MedDream DICOM Viewer

USER MANUAL

(version 7.1.1)
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**General information**

This user’s manual describes MedDream DICOM Viewer (hereinafter – MedDream) functionalities and operation with MedDream.

Seeking to ensure patient safety, software should be used by intended use. You should therefore ensure that you are thoroughly familiar with the user manual before setting up and using MedDream for the first time.

MedDream does not replace medical professionals and could be used only as an additional tool.

Please note that medical images quality, sharpness, accuracy and other parameters, relevant to the users, directly depends on the technical capabilities of medical device, which is generating medical images, on the monitor and printer technical capabilities.

**Indications for Use:**

MedDream is a software medical imaging system used to receive DICOM images, scheduling information and textual reports, organize and store them in an internal format, and to make that information available across a network via web and customized user interfaces. Software is intended for use as a diagnostic, review and analysis tool by trained professionals such as radiologists, physicians, clinicians.

Note: The MedDream is not intended for intensive care monitoring of vital physiological parameters, where the nature of variations is such that it could result in immediate danger to the patient.

Contraindications are applicable ONLY in USA market:

The MedDream is not intended for the acquisition of mammographic image data and is meant to be used by qualified medical personnel only who are qualified to create and diagnose medical image data.

**WARNING!** Software usage not by intended use may cause patient death, potential injury or serious health impairment, requiring professional medical intervention.

**Risk and Benefit:** Using MedDream by its intended use does not cause risk, which could influence patient health status or health changes, but facilitate work of medical professionals, provide a better opportunity for accurate diagnosis.

Clinical data are collected, stored and managed as described below:

- By implementing post market clinical follow-up studies;
- By analyzing results of collected preclinical data;
- By implementing competitor analysis and literature analysis;
- By managing risk;
- By managing complaints and problems;
- By collection vigilance system data;
- By implementing biomedical research;

MedDream is continually tested. All critical issues are corrected immediately and users are informed about software functionality limitations and risks.

In case of MedDream bugs please immediately contact to Softneta support at this email: support@softneta.com.
Personal data security breach

In case of personal data breach (including but not limited to cybersecurity breach) medical software Manufacturer Softneta UAB should be informed immediately (but not later than during 24 hours) using below mentioned contacts:

SOFTNETA Data Protection Officer (contacts of Data Protection Officer are public available www.softneta.com).
Name, Surname: Raimundas Mikalauskas
Tel. +370 630 06808
Mail: dpo@softneta.com

Availability of documentation

Electronic version of MedDream User Manual in Lithuanian and English is free available on the Softneta UAB website (www.softneta.lt / www.softneta.com in the “Products” section) as well as access to the supporting software versions. Instructions are included in the “Product description” part in the section “Downloads”. User Manual could be opened in a browser or saved in pdf format and downloaded to Your computer.

Software Servicing (installation) Manual is added as a separate document to the User Manual.

If You require paper version of User Manual, please ask us by email: support@softneta.com. Paper version of User Manual will be sent not later than in 48 hours after receiving Your request (to the address You specify).

Questions

Please visit out F.A.Q. in Softneta UAB webpage for answers to frequently asked questions or problems.

CAUTION! Incorrectly installed software could cause inconvenience to medical professionals using the software and disruption of the medical professional activities.

If you have any questions or comments regarding MedDream functionalities or this user’s manual, please contact Softneta UAB Customer support: support@softneta.com.
Explanation of symbols used

During MedDream usage please pay attention to important information, related to patient safety, which is warning about software functions, whose implementation errors may pose a risk to patient health.

The symbols in this User Manual are intended to alert user about possible errors in the software or its use. Please read the information carefully as you see the symbols described below.

![WARNING!](image)

**WARNING!** This indicates a hazardous situation which may cause patient death, potential injury or serious health impairment, requiring professional medical intervention.

![CAUTION!](image)

**CAUTION!** This indicates a hazardous situation which may cause minor potential injury, not requiring professional medical intervention, or simply cause inconvenience to medical professionals using software without affecting patient health status or health changes.

![NOTE!](image)

**NOTE!** Information, hints and advice for a better understanding of the instructions to be observed in the operation of the instrument.
Minimal requirements

Minimal hardware requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>2.33GHz or higher x64-compatible (2 CPUs)</td>
</tr>
<tr>
<td>Memory</td>
<td>8+ GB</td>
</tr>
<tr>
<td>Hard drive</td>
<td>30 GB (RAID 1, RAID 5, RAID 10)</td>
</tr>
<tr>
<td>Network Interface</td>
<td>100 Mbit/s</td>
</tr>
</tbody>
</table>

Minimal software requirements

- Windows Server 2008 (32 bit and 64 bit), Windows 7 (32 and 64 bit), Linux (32 bit and 64 bit, with glibc version >= 2.7).
- Microsoft Edge 16 or later, Mozilla Firefox 58 or later, Google Chrome 63 or later.

NOTE! Hardware acceleration should be enabled in web browser for better performance.

Minimal memory requirements

Minimal memory requirements for the best performance of the software:

- 8 GB of RAM if you plan to open more than 800 images (CT & MRI, PET-CT).
- 12 GB of RAM for more than 1500 images (multi-slice CT & PET-CT).
- 16 GB of RAM for more than 3000 images (cardiac or functional imaging).
Introduction

MedDream DICOM Viewer is a HTML based package for PACS server which is designed to aid professionals in everyday’s decision-making process, connecting all the medical data into a unified and fast performing network. MedDream ensures a fast and reliable way to search, present and analyze the medical data (images and video files) on various devices: computers, smart phones, tablets and so forth.

MedDream covers: radiology, cardiology, oncology, gastroenterology and many other fields of medical application. It seamlessly integrates with various medical imaging devices, such as: ultrasound (US), magnetic resonance (MRI), positron emission tomography (PET), computed tomography (CT), endoscopy (ES), mammography (MG), digital radiography (DR), computed radiography (CR), ophthalmology, and so forth.

Core MedDream DICOM Viewer uses are:

- Replacement of hard copies, e.g. film archives, paper documents, etc.
- Remote access. MedDream provides a possibility to be mobile and work from any place in the world where the Internet is accessible. More than one person can access and view medical records at one time. Such functionality speeds up the collaboration among the professionals. So, that a doctor in the hospital and a doctor that is in the different location may view the medical data and discuss about it simultaneously. The patient's medical history, various studies and images are found much faster comparing to the conventional paper-based methods.
- MedDream can be used as a standalone WEB Viewer or integrated into PacsOne PACS, dcm4chee Archive, Conquest PACS, ClearCanvas PACS systems. Moreover, MedDream can be adapted to client's PACS system and easily integrated into RIS/HIS workflow.
- MedDream has multiple functions such as search of studies, viewing, analyzing, saving, exporting, forwarding images and videos, etc.

WARNING! MedDream cannot guarantee the accuracy of calibration data received from the modality. Moreover, Softneta cannot guarantee that the manual calibration which is performed by users is done accurately.

WARNING! Measuring function is approximate.
Logging on to MedDream

To log on to MedDream, please do the following:

- Enter the address given by your administrator in your Internet Browser. The following screen will appear:

![Login Screen](image)

*Figure 1. Logging in.*

- Enter the username you were given in the field **Username**
- Enter the password in the field **Password**. If you forgot your password, please contact your system administrator.

NOTE! Please note! On the right upper corner of the login window you can change the language: LT (Lithuanian), RU (Russian) and EN (English).

![Language Selection](image)

*Figure 2. Language selection in a log in window.*

NOTE! HTML version of MedDream works only via the following platforms: Chrome and Firefox.
Search of studies on HTML5 platform

The list of icons that will be used in this section.

- Tick box
- Save
- Forward
- HTML icon
- Ascending/Descending
- Annotation
- Completed report
- Empty report

Search menu will help you quickly find the studies you need. We recommend using all possible search menu options in order to get the most accurate search results and save your time.

To find a study, please follow these steps:

1. Once you login, such window appears on the screen.

2. Enter search criteria (Patient ID, Patient Name, Accession Number, Study Description, Source AE). Type the information in according fields.

The criteria are as following:

- “ID” - enter patient's ID number in the search field
- “Name” - enter the patient's name or surname in the search field
- “Accession” – enter the number of accession
- “Modality” - enter the method which was used to obtain the study images (modality)
- “Description” – enter a few keywords from the study description
• “Source AE” – “Application Entity” - title of the device from where the study was sent to the PACS.

**NOTE!** It is not possible to search for Ideographic and Phonetic versions of patient names. The search is performed only against the basic version (Alphabetic), even if the image contains the other two versions and the PACS supports them.

Each field has Ascending/Descending button. You can arrange each of them in ascending or descending order. Click once and the order of the selected field will change from ascending to descending and vice versa.

- Ascending – arranged from smallest to largest (increasing);
- Descending – arranged from largest to smallest (decreasing).

3. To specialize the search, please select the date interval when the study could have been done. This can be done using two different date interval search criteria.

→ To select the study date you can choose from the super quick pick list accordingly to the date interval you need your studies to be from: “1d” (current day), “3d” (3 days interval), “1w” (1 week interval), “1m” (1 month interval), “1y” (1 year interval) or “Any” (no specific date interval):

![Figure 5. Search according to dates.](image)

→ To specify the study dates, click on left top corner and choose the date interval from the pop-up window.

![Figure 6. Date search options.](image)

4. The search can also be specified by selecting the method which was used to obtain the study images (modalities):

- Tick the field next to one or more methods (devices) that were used in the required study (please look below for the meaning of the abbreviations)

→ CR, CT, DX, ECG, ES, IO, MG, MR, NM, OT, PX, RF, RG, SC, US, XA, XC, OP, PT, All. The system allows to select a few image modalities by default. Click the red “triangle” icon and now you can add all possible methods by clicking on the modality you want to be added to the search:
If you are searching for some rare modality that has no corresponding button here, try to enter its abbreviation directly into the name of "Modality" column.

Moreover, you can select all possible methods by clicking the "All" button:

![All Modalities](image)

Abbreviations:

- **CR** – Computed Radiography
- **CT** – Computed Tomography
- **DX** – Digital Radiography
- **ES** – Endoscopy
- **IO** – Ultra-Oral Radiography
- **MG** – Mammography
- **MR** – Magnetic Resonance
- **NM** – Nuclear Medicine
- **OT** – Other
- **OP** – Ophthalmic Photography
- **PT** – Positron emission tomography (PET)
- **PX** – Panoramic X-Ray
- **RF** – Radio Fluoroscopy
- **RG** – Radiographic Imaging
- **US** – Ultra Sound
- **XA** – X-Ray Angiography
- **XC** – External camera photography
- **ECG** – Electrocardiography
- **LIVE** – live stream

5. After you have selected your search criteria, start the search by clicking **Search** icon.

6. Click on HTML icon so you could see the image you want to analyze on HTML5 platform and a new browser tab will pop-up (marked in red):
To view the image move the mouse cursor on the small image on the left, click the left mouse button and drag the image to the field on the right. Now you should be able to view your image.

In order to save or forward desired images there is a **Tick box** on the main search window for your convenience.

- move your mouse cursor to the left side of the screen, next to the eye icon;
- click the left mouse button on the **Tick box**;
- keep repeating the above-mentioned steps and tick as many studies as you want;
- once you have done this, you will be able to either **Save** or **Forward** the selected images.

**Save** button allows you to save/export the selected images.

- click on the icon and the pop-up window will appear:
To export the study (to burn it on a CD):

- choose CD, DVD or other volume size (Splitting into volumes is currently supported only under PacsOne).
- click **Burn**.

Status report on the left bottom corner will appear. After a while two buttons **Download ISO** and **Burn Now** will appear for every created volume. Click **Download ISO** in order to download a disk image with the .iso file extension, and burn it with your favorite CD/DVD burner software. Click **Burn Now** if you have installed a corresponding product by Softneta, MedDreamBurn; then a third–party CD/DVD burner will start automatically.

To export the study (to save it):

- choose the format, then select to save an image, a series of images or an active study;
- click **Save** and choose a folder where you prefer to save the images in your computer. Click **Save** again.

**Forward** button allows you to forward the selected images to another DICOM device. Click on the icon and the selected images will be sent.

- click on the icon and the pop-up window will appear:
  - choose a device from the list where you want to forward your study or type it in a search box to make it easier and faster.
  - click **Forward** to initiate the process.

**Annotations** and **Reports** in the main search window have an indication icon accordingly. Report can be viewed from the main search window.

- **Annotation** icon on the main search window.
- **Completed report** icon on the main search window. If the user does not have permission to edit reports, then only completed report icons will be shown on the main search window, and clicking on them will open the report in read–only mode.
• **Empty report** icon on the main search window. If the user has permission to edit reports, then both completed and empty report icons are visible on the main search window, and clicking on them will open the report in editing mode.

---

**NOTE!** Under PacsOne, all unread studies are marked in white bold font on the main search window.

There is an icon with a drop-down list with all possibly configured PACS’es. You can either search studies through all storages, either one of the storages.

---

**NOTE!** MedDream can now be configured with several PACS’es. This functionality runs with JAVA based plugins.
System and context menu functions of the main search window on HTML5 platform

You can open a system menu with functions About, License Agreement, Settings, Help and Log Off by tapping on the right top corner icon (marked in red below) and choose functions from the pop-up window:

![System menu](image)

**Figure 13. System menu of the main search window.**

**About** information window will display with the following information.

To close the window click on Close or X buttons.

![Information window](image)

**Figure 14. Information window.**

Information window will display:

1. Full product name;
2. Version;
3. Release date;
4. Medical device class;
5. ID of the notified body;
6. FDA cleared mark;
7. License to;
8. Concurrent connections;
9. Modules;
10. Update to – date till the technical support and updates are provided;

License Agreement button forwards you to the Software License Agreement (EULA). The following End User License Agreement (EULA) will appear on the screen.

Figure 15. License Agreement.

Click LOG OFF if you want to discontinue working with the program.

To change MedDream viewer’s settings, click button Settings and it will lead you to the settings menu. For more information, see Settings.

Help button forwards you to the user manual of MedDream WEB DICOM Viewer.
A **context menu** appears with a right-click mouse operation in the main search window. A context menu offers a limited set of choices that are available if only you have chosen it to be included in a quick menu via Settings (refer to the Settings chapter for more information).

*Figure 16. User’s manual.*

*Figure 17. Context menu.*
**MedDream DICOM Viewer on HTML5 platform**

**NOTE!** Default view is set on HTML5 platform.

**Opening multiple studies**

The list of icons that will be used in this section.

![Header](header.png)

![Close studies](close_studies.png)

If you need to open more than one study (e.g. to compare them), please do the following:

1. Select one of the studies you want to add with one mouse click;

2. Click on the HTML icon which appears next to the study in the main search result window and a new browser tab will pop up:

![Study selection on HTML5 platform](study_selection.png)

3. Go back to the search result window.

4. Click the HTML icon again and the added study appears on the same search result pop-up window as the previous search did.

5. Information table will pop up on the right bottom corner of the main search result window stating the following:

6. Go back to the search result window.

7. Select the next study you want to add and repeat steps 4 – 6 that were mentioned above. Keep doing this till you open enough studies that you need for your analyses and comparison.

After selecting all the studies, you will see all study series displayed in the pane on the left. When you select the study, and click on it, you will see the image icons of the study series:

![Opened multiple studies on HTML5 platform](opened_multiple_studies.png)

In order to navigate through the study series, just click on the **Header** to activate it and see the image icons. Click on **Close studies** button if you want to discontinue working with these studies.
Manipulating and analyzing images

**NOTE!** In Toolbar properties section under Settings menu you can configure what buttons and in what order are shown in toolbar.

You can manage and analyze the study images according to the criteria you need:

![Image manipulation tools on HTML5 platform.](image)

Figure 20. Image manipulation tools on HTML5 platform.

More about each of them:

**Windowing** button is used to adjust the Level/Window (contrast and brightness) of the image. Put your finger on the screen and pan up and down to control the brightness of the image. On non-touchscreen devices, mouse drag upwards or downwards achieves the same.

Also, you can click on the red triangle to get a pop-up window and select one of the standard contrast settings:

![Level/Window button options on HTML5 platform.](image)

Figure 21. Level/Window button options on HTML5 platform.

**DICOM Windowing:**

- **Auto** – the system analyses the image and adjusts the brightness and contrast automatically.

- **VOI LUT** - Value Of Interest Look-Up Table. This transformation gives greater weight to the range of values of interest. The DICOM Standard Window Center and Window Width are linear VOI LUT where only 2 parameters are specified - center and width of the interval. Meanwhile, the non-linear VOI LUT uses a free shape curve in the form of a table. In MedDream, the user environment "VOI LUT" is called non-linear transformation, which can also be saved in a video file.
List of defined VOI LUT configurations are available under the Windowing button in the main toolbar. If VOI LUT configurations exist, then the first one is applied automatically.

Custom Windowing:
**CT Posterior Fossa** - a preset setting for Posterior Fossa studies.
**CT Pelvis** – a preset setting for pelvis studies.
**CT Mediastinum** - a preset setting for mediastinum studies.
**CT Lung** – a preset setting used for studying the images of the lungs.
**CT Liver** - a preset setting for the liver studies.
**CT Cerebrum** – a preset setting for cerebrum studies.
**CT Bone** – a preset setting for bone studies.
**CT Abdomen** – a preset setting for abdomen studies.
**Invert** – the user can inverse the image.

---

**NOTE!** If there is a Color Palette in the study it will be applied during the loading process of the study and the **Color palette** option will appear in the windowing menu as an option. After applying another Window Leveling perfusion, the Color palette will not be applied.

---

**Pan** button allows you to position images within the pane. This feature is especially useful when the image is larger than the pane, as it usually is after zooming in. To move an image within the pane:

- On the Tools menu, click **Pan** icon;
- Position the cursor over the image you want to move and click-and-drag the cursor around the pane to move the image;
- Release the mouse button to leave the image in its new position.

---

**Zoom** button allows you to enlarge or reduce the image size:

- choose which part of the image you want to zoom in/out;
- place the mouse cursor on the chosen part;
- click the left mouse button and drag up or down;
- the chosen part will be zoomed in/out.

**Zoom** button is used to choose between **Fit to Screen** or **Original resolution** buttons.

- When you click **Fit to Screen** button, the size of the image is automatically adjusted so that the image would fill the entire screen. For example, if only part of the image is visible on the screen, choose this button to see the whole image displayed on the entire screen.
- When you click **Original resolution** button, the size of the image changes into original size.

---

**Figure 25.** Zoom button options on HTML5 platform.

---

**NOTE!** Additionally, when **Zoom**, **Pan** or **Windowing** buttons are active, then panning up and down, zoom in/out, windowing level is possible with a left mouse click with an up and down motion.

---

**Figure 26.** Active ZOOM, PAN, WINDOWING buttons on HTML5 platform.
**Channels** highlights a color component or a combination of them in the image by showing selected color in white shades and other colors in black. This tool is enabled for image view. Click the red arrow in order to choose color(s) from the list.

**Scroll** button functions as scroll bar. Once tapped it enables you to scroll through the series of images by using a vertical drag gesture (with a finger or mouse).

Scroll button can be extended - dropdown menu is shown
- Possibility select to go to previous (shortcut - Left Arrow in keyboard) or next series (shortcut - Right Arrow in keyboard). In settings this functionality can be included in context menu, for faster browsing through study series.
- Manually activation/deactivation of fast scrolling between series with mouse wheel- selection saved locally.

**Magnifier** button is used to magnify (enlarge) a certain area of the image. Click the icon once in order to enable the function, click the icon once more and the mode will be disabled. The enlarged area can be dragged to other places of the image in order to magnify them.

You can change magnification in this area with the help of mouse wheel. In order to enlarge, scroll the mouse wheel up as many times (up to 10) as you want it to be enlarged.

**Layout** button divides the screen into sections and allows you to drag as many images as you want to the right side of the screen. It helps in comparing images:

![Figure 27. Comparison possibilities on HTML5 platform.](image-url)
For example, 2x2 button on Multi image drop down list divides the selected section into 4 subsections. Once you have selected this button, drag the studies to the field. The study and all the following images that you want will appear on the selected field.

**NOTE!** All image manipulation functions affect the entire set of images opened in a multiple viewports mode (such as Scroll, Windowing, Rotate, Pan, Reset). For example, if you select Bone contrast mode it will apply the Bone mode to all images that are viewed through the multiple viewports mode though the changes do not apply to the image which is not viewed via multiple viewports.

![Figure 28](image1.png)

Figure 28. Multiple viewports on HTML5 platform.

**Reset** button is used to reset and clear any data that you have been working on.

![Figure 29](image2.png)

Figure 29. Reset selection on HTML5 platform.

Selecting the MPR view is done by clicking the MPR button in the views panel. It contains three different panels:

- Multiplanar
- Axial
- Sagittal
- Coronal
After you click on the MPR button, the loading will start.

Once the loading process is done, you will be able to scroll the mouse wheel up and down over the image and see the view (axial, sagittal, coronal) you have selected.

**Oblique is an optional MPR functionality.**

Once you click on the MPR button, choose Oblique in order to load the view.
The 3D view reconstruction is being generated using the images of the study.

![Figure 33. MPR 3D Oblique download process on HTML5 platform.](image)

Once the loading process is done, you will be able to move the 3D Oblique study image (marked in red above) with a left click on the mouse and move the image up and down in order to rotate it.

**NOTE!** Windowing, Zoom, Pan, Scroll and Line / Angle measurement functions are available during MPR Oblique mode (see pages 19-20 on [Manipulating and analyzing images](#)).

![Figure 34. Oblique MPR view.](image)
Context menu using in Oblique mode.

Figure 35. Oblique MPR view – context menu.

Reconstructed 3D studies comparison.

Figure 36. MPR 3D Oblique view – Reconstructed 3D studies comparison.
Multi-Modality comparison.

**Figure 37. MPR 3D Oblique view – Multi-Modality comparison.**

**Crosshair-tooltip** is mainly used on MPR studies. A crosshair represents the intersecting planes of the selected point on the main study (RGB – Red, Green, Blue).

**Figure 38. Crosshair tooltip on HTML5 platform.**
**Rotate** button allows you to rotate the image. Tap the button and select one of the options from the pop-up menu. Tap outside the pop-up window to close it.

- Rotate Right – to rotate the image 90° clockwise;
- Rotate Left – to rotate the image 90° counter-clockwise;
- Flip Horizontal – to flip an image 180° about the horizontal axis;
- Flip Vertical – to flip an image 180° about the vertical axis.
- Clear Transform – revert to original image orientation.

![Figure 39. Transformation possibilities on HTML5 platform.](image)

**DICOM** button is used to show DICOM tags of active window screen. Search according to Value, Type, Name and Tag is possible.

![Figure 40. DICOM tag window on HTML5 platform.](image)

**NOTE!** This button is disabled by default and can be enabled in the "Settings" window.
Share button is used to share files via Dicom Library. Once you click on Share button, a pop-up window will appear on the screen. Please enter e-mail of the sender and recipient, subject, message and indicate images that will be sent via Dicom Library. You can select active image, selected series, active all study or studies added to layout. In order to finalize sending process, please tick a box next to the text I'm not a robot:

![Share pop-up window](image.png)

*Figure 41. "Share" function pop-up window on HTML5 platform.*

**NOTE!** This function requires certain configuration on the server side. In config.php you need to replace:

```
$dicomLibraryEnabled = false;
```

with:

```
$dicomLibraryEnabled = true;
```

Images are sent by a background process. Detailed description of how to run it is in the quick_install-Scripts.txt file available in MedDream installation archive.

**External links** are intended for making a list of study–related links which can be viewed from MedDream icon **Tools**. This also requires server-side configuration in the config.php file, parameter `$m3d_link_3`. The file contains detailed description of this parameter's syntax.

**Full Screen** button. Move your mouse cursor to the upper right corner of the screen. Click on the Full Screen icon and the Full Screen mode will be enabled. Click either the icon once again or ESC button at your keyboard in order to exit the Full Screen Mode.

**3D** button forwards to 3D reconstruction which can be opened using MedDream 3D software.
**Theme** changes MedDream’s default color (red) to a color (blue) that is clearly visible on black and white monitors.

**NOTE!** Default theme selection via rebranding.json is possible.

Following functions are not supported in FileSystem integration case: Key Objects, Annotations, Cine mode, MPR, Reports.

**Key Object** concept is used in order to mark most interesting instances and save them for later review. Marked instances as Key Objects are stored in DICOM file of KO modality. Instances from different series can be stored in one Key Object selection. All instances marked as key objects are annotated with small star symbol.

Key Object button for selecting Key Object selections is associated with loaded study:

![Key Object button](image)

Annotated instances that are marked as Key Objects but not saved:

![Annotated instances](image)

**Figure 42.** "Key Object" function pop-up window on HTML5 platform.

**Figure 43.** Key Object mark (1) on HTML5 platform.
Annotated instances that are marked as Key Objects and are saved:

![Key Object mark (2) on HTML5 platform.](image)

**Preload study/series** are intended for a preload of a study or series in order to scroll through the images much faster with a help of mouse wheel. Once you click the preload icon, preloading starts.

![Preload progress on HTML5 platform.](image)

![Preload study/series on HTML5 platform.](image)
This function preloads study and series data. The stored series can be scrolled interactively in the form of scrollable image stacks.

**Patient history** forwards you to patient’s study history.

- The patient history window is available in the main study window along with the patient information by clicking the history button.
- Once you click on the patient history button it opens window that displays all patient studies that is available through the MedDream WEB DICOM Viewer.
- The following information is provided: Modality, Description, Date & time.

![Figure 47. Patient history pop-up search window on HTML5 platform.](image)

- Patient history list is filtered by the type of the study (modality).

![Figure 48. Patient history filter on HTML5 platform.](image)

- When **All** modality type filter is chosen, the list provides all types of patient studies for the study detections using the Patient ID.
- Sorting patient study history list is possible with all columns in the list. To sort the list according to the selected column, you need to click the sort button in the heading of the selected column.

![Figure 49. Patient history sorting button on HTML5 platform.](image)

- The search in the patient study history window is available in all columns in the list. To search, enter the search phrase into the column header in the search field of the selected column and click on the search button.
The selected study in the patient study history window can be opened by clicking on the eye icon in the first column of the study list. To open multiple studies at a time, select all the studies that you want to open and click the Add studies to viewer button.

All open studies are highlighted in the provided list by placing the green indicator Added.

**NOTE!** Patient history search is performed according to the Patient ID.

Link button is intended for making comparison on image slice location. There are three types of this button: **Automatic**, **Manual** and **Disabled**.

- **Automatic** mode synchronizes different series according to image orientation, image position and slice thickness automatically. Series consisting of images that have reference to the same UID within the same study are automatically synchronized by default. Tap the icon once in order to enable the Automatic mode.

- **Manual** mode allows to compare the images from the study series manually. Series acquired in similar planes belonging to the same or different studies (of the same or different patients) can be synchronized manually by default. Tap the icon twice in order to enable the Manual mode.

- **Disabled** mode disables synchronization modes.
Positron Emission Tomography (PET CT)

The **Fusion** function allows you to combine the series of PET and CT types (attach the selected PET series to the displayed CT series), thus linking the sites of radioactive drug concentrations with the anatomical patient structure. The series fusion function can be selected only after loading the series into the active window. The **Fusion** function is achieved by selecting the Fusion icon in the main toolbar or by pressing the F keyboard shortcut button.

![Fusion icon]

### NOTE!
If there is no PET series in the open study (-ies), notification will appear on the screen:

![PET notification on HTML5 platform.](image)

### NOTE!
The ability to choose a PET series from another study allows the user to combine series of different studies. This function also allows the user to combine magnetic resonance imaging (MR) series with PET series.

- Click **Fusion** button and the following pop-up window with positron emission tomography (PET) will appear on the screen:

![PET dialog on HTML5 platform.](image)

- The PET series selection dialog allows the user to select PET series from an active study (a study that has a CT series open in the active viewport) or from a series of PET in other open studies.
- In the PET series selection dialog select the PET series you want to combine and click on the **Start Fusion** button.
- The merging process is seen on the screen:
Manipulating fused series
The functionality of the fused series toolbar is described below.

1. Changing the color range
By default, the Hot iron color range is applied to the fusion series. However, according to the specificities of the anatomical body sections analyzed, different color range can be used. The choice of the color selection is performed by expanding the list of color schemes and choosing the desired color range. The selected color range for the fused series is automatically applied immediately after selection.
2. Changing the fusion ratio

In the analysis of fused series, it is important to have the ability to change the fusion ratio which is possible with Transparent layer button. Changing the ratio is possible by switching the ratio change marker to the PET or CT series. In this way, one or the other series is highlighted and a clearer view is provided.

3. Upper layer data adjustment

If the fusion of the series is not completely symmetrical, then the Pan tool can be used. This tool allows you to visually anatomically link the fused series.

**NOTE!** By selecting the Pan tool in the fusion toolbar, only the upper layer (PET series) position is changed. If the Pan tool located on the main toolbar is selected, the joint position of the fusion series is changed in this case.

4. Adjust the Level/Window (contrast and brightness) of the upper layer

By choosing the Windowing tool in the fusion toolbar, the user can change the level of brightness to the upper layer (applicable to the PET series). If the Windowing tool is selected from the main toolbar, then the overall brightness level (PET and CT series) is changed.
5. **Upper layer zoom function**

In the fusion toolbar, by selecting the **Zoom** tool, the system user can change the top layer scale (applicable to the PET series). If the **Zoom** tool is selected from the main toolbar, in this case the overall (PET and CT series) scaling is changed.

6. **Upper layer rotation**

Once the **Rotate** tool in the Fusion toolbar, the system user can rotate the top layer to one-degree accuracy (applicable to the PET series). If the **Rotate** tool is selected from the main toolbar, in this case the rotating image (PET and CT series) is rotated.

7. **Upper layer image overlay**

If there is a mismatch between the fused series, the series images can be overlaid. The system user must select the **Manual Adjustment** button from the fusion toolbar. The overlay is possible by changing the image to the next (by clicking the + button) or by changing the image to the previous one (by clicking the – button).
8. Standard Uptake Value (SUV)

The main measurement used in the fusion series is the SUV, the standard uptake value. The standard uptake value is calculated according to the formula:

\[ SUV_{bw} = \frac{\text{weight in grams}}{\text{injected dose}} \]

The Standard Uptake Value is calculated by choosing Ellipse measurement from the measurement list from the main toolbar (see more on page 38 Measuring images) and marking the location in the fused image. Three standard uptake values (average, minimum and maximum) are provided:

9. Reset function

Reset button restores the study image to the previous original state.

10. Close function

To close the window, click on Close or X icons at the end of the fusion toolbar.
Figure 66. Fusion Close button on HTML5 platform.
Measuring images

**Measure** button allows you to measure the images in number of ways:

To measure the distance:

- click on the **Measure** button and choose **Line** from the list.
- place the mouse cursor on the starting point from which you want to measure the distance.
- click the left mouse button. Move the cursor to the end point and click the left mouse button once more.
- the distance (in millimeters, or pixels in some images) will be displayed in yellow:

![Measurement tools](image-url)

*Figure 67. Measurement tools.*
Once Line measurement is active, you can place as many lines as you want.

Angle measurement.

To measure an angle:

- Position the mouse pointer on the point from which you want to measure the angle. Then click the left mouse button.
- Move the pointer to the second point (the intersection point) and click the left mouse button again.
- Then move the pointer to the end point and click the left mouse button once more.

Once Angle measurement is active, you can place as many angles as you want.

You can also measure an angle between any intersecting lines.

To display the angle measurements:

- draw intersecting lines on the image using the Line measurement,
- on the Tools menu, click Measure button,
- tick Show Angles:
The Polyline button is used to measure the perimeter of a region of interest.

To measure the perimeter:

- Position the mouse pointer on the point from which you want to measure the perimeter. Then click the left mouse button.
- Move the cursor to the second point and click the left mouse button again.
- Then move the cursor to the third, fourth, etc. points and each time click the left mouse button again.
- Double-click once finished in order to see the result.

The Intensity button is used to measure the density of a CT image.

To measure the density:

- select Intensity once.
- move the mouse cursor over the point you want.
- the density of the point and its coordinates should be visible at the left bottom corner (expressed in Hounsfield units, HU):
The **Area** button is used to measure the perimeter and the area of a region of interest.

To measure the area:

- Place the mouse cursor on the point from which you want to select the region of interest. Then click the left mouse button.
- Move the cursor to the second point and click the left mouse button again.
- Then move the cursor to the third, fourth, etc. points and each time click the left mouse button again.
- When you reach the last point, click the left mouse button twice.

**Figure 73. Area measurement.**

- The area (in square millimeters) and the perimeter (in millimeters) will be displayed in yellow

The **Volume** button is used to measure the volume of the object.

In the illustration below, the object can be imagined as the following solid of revolution: the vertical line is the rotation axis, around which the left and the right curves are rotated half of the circle.
• Place the mouse cursor on the starting point of the rotation axis.
• Then click the left mouse button (do not hold it) and move the cursor to the second point and click the left mouse button again.
• Then move the cursor to the third, fourth, etc. points of one side curve and each time click the left mouse button again.
• When you reach the end point of the rotation axis, click the left mouse button **twice** in order to specify the height of the object.
• Move cursor to the second, third, etc. points of another side curve and each time click the left mouse button again.
• When you reach the last point of the side curve, click the left mouse button **twice** in order finish the measurement.

The **VTI (Velocity Time Integral)** button is used to measure the distance over which the blood was ejected per interval of time.

• Place the mouse cursor on the point from which you want to measure the velocity time integral.
• Then click the left mouse button (do not hold it) and click the cursor on the second point and click the left mouse button again.
• Then move the cursor to the third, fourth, etc. points on the blood velocity profile and each time click the left mouse button again.
• When you reach the last point, click the left mouse button **twice** in order to end the measurement.
• The velocity time integral is measured in centimeters.

**NOTE!** This button is active only for the images of "US" modality.

**Ellipse** is used to measure area, length, width, Min and Max brightness in HU units and STD measurement in cm.

![Ellipse measurement](image)

*Figure 76. Ellipse measurement.*

The **Calibration line** button is used to change the scale of measurement.

• Click the Calibration button;

• Please draw a line on an image:

![Calibration line](image)

*Figure 77. Calibration line.*

• Indicate line length in millimeters in a pop-up window:

![Calibration function](image)

*Figure 78. Calibration function.*
• Once the data will be entered, click **Apply** – data will appear on the left bottom corner of the screen:

![Calibration ratio result](image)

*Figure 79. Calibration ratio result.*

The **Cobb angle** button is used to measure angle between lines.

To measure angle:

• select **Cobb angle** measurement,
• click on image and draw two lines,
• the Cobb angle measure will appear on the screen,
• you can drag lines and line points; by dragging the white dotted line, all lines will move simultaneously.

![Cobb angle](image)

*Figure 80. Cobb angle.*

The **Text** button is used to save the annotations of the measurements.

• Click the **Measure** icon and choose **Text** from the list.
• An annotation text window (white field) will appear on the screen.
• Yellow arrow can be pointed to any place of the image with a drag and drop motion.
• Yellow–border text window can be placed with a drag and drop motion anywhere on the image, for example, next to the measurement you want to add text to.
• Press **Enter** button in order to finish your annotation.
The ROI (Region Of Interest) is the same as area measurement only without measurements.

**NOTE!** Annotation support is implemented according to DICOM standard. All measurement including text can be saved as annotation. Indication that annotation is associated with the study (expanded list of available annotations)

The VHS (Vertebral Heart Scale) button is used to measure heart size and provide an accurate assessment of true cardiac enlargement.

**NOTE!** This measurement is available **ONLY** with VET license.

To perform a VHS:

- select VHS measurement,
- place the mouse cursor and click the left mouse button on the point from which you want to start measuring Long Axis Point (L),
- move the cursor to the second point along the area and click the left mouse button again,
- the Long Axis Point Line will appear,
- place the mouse cursor and click the left mouse button on the point from which you want to start measuring Short Axis Point (S),
- move the cursor to the second point across the area and click the left mouse button again,
- Short Axis Point Line will appear,
• In order to define SL point, place your mouse cursor and click the left mouse button on the point from which you want to measure S and L lines,

• S and L lines will appear:

**NOTE!** You can rotate lines by dragging the ends of the line (dots) according to your needs. Click the left mouse button on the yellow dot (highlighted in red) and drag the line into a position where you want it to be. Middle vertical line (S and L line intersection point) allows to move S and L lines at the same time:
The Norberg Angle button is used to evaluate canine hips.

**NOTE!** This measurement is available **ONLY** with VET license.

To measure the angle:

- Zoom in the selected image and select Norberg Angle measurement,
- Click the left mouse button over the selected image point to place the first circle of the Norberg angle,
- Move mouse cursor on the circle center point and drag to change position as you need:
- Repeat the same process with the other circle,
- Once done with both circles, Norberg angle measurement will appear:
• In order to adjust the circle size, move the mouse cursor to the dot on the circle and drag it:

Figure 87. Norberg angle measurement.

• To adjust the angles, move mouse cursor to the end of line (over the dot) and drag it,
• The angles will be calculated:

Figure 88. The outer part of the circle.

Figure 89. Demonstration of the Norberg Angle measurement.
The **Delete All** button is used to remove all measurements at once.

To remove the measurements:

- select the image from which you want to remove all measurements
- click **Measure**
- select **Delete All**.

The **Delete Selected** button is used to remove selected measurements.

To remove the measurements:

- select the image from which you want to remove some measurements
- click once with a left mouse click on the measurement that you want to delete
- click **Measure**
- select **Delete Selected** and selected measurement will be deleted.
Image localization

Overlaying reference lines allow you to indicate the location of an image slice on another image of an intersecting pane.

- Select the images that you want to compare and move them into the panes:
- Select one of the image you want to know the location of in regard to other images.
- Click on that selected pane.
- Click the button **Reference Line**.
- Yellow lines appear in the images, indicating the location of the selected image:

![Reference Line](image_url)

Figure 91. Reference line option on HTML5 platform.

- Scroll down the mouse wheel in order to select another slice downwards, and vice versa.
Cine mode

Using Cine mode you may put all series images into one movie. Just click on the Cine mode icon and the process will start (marked in red):

![Cine mode](image)

*Figure 92. Opening Cine mode function on HTML platform.*

This function allows you to play series images as one movie (one image – one frame).

NOTE! Windowing, Pan and Zoom functions are available during cine mode (see pages 19-20 on *Manipulating and analyzing images*).

![Cine mode](image)

*Figure 93. Playing images as one movie on HTML platform.*

To turn the Cine mode off, tap the Cine button again. Alternatively, you can just open an image from a different series.
Export and Forward

The button **Forward** is used to send the selected study to the remote device.

To **Forward** the study:

- select or open the study you would like to send and click **Forward**;
- the forwarding window appears:

![Forward Window](image)

*Figure 94. Study forwarding on HTML5 platform.*

- choose a device from the list;
- click **Forward**.

To **Export** the study (to burn it on a CD/DVD or save it on your computer):

- select or open the study that you want to write on the CD or DVD and click **Export**;
- the export window appears:

![Export Window](image)

*Figure 95. Export menu on HTML5 platform.*

To **Export** the study (**to burn it on a CD**):

- choose CD, DVD or Unlimited. (Splitting into volumes is implemented only under PacsOne.)
- click **Burn**.

After a while two buttons **Download ISO** and **Burn Now** will appear for every created volume. Click **Download ISO** in order to download a disk image with the .iso file extension, and burn it with your favorite CD/DVD burner software. Click **Burn Now**.
if you have installed a corresponding product by Softneta, MedDreamBurn; then a third-party CD/DVD burner will start automatically.

To **Export** the study (**to save its archive**):

- choose the format, then select to save an image, a series of images or an active study.
- click **Save** and choose a folder where you prefer to save the images in your computer. Click **Save** again.
Annotations on HTML5 platform

Following functions are not supported in FileSystem integration case: Key Objects, Annotations, Cine mode, MPR, Reports.

Annotations can be written, viewed and saved. Their presence is indicated by a pencil mark at the corner of small images on the left.

![Annotation mark.](image)

**Figure 96. Annotation mark.**

To write annotation:

- once you have made any of the measurements or manipulations of the study image, you will be able to write an annotation.
- move your mouse cursor to the upper toolbar and select icon Measure.
- click on the icon Measure, then select Text from the list.
- select the point where you want to write an annotation text.
- click the left mouse button on the point you have selected.
- annotation text window will appear:
click the left mouse button on the bottom annotation text window (white field) and now you should be able to write an annotation.

write an annotation for your study image.

click Enter button on your keyboard in order to finish writing your annotation.

To save annotation:

once you have written an annotation text you will be able to save it.

move your mouse cursor to the upper toolbar and select icon Measure.

click on the icon Measure, then select “Save Annotation” from the list.

annotation saving window will appear:
• The following information can be filled:
  - **Description**;
  - **Creator name**.
• enter the information.
• click **Save**.
• system saves annotation with the following information:
  - title;
  - description;
  - any drawn measurements;
  - written text.
  - creator name.
• once the annotation has been saved, the annotation mark will appear next to the study image.

**To view annotation:**

• if there are several annotations, user can choose which one to review.
• in order to view the annotation, drag and drop the study image (the one that has the annotation mark) to the main screen and the annotation icon will appear on the image:
• move your mouse cursor to the **Annotation** mark.

• click on the icon and choose an annotation from the list:

![Figure 101. List of annotations on HTML5 platform.](image1)

- click on the annotation you have chosen to view and the saved annotation will appear on the screen with an information that has been saved previously (line measurement in this case):

![Figure 102. View annotation on HTML platform.](image2)

**NOTE!** Saved Annotations can only be viewed.
Printing images on HTML5 platform

To print images, click Print button, which is in the middle of the Menu bar (enabled for images and disabled for videos, ECG and SR documents).

Click on one of Print options (Print Active Layout Area or Print Non-Empty Layout Areas) in order to print the selected image area view.

Figure 103. Print options.
Hanging protocols

NOTE! Hanging protocol is automatically applied only to the first study that is opened in the viewer.

Clicking the Hanging protocol button in the Menu bar opens Hanging protocol options window.

![Hanging Protocol Options Window](image)

Figure 104. Hanging protocol options window.

You can see the currently applied hanging protocol and apply the other hanging protocol in Manual hanging protocol selection section.

To apply other hanging protocol:

- select the hanging protocol group from Hanging protocol group drop-down list;
- select the hanging protocol from Hanging protocol drop-down list;
- click Apply button.

NOTE! Manual hanging protocol selection section is shown only for the studies with automatically applied hanging protocol.

NOTE! Only the hanging protocol groups and the hanging protocols that can be applied to the active study according to the group and study conditions are available for manual selection.

You can see and change workspace setting for automatic hanging protocol apply in Current workspace settings section:

- to change device setting select the device from Current device drop-down list;
- to change the Automatically apply hanging protocol setting select Enable or Disable button;
- click Apply button to save the settings.
NOTE! The workspace settings are saved in browser’s storage and are applicable only for the same browser on this workspace.

Figure 105. Hanging protocol options.

Hanging protocol button’s pop-up menu provides quicker access to some information and functions of Hanging protocol options window:

- menu Automatically apply hanging protocol show the current property value – colored icon means “Enabled”. Clicking the menu inverts the value;
- menu Applied hanging protocol show the currently applied hanging protocol. Clicking the menu opens Hanging protocol options window.

Shortcut CTRL+ALT+n can be used to apply the next hanging protocol from current hanging protocol group.
**ECG module**

This module allows you to view DICOM ECG wave data.

**NOTE!** This module can be used while MedDream is in demo mode; in the commercial mode it is licensed separately, therefore existing customers will need an updated license.

![ECG view on HTML5](image1)

*Figure 106. ECG view on HTML5.*

When viewing ECGs, behavior is different:

- Measurement tools are changed into ECG measurement tools.

![ECG measurements on HTML5](image2)

*Figure 107. ECG measurements on HTML5.*

- Image manipulation buttons are disabled.

The **Measurement** button is used to measure fragment length in seconds, mV and calculate heart rate (BPM).

To measure:

- Select **Measurement**.
- Move the mouse cursor on the point you want.
- Click down and move mouse over an ECG wave.
The **QT points** button is used to measure wave intervals RR, QT and QTc.

To measure:

- Select **QT points**.
- Move the mouse cursor on the point you want to set Q point and click.
- Move the mouse cursor on the point you want to set T point and click.
- Move the mouse cursor on the point you want to set the next Q point and click (double click also works).

The **HR** is designated to measure heart rate and visually estimate its irregularity:

- Select **HR** measurement tool;
- Move the mouse cursor on the point you want to set R point and click once the left mouse button;
- Move the mouse cursor on the point you want to set next R point and click once the left mouse button;
- Now you can compare given interval with other R points.

The **QRS Axis** is used to measure cardiac interventricular partition and ventricular depolarization spreading.
• Select „QRS axis“ measurement tool;

• Move the mouse cursor on the point you want to start your “QRS” measurement (“Q” point) and click once the left mouse button;

• Move the mouse cursor on the point you want to end your “QRS” measurement (“S” point) and click once the left mouse button.

![Figure 111. QRS Axis measurement tool.](image)

Change horizontal scale (mm per second).

Change vertical scale (mm per mV).

Pan button to adjust ECG data position.

Zoom button to adjust ECG data zoom.

• When you click Fit to Screen button, the size of the image is automatically adjusted so that the image would fill the entire screen. For example, if only part of the plot is visible on the screen, choose this button to see the whole ECG plot displayed on the entire screen.

• When you click Original resolution button, the size of the image changes into original size.

Filter function is used for the following:

• trims the edges of unnecessary points (points to the first spike that has no importance);

• trims high and low frequency signals applying low-pass and high-pass frequency filters under the “Filter Low Frequency” (003A,0220) and “Filter High Frequency” (003A,0221) tags;

• eliminates baseline wandering interference;

• filters out specified frequency signals adjusting band-stop filter by Notch Filter Frequency (003A, 0222) tag.
SR view

SR view enables to view structured reports.

Figure 112. SR window on HTML5 platform.

Figure 113. SR window.

SR window displays standard DICOM Structured Reports.
PDF view

PDF view enables to view PDF files encapsulated in DICOM format.

![PDF display on HTML5 platform.](image)

PDF window displays a standard PDF reader. Some Web browsers have built-in readers, in other cases the workplace needs additional software like Adobe Acrobat Reader.
Video view

Software enables to view video files, MPEG2 and MPEG4 (H.264), encapsulated in DICOM format.

![Video player](image)

Figure 115. Video player.

Video is played with the standard video player available.
System menu functions

You can open a system menu with functions About, License Agreement, Help, Shortcuts, Settings by tapping on the right top corner icon and choose functions from the pop-up window:

Figure 116. System menu.

About window will display with the following information. To close the window click on Close or X icons.

Information window will display:

12. Full product name;
13. Version;
14. Release date;
15. Medical device class;
16. ID of the notified body;
17. FDA cleared;
18. License to;
19. Concurrent connections;
20. Modules;
21. Valid to – “.” if there is no termination in time;
22. Update to – date till the technical support and updates are provided;
23. Contacts – Softneta UAB contacts.

**License Agreement** button forwards you to the software license agreement (EULA):

Figure 118. License Agreement (EULA).

**Help** button forwards you to the user manual of MedDream WEB DICOM Viewer.

Figure 119. User manual.
**Shortcuts** window will display keyboard shortcuts. A **keyboard shortcut** is a sequence or combination of keystrokes on a computer keyboard which invokes commands in a software. A full list of keyboard shortcuts on HTML platform has been provided on the **Shortcuts** menu.

![Shortcuts Menu](image)

*Figure 120. Shortcuts menu.*

**Settings** button is displayed for the database administrator only (more on this [Settings](#)).

**MedDream DICOM Viewer Chrome browser extension for multi-monitors**

**Requirements**

- MedDream DICOM Viewer multi display browser extension requires Google Chrome browser version 52 or newer.
- Multi display requires more than one display and works with 2 at one time.
- Please note, that extension requires displays with same resolution.

**Extension installation**
1. Extension can be found here:

1.1. Open Google Chrome Properties -> More tools -> Extensions:

In opened window select Extensions (in the left upper corner) -> Open Chrome Web Store

1.2. Go directly to Google Chrome extensions website -> https://chrome.google.com/webstore/category/extensions

2. Search for MedDream browser extension: type "meddream" or "dicom" in the search.

3. Add to chrome MedDream browser extension.

4. MedDream browser chrome extension has been successfully added to Chrome.
Extension configuration

1. In Google Chrome browser’s right upper corner you will find Softneta logo with added MedDream extension.

   ![MedDream extension](image1)
   
   *Figure 125 Successful MedDream extension’s addition.*

2. The user has to set up:

   2.1. Appropriate URL context path - default value is added “/md5/index”;

   ![URL context path](image2)

   *Figure 126 Extension’s indication.*

   **NOTE!** If user will leave empty URL context path, it will be filled by default value “/md5/index”.

   2.2. Specify desired monitors which will be used for MedDream DICOM Viewer and click save button.

   2.3. Example of configured extension:

   ![Extension configuration example](image3)

   *Figure 127 Configured extension’s example.*

   **NOTE!** Parameters are stored in browser local storage, thus after deleting temporary files should be set up again.

   2.4. When MedDream DICOM Viewer will be opened, the extension detects context path and automatically seizes web browser window in specified displays. It is recommended to use appropriate thumbnail layout like Thumbnail Top or Thumbnail Down.
Report module

⚠️ Following functions are not supported in FileSystem integration case: Key Objects,Annotations, Cine mode, MPR, Reports.

![Note icon]

NOTE! This module can be used while MedDream is in demo mode; in the commercial mode it is licensed separately, therefore existing customers will need an updated license.

![Report icon]

Figure 130. Report icon in the study header on HTML5 platform.
It will open a report window:

![Report module screenshot](image)

**Figure 131. Filled report.**

In the Report window you may edit and print the study report. The following buttons are used in order to:

- **Add template** to the list. Once you are satisfied with the content, you can save it as a template (either existing or new one).
- **List** of existing templates.
- **Save** a report. **Save** button changes to **Edit** button once the report has been saved.
- **Write** a report (edit mode).
- **Upload** the nearby information into the annotation.
- **Download** the uploaded attachment.
- **Delete** the uploaded attachment.
- **Print** the report text.
- **New** button is used to open an empty form of a template.
Enable editing of a selected template.

Delete the selected template.

To close the window (If you didn't click Save, the changes will be lost).

Figure 132. Template editing window.
License registration

This allows activating the software for legal use.

As a notification about the DEMO version appears, click the “Register” button. The registration button also appears in the Information window. The button is displayed only for administrators.

Figure 133. Demo notification on HTML5 platform.

Figure 134. Registration window on HTML5 platform.
**Settings**

The list of icons that will be used in this section.

![Help menu](image)

**Settings**

To change MedDream viewer’s settings, click **Help menu** button on the main search window at the top right corner of the screen. This button is displayed for the database administrator only. Then follow to the button **Settings**.

The **Settings** tab will pop up:

![Settings window](image)

*Figure 135. Settings window.*

There will be four sections: **General**, **Search**, **Viewer**, **Report** and **Hanging protocol**.

On **General** tab you can modify the auto logout time frame set. Auto logout in minutes – indicates the time when the system will logout automatically in case you forget to logout after a specified time of inactivity (not available while in DEMO mode):

![General window](image)

*Figure 136. General window.*

On **Search** tab you can modify the look of your main search window, such as:

- **Day Filter** – you can create your own day filter by using this option on the „Search” tab. Select the day filter (any, 1d, 3d, 1w, 1m, 1y) that you wish to be your default day filter.

- Please note that the default day filter is 3d.

![Day Filter selection](image)

*Figure 137. Day Filter selection.*

- **Default modalities** – you can select modalities which buttons will be shown on the main search window for quick access by clicking on “Enable” or “Disable” button. You can also select **All** or unselect any.

![Default modalities](image)

*Figure 138. Default modalities.*
NOTE! This filter is for compatibility with some PACSes (in MedDream’s “DICOM” PACS integration mode) that require a date range in all queries. It can also be used in direct integration modes if the database is too slow and accidental activation of the “Any” date choice results in unexpectedly long response times that disrupt the workflow.

- **Study paging** – you can add a default filter of studies shown on the main search window. Select the studies per page (10, 20, 30, 40, 50, 100) that you wish to be shown as a default setting.

![Study Paging](image)

*Figure 139. Study paging.*

On **Viewer tab** you can modify the auto logout time frame set. Auto logout inactive users after a period of time:

- **Cine mode FPS** – number of frames per second when playing multiframe images:

![Cine mode FPS](image)

*Figure 140. Cine mode FPS.*

- **AutoOpen First Image**:

![AutoOpen First Image](image)

*Figure 141. AutoOpen First Image.*

- **AutoStart Multi-Frame Images** - automatically start playing multi-frame images:

![AutoStart Multi-Frame Images](image)

*Figure 142. AutoStart Multi-Frame Images.*

- **DICOM flow (preload all study images sequentially)** – cache all images in advance. After an image is cached, scrolling through adjacent images takes very little time. But, the entire study must fit into browser's memory:

![DICOM flow](image)

*Figure 143. DICOM flow (preload all study images sequentially).*

- **Layout type** forces mobile view under certain resolution.
On **Viewer tab** you can modify position of thumbnails with four possible options:

- position the thumbnails to the left of the screen by clicking on the **Left** icon;
- position the thumbnails bottom of the screen by clicking on the **Bottom** icon;
- position the thumbnails right of the screen by clicking on the **Right** icon;
- position the thumbnails top of the screen by clicking on the **Top** icon;

On **Viewer tab** you can also modify the following possible options by clicking on **Disable** and **Enable** button:

- **Thumbnails Single-Click** - once the button is activated, a single click on an image icon will open the image (otherwise a double click is required);

- **Thumbnail size (Min 50px, MAX 150px)** - indicates the size of the thumbnail (minimum size is 50px, maximum size 150px):

- **Rows** - indicates the layout’s number of rows (maximum 3):

- **Columns** - indicates the layout’s number of columns (maximum 3):

The **Info Label properties** section is used to indicate information (from tags of a DICOM file) that is shown over the image. In order to add new DICOM tag, you need to indicate DICOM tag which information will be seen.

- **Left Side Information:**
• **Right Side Information:**

![Figure 150. Info Label properties. Left Side Information.](image)

![Figure 151. Info Label properties. Right Side Information.](image)

![Figure 152. Toolbar properties.](image)

The **Toolbar properties** section is used to add buttons to the toolbar. There are few options. The first **Include in quick menu** and **Disable** is intended for quick context menu. It either includes the button to the quick menu, either disables it.
Show in all layout types, Show in desktop layout, Show in mobile layout and Hide are indicated for toolbar icons. You can either select that the it would be applied to all layout types, either only for desktop layout or for mobile layout only. Hide button disables and hides the icon from the toolbar.

- **Windowing** - custom Window Level function allows users to create a custom window level preset for a selected modality list.

  - Click **Add new**.
  - Enter the name of the **Template label, Width** and **Center**. All four fields are mandatory.
  - Select modalities of your choice in order to assign the new window level function to certain modality (-ies):
Once done that, click on **Create** button.

New predefined Windowing level will appear on the list with predefined values and will be applied accordingly once you pick that from a Windowing list as shown below and it will be applied to the CT image study.

It can be removed from the list via **Settings** bar **Viewer** under **Windowing** section once you click on **Remove**.

The **Report settings** section enables user to control report popup:

Once you have made all changes that you need, click on “**Save settings**” in order to apply all the changes.
Hanging protocol settings

On **Hanging protocol** tab, you can create new hanging protocols, review and modify existing hanging protocols.

![Figure 158. Hanging protocol settings tab.](image)

**NOTE!** All the data changes that are done in Modality filter, Hanging protocol list, group and protocol child windows are saved in the temporary storage. That means the changes are not accessible to the other users and would be lost in case of program accidental close. The permanent data saving is done only when the **Save settings** is done.

![Figure 159. Modality filter for "Metadata fetching" mode.](image)

By default “Do not fetch metadata for these modalities” are set for modalities CT, ES, MR, NM, OT, OP, PT, PX, RF, RG, XA, US, XC. The DICOM series metadata is not retrieved in “do not fetch metadata for these modalities” mode and only the conditions with custom tags and the following DICOM tags are taken into account when applying the HP:

- (0008,0016) SOPClassUID,
- (0002,0010) TransferSyntaxUid,
- (0008,0060) Modality,
- (0020,0011) SeriesNumber,
- (0020,0013) InstanceNumber,
- (0010,0010) PatientName,
- (0008,1030) StudyDescription,
- (0008,103E) SeriesDescription.
NOTE! “Do not fetch metadada for these modalities” part can be modified manually. Data is saved in folder MedDream/settings/global.json part “notFetchMetadata”.

IMPORTANT: it is recommended to specify “notFetchMetadata” for the large modalities such us CT, MRI, because it takes time to get (fetch) all metadata. Changing fetching setting will impact image open speed if HangingProtocol will be applied!

Clicking the **Add new group** button on Hanging protocol tab opens the **Create group window.**

![Create group window](image)

To create a new hanging protocol group:

- enter the required group name in **Name** field. The group name is used for protocol identification and is shown to the users in MedDream viewer;
- if you need, enter the group description in **Description** field. The group description is only visible in settings, edit group window;
- select the **Devices** for which the group's protocols should be applied. Clicking the button with device name enables or disables selection;
- specify the **Group conditions**.

Condition is an expression that could be evaluated as true or false and is used for automatic applying of Hanging Protocol. Condition consist of DICOM or custom tag that is evaluated against static value according the specified operand. An example of condition would be: "Modality equals to "XA". Several conditions are joined using AND operand, that means all conditions in the group should be met.

A **Tag**, **Operand** and **Value** fields for new condition entry is displayed if **Add condition** is clicked.

![Add condition](image)

To enter the condition:
select DICOM or custom tag that should be evaluated in Tag drop-down list. In group conditions the custom tag series_count can be used for number of image series in study, and the custom tag instances_count can be used for number of images in study;

select the evaluation operand in Operand drop-down list. The operands list is automatically adjusted to the type of selected tag. The operands list for numeric tags: "+", ">", "<", ">=", "<=", "!=". The operands list for string tags: "match", "not_match", "begins_with", "end_with", "contain";

enter the value in Value field. The string value should be entered for string tag, and the numeric value should be entered for numeric tag.

To remove the entered condition, click the Remove button below the condition entry fields;

specify if the usage of this hanging protocol group should be enabled or disabled by selecting Enable or Disable buttons in the Active field. The disabled groups and its protocols are not used for automatic or manual apply;

click the Create button when all the group data is entered. The Create group window is closed the group is saved in temporary storage and is shown at the end of hanging protocol list on Hanging protocol setting tab.

Clicking the Add new protocol button on Hanging protocol tab opens the Create protocol window.

To create a new hanging protocol:

select the group of the hanging protocol in Group drop-down list;

enter the required protocol name in Name field. The protocol name is used for protocol identification and is shown to the users in MedDream viewer;

if you need, enter the protocol description in Description field. The protocol description is only visible in settings, edit protocol window;

define the layout by entering the number of columns in Layout columns field and the number of rows in Layout rows field;

specify the Study conditions. See details for condition's Tag, Operand and Value entry upper in this section;

specify the Views data for image selection and display:
NOTE! The view data for each view of the selected layout. The view is identified by \([\text{row number}] \times [\text{column number}],\) that is identifier “1x2” indicates the right view in one row and two columns layout. The arrow near the view indicator can be used to expand or collapse the data entry fields for the view.

![Figure 163. View settings in hanging protocol window.](image)

- specify the Prior conditions if you want the image from other study in patient history to be loaded in the view. By default the most recent prior study that meets the other conditions is taken. The custom tag no, that is the number of prior study from patient's history, starting from the most recent as "1", can be used. See details for condition's Tag, Operand and Value entry upper in this section;
- enter the values in Width and Center fields if you need the particular Windowing. If not specified, the windowing values from image DICOM file are taken or auto windowing is used, if DICOM values not specified;
- enter the Rotation value, positive number indicating degrees clockwise, and negative number for degrees counter-clockwise;
- specify the Instance condition for selecting the image from opening or prior study to display in the view. See details for condition's Tag, Operand and Value entry upper in this section;
- define the image manipulation parameters (see parameters description in section Manipulating and analyzing images):
  - Flip horizontally parameter, possible values Enabled or Disabled;
  - Flip vertically parameter, possible values Enabled or Disabled;
  - Scale parameter, possible values Original or Fit to screen;
  - Alignment parameter, possible values Right, Left or Center.
- click the Create button when all the protocol data is entered. The Create protocol window is closed, a new protocol is saved in temporary storage and is shown as the last protocol of selected group in protocols list on Hanging protocol setting tab.

The Hanging protocol list is two level expandable list with the hanging protocol group in the first level and the hanging protocols of the group in the second level.
The hanging protocols list supports the following functions:

- The arrow in the hanging protocol group line expands or collapse the list of group’s protocols;
- The Enable/Disable controls in the group line is used for disabling the hanging protocol group. The disabled groups and its protocols are not used for automatic or manual apply;
- The controls at the end of each group’s and protocol’s line provides access to group’s or protocol’s data review and edit:
  - Clicking the **Copy** button makes the copy of hanging protocol or group of protocols. The protocol is placed at the end of the group protocols list and postfix “-copy” is added to the name of the copied protocol. The group is placed at the at the end of the group list and postfix “-copy” is added to the name of the copied group and all its protocols;
  - Clicking the **Edit** button at the end of group line opens the *Edit group window* with group data filled in the entry fields. You can review and edit the group’s data. See detail fields description of fields in this section, *Create group window*;
  - Clicking the **Edit** button at the end of protocol line opens the *Edit protocol window* with protocol data filled in the entry fields. You can review and edit the protocol’s data. See detail fields description of fields in this section, *Create protocol window*;
  - Clicking the **Remove** button at the end of group or protocol line deletes the item. If the group is removed, all the protocols of this group are also deleted;
- The drag-and-drop functionality for changing the order of group in the list and for changing the order of protocols in the group. To change the place of the group or protocol item, press the right mouse button on the item and drag the item to the desired place holding the button pressed. The items order is important in automatic hanging protocol apply: the first group, that meets the group and device conditions, is chosen and the first protocol of this group, that meets the study conditions, is applied.
MedDream Mobile version

Logging on to MedDream Mobile
To log on to MedDream Mobile version, please do the following:

- Enter the address given by your administrator in your Internet Browser. The following screen will appear:

  ![Logging in](image)

  *Figure 165. Logging in.*

- Enter the username you were given in the field **Username**
- Enter the password in the field **Password**. If you forgot your password, please contact your system administrator.
- Tap **Login** on the screen.
Search of studies on Mobile Version

Search menu will help you to quickly find the studies you need. We recommend using all possible search menu options in order to get the most accurate search results and save your time.

To find a study, please follow these steps:

1. Once you login in to Mobile version Search window appears on the screen.

2. Enter search criteria (Patient ID, Patient Name and Study Description).

3. To specialize the search further, please select the date interval when the study could have been done. This can be done using two different date interval search criteria.

   → To select the study date, you can choose from the super quick pick list Date within last accordingly to the date interval you need your studies to be from: 1d (current day), 3d (3-day interval), 1w (1-week interval), 1m (1-month interval) or Any (no specific date).
4. The search can also be specified by selecting the method which was used to obtain the study images (modalities):

→ CR, CT, DX, ECG, ES, IO, MG, MR, NM, OT, OP, PT, PX, RF, RG, XA, US, XC, All, LIVE. The system allows to select a few image modalities. Tap the icon marked in red:

![Search according to modalities](image)

* Abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR</td>
<td>Computed Radiography</td>
</tr>
<tr>
<td>CT</td>
<td>Computed Tomography</td>
</tr>
<tr>
<td>DX</td>
<td>Digital Radiography</td>
</tr>
<tr>
<td>ES</td>
<td>Endoscopy</td>
</tr>
<tr>
<td>IO</td>
<td>Ultra-Oral Radiography</td>
</tr>
<tr>
<td>MG</td>
<td>Mammography</td>
</tr>
<tr>
<td>MR</td>
<td>Magnetic Resonance</td>
</tr>
<tr>
<td>NM</td>
<td>Nuclear Medicine</td>
</tr>
<tr>
<td>PT</td>
<td>Positron emission tomography (PET)</td>
</tr>
<tr>
<td>RF</td>
<td>Radio Fluoroscopy</td>
</tr>
<tr>
<td>RG</td>
<td>Radiographic Imaging</td>
</tr>
<tr>
<td>US</td>
<td>Ultra Sound</td>
</tr>
<tr>
<td>XA</td>
<td>X-Ray Angiography</td>
</tr>
<tr>
<td>XC</td>
<td>External camera photography</td>
</tr>
<tr>
<td>ECG</td>
<td>Electrocardiography</td>
</tr>
</tbody>
</table>
OT – Other
OP – Ophthalmic Photography

5. After you have selected your search criteria, start the search by tapping Search icon.

6. You will see the following window with the search results. If you want to go back to the main search menu, tap on Search icon marked in red below.

7. Tap on the specific study so you could open the image you want to analyze:
NOTE! Under PacsOne, all unread studies are marked in white bold font on the main search window.
Opening multiple studies on MedDream Mobile version

If you need to open more than one study (e.g. to compare them), please do the following:

1. Once you have opened your selected study, divide the screen into sections, for example 2x2 (see more on Manipulating images on Mobile Version);
2. Tap on an empty pane (1, 2 or 3):

![Screen layout on MedDream Mobile version.](image)

3. Tap on the icon **Series** displayed on the beginning of the main toolbar;
4. Select any other study you want to add, tap on it and it will appear on one of the panes:
5. Select the next study you want to add and repeat steps 1 – 4 that were mentioned above. Keep doing this till you open enough studies that you need for your analysis and comparison.
Manipulating images on Mobile Version

You can manage and analyze the study images according to the criteria you need. Image manipulation tool bar is displayed at the bottom of the screen.

![Figure 174. Image manipulation tools.](image)

More about each of them:

- **Windowing** button is used to adjust the Level/Window (contrast and brightness) of the image. Put your finger on the screen and pan up and down to control the brightness of the image.

- **Pan** button allows you to position images within the pane. This feature is especially useful when the image is larger than the pane, as it usually is after zooming.

To move an image within the screen:

- On the Tools menu, tap **Pan**;
- Tap the image you want to move and flick the image around the screen to drag it to the position needed;
- Release the image to leave it in its new position.
**Zoom** button is used to zoom in and zoom out the image. If you want to zoom in or zoom out you just need to pinch and stretch. It zooms gradually an image out or in.

![Zoom button](image)

*Figure 175. Zoom in and out.*

**Scroll** button functions as scroll bar. Once tapped it enables you to scroll through the series of images by using a vertical drag gesture (with a finger).

**Rotate** button allows you to rotate the image with a circle finger motion.

**Rotate Right** – to rotate the image 90° clockwise. Tapped once, it rotates the image to the right.

**Rotate Left** – to rotate the image 90° counter-clockwise. Tapped once, it rotates the image to the left.

**Flip Horizontal** – to flip an image 180° about the horizontal axis. Tapped once, it flips the image horizontally.

**Flip Vertical** – to flip an image 180° about the vertical axis. Tapped once, it flips the image vertically.

**Link** button is intended for making comparison on image slice location. There are three types of this button: **Automatic**, **Manual** and **Disabled**.
**Automatic** mode synchronizes different series according to image orientation, image position and slice thickness automatically. Series consisting of images that have reference to the same UID within the same study are automatically synchronized by default. Tap the icon once in order to enable the Automatic mode.

**Manual** mode allows to compare the images from the study series manually. Series acquired in similar planes belonging to the same or different studies (of the same or different patients) can be synchronized manually by default. Tap the icon twice in order to enable the Manual mode.

**Disabled** mode disables synchronization modes.

**Screen layout** buttons divide the screen into sections and allow you to see as many images as you want on the screen which helps in comparing images: 1x1 Screen layout, 1x2 Screen layout, 2x1 Screen layout, 2x2 Screen layout.

![Figure 176. 2x2 Screen layout on Mobile version.](image)

**Reset** button is used to reset and clear any data that you have been working on. Tap once and all your entries will be cleared.
Following functions are not supported in FileSystem integration case: Key Objects, Annotations, Cine mode, MPR, Reports.

Selecting the **MPR** view is done by clicking one of the MPR buttons in the toolbar. It contains three different icons:

- Axial
- Sagittal
- Coronal

Once you have tapped on one of the options, the download process will start (blue line below):

![Figure 178. MPR download process on MedDream Mobile version.](image)

Once the loading process is done, you will be able to scroll the screen up and down over the image and see the view (axial, sagittal, coronal) you have selected.

**Theme** changes Meddream's default color (red) to a color (blue) that is clearly visible on black and white monitors.
**Preload study/series** are intended for a preload of a study or series in order to scroll through the images much faster with a help of mouse wheel. Once you click the preload icon, preloading starts.

![Preload progress on MedDream Mobile version.](image)

This function preloads study and series data. The stored series can be scrolled interactively in the form of scrollable image stacks.
Positron Emission Tomography (PET CT)

The **Fusion** function allows you to combine the series of PET and CT types (attach the selected PET series to the displayed CT series), thus linking the sites of radioactive drug concentrations with the anatomical patient structure. The series fusion function can be selected only after loading the series into the active window. The **Fusion** function is achieved by selecting the Fusion icon in the main toolbar or by pressing the F keyboard shortcut button.

**NOTE!** The ability to choose a PET series from another study allows the user to combine series of different studies. This function also allows the user to combine magnetic resonance imaging (MR) series with PET series.

- Tap **Fusion** button and the following pop-up window with positron emission tomography (PET) will appear on the screen:

![Figure 180. PET dialog on MedDream Mobile version.](image)

- The PET series selection dialog allows the user to select PET series from an active study (a study that has a CT series open in the active viewport) or from a series of PET in other open studies.

- In the PET series selection dialog select the PET series you want to combine and click on the **Start Fusion** button.

- The merging process is seen on the screen:
Once done, the following window will appear on the screen:

Figure 181. Fusion process on MedDream Mobile version.
Figure 182. Fusion function on MedDream Mobile version.
Manipulating fused series
The functionality of the fused series toolbar is described below.

11. Changing the color range
By default, the Hot iron color range is applied to the fusion series. However, according to the specificities of the anatomical body sections analyzed, different color range can be used. The choice of the color selection is performed by expanding the list of color schemes and choosing the desired color range. The selected color range for the fused series is automatically applied immediately after selection.

12. Changing the fusion ratio
In the analysis of fused series, it is important to have the ability to change the fusion ratio which is possible with Transparent layer button. Changing the ratio is possible by switching the ratio change marker to the PET or CT series. In this way, one or the other series is highlighted and a clearer view is provided.

13. Upper layer data adjustment
If the fusion of the series is not completely symmetrical, then the Pan tool can be used. This tool allows you to visually anatomically link the fused series.
NOTE! By selecting the Pan tool in the fusion toolbar, only the upper layer (PET series) position is changed. If the Pan tool located on the main toolbar is selected, the joint position of the fusion series is changed in this case.

14. Adjust the Level/Window (contrast and brightness) of the upper layer

By choosing the Windowing tool in the fusion toolbar, the user can change the level of brightness to the upper layer (applicable to the PET series). If the Windowing tool is selected from the main toolbar, then the overall brightness level (PET and CT series) is changed.

![Figure 187. Fusion Windowing on MedDream Mobile version.](image)

15. Upper layer zoom function

In the fusion toolbar, by selecting the Zoom tool, the system user can change the top layer scale (applicable to the PET series). If the Zoom tool is selected from the main toolbar, in this case the overall (PET and CT series) scaling is changed.

![Figure 188. Fusion Zoom on MedDream Mobile version.](image)

16. Upper layer rotation

Once the Rotate tool in the Fusion toolbar, the system user can rotate the top layer to one-degree accuracy (applicable to the PET series). If the Rotate tool is selected from the main toolbar, in this case the rotating image (PET and CT series) is rotated.

![Figure 189. Fusion Rotation on MedDream Mobile version.](image)

17. Upper layer image overlay

If there is a mismatch between the fused series, the series images can be overlaid. The system user must select the Manual Adjustment button from the fusion toolbar. The overlay is possible by changing the image to the next (by clicking the + button) or by changing the image to the previous one (by clicking the – button).

![Figure 190. Fusion Manual Adjustment on MedDream Mobile version.](image)
18. Reset function

Reset button restores the study image to the previous original state.

![Figure 191. Fusion Reset button on MedDream Mobile version.]

19. Close function

To close the window, click on Close or X icons at the end of the fusion toolbar.

![Figure 192. Fusion Close button on MedDream Mobile version.]
Measuring Images on Mobile Version

Measurement buttons allow to measure the images in number of ways. Once tapped it calls out measurement tool menu:

- Line – to measure the distance;
- Angle – allows you to display the angles;
- Polyline - to measure the perimeter of more than one line;
- Area - to measure the perimeter and the area of a region of interest;
- Calibration - to change the scale of measurement;
- Delete – deletes all measurements you have made so far.

**Figure 193. Measurement tool menu on MedDream Mobile version.**

- Tap on the measure button Line;
- Tap on the starting point from which you want to measure the distance;
- Tap on the ending point where you want to end measuring the distance;
- The distance (in millimeters, or pixels in some images) will be displayed:

**Figure 194. Line measurement on MedDream Mobile version.**

- Tap on the measure button Angle;
- Tap on the starting point where you want to start one of your lines and tap on the end of each line where you want to end your measuring;
- The result will be displayed in yellow:
• Tap on the measure button **Polyline**;

• Tap on the point where you want to start measuring your perimeter and move along;

• Then tap to the second, third, fourth, etc. points till you reach the last point – use double-click in order to see the result;

• The perimeter (in millimeters, or pixels in some images) will be displayed in yellow:

---

The **Calibration line** button is used to change the scale of measurement.

• Click the Calibration button;

• Please draw a line on an image:
• Indicate line length in millimeters in a pop-up window:

![Calibration line](image)

*Figure 197. Calibration line.*

• Once the data will be entered, click **Apply** – data will appear on the left bottom corner of the screen:

![Calibration ratio result](image)

*Figure 198. Calibration function on MedDream Mobile version.*

CAL: 1 mm = 9.7 px

*Figure 199. Calibration ratio result on MedDream Mobile version.*

The **Area** button is used to measure the perimeter and the area of a region of interest.

To measure the area:

• Tap on the point from which you want to select the region of interest.

• Move the finger to the second point and tap once more.

• When you reach the last point, tap once.
The area (in square millimeters) will be displayed.

To remove the measurements:

- Select **Delete Selected** in order to delete certain measurement.
- select **Delete all** from the selection in order to delete all measurements.
Image localization

Overlying reference lines allow you to indicate the location of an image slice on another image of an intersecting pane.

- Select the images that you want to compare and move them into the panes:
- Select one of the image you want to know the location of in regard to other images.
- Click on that selected pane.
- Click the button Reference Line.
- Yellow lines appear in the images, indicating the location of the selected image:

![Reference Line Image](image)

*Figure 201. Reference line option on MedDream Mobile version.*

Scroll down in order to select another slice downwards, and vice versa.
Cine mode

Following functions are not supported in FileSystem integration case: Key Objects, Annotations, Cine mode, MPR, Reports.

Using **Cine mode**, you may put all series images into one movie. Just tap on the Cine mode icon and the process will start (marked in red):

This function allows you to play series images as one movie (one image – one frame).

**NOTE!** Windowing, Pan and Zoom functions are available during cine mode (*see more on* [Manipulating images on Mobile Version](#)).

![Figure 202. Playing images as one movie on MedDream Mobile version.](image)

To turn the Cine mode off, tap the Cine button again. Alternatively, you can just open an image from a different series.
ECG module

This module allows you to view DICOM ECG wave data.

NOTE! This module can be used while MedDream is in demo mode; in the commercial mode it is licensed separately, therefore existing customers will need an updated license.

When viewing ECGs, behavior is different:

- Measurement tools are changed into ECG measurement tools.

- Image manipulation buttons are disabled.

The Measurement button is used to measure fragment length in seconds, mV and calculate heart rate (BPM).
To measure:

- Select **Measurement**.
- Tap on the point you want to start and move over an ECG wave.

![Figure 205. Measurements on MedDream Mobile version.](image)

The **QT points** button is used to measure wave intervals RR, QT and QTc.

To measure:

- Select **QT points**.
- Tap on the point you want to set Q point and click.
- Tap on the point you want to set T point and click.

![Figure 206. QT points on MedDream Mobile version.](image)

- Move the mouse cursor on the point you want to set the next Q point and click (double click also works).

The button **HR** is designated to measure heart rate and visually estimate its irregularity:

- Select **HR** measurement tool;
- Tap on the point you want to set R point;
- Drag to the point you want to set next R point;
- Now you can compare given interval with other R points.

![Figure 207. HR measurement tool on MedDream Mobile version.](image)
The **QRS Axis** is used to measure cardiac interventricular partition and ventricular depolarization spreading.

- Select „QRS axis“ measurement tool;
- Tap on the point you want to start your “QRS” measurement (“Q” point);
- Tap on the point you want to end your “QRS” measurement (“S” point).

*Figure 208. QRS Axis measurement tool on MedDream Mobile version.*

**Change horizontal scale (mm per second).**

**Change vertical scale (mm per mV).**

**Pan** button to adjust ECG data position.

**Zoom** button to adjust ECG data zoom.

- When you click **Fit to Screen** button, the size of the image is automatically adjusted so that the image would fill the entire screen. For example, if only part of the plot is visible on the screen, choose this button to see the whole ECG plot displayed on the entire screen.
- When you click **Original resolution** button, the size of the image changes into original size.

**Filter** function is used for the following:

- trims the edges of unnecessary points (points to the first spike that has no importance);
- trims high and low frequency signals applying low–pass and high–pass frequency filters under the “Filter Low Frequency” (003A,0220) and “Filter High Frequency” (003A,0221) tags;
- eliminates baseline wandering interference;
- filters out specified frequency signals adjusting band-stop filter by **Notch Filter Frequency** (003A, 0222) tag.
Study reports

Following functions are not supported in FileSystem integration case: Key Objects, Annotations, Cine mode, MPR, Reports.

The list of icons that will be used in this section.

- Report icon (empty)
- Report icon (full)

In the study pop-up window, you can notice that some of the studies have reports. This is indicated by the “Report” icon, which appears on the top left corner next to the study.

![Figure 209. Study Report icon location on MedDream Mobile version.]

The report of the study may be indicated by two different buttons:

If the Report button is empty, the report itself is also empty - single report icon (the doctor can fill it).

If the Report button appears full - the double report icon (the doctor can read, edit or print it).

To read a report:

- select a study with the Report icon:
- tap on the Report icon once to open the report.

A report window will appear.
it opens a separate Report window, which can fully employ Report functions — edit and print the study reports.

In the Report window you may edit and print the study report. The following buttons are used in order to:

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<tr>
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<td>Add attachments to the report.</td>
</tr>
<tr>
<td>Save</td>
<td>Save a report. <strong>Save</strong> button changes to <strong>Edit</strong> button once the report has been saved.</td>
</tr>
<tr>
<td>Report saved successfully</td>
<td>Once you tap Save icon, information window appears with the indication Report saved successfully.</td>
</tr>
<tr>
<td>Edit</td>
<td>Write a report (edit mode).</td>
</tr>
<tr>
<td>Delete</td>
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</tr>
<tr>
<td>Print</td>
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</tr>
<tr>
<td>Paste to report</td>
<td>Paste the nearby information into the report.</td>
</tr>
<tr>
<td>New template</td>
<td>New template button is used to create new form of a template.</td>
</tr>
<tr>
<td>Add template</td>
<td>Add template button is used to add already created form of a template.</td>
</tr>
</tbody>
</table>
- This is where you can pick a new font, size for your text.
- Make your text bold, italic or underlined.
- Create a bulleted or numbered list.
- Align your text.
- Change table of properties.

- click the X button on the new tab window in order to exit the report window.
System menu functions on Mobile Version

You can open a system menu with functions About, License Agreement, Help, Settings, Log off. Tap on the right top corner icon marked in red and choose functions from the pop-up window:

![System menu on MedDream Mobile version.](image)

About information window will display with the following information:

1. Full product name;
2. Version;
3. Release date;
4. Medical device class;
5. ID of the notified body;
6. FDA cleared;
7. License to;
8. Concurrent connections;
9. Modules;
10. Valid to – empty if there is no termination in time;
11. Update to – date till the technical support and updates are provided;

To close the window, click on Close or X buttons.

![Information window.](image)
License Agreement button forwards you to the Software License Agreement (EULA). The following End User License Agreement (EULA) will appear on the screen:

![Image of Software License Agreement]

Figure 212. License Agreement.

Help button forwards to MedDream DICOM Viewer user's manual:
To change MedDream viewer’s settings, click button **Settings** and it will lead you to the settings menu. For more information, see **Settings**.

- Click **LOG OFF** if you want to discontinue working with the program.
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Medical device class: Directive 93/42/EEC and amendment 2007/47/EC

Class Ila medical device

FDA cleared

ID of the notified body: 2460

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