UAB Softneta
K. Barsausko st. 59B, LT 51423
Kaunas, Lithuania
info@softneta.com
www.softneta.com

Annex IV

of MedDream USER MANUAL (version 8.2.0)

MedDream SendToPACS functionalities

version 2.7.0

The annex describes the usage of MedDream SendToPACS functionalities.

See the MedDream USER MANUAL document for general information about the MedDream product, installation requirements, and verification, IT security measures.

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SendToPACS functionalities

The annex describes the usage and configuration of MedDream SendToPACS functionalities. Using this software, you can convert images, video and PDF files to DICOM and send to PACS.

Features:

- Image to DICOM feature. Convert BMP, PNG, TIF, JPG images and send to PACS.
- Video to DICOM feature. Convert AVI, MPG, MPEG, WMV, MOV, MP4, H264, MKV, FLV video files and send to PACS.
- Possibility to update patient information in DICOM files before sending to PACS.
- Possibility to add additional information field (additional custom DICOM tag) to image.
- Possibility to configure only Worklist usage for Non-DICOM studies.
- Possibility to configure Institution name (tag (0008,0080)) and Station name (tag (0008,1010)) and use it in DICOM files.
- Possibility to set files filter (set custom file extension in application.properties file).
- Detailed information about files to be converted: image preview, image info view, DICOM info and DICOM tags view, DICOM pixel data extraction.
- Archive file's support. Automatically extract archive: ZIP. Supports 7z, ISO archives, but requires install 7-Zip software.
- Automatic DICOM files recognition (exclude DICOMDIR and unknown files).
- Supported patient information: patient ID, full patient name (alphabetic, ideographic and phonetic), birthdate and sex.
- Supported study information: study UID, study ID, date, time, accession number, description, series number, modality and character set.
- Possibility to specify character encoding: supported all extended character sets defined in the DICOM standard.
- Allows append existing study with new files (select study and patient information from scanned DICOM files).
- Supports Modality Worklist Information (C-FIND), Query/Retrieve Information, Verification (Echo).
- Support Drag and Drop interface.
- Querying patient information from HIS using external API (HTTP request).
- Possibility to initiate actions from other app by using REST API: Modality Worklist search, non-DICOM convert to DICOM, send to PACS.
- Windows explorer context menu (right mouse button) support.
- File conversion and forward process logs.
- Supporting Enterprise license.

See the MedDream USER MANUAL document (https://www.softneta.com/files/meddreamviewer/doc/MedDream-User-Manual.pdf) for more information about MedDream product:

- general information about the MedDream product,
- list of applicable standards,
- warnings regarding residual risks,

- installation requirements and verification,
- IT security measures.

License registration and product information

After Installation the users can use MedDream SendToPACS software in DEMO mode with DEMO restrictions. The demo notification window is displayed, if the system runs without registered license (in demo mode):

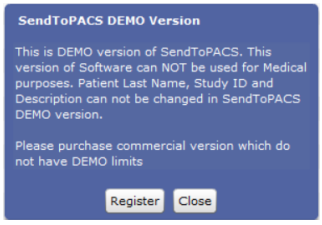


Figure 1. Demo version notification

User can register product or “Close” information windows and use software in DEMO mode.

⚠ **NOTE!** License registration is required for legal software use for Medical purpose.

To register license:

- If you have licence file, place it near the instalation .exe and on installing process licecing will be adjusted automaticilly.

  Or

- Open license registration window in one of ways:
  - press the Register button in demo notification window,
  - or open the About window and press the Register button in it.
- Enter the license number that you were given by system administrator or system provider in license registration window, and press the Register button:

Figure 2. License registration window

- After the Register button is pressed, the system connects to the license server, verifies and get the license. The notification about successful license registration is displayed, and then user can view the registered license data in About window.

⚠ **NOTE!** Ensure that personal computer have access to https://lic.softneta.com.

To view the MedDream SendToPACS functionalities information, open about window by pressing the SendToPACS logo or info button in the header of the SendToPACS application window:

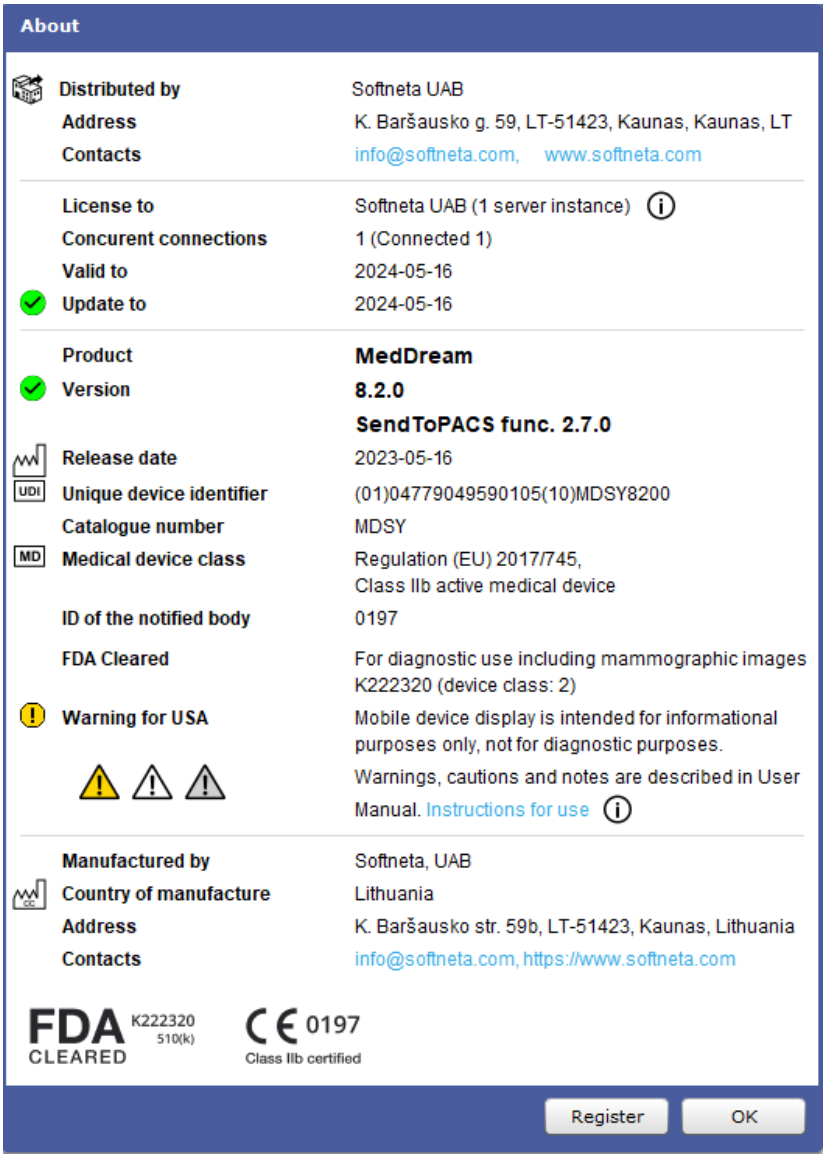


Figure 3. MedDream SendToPACS functionalities information in About window

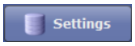
The user can view the following information about the product:

- Product provides the official product name.
- Fields *Version*, and *Release date* holds information about the installed version:
  - The versions' release notes are accessible by clicking the Release notes link;
  - The user manual of MedDream viewing functionalities is accessible by clicking the Instructions for use link;
- Unique Device Identification number.
- Fields *Medical device class, ID of the notified body*, and *FDA cleared* mark holds the products' certification data.
- Fields *Valid to* and *Updates to* indicates dates, until the current license is valid and will receive updates.
- *License to* and *Distributor* contains the information about organizations that owns or distributes the license of current product installation.
- The manufacturer group contains Manufactured by, Country of manufacture, Address, and Contacts fields, that show name and contacts of product manufacturer.

⚠ **NOTE!** *License to* and *Distributor* information is displayed only if the license is registered.

Configuration

⚠ **NOTE!** Even in DEMO mode it is possible to do all the configuration and testing (after licensing all Configuration Settings will remain).

To view or edit configuration open the Settings window by pressing Settings 

button in the header of the SendToPACS application window. The Settings window has four tabs:

- Main Settings – MedDream SendToPACS software settings;
- Devices Settings – remote PACS storage device list settings;
- Worklist Settings – remote Modality worklist, Query/Retrieve information (C-FIND) or based HTTP request device list settings;
- Monitor Setting – shared network or simple directories list to monitor for incoming files;
- Wi-Fi – Wi-Fi device (wi-fi SD card).

Main Settings

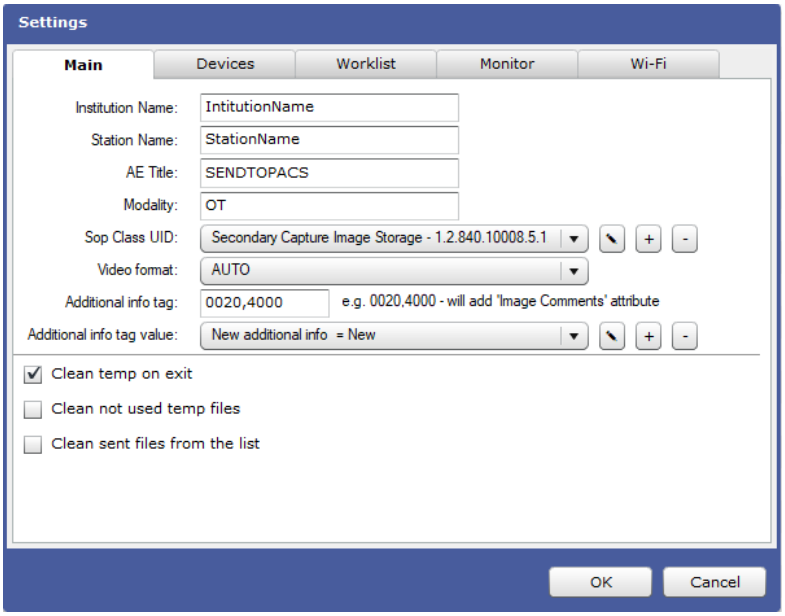


Figure 4. Main settings.

The tab "Main" is opened by default when the Settings window opens, and the following properties may be viewed and configured in this tab:

- Institution name – by default is empty, but if filled – Tag (0008,0080) will be filled, and in created DICOM will remain created DICOM Institution name.
- Station name - by default is empty, but if filled – Tag (0008,1010) will be filled, and in created DICOM will remain created DICOM Station name.
- AE title - DICOM application Entity Title of MedDream SendToPACS software. The DICOM Application Entity Title uniquely identifies a service or application on a specific system in the network. It is required to identify sending

software for the PACS server (or other DICOM receiving services). The proposed value is “SENDTOPACS”, but the user may change it. The same AE title name must be registered into the PACS server (or other DICOM receiving services) AE List (as device).

- Modality – DICOM image type. It describes the source and purpose of the DICOM images. The Modality type can be specified freely, and it will be assigned to all images converted to DICOM. Several modalities, separated by commas, may be entered. The most common modalities are OT (Other), ES (Endoscopy), US (Ultrasound), XC (External-camera photography). The full list of Modality types can be found in http://www.dicomlibrary.com/dicom/modality/
- SOP Class UID – Storage Service Class identify the Composite IODs. System setup automatically adds three SOP Class UID values to configuration:
  - *Secondary Capture Image Storage* SOP class with UID *1.2.840.10008.5.1.4.1.1.7* is configured for all files (*). This SOP Class is set as default by selecting it in SOP Class UID drop-down list.
  - *Encapsulated PDF Storage* SOP class with UID 1.2.840.10008.5.1.4.1.1.104.1 is configured for pdf files (PDF).

⚠ **NOTE!** The default SOP class is used for all the files, except the files for which the other SOP Class is explicitly defined, like PDF files with Encapsulated PDF Storage SOP class for files with (PDF) extension.

  - *Video Endoscopic Image Storage* SOP class with UID *1.2.840.10008.5.1.4.1.1.77.1.1.1* is configured for all files (*). By configuration, that is preset by setup, this SOP class is not used, as far as it is not assigned to a particular file extension, and is not set as default.

The user may change the SOP Class configuration:

- To set the other SOP class as default, expand the SOP Class UID list and press on the SOP Class that needs to be used as default SOP Class:

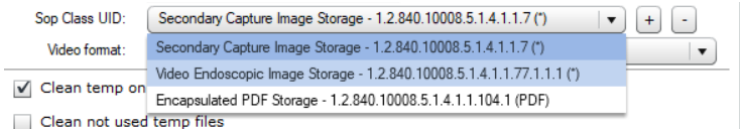


Figure 5. Changing default SOP class in main settings.

⚠ **NOTE!** Only the SOP class, that is configured for all files (with (*) or () marks at the end), may be set as default SOP class.

- To add SOP class to configuration, press add button + on the right side of the SOP classes list and enter SOP class data in the opened SOP class window:

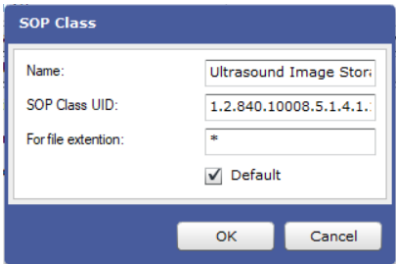


Figure 6. Adding new SOP class in main settings.

Enter SOP class name and UID. See list of valid *SOP Class UIDs* and *Names* in: https://www.dicomlibrary.com/dicom/sop/.

Enter file extensions, if the SOP class should be used only for particular file types. Several values, separated by commas, may be entered in *For file extension* field. The star symbol ‘*’ should be entered, if the SOP Class is going to be used for all non-DICOM files. Check the *Default* check box to set the SOP Class as default.

Press OK button in order to create a new SOP Class in main configuration.

Because of the rules and restrictions for attributes of the information object (IOD) and DICOM service elements (DIMSE), that apply for each SOP Class, it is required to test, if a desired file type may be converted to the specified SOP Class and sent to particular device.

⚠ **NOTE!** Other SOP Class UID can be used, but DICOM file content will be Secondary Capture Image Storage or Encapsulated PDF Storage

- To delete SOP class from configuration, select the not used SOP Class in Sop Classes list, and then press remove button [-] on the right side of the list.

- Video format – type of possible video converting files. Select a particular type by pressing on the item in expanded list of supported video formats:

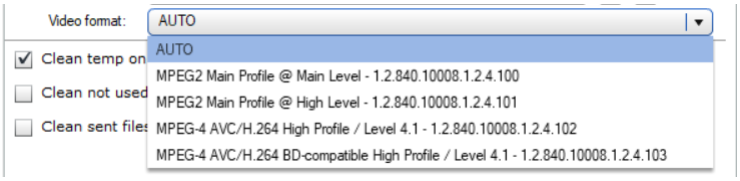


Figure 7. Changing video format in main settings.

List of possible values:

- Auto – the default value, let the system to detect the video file type automatically,
- MPEG2 Main Profile Main Level 1.2.840.10008.1.2.4.100,
- MPEG2 Main Profile High Level 1.2.840.10008.1.2.4.101,
- MPEG-4 AVC/H.264 High Profile / Level 4.1 1.2.840.10008.1.2.4.102,
- MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1 1.2.840.10008.1.2.4.103.

⚠ **NOTE!** See more detailed information and restriction (especially resolution) for video format according transfer syntax:

http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.2.5.html

http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.2.6.html

http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.2.7.html

http://dicom.nema.org/medical/dicom/current/output/chtml/part05/sect_8.2.8.html

- *Additional info tag* – by default is empty, if user wants to add a comment in Study list - field must be specified which tag will be filled, for example TAG (0020,4000), in STUDY list extra column will be added with possibility to add comment.

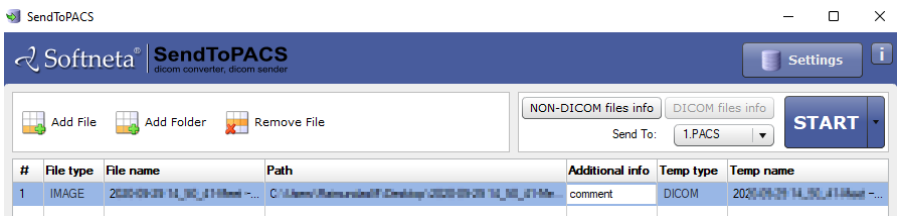


Figure 8. Extra field in Study list – additional info field for adding comments.

- *Additional info tag value* - list of additional information values for non_DICOM files. To edit, select the edit icon . To add a value, select to delete . One of the values can be marked as Default.

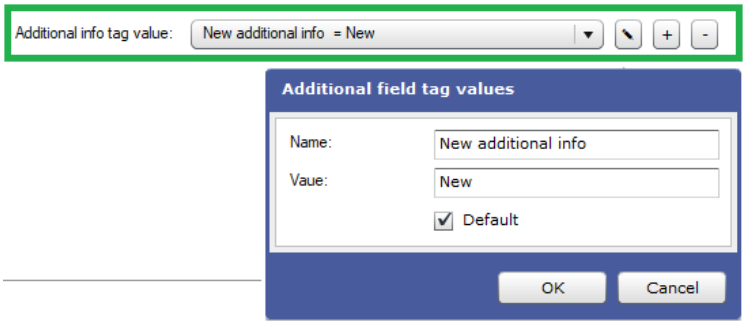


Figure 9. Additional info tag in settings

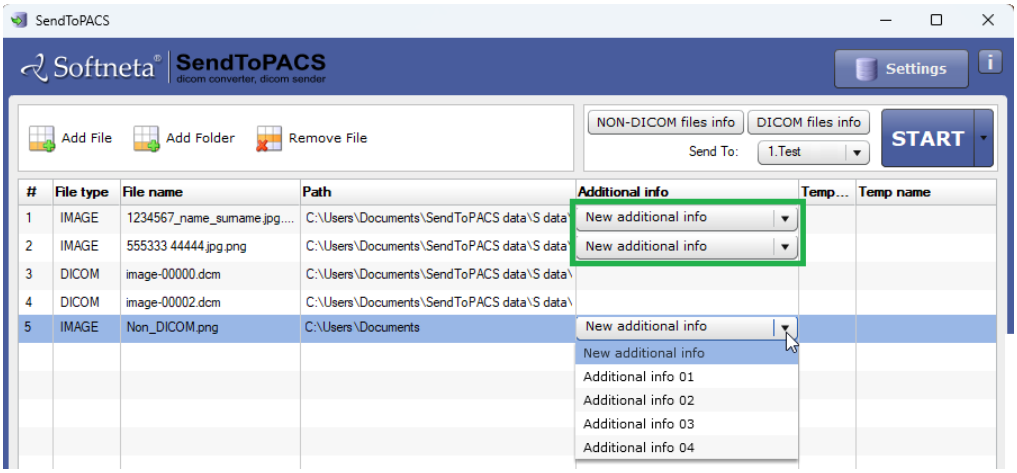


Figure 10. Additional info tag

- *Clean temp on exit* and *Clean not used temp files* options configures cleaning of the temporary storage. The application uses “temp” folder for storing the copies of the converted images of video files. Depending on system setup, the temp folder may be located either in ‘\ProgramData\SendToPACS\temp’, or ‘\Users\[user name]\SendToPACS\temp’. Use the options to configure automatic cleaning of *temp* folder:
  - *Clean temp on exit* – program cleans the content of temp folder when application is closed. The option is switched on by default setup, and the user should press the checkbox to change the value.
  - *Clean not used temp files* – program removes the temporary files as soon as they are no longer used by program. The option is switched off by default setup, and the user should press the checkbox to change the value.
- *Clean sent files from list* option should be used for configuring the automatic removing of successfully sent files from files list. The option is switched off by default setup, and the user should press the checkbox to change the value.

Device Settings

The tab "Devices" is used to set the remote storage devices (PACS or other DICOM receiving service) that shall receive DICOM files.

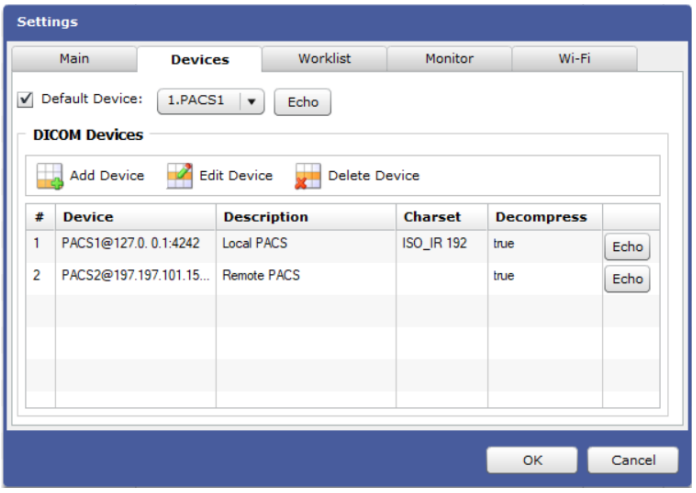


Figure 11. Device's settings.

- To add a new PACS device, press the button "Add Device" and enter device data in the opened Device window:

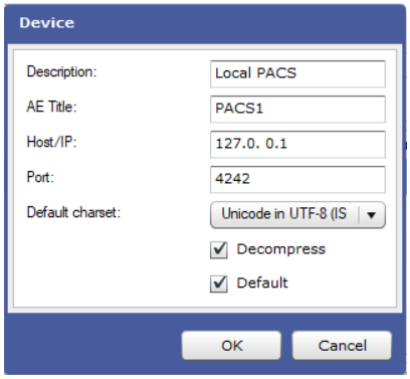


Figure 12. Window for adding or editing PACS device.

  - *Description* - the field "Description" is used to describe the PACS system so that the user could easily recognize which one of the PACS systems is used.
  - *AE Title* - enter the AE title in the field. The AE title must be the same as the name of the PACS server (or other DICOM receiving service).
  - *Host/IP* - the field is used to enter the network address for the PACS server. You can specify IP address, if IP address is static for the PACS. If PACS server have dynamic IP, then specify Host name.
  - *Port* - the field "Port" is used to set the communication port with the PACS system.
  - *Default charset* – the DICOM character set for encoding the textual values (names and strings) in DICOM file. *Default repertoire ()* is default character set. Expand the character sets list and press the other value to select it. Please see http://dicom.nema.org/medical/dicom/current/output/chtml/part02/sect_D.6.2.html .
  - *Decompress* – mark the checkbox by pressing on it, if decompressed DICOM files should be sent to device (basically try decompress DICOM files pixel data – and change transfer syntax to Explicit VR Little Endian). The *Decompress* checkbox is not checked by default.
  - *Default* – mark the checkbox by pressing on it to set the device as default automatically on creation.
  - Press OK button in order to create a new device. The device is displayed in the list.
- To edit PACS device, select it in devices list, press the button "Edit Device" and change device data (will opened the same Device window, as described above).
- To delete the selected PACS device, press the button "Delete Device".

- To specify the default device, mark the *Default device* checkbox, and press the most common receiving device in “Default Device” drop down list. The specified device will be set as default in the Main window device selection drop down list.
- To check the device status, press the Echo button Echo for device - performed basic connection verification by DICOM protocol, and the message with connection status will be displayed.

⚠ **CAUTION!** Please make sure Windows Firewall, Antivirus or other software do not block MedDream SendToPACS communication. It is recommended to turn off all blocking services in the Configuration and testing phase, to be sure that software will not be blocked. Also, it is important to make sure PACS server is not blocking DICOM communication by checking whether the communication is allowed in both sides – MedDream SendToPACS PC and Receiving PC.

Worklist Settings

The tab "Worklist" is used to set the Modality worklist or Query/Retrieve server devices.

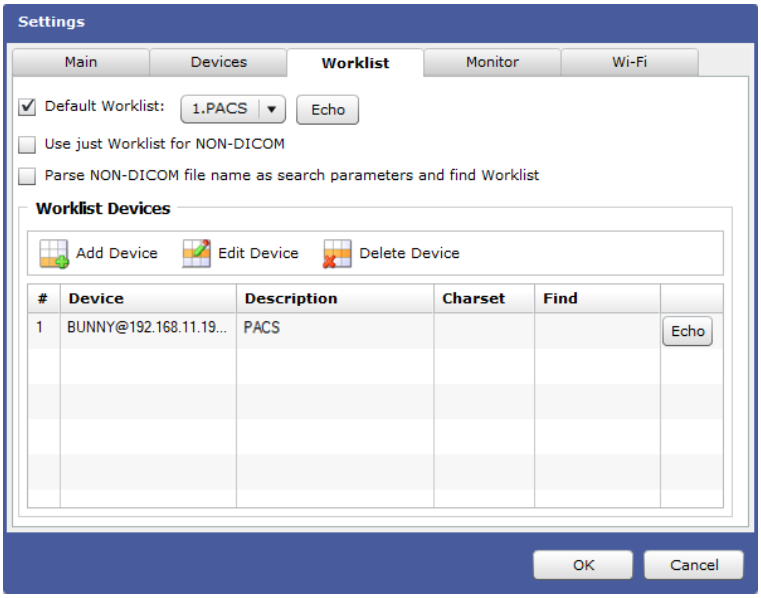


Figure 13. Worklist settings.

- *Use just WORKLIST for NON-DICOM files* – by default is not selected, user must select in case wants to use ONLY Worklist for Non-Dicom files, in this case user will not be able to change any patient data manually. User on pushing *START* or *Non-DICOM files info* buttons will open Worklist window.
- *Parse NON-DICOM file name as search parameters and find Worklist* - when the attribute is selected, the system automatically extracts the patient ID from the non-DICOM filename, automatically fills in the search field and performs the search. The file can be opened by selecting "Add file", or "Add Folder", or *drag_and_drop*, or placed in the monitoring folder. A non-DICOM file name can be of different types:
    - can only be a sequence of numbers of the patient ID, e.g. “1234567.jpg”;
    - may contain a sequence of patient identifiers and additional information following the underscore that the system will not use, e.g. “1234567_name_surname.jpg”;
    - beginning with a text constant [**WLPID**_]; in which case the system uses all the text following the constant as the patient ID. E.g.: “**WLPID**_1234567_name_surname.jpg”, the patient ID '1234567' will be extracted from the sequence of characters and entered into the search field.

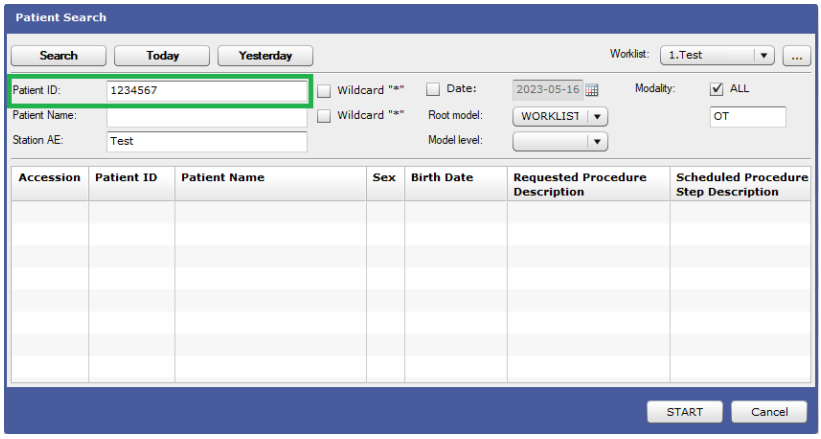


Figure 14. The parsed parameter from the NON-DICOM file name for searching

- if the constant [**WLPID**_] is followed by a sequence of numbers and characters separated by spaces, the entire sequence will be used for the search, not just the numeric value, e.g. "**WLPID**_1234567 name surname.jpg"

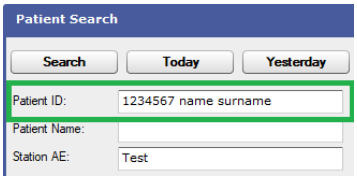


Figure 15. The parsed parameter from the NON-DICOM file name for searching. All characters

- for other types of names, e.g. a sequence of numbers with spaces, e.g. "555 444.jpg", the system will not support the search parameter.

- To add a new Worklist device, press the button "Add Device" and enter device data in the opened Worklist window:

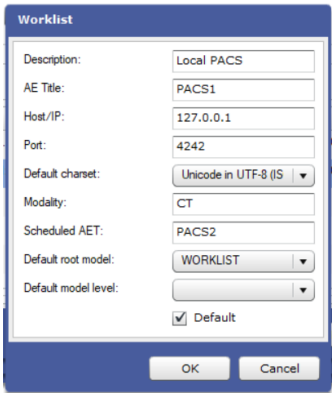


Figure 16. Window for adding or editing Worklist device.

- Enter device and device connection data in fields *Description*, *AE Title*, *Host/IP*, *Port*, *Default charset* – see Device window in "Device" tab for detail description of the fields.
- Enter the default search criteria for the device in fields *Modality*, *Scheduled AE title*, *Default root model*, *Default model level* – the Patient Search window will be prefilled with these values.

Modality and *Scheduled AET* criteria apply only for Modality Worklist Information Model (*Default root model* value WORKLIST).

⚠ **NOTE!** Default model level apply only for Query/Retrieve Information Model (Default root model value is one off: STUDY; PATIENT; PATIENT_STUDY).

- *Default* – mark the checkbox by pressing on it to set the device as default automatically on creation.

– Press OK button in order to create a new device. The device is displayed in device list.

⚠ **NOTE!** System supports querying patient information from HIS using external API. Contact support for details how to configure the external web service as worklist device.

- To specify the default device, mark the *Default worklist* checkbox, and press the most common receiving device in “Default Worklist” drop down list. The specified device will be set as default in the Patient Search window worklist selection drop down list.
- Use the buttons in Worklist tab to manage the worklist devices: check device status with “Echo”, change device data with “Edit device”, or delete device with “Delete Device” buttons. See “Device” tab for detail description of the operations.

Monitoring Settings

The tab "Monitor" is used to manage the list of monitored directories (includes network drives). The files that are written to the monitored directory are automatically added to the files list in the Main window.

⚠ **NOTE!** This function is available for commercial license.

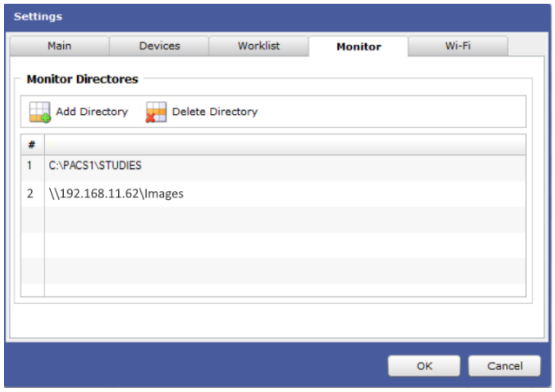


Figure 17. Monitored directories settings.

- To add a new directory to the monitored directories list, press the button "Add Directory", and select the local directory or maped network directory in the opened Browse window:

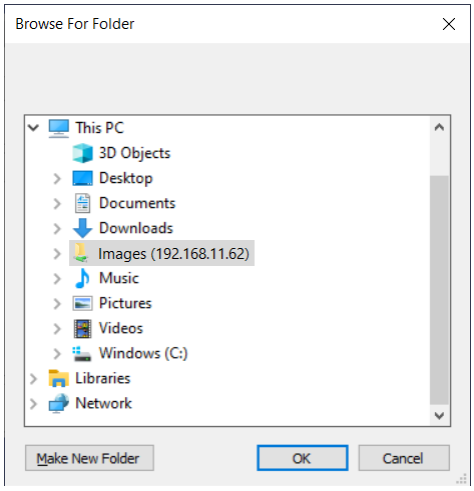


Figure 18. Browser window for selecting monitored directories.

- To delete the selected directory, press the button "Delete Directory".

Network dives or mounted directories monitor period is 10s. Then you add file to the directory – file will be appended to the software list after 1-10s.

⚠ **NOTE!** If there are multiple files and copy process is in progress – software will try wait to finish update. MedDream SendToPACS will not remove files from directories and it is recommended to clean files after send.

Image Sending Workflow

After the software`s launching, MedDream SendToPACS Main window is opened:

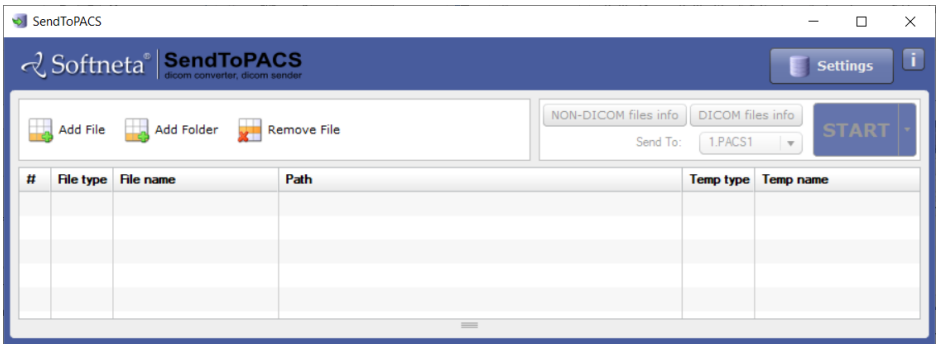


Figure 19. The empty main MedDream SendToPACS window.

1. To start the image sending workflow, files for sending should be available in the files list. System may add files automatically, if the monitored directory is configured, or user can do it manually. Only supported file types and extensions can be added, converted, and sent. See section “
2. ” for supported file types and operations.

System enables file info entering functionality based on the type of files in the files list:

– “NON-DICOM files info” button is enabled if IMAGE, VIDEO or PDF files are available in the files list;

– “DICOM files info” button is enabled if DICOM files are available in the files list.

3. Change the DICOM device in the *Sent To* device list, if needed. By default, either the device, that is configured as default device, is selected, or the first item from the list, if default device not configured.

⚠ **NOTE**! It is recommended to select the device to which the files are going to be sent before entering the information for NON-DICOM files, because system prefills the charset in the NON-DICOM files info window with the default charset of the Send To device.

4. Press the “NON-DICOM files info” button NON-DICOM files info to open the *NON-DICOM files info* window and enter the patient and study data, that is required for creating the DICOM file from NON-DICOM image or video. See detail description in section “Entering NON-DICOM files info”.

⚠ **NOTE**! The same entered patient and study data is used to generate DICOM file from all image, video or PDF files, that are added in files list.

5. Press the “DICOM files info” button DICOM files info to open the *DICOM files info* window and enter or change the patient and study data for each study. See detail description in section “Entering DICOM files info”.

⚠ **NOTE**! Will change patient and study data for DICOM files that belongs to the same study.

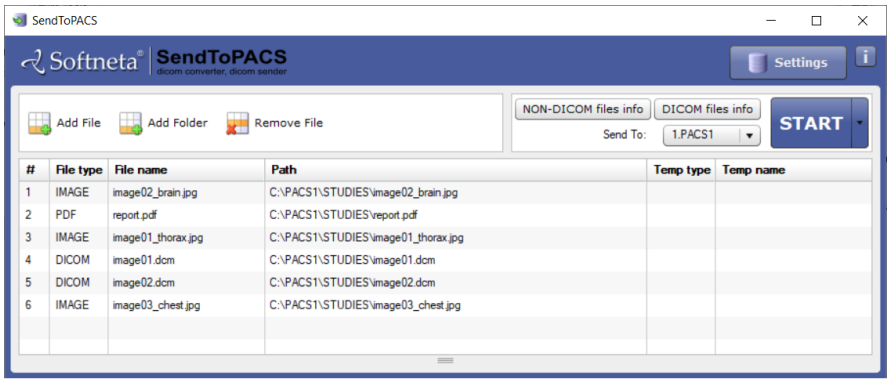


Figure 20. The main MedDream SendToPACS window with files prepared for sending.

1. IF “Additional info tag” field is activated in Configuration, in the study list extra field is added “Additional info” for possibility to add comment or can select a value from a list if one is created (see “Main settings” section). Comment will be added into DICOM file into specified TAG after converting to DICOM.

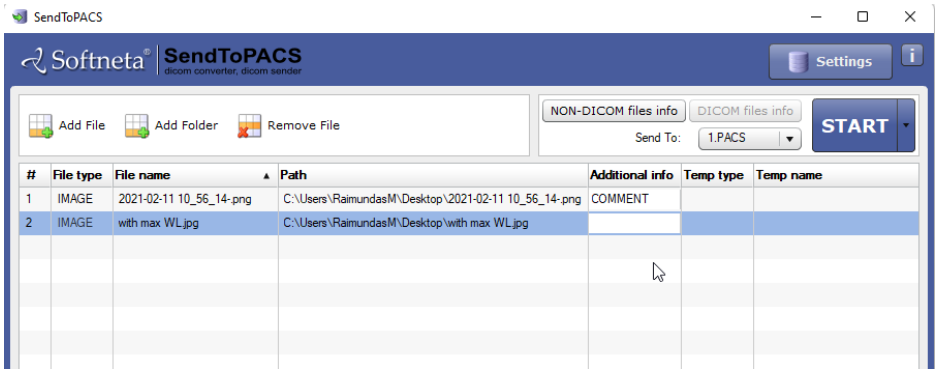


Figure 21. The main MedDream SendToPACS window with extra field for comment.

2. If file info for NON-DICOM and DICOM files is ready and the files list contains the files, that needs to be sent, press the START button to activate file conversion and sending process.
3. System starts file process:
    a. Update DICOM files attributes,
    b. Checks images and video formats. If image is not JPG – will convert to JPG. If video is not optimized or do not meet selected transfer syntax requirements by DICOM standard – will convert and adjust video settings.
    c. Convert non-DICOM files to DICOM format.
    d. If requires by PACS device – decompress all DICOM files.
    e. Send DICOM files.

    The opened Process status dialog displays ongoing status. Depending on the status of the processes, you may be asked to take actions to continue or to stop the process:

- If you are using demo version, the sending is not performed automatically, and you will need to wait 30 seconds and press “Start” in the Process status dialog.
- If error occurs during the file conversion, the DICOM files sending is not started, and convert to DICOM process log is displayed in the Process status dialog:

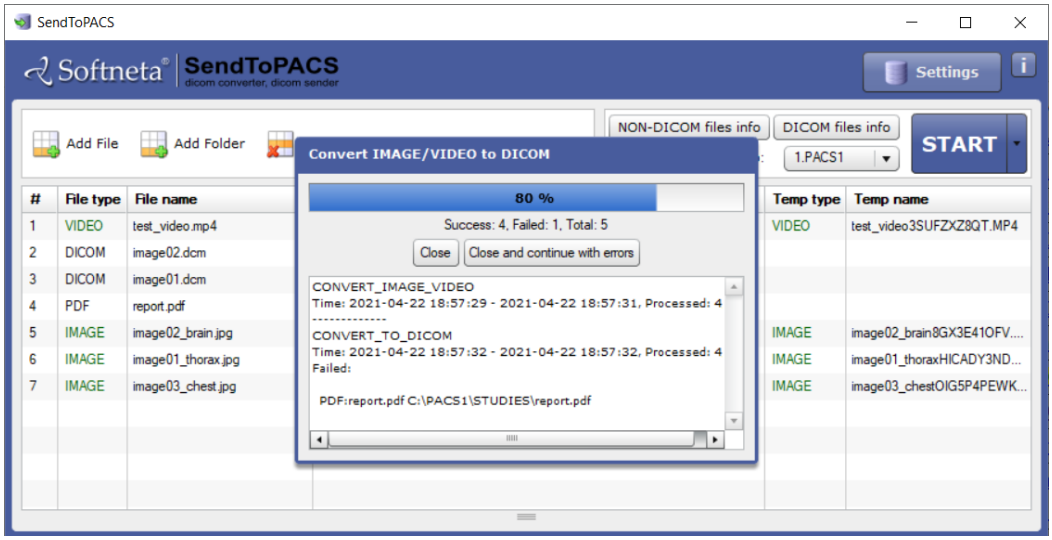


Figure 22. Process status dialog when error occurred in file conversion process.

The progress with the progress of the current step indicator, and the button with allowed actions are displayed at the top of the Process status window:

- Press “Close”, if you want to fix the problems, and then continue the sending process. You can view the detail file information and process log for the red colored files with errors in info panel (see section “
- ”), fix the problems with file or configuration, and continue the process:
  - Select the “Continue last step” option from the expandable menu of the “START” button, to continue the sending process from the place, where it was stopped:

Figure 23. Expandable menu of the START button.

  - Press the “START” button to restart the file converting and sending process from the beginning.
- Press “Close and continue with errors”, if you want to send the files, that were successfully created, and leave the files with errors not sent.

– If error occurs, the process status window is not closed automatically, and you will be able to view the log in it:

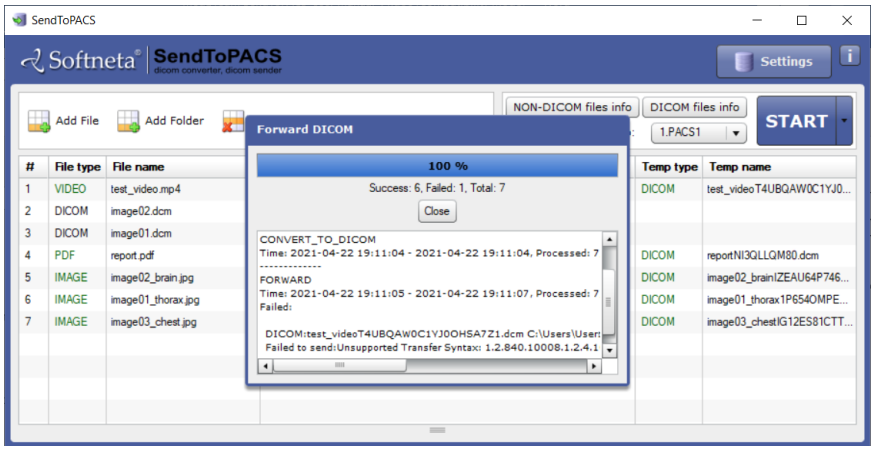


Figure 24. Process status dialog when error occurred in DICOM file sending process.

Use “Close” button to close the Process status window.

Use the “Continue last step” option from the expandable menu of the “START” button, to repeat the forward process after the problems are fixed.

⚠ **NOTE**! Use the “Last log” option from the expandable menu of the “START” button to open the Process status window with full log for the last conversion and froward process.

Entering NON-DICOM files info

To open the *NON-DICOM files info* window, press the “NON-DICOM files info” button in the main MedDream SendToPACS window:

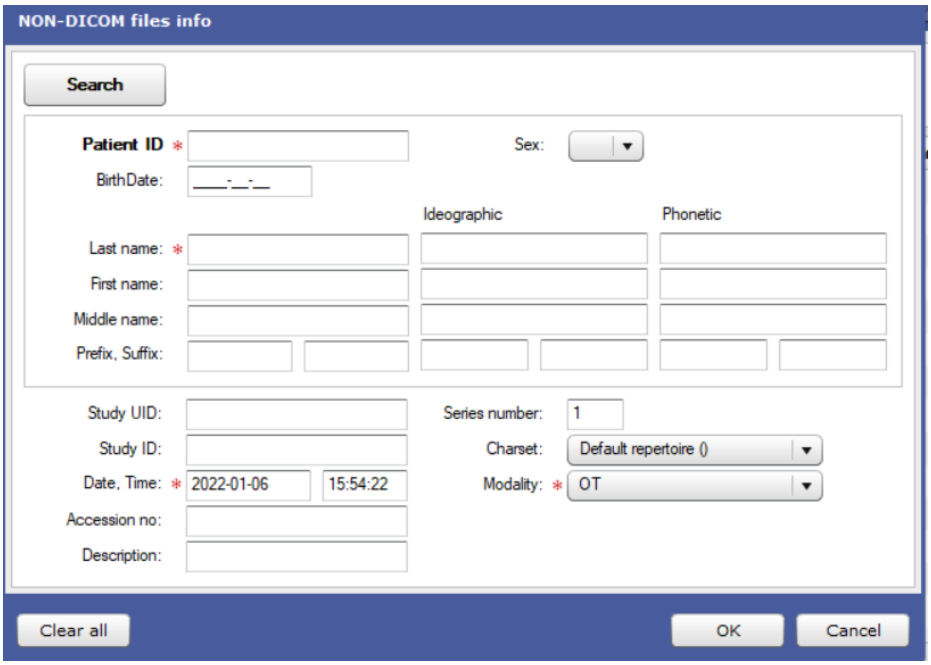


Figure 25. NON-DICOM files info window with default values.

⚠ **NOTE**! *DICOM file Studies* field is displayed only if the files list contains at least one DICOM file.

Patient information fields are grouped at the top of the window within rectangular frame:

- *Patient ID* - unique patient identification number;
- *BirthDate* – patient birth date;
- *Sex* – patient gender. Available selection options: M for male, F for female, and O for other.
- *Last name*, *First name*, *Middle name*, *Prefix, Suffix* – fields for entering patient’s names.

By default, all the patient information fields are empty.

⚠ **NOTE**! *Patient ID* and *Last name* are required DICOM tags, and must be entered. All the other fields are left empty in DICOM file, if not entered.

The study data fields are placed below the patient fields:

- *Study UID* - unique study identification number. The default value is empty. The *Study UID* is required DICOM tag, and system generates it, if left empty.

⚠ **NOTE**! If existing *Study UID* is used, the converted files will be saved as a new series of this study.

- *Date, Time* – study date and time. Default values - current date and time.
- *Series number* - defines series order in the study. Default value for non-DICOM files will be 1. If select study and patient information comes from added DICOM files – will increase number according last found series number (from DICOM files). The *Series number* is required DICOM tag, and system generates it, if left empty.
- *Modality* – series attribute to define DICOM file type. The first entry of the single selection list box is selected by default. The field is required in DICOM file.

⚠ **NOTE**! *Modality* list contains only the configured values. To add new values, go to the Main tab of the Settings window and enter the required modalities

- *Study ID*, *Accession no*, *Description* - additional data for the study, empty by default. The values are left empty in DICOM file, if not entered by the user.

- *Charset* - specify the charset which should be used for encoding the text values in DICOM. Possible values for this single selection list include all extended character sets defined in the DICOM standard. Default value is set to charset, that is configured as default charset for current *Send To* device in the Main MedDream SendToPACS window.

There are three ways to fill the patient and study data in the NON-DICOM files info window:

1. Manually select or enter the patient and study data.
2. Select from studies. The *DICOM file studies* drop-down list contains the studies, that are added by analyzing DICOM files. Expand the *DICOM file studies* list and select the study:

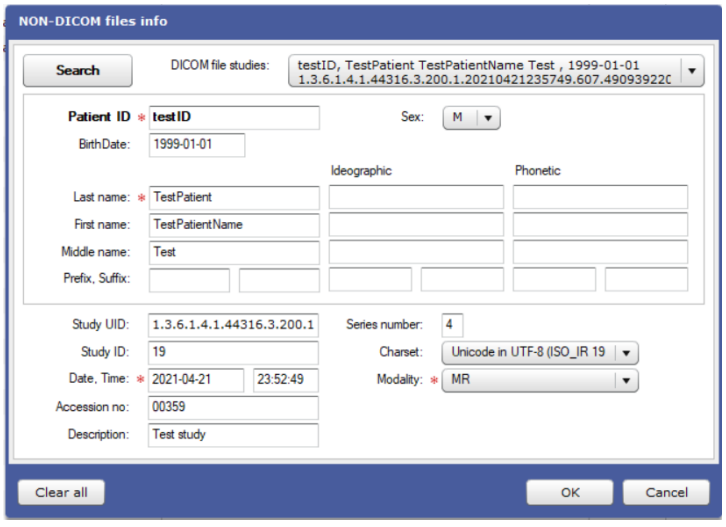


Figure 26. NON-DICOM files info window filled with data from DICOM file.

⚠ **NOTE**! *Modality* from the selected DICOM file will be loaded even if it is not included in the configuration

You can change the values in the entry fields. The system automatically clears the *DICOM file studies* selection and *Study UID* field, as far as values no longer equal to study data. Values in the other fields .

3. Search for patient and study data in WorkList or Q/R servers. Press the “Search” button at the top left corner to open the *Patient search* window. Find patient (see section

4.

5. Patient search), select the patient record, and press “OK” button. Will close *Patient search* window and fill the fields with selected patients and study data:

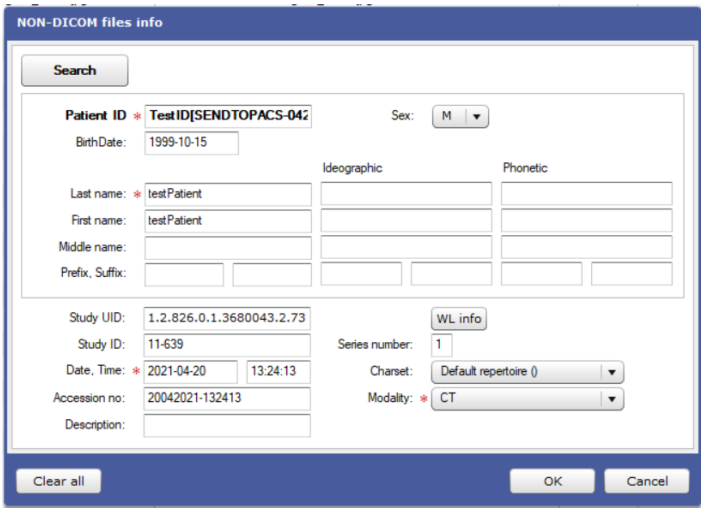


Figure 27. NON-DICOM files info window filled with data from Worklist record.

Study information and worklist information is available only if copied from the worklist record.

NOTE! *Modality* from the Worklist record will be loaded even if it is not included in the configuration

You can change the copied values in the entry fields.

You can press the “WL info” button that is placed next to the *Study UID* field to see the worklist details:

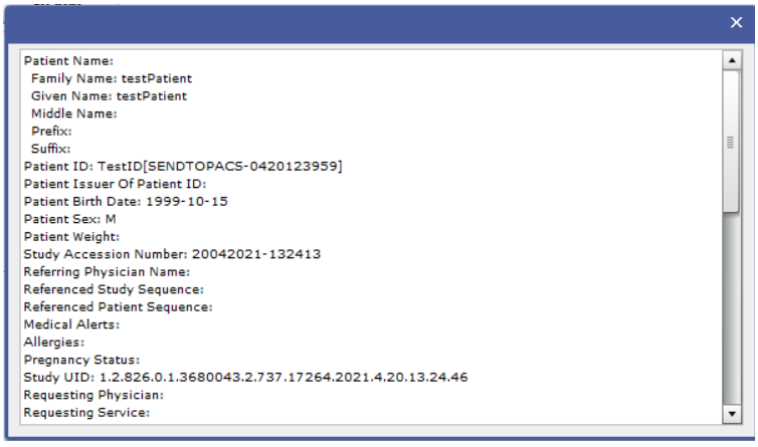


Figure 28. Worklist information window.

Use the buttons at the bottom of the *NON-DICOM files info* window for the following actions:

- Press the “Clear all” button to clear all the copied or entered values. The fields will be filled with default values, if applicable.
- Press the “Cancel” button to cancel all the changes and close the window.

- Press the “OK” button to save the changes for further usage and close the window.
- Press the “Start” button if data was entered by pressing “Start” the converting to DICOM and patient data was not entered before.

Entering DICOM files info

To open the *DICOM files info* window, press the “DICOM files info” button in the main MedDream SendToPACS window:

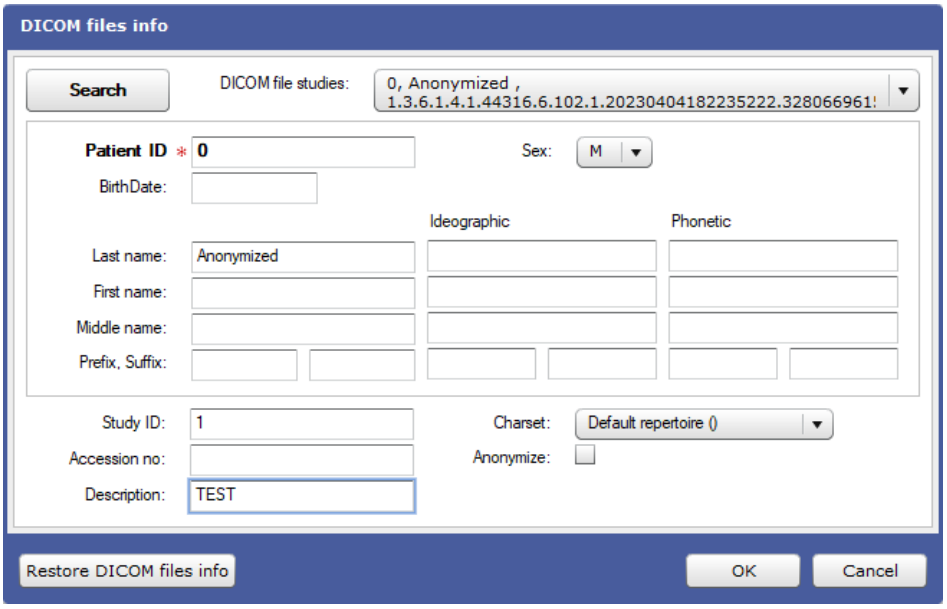


Figure 29. DICOM files info window.

DICOM files info window displays founded studies from DICOM files. By default, will select first item from *DICOM file studies* drop-down list. If user select DICOM file and then opens DICOM files info window – will select study item that belongs to DICOM file. Expand the *DICOM file studies* list and select the other study to view and edit its data.

Patient information fields are grouped at the top of the window within rectangular frame. You can enter or change the following patient data: *Patient ID*, *Birth Date*, *Sex*, *Last name*, *First name*, *Middle name*, *Prefix, Suffix*. See more detail fields description in section “Entering NON-DICOM files info”.

The study data fields are placed below the patient fields. You can enter or change the following study data: *Study ID*, *Accession no*, and *Description*. See more detail fields description in section “Entering NON-DICOM files info”.

Charset selection allows to specify the charset which should be used for encoding the text values in DICOM. The charset, that is used in viewed DICOM file, is selected by default. If Study contains multiple character set – will not allow to change this value for selected study.

Anonymize fill in the fields *Patient ID*, *Birth Date*, *Last name*, *First name* and *Study ID* with anonymised information.

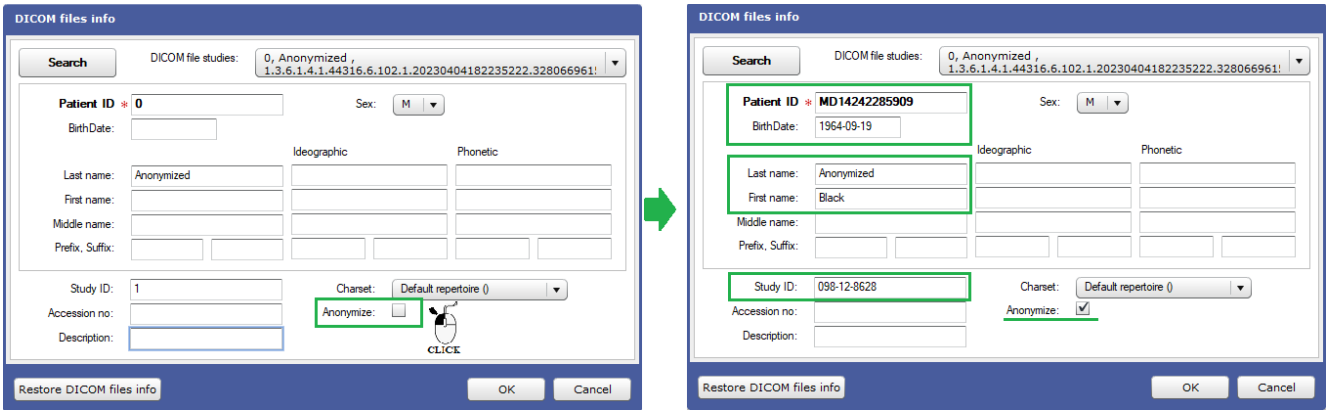


Figure 30. Anonymize

⚠ **NOTE**! When *Anonymize* is unchecked, the fields are not cleared. If you want to restore the DICOM value, check "Restore DICOM file information".

There are several ways to enter or change the patient and study data:

1. Manually change the patient and study data. Press on the entry field and edit the text, or expand the drop-down list and select the value from the list.
2. Search for patient and study data in MWL or Q/R servers and use this data. Press the “Search” button at the top left corner of the window to open the *Patient search* window. Find patient in the worklist server (see section
3.
4. Patient search, select the patient record and press button “OK”. Software fills the *DICOM files info* window fields with selected study and patient data.
5. Anonymising the data by selecting the *Anonymise* checkbox.

Study and patient information are updated only for the selected and viewed DICOM file study, which data is currently displayed in the *DICOM files info* window

⚠ **NOTE**! Study information is updated only if the data is copied from the worklist record.

Use the buttons at the bottom of the *DICOM files info* window for the following actions:

- Press the “Restore DICOM files info” button to undo all the data changes and entry for current DICOM file study and fill the fields with values from the initial DICOM file.

⚠ **NOTE**! The data is restored only for the selected and viewed DICOM file study, which data is currently displayed in the DICOM files info window.

- Press the “Cancel” button to cancel all the changes and close the window.
- Press the “OK” button to save the copied and entered values for further usage and close the window.

⚠ **NOTE**! “Cancel” and “OK” operation applies for all the data.

Patient search

To open the *Patient Search* window, press the “Search” button in the *NON-DICOM files info* or *DICOM files info* window:

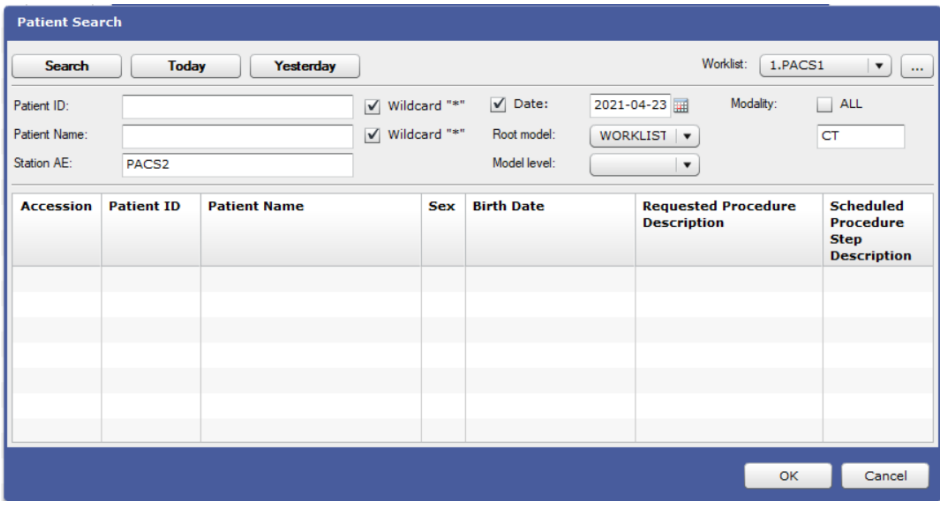


Figure 31. Patient search window with default search criteria.

To search for a patient, you need to do the following steps:

1. Select device in drop-down button *Worklist* to set default search options. By default, the configured default worklist device is selected in *Worklist* field in *Patient Search* window. If default worklist device is not configured, the first device from the list is selected by default.

⚠ **NOTE**! Press ... button on the right of the Worklist field to open the Worklist tab in Settings window and change settings.

2. Enter or change the search options. The default values:
   - *Patient ID* and *Patient Name* fields are empty, with selected wildcard options.

     To search for specific patient, fill *Patient ID* or *Patient Name* fields and uncheck the *Wildcard* checkbox on the right (to perform exact match).
   - *Root model* and *Model level* option define the DICOM information model and it level.

⚠ **NOTE**! For more information, please see MedDream SendToPACS DICOM Conformance document.

   - *Station AE* option allows to search the MWL scheduled procedures for this station. The exact AE Title match is required;
   - *Modality* option allows to search the MWL scheduled procedures for this modality. One modality should be entered, and exact match is required. Check *ALL* checkbox to not filter worklist by modality.
   - *Date* option allows to search the MWL scheduled procedures for defined date. Uncheck Date checkbox to remove filter by procedure date.

⚠ **NOTE**! *Scheduled AET*, *Modality*, and *Date* criteria apply only for Modality Worklist Information Model (*Default root model* value WORKLIST).

3. Press “Search” button to initiate the search - make request the data that meets the specified search criteria from with selected device.

Use the “Today” or “Yesterday” buttons for quick search by procedure date.

4. System displays the results:

– The worklist is returned, if the search was performed with WORKLIS information model:

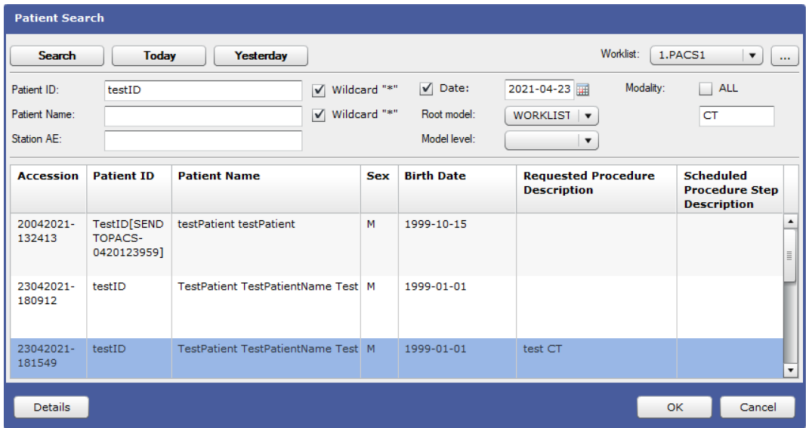


Figure 32. Patient search in WORKLIST model results window.

You can sort worklist items by any column in ascending or descending order: press on the column header to sort or change the sorting order. Triangle on the right of the column name indicates, that files are sorted according this column, and the sorting order: pointing up triangle for triangle ascending order, and pointing down triangle for descending order.

Press the “Details” button to view the detail patient and worklist information:

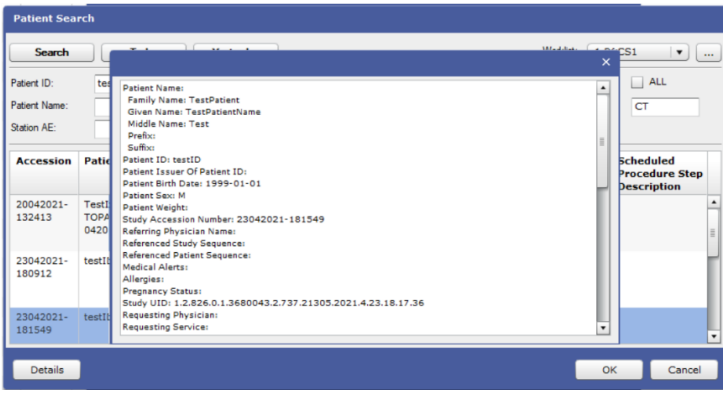


Figure 33. Detail patient and worklist information in Patient search window.

– The patients list is returned, if the search was performed in Query/Retrieve Information Model (*Default root model* value is one off: STUDY; PATIENT; PATIENT_STUDY):

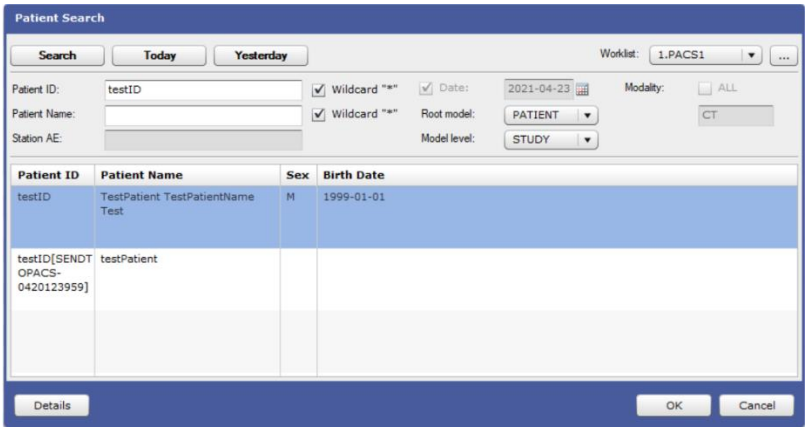


Figure 34. Patient search in STUDY, PATIENT, or PATIENT_STUDY model results window.

Click on the column header to sort patients list by any column in ascending or descending order.

Press the “Details” button to view the detail patient information:

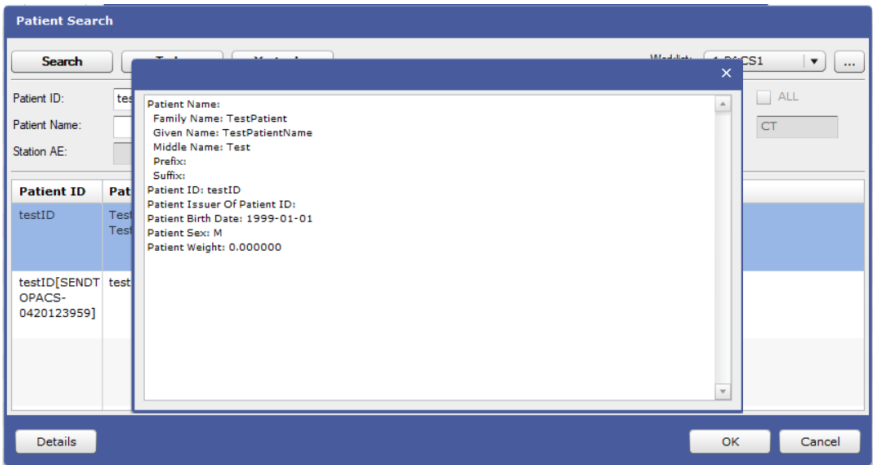


Figure 35. Detail patient information in Patient search window.

5. Press “OK” to close Patient Search window and update study and patient information in previous window: *NON-DICOM files info* window or *DICOM files info* window .

API usage

Even in DEMO mode it is possible to use API (after licensing all Configuration Settings will remain).

⚠ **NOTE!** API is available from version 2.1.0

To enable API open application.properties from your SendToPACS installation directory and add the following settings:

- api.username=test
  api.password=test
- Save settings and restart SendToPACS service;

Detail API documentation in HTML format can be accessed using “API doc” link http://127.0.0.1:8086/api/api.html.

API Demo page

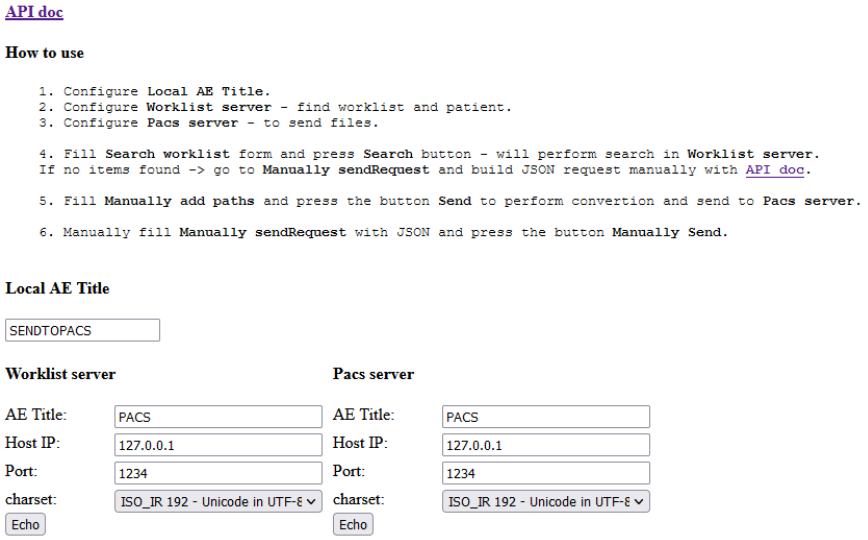


Figure 36. API Demo page.

To access SendToPACS API Demo page open the following address in your browser: http://127.0.0.1:8086/api/ and fill in the following settings:

- Local AE title - DICOM application Entity Title of MedDream SendToPACS software. The DICOM Application Entity Title uniquely identifies a service or application on a specific system in the network. It is required to identify sending software for the PACS server (or other DICOM receiving services). The proposed value is “SENDTOPACS”, but the user may change it. The same AE title name must be registered into the PACS server (or other DICOM receiving services) AE List (as device).
- Worklist server: AE Title – AE Title of your PACS server where worklist list is stored. Host IP – IP address of PACS server. Port – Port number of PACS server. Click Echo to verify for successful connection.
- PACS server: AE Title – AE Title of your PACS server. Host IP – IP address of PACS server. Port – Port number of PACS server. Click Echo to verify for successful connection.

Search worklist

You can perform search in PACS worklist by: studyUID, Modality, Patient Name, Patient ID, Patient Birth Date, Study Accession number, Requested procedure ID, Scheduled Procedure Step Start Date, Scheduled AE title, Root model and Model Level.

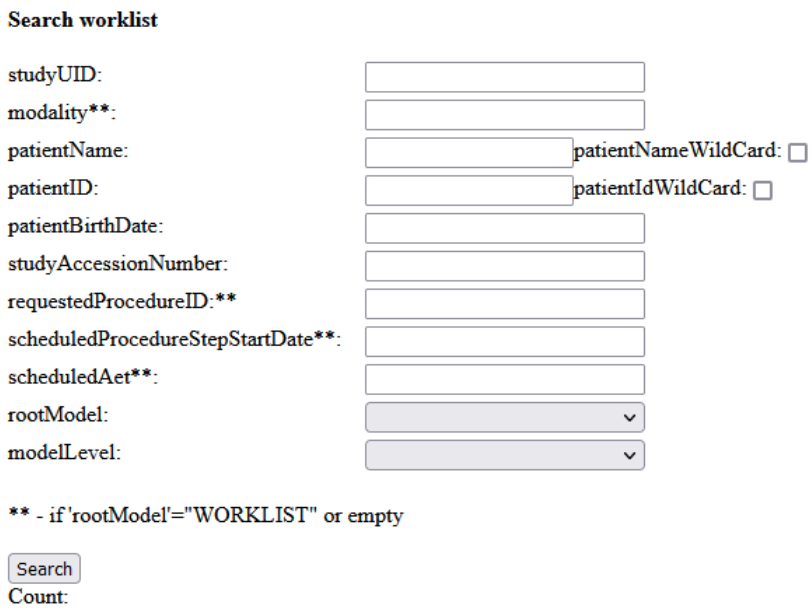


Figure 37. Search worklist.

- To perform test search enter patient ID which exists in your PACS worklist and press Search button:

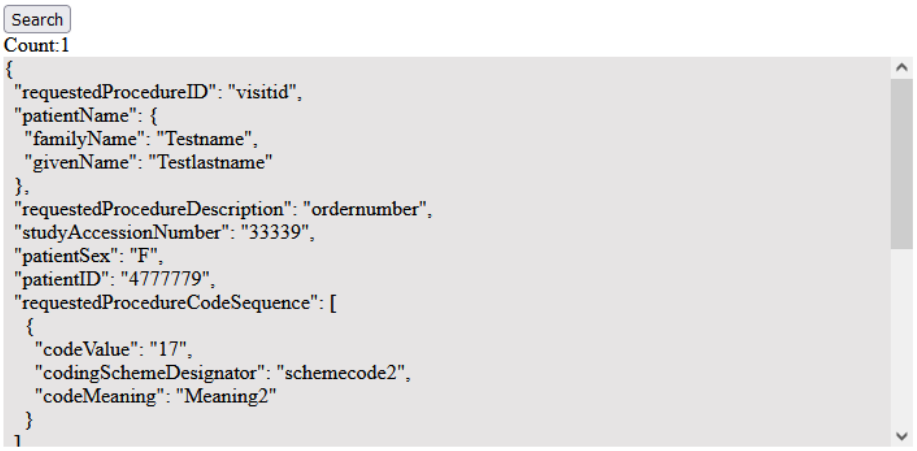


Figure 38. Search results.

File list operations

Files can be added automatically or manually to the file list in the MedDream SendToPACS Main window:

- The files, that are added to the monitored directory when application is running, are automatically added to the files list;

⚠ **NOTE**! If the files were pasted to the monitored directory when application was not running, such files are not added automatically. You should add them manually.

- Press “Add File” button at the top of the files list to select the file manually in windows file open dialog:

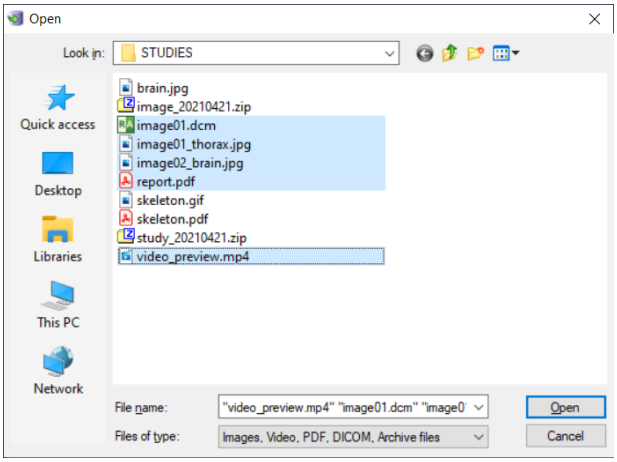


Figure 39. File selection in windows file open dialog.

You can select multiple files at once in the file open dialog:

- To select multiple files in a row, press on the first file, and then press on the last file holding the SHIFT key pressed;
- To select multiple files, press on each file holding the CTRL key pressed.
  - Press “Add Folder” button at the top of the files list to select the folder in windows file open dialog, and add all the files from this folder.

Software checks file extension before adding file to the list, and displays the type of the file in *File type* column. Only supported file types and extensions can be added to the list, converted, and sent.

Supported file extensions for IMAGE type: JPG, JPEG, BMP, PNG, TIF, TIFF.

Supported file extensions for VIDEO type: AVI, MPG, MPEG, WMV, MOV, MP4, H264, MKV, FLV.

Supported file extensions for DICOM type: DCM, DIC.

Supported file extensions for PDF type: PDF.

If requires to support other IMAGE, VIDOE, DICOM, PDF files with different extension – see installed software properties file “*C:\Program Files (x86)\SendToPACS\ application.properties*”.

The system may extract the file from archive, if the 7z software is available at “C:/Program Files/7-Zip/7z.exe“ or “C:/Program Files (x86)/7-Zip/7z.exe”.

⚠ **NOTE**! Supported archive files extensions: ZIP, 7Z, ISO.

⚠ **NOTE**! You can use drag and drop as an alternative of “Add file” or ‘Add folder” buttons: drag the file or folder and drop it into files list.

- Unwanted files can be removed from the list by selecting file in list and pressing “Remove File” button at the top of the files list. The files are removed from the files list, but not deleted from the physical storage. The multiple files may be selected for removal:

- To select multiple files in a row, press on the first file, and then press on the last file holding the SHIFT key pressed;
- To select multiple files, press on each file holding the CTRL key pressed.

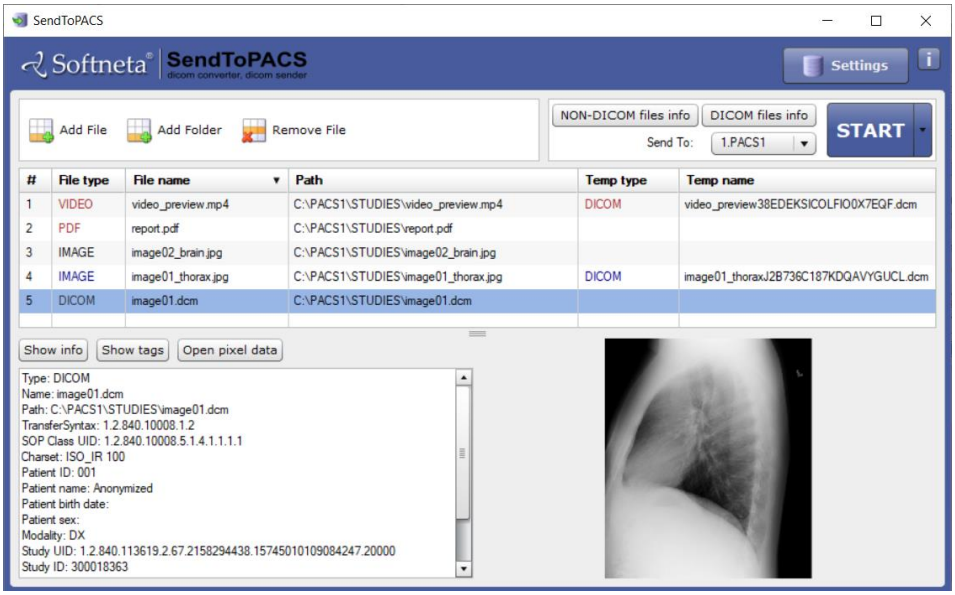


Figure 40. Files list with opened info panel in the main MedDream SendToPACS window.

You can see the following information about the file in file list:

- *File type* – displays one of the allowed types: IMAGE, VIDEO, PDF, or DICOM. If not sent, file type font has default color (black). If the user attempted to send files, the *File type* text color indicates the status of the sending process:

– Yellow color - indicates that some step produces errors but the last process was success;

– Red color - indicates that last step completed with errors;

– Green color - indicates that all steps completed without errors and is ready to send;

– Blue color indicates successfully finished sending.

⚠ **NOTE**! The files, that were successfully sent, may be automatically removed from the list, if configured to be cleaned after sending.

- *File name*, and *Path* – displays name and location of the physical file, that was selected for sending;
- *Temp type*, and *Temp name* – displays type and name of the temporary files, that were created to support the sending process. The fields are filled with data only for the files that were attempted to send.

You can do the following actions in the files list:

- To add a comment for each file (if additional field is configured in settings).
- To sort the files list by any column in ascending or descending order: press on the column header to sort or change the sorting order. Triangle on the right of the column name indicates, that files are sorted according this column, and the sorting order: pointing up triangle for triangle ascending order, and pointing down triangle for descending order.
- To view the file and sending process info: double-click the file record to open the info panel for the file. The info panel is displayed below the files list, at the bottom of the main window.

To close or resize the info panel - hover the mouse cursor over the zone separator at the top of the panel (mouse cursor should change to the drag look), press the button and drag the seperator up or down to the desired position.

⚠ **NOTE**! If the info panel is empty, double click on file record in files list to fill the panel with file's data.

On the right side of the info panel, the image preview is displayed. The preview zone is empty, if fails to get image from file or the file does not contain image data, like PDF file or DICOM file without pixels data.

On the left side of the info panel, the text box with the file properties and sending process log is displayed. In case the information is grouped in different groups, the buttons to view or access the different group are displayed above the text box. Press the button to view the information:

– The "Show info" button [Show info] displays the information about the file, data to be used in DICOM file, and file conversion and sending processes logs, if the file was attempted to be send. This is default set of information.

⚠ **NOTE**! "Show info" button is not displayed, if this is the only set of information available for the file.

– The "Show tags" button [Show tags] is available for DICOM files and displays tags of the initial DICOM file.

– The "Show updated tags" button [Show updated tags] is available for the files that were successfully converted to DICOM file, and displays tags of the created DICOM file.

– The "Open pixel data" button [Open pixel data] is available for DICOM files. Will try to extract pixel data and opens known video, image, PDF file or the temporary storage folder if format is unknown.

Creating and sending DICOM files using add paths

You can manually add files you want to create and send as a DICOM file. To perform this first make sure that you have found at least one worklist in Search worklist section. Enter the path you would like to add and click "Send" button. DICOM file will be created.

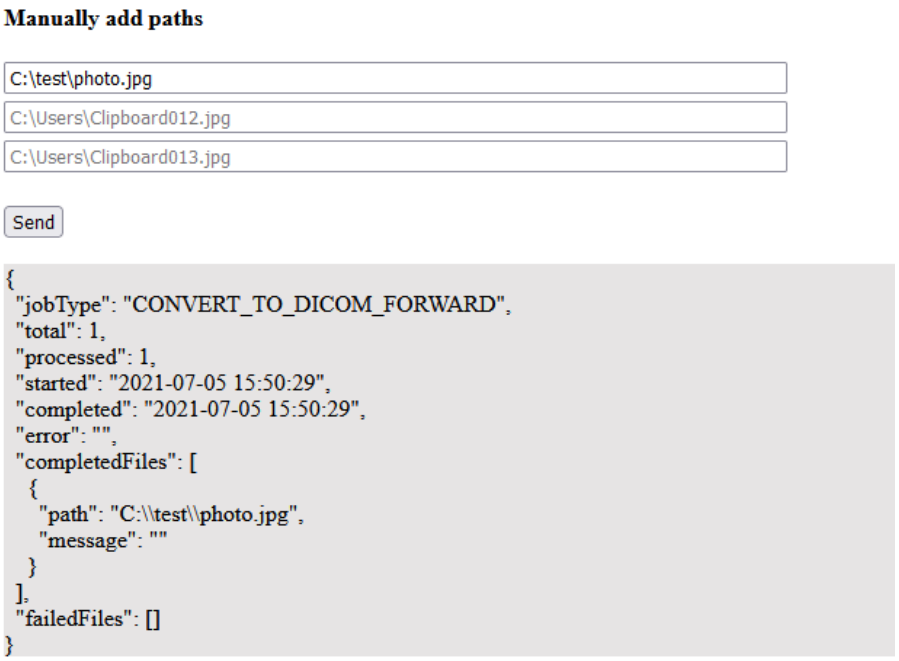


Figure 41. Add paths to files.

Creating and sending DICOM files manually

You can manually send request and create a DICOM file and send it to PACS server.To create and send DICOM files manually with worklist which was found in Search worklist section. Make sure you found at least one worklist, add file which you want to attach (for example C:\test\test.pdf). You can automatically create a json structure by clicking “Fill with PACS+Search worklist results+paths” button. Once you have json structure ready click “Manually Send” button.

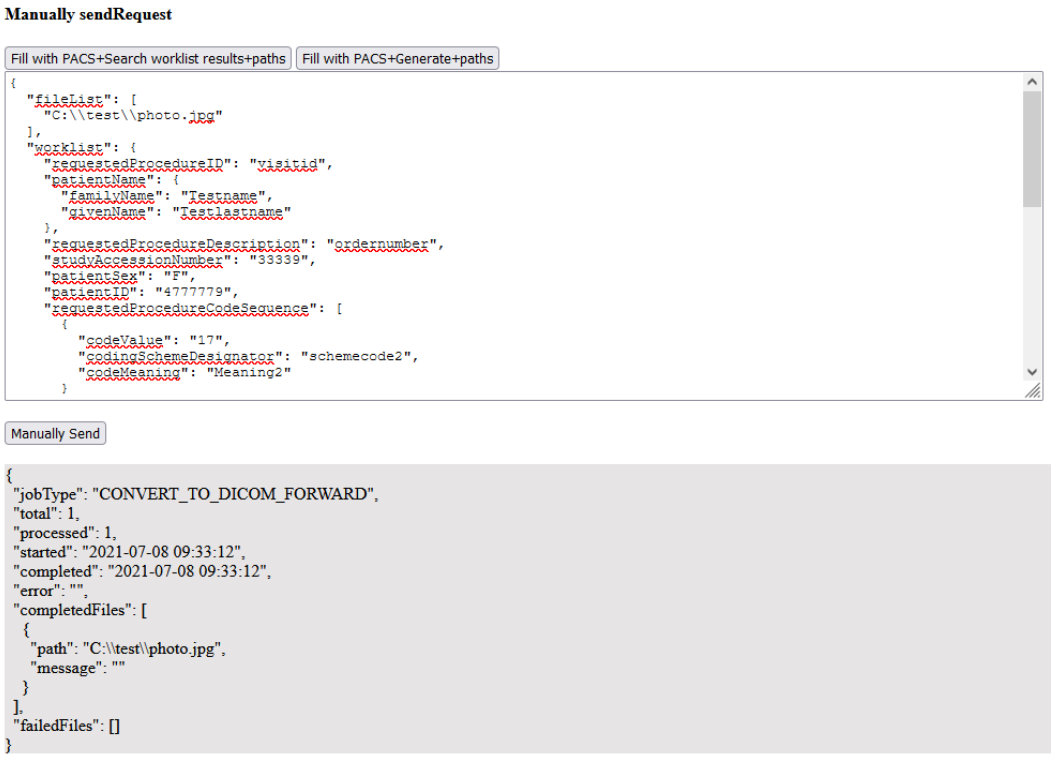


Figure 42. Manually send request with worklist.

Another option is to create and send DICOM files to PACS server without worklist. Make sure you add file which you want to attach (for example C:\test\test.pdf). You can automatically create a json structure by clicking “Fill with PACS+Generate+paths” button. Once you have json structure ready click “Manually Send” button.

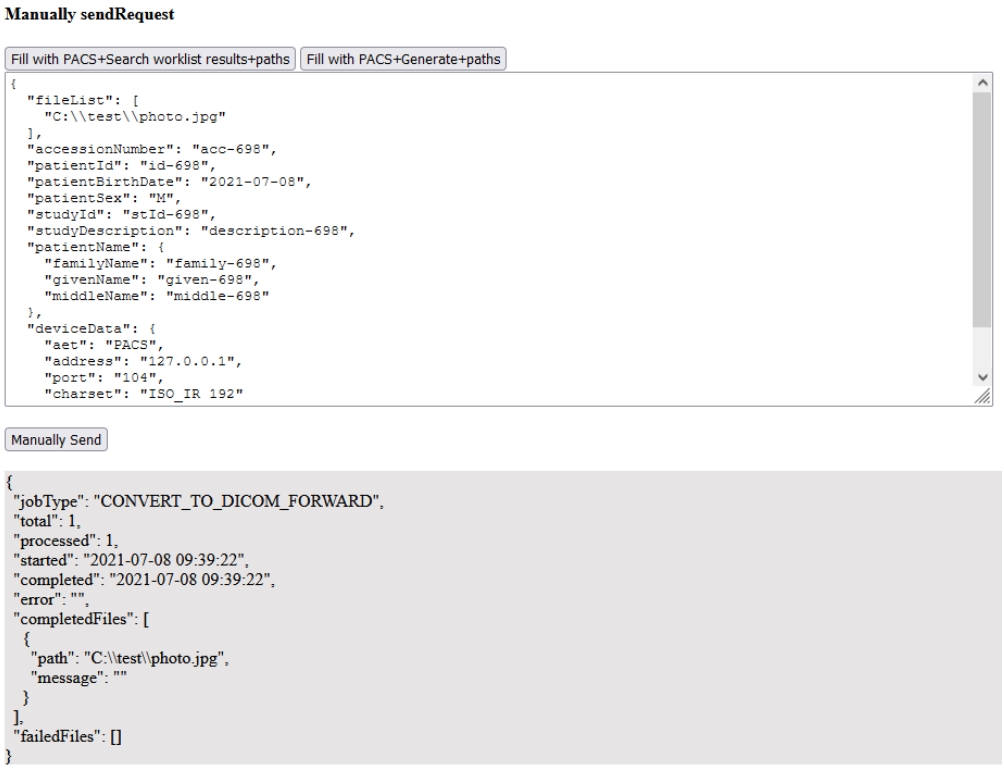


Figure 43. Manually send request without worklist.

If send was successful you will see new DICOM file in your PACS.

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