0GJ3ulRrYfJBv7EG/eBWdMCnfyRYVZQyT4YVWwuUkuAY/8GEw+GI+BsmD1dRix2khFRazwA5ZFiguu9+Jp/C6U1SiwJZCm3w3VGikQZBtQusMN4Pu7di9knS0ajvaZFUoHYChlSy8gH4xq2SqHldW9gEugOJ1QoA56UYpZtMPReOLu9SLzDt8RAKRafMsUAlcB54XebmAal3QzY74pSEJuXLIpRN+51rv0AnxrEvvaAbkVXOIGM1S7jkTnOK3JlHVDfWZ3jWGteqC/mgkuFqlB6p7GsZzH/m91TQK9C/yhCTyG9FuFHEzThvTfm84XcVJm xhxcWhL1quFFjOp+M2664DRYzY3oH3UTnfQ= ]]></Data></DataResponse>

```

And the requests been moved to **approved** group:



Healthcare Fraud Prevention Decision Module

Pending requests

Request Id Query String Expiration Time Cache Available Cache Timestamp

Approved requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp |
|--------------------------------------|--|---------------------------|-----------------|---------------------------|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["beneficiary"],"logical_expressions":{"Sex' equal to 1"}} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 |

5.13 Decision module deny

Edit `hfppnetwork/partner/settings.py` and set `PARTNER_IMMEDIATE_FULLFIL` to `False`. Return to `/test` folder under this submission.

```
curl -i -X POST --data @test5.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

Now open <http://localhost:8000> to see that this request has come to decision module and waiting for manually *approval/deny*.

Healthcare Fraud Prevention Decision Module

Pending requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp | |
|--------------------------------------|--|---------------------------|-----------------|---------------------------|---------------|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["carrier"],"logical_expressions":["Line NCH Payment Amount 1' less than or equal to 50"]} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 | Approval Deny |

Approved requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp |
|--------------------------------------|--|---------------------------|-----------------|---------------------------|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["beneficiary"],"logical_expressions":["Sex' equal to 1"]} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 |

Click the **deny** button. The request will be moved to **denied** group. Open qpid. You can see the message “**This request was denied manually**” returned by decision module.

Healthcare Fraud Prevention Decision Module

Pending requests

Request Id Query String Expiration Time Cache Available Cache Timestamp

Approved requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp |
|--------------------------------------|--|---------------------------|-----------------|---------------------------|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["beneficiary"],"logical_expressions":["Sex' equal to 1"]} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 |

Denied requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp |
|--------------------------------------|--|---------------------------|-----------------|---------------------------|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["carrier"],"logical_expressions":["Line NCH Payment Amount 1' less than or equal to 50"]} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 |

Here is the qpid message:

```

Headers:
Header      Value
x-hfpp-username  Partner_1
x-hfpp-password  password

Content:
<?xml version="1.0" encoding="utf-8"?><DataResponse>
  <RequestID>7</RequestID><RequestDenied>true</RequestDenied>
  <ErrorMessage>This request was denied manually.</ErrorMessage><Data>
</Data></DataResponse>

```

5.14 Invalid data for approval

Go to `/test` folder under this submission.

```
curl -i -X POST --data @test8.xml -H "Content-Type:application/xml" --cacert ../conf/cert.cer https://test.com:8070/callbacks/data_request
```

Open qpid, to see the message with “**Waiting Approval**” data returned.

| | | |
|----------|---|-----------|
| Headers: | Header | Value |
| | x-hfpp-username | Partner_1 |
| | x-hfpp-password | password |
| Content: | <pre><?xml version="1.0" encoding="utf-8"?><DataResponse> <RequestID>7a32ff98-a704-41e7-8cdf-059df6c2e8db</RequestID> <RequestDenied>true</RequestDenied><ErrorMessage>Waiting Approval</ErrorMessage></Data></Data></DataResponse></pre> | |

Now open <http://localhost:8000> to see that this request has come to decision module and waiting for manually *approval/deny*.

Pending requests

| Request Id | Query String | Expiration Time | Cache Available | Cache Timestamp | |
|--------------------------------------|---|---------------------------|-----------------|---------------------------|---------------|
| 7a32ff98-a704-41e7-8cdf-059df6c2e8db | {"file_types":["carrier"],"logical_expressions":["'Invalid field' less than or equal to 50"]} | 2014-09-22T09:30:10-06:00 | true | 2013-07-11T09:30:10-06:00 | Approval Deny |

Click the “Approval” button, and check output of decision module. See that the error message was output since the query string was NOT successfully parsed. The logical expressions used in *test8.xml* is “Invalid field' less than or equal to 50”.

```
[Exiting method decision_module.views.approval_partner_request]
DEBUG:decision_module.views:[Exiting method decision_module.views.approval_partner_request]
[Output parameter [<django.http.response.HttpResponseRedirect object at 0x7fa76708d690>]]
DEBUG:decision_module.views:[Output parameter [<django.http.response.HttpResponseRedirect object at 0x7fa76708d690>]]
[11/Dec/2013 05:19:58] "POST /approval_requests HTTP/1.1" 302 0
ERROR:root:Error in method hfppnetwork.partner.httpservices.DataRequestHandler.handle_data_request
ERROR:root:Details:Error occurs during parsing query string.
ERROR:root:
Traceback (most recent call last):
  File "/home/tcsassembler/tcs/HfppPartnerClientIntegration/hfppnetwork/partner/query/parser.py", line 191, in parse_clause
    return Clause(self.parse_numerical_clause())
  File "/home/tcsassembler/tcs/HfppPartnerClientIntegration/hfppnetwork/partner/query/parser.py", line 204, in parse_numerical_clause
```

5.15 Terminate servers

Terminate *decision_module/partner client/qpid* server by **CTRL+C** in Ubuntu OS.

Note that you may need to **CTRL+C** twice to terminate *partner client server* since some threads are hang up because node server has some related bugs.

Terminate **TOMCAT** server by go to **TOMCAT_HOME/bin** and run:
./shutdown

6. Resource Contact List

| Name | Resource Email |
|---------------|-----------------------|
| caoweiquan322 | caoweiquan322@126.com |