

MedDream DICOM Viewer Communication API example for STUDY and TOKEN Integrations

1. Install MedDream if it is not installed.

1.1 Download and install MedDream from <https://www.softneta.com/products/meddream-dicom-viewer/> or Docker hub: <https://hub.docker.com/u/meddream>

For more information how to install MedDream please check installation manual:

<https://www.softneta.com/files/meddreamviewer/doc/MedDream-DICOM-Viewer-Install-Manual.pdf>

1.2. Modify application.properties file and add the following information:

NOTE: This configuration example is for Study integration. Token integration configuration explained in step 3.

NOTE: This configuration example is for Orthanc PACS, you can use other PACS as well.

```
server.port=8080
logging.file.name=mdjavacore
logging.level.com.softneta=ERROR

authentication.his.valid-his-params=study
spring.profiles.include=auth-inmemory,auth-his
authentication.inmemory.users[0].userName=demo
authentication.inmemory.users[0].password=demo
authorization.users[0].userName=demo
authorization.users[0].role=SEARCH,EXPORT_ISO,EXPORT_ARCH,FORWARD,REPORT_VIEW,REPORT_UPLOAD,PATIENT_HISTORY,UPLOAD_DICOM_LIBRARY,3D_RENDERING,ADMIN,DOCUMENT_VIEW
authorization.defaultHisPermissions=EXPORT_ISO,EXPORT_ARCH,FORWARD,REPORT_VIEW,REPORT_UPLOAD,PATIENT_HISTORY,UPLOAD_DICOM_LIBRARY,3D_RENDERING,DOCUMENT_VIEW
authorization.defaultLoginPermissions=SEARCH,EXPORT_ISO,EXPORT_ARCH,FORWARD,REPORT_VIEW,REPORT_UPLOAD,PATIENT_HISTORY,UPLOAD_DICOM_LIBRARY,3D_RENDERING,DOCUMENT_VIEW

com.softneta.meddream.pacs.configurations[0].type=Orthanc
com.softneta.meddream.pacs.configurations[0].id=Orthanc
com.softneta.meddream.pacs.configurations[0].baseUrl=http://localhost:8042
com.softneta.meddream.pacs.configurations[0].username=
com.softneta.meddream.pacs.configurations[0].password=

#Whitelist who can use PostMessages
security.postMessageWhitelist=*
```

1.3 Download, unzip and upload studies examples to your PACS (for example Orthanc) or use your own studies: https://softneta.com/files/cls/meddream_communication_api/CommAPIStudiesExamples.zip

1.4 If you downloaded studies in 1.3 step and uploaded to your PACS check if studies opening in MedDream viewer by the following URLs:

<http://localhost:8080/?study=1.2.840.113619.2.55.3.4271045733.996.1449464144.595>

<http://localhost:8080/?study=1.2.826.0.1.3680043.8.1055.1.20161012115812848.450575715.8637545>

<http://localhost:8080/?study=1.2.840.113619.2.66.2158408118.16050010109105933.20000>

<http://localhost:8080/?study=1.2.826.0.1.3680043.8.1055.1.20190219152017841.651455468.5334909>

2. Communication API example for STUDY integration

2.1 Download Demo files

https://softneta.com/files/cls/meddream_communication_api/Demo_CommunicationAPI.zip and unzip it.

2.2 Copy example.html and js\index.js files to your MedDream installation folder, for example

C:\MDPACS\meddream\md5.

2.3 Access example.html in browser <http://localhost:8080/example.html>, choose MedDream integration type: Study, Select one of the study and try to open any study by clicking “**Open in MedDream**”, this will open a new MedDream viewer tab.

NOTE: If you want to test with your own studies replace Study UIDs in example.html document and save it.

2.4 You can test various actions using Study integration:

The screenshot shows a web browser window at localhost:8080/example.html. The interface includes several sections of controls:

- MedDream opening type:** A dropdown menu set to 'Window'.
- MedDream integration type:** A dropdown menu set to 'Study'.
- Choose a Study:** A dropdown menu showing a list of study UIDs.
- Window:** Buttons for 'Open in MedDream', 'Add to MedDream', 'Replace in MedDream', and 'Focus MedDream'.
- Study integration:** Buttons for 'Open study', 'Open studies', 'Replace opened studies', 'Preload studies', 'Cache studies', and 'Close studies'.
- Layout:** Buttons for 'Cache all studies', 'Close all studies', 'Set layout 3x3', 'Set layout 2x1', and 'Set layout 1x2'.
- Instance and Segmentation:** Buttons for 'Open instance', 'Export active instance', 'Export container 2-2 instance', 'Disable segmentation', 'Enable segmentation', 'Get snapshot', 'Set snapshot', and 'Get window reference'.
- Labels and Buttons:** Buttons for 'Show/Hide info labels', 'Show/Hide multiple buttons', 'Set additional top info labels', 'Set custom study label', 'Set custom study and series tags', 'Generate instance MPR', 'Create MPR Axial', 'Create MPR Sagittal', and 'Create MPR Coronal'.
- Measurements:** Buttons for 'Create measurement' and 'Delete measurement'.
- HP and CP:** Buttons for 'Get HP list of study', 'Select HP:', 'Apply hanging protocol', 'Apply previous HP category', 'Apply next HP category', and 'Apply next CP'.
- Data type and Event:** A 'Data type:' dropdown set to 'Opened studies', a 'Get data' button, an 'Event:' dropdown set to 'Study loaded', and 'Subscribe'/'Unsubscribe' buttons.

2.5 If MedDream is used in Docker environment it is possible to use Study integration example in dockers. More information can be found here: <https://hub.docker.com/r/meddream/dicom-viewer-integration>

3. Communication API example for TOKEN integration

3.1 Install token-service by going to MedDream installation location, rename token-service.NET4.exe to token-service.exe, open CMD and run command: *token-service.exe install*

For more information how to install token-service please check installation manual:

<https://www.softneta.com/files/meddreamviewer/doc/MedDream-DICOM-Viewer-Install-Manual.pdf>

3.2 Copy example.html and js\index.js files to your MedDream installation folder, for example

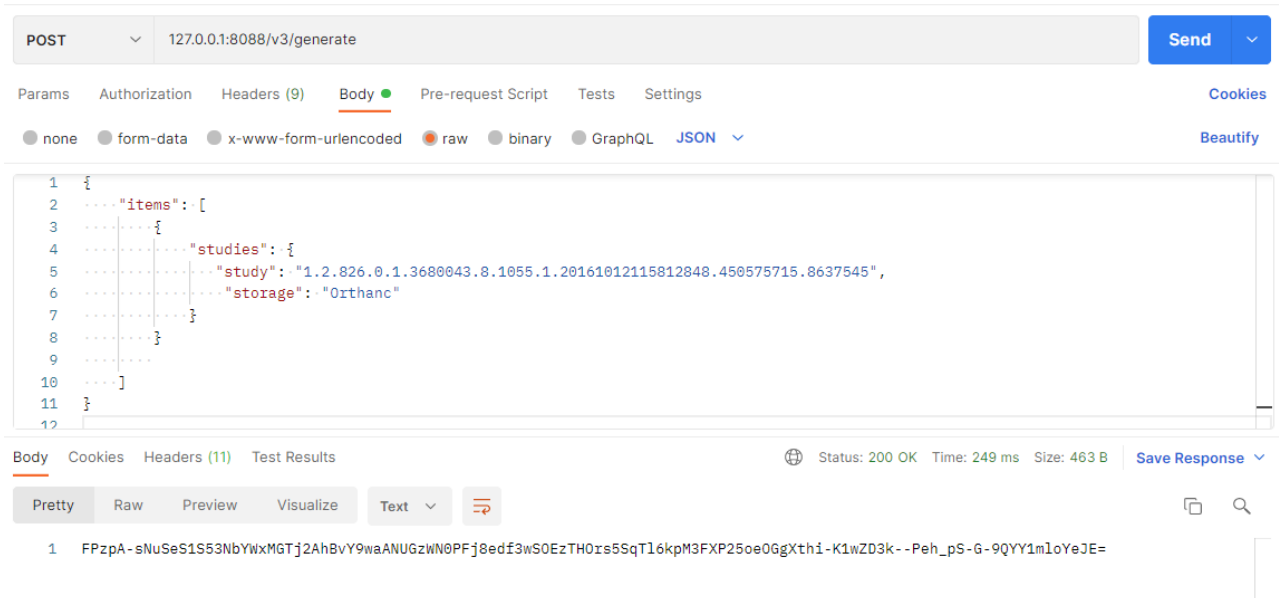
C:\MDPACS\meddream\md5

3.3 Edit MedDream application.properties file by commenting study integration and adding token integration. Save and restart MedDream service.

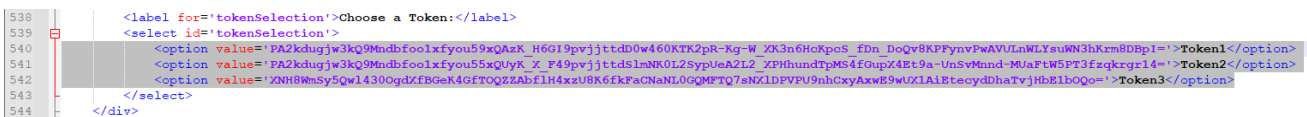
```
#authentication.his.valid-his-params=study
authentication.his.token-service-address=http://127.0.0.1:8088/v3/validate
```

3.4 Generate a token for any existing study using Postman

```
{
  "items": [
    {
      "studies": {
        "study": "1.2.826.0.1.3680043.8.1055.1.20161012115812848.450575715.8637545",
        "storage": "Orthanc"
      }
    }
  ]
}
```



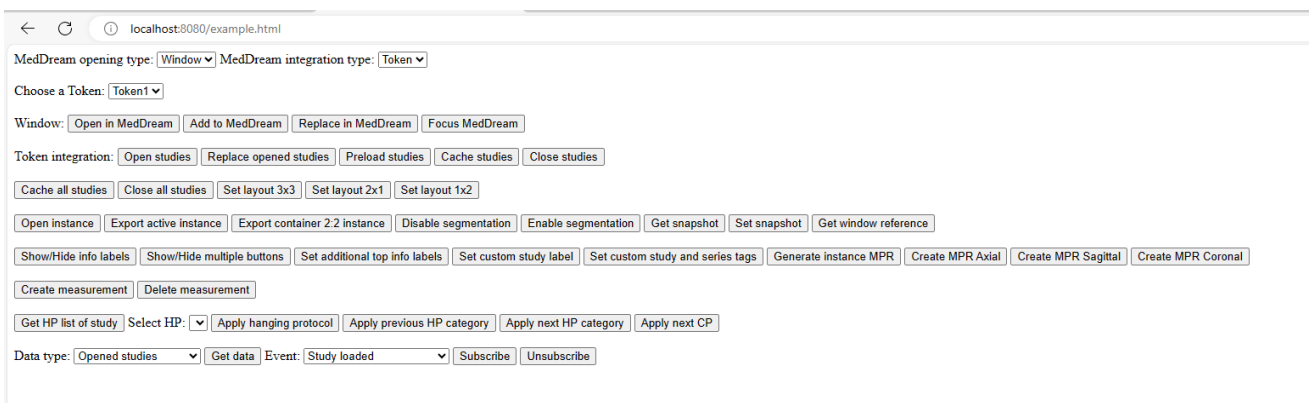
3.5 Edit example.html file and paste generated tokens for different studies to lines 540-542, save the file.



NOTE: Generated tokens will expire after some time, so you will need to generate new ones.

3.6 Access example.html in browser <http://localhost:8080/example.html>, choose MedDream integration type: Token, Select one of 3 tokens and try to open any study by clicking **“Open in MedDream”**, this will open a new MedDream viewer tab.

3.7 You can test various actions using Token integration:



3.8 If MedDream is used in Docker environment it is possible to use Token integration example in dockers. More information can be found here: <https://hub.docker.com/r/meddream/dicom-viewer-integration>