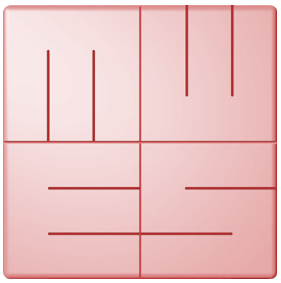
English



MediaWorkStation

Classic Edition

Version 2.8

User Manual

Translation of the german edition

Issue 1-2019

MediaWorkStation Classic Edition
User Manual

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MediaWorkStation Classic Edition
User Manual

1. General

Translation of the original german user manual. Please read this user manual carefully and observe the notes given.

1.1. Abbreviations and icons

MWS-CE MediaWorkStation Classic Edition
MES Medien Elektronik Software
F1 Control key “F1” on the keyboard
DVI Digital Visual Interface, digital interface for transmitting video data
VGA Video Graphics Array, analogue interface for transmitting video data
GNU GPL GNU General Public License

Consult instructions for use. User manual is available in folder c:\mws\manual\ after software installation. Visit www.mediaworkstation.de for the latest version of the user manual.

General warning. Sections marked with this icon contain important requirements for the safe operation.

General precept. Sections marked with this icon contain important hints for the best operation.

Symbol of the manufacturer.

1.2. Legal information

The product "MediaWorkStation Classic Edition" – short MWS-CE - is marked with the CE-Sign according to the EU-guideline 93/42/EWG.
The product is protected by the "End User License Agreement" of MES. Parts of the product are protected by the "GNU GPL".
All trademarks and registered trademarks are the property of their respective owners

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CE-Sign of conformity to the
EU guideline 93/42/EWG

2. Introduction

2.1. Intended use

Imaging techniques are used in many areas of medicine: in endoscopy as well as in sonography, for the observance of patients and many other applications. "MediaWorkStation Classic Edition" - short MWS-CE - is software for Windows for the displaying, recording, administration, documentation and playing of pictures and videos in medical contexts.
Permanent storing of the recorded pictures and video is not provided in MWS-CE. The operating period is defined to CONTINUOUS OPERATION. After 24 hours the system must be rebooted.

2.2. Functionality

The output signal of visualising devices such as cameras, videoscopes and sonographic devices is displayed on the monitor connected to the computer working with MWS-CE, and can be recorded as individual picture or as video.
The recorded information is saved to a database which is sorted by patients and sessions. Several display and search functions make it possible to directly address and select individual data sets. The programme provides text fields to write down additional comments.
For review and continued documentation, MWS-CE offers several functions for displaying pictures and videos, for visual comparison, for adding comments and for exporting picture and video data in standard formats.

2.3. Safety guidelines

⚠ Protect your computer and the programme against unauthorised access by using passwords. Protect your computer against virus attacks and other malware by using antivirus software. If the computer is part of a local network or connected to the internet, install a firewall, in order to protect the computer against unauthorized attacks from outside. Please observe the safety requirements by your web administrator, too.

⚠ If the data are saved on a central server, make sure the server is started up and linked to the network. Make sure that you are fully authorised for access to the central data server.

⚠ MES cannot guarantee uninterrupted permanent operation of the MWS-CE! For this reason, the MWS-CE may only be used within a redundant system pool, if an uninterrupted visualisation must be guaranteed.

Also observe the hints and explanations of the online help of the product. You can find the online help in the relevant part of the programme menu (e.g. Start → Program Files → MediaWorkStation → Help) or, after starting the software, by pressing the keys [Help] or [F1].

3. Installation

3.1. Requirements on the computer

You need a medical grade computer.

Depending on the video format of the video source the computer has to fulfill the following minimum requirements:

SD Video (PAL/NTSC)	HD Video (1080p30)	HD Video (1080p60)
Windows 10 / 8 / 7 (Administrative rights for installation)		
Intel Core i3-3210 3,2 GHz	i5-7500 3,8 GHz	i5-7500 3,8 GHz
4 GB DDR3 Memory	4GB DDR4 Memory	2x4GB DDR4 (2 Module)
200 GB Hard disk space		
Graphics card Intel HD 2500	HD 630	HD 630
Video converter with DirectShow support		
Display, 1024x768 Pixel, 32Bit	1920 x 1080 Pixel	

Table 1 - System requirements

The requirements are minimum values. A more powerful equipped computer, especially in processor speed, memory and storage space, is recommended.

Access right as administrator are necessary for installation procedures.

The MediaWorkStation Classic Edition is not entirely compatible with other MediaWorkStation editions. Different editions of the MediaWorkStation shouldn‘t be used parallel.

3.2. Required system components

Please consider light sources (reflections on the screen) and lighting conditions. Do not expose to direct sunlight or heating.

In order to document medical examinations or interventions, the following additional components are necessary:

- Video camera or another modality with compatible video output
- Display
- Keyboard and mouse or "touch"-display

The following accessories can be used to control the recording of videos and pictures:

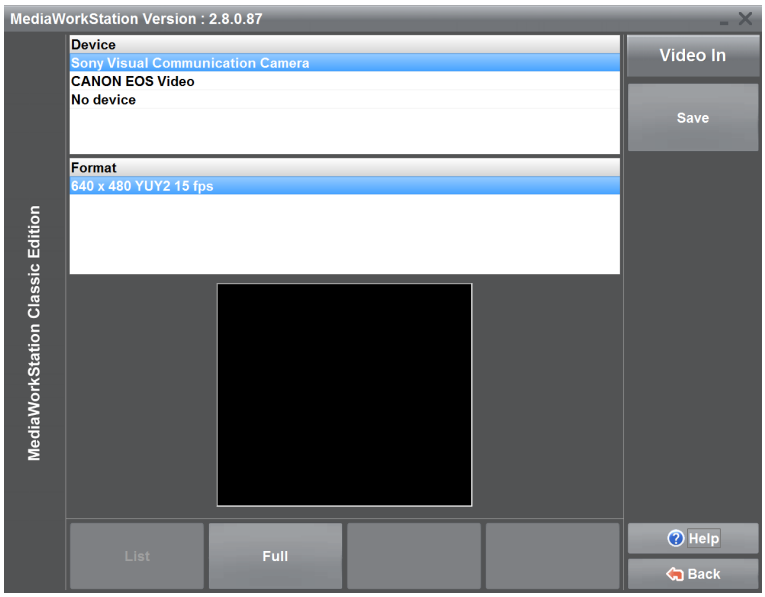
- USB footswitch (one pedal)
- USB footswitch (two pedals)
- USB remote cable

3.3. Configure the software

In the system settings area it is possible to adjust all pre-settings to user-specific requirements. The settings will be saved in the Windows registry database and configuration files. They control many of the functions of the system.
Modifications of the parameters may result in malfunctions and are thus exclusively reserved to authorised administrators. You find the settings in the system area (see also 4.9).

Use the programme „MWSConfig“ (Start -> program files -> MediaWorkStation -> MWSConfig) for basic system configuration.

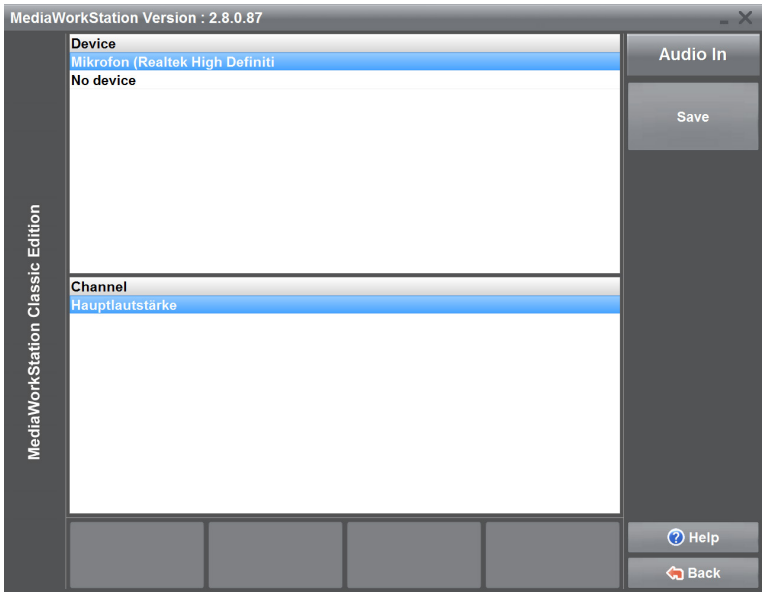
Video input device



A list displays all “devices” of the type ”video input” available in the system. When selecting a device it will be enabled, and in the window situated below the list the current input signal is displayed for check.
For some devices (such as the USB cameras) all possible video formats will be listed additionally. From the check box, select the format promising the best play quality, and pay special attention to a proper geometrical presentation.

Figure 1 - Video input configuration

Audio input device



A list displays all devices of the type ”audio input” available in the system. When selecting a device, it will be enabled and the recent input signal will be played. This acoustic check makes it possible to choose between those devices which are properly working currently.

Figure 2 - Audio input configuration

If a USB video input device was selected, the device cannot at the same time be the audio input device.

If you are using a DV-converter as video input device, please select them as audio input device too.

Audio output device

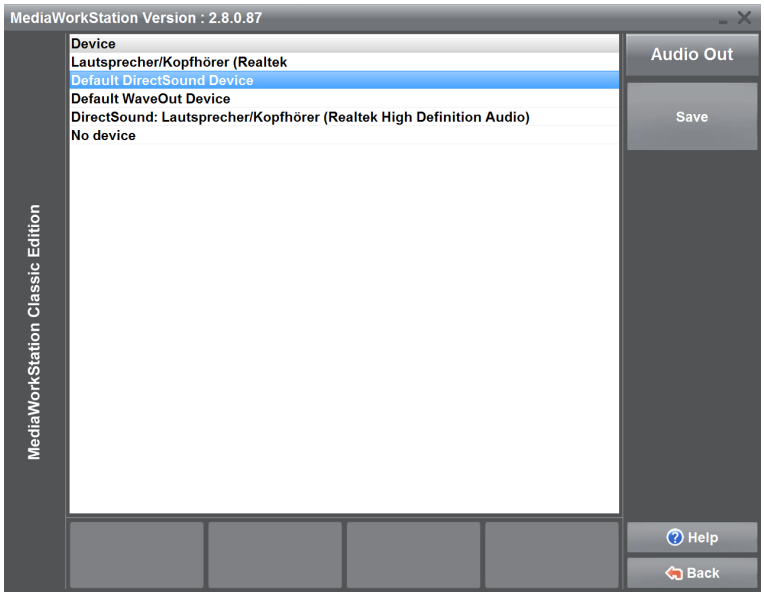


Figure 3 - Audio output configuration

A list displays all devices of the type ”audio output” available in the system. When selecting a device, it will be enabled and a test tone will be generated. This acoustic check makes it possible to choose between those devices which are currently properly working.

Export setup default destination

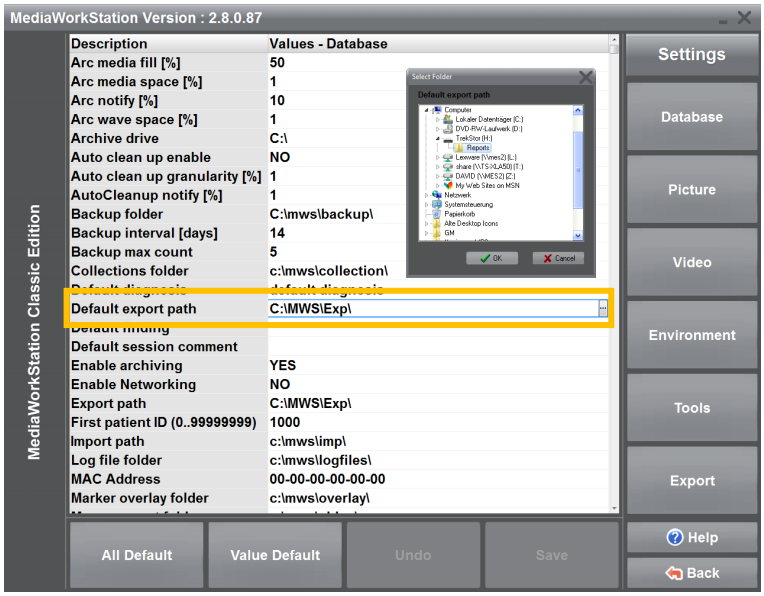


Figure 4 - Settings database

MWS-CE has been developed for exporting pictures to mobile data carriers. In order to copy the relevant data automatically to the medium in the export area, select the standard medium. Plug a USB stick into the selected port, and then select it as target medium.

4. Operation

4.1. General remarks

The operational sequences explained in this manual describe only the fundamental steps to perform the task.
The online help gives a complete description of the entire functionality of the programme. Open the online help by pressing the key [F1] on the keyboard or the [Help] button.
Basically, the software is a Windows programme. Thus all features of use and presentation of Windows are valid:

- Full mouse support
- Underlined letters are short cuts, ALT + letter = pressing the button
- An element which is focussed by a dotted rectangular is to be confirmed with [Enter] or [Space]
- Buttons with greyed letters are disabled and cannot be pressed.

4.2. Activation

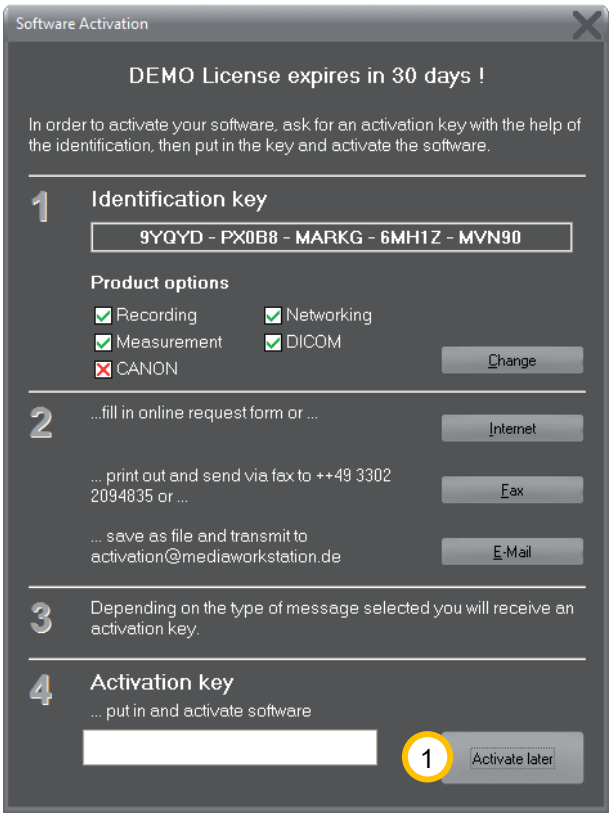


Figure 5 - Activation dialouge box

The software is protected against unauthorised use by a protection mechanism which avoids the start of the programme after a certain period of testing (usually 30 days). When you have bought a licence and installed the programme you must order an activation key with the help of which you can activate the software for unlimited use. Please follow the hints given in the activation dialogue. The dialogue will appear at every start of the programme as long as the software is not activated yet.

During the evaluation period you can skip this dialogue by clicking (1) [Activate later].

Please note that you will have to send your bill of sale (receipt) or voucher code together with the activation request.

4.3. User front-end

The user front-end of the MediaWorkStation is devided in the portions status bar, display area, tool/message area and menu bar. The arrangement of the window will not be changed throughout of the entire duration of the program.

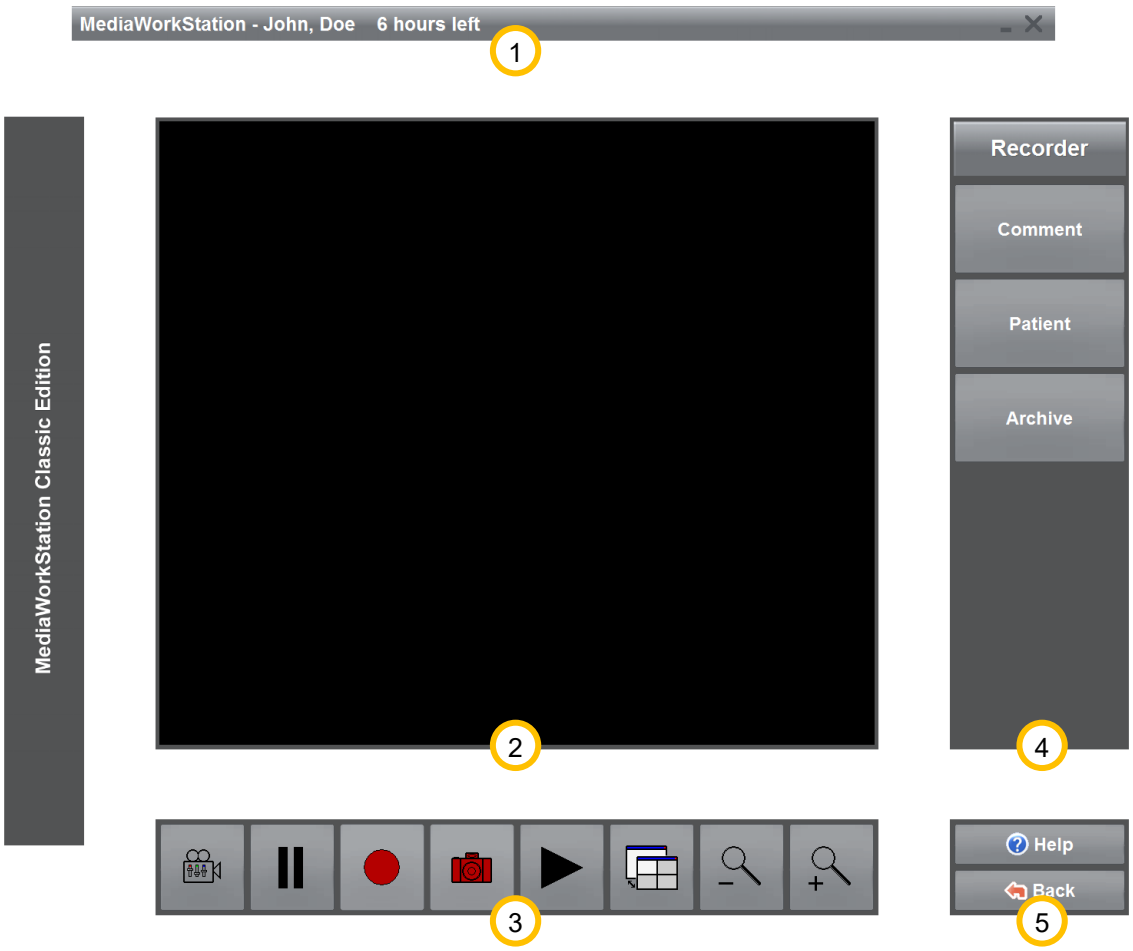


Figure 6 - User interface

1 The status bar displays the name of the patient and more mode-specific information. Our example shows the recorder mode stating the remaining recording capacity.

2 The display area displays the picture information in preview mode, recording mode and playing mode, as well as selection lists and input masks for editing patient data and findings.

3 The tool and message area contains tools for the direct control and manipulation of the display area. Action status messages, warnings and error messages are also prompted in this area.

4 At the right side you find the menu bar and the name of the current mode in the headline section. The top section of the menu bar is variable and contains tools for operation control and additional functions.

5 The bottom section of this menu bar is invariable and contains the buttons for calling up the help function (context-sensitive) and leaving the current programme mode.

4.4. Operation by touch display

You can operate the programme almost completely via a screen sensitive to touch. All essential functions of the programme can be called up by touching large and clearly arranged buttons on the screen, except functional areas of the system configuration and special dialogues for the opening and saving of files.

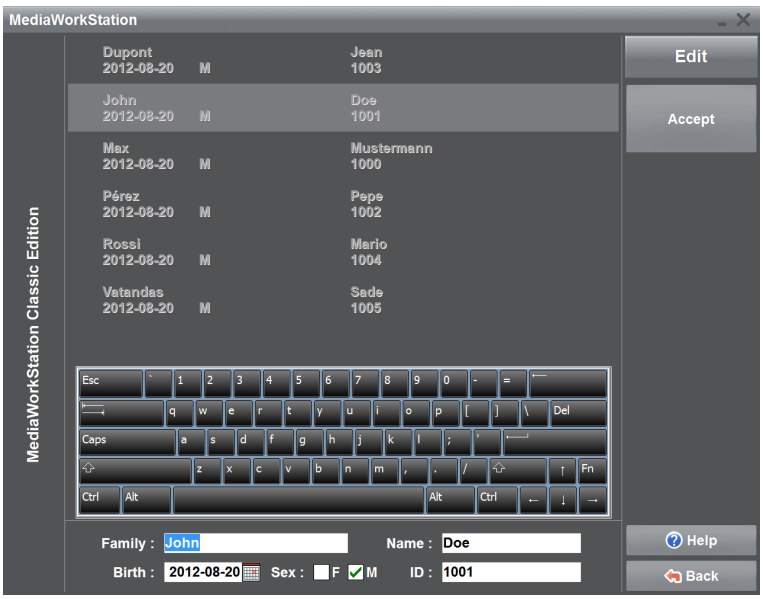


Figure 7 - Touch operation

Touching the screen substitutes the function of the indicating device, e.g. the mouse. A touch corresponds to pressing the primary mouse key. For example, if you wish to select a picture detail for enlargement, touch the screen at the first selection point of the rectangle and move your finger or pen on towards the second selection point. Conclude the selection by removing your finger or pen. The removal of finger or pen from the screen corresponds to the release of the primary mouse key.

In addition to the buttons for programme control a screen keyboard exists for text input. The keyboard configuration is adjusted to the respective language.

Under settings you may select, whether or not the screen keyboard will be displayed.

⚠ Usually the touch-sensitive surface of the touch screen requires calibration for exact position detection results. Please observe the relevant information by the manufacturer.

4.5. Authorisation

For login you are required to put in your user name and password. After successful login you are authorised to use the system corresponding to the authorisations allocated to you in system/user mode. The initial login name is “Supervisor” without a password.

Figure 8 - Authorisation

4.6. Select working mode

You are at the central entry to the programme. From here you may choose between several modes.

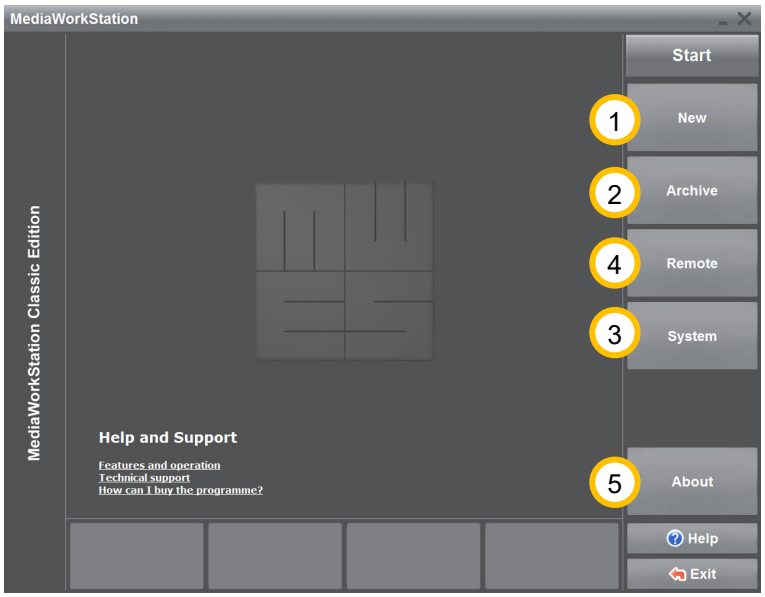


Figure 9 - Start area

1 [New] After selecting a patient, a new session will be created and the recorder mode is started.

2 [Archive] This button gives access to all patients and sessions. Already existing dates and video clips can be analysed, edited or deleted. See also 4.8.

3 [System] You can edit basic settings and make user-specific settings. See also 4.9.

4 [Remote] (optional) Lists all commands sent from another computer to the remote control.

5 [About] This button calls up a dialogue displaying version and licence information on the programme.

4.7. New area

Select Patient

You can select a patient from the list or make a new entry. You may see the list for patient numbers or names.

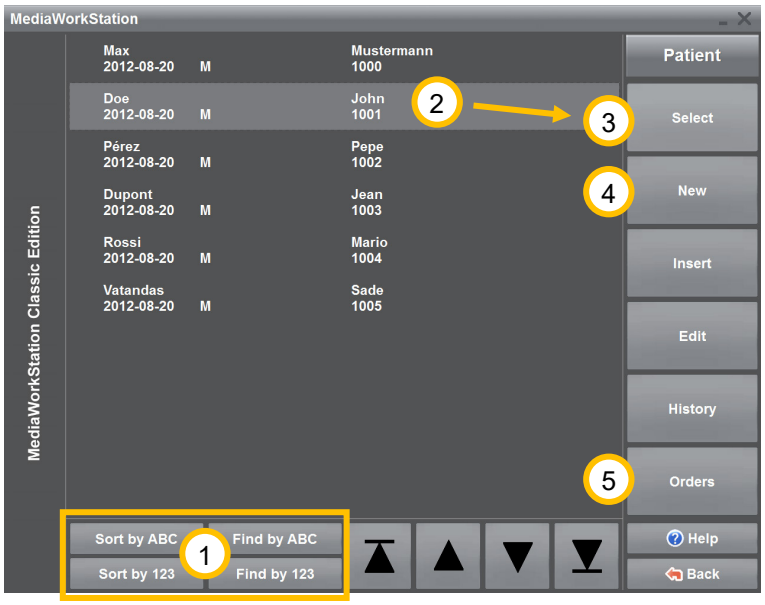


Figure 10 - Select patient new area

(1) For directly searching a patient press one of the buttons [Find by ABC] or [Find by 123] and start with the input of the search term. The data record cursor is automatically positioned to the data set showing the highest degree of congruence.

(2) Highlight a patient for selection or create a (4) [New] patient file.

(3) Makes the highlighted patient the relevant and enters his name in the status line on the top margin. Additionally a new session file is prepared for this patient and the programme jumps to recorder mode.

(5) [Orders] (optional) Switches to the order selection mode to process orders sent by the hospital system

Edit patient

Definitive assignment of the examination data to the respective patient requires a number of personal data. These data have to be entered in the editing mode. Apart from absolutely necessary data such as name, patient ID and date of birth you may optionally add the sex.

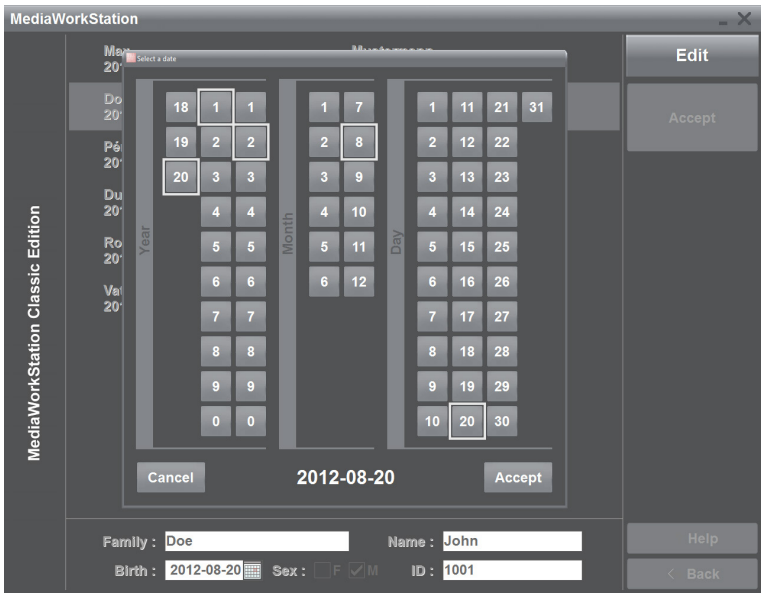


Figure 11 - Edit patient

Last name, first name: Complete name of the patient.
Date of birth: Date of birth of the patient. By pressing the button next to the input field for the birth date you open a dialogue for the graphic selection of the date.
ID: Patient identification. In order to simplify input an unambiguous patient number will automatically be suggested by the system.

Record videos, photographs and audio data

This is a fully digital “video recorder” for the recording of videos, photographs and audio data. Optionally, the video or photo recording can be controlled by the foot switch or a remote control.

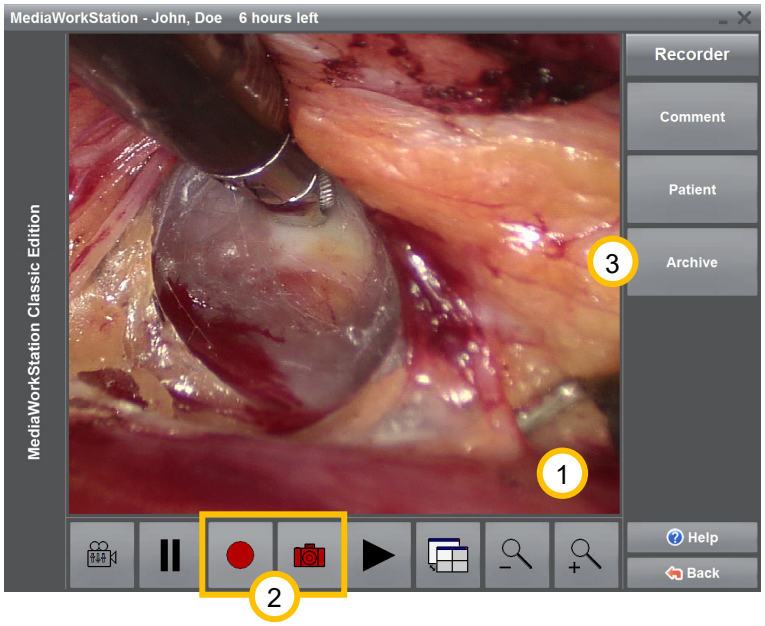


Figure 12 - Recorder area

(1) In the display area you see the video preview.

(2) Start video recording by pressing the button ●. This button has different functions depending on the state of recording: it stops recording, in recording state ■.

📷 This button takes a photo and displays it for a few seconds as freeze image.

(3) [Archive] Shows the sessions saved under the respective patient. You can compile complex reports on the basis of individual pictures combined with patient information and comments.

⚠ The duration of a video recording is automatically limited. With the setting "AVI time limit" you can adjust this limit.

⚠ You absolutely have to consider the impact of enabled ring storage to the database.

ℹ All crucial recordings should be exported as quickly as possible because of the limited capacity of local storage.

Using the ring storage

If ring storage is enabled, before and after recordings the local storage space will be checked. In case the disk space is running low a message appears which requests you to archive the data.

Figure 13 - Message "Disk space is running low"

⚠ Depending on the amount of available storage space, an enabled ring storage may result in the deletion of not yet exported recordings which will then be permanently deleted.

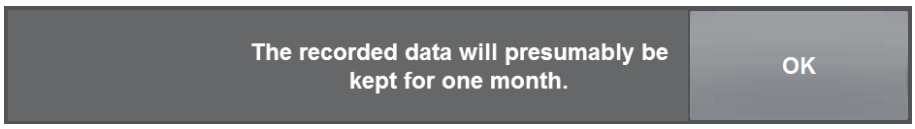


Figure 14 - Message "Retention period"

⚠ The expected retention period of the recordings signalled by the system is an estimation on the basis of the usual handling, and may deviate considerably!

After successful export you can log off the mobile data carrier, or keep it logged on for more exports.

⚠ Removing mobile data carriers without prior logoff can result in data loss!

The logged off storage device is no longer available as export destination. In order to use it again, the device has to be pulled out and plugged in anew.

Add graphical markers

In order to emphasise details in the picture you can draw graphical markers into the picture with different drawing tools. Tools are offered for arrows, circles, outlines, text and other special markers.
The markers do not cause modifications of the image content as they are saved independently from the image content and are added to the image not before it is displayed (overlay). Markers contained in an image will be put out together with the report.
Colour and form of the markers can be modified in the system settings.

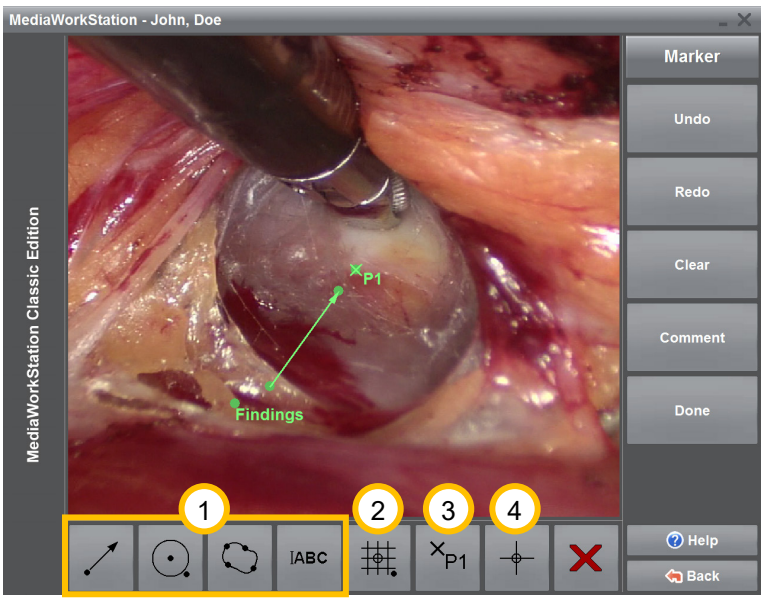


Figure 15 - Edit graphical markers

Besides the simple markers (1) arrow, circle, outline and text exists markers with special functionality.

(2) Draw a complex marker. Complex markers are an arrangement of single markers. They can be used for example, in order to bring a basic structure into images. The first click with the primary mouse button defines the origin and the second click defines the size of the marker.

(3) Draw a point-marker („Hotspot“). Mark significant points with point markers. Comments can be assigned to these points. In connection with an origin-marker the clockwise position can be automatically inserted into comments.

(4) Draw an origin-marker. It marks the origin of a coordinate system which is used for automatic creation of position information of “Hotspots”. Also complex markers usually contain an origin-marker. Only one origin-marker per image is possible.

In order to edit the contents of a text marker after the entry, click with the secondary mouse button on the reference point.

Add comments

To each dataset and point-marker („hotspot“) separate comments can be assigned to. This is an optional text that can be used for any other purpose. Although the text may be as long as you wish, it is recommended to use short key texts as only the first lines are displayed in the list of all data sets.
You may select findings from a pool of standard findings. These findings serve the purpose of a better comparability and increase the understanding of the entries in the data set list. You can at any time add additional information to these findings or edit them.

Standard comments are available in lists structured by categories. Categories as well as the category content can be spread on more than one page. Switch to the next page by clicking the last list position.
The comment text can be entered and formatted by manual typing too.

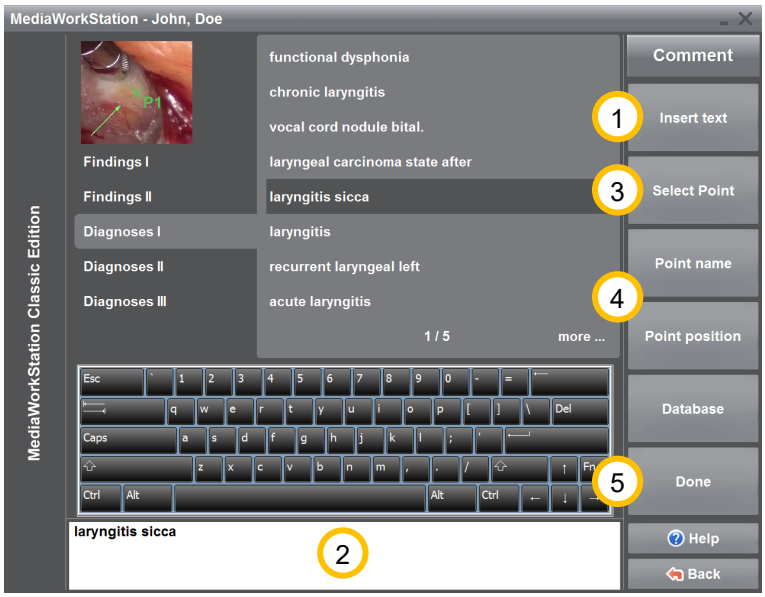


Figure 16 - Edit comment

1 The selected comment from the list view is inserted into the edit field 2. Alternatively a list entry can be inserted by double clicking the primary mouse button too.

3 The entire image and the inserted point-markers („hotspots“) will be sequentially selected for commenting.

4 The name of the selected point-marker is inserted as text into the edit field. In similarity with a clock, the direction of the point-marker is inserted as a clockwise position into the edit field. As a reference serves an origin-marker or the origin of a complex marker.

5 All modifications are stored to the database.

⚠ Functions regarding markers are only applicable if point-markers („hotspots“) were inserted. For position-information the insertion of an origin-marker is necessary.

⚠ There exist independent comments for whole sessions and single recordings or markers. The database is only available for comments to single recordings or markers.

Create report

You can export the data sets (pictures, patient information and session information), that were recorded during the session, onto an external data carrier. The bar graph below the display area will inform you about the utilisation of the data carrier.

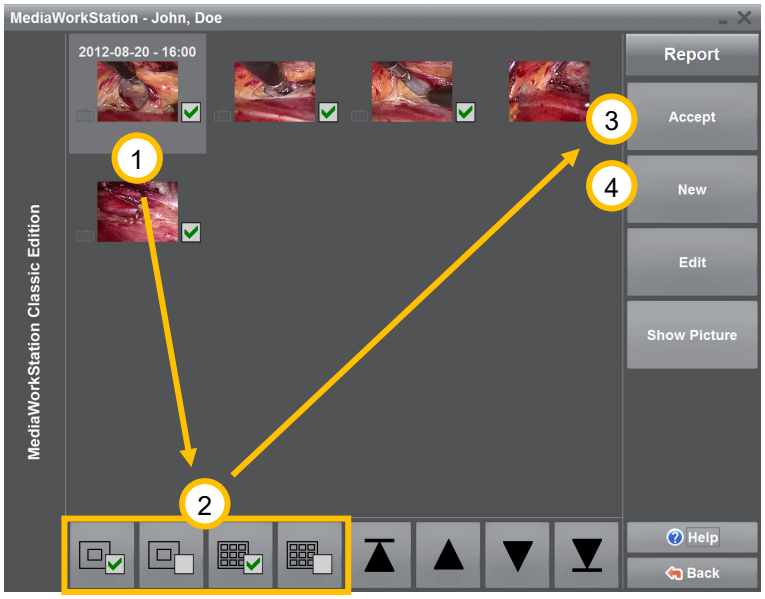


Figure 17 - Report selection

Data sets reserved for export (1) are marked with the symbol ☑. You can change the status of the export marking by clicking the regarding buttons (2) or by clicking directly on the symbol next to the data set.

(3) The marked data sets will be added to the report. If a data set is already part of the report it will be updated.

(4) It creates a new report. All data sets in a possibly existing report will be removed and only the marked data sets will be added to a new report.

Each data set contains a number of additional information details.

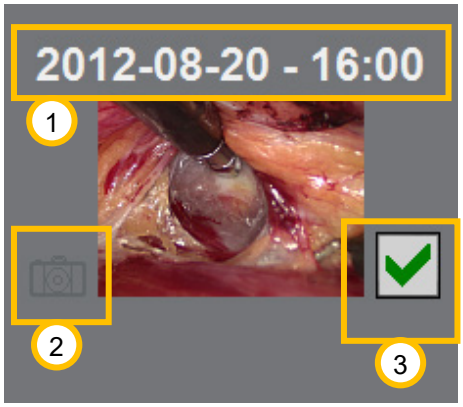


Figure 18 - Report dataset

(1) Time of creation.

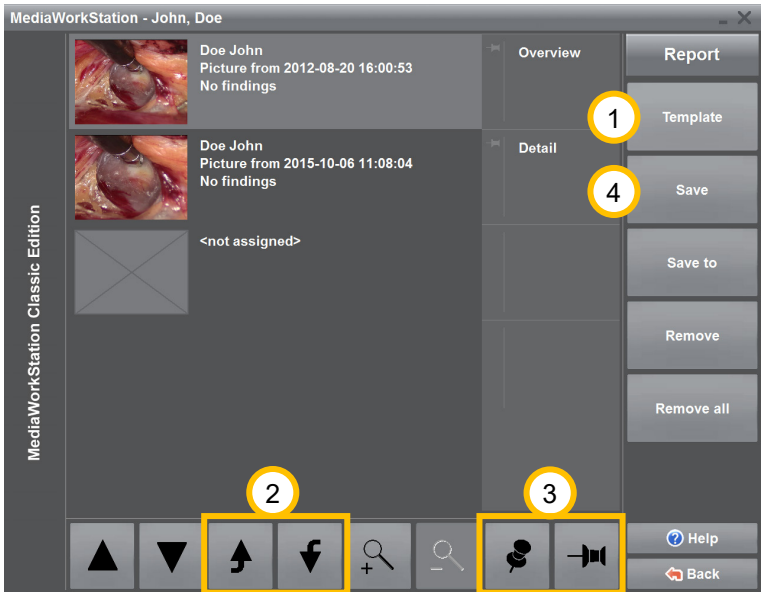
(2) The symbol stands for the data set as single picture recording. There is no symbol for video recordings.

(3) The symbol marks the data set as highlighted for export. The green tick mark serve to highlight the data set.

⚠ Removing mobile data carriers without prior logoff can result in data loss!

Report edit

Reports are based on templates. In edit mode all selected findings are being connected with place holders in the template. Templates can be generic then they contain an unlimited number of elements of one type. Static templates require a strict assignment.
In the left column are the findings in short form. The right column represents the placeholders from the template with a short description of meaning.
The assignment of findings regarding the template can be modified arbitrarily. When the right position has been found it can be fixed. If no finding exists for a particular position in the template then move an unassigned element from the end of the list to the appropriate position.



1 Select a new template or the last used.

2 Shift the current finding by one position.

3 Fix the position of finding regarding the template.

4 Report is created by inserting and storing the finding data into the template. The storage location will be the system parameter „Report path".

Figure 19 - Report edit

⚠ The template must provide a place holder for each finding. Use automatic templates in order to create reports with any number of picture findings.

4.8. Archive area

Select patient

In the archive area you have access to all existing patient and session data. Stored data and videos can be analysed, edited, exported or deleted.

Figure 20 - Select patient archive area

1 For directly searching a patient press one of the buttons [Find by ABC] or [Find by 123] and start with the input of the search term. The data record cursor is automatically positioned to the data set showing the highest degree of congruence.

2 Highlight a patient for selection.

3 [Select] Makes the highlighted patient the current patient and enters his name in the status line. After this, all existing sessions are listed.

4 [Orders] (optional) Switches to the order selection mode to process orders sent by the hospital system

Select session for display and report

The session view offers a quick overview over all medical examinations of the patient. A mouse click at the picture or symbol opens the attached data set.

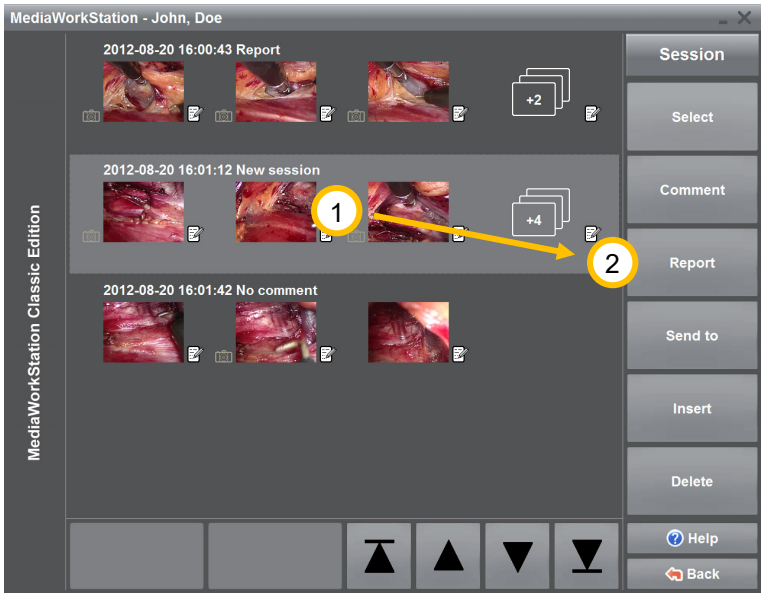


Figure 21 - Session area

1 In order to create a report select the desired session.

2 Switch to the report area by clicking the button [Report].

The list of sessions contains additional and detailed information.

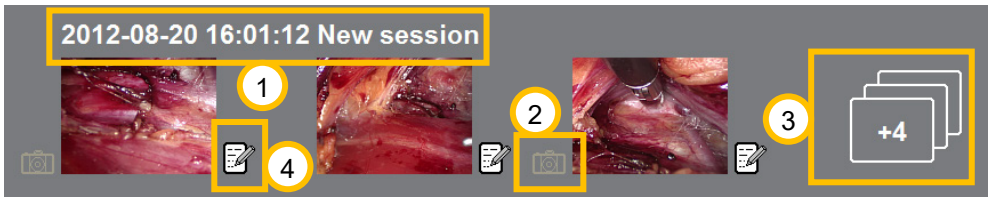


Figure 22 - Session dataset

1 Date and time of session creation as well as the first line of the comment are displayed.

2 The symbol marks the data set as a still picture recording. Datasets without this symbol are video recordings.

3 This symbol shows the number additional data sets. Clicking this symbol links you directly to the dataset area.

4 The symbol shows that the respective data set is assigned with comments.

Playback video

When you open a video from the session or export area, the video player will be displayed.

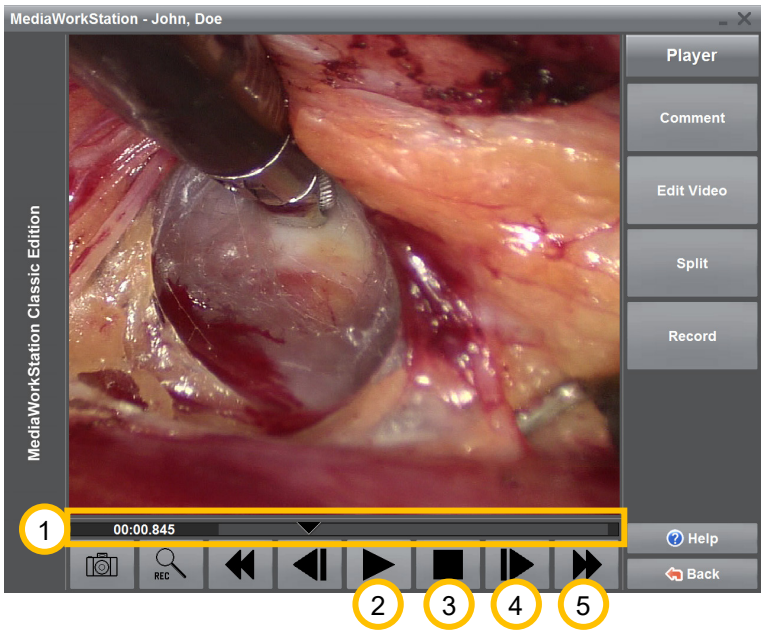


Figure 23 - Player area

1 By shifting the control triangle on the positioning bar you can set it to any play position in the video. On the left margin, the position will be indicated as time display in the format *minutes:seconds:milliseconds*.

2 Press this button to play the video. The button has different functions depending on the state of playing. After starting to “play”, this button has the function of a ⏸ “pause” button.

3 Press this button to stop playing and jump to the start of the video.

4 Press this button to picture-wise play forward or reverse. When pressing the button longer than 3 seconds the video changes to slow forward/reverse. The video is played in “slow motion”.

5 Fast forward/fast reverse. When pressing this button longer than 3 seconds, the video clip jumps to the end/beginning of the video.

Display picture

When you open a picture from the session or export area, the picture area will be displayed. You can optimise the picture representation for getting maximum precision or watch details with the zoom function. You can horizontally, vertically or pixel-accurately adjust the picture to the display area. For detailed views select a square section, which can then be freely shifted over the entire picture.

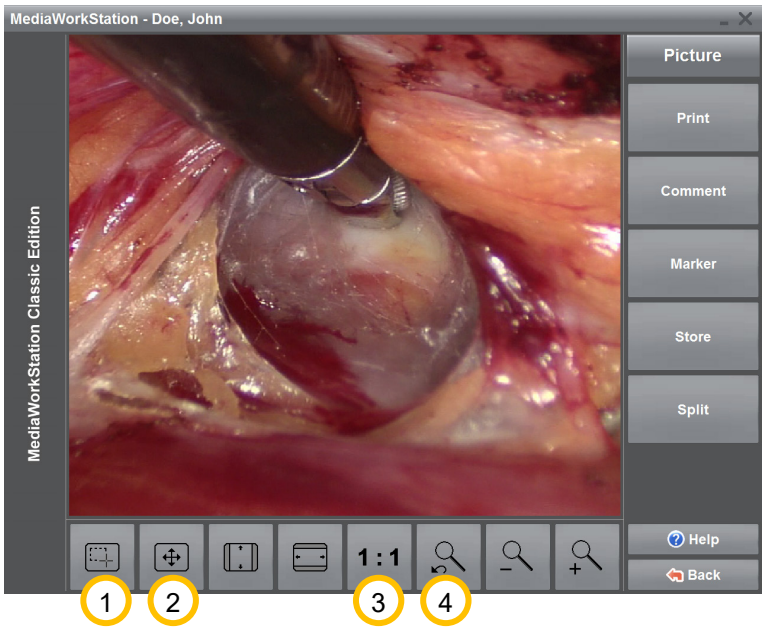


Figure 24 - Picture area

(1) Press this button to jump to the operation mode [Selection of a picture section]. If the mouse cursor is on top of the picture it appears in the form of crosshairs. You can select areas for enlargement.

(2) Press this button to jump to the operation mode [Shifting of a picture section]. If the mouse cursor is on top of the picture it appears in the form of a hand. You can shift the enlarged area over the entire picture.

(3) The picture is displayed in the original resolution having assigned exactly one pixel of the display to exactly one pixel of the original picture. If the original picture is larger than the display area, this corresponds to an enlargement.

(4) Press this button to switch between the current and the last selected picture display.

4.9. System area

System area

The system area allows a number of specific settings and adjustments. Only experienced users should modify these settings.

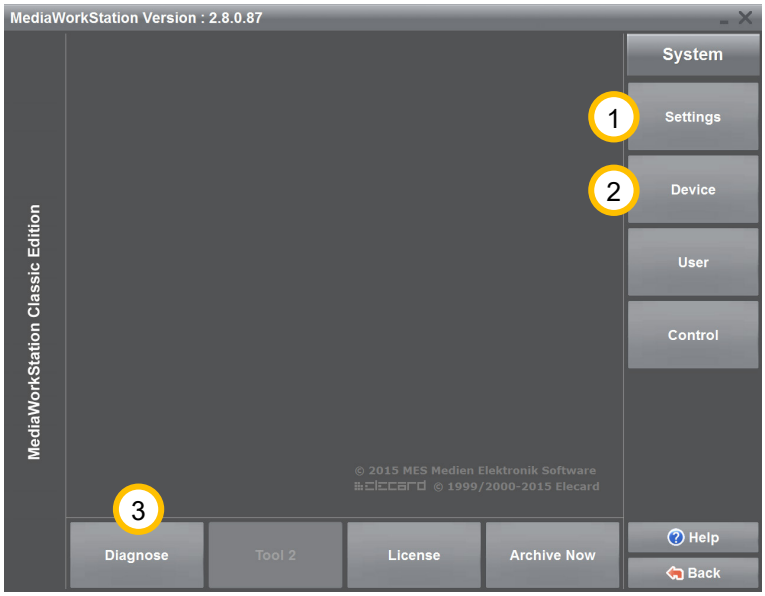


Figure 25 - System area

1 Click [Settings] to get to the software configuration.

2 Click [Devices] in order to select and configure all necessary devices.

3 With the help of [Diagnosis] the system analyses itself and creates a status report for the service.

5. Avoiding, identifying and resolving issues

System start-up

Be sure that all system components are correctly connected. The components of the system should be switched on one after the other, with the computer as the last one. It is not allowed to use master-slave-sockets.

System shut-down

You always have to switch off the device properly by repeatedly pressing [Back] or the icon in the status bar. Each interruption causes severe, often irreparable damage to the database and thus to the data.

Mobile data carriers

Even if the configuration of the destination data carrier has been carried out properly, the system might in some cases not be able to find a currently connected data carrier. Hence, the availability of the data carrier must be checked before export is started.

Data backups

Data backups must be made on a regular basis in order to be able to restore the data in the case of a hardware defect. When restoring, the data must be back-transferred from the backup medium into an empty database folder.

Automatic limitation of recording

The recording duration is limited to one hour by standard. The maximum duration of a recording can be adjusted in the settings area with the help of the parameter "AVI time limit".

Recording impossible

The circle storage automatically organises the availability of sufficient hard disk space for storing new recordings. If the circle storage is disabled the hard disk might quickly be full, depending on how it is used. The export of videos does not release hard disk space.

Calibrating the touch-display

Usually the touch-sensitive surface of the touch screen requires calibration for exact position detection results. Please observe the relevant information by the manufacturer.

Print out of picture findings

The picture is printed on the printer selected in the system area „devices“. High quality printers and papers should be used for the print out exclusively.

Audio and video data are not lip-sync

Audio and video data are only lip-sync if both signals are processed by the same capture device.

Central database

Also a database stored in a network is not simultaneously accessible for multiple MediaWorkStation clients. Only one of the clients has the exclusive access right at a time.

Parallel usage with other MediaWorkStation editions

The MediaWorkStation Classic Edition is not entirely compatible with other MediaWorkStation editions. Different editions of the MediaWorkStation shouldn‘t be used parallel.

6. Technical data

Name	Value
Classification	Class 1 according to 93/42/EWG
Video format	DV / MPEG2
Video standard	PAL / NTSC / Full HD
Audio format	PCM, MP3, stereo
Video resolution	Input signal: 640x480 pixel (NTSC) 768x576 pixel (PAL) max.1920x1080 pixel 60fps (Full HD) Stored video: 720x480 pixel (NTSC) 720x576 Pixel (PAL) max. 1920x1080 pixel 60fps (Full HD) Stored picture: 640x480 pixel (NTSC) 768x576 pixel (PAL) max. 1920x1080 pixels (Full HD)
Audio resolution	16 bit, 44,1/48 kHz stereo
File format	Video: MPEG2, DV-AVI Picture: BMP / JPEG Report: HTML / JPEG
Storage space consumption	Video: max. 2 MB/s (PAL/NTSC)(MPEG2) max. 6 MB/s (Full HD)(MPEG2) Picture: 1,26MB (BMP) / ~39KB (JPEG)(PAL/NTSC) max. 8MB (Full HD)
Operation mode / duty cycle	Continous operation / restart after 24h
Standards	EN 60601-1
Labelling	CE according to MPG

Table 2 - Technical data

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