

# Version 2.2.3.0 (May 2025)

- Features:
  - Photos and documents
    - Optionally the patient selection is retained after import
  - Radiographic image acquisition
    - Manual mapping of Procedure Codes from third-party systems by the user when acquiring radiographic image now possible (admin is no longer required)
    - Special Procedure Codes for whole-leg stitching images added to the X-ray database and the BodyGenerator
    - Optimisation of the X-ray database default settings
    - The firmware version query can be deactivated for Spellman generators during communication, as older models do not support this
  - X-Ray Admin
    - Optionally, acquisition parameters (kV, mAs, mA, ms and DAP) are shown
    - Optionally, histogram can also be displayed
  - Control Center:
    - Procedure ID for modality in the Control Center added (some devices, such as Siemens ultrasound devices, require this identifier for worklist queries)
    - DICOM queries for worklist orders can be displayed in the Control Center for administrative purposes
- IT security:
  - New 'IT Security' card in the Control Center for configuring password security levels for user-supplied passwords
  - There is no longer a default (predefined admin) password a password must be entered manually when the Control Center boots for the first time
- Performance:
  - Improved performance when the patient CD viewer starts including display of a start window as feedback that the CD is loading
- Setup:
  - To ensure the authenticity of the setup files, the procedure with MD5 sums has been replaced by an integrated code signing (digipaX + digipaX Demo)
- Bugfix:
  - 'Move images' function has been removed from demo version, as only one archive is available

# Version 2.2.2.0 (February 2025)

- Features:
  - General
    - Supporting password-protected ZIP archives (e.g. patient CDs from the cloud etc.)
    - A GDT-compliant response after patient CD creation possible (on workstation)
    - Additional action controls for the GDT record type 6301
  - Patient management
    - Tooltips are displayed in the search field for names in patient management
  - Viewer
    - Manual creation of a GDT-compliant response added to catch up on an index card entry or for test purposes (for current image or all images of the viewer)
  - Patient CDs
    - Supporting ZIP archives containing multiple patient CDs (DICOMDIR)
  - Image management



- When changing patient data, spaces are automatically removed at the beginning and end of the values
- Acquisition of radiographic images
  - Connection and control for generators of Spellman added
  - Complementation to the X-ray database (some new Procedure Codes)
  - For the simulation of the generator density values can be set in half setpoints
  - Grid filters can be used to improve grid line suppression by DRTECH detectors
  - L/R or text markings can also be subsequently changed or removed
  - Optimisation of post-processing settings for DRTECH and Pixium detectors
  - In addition to the overall statistics for all acquisitions, the statistics for the current user are now also displayed
- X-ray journal
  - The X-ray journal can now also be filtered by operator name
- X-Ray Admin
  - Export of processed images for demonstration purposes possible
- Control Center:
  - Adjustments to the generation of tables of organs to new Procedure Codes
  - Before deletion of a table of organs, the assignments that use this table of organs are displayed (these assignments must first be undone)
- Performance:
  - When transferring a patient from the worklist to the acquisition of radiographis images a delay can occurr if the list is full; the transmition can be sped up by additional filtering by patient ID if supported by the worklist (setup in Control Center)
- Bugfix:
  - Crash during HD measurement in Vet version fixed if option 'multiple measurements in a row' was active
  - Error when sorting more than 9 series in the preview tree (series 1 was followed by series 10, 11 etc., then series 2)
  - When performing the acquisition of rediographis images, message could have popped out after entering the values (kV, mAs etc.) that no values have been entered
  - Nevertheless, despite the values have been adjusted and saved when using Procedure Code for the first time, a request to save changes popped out multiple times
  - Opening DICOM files with very long path names (Windows limitation) possible

## Version 2.2.1.0 (September 2024)

- Features:
  - General
    - Error message when starting the programme if the server or the dpXSYS directory is not available is now displayed in the user's selected language
    - When starting digipaX, it is checked whether the current Windows version is one of the supported versions and therefore meets the system requirements
    - Image preview for all series (except multiframe) can be switched from stacked to single images directly under the preview tree of all components (except stitching)
    - Detailed selection of fields for anonymizing images to export or when creating patient CDs
    - Updates to integrated system and software components (third-party manufacturers)
      ient management
    - Patient management
      - Optionally, name suffixes such as 'van' or 'von' etc. can be used in the patients' names
      - Column for middle names is now available as an option in the patient table
    - Viewer
      - Display of scout lines for multiframe series added
      - For drawing lines and measuring distances or angles, while holding down the Shift key one can set exactly vertical, horizontal or 45° angled lines as well as exact 45° and 90° angles
    - Photos and documents



- When importing photos and documents, source data can be optionally deleted once successively imported
- When importing photos or documents, the study description is emptied after the import; if a
  default value is defined, it is automatically reloaded the next time the component is retrieved
- Printing
  - The defined print settings can be saved as a template
  - The current layout of the viewer of the current monitor can be printed just per click
- Patient CDs
  - Monitoring of a download directory for the import of downloaded patient CDs from cloud archives or patient portals (as a zip archive)
  - Adding invalid Structured Reports to the patient CD possible (previously cancelled with an error)
  - Job management
    - In job management, one can switch by a link directly to the image viewer and view patient's images
    - Same study description in related jobs so that these are displayed correctly in third-party systems (e.g. Fuji) (follow instructions for upgrades)
    - In the card for creating new worklist jobs, existing jobs of the same patient are also listed
    - Allocation of the worklist to a specific modality is possible
    - If organ tables are assigned to multiple modalities, the designation of the modality can be used in job management instead of the name of the organ table
    - For images incoming in the archive jobs can be deleted automatically
- Image management
  - When moving images to another archive, a GDT response can optionally be generated
- Acquisition of radiographic images
  - Acquisition statistics have been added (number of patients, studies, images, deletions)
  - Deletion database: additionally to statistics of the X-ray image acquisition a protocol for discarded images can be maintained (available only with Röntgen-Plus module)
  - Global target value of the exposure index is defined; for each single Procedure Code this
    value or optionally another value can be chosen as target value
  - Optionally StudyInstanceUID from the worklist job can be applied in the images
  - In Control Center data fields for acquisitions and studies can be configured (e.g. whether visible or not, whether mandatory or optional, whether editable etc.).
  - For the detector simulation, it is possible to provide a corresponding example image for each Procedure Code
  - When using DRTech detectors, a lower limit for image cropping of 25 pixels is predefined on all sides
  - For Thales detectors, a note has been added in the GUI that no grid should be used for calibration
  - The mAs values for X-ray image acquisition are now only specified with decimal places up to 12.5, beyond that in steps of whole numbers
  - The rotary knob for Density is now only active if at least one measuring chamber has been activated
  - The default settings for post-processing (group '[DEFAULTS]') can be overwritten manually in the 'xray-db-user.ip' file of the corresponding detector
  - Revision of the X-ray database:
    - Separate organ table for paediatric application
    - Default settings with reference to guidelines of the German Medical Association Integration of shutters during image acquisition (shutters can be set and saved along with
  - the image)
- X-Ray Admin
  - Images can now be also rotated
  - The settings of a Procedure Code can be transferred (copied) onto another Procedure Code
- Control Center:
  - Note when assigning target archives that target archives can only be defined for modalities with the 'digipaX2' system



- Additional setting options in Control Center for Thales detectors with battery (timer for energy-saving mode and auto switch-off as well as wake-up functions)
- Improvement in the setting options for routing rules
- The GUI of internal archives or routers can be started on the server from Control Center per Shift+double-click
- Performance:
  - When series are deleted, they are also deleted in series and not each image individually as before, as this is much more efficient
  - The backups of deleted or changed images are no longer saved as individual files, but as a zip archive on the server, which speeds up the transfer of data
- Ergonomy:
  - Improved display of the buttons for 'delete', 'change', 'import' etc. in the image management to better recognise which function is currently selected
- Documentation:
  - Supplementations to the configuration of DAP devices from KermaX in the Administrator's Guide (and settings of the COM port and the interface)
  - Detailed and further explanation of the extended configuration of DICOM routers and extended routing rules in the Administrator's Guide
  - Reference to the manufacturer's website in the manuals
  - Information on risks associated with changes to the IT network
- Bugfix:
  - Crash fixed when displaying device information with indirect generator connection
  - Crash fixed when calibrating DRTECH detectors with indirect generator connection
  - Crash fixed when restoring an image from the backup in the X-ray image acquisition (only happened if no detector was configured for the table))
  - Crash fixed for GDT file with record type 6302 and active action control 'Create job if 'Job management' module is deactivated
  - Occasional crash when changing the organ table in job management fixed
  - Hierarchical loading of GDT settings did not work (values in group.ini can be overwritten by values in user.ini and these in turn by values in local.ini)
  - After an initial installation it could happen that several empty directories for preview images were created on the server directly on drive C
  - Fixed a bug that could cause the programme to crash when downloading images to the local image cache
  - Fixed a bug where saved user texts (list of persons or texts) were changed at one station, it could happen that these were overwritten again by another station

## Version 2.2.0.0 (August 2024)

- Others
  - Compliance with regulation (EU) 2017/745 (MDR)
- Features:
  - The updated intended medical purpose of the product is displayed in the Service Dialog
  - UDI-DI and the UDI-PI of the product are displayed in the Service Dialog
  - The Swiss AR (Authorised Representative in Switzerland or CH-REP) is presented in the Service Dialog
  - Use of the symbols for manufacturer and medical device in the Service Dialog in accordance with DIN EN ISO 15223-1:2022-02
- Documentation:
  - A new section on possible residual risk has been added in the User's Manual



- No restriction of generator control to veterinary and test systems only in the Administrator's Guide and the User's Manual (use of the generator control for human medicine is now permitted)
- Concretisation of the product description in the User's Manual according to the intended medical purpose
- Information on the intended medical purpose, indications and contraindications, intended group of patients, performance features (clinical functions) and instructional briefing by the dealer/administrator have been concretised or completed in the User's Manual
- Supported dose area product meters (dosimeters) have been added in the User's Manual
- Check and revision of the safety and warning precautions in both the User's Manual and Administrator's Guide
- Consistent product designation "digipaX2" instead of just "digipaX" in the manuals
- Use of the symbols for manufacturer and medical device in the User's Manuals in accordance with DIN EN ISO 15223-1:2022-02

## Version 2.1.6.0 (May 2023)

- Features:
  - Radiography image acquisition:
    - New licence module for connection of DAP measuring systems
    - Connection for dose area product meter KermaX
    - Connection for dose area product meter VacuDAP
  - If the hostname has more than 16 characters and the option "Hostname as AE Title" is activated, a warning message is displayed at start-up
  - Input for AE Titles for the archives is limited to max. 16 characters (Control Center)
  - External archives are automatically added to the list of DICOM nodes and no longer have to be manually defined as target nodes
- Ergonomy:
  - Entries in tables and lists in Control Center can now be edited easier by a double-click
- Bugfix:
  - Crash when images were transferred to the image management after calling up GDT (by Drag&Drop or Quick Navigation) now fixed
  - Bug in the image management component that instead of sending single images of a series always a complete series was sent now fixed
  - Bug in the image management component that deactivated DICOM nodes were displayed as destination when sending images now fixed
  - On terminal servers it could happen that a crash of the previous session was erroneously detected
  - Registration problems of the post-processing engine during radiography image acquisition sorted

# Version 2.1.5.0 (February 2023)

- Features:
  - In the tables of the DICOM nodes in the Control Center (Archive, Router) the UIDs of the nodes are displayed as a tooltip, which is helpful for the administration
  - Zoom at current mouse position with Ctrl + scroll wheel of the mouse (optionally also without Ctrl key for single images)
- Usability:
  - For better display and clarity, the row height of the GDT configuration tables in the Control Centre has been increased
- Documentation:
  - Additions according to EN 60601-2-54 in the User' Manual as well as Administrator' Guide for instructions for quality control procedures and constancy tests, labelling the image processing settings, file transfer format as well as for displaying the images during X-ray image acquisition



- Notes on radiation protection in the User' Manual
- Notes on reporting obligations in the User' Manual
- Setup:
  - During setup, the shortcuts are installed for all users (not only for current users as before), so that the shortcuts are immediately available for all RDP users on terminal servers as well
  - A link to the User's Manuals on the desktop and in the start menu is added
- Bugfix:
  - Some dialogs for the system preparation of DRTECH detectors were only displayed in German and not in the set user's language
  - After changing the AE title of an archive for which routing rules are defined, the corresponding rules could no longer be adjusted or deleted afterwards
  - It could happen that a station deleted the GDT file for another targeted station (other receiver ID in field

# Version 2.1.4.0 (January 2023)

- Features:
  - Additional card in the image management for sending or forwarding images to other archives (e.g. at another location).
  - Additional card for moving images to another archive incl. data adjustment (source data is deleted in the process)
  - After manual entry into the X-ray journal in the job management, the completed job can optionally be deleted at once by the user
  - Extra option of patient identification without ID (only name and date of birth) in the Control Center
  - New feature that allows to automatically adjust all corresponding configuration settings of digipaX when the server hostname is changed
  - In the dialog for selecting an archive, the colour display of the archive list is now improved
  - Optimisation of the settings for postprocessing in the DRTECH detector
- Performance:
  - The standard printer is only initialised when the print component is used and no longer when the program is started (which could occasionally lead to startup delays)
- Bugfix:
  - Crash of images with integrated overlay and faulty DICOM tags now fixed
  - Issue with changing patients in the fullscreen mode with multi-monitor module (monitor stuck on grey and fullscreen mode) now fixed
  - Occasional crash of the Service Center when installing a new archive now sorted
  - If the installation of an archive in the Control Center failed, it could happen that successful installation was reported anyway
  - The acquisition parameters were not reset when an image was discarded after acquisition
  - When creating a job, information on height and weight was not cleared when changing patients
  - Occasional crash of X-Ray Admin while zooming is now fixed

# Version 2.1.3.0 (November 2022)

- Features:
  - Acquisition of radiographic images:
    - Added support for DRTECH detectors for acquisition of radiographic images
    - Added sleep mode for detector simulator for testing purposes
    - Added note on adjustment of Firewall settings to enable network connection and system preparation for Thales detectors
  - In the file browser, favourites can be defined to quickly select and switch between different destinations



- In the file browser, paths can now be selected easier using the search button and UNC paths are supported (\\SERVER\SHARE\FOLDER)
- When acquiring images and connecting to an external worklist, completed jobs are automatically hidden (optional)
- If there are multiple cards (Bodies) in creating the job, the top card is now automatically selected as the first one.
- Focusing the new search field in the job management (user does not have to click the field first for a new job)
- Extension and improvement of the filters for automatic generation of the X-ray journal (now filters for up to 3 modalities can also be defined)
- When recording new patient data, patient's middle name can be entered optionally
- Additional procedure codes for digipaX2 and corrections of organ names
- Performance:
  - Optimisation of threads in the Service Center for better performance, particularly when receiving large data volumes
- Bugfix:
  - Error while querying the area dose of the last exposure by the Betschart generator has been fixed
  - Error while deleting self-defined procedure codes has been fixed

# Version 2.1.2.0 (September 2022)

- Features:
  - Self-defined Procedure Codes can also be deleted again in the Control Centre
  - Procedure Codes can be selected repeatedly for mappings and macros
  - Automatic image crop during X-ray image acquisition possible as an option (only with the module Röntgen-Plus)
  - Mouse function to display coordinates and grayscale values in the viewer and during X-ray image acquisition
  - Input of the dose value during the calibration of the exposure index is now also possible with comma
    as decimal separator instead of only with decimal point up to now
  - For X-ray image acquisition, the serial number of the detector is stored in the tag 0018,1000 as well as Manufacturer (tag 0008,0070) and Manufacturer's Model Name (tag 0018,1090)
  - The log outputs have been improved so that the log files do not become unnecessarily large
  - When creating a new router, the number of routing attempts is set to unlimited instead of 5x up to now
  - Configured routings to other DICOM nodes are monitored by the Service Centre and an entry in the alarm database is generated if an error occurred in the process
  - If a router contains still undelivered images, it will not be cleaned up until all images have been delivered
  - Message after program start if the alarm database of the Service Centre contains warning or error messages
  - If there are multiple monitors, it is possible to drag and drop the study node of the image preview into the desired viewer window for automatic hanging of images, e.g. to compare previous and next studies on two monitors (if the study node is clicked, all monitors are still used for hanging the images)
  - Editing the X-ray journal entries is possible with a double click
  - When exporting the X-ray journal, decimal points can optionally be converted into commas to make postprocessing in Excel easier
  - In the patient management of the veterinary version it is now also possible to search for patient IDs
  - New search field when creating a job, which can be used to quickly search for organs, e.g. by searching for "kne", all images with "knee" are displayed
- Performance:



- Automatic removal of the images from archives and routers has been improved (removal in the background while the remaining images stay constantly available)
- Documentation:
  - Chapter for IT security added to Administrator's Guide and User's Manual
- Setup:
  - After an update of the system path variable the value "C:\digipaX\MariaDB\bin" was re-added and thus multiply present on the server
  - Structured reports could not be displayed in the Patient CD Viewer because a file required for this was
    missing in the setup for the server
- Bugfix:
  - Automatic hanging of images on the multiple monitors did not work properly
  - The routine for cleaning up archives and routers was still started multiple times simultaneously under certain circumstances, which could lead to a memory overflow and a crash of the Service Centre
  - If messages from the Service Centre were deleted by a digipaX station, it could happen that the messages were no longer logged correctly afterwards

## Version 2.1.1.0 (July 2022)

- Features:
  - Scrolling through series with the "Page up" and "Page down" keys is possible again
  - Patient CDs with zipped image files are supported
  - Import of DICOM ZIP archives (e.g. downloads of patient CDs via web portals of other providers)
  - If Structured Reports (SR) are not DICOM-compliant, it is nevertheless attempted to load and display them
  - Compressed JPEG images with a wrong indication of colour model (RGB) are supported
  - Support for DICOM files with Encapsulated PDF has been added
  - When exporting the X-ray journal as a CSV file, it is possible to automatically convert the values of the dose area product into the unit desired for the medical authority
- Performance:
  - Significantly improved performance when loading patient CDs
  - Improved performance when importing patient CDs (series are sent as a stack again)
- Bugfix:
  - With multiple burn drives, only the first drive was available for creating patient CDs
  - When creating text annotation, the character set of the image was used instead of UTF8 or the system character set, which made the text unreadable afterwards depending on the language setting
  - Sometimes the database (MariaDB) setup failed when installing a new archive
  - When creating an order the input fields for pregnancy status and menstruation were hidden for male patients only in the first table of organs
  - Pregnancy status was also shown for male patients when saving a study
  - When loading defective DICOM files, the program could crash
  - Change of a patient CD is now also indicated in the file browser

## Version 2.1.0.0 (May 2022)

- Operating systems:
  - Supported Windows 11 and Windows Server 2022
- New X-ray image acquisition module:
  - Devices:
    - Generators:
      - Direct and indirect mode for generator control:



- Direct: Direct generator control through integrated control console (license module "Generator Control" necessary)
- Indirect: Transfer of a Procedure Code and control through a separate control console of the manufacturer
- Betschart GENESIS DT/DTs
  - Optional indirect generator control possible
- Generator simulation
  - Device for test and demo purposes
- Detectors:
  - Thales Pixium (Trixell)
    - Simple installation and configuration
    - Calibration directly within the software
  - Detector simulation
    - Device for test and demo purposes
  - Dose area product (DAP) meter:
    - DAP simulation
      - Device for test and demo purposes
- Control CenterControl Center:
  - New configuration page for "Institution" (along with "Service Partner" in the new page "Client")
  - New configuration pages for image acquisition systems
  - Configuration page for management of tables of organs moved to "Image acquisition systems"
  - Tables of organs can be better managed now (generation, edition, deletion, assignment)
  - Use of affixes for better integration of tables of organs in the veterinary version
  - Optionally colour presentation of Procedure Codes and filtering entries in tables of organs for better overview
  - Editing Procedure Codes in tables of organs via context menu
  - Editing database for X-ray image acquisitions
  - Creating alias or macros (mapping) and assignment of Procedure Codes for image acquisition, which can be stored in tables of organs
  - New configuration and assignment of modalities
  - Multiple tables of organs can be assigned per modality (e.g. for an acquisition device and tables of organs for multiple disciplines that are in use of it)
  - Integration and configuration of grids
  - Measuring unit for display / input of dose area product is configurable
  - New license module for X-ray image acquisition activatable
- Workstation:
  - New configuration at the digipaX workstation, in order to activate an X-ray image acquisition incl. software required
  - New component in the blue navigation bar for performing X-ray image acquisition
  - Display of a warning symbol on navigation bar if initializing failures of devices occur
  - Information and status of connected devices are displayed in the header
  - Activation of image acquisition by double-clicking the patient in the worklist
  - Size, weight as well as pregnancy status are transferred from the job and shown along with the patient information
  - Optional pregnancy status query
  - Display of job description as well as descriptions of single acquisitions and their Procedure Codes; the acquisition description is editable (initializing with description from database)
  - Where appropriate, resolution of macros (mapping) from the jobs in respective acquisitions
  - Colour status display of job boxes (blue active, red failure, green dot after acquisition confirmation)
  - Deletion of jobs in the list possible; planning (adding) jobs via planning card possible
  - Direct generator control with integrated console (license module "Generator Control" necessary)
    - Automatic setting up generator in line with predefined settings from the database as per current Procedure Code



- mAs display for the 3-point technique
- Warning when using a Procedure Code for the first time that the settings must be checked and adjusted if needed
- Synchronisation of the generator and detector accordingly to the settings and devices used
- For generators that are controlled not directly with digipaX predefined acquisition parameters from the database are displayed
- Display of battery charge level for WiFi detectors
- Display of signal strength for WiFi detectors (if supported by detector)
- Display of temperature for detectors and check before the image acquisition (if supported by detector)
- Activating and deactivating use of a grid as well as displaying these settings during the acquisition process
- Preview during image acquisition (if supported by detector)
- Automatic image correction (gain, offset, defect pixels); optionally also without one when calibration missing (for test purposes)
- Automatic image rotation as configured in the detector
- Automatic image transformations as configured in the X-ray database (rotation, mirroring)
- Automatic image crop as configured in the X-ray database (removal of the edges)
- Grid line suppression (with module "Röntgen-Plus" available only)
- Calculation of an optimal window level when postprocessing
- Optionally the last 10 acquisitions of each Procedure Code are saved for new tool "X-Ray Admin"
- Image display and many tools for postprocessing
- Subsequent changes of image filters for image quality enhancement possible
- Marking images with X-ray markers (symbols, text)
- Image crop
- Colour marking of the accepted images
- Ban for change of a patient or program exit when after the image acquisition there are still not saved images present
- Discard of image acquisitions with a confirmation prompt possible
- With Shift+Klick or Strg+Klick on button "Discard" + admin password alle unsaved acquisitions can be deleted at once
- Dialog for saving X-ray images with additional options for data check and adjustment before saving
- Optionally beam path is saved along with the study description
- Saving additional tags for anatomy (Body Part, Laterality, View Position)
- Saving grid information in DICOM header
- Automatic entry in X-ray journal when saving the study
- Automatic deletion of worklist jobs after saving the study
- Once image acquisition is completed, the program switches automatically over to a component selected by the user (e.g. Next job or Creating patient CD etc.)
- Acquired images are temporarily stored in a local database and can be normally used in the program
- Backups and restores of acquisitions
  - Exposure index in accordance with DIN 62494-1
    - Simple calibration with an individual instruction
    - Graphic display with height of the deviation index after acquisition as a symbol and display of messages how to deal with exposure index
    - Display and adjustment of exposure index calculation mask
    - Saving the exposure index values in DICOM header
    - Setting Target-Exposure-Index in X-ray database (Control CenterControl Center)
    - Settings for exposure index calculation mask in tool "X-Ray Admin"
- Tool "X-Ray Admin":
  - Central tool regarding settings of postprocessing
  - Viewer with toolboxes for displaying and adjustments



- Checking results of grid line suppression algorithm
- Settings for algorithm for collimation detection
- Settings for image enhancement by filters
- Settings for windowing algorithm
- Settings for exposure index calculation mask
- Settings can be saved after having been adjusted for next acquisitions
- Resetting settings to their original defaults
- Toolbar for adjusting the layout
- Toolbar for adjusting the window level
- Optionally synchronisation of windowing and zoom
- Features:
  - Worklist server supports standard DICOM tags for veterinary version
  - Support of JPEG compressed images with incorrect colours
  - Support of Radiation Dose Structured Reports (RDSR)
  - If an image of a series is already opened in the viewer, the same image number will be used when this series is opened in another viewer box
  - Scout lines also for multiple monitors
  - Change or deletion of images works also with admin password
  - Size of log files is monitored at runtime
  - Additional log outputs in Service Center at executions of routines
- Performance:
  - Optimization of threads in Service Center for better performance (especially upon receipt of larger data amounts)
- Documentation:
  - Complement of safety instructions for the prevention of hazards in the event of system failures in the User's Manual
  - Description of settings of standard DICOM tags for veterinary version in the Administrator's Guide
- Bugfix:
  - When an error occurred while exporting image by email, it could happen at the deletion of the temporary files that the program files were also deleted from the installation directory
  - Routine for cleaning up archives was in some circumstances repeatedly started at the same time which could lead to memory overflow and Service Center crash as a result
  - At series with images of different sizes. it could happen that the displayed area of the image was out of place (image could be presented displaced)
  - At image series with different window level values in the header. these values were used incorrectly when retrieving the series
  - Crash at GDT, when archive selection in the patient management at the program start is on "local", fixed
  - Error while presenting umlauts in Structured Reports fixed

# Version 2.0.3.0 (March 2021)

- Features:
  - Execution of modification and deletion operations with any user account (authorisation can also be done with a different user account so that the logged-in user does not have to be changed)
  - Log improvement: some log entries are now only available in the level trace log (e.g. GDT directory check etc.) so that the log file does not become unnecessarily full; log files are also archived in a subfolder
  - The maximum period until a router (or optionally an archive) is cleared again has been increased from 99 to 365 days
  - Automatic reconnection to the Service Center if the connection was terminated; also connection status icon in the footer, as well as manual reconnection using this icon



- Language support:
  - Program language Ukrainian added
- Performance:
  - Server's error database can be accessed in an own thread which prevents access restrictions by the system
- Bugfix:
  - When starting the computer, it could happen that the path (enable) dpXSYS was not yet accessible when starting the Service Center and therefore the global.ini could not be loaded, which could result in the missing hostname in global.ini subsequently
  - Clean shutdown of the Service Center when shutting down the server
- Setup:
  - When updating the server, the permissions for files and subdirectories are not set again; this might lead to long waiting times if, for example, there are several thousand thumbnails present

## Version 2.0.2.0 (December 2020)

- neue Features:
  - Polish language support
  - Different colour representation of the image archives in the patient management to distinguish them better if there are several archives
  - For GDT response on a workstation (without polling), a GDT response after DICOM image import (on Image Management card) is now also possible
  - Import of previously exported x-ray journals in CSV format (both from digipaX1 and digpaX2) is now possible
  - When installing an archive with the Control Centre, support for lossless JPEG compression is also enabled (for compressed storage of photos and documents)
  - The GUI has been adapted and improved for use of the smallest supported resolution (1280x1024)
- Bugfix:
  - When creating the order, the programme could sporadically crash when the pregnancy status was queried
  - Sometimes it could happen that a second digipaX instance was started by the practice management when the programme was called up via GDT
  - If the user's password contains an umlaut character (mutated vowel), the automatic login to the programme did not work
  - When installed in English, the label names for LabelPrint were in German

#### Version 2.0.1.0 (September 2020)

- New features:
  - Supported languages: English added
  - Automatic sorting of the entries in the X-ray journal by date, newest first
  - Comma on numeric pad is accepted as decimal marker for entering size and weight etc., and is converted into point in compliance with the DICOM standard
  - When opening a DICOM file directly with a double click in Explorer, the archive query is not started first before the image is displayed
  - The Control Center is only started once at a workstation and not several times (Single Application)
  - Switch for user logout in the footer to make changing users when automatic user login is set possible
  - Improved workflow when importing patient CDs and added "Import images" button for Quick Navigation



- Description for additional patient data (additional DICOM tags) has been improved to support multilingualism
- Changed icon for DICOM files to avoid confusion with the digipaX program icon
- Improved log output in the GUI, all log categories can be enabled or disabled with a single click
- Detected program crashes are logged in the log
- Added button to empty a complete X-ray journal (only available if Expert Mode is enabled)
- Optionally, images can be automatically deleted from the archives by a schedule (useful for archives that patient CDs are temporarily imported to)
- The log level can be defined globally for servers and all stations
- When running a GDT action the program is always called to the foreground, even if it is not minimized in the system tray
- DICOM connections such as archives, routers, worklists and printers can be set up for one group and shared with other groups (can be used by other groups)
- Documentation:
  - Filter examples for routing rules refined in the chapter "Routing rules" in the Administrator's Guide
  - Description of the settings in the Administrator's Guide for the Service Center, how it can write a GDT response to a share on another station
- Bugfix:
  - Predefined default entries for the X-ray journal (e.g. assistant), were not inserted automatically when creating new entries
  - If a GDT response did not contain a receiver ID then checksum in field 8100 was not correct, in rare cases the response was ignored by the practice management
  - On 32bit systems the archives could not be installed from the Control Center (error while unpacking the install-package)
  - When editing routing rules, it could happen that other rules were abruptly deleted
  - After deactivation of a router all routing rules were deleted, too
- Demo Version:
  - Supported languages: English added

## Version 2.0.0.0 (June 2020)

- Second version
- New features:
  - User management
    - User management with groups, users and passwords
    - Number of the allowed group is defined by the license and checked at startup
  - User guidance
    - New component bar in digipaX workstation (instead of start menu or header)
    - Drag & drop for patients and images
    - Drag & drop for studies and series from the patient management
    - Quick Navigation allows to quickly jump between various components with a right-click
  - DICOM Files
    - DICOM images with extension "dcm" can be opened directly by a double click
    - New card "File Browser", using this function local or external storage media, removable media or network drives on the computer can be searched for DICOM files
  - Patient Management
    - New patient management with preview tree
    - New search filter by study description and institution in the patient management
  - Image Viewer
    - Configurable quick tools for use of the most important tools, filters and presets as well as specific selection of studies and series with a right-click



- X-ray Journal
  - New X-ray journal based on SQL with automatic generation for images arriving in the archive, manually editable, deletion of individual entries possible
- Footer
  - Switching from normal mode to Expert Mode (activation/deactivation of seldom used functions in some components)
  - Search box in the footer (available in all components) for quick search in all available sources, when there are at least 3 characters typed in the search box all matches are shown
  - Showing the current user group and the current user in the footer
  - Service Dialog
  - Integrated messaging system, the Service Center reports errors to the stations, messages can be viewed from any station
- License
  - Licensee is shown in the Service Dialog and the header
  - New license protector with floating licenses
  - Clear structuring of the modules in the license management

#### digipaX Workstation:

#### Operation / User Interface

- Completely redesigned GUI with new features for easier operation
- Components: all components from Version 1 have been adopted with a new look and some have new features
- Switching from normal mode to Expert Mode (activation/deactivation of seldom used functions in some components)
- Current version is displayed in the splash screen when digipaX is started
- Patient Management
  - Local storage of patient data still existing with slight innovations
  - Advanced name search in the Expert Mode to find patients with changed or different, or wrongly spelled names in the archive and to reassign them if necessary
- X-ray Journal
  - Extended X-ray journal with image preview
  - Deletion of individual entries in the X-ray journal is password-protected, Empty journal is replaced by Delete all entries (Ctrl + A) and Delete
- GDT Module
  - New and more flexible action control with GDT
  - Improved response (also automatically in the background through the Service Center)
  - Beam path in study description has been reimplemented for GDT response to make it possible also without the image acquisition module
  - Combined file types possible for GDT, different types can be used for GDT import and response (e.g. combination of fixed and incremental file extension)
  - Height and weight of the patient can be transmitted per GDT
- Image Management
  - New card Image Management, this card provides functions to import, delete and rename DICOM images and to transfer data to another DICOM node compiled in just one card
    - Modified deletion function
    - Modified and simple edition function
    - Modified import function
    - GDT data reconciliation is completed in the card Image Management
    - CD import is completed in the card Image Management
- Image Viewer
  - Improved annotations and measurements, later modifications of the objects are easier
  - Images with private SOPClassUIDs are not loaded, there is only an output in the log
  - New feature: displaying Structured Reports
- Photos and Documents
  - Modified component Import of photos and documents, during the execution work elsewhere in the program can be proceeded



- Export
  - Modified component Export, during the execution one can proceed with the work elsewhere in the program
- Job Management
  - New graphics for selection of organs
  - Improved selection of beam paths
  - When creating the job specifying the size of the patient is possible
- Creating Patient CD
  - Modified component Patient CD, e.g. rarely used functions are hidden and only available in the Expert Mode
  - Warning message when multiple patients are selected for the Patient CD
- Safety
  - User passwords are also passwords for deleting or editing image data or for the X-ray journal, the administrator password can also be used at these points
    - Displayed warning messages can be deactivated by the user after their first appearance
      - Patient inquiry if he/she has already had X-rays done before
      - Warning that images imported through TWAIN interface are not suitable for diagnosis purposes
      - If Hanging Protocols are used warning that there may be other images to which the current layout does not apply
      - Message that before saving the stitched images, the edges and transitions should be checked once again
      - Warning if images with lossy compression applied are loaded into the viewer
- Configuration
  - User interface settings have been orderly arranged and simplified
  - Better log output, the output in the log window can be filtered by categories and log depth
  - Log output of the server's Service Center can be viewed from any digipaX2 station
  - Modified multimonitor module, settings have been orderly arranged and simplified
  - Modified free storage space display, the path for the archives is automatically monitored and shown in the digipaX footer, configuration is no longer necessary
  - Implementation of use on terminal servers with corresponding configuration card
- Performance
  - Faster loading of DICOM images
  - Improved IPS
  - Improved handling of multiframe images
- Central Service Center on the digipaX server for communication between the server and stations
  - Runs as service in the background
  - Thumbnails are created automatically by the Service Center
  - Optional automatic entries in the X-ray journal
  - Optional creation of response files compliant with the GDT standard
- Outsourced **Control Center** for the central configuration and management of the archives, job management and stations
  - Central user management (users and groups (group practices)) are managed in the Control Center
  - Control through the central configuration files
  - Caches for thumbnails and Presentation States are located by default on the server in the group directory (can be configured)
  - New stations sign up automatically in the system and with port and AE Title, no manual entries in the archives needed
  - Installing DICOM routers directly from the GUI in the Control Center
  - Configuration card for easy setup of routing rules to stations with automatic image reception or routing for group practices
  - Automatic installation of the archives from the GUI in the Control Center
  - Editing and uninstalling the archives from the GUI in the Control Center



- Installation and configuration of the worklist from the GUI in the Control Center, connection to external worklist servers is also possible
- According to the number (max. 10) of enabled modalities in the license, each modality can be configured separately (modality type, AE Title and settings for job management)
- The Body Generator has been integrated into the new Control Center
- Assigning various tables of organs to the configured modalities (devices) according to the user groups
- Query of pregnancy status can be defined separately for each job type
- New Installer divided into client setup and server setup including automatic installation of MySQL (new MariaDB) and rolling out the server directory structure with required shares and automatic adjustment of the necessary firewall rules