

# w-Teresa

Beyond Cloud PACS

English Korean Spanish Khmer Lao Burmese Vietnamese French Uzbek Chinese-Traditional  
Chinese-Simplified Russian Hindi Thai Malay Arabic Indonesian Mongolian Kirghiz

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- ✔ Integrates and manages medical data generated from various medical devices and medical information systems.
- ✔ Equipped with a cloud server built in compliance with international medical data standards (IHE, HL7, and DICOM) and ICT international standards (W3C and ISO).
- ✔ Provides customized services to suit the medical center's environment (medical devices and medical systems (PACS, RIS, EMR, etc.)) with Open API.
- ✔ Offers a global service that supports 19 languages.

## 1 Cloud PACS

A picture archiving and communication system(PACS) that does not require physical space and can flexibly adjust capacity according to the size of the medical center

## 2 Teleradiology

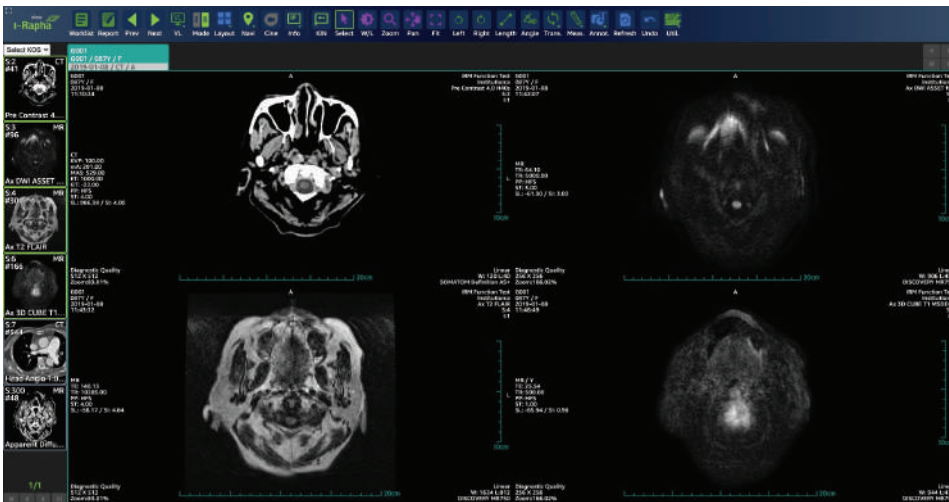
A multi-center teleradiology solution to receive accurate reading results from the radiologists in the collaborating centers

## 3 AI-analysis integration

Seamless integration with the AI based analysis server to offer access to the image detection/diagnosis assistance solution

## Medical Image Viewer

An environment optimized for multi-center medical image reading that provides web-based features to view and read medical images stored in the cloud.



### User Convenience Features

#### Web-based Viewer

An HTML5-based web viewer to view medical images using a web browser. No separate plug-in installation required. Designed with thin-client technology, for rapid loading of high-resolution images. Zero-footprint technology leaves no trace of data on your device.

#### Create Reports

Create medical image reports directly from the viewer

#### Configure Layout

Customize the layout and image display mode (Series/Stack) based on the characteristics of various 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

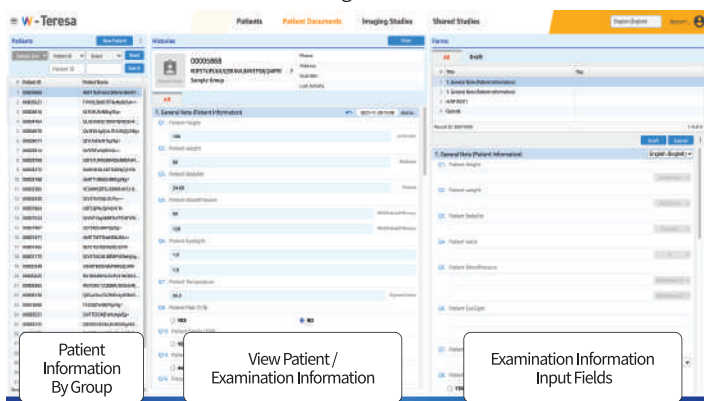
- Measure Object Length (Length, CT Ratio, etc.)
- Measure Object Area (Rectangle, Ellipse, etc.)
- Measure Object Angle (Angle, Cobb's Angle, etc.)
- Annotation Tool (Text, Arrow Line, Localization, etc.)

#### Etc.

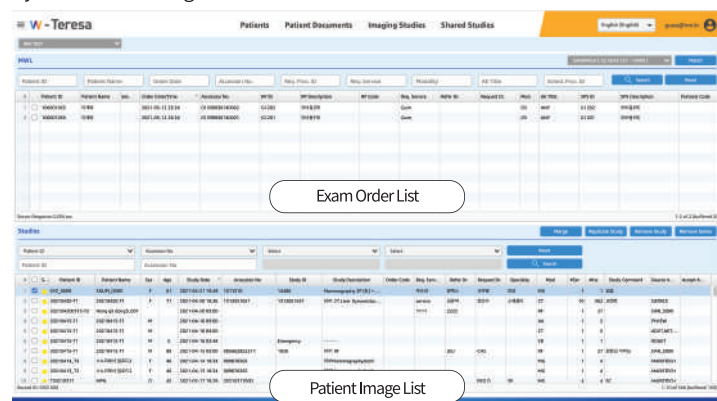
- Compare Images (Cross Link, Scout Line, etc.)
- View Images in Cinematic Mode (Cine Mode)

## Examination & Order Management

### Patient Examination Information Management



### System Order Management



Retrieves patient and examination information related to medical images from the other medical information systems integrated with w-Teresa and manages them by department.

Compares the exam order in the medical information system with the patient image list to generate accurate medical images.

## Internal Medical Images (View/Read)

Doctors affiliated with the medical center can manage and read medical images acquired in the center and request remote reading by radiologists outside the center if necessary.

### Manage Medical Data by Group

Medical data such as medical images and patient/examination information stored in the cloud for each hospital and disease are searched by study unit.

### Study Status View

Emergency/Normal Request Reading Request Status Report Status

### Custom Folder

Create cohorts in the custom folder by selecting specific studies that are scattered across several groups but have common factors. Share it by setting the external user access permission.



Doctors in the Medical Center

Use to

- ✓ Perform integrated management of information related to medical images acquired in the center
- ✓ Read medical images and create reading report
- ✓ Request remote reading and view remote reading results

## Form Management System

Provides a form creation system for effective operation of PACS and remote reading systems. Collects and manages structured medical image-related data based on their purpose.

### General

Collects patient examination information. Manages data using the forms through integration with the internal medical information system.

### Request

Contains information such as the purpose of the examination, the patient's visit, and requesting reading. Helps the requesting doctor to communicate the intent of the request and the radiologist to properly send the reading report.

### Report

Document for recording image reading results. Collects and manages the reading results by structuring them in a specific form.

## Form Manager

Q&A List

Form Question Example

### Form Creation

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. Manage forms by classifying them based on their purpose: collecting patient examination information, recording reading requests and recording reading results.

### Form Management

Store document forms by classifying them into Common/Individual Form for effective form management.

## External Medical Images (View/Read)

Radiologists outside the center temporarily get the requested images and send the results of the remote reading to the medical center.

### Reading Status View

According to the document status, the study is searched in four categories: Unread, Draft, Requested and Reported.

### I-Rapha View

- View medical images of the selected study with the viewer.

### Document Permission

- Users need permissions to create different document types.  
- Users can edit or remove the documents they created.

The screenshot displays the W-Teresa interface. At the top, there are navigation tabs: Patients, Patient Documents, Imaging Studies, and Shared Studies. Below this is a 'Quick Search' section with filters for 'All' and 'Unread'. A table lists studies with columns for Patient ID, Accession No., Status, Patient Name, Sex, Age, Study Date, Accession No., Study ID, Study Description, Order C., Req. Se., Refr Dr., Request, Specialty, and Mod. A 'View Study with Reading Request by Group' button is visible. To the right, there's a 'Radiologists' section with a 'Use to' button and a list of actions: 'View temporarily shared medical images', 'Perform remote reading of medical images and create reading reports', and 'Send the reading report to the medical center immediately'. Below the study list, there's a 'Documents and Reports' section with a 'View Reading Request / Create Reading Report' button. A 'Related Studies' section is also present. At the bottom, there are 'Series' images and a 'Copyright © 2021 by HIM Inc. All Rights Reserved' notice.

※ Medical centers and radiologists are matched for remote reading in accordance with the agreements between the centers.

## Administrator Page

Conveniently manage the group settings in w-Teresa and monitor usage.

- ✓ Provides the progress of remote reading to enable the medical centers to manage the schedule efficiently.
- ✓ Adjust the medical data access permissions of the radiologist responsible for remote reading in accordance with the agreements between the medical center and the radiologist.
- ✓ The medical data administrator of the medical center can self-manage the radiologist's account receiving the remote reading request.

The screenshot shows the Administrator Page dashboard. It features several charts and data points: a pie chart showing storage usage (0.66 GB, 30 GB), a line graph showing usage over time, a bar chart showing storage usage by group, and a circular progress indicator showing 7. The dashboard is titled 'View Medical Data Dashboard'.

View Medical Data Dashboard

The screenshot shows the Administrator Page group settings and user management. It includes a 'Manage Medical Data Group' section, a 'Manage Medical Center Account' section, and a 'Manage Collaborating Center Account' section. The dashboard is titled 'Manage Collaboration Network'.

Manage Collaboration Network

The screenshot shows the Administrator Page PACS usage and storage capacity. It includes a 'Manage Medical Data Group' section, a 'View Medical Image Storage Capacity / View Number of Users / View Reading Status' section, and a 'View PACS Usage' section. The dashboard is titled 'View PACS Usage'.

View PACS Usage

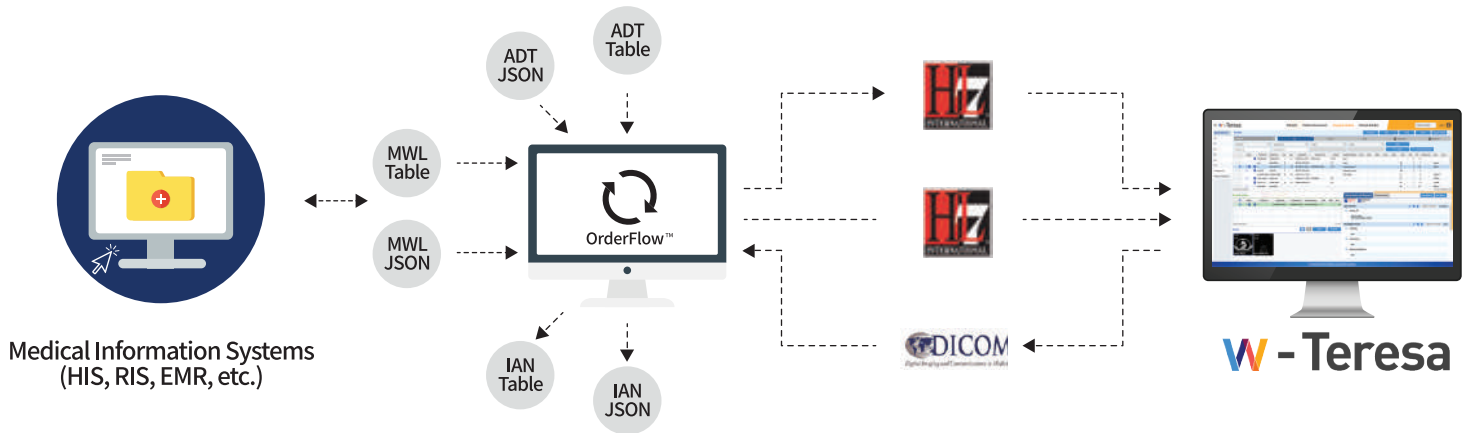
The screenshot shows the Administrator Page statistics and reports. It includes a 'Show Statistics' section, a 'View Medical Image Storage Capacity / View Number of Users / View Reading Status' section, and a 'View PACS Usage' section. The dashboard is titled 'Show Statistics'.

Show Statistics

## Medical Data Integration System Orderflow™

Enables stable integration of w-Teresa with any medical information system in the medical center.

- ✓ Orderflow™ makes it easy to integrate w-Teresa with individual healthcare systems.
- ✓ Complies with standard interfaces such as IHE, HL7, and DICOM to support stable integration with existing medical information systems (HIS, RIS, EMR, etc.) in the medical centers.
- ✓ Converts non-standardized data into standard protocols using database table sharing, RESTful API, etc.



## Service Security Technology

JWT Non-fungible Token  
Digital Signature  
HTTPS  
JSON Web Token  
BACK UP  
RECORD  
Audit Trail Node Authentication  
Secure Sockets Layer  
Internet User Authorization

Block Chain  
ZERO - FOOTPRINT  
PERSONAL SECURE  
PRIVACY DATA  
PROTECTION REGULATION  
Health Level  
FHIR  
HL7  
CERTIFICATION  
Fast Healthcare Interoperability Resource  
HIPAA  
Health Insurance Portability and Accountability Act

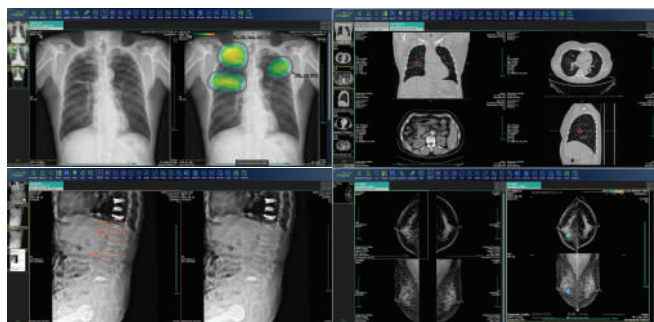
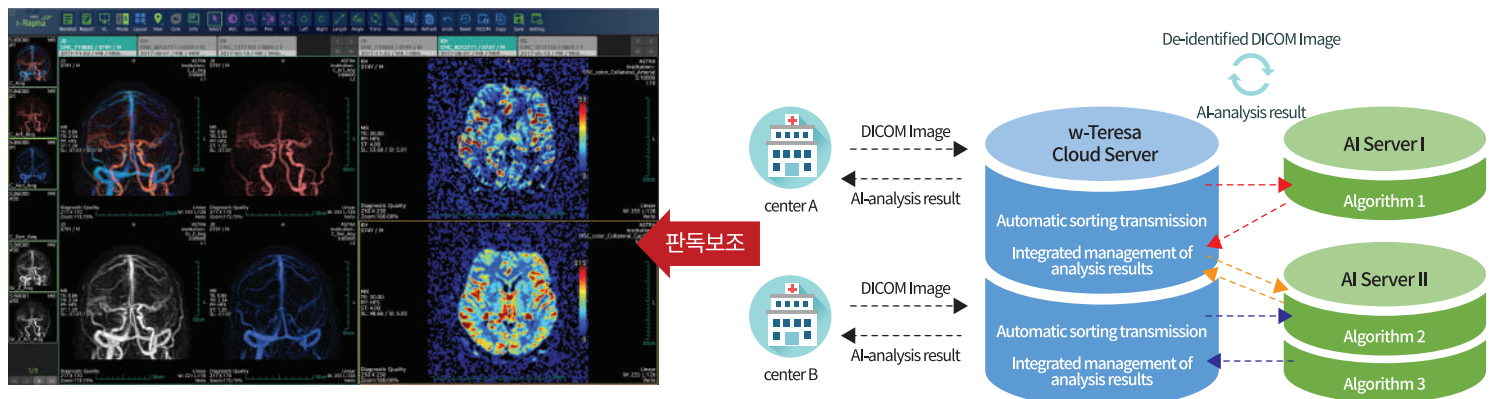
DSG  
DEN  
ATNA  
ACCESS  
IUA  
LOGGING  
PERMISSION

SECURITY

- User Information Protection** The user's email address can be used as an account through simple and reliable user authentication and authorization procedures.
- Data Tracking / Management** Continuously tracks and manages the correlations between medical data and metadata to ensure data quality.
- Data Backup** SANDWICH, the on-premise server, can be used as a server for disaster recovery or clinical research by integrating it with the w-Teresa cloud server.
- Server Security** Encrypts and transmits personal information and data between w-Teresa and the cloud server for secure data management.

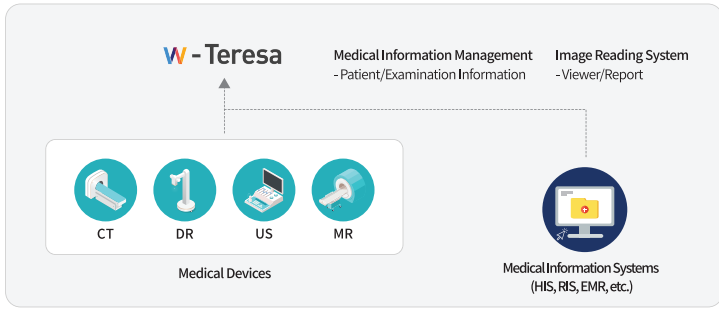
## AI-analysis Integration

Enhances user convenience by increasing reading efficiency with a dual reading system with the integrated AI-analysis solution.



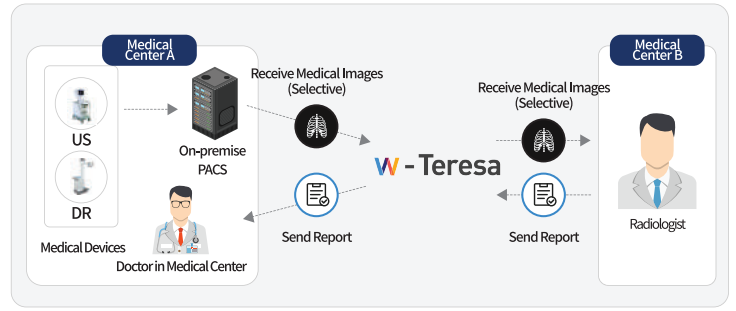
- Provide the AI-based image analysis desired by medical centers through automatic interworking between w-Teresa cloud server and analysis server.
- Automatically assort the only medical images that use AI-based analysis.
- To protect patient information, DICOM images are de-identified before being sent to the image analysis server.
- AI-based video analysis results are stored in the cloud server in the way that users want to view in w-Teresa.

# Use Cases



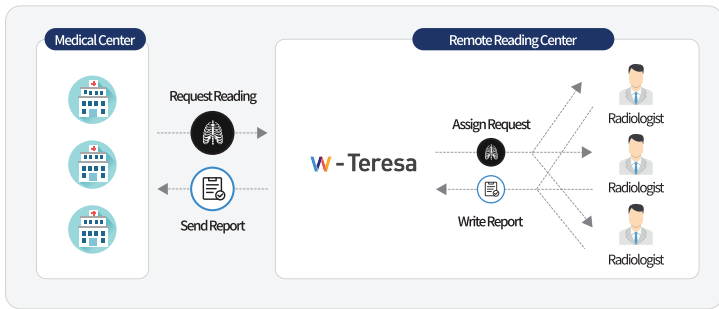
**Cloud PACS**

- Offers a variety of pricing options depending on the size of the medical center.
- Enables cloud-based management of medical image information through integration with the medical devices and medical information systems in the center without installing an on-premise server.



**Remote Reading**

- Provides a remote reading system to work with collaborating centers by integrating the system with the PACS of the medical center.
- Provides an automated system that classifies target images for remote reading from the medical center's PACS and requests remote reading.



**Cloud PACS based Remote Reading**

- The remote reading center manages images that the medical centers have requested remote reading for on the cloud and sends the reading results to the respective medical center through the remote reading system.



**AI-integrated Remote Reading**

- w-Teresa extends the image reading system through integration with the AI-analysis solution.
- Radiologists can use the AI image reading solution as an assistance system for image reading.

Component	Main Specification		
Main Usage	1. Cloud based PACS 2. Remote reading between partner organizations 3. AI-based image analysis integration * Mixed or separate construction by purpose		
Feature Summary	<p>[Patient Information Management] Integrate and view patient/examination Information by group, Write examination information</p> <p>[Medical Image Management] Study: View/Filter/Manage studies by group, View related studies Document: Write remote reading request Set emergency/normal for medical images, Set the remote reading option</p> <p>[Remote Reading] Study : View/Filter/Manage studies that have reading requests, View related studies Document : Write/Manage reports by study, View examination information/reading requests</p> <p>[Matching Worklist Management] View/Search by Condition orders related to the medical images, View/Search by Condition medical image lists Manage medical images by order (Merge/Copy/Remove Study, Remove Series)</p>	<p>[Form Management] Form type: General(examination information), Request(remote reading request), Report(reading result) Form creation: 13 types of Q&amp;A, Validate questions, Enter code by question to help analyzing/statistics Classify Forms: Common/Individual form</p> <p>[DICOM Viewer] HTML5-based Thin-Client DICOM Viewer zero-footprint, layout setting: image/series/compare mode Image processing, transformations, measurements, annotations, etc Support browser: Google Chrome</p> <p>[Group Operation Management] Group management: Create/Edit/Register Group, Register/Manage customized profiles. Account permissions: Register/Modify/Delete Account (Inside Group; accounts in the medical center, Outside group; accounts in collaborating centers) Statistics: Size of the medical images stored in each group by exam date, Total storage capacity/No. of users for each group, Reading status of Emergency/Normal medical images (Reading in Progress/Reading Completed/Transmission Error)</p>	
Technical Details	<p>[Database] PostgreSQL Supporting hierarchical multi-group/multi-user Content-neutral data management (all types of medical data) Unlimited patient/user/group management Storage quota management Pipelined workflow management HA configuration</p> <p>[Storage] S3-based Ultra-High Reliable Storage Service (99.999999999%) Additional Long-term Backup Service (if necessary)</p>	<p>[Interface] IHE: SWF.b, CPI, ARI, ED, KZN, XDS.b, XDS-I.b, SVS, MHD, PDQm, SVCM, ATNA, IUA, DEC, DSG DICOM: Storage, Query/Retrieve, MWL, MPPS, Storage Commitment, IAN DICOM web: WADO, STOW HL7: V2, V3, FHIR Web application server for standard interface RESTful APIs provided for service-specific data services Load-balanced web service OAuth2-based user authentication/authorization Mutual https authentication</p>	
Languages	English, Korean, Spanish, Khmer, Lao, Burmese, Vietnamese, French, Uzbek, Chinese-Traditional, Chinese-Simplified, Russian, Hindi, Thai, Malay, Arabic, Indonesian, Mongolian, Kirghiz		