

OpenRIMS Deployment Guide

(2024-08-13)

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2 Motivation

The deployment means the installation of an instance of software in the controlled IT environment.

This manual covers the first-time installation as a sandbox. The sandbox intends to study and customize the software as well as an experimental polygon.

The audience is IT persons who are responsible for installing and maintaining the OpenRIMS software. Minimal qualification requirements are:

- Ability to install and configure the software as services in the selected Operation System.
- The MySQL knowledge.

3 Deployment roadmap

#	Job	Result	Est. LOE (days)
1	Approve deployment plan	IT environment and application properties parameters are recognized	2
2	Prepare IT environment	The IT environment can provide all general-purpose services for OpemRIMS	2
3	Install binaries and database	Basic OpenRIMSis available for the IT expert using a Web browser	1
4	Provisional operations	The sandbox installation is ready to use	7
Estimated total LOE			12

4 Deployment plan and pre-conditions

The following application-specific questionnaire will help to avoid extra jobs during the deployment

#	Question
1	Will we need sandbox and production installation or only production?
2	Is it possible to use rented VPS, like Amazon?
3	Have the prospective users Google Mail accounts?
4	Which Google Account will be used for OATH2, Google Data Studio, and applications email? It is recommended to create a new one.
5	Are there regional branches? Which administrative division level are the branches responsible for?

Regardless of the deployment configuration selected, the following pre-conditions should be fulfilled:

- At least 2 GB of free RAM for Sandbox and 16 for Production
- At least 10GB of free SDD/HDD for Sandbox and 1TB for Production
- Operation Systems:
 - Windows Server 2016 and above for Sandbox and Production
 - Windows 10 – only for Sandbox
 - Linux, released after 2018. Tested on Ubuntu 18.04.4 LTS and above for Sandbox and Production
- MySQL R 5.7
 - Server
 - Workbench
- Oracle Java JDK 1.8. OpenJDK 1.8 has been tested on Linux Ubuntu, but not on Windows
- Internet connection of at least 10Mb/s symmetrical
- OpenRIMSdemo database (https://github.com/MSH/Pharmadex2/tree/main/database¹))
- The own, private Google Mail account
- HTTP and reverse proxy server – Apache 2 or IIS. NGINX is also supported, however not been fully tested yet.

5 IT environment

The IT environment consists of:

- Hardware
- General-purpose software
- External services

¹ For current, available only to MSH staff

Hardware recommended is a VPS box dedicated for any given installation – Sandbox or Production. Despite it is possible to use physical boxes or one box for many installations, such non-recommended configurations will not be covered in this manual.

The hardware parameters and place should be determined in the deployment plan.

The general-purpose software consists of:

1. Operation System
2. MySQL R 5.7
 - 2.1. Server for both Sandbox and Production environment
 - 2.2. MySQL Workbench
3. Java Development Kit
4. HTTP and reverse proxy server

The installation of the general-purpose software should follow the vendor's manuals. The fine-tuning of the software installed will be described below in the Provisional Chapter

The OpenRIMS uses Google OATH2, Google Mail, and Google Data Studio external services. To use these services, it will be necessary to register a dedicated Google account. Follow Google's terms and conditions to do this.

The installation checklist is below

#	Item	Y/N
1	The Operation System is installed, and I have administrative privileges to it	
2	The MySQL server is up and running, accessible from the MySQL workbench, I have DBA privileges on it. The DBA privileges are accessible only from the server console and, possibly, from my workstation, but not from any other place.	
3	The dedicated not-DBA user is created to manage the database (it will be nice)	
4	I can run the Java -version in the command line on the server. The reply indicates that the JDK 1.8 is installed	
5	The server has an IP address assigned. The http://ip_address returns the default page of the HTTP/reverse proxy server.	
6	The dedicated OpenRIMS Google account is accessible	

6 Binaries and database installation

6.1 Database installation

- Upload DumpPdx2.zip² from <https://github.com/MSH/OpenRIMS/tree/main/database>.
- Extract the dump from the DumpPdx2.zip and restore it to a schema. The recommended name of the schema is pdx2. See Annex 1 for an example of how to do it using MySQL Workbench
- It will be a good idea to assign a user with full rights to this database

² The latest dump of the initial database

6.2 Binaries installation

- Upload pharmax2-0.0.1.jar³ and application.properties from <https://github.com/MSH/OpenRIMS/tree/main/bin>.
- Make a folder on the server and copy these files to it. For Windows, it will be convenient applications/OpemRIMS, for Linux – OpenRIMS in its home directory. In the Linux installation, the execution rights to the binary should be assigned.
- Open application.properties and, if it will be necessary, change assignments for port, database schema name, time zone⁴, credentials, and folder for log files
 - server.port=**9292**
 - spring.datasource.url =
jdbc:mysql://localhost/**pdx2**?useSSL=false&useUnicode=yes&characterEncoding=UTF-8&characterSetResults=UTF-8&serverTimezone=**Europe/Kiev**
 - spring.datasource.username = **realneverman**
 - spring.datasource.password = **neverland**
 - logging.file.path= **./log**, maybe for Linux makes sense **/var/log/OpemRIMS**
- Install the binary as a service. The recommendations can be found:
 - <https://github.com/MSH/OpenRIMS/tree/main/bin/windows> - for Windows
 - <https://github.com/MSH/OpenRIMS/tree/main/bin/linux> - for Linux

6.3 Allow access from the Internet/Intranet

6.3.1 The reverse proxy

To provide access to the Internet it will be a good idea to establish a proxy gateway like Apache2. The example of virtual server configuration for Apache 2 is in the <https://github.com/MSH/OpenRIMS/tree/main/bin/linux>. For Windows, the configuration is the same.

In Windows installations, it is possible to use IIS. An example of IIS configuration can be found in Annex 3 Using IIS for

It is possible to use Nginx. The configuration should provide the virtual server, reverse proxy, and Preserve Host functionalities.

6.3.2 SSL

It is possible to use any SSL provider to make a secure connection. Please, refer to the appropriate documentation. You can find an example in Annex 4 SSL certificate “Let’s encrypt” for an OpenRIMS installed on Ubuntu Linux.

6.4 Allow OATH2 logins using Google Authentication

The OpenRIMS delegates the most authentications to Google using the OATH2 protocol. This feature required additional configuration of the Google account dedicated for an OpenRIMS installation.

An example of the configuration can be found in Annex 2 Google Authentication

³ Name of binary may be different. Please, consult README.md before

⁴ This link <https://dev.mysql.com/doc/refman/5.7/en/time-zone-support.html> provides a clue how to determine time zones

6.5 Configure email

To send emails, OpenRIMS uses Google SMTP mail service. The connection parameters are pre-configured, except for the user's name and password.

OpenRIMS mail service should be registered as a dedicated Gmail user. It shouldn't be any real person. The best choice is the same user that can manage OATH2 logins and Google Data Studio. The details are here <https://support.google.com/mail/answer/185833?hl=en>

To assign the mail user to an OpenRIMS installation it is necessary to add two lines to the application.properties file:⁵

spring.mail.username=pharmadex_dedicated_user@gmail.com

spring.mail.password=application_password_copied_from_google

6.6 Allow the sandbox mode

For an electronic form, a data configuration manages data collection and on-screen layout. Following changes in the data configuration may stop collecting the existing data to a form:

1. Re-naming a component
2. Removing a component
3. Changing the type of component

By default, the data configuration editor disables the possibility of making the changes above in a data configuration if at least one of the conditions below occurs:

- The database already contains data created using the data configuration
- The data configuration is used by other data configuration
- The data configuration is used by activity configuration
- The data configuration is used by resource configuration

In the "sandbox" installations it is possible to bypass this restriction.

Use any text editor to add to the application.properties file the configuration parameter **variables.properties.edit=true**. It allows bypassing the validation above. To stop bypassing the rules, remove this line from the application.properties or set it to false. **variables.properties.edit=false**

6.7 The Application Properties

6.7.1 The Google Map API key

To use Google Maps, it is necessary to get an API key from Google. See <https://developers.google.com/maps/documentation/javascript/get-api-key> for details

pharmadex.google.map.api.key=MAP api key from Google

The default value is an empty key.

⁵ Below is an example, not the real address

6.7.2 The Google Analytic

It is possible to use Google Analytics for OpenRIMS

#Put a Google Analytics key here

pharmadex.google.analytic4.id=

The default value is an empty key

6.7.3 Maximal size of a file uploading

spring.servlet.multipart.max-file-size=2MB

spring.servlet.multipart.max-request-size=20MB

The default value is 2MB

spring.servlet.multipart.max-request-size should be at least 5 times more

The default value is 20MB

6.7.4 The schedule of Reporting Data renewal

The data entered in OpenRIMS will not be reflected in reports immediately. The

<https://crontab.cronhub.io/> to generate the expression

data.renew.schedule=0 27 16 * * *

6.7.5 The territory responsibility for NRA branch offices

Typically, an NRA branch office is responsible for a province. Sometimes the office is responsible for a group of adjacent districts.

1 - provinces, 2 - districts

pharmadex.territory.responsible=2

The default value is 2

6.7.6 Allow importing workflows

The Sandbox server is a place to define and test workflow definitions. The completed workflow definition can be imported from the Sandbox server using the Administrate-Import-Import Workflow feature.

if true, this site can be used as a source of process definition for other sites

pharmadex.allow.process.import=false

The default value is false

6.7.7 Reporting data renewal scheduler

The OpenRIMS data just defined by a user will not be available for the reporting software before the next reporting data renewal is scheduled to run. The schedule can be defined using a Crontab expression. A Crontab expression generator is available at <https://crontab.cronhub.io/> to generate the expression

`data.renew.schedule=0 27 16 * * *`

The default value is daily, at 04:27 PM

6.8 Checklist

#	Item	Y/N
1	The MySQL database pdx2 is accessible by the user listed in the application.properties.	
2	The service created is up and running	
3	The log file has been created after the service started the first time	
4	The main OpenRIMS screen is available from the Internet.	
5	It is possible to switch language using the flag in the right upper corner	
6	It is possible to log in as user admin, and password admin using the “Anarme Staff Login” feature	
7	Access from the Internet/Intranet is working	
8	Any Google User may get a “guest” screen using a Google login	
9	The email send test is passed. See details in Annex 5 Test email	

7 Provisional operations

7.1 Add/replace the local language

The OpenRIMS provides true multi-language features. It means that:

1. The user interface (UI) may be represented in the language selected by a user
2. A user may use the selected language to fill out on-screen data forms as well as to get documents, reports, etc.

The OpenRIMS distribution software allows US English and Portuguese language. The Portuguese language is the default⁶.

The en_US language is mandatory. To define the local language, use `Administrate-Import-Replace` feature. The electronic manual is provided.

⁶ It may be changed for a future distribution

7.2 Appearance customization

7.2.1 NMRA⁷ logo

It is possible to place the NMRA logo in the left upper corner of the screen.

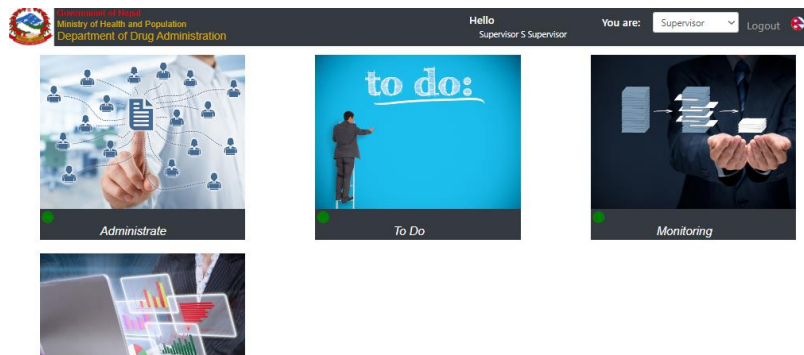


Figure 1 The initial screen and custom logo in the left upper corner

To do it, use Administrate-Configuration-Resource

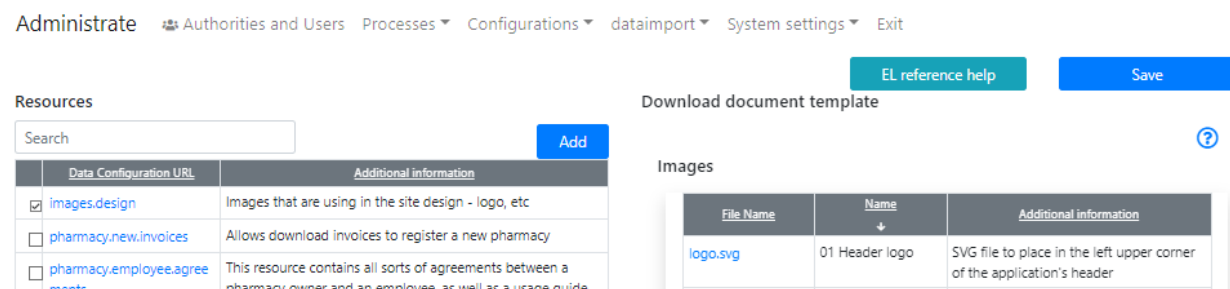


Figure 2 The best format of the logo picture is SVG

Additionally, it is possible to assign a web link to the logo file, this the logo picture will become clickable.

To do it, use Administrate-Configuration-Messages

⁷ National Medicine Regulatory Authority

Administratrate Authorities and Users Processes Configurations dataimport System settings Exit

Messages

res_key	res_value
admin_logout	Logout
label_session_expired	Your session has expired_ Click the Spring Roo logo to return_
logo	Logo
logoff.soon.1	You will be automatically logged out in
logoff.soon.2	seconds
logout	Logout
logo_url	https://google.com
users_dataTable_logoutdate	Logout Date

Message

res_key

logo_url

EN_US

NE_NP

Figure 3 Define message logo_url for the existing language. Please, put your attention that the message text should start with http

7.2.2 Congratulations and disclaimer

The congratulations and disclaimer can be found in the middle of the footer.

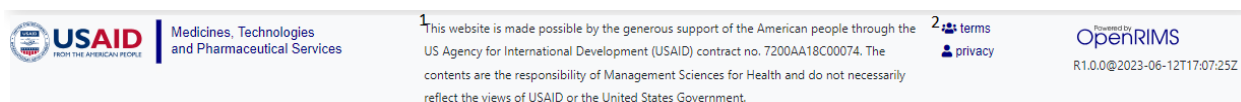


Figure 4 Congratulations and disclaimer

1. Congratulations and disclaimer
2. Terms of Use and Privacy Statement

The congratulation and disclaimer is a message with key **footermesssage**. To change it, use the “Administratrate-Configuration-Messages” feature

7.2.3 Terms of Use and Privacy Statement

Terms of use and privacy statement are documents in PDF format. The default documents are provided as a part of the software. It is possible to customize labels “terms” and “privacy” and the documents.

To customize the labels, use the “Administratrate-Configuration-Messages” feature for messages with keys “terms” and “privacy”.

To customize the documents, create them in PDF format. It will be nice to have them in languages available in the OpenRIMS installation.

Then, upload these documents to the “images.design” resource. See [

Annex 6 Resource “images.design”] for reference

7.2.4 Electronic manuals

Currently, the software contains provided electronic manuals:

- Administrative Units import guide
- Creation of a printable electronic document using EL expressions
- Dictionaries. Creation and maintenance guide
- Electronic form definition reference guide

It is possible to replace these guides with enhanced versions and/or guides in the national language. See
[

Annex 6 Resource “images.design”] for reference

7.3 Checklist

#	Item	Y/N
1	Switch between languages in the upper left corner of the screen is working	
2	The NMRA logo is right, looks good, and directs to the NMRA website	
3	Congratulations and disclaimer text are appropriate and fit the screen	
4	Terms of use and privacy statements are appropriate	
5	Electronic manuals are appropriate	

Annex 1 Restore the database dump using MySQL Workbench

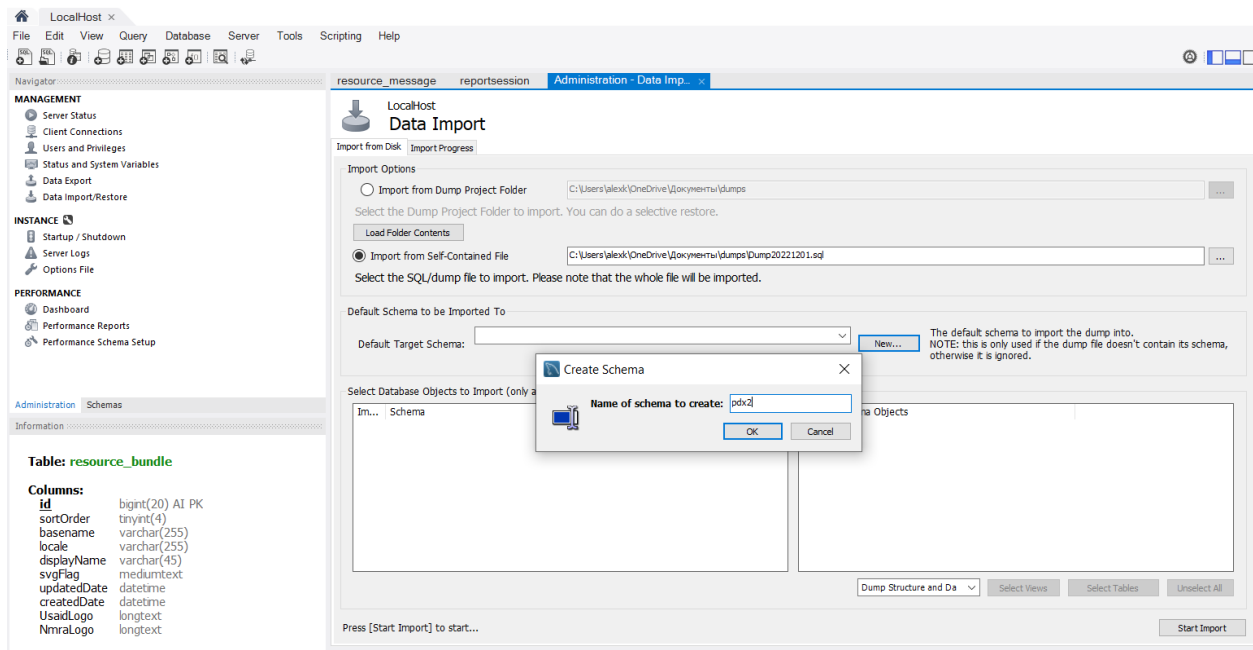


Figure 5 Import from self-contained file and new schema

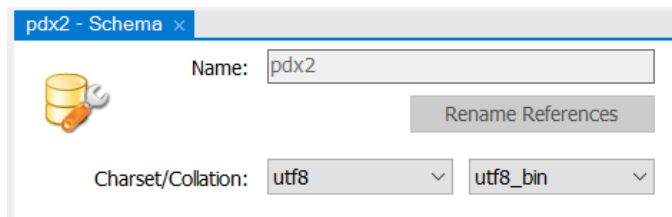


Figure 6 pdx2 schema parameters

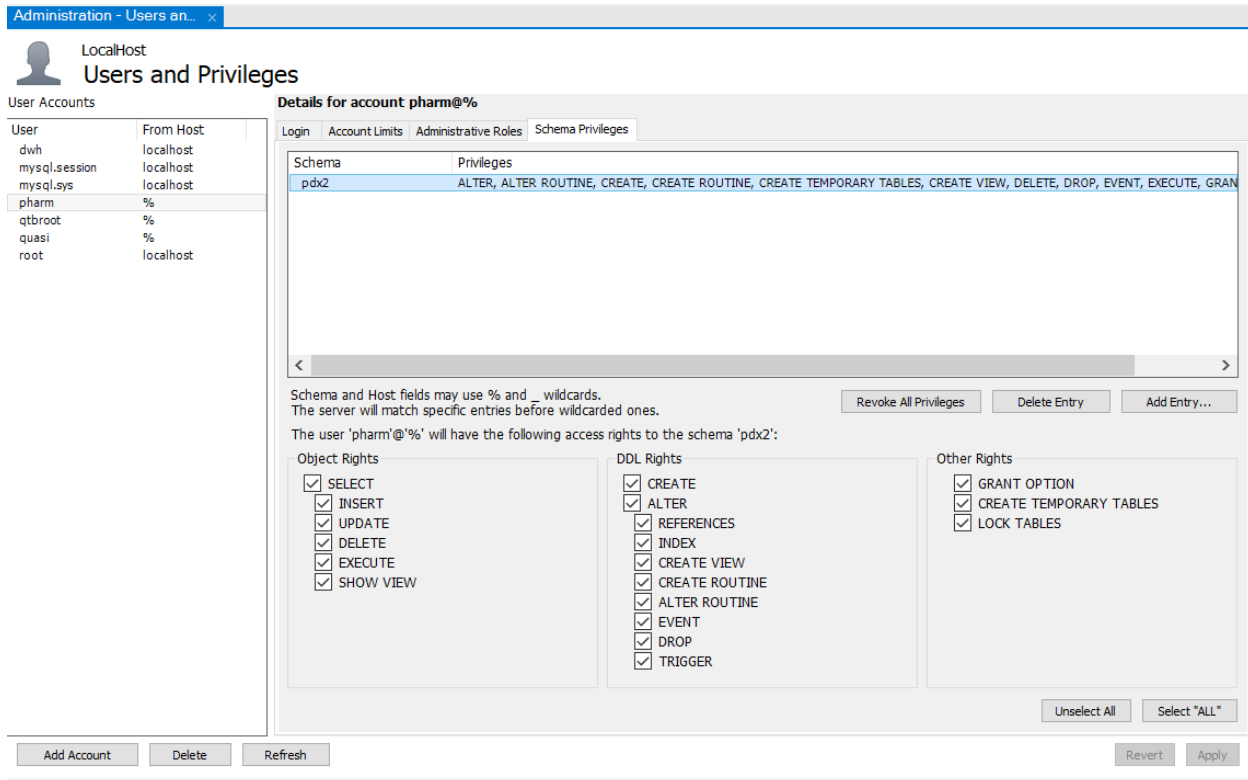


Figure 7 It will be a good idea to assign a dedicated user for the schema

Annex 2 Google Authentication

The OpenRIMS uses OATH2⁸ to allow authentication using Google login. For each deployment, the Google Authentication should be configured separately.


The original Google guide is here. The application type is Web Application

<https://developers.google.com/adwords/api/docs/guides/authentication>

An example screen is below

⁸ The theory is here <https://developers.google.com/identity/protocols/oauth2> The OpenRIMS uses the web-server applications scenario.





Select a project

 NEW PROJECT


Search projects and folders

 |

RECENT STARRED ALL

Name		ID
   pharmadex2Development 		pharmadex2development


← → ↺ console.cloud.google.com/apis/credentials?hl=ru&project=pharmadex2development


 Start your Free Trial with \$300 in credit. Don't worry—you won't be charged if you run out of credits. [Learn more](#)


DISMISS **ACTIVATE**


Google Cloud Platform pharmadex2Development Search products and resources


APIs & Services


 Dashboard


 Library

 Credentials

 OAuth consent screen

 Domain verification

 Page usage agreements













Credentials [+ CREATE CREDENTIALS](#) 

Create credentials to access your enabled APIs. [Learn more](#)

API Keys

<input type="checkbox"/>	Name	Creation date ↓	Restrictions	Key	Actions
No API keys to display					

OAuth 2.0 Client IDs

<input type="checkbox"/>	Name	Creation date ↓	Type	Client ID	Actions
<input type="checkbox"/>	Pharmadex 2 MSH Demo	Nov 26, 2021	Web application	00000000-0000-0000-0000-000000000000	  
<input type="checkbox"/>	Pharmadex2 MZ	Oct 13, 2021	Web application	00000000-0000-0000-0000-000000000000	  
<input type="checkbox"/>	Pharmadex 2 demo	Mar 20, 2021	Web application	00000000-0000-0000-0000-000000000000	  
<input type="checkbox"/>	Pharmadex 2 development	Mar 1, 2021	Web application	00000000-0000-0000-0000-000000000000	  

Service Accounts [Manage service accounts](#)

<input type="checkbox"/>	Email	Name ↑	Actions
--------------------------	-------	--------	---------

← → ↻ console.cloud.google.com/apis/credentials/oauthclient/393654449468-7fe3d3g8iu0m8sae9mhvkuo1u2bb0hjq.apps.googleusercontent.com... 🔍

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APIs & Services ← Client ID for Web application ⬇️ DOWNLOAD JSON ↺ RESET SECRET 🗑️ DELETE

Dashboard
Library
Credentials
OAuth consent screen
Domain verification
Page usage agreements

Name *
Pharmadex 2 MSH Demo

The name of your OAuth 2.0 client. This name is only used to identify the client in the console and will not be shown to end users.

Client ID
393654449468-7fe3d3g8iu0m8sae9mhvkuo1u2bb0hjq.apps.googleusercontent.com

Client secret
GSP-4A8-4xqJUnieuA_u...

Creation date
November 26, 2021 at 8:48:33 PM GMT+2

Authorized JavaScript origins ⓘ
For use with requests from a browser

URIs *

http://localhost:8084

http://pdx2.theta.com.ua

+ ADD URI

Authorized redirect URIs ⓘ
For use with requests from a web server

URIs *

http://localhost:8084/login/oauth2/code/google

http://pdx2.theta.com.ua/login/oauth2/code/google

+ ADD URI

After the configuration is completed, it will be necessary to copy the Client ID and Client secret to the application.properties

The Authorized redirect URI should be <https://host/login/oauth2/code/google>, e.g.,
https://pharmadex.irka.in.ua/login/oauth2/code/google

OATH2

spring.security.oauth2.client.registration.google.client-id=client_id

spring.security.oauth2.client.registration.google.client-secret=client_secret

Annex 3 Using IIS for OpenRIMS

Redirect rules, URL rewrite module

52.209.128.128 - Remote Desktop Connection
Internet Information Services (IIS) Manager

EC2AMAZ-J5QV945 > Sites > Default Web Site

File View Help

Connections

- Start Page
- EC2AMAZ-J5QV945 (EC2AMAZ-J5QV945/A)
- Application Pools
- Sites
 - Default Web Site
 - pvims-api
 - pvims-api-test
 - pvims-app
 - pvims-app-test
- Server Farms

Edit Inbound Rule

Name: Reverse Proxy to aname.pharmadexmz.org

Match URL

Requested URL: Matches the Pattern Using: Regular Expressions

Pattern: .* Test pattern...

☒ Ignore case

Conditions

Logical grouping: Match All

Input	Type	Pattern
(HTTP_HOST)	Matches the Pattern	^aname.pharmadexmz.org\$

☐ Track capture groups across conditions

Server Variables

Action

Action type: Rewrite

Action Properties

Rewrite URL: http://localhost:8083/{R:0}

☒ Append query string

☐ Log rewritten URL

☒ Stop processing of subsequent rules

Special configurations

<https://serverfault.com/questions/936922/setting-up-iis-reverse-proxy-to-preserve-host-headers>

52.209.128.128 - Remote Desktop Connection

Internet Information Services (IIS) Manager

EC2AMAZ-J5QV945

File View Help

Connections

- Start Page
- EC2AMAZ-J5QV945 (EC2AMAZ-J5QV945VA)
 - Application Pools
 - Sites
 - Default Web Site
 - pvims-api
 - pvims-api-test
 - pvims-app
 - pvims-app-test
 - Server Farms

Configuration Editor

Section: **system.webServer/proxy**

bufferChunkedResponses	True
cache	
clientCertFileName	
clientCertHash	
clientCertHeaderName	X-ARR-ClientCert
clientCertPassword	
enabled	True
httpVersion	PassThrough
includePortInXForwardedFor	True
keepAlive	True
logCacheHitName	X-ARR-CACHE-HIT
logGuidName	X-ARR-LOG-ID
maxForwards	10
maxResponseHeaderSize	65536
minResponseBuffer	256
passConnectionCloseHeader	False
passServerHeader	PassThrough
preserveHostHeader	True
proxy	
proxyBypass	
responseBufferLimit	4096
reverseRewriteHostInResponseHeaders	False
sslHeaderName	X-ARR-SSL
stealthMode	False
timeout	00:02:00
xForwardedByHeader	
xForwardedByHeaderName	X-Forwarded-By
xForwardedForHeaderName	X-Forwarded-For

Example of web.config for the default IIS site

```
<?xml version="1.0" encoding="UTF-8"?>
<configuration>
  <system.webServer>
    <rewrite>
      <rules>

        <rule name="Reverse Proxy to www.pharmadexmz.org/mozambique" stopProcessing="true">
          <match url="mozambique/*" />
          <conditions>
            <add input="{HTTP_HOST}" pattern="^www.pharmadexmz.org$" />
          </conditions>
          <action type="Rewrite" url="http://localhost:8081/{R:0}" />
        </rule>

        <rule name="Reverse Proxy to www.pharmadexmz.org" stopProcessing="true">
          <match url="*" />
          <conditions>
            <add input="{HTTP_HOST}" pattern="^www.pharmadexmz.org$" />
          </conditions>
          <action type="Rewrite" url="http://localhost:8081/mozambique/{R:0}" />
        </rule>

        <rule name="Reverse Proxy to pharmadexmz.org/mozambique" stopProcessing="true">
          <match url="mozambique/*" />
          <conditions>
            <add input="{HTTP_HOST}" pattern="^pharmadexmz.org$" />
          </conditions>
          <action type="Rewrite" url="http://localhost:8081/{R:0}" />
        </rule>

        <rule name="Reverse Proxy to pharmadexmz.org" stopProcessing="true">
          <match url="*" />
          <conditions>
            <add input="{HTTP_HOST}" pattern="^pharmadexmz.org$" />
          </conditions>
        </rule>

      </rules>
    </rewrite>
  </system.webServer>
</configuration>
```

```

        <action type="Rewrite" url="http://localhost:8081/mozambique/{R:0}" />
    </rule>
    <rule name="Reverse Proxy to eperm.pharmadexmz.org" stopProcessing="true">
        <match url="*" />
        <conditions>
            <add input="{HTTP_HOST}" pattern="^eperm.pharmadexmz.org$" />
        </conditions>
        <action type="Rewrite" url="http://localhost:8082/{R:0}" />
    </rule>
    <rule name="Reverse Proxy to anarme.pharmadexmz.org" stopProcessing="true">
        <match url="*" />
        <conditions>
            <add input="{HTTP_HOST}" pattern="^anarme.pharmadexmz.org$" />
        </conditions>
        <action type="Rewrite" url="http://localhost:8083/{R:0}" />
    </rule>
    <rule name="PViMS HTTP to HTTPS Redirect" stopProcessing="true">
        <match url="*" />
        <conditions>
            <add input="{HTTPS}" pattern="^OFF$" />
        </conditions>
        <action type="Redirect" url="https://{HTTP_HOST}{REQUEST_URI}" appendQueryString="false" />
    </rule>
</rules>
</rewrite>
<tracing>
    <traceFailedRequests>
        <add path="*">
            <traceAreas>
                <add provider="WWW Server" areas="Rewrite" verbosity="Verbose" />
            </traceAreas>
            <failureDefinitions timeTaken="00:00:00" statusCodes="404, 500" />
        </add>
    </traceFailedRequests>
</tracing>

```

```
    </add>
  </traceFailedRequests>
</tracing>
  </system.webServer>
</configuration>
```

Annex 4 SSL certificate “Let’s encrypt” for an OpenRIMS installed on Ubuntu Linux

Pre-condition

The OpenRIMSDemo application is up and running on a physical server

The operating system installed on the server is Linux Ubuntu

```
alexk@kaban:~$ cat /etc/os-release
NAME="Ubuntu"
VERSION="18.04.4 LTS (Bionic Beaver)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 18.04.4 LTS"
VERSION_ID="18.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
VERSION_CODENAME=bionic
UBUNTU_CODENAME=bionic
```

The server is connected to the Internet using static IP

```
C:\Users\alexk>nslookup pharmadex.irka.in.ua
Server:    Unknown
Address:   172.34.34.1

Non-authoritative answer:
Name:      pharmadex.irka.in.ua
Address:   91.243.195.242
```

Apache 2.4 is installed. The HTTP virtual host for irka.in.ua is defined

```
<VirtualHost *:80>
    ServerName pharmadex.irka.in.ua
    ProxyPreserveHost On
    <Location />
        ProxyPass http://127.0.0.1:8084/
        ProxyPassReverse http://127.0.0.1:8084/
    </Location>
    ErrorLog /var/log/pharmadex/error.log
    CustomLog /var/log/pharmadex/access.log vhost_combined
</VirtualHost>
```

This host works fine.

The certbot utility is installed and included in the schedule

Where to find a manual?

To install the certbot and create an SSL host

<https://www.digitalocean.com/community/tutorials/how-to-set-up-let-s-encrypt-certificates-for-multiple-apache-virtual-hosts-on-ubuntu-14-04>

To run the certbot renew certificates task

<https://eff-certbot.readthedocs.io/en/stable/using.html#automated-renewals>

The command execution result

The command is `sudo certbot --apache -d pharmadex.irka.in.ua` installs the certificate and the virtual host

```
*** System restart required ***
Last login: Wed Jun 22 14:04:24 2022 from 46.98.130.247
alexk@kaban:~$ mc

alexk@kaban:~$
alexk@kaban:~$
alexk@kaban:~$
alexk@kaban:~$ sudo certbot --apache -d pharmadex.irka.in.ua
[sudo] password for alexk:
Saving debug log to /var/log/letsencrypt/letsencrypt.log
Requesting a certificate for pharmadex.irka.in.ua

Successfully received certificate.
Certificate is saved at: /etc/letsencrypt/live/pharmadex.irka.in.ua/fullchain.pem
Key is saved at: /etc/letsencrypt/live/pharmadex.irka.in.ua/privkey.pem
This certificate expires on 2022-09-20.
These files will be updated when the certificate renews.
Certbot has set up a scheduled task to automatically renew this certificate in the background.

Deploying certificate
Successfully deployed certificate for pharmadex.irka.in.ua to /etc/apache2/sites-available/pharmadex-le-ssl.conf
Congratulations! You have successfully enabled HTTPS on https://pharmadex.irka.in.ua

-----
If you like Certbot, please consider supporting our work by:
 * Donating to ISRG / Let's Encrypt: https://letsencrypt.org/donate
 * Donating to EFF: https://eff.org/donate-le
-----
alexk@kaban:~$
```

The renew certificates task is up and running

```
alexk@kaban:~$ systemctl list-timers
NEXT                LEFT          LAST          PASSED          UNIT                                ACTIVATES
Wed 2022-06-22 17:14:42 EEST 56min left    Tue 2022-06-21 17:14:42 EEST 23h ago         systemd-tmpfiles-clean.timer       systemd-tmpfiles-clean.service
Wed 2022-06-22 18:13:37 EEST 1h 55min left Wed 2022-06-22 06:09:01 EEST 10h ago         apt-daily.timer                    apt-daily.service
Wed 2022-06-22 18:15:00 EEST 1h 56min left Wed 2022-06-22 10:41:01 EEST 5h 37min ago    snap.certbot.renew.timer           snap.certbot.renew.service
Wed 2022-06-22 22:50:44 EEST 6h left       Wed 2022-06-22 06:09:44 EEST 10h ago         motd-news.timer                    motd-news.service
Thu 2022-06-23 06:14:24 EEST 13h left      Wed 2022-06-22 06:09:06 EEST 10h ago         apt-daily-upgrade.timer            apt-daily-upgrade.service
Mon 2022-06-27 00:00:00 EEST 4 days left   Mon 2022-06-20 00:00:09 EEST 2 days ago      fstrim.timer                       fstrim.service
n/a                  n/a           Fri 2021-10-29 15:40:33 EEST 7 months 22 days ago ureadahead-stop.timer             ureadahead-stop.service

7 timers listed.
```


The site is up and running on SSL

The screenshot shows a web browser window with the URL `pharmadex.irka.in.ua/admin#administrate/dataconfigurator`. The page displays a 'Data Directory' table with various entries. A 'Certificate' dialog box is open, showing 'Certificate Information'.

Government of Nepal
Ministry of Health and Population
Department of Drug Administration

Administrate Authorize

Data Directory

Search

	url
<input type="checkbox"/>	pharmacy.site
<input type="checkbox"/>	pharmacy.site.classifiers
<input type="checkbox"/>	pharmacy.site.owners
<input type="checkbox"/>	pharmacy.owner
<input type="checkbox"/>	pharmacy.site.person.details
<input type="checkbox"/>	pharmacy.site.employees
<input type="checkbox"/>	pharmacy.site.employee
<input type="checkbox"/>	pharmacy.site.documents
<input type="checkbox"/>	payment.data
<input type="checkbox"/>	pharmacy.site.inspection.report
<input type="checkbox"/>	pharmacy.site.solution
<input type="checkbox"/>	configuration.resource.image
<input type="checkbox"/>	configuration.resource.pharmacy
<input type="checkbox"/>	configuration.pharmacy.employee
<input type="checkbox"/>	configuration.resource.pharmacy
<input type="checkbox"/>	pharmacy.site.renew
<input type="checkbox"/>	payment.data.after
<input type="checkbox"/>	ws.site
<input type="checkbox"/>	ws.site.classifiers
<input type="checkbox"/>	ws.site.owners
<input type="checkbox"/>	ws.site.owner.person
<input type="checkbox"/>	ws.site.person.details
<input type="checkbox"/>	ws.site.employees
<input type="checkbox"/>	ws.site.employee
<input type="checkbox"/>	ws.site.documents

Certificate

General Details Certification Path

Certificate Information

This certificate is intended for the following purpose(s):

- Proves your identity to a remote computer
- Ensures the identity of a remote computer
- 2.23.140.1.2.1
- 1.3.6.1.4.1.44947.1.1.1

* Refer to the certification authority's statement for details.

Issued to: pharmadex.irka.in.ua

Issued by: R3

Valid from 22.06.2022 **to** 20.09.2022

Issuer Statement

OK

templates

Annex 5 Test email

Stop OpenRIMS service

Open MySQL workbench and issue a query `SELECT * FROM pdx2.user where Username='admin'`

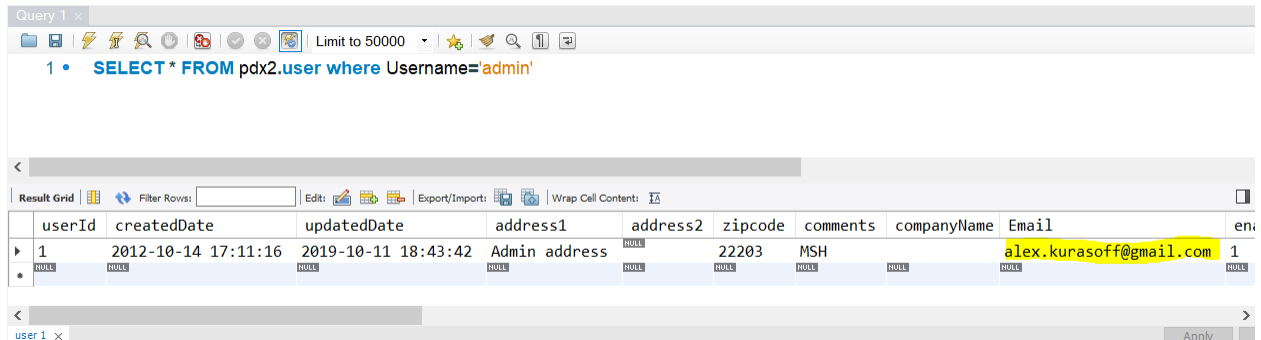


Figure 8 Change email address for user admin to own email address

Start OpenRIMS service

Log in as admin/admin and run the Test email feature

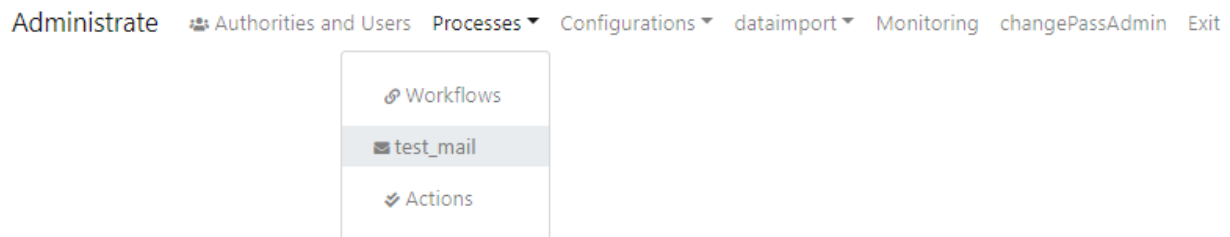


Figure 9 The test email feature can be found in Administrate-Processes

Annex 6 Resource “images.design”

This resource should be available just after OpenRIMS installation. This resource contains or may contain files that OpenRIMS uses internally or electronic guides for particular electronic forms.

The resource “images.design” is backed by the “dictionary.system.resources.images”. This dictionary contains some items responsible for header logos, electronic guides for administrative-related tasks, and custom electronic data entry forms.

Below is an example of an item from this dictionary:

The screenshot shows a web form titled "System resources - Images". At the top are three buttons: "Save" (blue), "Suspend" (yellow), and "Cancel" (grey). Below the title is a section labeled "Name" with a text input field containing "01 Header logo". To the right of the input field is a small number "1". Below this is a section labeled "Additional information" with a larger text input field containing "SVG file to place in the left upper corner of the application's header". To the right of the input field is a small number "2". Below this is a section labeled "url" with a text input field containing "resources.system.logo". To the right of the input field is a small number "3". At the bottom are three buttons: "Save" (blue), "Suspend" (yellow), and "Cancel" (grey).

Figure 10 Dictionary item for the NMRA logo

1. Human readable name of “images.design” file item
2. The description of the item
3. The URL should be selected from the table below

URL	Name	Description
resources.system.logo	01 Header logo	SVG file to place in the left upper corner of the application's header
resources.system.terms	02 Terms of use	The customized terms of use in PDF format

URL	Name	Description
resources.system.privacy	03 Privacy policy	The PDF file contains the local privacy policy
resources.help.wfrguide	04 Electronic form design reference Guide	The PDF file contains an explanation of electronic form components
resources.elreference	05 EL expressions references	The PDF file contains Creation of a printable electronic document using EL expressions
resources.help.dictionaries	06 Dictionaries. Creation and maintenance guide	The PDF file contains details on how to create and maintain a dictionary. A dictionary keeps a list of pre-defined data items. An example is the Administrative Units Dictionary, which keeps administrative units in the country-specific hierarchy.

Figure 11 URLs used by OpenRIMS software

Additionally, it is possible to add an item for the electronic guide for any page in any electronic form. For example:

URL	Name	Description
retail.site.owned.persons	Retail Pharmacy application - main page	Rel 2023-06-14