HTML 5 ZERO-FOOTPRINT DICOM VIEWER
BE BRAVE AND STEP INTO THE FUTURE
Intended Use

MedDream is a web based DICOM Viewer for PACS server that is aimed to make diagnosis, view, archive and transmit the medical images. MedDream DICOM Viewer is designed to aid medical professionals in every day’s decision making process, connecting all the medical data into one unified and fast performing network.

MedDream ensures prompt and reliable way to search, view and analyze medical images, signals and video files on various devices: computers, smart phones, tablets and so forth.

Highlights

MedDream DICOM Viewer is FDA cleared for diagnostic use and certified medical device that can be used for review purposes or even primary diagnosis. Viewer is designed to make the images available across the hospital, even present images to the customers of the institution.

The system is fully UNICODE compliant and provides the user interface with full support in English, Russian and Lithuanian languages with a possibility to add more user interface languages easily.
MedDream DICOM Viewer has a rich radiology tool set, which includes regular tools as: zoom, pan, windowing, magnifier, measuring and advanced tools:

- Draw and measure the length of a line;
- Show all the angles between intersecting lines;
- Draw and measure an angle;
- Draw and measure the length of a polyline;
- Mark area of interest with a polyline and measure its area;
- Draw and measure Cobb angle;
- Calculate standard deviation and mean in Hounsfield units;
- Measure Hounsfield units at a specific point of a CT study;
- Display of reference lines (Scout Lines);
- Cine playback of multi-frame sequences with video seeking support;
- Simultaneous playback of up to 9 DICOM video files;
- Comfortable bar of series preview with thumbnails;
- Tracking of image orientation, when manipulating the study with the transformation tools;
- Multi-planar reconstruction (MPR).

MedDream supports the following DICOM files and formats:

- Implicit Little Endian, Explicit Little Endian, JPEG, JPEG-LS, JPEG 2000, RLE, MPEG-2 and MPEG-4 Transfer Syntaxes:
  - C-FIND, C-GET and C-MOVE functions;
  - DICOM ECG file support;
  - DICOM MPEG-2 and MPEG-4 Video playback support;
  - DICOM Study forwarding to pre-defined DICOM partners;
  - Saving studies locally in DICOM, JPEG, TIFF and videos in MP4;
  - Exporting studies to DICOM portable format.

MedDream is using flexible and open integration interface for connecting to HIS and/or EMR systems primarily based on URL calls, thus allowing it to be integrated in any medical application.

MedDream supports all commonly used DICOM SOP classes for viewing. These are also constantly expanded in our software release cycles, with a version coming out every quarter.
MedDream DICOM Viewer provides not only standard image manipulation tools, but also a way to read, manipulate and interpret electrocardiography (ECG) data.

ECG manipulation tools are all presented in an innovative zoom model which allows to zoom, measure and quantify the ECG data:

- Area calculation indicating beats per minute, time, millivolt (mV, s, bpm);
- QT interval - the RR interval is calculated as well as QT and the QTc (based on Bazett’s formula);
- Measure heart rate (HR) and compare its interval variance over the ECG;
- Measure the QRS electrical heart axis;
- Review ultrasound (US) machine generated report;
- Comparison of 2 or more ECGs by normalizing and then overlaying them on one another;
- Up to 9 ECG’s may be opened at once.

MedDream can be used to measure a volume on a 2D image by using the Simpson’s approximation rule, the 2D area that way is spun over a selected axis to form a 3D shape and a volume of such shape is measured. This technique allows to do volume measurements of a heart in a 2D Computed Radiography image.

MedDream supports measurement of Velocity Time Integral on ultrasound (US) studies that can quantify the trace of the Doppler flow profile.
Ophthalmology module

For ophthalmology or other visual spectrum images MedDream proposes a tool to digitally apply monochromatic filters for the primary colors as well as secondary to enhance the visual contrast of anatomical details.

Video module

For search, review and analyze medical videos from ophthalmology devices, microscopes, endoscopes, surgical video cameras, arthroscopes, echoscopes and other medical video sources. Video module is integrated into MedDream DICOM Viewer that allows to use PACS as medical video archive.
MedDream DICOM Viewer consist of a Viewer component which runs in a browser and does not require any installation on the client device and a MedDream Application server which handles the communication with the hospital systems (HIS / RIS / PACS and any other EMR) and does image preparation for streaming to the MedDream DICOM Viewer.

MedDream Application server connectivity to the PACS can be achieved over the following methods:
- DICOM Q / R on Study Level
- WADO Restful Services
- Direct Access to the File System and Database.

Any changes done in the PACS will always be reflected when opening the study in MedDream DICOM Viewer. As changes made in the Viewer: adding annotations and measurements, will be stored back in the PACS in a DICOM conform way. In standard installations MedDream does not do intermittent storage of the images.

There are multiple ways for MedDream to make the created reports of radiological studies available in the browser, as standard this is done through HL7 or DICOM Structured Report, but other custom tailored ways are also available on a project specific basis.
ADVANTAGES:

- Prompt study loading: don’t need a powerful server;
- Flexible Licensing model;
- Support all types of studies;
- Flexibility:
  - Multi PACS support;
  - Vendor neutral viewer;
  - Custom development;
  - Try before Buy.

BENEFITS:

- Time savings;
- Mistakes elimination;
- Exact study will be performed on exact patient;
- High quality images;
- Faster and better diagnosis;
- Higher work efficiency;
- Less service staff.

Access Control

For image distribution within the hospital auditing standard user name and password protection is typically enough. In order to have finer access control MedDream typically relies on a higher authority system (e.g. HIS or EMR) which grants access to specific cases.

For image distribution outside the hospital a patient portal or a referring physician portal to authenticate and authorise access is required, MedDream can be integrated to such portals easily.

MedDream supports Lightweight Directory Access Protocol (LDAP), HTTPS Security integration as well as Single Sign-On (SSO) through security tokens to allow fast and flexible usage of the system for the physicians. Proprietary ways of integration to user management and access control systems is available on project specific basis.
The following describes a typical process how a MedDream gets installed in your institution.

Depending on each specific installation preliminary Hardware sizing information might slightly vary based on the modalities being used in the institution. **Minimum Hardware requirements** for the MedDream Application Server:

<table>
<thead>
<tr>
<th>Systems of up to concurrent users</th>
<th>10</th>
<th>50</th>
<th>100</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU/vCPU</strong></td>
<td>2 Cores</td>
<td>4 Cores</td>
<td>8 Cores</td>
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<tr>
<td><strong>CPU arithmetic performance</strong></td>
<td>30 GOPS* per core</td>
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<tr>
<td><strong>RAM</strong></td>
<td>4GB</td>
<td>8GB</td>
<td>16GB</td>
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<tr>
<td><strong>Storage size</strong></td>
<td>Minimum 30GB or 240GB if used with caching</td>
<td>Minimum 150GB or 1,3TB if used with caching</td>
<td>Minimum 300GB or 3TB if used with caching</td>
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<tr>
<td><strong>Storage performance</strong></td>
<td>RAID providing minimum 280 IOPS**</td>
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*Giga operations per second.  
**Input / Output operations per second.
About SOFTNETA

SOFTNETA is an innovative IT company, that provides software based, specialized Medical Imaging and communication solutions to improve the quality of healthcare.

10 years experience in: DICOM viewing, telemedicine, digitalization, video solutions for healthcare and PACS servers as well as integration with HIS / RIS systems.

CERTIFICATIONS

FDA
CLEARED

ISO 13485:2003

PRODUCTS ADVANTAGES

FAST
FLEXIBLE
FOCUSED
FAIR
FUN

Customer map

over 600
Installations worldwide

over 35
Countries

8
National projects
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