



SELENE

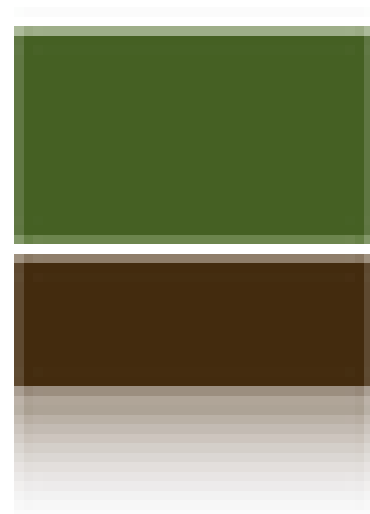
Interim Report & Manual

Main Functions

Manager

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Main Functions

Manager

1. Main Functions

1-1. Manager

1-1-1. Server Configuration

Manager

Media Importer

Media List

Media Writing

Close

New Window

Main Function

Server Configuration

Manage Members & Departments

A Member's Log

Truncation Rule

Data storing timelimit: 45 Days

Truncate data when extra space is less than: 5 GB, 25 %

Update

Linked Server Construction

#NAME	AE Title	IP Address	Port Number
PACS SERVER LIST			
SMCW_MULTI_ONLY	SELENE_MULTI_FRAME	192.168.0.181	23117
SMCW_PACS	NETGATE	192.168.0.156	10004
SMCW_PACS2	SELENE	192.168.0.180	9184
MWL SERVER LIST			
SMCW_MW2	IViewWorkSCP_SUB	192.168.0.160	12000
SMCW_MW3	SMCW_MWL_ENTITY	192.168.0.160	12100
SMCW_MWL	IViewWorkSCP	192.168.0.156	12000
FILE SERVER LIST			
SMCW_FILE	SMCW_FILE	192.168.0.156	0

Add Remove Update

External Server's Role

Modality	Frame Mode
CR	SINGLE
CT	ALL
MRI	ALL

Add Remove

1-1-1-1. Truncation Rule

To determine the truncation rule with this section.

The components you can configure are –

1. Data storing time limit:

You can determine the lifecycle of study data.

When a study data exceeded the time limit, the study data will be a candidate of truncation

2. Extra space to maintain, truncation space unit:

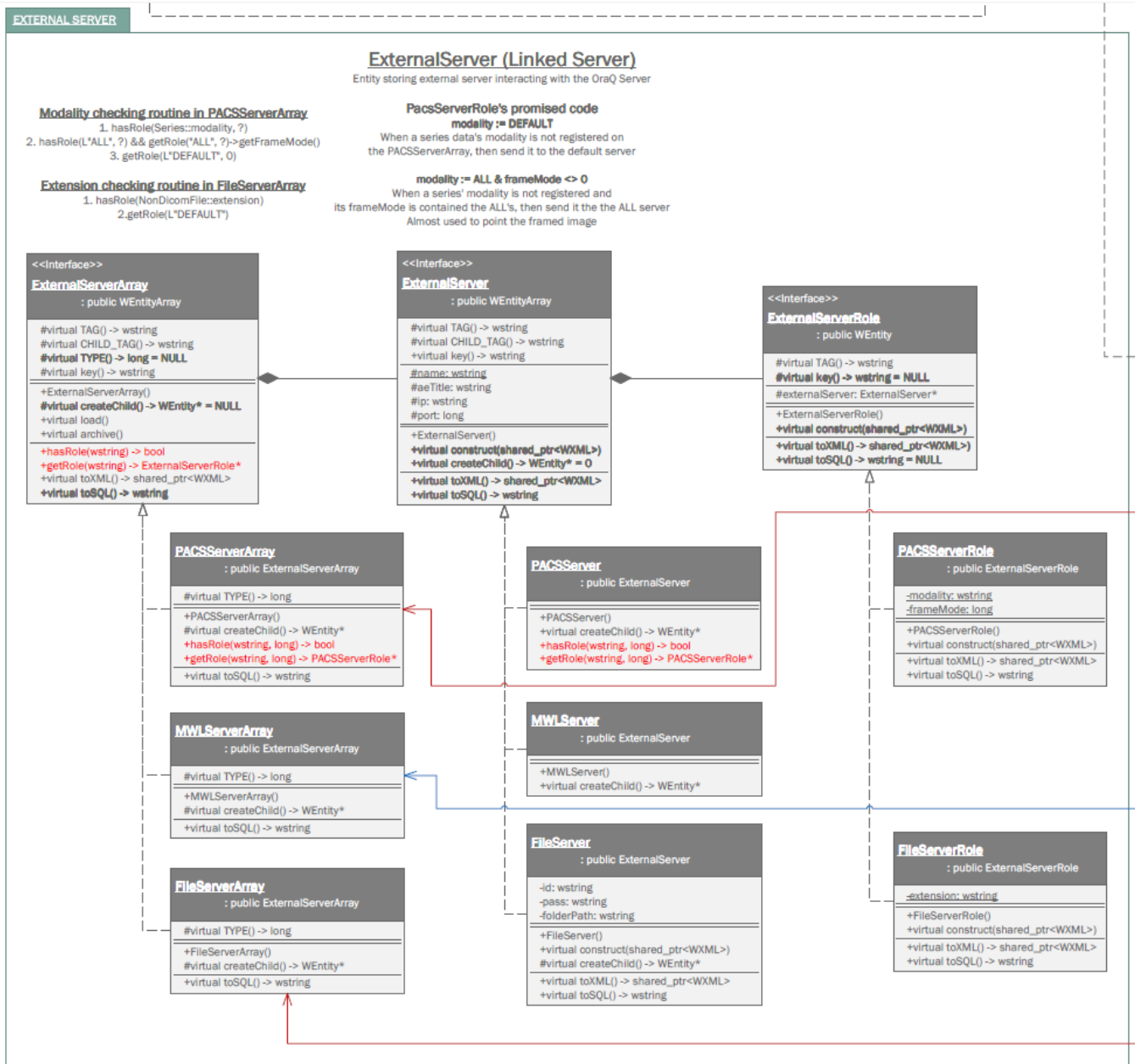
When the extra-space of the ORAQ server is less than the configured (%), then the determined space (GB) will be truncated

Main Functions

Manager

1-1-1-2. External Server Construction

I defined external servers to have some rules like



- All the servers are entitled and managed by "Manager"
- Servers are grouped by its own category
- The categorized server has its own role
- The role influences to the inspect like the information fetching path & where to archive
-

Main Functions

Manager

#NAME	AE Title	IP Address	Port Number
▼ PACS SERVER LIST			
SMCW_MULTI_ONLY	SELENE_MULTI_FRAME	192.168.0.181	23117
SMCW_PACS	NETGATE	192.168.0.156	10004
SMCW_PACS2	SELENE	192.168.0.180	9184
▼ MWL SERVER LIST			
SMCW_MW2	IViewWorkSCP_SUB	192.168.0.160	12000
SMCW_MW3	SMCW_MWL_ENTITY	192.168.0.160	12100
SMCW_MWL	IViewWorkSCP	192.168.0.156	12000
▼ FILE SERVER LIST			
SMCW_FILE	SMCW_FILE	192.168.0.156	0

+ Add Remove Update

You can construct and modify the server's information directly into the 'External Server's Grid

1. PACS Server's role

PACS Server's role means the "tag", followed by your request document

I defined the tag as a classification standard having a pair, modality and frame mode in "series unit" of dicom inspect

Define the "modality" and select "frame mode"

The role will be used as a standard, where to send (register).

When manager tries to send stored inspects in this SELENE server to the PACS server, SELENE server reads each inspect's modality and frame mode and compare with this roles. When Role is matched, then determine the server to register.

Dicom inspect will be sent to a server has the "modality" & "frame mode" as a role

Modality	Frame Mode
CR	SINGLE
CT	ALL
MRI	SINGLE
	MULTI

- **Reserved Modality List**

- DEFAULT

Cannot find any role pre-defined in all PACS Server, the inspect will be sent to a server has a role DEFAULT.

- ALL

ALL means the all literally. It will be matched to all the modalities.

Ex) modality: ALL, frame mode: MULTI

Main Functions

Manager

The PACS server stores all multi-frame inspects

2. MWL Server's role

MWL Server doesn't have any role.

If you think this MWL server has some unique role must be considered and I've missed it, then please inform me

3. (Non-dicom) File Server's role

The file server's role is the extension

When you try to send a non-dicom file to external servers, then the file will be sent to a server has the file's extension as a role.

Additionally, the File Server is distinct from others having some special properties, "Account and Location Path"

The non-dicom files may be sent to the remote server and the remote server may request identification of connector and location path to be stored. So the properties are needed.

The screenshot shows a configuration window titled "External Server's Role". It contains two main sections: "Parameters of File-Server" and "Role of External Server".

Parameter	Data
Account ID	Administrator
Account Pass	1
Location Path	\\192.168.0.156\\Non-DICOM

Below this table is the "Role of External Server" section, which contains a table with file extensions:

Extension
doc
docx
pdf

Main Functions

Manager

1-1-2. Manage Members & Departments

The screenshot shows the Manager application interface. The main window is titled "Main Function" and has a menu bar with "Main", "Documentation", "Account", and "Help". Below the menu bar is a toolbar with icons for "Manager", "Media Importer", "Media List", "Media Writer", and "Exit". The main area is divided into three panels:

- Department Name:** A list of departments: 電算室, 外科, 内科, 放射線科, 看護科, 小児科. A blue "C" is written next to it. Handwritten label: *DEPARTMENT_GRID*.
- Candidate Grid:** A table with columns: ID, Name, Department, Authority, Join Date. It contains members: GildongHong1600, KyoonHeo, Florence1820, Robot1, Robot2, Robot3. A green dashed border surrounds this grid. A purple circle highlights the row for Florence1820, Robot1, Robot2, Robot3. A green arrow points from the "Member List" to this circle with the text "Drag & Drop". Handwritten label: *CANDIDATE_GRID*.
- Member List:** A table with columns: ID, Name, Department, Authority. It contains members: jhnam1988, GildongHong16, KyoonHeo, JoonHeo, Mari1867, Florence1820, Robot1, Robot2, Robot3, Robot4, Robot5. A blue circle highlights the row for Florence1820, Robot1, Robot2, Robot3. Handwritten label: *MEMBER_GRID*.

At the bottom of the "Candidate Grid" panel, there are buttons: "+ Add", "Delete", "Update authority as" (dropdown menu), "Update", and "Kick".

1. Retrieve members

You can search some members by your own condition

2. Update members' authority or kick members

You can modify members' authority or kick some members.

Drag & Drop members to "CANDIDATE_GRID" from right-side's "MEMBER_GRID", then select rows in "CANDIDATE_GRID", then determine what you want to do.

3. Manage Departments

You can add, delete or rename each department.

If you want rename, then just click the row and just type it. That's all.

Main Functions

Manager

1-1-3. A member's Usage History

The screenshot displays the Manager application interface. At the top, there is a menu bar with options: Main, Documentation, Account, and Help. Below the menu bar is a toolbar with icons for Manager, Media Importer, Media List, Media Writer, and Exit. A 'New Window' button is located in the top right corner.

The main window is divided into two panes. The left pane, titled 'Main Function', contains three sub-panes: 'Authority Allocation History', 'Inquiry History', and 'Log-in History'. The right pane, titled 'Member List', contains a table of members.

The 'Authority Allocation History' pane shows a table with columns: New Auth., Prev. Auth., Approver, and Date. The 'Inquiry History' pane shows a table with columns: UID, Type, Description, #Series, #Images, and Date. The 'Log-in History' pane shows a table with columns: IP Address, Succ. or Fail., and Date.

The 'Member List' pane shows a table with columns: ID, Name, Department, and Authority. The table lists members such as jhnam1988, GildongHong1, KyoonHeo, JoonHeo, Mari1987, Florence1820, Robot1, Robot2, Robot3, Robot4, and Robot5.

Handwritten annotations are present: a green dashed box labeled 'a' around the 'Authority Allocation History' table, a green dashed box labeled 'c' around the 'Inquiry History' table, and a blue circle labeled 'b' around the 'Log-in History' table. A handwritten number '3' is also visible in the top right of the left pane.

If you select a row from Member List Grid on the right side, then you can see the achieved logs about the selected member. The logs you can see are;

1. Authority Allocation History

You can see the authority allocation history

In this log, you can even see the allocation history by whom

2. Log-in History

You can see the member's log-in history

When logged, from where and even you can see the log-in was successful or not.

3. Inquiry History

You can see the member log about the study

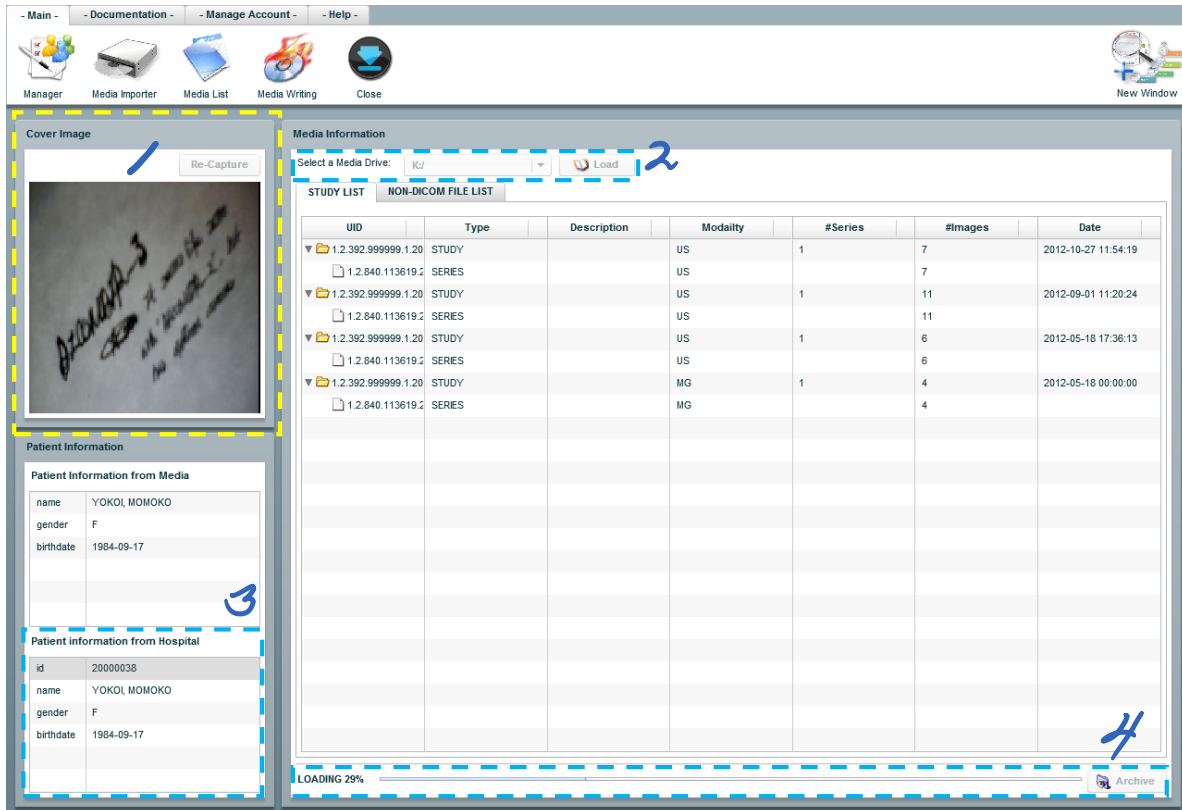
The types are:

- Inquired
- (request) register
- (request) delete

Main Functions

Media Importer

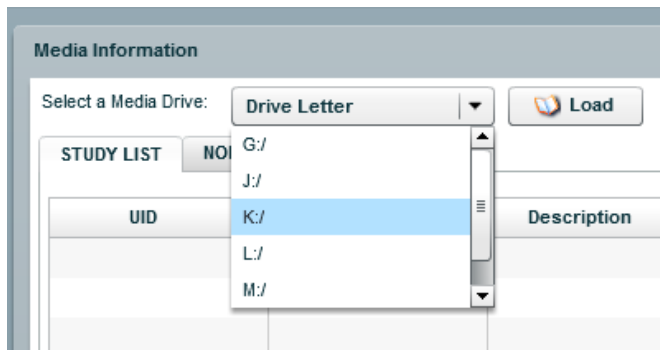
1-2. Media Importer



1. Picturing Media's Label

Point the camera to the label, and press to capture button. Then SELENE will capture the label and store it to server as an evidence. You can't bypass importing routines without this step.

2. Load the list of inspects in the media



Select the media drive and Click the load button,
Then the contents of the media will be shown in grid

Main Functions

Media Importer

3. Input Patient's ID & Get the information from MWL server

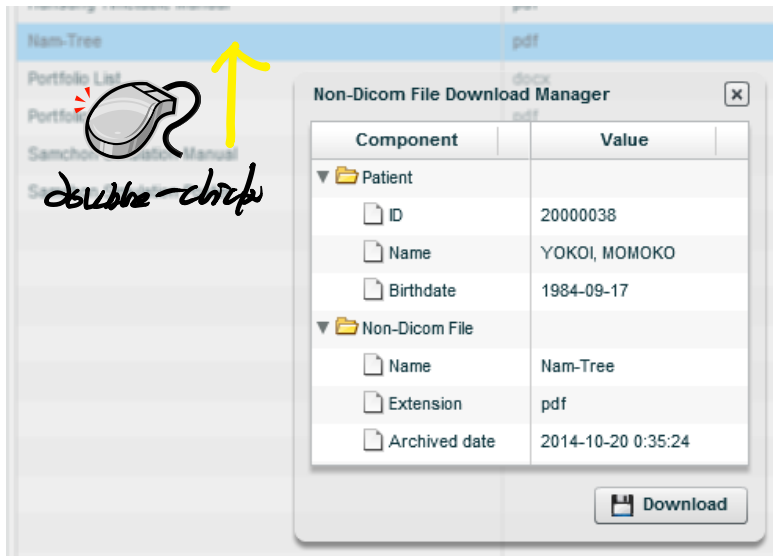
Click the "id-cell" in the "Patient Information from Hospital Grid". Insert the patient-id and click the enter button or focus to the outside.

Then SELENE will retrieve the patient information by the inserted-id from defined MWL servers, so that fetch the adjusted information of the patient.

The MWL Servers, have to defined already in the "Manager"

The screenshot shows a 'Patient Information' form with two sections. The first section, 'Patient Information from Media', contains a table with the following data: name: YOKOI, MOMOKO; gender: F; birthdate: 1984-09-17. The second section, 'Patient information from Hospital', contains a table with the following data: id: 20000038; name: (empty); gender: (empty); birthdate: (empty).

4. Checking & Opening the non-dicom files in the media



You can inspect the non-dicom file before archiving to the SELENE server by downloading and opening the file. Click the "NON-DICOM FILE LIST" tab and double-click a file you want to download.

Then a download manager will be opened and you can download the file from the manager.

5. Go archiving on the SELENE server



Click the "Archive" button, then all will be done.

You can know the archiving process by seeing a progress bar under the grid

Main Functions

Candidate Inspect

1.3. Candidate Inspect

Study List

STUDY LIST NON-DICOM FILE LIST

Auto Retrieve

Patient Information				Study Information						Status	Progre...
ID	Name	Gender	Birthda...	UID	Descri...	Modalit...	#Series	#Images	Date		
0000252425	TEST	F		1.2.392.2000		MR	5	39	2013-10-30 0	0	
ME00000006	SmartCarewo			1.2.410.2000		CR	1	6	2015-01-16 1	0	
20000038	YOKOI, MOMI	F	1984-09-17 0	1.2.392.9999		MG	1	4	2012-05-18 0	0	
20000038	YOKOI, MOMI	F	1984-09-17 0	1.2.392.9999		US	1	6	2012-05-18 1	0	
20000038	YOKOI, MOMI	F	1984-09-17 0	1.2.392.9999		US	1	11	2012-09-01 1	0	
20000038	YOKOI, MOMI	F	1984-09-17 0	1.2.392.9999		US	1	7	2012-10-27 1	0	
1000252425	TEST IRWF	F		1.2.392.2000		MR	5	39	2013-10-30 0	0	

Media Information

2. No name

Importer ID system

Importer Name system

Imported Date 2015-01-26 12:22:33.2400

Log

ALL

ID	Name	Type	Date
system	system	0	2015-01-26
system	system	0	2015-01-26

Register on PACS Delete

1. Retrieve Inspects

You can retrieve inspects what you want.

The conditions you can use are:

- Auto – system automatically decide which field should be used. But it may slow.
- Patient Information – retrieve based on patient information linked with the study
 - Id*
 - Name*
 - Birthdate*
- Study to Series Information
 - Description*
 - Status*
 - Modality*

Main Functions

Candidate Inspect

2. Information about the media which contained the inspect

Clicking a row of inspect, you can get the media-information containing the inspect

When a selected inspect is a study, a dicom standard inspect unit and the study is duplicated in multiple medias, of course, you can get the all information of the medias.

3. Access history about the inspect

When you select a row (study) in the "STUDY_GRID", then you can see the logs about the study filtered by the history type

Log-types are:

- a. All
- b. Not inquired
- c. Inquired
- d. Requested
- e. Approved

4. Registering on the PACS Server

The screenshot displays the DICOM Manager application window. The main panel is titled "Study List" and contains a table with columns for Patient Information (ID, Name, Gender, Birthdate, UID, Descri...) and Study Information (Modality, #Series, #Images, Date, Status, Progress). The table lists several studies, including "TEST RWFF" and "YOKOI MOMI". The "Media Information" panel on the right shows a thumbnail of a medical image and fields for Importer ID, Importer Name, and Import Date. The "Log" panel at the bottom right shows a table of logs with columns for ID, Name, Type, and Date.

Patient Information				Study Information			
ID	Name	Gender	Birthdate	UID	Modality	#Series	#Images
0000252425	TEST RWFF	F		1.2.392.20001	MR	5	39
1000252425	TEST RWFF	F		1.2.392.20001	MR	5	39
200000038	YOKOI MOMI	F	1984-09-17	1.2.392.99995	MG	1	4
200000038	YOKOI MOMI	F	1984-09-17	1.2.392.99995	US	1	6
200000038	YOKOI MOMI	F	1984-09-17	1.2.392.99995	US	1	11
200000038	YOKOI MOMI	F	1984-09-17	1.2.392.99995	US	1	7
ME00000006	SmartCarewo			1.2.410.20002	CR	1	6

ID	Name	Type	Date
system	system	0	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26
system	system	21	2015-01-26

Select rows what you want to send to the PACS server, then click the button "Register on PACS"

The inspects will be registered on PACS server, based on PACS Server Role defined on "Manager"

Main Functions

Candidate Inspect

5. Request to Register on PACS Server

If user doesn't have the "Manager authority", SELENE doesn't register to the PACS server directly, but makes the inspect status as a "REQUESTED TO REGISTER (CODE: 11)" so that lead the manager to register it.

This is the condition of now, but if you have a better idea to leading to manager, then please give me the idea

6. Opening the study in a Viewer

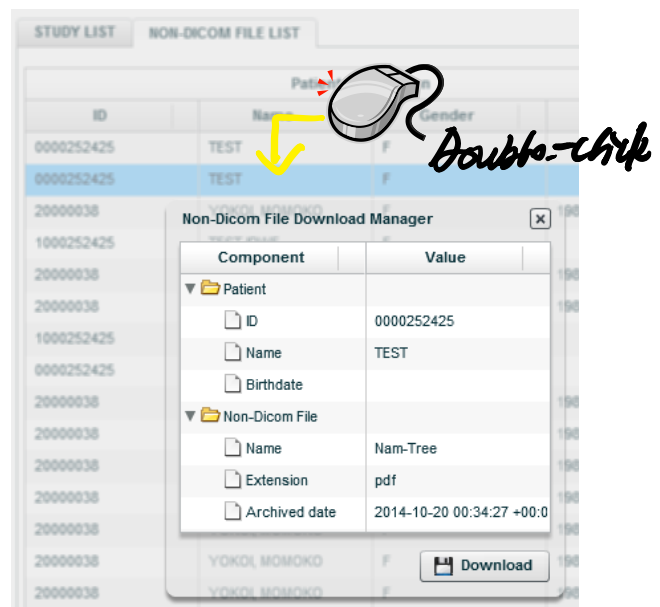
Double click a inspect what you want to see in STUDY_GRID, then the "Viewer" will be opened

7. Downloading the Non-dicom file

In this case, usage method is same with the "Media Importer" case, what we'd seen.

You can inspect the non-dicom file before archiving to the SELENE server by downloading and opening the file. Click the "NON-DICOM FILE LIST" tab and double-click a file you want to download.

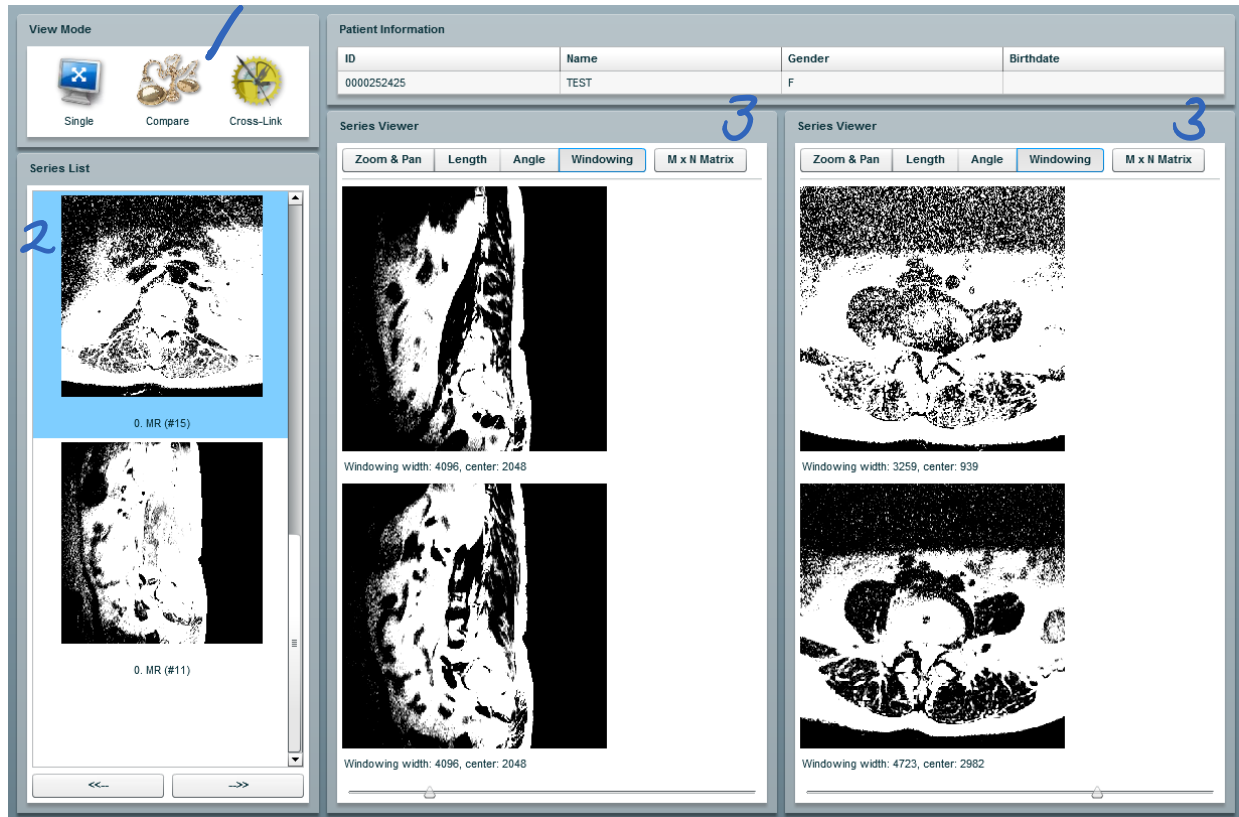
Then a download manager will be opened and you can download the file from the manager.



Main Functions

Viewer

1-4. Viewer



1. View Mode

There are 3 view modes you can select:

- Single – only a series-viewer will be displayed
- Compare – two series viewers will be displayed
- Cross-link

Two series viewers will be displayed,

Those two viewers will share the scroll point; their scroll bars are banded

2. Series List

Show the first image of each series and you can see the images included in the series by clicking the arrow button

3. Series Viewer

- Measurements – make a judgment by using this demo, by your own hand, directly.

Not implemented yet, so that can't use at now.

Viewer

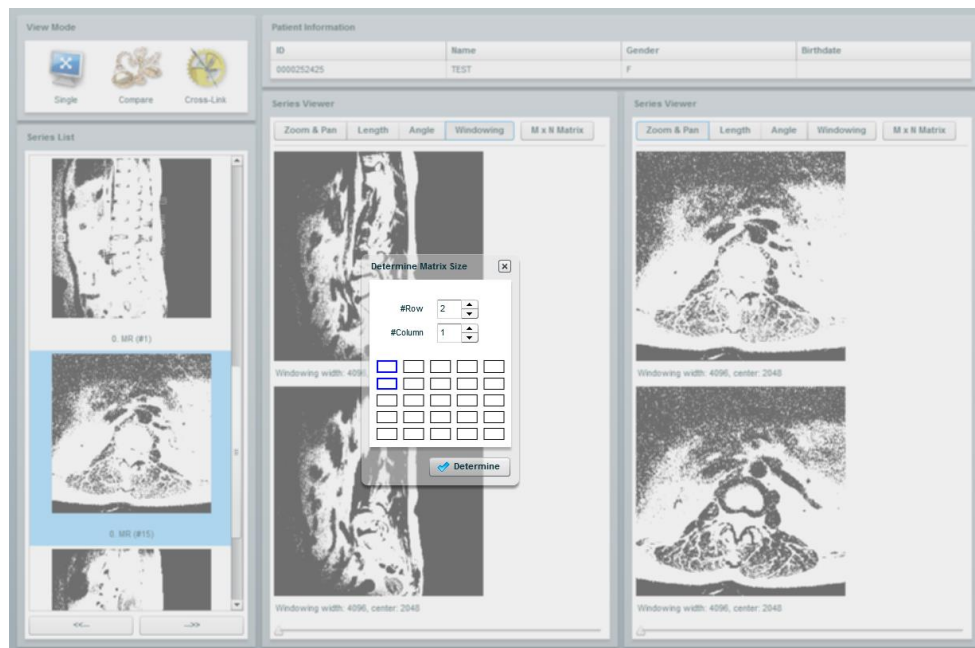
- i. Length
- ii. Angle

b. Windowing

In ordinary case, windowing may be took effect by dragging mouse clicking the right button, but in this platform based on the web, dragging with right button is impossible.

So I implemented it to take effect when user click the "Windowing" button and dragging mouse by clicking the left-button

c. Determining image-Matrix size



When you click the M x N Matrix, then you can determine the matrix size of "SERIES_VIEWER"

Appurtenant Functions

2-1. Account management

2. Appurtenant Functions

2-1. Account management



2-1-1. Log-in, Join and Log-out

日本語 한국어 English

Log-in

ID

Password

 Join us  Log-in

Join us

A content which maybe helpful for new joiner,
something information which has to inform new joiner

ID


Name

Password

Password Again

Department

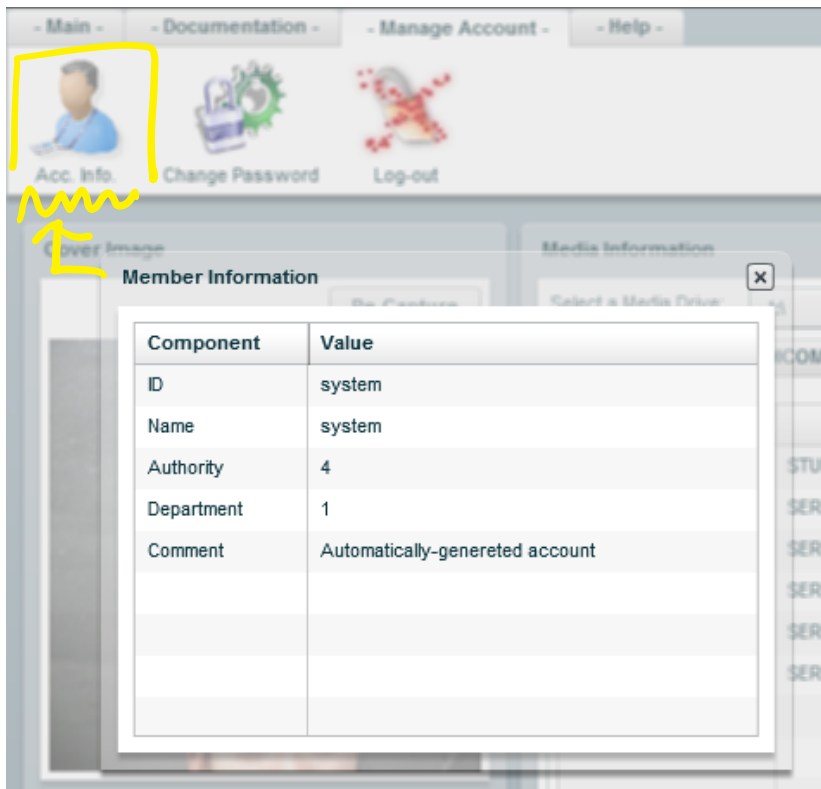
Comment

 Join us

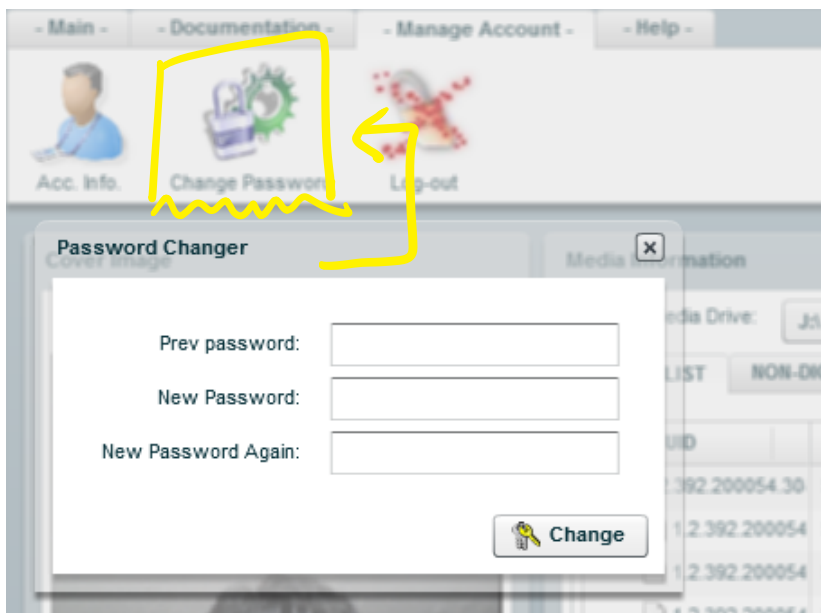
Appurtenant Functions

2-1. Account management

2-1-3. Seeing private information



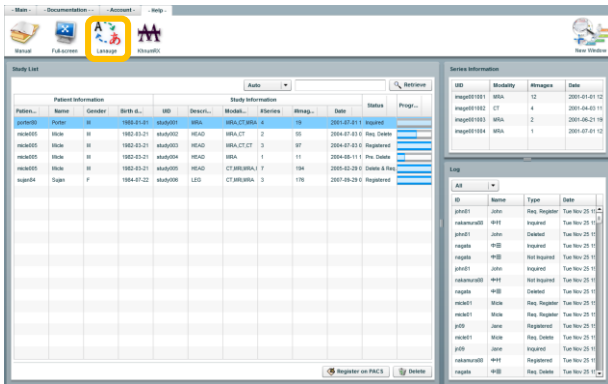
2-1-4. Changing password



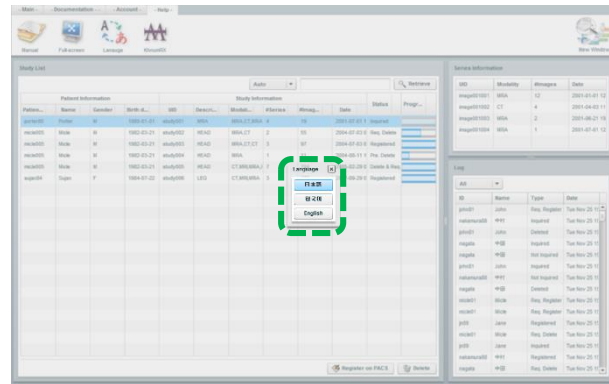
Appurtenant Functions

2-1. Account management

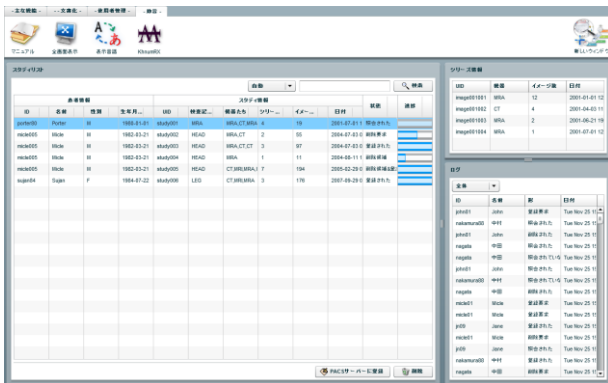
2-2. Language pack



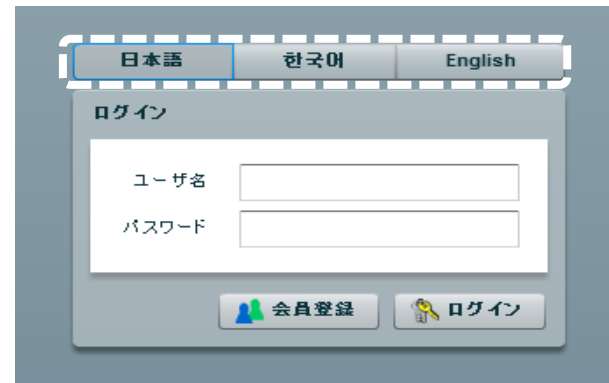
At first, displayed language is the English



You can set language in "Help -> Language"



Then, the English is translated to the Japanese



Determining language is even possible in Log-in

You can determine the language which will be displayed in your computer.

In "Top-Menu" and "Help" tab, click the "Language" button, then you can determine the language

```
<StudyList>
  <study jp="スチューディリスト" kr="스튜디오 리스트" en="Study List">
    <retrieve jp="検索" kr="검색" en="Retrieve">
      <auto jp="自動" kr="자동" en="Auto"/>
      <patientID jp="患者ID" kr="환자 ID" en="Patient ID"/>
      <patientName jp="患者名" kr="환자 이름" en="Patient Name"/>
      <patientBirthdate jp="患者生年月日" kr="환자 생일" en="Patient Birthdate"/>
      <description jp="検査記録" kr="검사기록" en="Description"/>
      <date jp="日付" kr="날짜" en="Date"/>
      <status jp="状態" kr="상태" en="Status">
        <call jp="召喚" kr="집합" en="Call"/>
        <notInquired jp="検査されていない" kr="조망되지 않은" en="Not Inquired"/>
        <inquired jp="検査された" kr="조망된" en="Inquired"/>
        <requested jp="要求された" kr="요청된" en="Requested"/>
        <approved jp="承認された" kr="승인된" en="Approved"/>
      </status>
      <modality jp="模範" kr="기기" en="Modality"/>
    </retrieve>
    <grid>
      <patient jp="患者情報" kr="환자 정보" en="Patient Information">
        <id jp="ID" kr="ID" en="Patient ID"/>
        <name jp="名前" kr="이름" en="Name"/>
        <gender jp="性別" kr="성별" en="Gender"/>
        <birthdate jp="生年月日" kr="생년월일" en="Birth date"/>
      </patient>
      <study jp="スチューディリスト" kr="스튜디오 리스트" en="Study Information">
        <description jp="検査記録" kr="검사기록" en="Description"/>
        <modalities jp="検査方法" kr="기기법" en="Modalities"/>
        <seriesCount jp="シリーズ数" kr="시리즈 수" en="#Series"/>
        <imageCount jp="イメージ数" kr="이미지 수" en="#Images"/>
        <datetime jp="日付" kr="날짜" en="Date"/>
      </study>
      <status jp="状態" kr="상태" en="Status"/>
      <progress jp="進捗" kr="진행상황" en="Progress"/>
    </grid>
    <register jp="PACS登録" kr="PACS등록" en="Register on PACS"/>
    <delete jp="削除" kr="삭제" en="Delete"/>
  </Study>
  <series jp="シリーズ情報" kr="시리즈 정보" en="Series Information">
    <id jp="ID" kr="ID" en="UID"/>
    <modality jp="模範" kr="기기" en="Modality"/>
    <imageCount jp="イメージ数" kr="이미지 수" en="#Images"/>
    <datetime jp="日付" kr="날짜" en="Date"/>
  </series>
```

You can even edit the words to be translated.

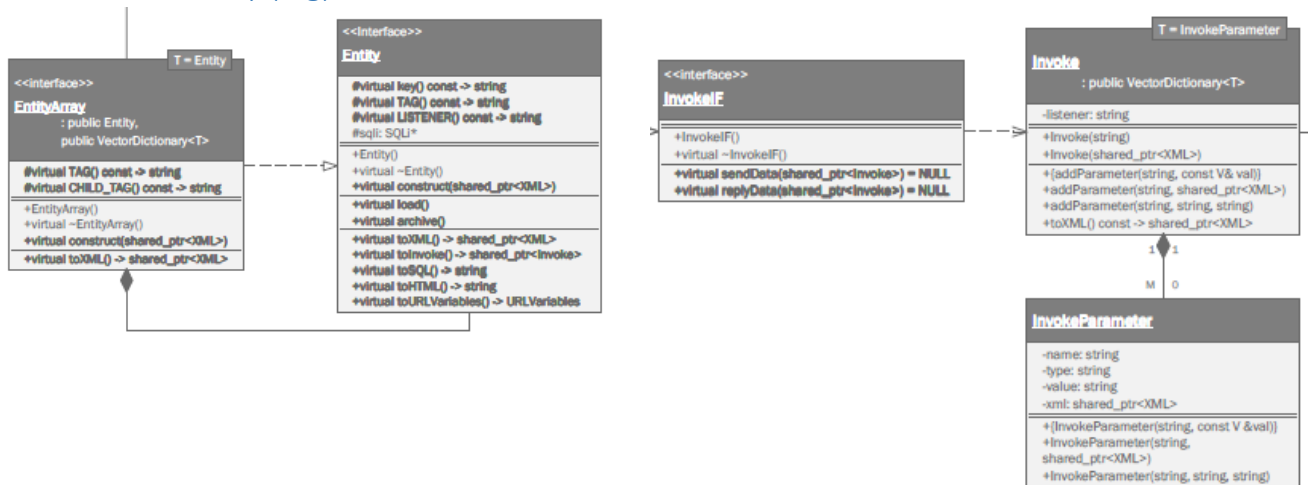
Open the document "language.xml", then you can edit the words in language pack as you want.

- Language pack is removed temporarily

Schedules for the expiration date

2-3. Server's history (log)

2-3. Server's history (log)



I architected all data structured to have common interface of archiving log, so that this SELENE Server will archive all processes have done to DB.

This history data will be used to diagnose and fix the errors may have occurred.

It may very useful for maintenance and conversation. When errors and bugs are happened, then please send me the historical log files then I can recompose and reenact what had done so that can derive the reason of the error.

I will send and inform the log exporting method later

3. Schedules for the expiration date

In nowadays, I'd been implementing the server's protocol and log-archiving system. Now the protocol and log-archiving system works well. I think all the times needed high level skills and durability have finished. From now, I just need to implement client-web program to be more details.

Additionally, I promise to recover language pack and annotation functions until next demo in Gobe hospital (2015.02.16).

Thanks for reading.