DJIGZO Email Encryption Gateway

Integration Guide

SafeNet. THE DATA PROTECTION COMPANY

Part Number: 007-012080-001 (Rev A, 06/2012)

Preface

SafeNet invites constructive comments on the contents of this document. These comments, together with your personal and/or company details, should be sent to the address below.

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Limitations

This document does not include the steps to set up the third-party software. The steps given in this document must be modified accordingly. Refer to Luna SA / Luna PCI documentation for general Luna setup procedures.

Disclaimers

The foregoing integration was performed and tested only with the specific versions of equipment and software and only in the configuration indicated. If your setup matches exactly, you should expect no trouble, and Customer Support can assist with any missteps. If your setup differs, then the foregoing is merely a template and you will need to adjust the instructions to fit your situation. Customer Support will attempt to assist, but cannot guarantee success in setups that we have not tested.

Technical Support

If you encounter a problem while installing, registering or operating this product, please make sure that you have read the documentation. If you cannot resolve the issue, please contact your supplier or SafeNet support.

SafeNet support operates 24 hours a day, 7 days a week. Your level of access to this service is governed by the support plan arrangements made between SafeNet and your organization. Please consult this support plan for further information about your entitlements, including the hours when telephone support is available to you.

Technical Support Contact Information:

Phone: 800-545-6608, 410-931-7520
Email: support@safenet-inc.com

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Chapter 1
Introduction

This document covers the necessary information to install, configure and integrate DJIGZO Email Encryption Gateway with SafeNet Luna SA & Luna PCI Hardware Security Module (HSM).

DJIGZO Email Encryption Gateway is a standard based centrally managed email server (MTA) that encrypts and decrypts your incoming and outgoing email at the gateway level. DJIGZO Email Encryption Gateway is compatible with any existing email infrastructure like Microsoft Exchange and Lotus Notes and has support for S/MIME and PDF encryption.

Scope

3rd Party Application Details

DJIGZO Email Encryption Gateway v2.4

Supported Platforms

The following platforms are supported for Luna SA v5.1

- Red Hat Enterprise Linux Server release 6.2 x86

The following platforms are supported for Luna PCI v5.0

- Red Hat Enterprise Linux Server release 5.5 x86

HSMs and Firmware Version

- K6 HSM f/w 6.2.1

Library and Driver Support

- PKCS#11 v2.01 dynamic library

Distributions

- Luna SA Client s/w v5.1 (32-bit)
- Luna PCI Client s/w v5.0 (32-bit)

Prerequisites

Luna SA/Luna PCI Setup

Please refer to the Luna SA / Luna PCI documentation for installation steps and details regarding to configure and setup the box on system. Before you get started ensure the following:

- Luna SA appliance a secure admin password
- Luna SA a hostname, suitable for your network
- Luna SA network parameters are set to work with your network
- Initialized the HSM on the Luna SA appliance.
- Created and exchanged certificates between the Luna SA and your "Client" system.
- Created a partition on the HSM, remember the partition password that will be later used by Email Encryption Gateway. Register the Client with the partition. And run the "vtl verify" command on the client system to display a partition from Luna SA. The general form of command is “/usr/lunasa/bin/vtl verify” for Linux.
- Enabled Partition "Activation" and "Auto Activation" (Partition policy settings 22 and 23 (applies to Luna SA with Trusted Path Authentication [which is FIPS 140-2 level 3] only).

DJIGZO Email Encryption Gateway Setup:

DJIGZO Email Encryption Gateway V2.4 must be installed on the target machine to carry on with the integration process.

For a detailed installation procedure, please refer Dijgzo installation guide.

Chapter 2
Integration with Luna SA/Luna PCI

Red Hat Enterprise Linux 6.2 /5.5 (32-bit)

Integrating DJIGZO Email Encryption Gateway 2.4 with Luna SA/Luna PCI

This chapter explains how to configure the DJIGZO Email Encryption Gateway for Luna SA & Luna PCI support. It is assumed that a DJIGZO gateway is already installed in the directory /usr/local/djigzo and that the gateway is fully functional.

Requirements

- A functional DJIGZO gateway (version _ 2.4.0)
- Luna SA/ Luna PCI
- DJIGZO HSM module

Installation of DJIGZO HSM module

The DJIGZO HSM module will be installed in the directory /opt/djigzo-hsm.

Note: it is assumed that the user is logged-in with a non-root account and that sudo is used for commands that require root access.

$ sudo mkdir /opt/djigzo-hsm

Untar the DJIGZO HSM module to /opt/djigzo-hsm:

$ sudo tar xzf djigzo-hsm_*.tar.gz --directory /opt/djigzo-hsm

PKCS#11 Configuration

This section explains how to configure a PKCS#11 provider for DJIGZO. Java uses PKCS#11 to communicate with the HSM. A Java PKCS#11 provider is therefore required.

A soft-link to the PKCS#11 configuration files should be added to the DJIGZO configuration directory:

$ cd /usr/local/djigzo/conf/

$ sudo ln -s /opt/djigzo-hsm/conf/hsm/

The default PKCS#11 provider for Java is provided by Sun (now Oracle) and comes installed with the Java runtime.

Using Sun PKCS#11 Provider

This section explains how to configure the HSM module to be used with the Sun PKCS#11 provider.

DJIGZO should be configured to store the private keys on the HSM:

$ cd /usr/local/djigzo/conf/spring/spring.d

$ sudo ln -s /opt/djigzo-hsm/conf/spring/hsm.xml

To load the Sun PKCS#11 jar file at startup, a soft-link to the Sun PKCS#11 library and a soft-link to the HSM module should be added to the lib.d directory:

$ cd /usr/local/djigzo/lib/lib.d

$ sudo ln -s /opt/djigzo-hsm/lib/djigzo-hsm.jar

$ sudo ln -s /usr/lib/jvm/jre-openjdk/lib/ext/sunpkcs11.jar

Modify “pkcs11-config.properties.safenet” file located at /opt/djigzo-hsm/conf/hsm to include below text:

name=SafenetLuna

```
# the path to the Safenet PKCS11 module
library=/usr/lunasa/lib/libCryptoki2.so # For Luna PCI it will be =/usr/lunapci/lib/libCryptoki2.so
description=Safenet PKCS11 provider
slot=1
attributes(generate,*,*) = {
    CKA_TOKEN = true
}
attributes(generate,CKO_PUBLIC_KEY,*) = {
    CKA_ENCRYPT = true
    CKA_VERIFY = true
    CKA_WRAP = true
}
attributes(generate,CKO_PRIVATE_KEY,*) = {
    CKA_EXTRACTABLE = false
    CKA_DECRYPT = true
    CKA_SIGN = true
    CKA_UNWRAP = true
}
```

A soft-link to the SafeNet specific properties file should be created:

```
$ cd /opt/djigzo-hsm/conf/hsm
$ sudo ln -s pkcs11-config.properties.safenet pkcs11-config.properties
```

Change PIN

The PIN for authenticating to the SafeNet LunaSA/Luna PCI is stored in the file /opt/djigzo-hsm/conf/spring/hsm.xml (the default PIN is set to "123") and should be set to the PARTITION PASSWORD for Luna SA/Luna PCI.

```
<!--  for logging into the PKCS11 device -->
   <bean id="pkcs11PasswordCallbackHandler"
class="mitm.common.security.password.StaticPasswordCallbackHandler">
      <!-- the PKCS11 password *** CHANGE THIS *** -->
      <constructor-arg value="123"/>
   </bean>
```

DJIGZO should be restarted for the changes to take effect:

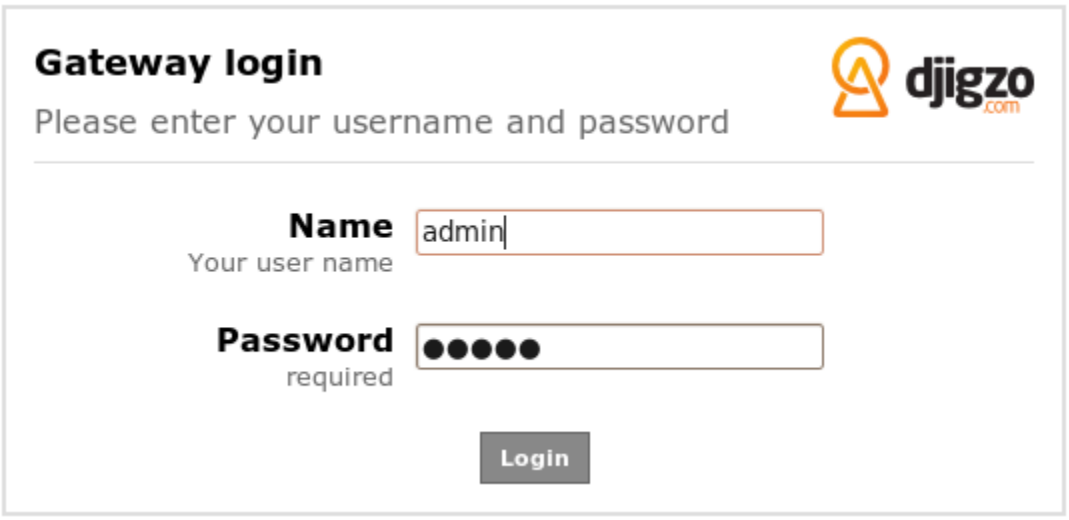
```
$ sudo /etc/init.d/djigzo restart
```

DJIGZO should now be ready to use the Luna SA/ Luna PCI. Check the log file (/var/log/djigzo.log) for any problems.

The administrator can login to the administration page by opening the following URL in a browser:

https://<IP Address>:8443/djigzo

The login page should appear. After logging in with the correct credentials, the user's page will be opened.



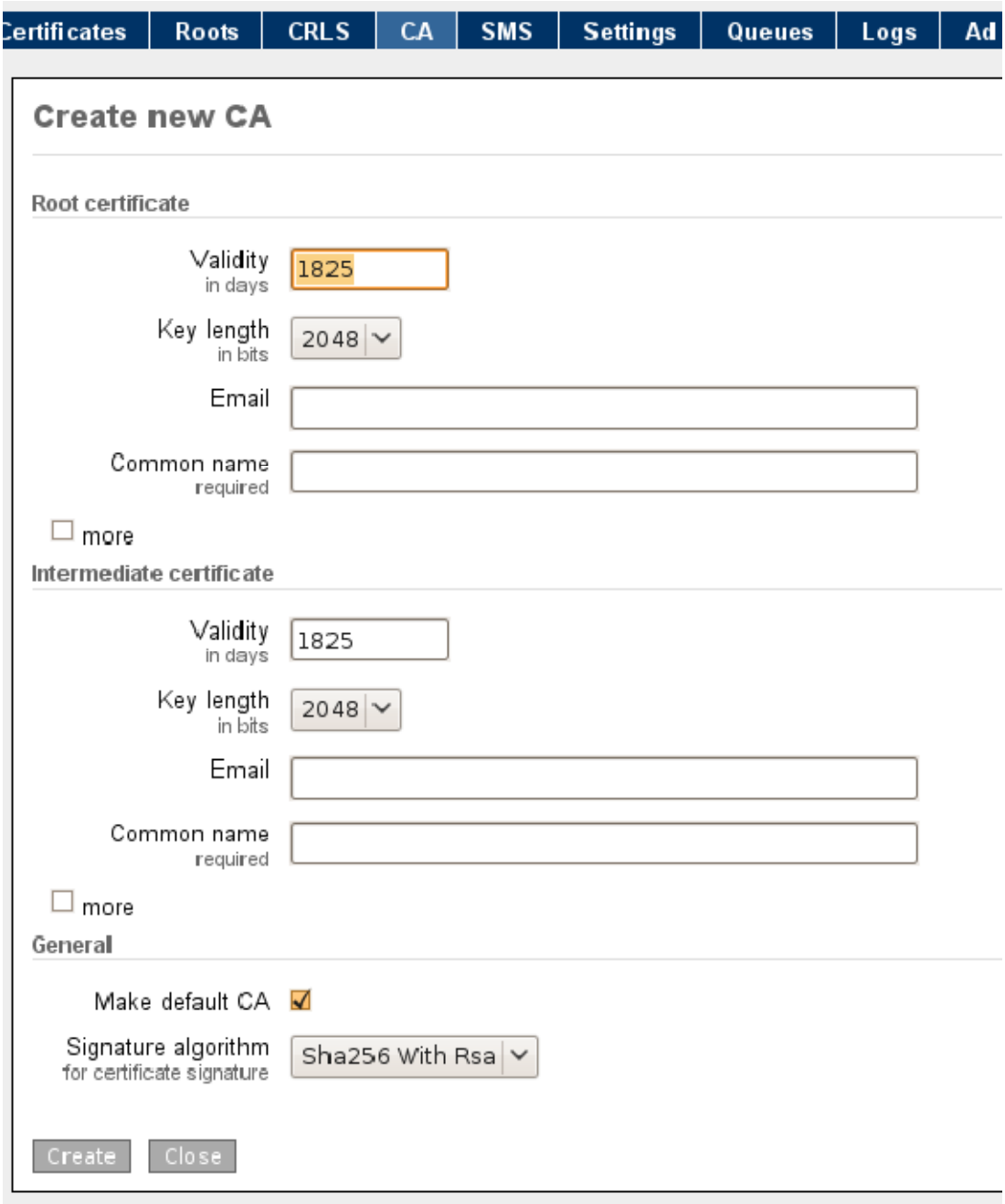
Login credentials: Use the following default credentials:

username: admin

password: admin

Create new CA

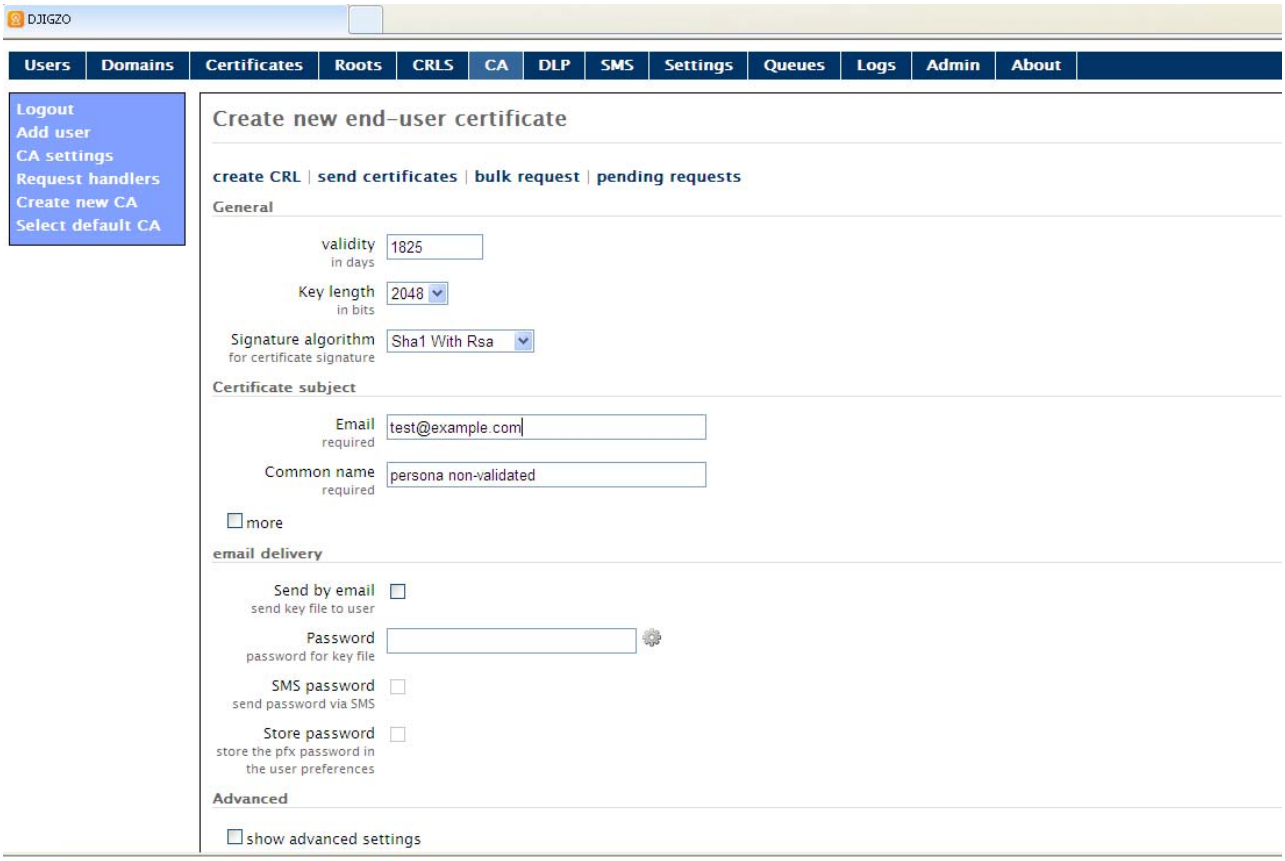
Before starting to create end-user certificates, a root and intermediate certificate should be created. The Create new CA page can be used to create a new CA (i.e., create a new intermediate and root certificate).



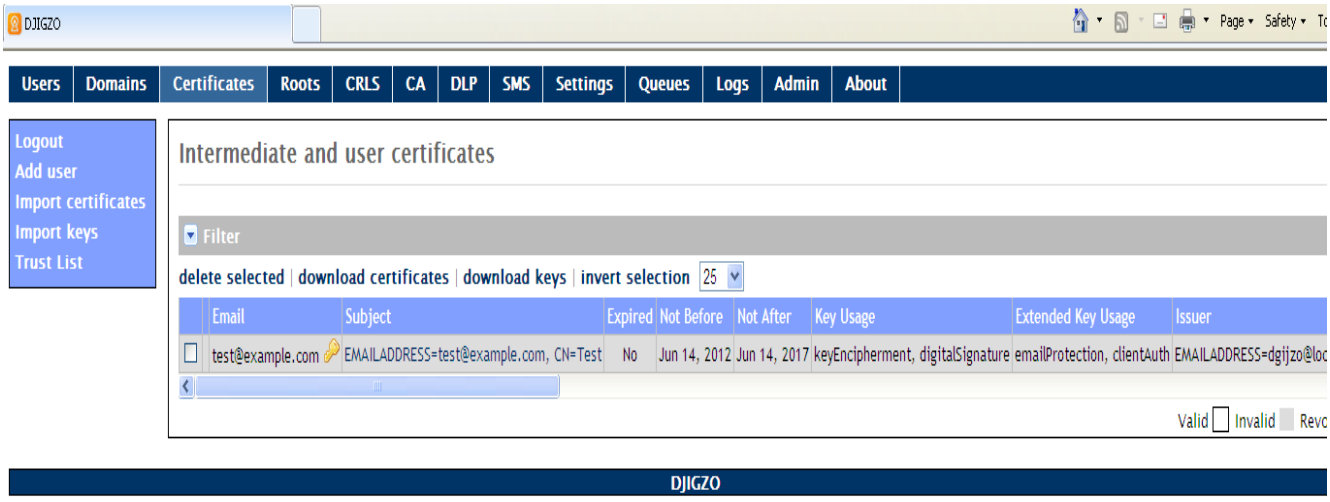
Check with the Luna SA / Luna PCI tools to make sure that the private keys are actually stored on the HSM

Create End-User Certificate

After CA is created click on CA tab and create end-user certificate for test@example.com. Enter validity, key length, Signature algorithm, email as test@example.com and common name. Then click on button “Request”. It will create an end-user certificate.



You can view end-user certificate created in previous step from “Certificate” tab:



Sign & Encrypt E-mail

For test purpose here we are using E-mail client tool that comes with djigzo.

1. Create a "raw" email file with name test.eml containing the following:

   From: test@example.com
   Subject: test

   SOME TEXT

   Note: the “From” should be on the first line

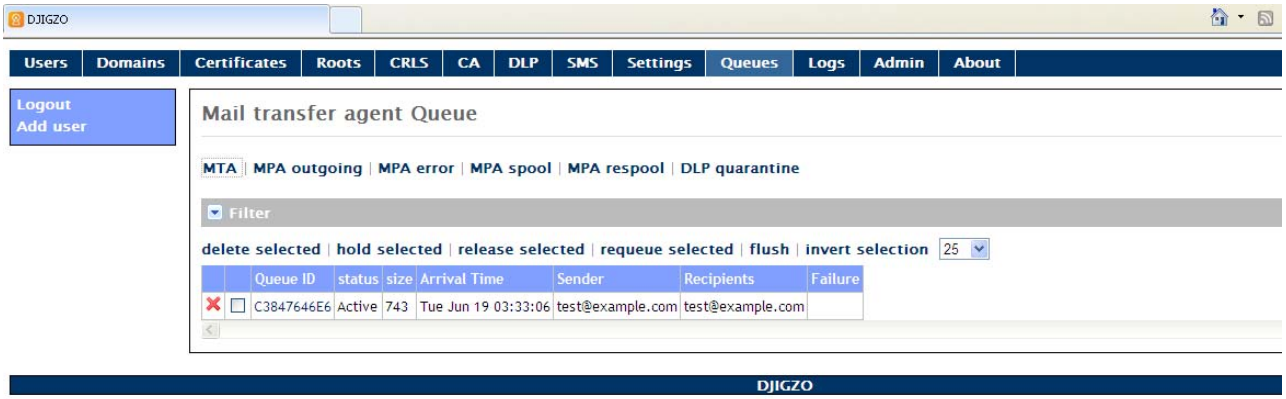
2. Goto the directory where djigzo is installed i.e. /user/local/djigzo

   Run following command from commad prompt:

   [user@localhost djigzo]# java -cp djigzo.jar mitm.common.tools.SendMail -r `test@example.com` –h 127.0.0.1 -p 25 -in /<PATH TO TEST EMAIL FILE>/test.eml

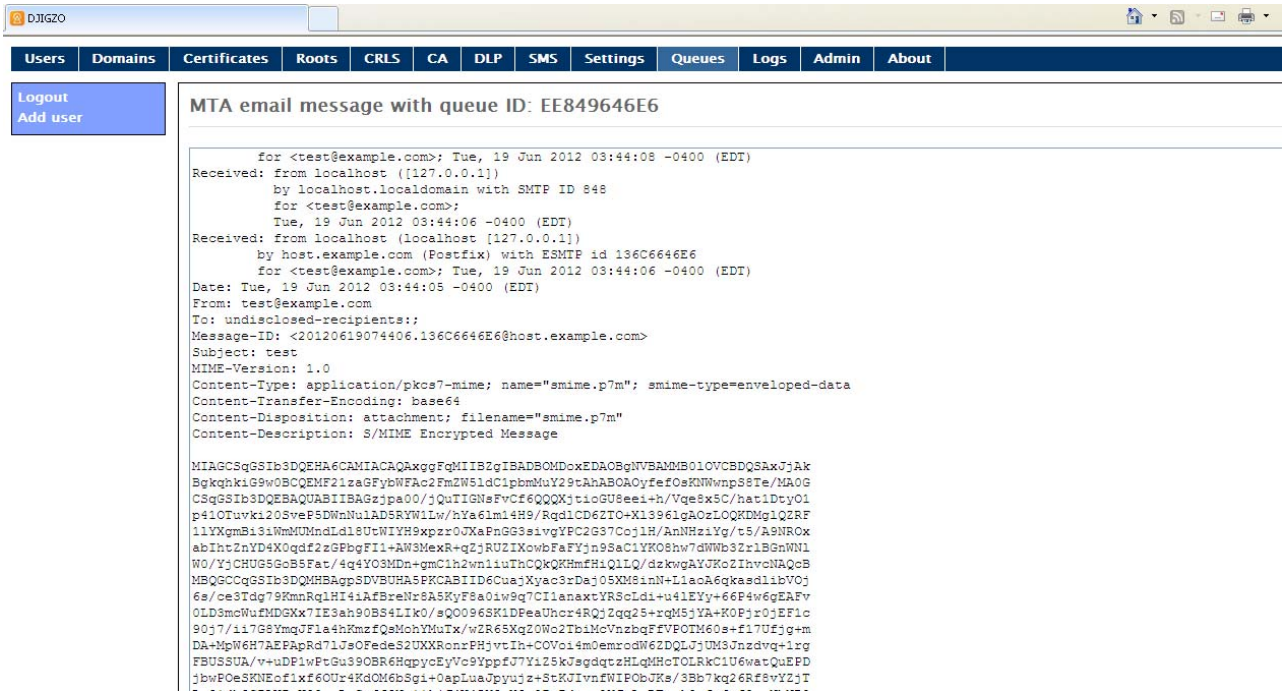
   the test.eml should now be delivered to `test@example.com`

   There should now be an encrypted email in the MTA queue.



NOTE: It's best to use example.com domain since that is allowed for tests (see rfc2606) and it will never result in email being sent.

Now open the MTA queue page, view the email contents by clicking on the Queue ID link of the email. This will show the "raw" Postfix mail contents as shown in screen shot below:



Decrypt E-mail

1. Open the MTA queue page
2. View the email contents by clicking on the Queue ID link of the email. This will show the "raw" Postfix mail contents
3. Copy the exact contents between

*** MESSAGE CONTENTS deferred/??/?????? ***

and

*** HEADER EXTRACTED deferred/??/?????? ***

to the Encrypted.eml file (or to some other .eml file)

4. Add a domain example.com to the Domains page of djigzo

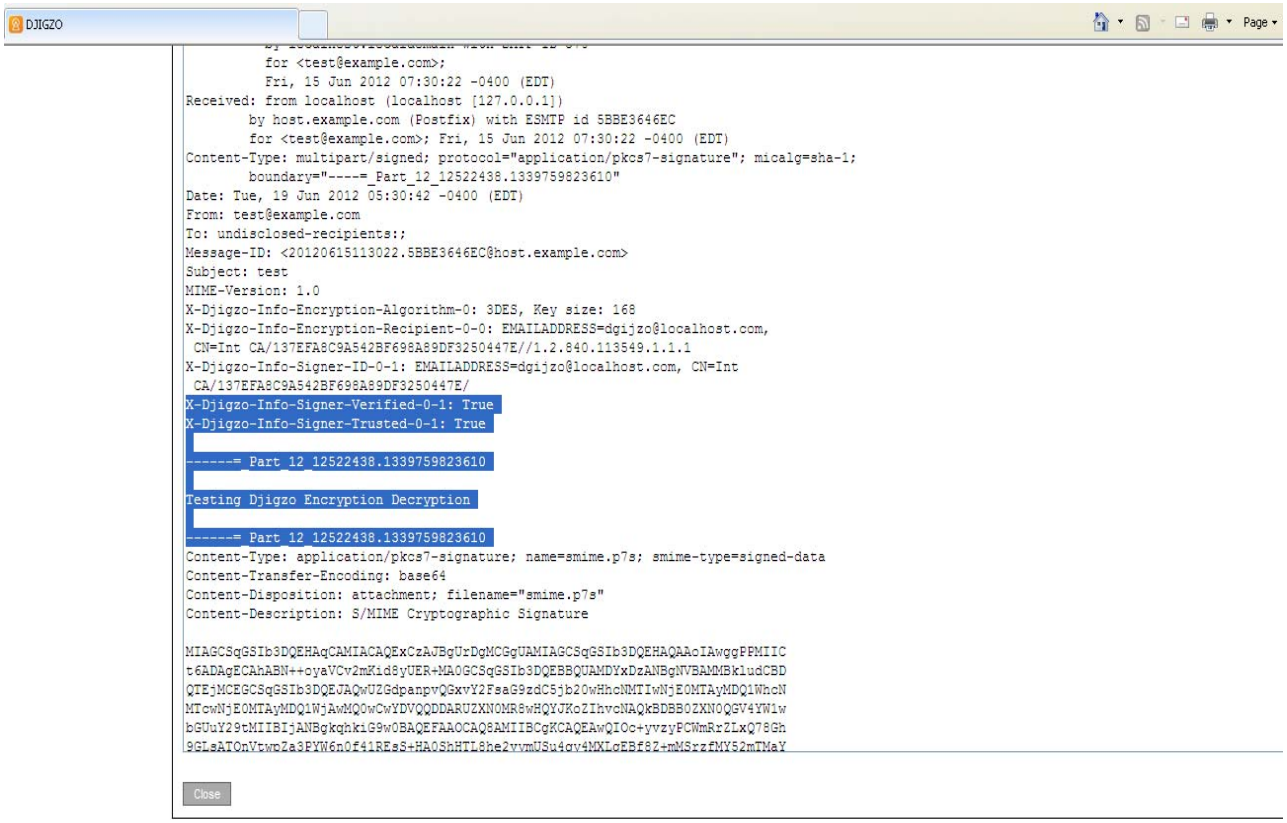
5. Set the Locality of the domain to "Internal" (if the domain is internal, email will be decrypted for users of that domain, if external email will be encrypted)

6. Now send the encrypted message from step 3 to the gateway using below command:

   [user@localhost djigzo]# java -cp djigzo.jar mitm.common.tools.SendMail -r `test@example.com` –h 127.0.0.1 -p 25 -in /<PATH TO TEST EMAIL FILE>/Encrypted.eml

   Because the example.com domain is now an "internal" domain, the gateway should try to decrypt it. After decryption there should be a digitally signed email in the MTA queue.

   View the email contents by clicking on the Queue ID link of the email which is sent in above step, you can see the decrypted text as shown highlighted text in screenshot below:



These above steps test whether the private keys stored on the HSM are accessible for signing and decryption. Verify Djigzo log, all the above steps should not result in some kind of PKCS11 exception in the logs.