BEST Image

BEST Image is a cloud-based multi-center medical image research platform.

IRM
Idea to Reality in Medicine

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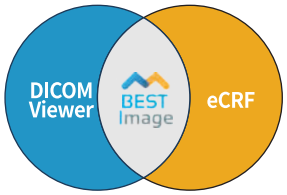
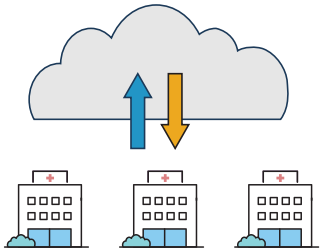


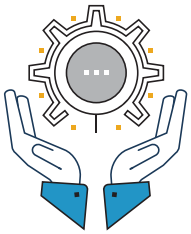
Medical Image Evaluation System

A systematic medical image evaluation system to read medical images with the DICOM Viewer and record clinical information and evaluation results in the selected forms



Multi-center Research

A cloud-based research platform for systematic collection and management of medical images, clinical information, and evaluation results that enables multi-center joint research.



Customized Design

Data workflow design optimized for the research environment for efficient research.

Using the BEST Image Service

BEST Image provides an efficient research environment by separating the research management privilege from the medical image evaluation privilege.

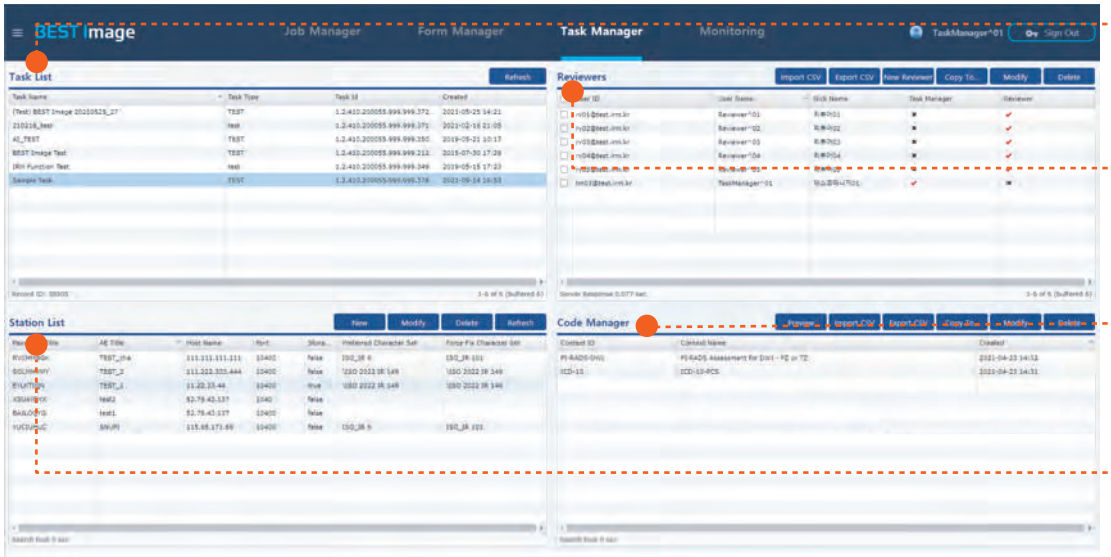
Task Manager — Registers Reviewers for each task and assigns them to studies in the task

Reviewer — Evaluates the studies assigned by the Task Manager.

Research Design	Research Data Preparation	Research Progress Management	Research Result Extraction
- Data Workflow Design - Research Participant Registration - Form Creation	- Medical Image Processing - Clinical Information Processing	- Study/Reviewer Management - Progress Monitoring - Medical Image Evaluation - Evaluation Report Completion	- Medical Image Evaluation Result Extraction - Research Reference Data Extraction

Task Manager – Research Environment Management

Build an optimal research environment by managing the settings for each task to which the Task Manager belongs.



Task List
View all researches the user participates in.

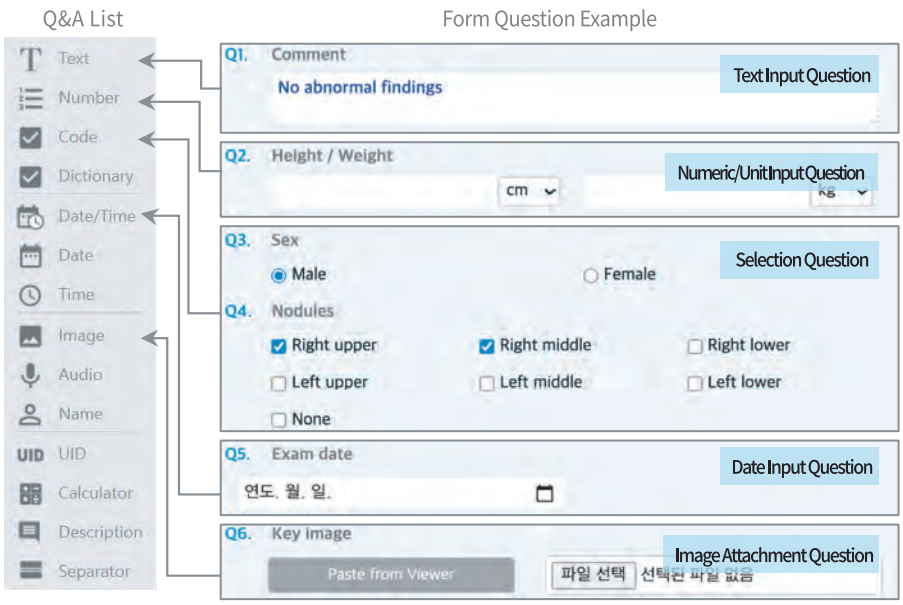
Reviewers
Register research participants and assign roles.

Code Manager
View and manage the list of registered codes by task.

Station List
Register and manage the server that exchanges medical images with the BEST Image service.

Form Manager – Form Creating Tool

Create forms for the research with different types of Q&A to refine the research ideas and evaluation results.



Create Forms

Create forms that suit the intent of the Task Manager with the 13 types of Q&A. This enables you to collect most evaluation results.

Assign Forms

The Task Manager chooses the form to assign to the study depending on the purpose of the task.

CID (Clinical Information Document)

CID collects clinical information of the patients and can be used by the reviewers as reference data for medical image reading.

Report

Report is a format used to collect the results of the reviewers' evaluation of medical images, and a reviewer cannot access another reviewer's evaluation results during the research period in order to increase the reliability of the research.

*Our form creation tool provides user convenience features that make it easy to utilize collected data with analytical programs such as R, SPSS, and SAS.

Job Manager – Medical Image and Data Management

View the saved studies and reviewers by task at a glance and manage them.

Prepare CID

The Task Manager prepares the clinical information required for the reviewers' evaluation of medical images for each study.

CID Status

The tag name shows the type of CID created by the Task Manager. The tag color shows whether or not the CID has been completed by the Task Manager.

Not completed Completed

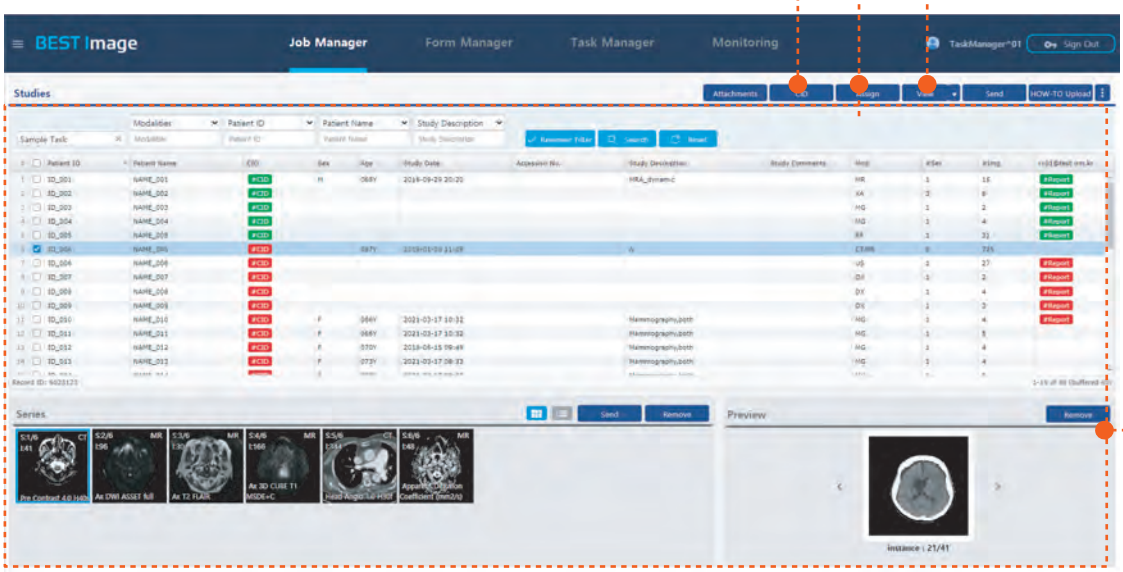
Assign Reviewers

The Task Manager selects the study and report type and assigns them to the reviewers.

Report Status

Report assigned to the reviewer.
The tag color shows whether or not the Report has been completed by the reviewer.

Not completed Completed



Medical image inquiry

Quickly view the medical images of the study with our web-based DICOM Viewer.

Study case inquiry

- View the list of studies by task.
- Provides a quick preview of the medical images saved in the selected study.

Monitoring – Research Progress Monitoring

The Task Manager can monitor data input and output by task and the participant's research progress.

Monitor the Reviewers' Evaluation Progress

Shows the progress of the evaluation of the study assigned to each reviewer participating in the research.

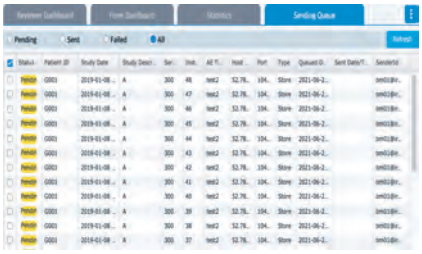
Track progress of filling the form

Shows the assignment and completion status of the reports created for each task.

Task Statistics

Provides statistics such as the size of medical images stored and the number of users for each task.

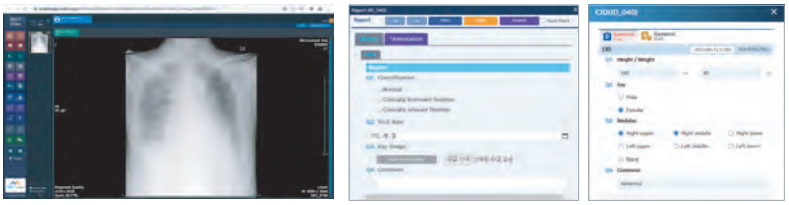
Monitor Study Transmission Status



Provides the transmission status of the medical images sent to the linked PACS and AI server.

Worklist – Medical Image Reading and Evaluation Report Completion

Read the images of the study assigned by the Task Manager and record the evaluation results in the Report form.

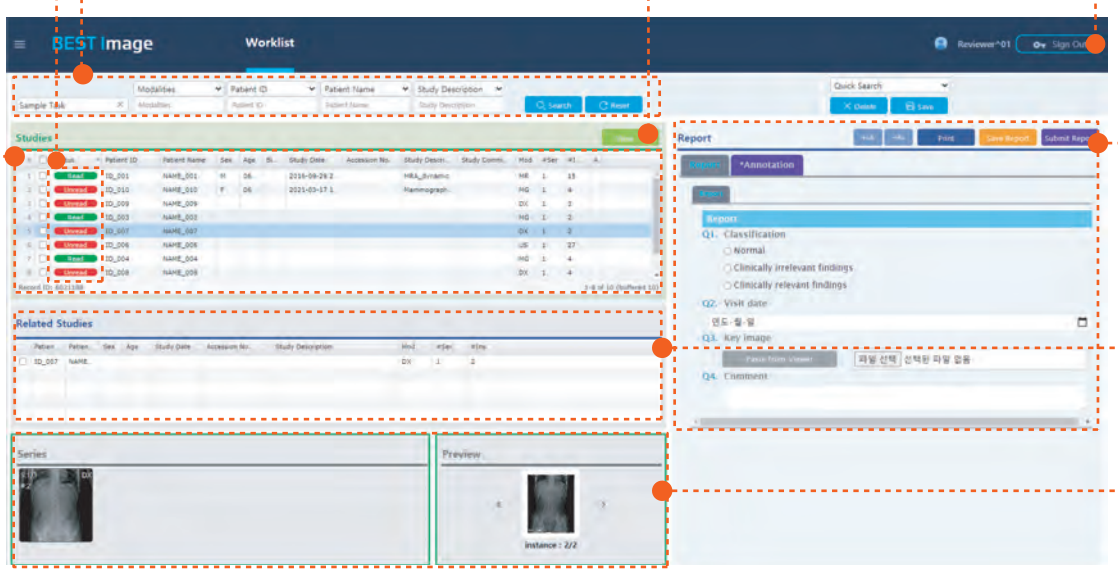


You can view CID and Report forms in the web-based DICOM Viewer. Read the medical images by referring to the CID and record the evaluation results in the Report.

Study List
View the studies assigned by the Task Manager as a list.

Evaluation Status
Shows the status of the report that records the results of the medical image reading.

Search Criteria
Perform study search based on search criteria.



Account
Users registered with reviewer privilege can use the features to read medical images and complete the evaluation result report

View Forms
View the report form assigned to the reviewer along with the study by the Task Manager. Complete and submit the evaluation results in the Report form.

View Related Studies
View other tasks' studies of the patients in the selected study.

Image Preview
Provides a quick preview of the medical images of the study.

DICOM Viewer

Provides an environment optimized for medical image reading and evaluation for multi-center imaging research.

User Convenience Features

Web-based Viewer
A web viewer to view medical images in the HTML5-based browser. No separate plug-in installation required. Load images quickly with the thin-client technology.

Complete the Report
Record the medical image reading and evaluation results by directly opening the Report window in the viewer.

Configure the Layout
Customize the layout and image display mode (Series/Stack) based on the characteristics of medical image types.

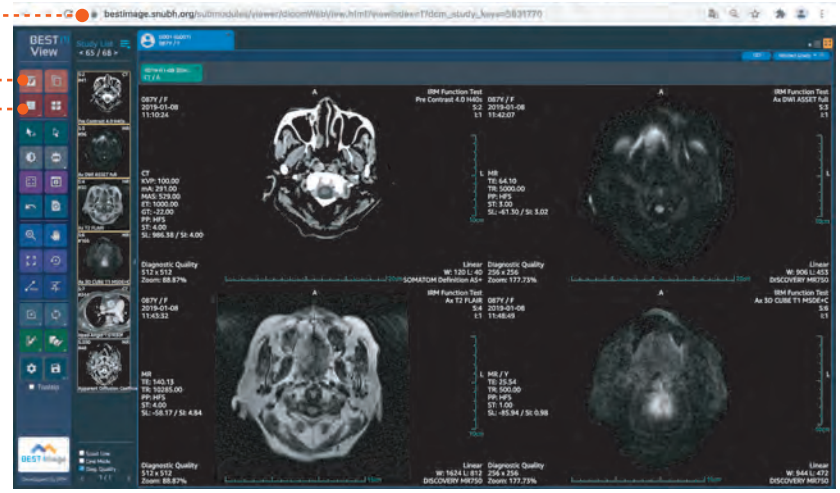


Image Reading Features

2D Image Processing (Image Transformation)

- Window Width/Level
- Apply Filters (Invert, Pseudo Color Mapping, etc.)
- Move Images (Panning, Flip, and Rotation)
- Resize (Zoom In/Out and Fit)

Measurement/Annotation

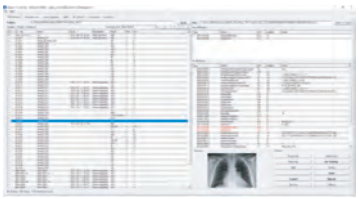
- Measure Object Length (Length, CT Ratio, etc.)
- Measure Object Area (Rectangle, Ellipse, etc.)
- Measure Object Angle (Angle, Cobb's Angle, etc.)
- Annotation Tool (Text, Arrow Line, Localization, etc.)

Etc.

- Compare Images (Cross Link, Scout Line, etc.)
- View Images in Cinematic Mode (Cine Mode)
- Quick Study Switch
- View CID
- View Related Studies

SNUPI – BEST Image Utility

Provides a utility for processing medical images and clinical information to prepare research data and extracting research results.

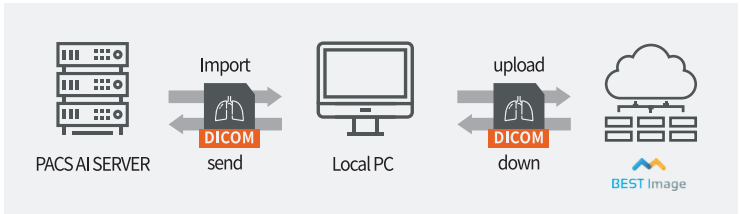


Medical Image Pre-processing Screen

Clinical Information Refining Screen

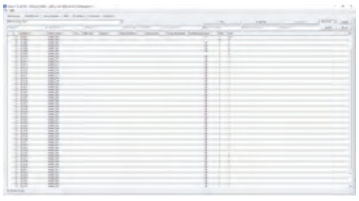
Research Data Preparation

- Refine patient clinical information and use them as a form for research purposes.
- Original medical images can be pre-processed for de-identification and used for research purposes.
- Standardized the original image file to the DICOM standard.

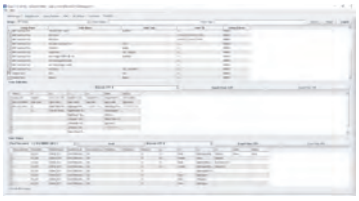


Research Data Transmission

- Send research data between PACS, PC, and BEST Image.
- Import images from PACS with the original medical images to your PC.
- Preprocessed medical images can be uploaded to BEST Image and used for research purposes.



Medical Image Extraction and Format Conversion Screen



Evaluation Result Extraction Screen

Research Result Extraction

- Extract your research results from BEST Image onto your PC.
- Batch extract the evaluation results during the research.
- Medical images used in the research can be downloaded in DICOM format and other image formats.

Use Case

Centers using BEST Image
Seoul National University Bundang Hospital Seoul/Eunpyeong/Karf/Daejeon/Bucheon St. Mary's Hospital Sinchon/Ilsan/Kangnam/Wonju Severance Christian Hospital Seoul Asan Medical Center Pusan National University Hospital Kyunghee University Hospital Severance Check-Up Gangdong Kyunghee University Hospital Wonju Severance Christian Hospital Keimyung University Hospital Samsung Medical Center Konkuk University Hospital Massachusetts General Hospital Korea Centers for Disease Control and Prevention (KCDC)

Research Cases
Pulmonary Tuberculosis Breast cancer Cerebral infarction Lung cancer Liver cancer Coronary artery Chest Stroke Cardiovascular system Etc.

Build an Integrated Database
We provides an integrated database by classifying medical images held by each hospital by disease or under specific criteria on the cloud platform.

Medical Image Research
Enables all researchers in multicenter research to upload and access the medical image reading service at the same time.

*This service works seamlessly with the existing PACS to provide a data workflow optimized for the research environment.

AI Research
We provide a medical image collection and preprocessing service to establish a database for AI learning.

*This service can be used for medical image evaluation research by integrating AI with the analysis server.

Component	Main Specification
Task Manager Comprehensive Research Management	**Job Manager** - View studies accumulated for each task and assign forms and reviewers - Reference medical data of the study **Form Manager** - Advanced form creation environment with 13 types of Q&A and answer conditions - Validate questions before creating the form - Enter code by question to help analyze the results and statistics **Task Manager** - View all tasks managed by the Task Manager and register and manage research participants - Manage the server that exchanges medical images for each task **Monitoring** - Manage the type of forms assigned and the progress of evaluation of the studies by reviewer - Statistics such as the size of medical images stored for each task and registered participants - Monitor the status of images sent to the linked PACS and AI server for each task
Reviewer Study Evaluation	**Worklist** - View the studies and forms assigned to the reviewer - Complete and submit the evaluation result form **DICOM Viewer** - Set the viewer environment in accordance with the types of medical images. - Image processing and measurement/annotation features for accurate medical image evaluation - Reviewers have access to user convenience features when evaluating medical images.
SNUPI Research Data Pre-Processing	- Send medical images and clinical information between the PACS, AI server, and cloud - Perform medical image calibration, pre-processing for de-identification, and clinical information refinement - Extract the results at the end of the research
External Interface	. Web application server for standard interface . DICOM, DICOM Web . HL7 V2, HL7 V3, HL7 FHIR . IHE XDS.b, XDS-I.b, MHD, PDQm, ATNA . Content-neutral data management . RESTful APIs provided for service-specific data services . OAuth2-based user authentication/authorization management server . HTML5 based Zero Footprint DICOM Viewer