

Version 1.4.12

Administrator's Guide

Installation and Administration





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1 Introduction

1.1 General

This document is confidential! Passing onto third parties without written permission from company digipaX GmbH is not allowed!

In this document we explain the installation of various components as well as the functions and settings that go beyond the user's documentation. A normal user has particularly limited access possibilities to the system settings. The integration of digipaX software in an overallsystem comprising of numerous DICOM and GDT systems can only be made by competent persons the administrators.

For administrators and maintenance personnel special training is needed. Information on trainings can be obtained from the manufacturer.

Using this documentation and the password at the end of this document, administrators will be able to configure digipaX for specific situations in practice.

Symbol	Meaning
<u>_!</u>	Note
	Тір

1.2 Symbols and illustrations

All digipaX illustrations (screenshots) show the program windows in Classic Style. This allows the images to be clearer in the documentation. The program is normally set to Black Style, which is more suitable for viewing medical images.



1.3 Possible risks

To reduce the risk of electric shock please heed the use of the CE marked hardware and keeping of the safe distance of 1.50 m between the installed hardware components and the patient (see Section 2.2.4 Hardware and safety and 2.2.9 Installation and connection instructions). In addition, galvanic isolation should be used when connecting devices with a data cable.

While using the module for acquisition of radiological images (image acquisition module), the loss of the current image can occur if the instructions are not properly observed after the error has had appeared. Therefore, while executing the activities according to the checklist special attention should be paid to instructing the staff related to the acquisition of images (an explanation of the backup/restore functions).

To prevent loss of the entire image archive, multiple and dispersed storage of the image data must be provided. For this purpose, please read Section 2.2.3 RAID system and backup.

The users of the system should be instructed that the failure to follow the operating manual is associated with the risk. In particular, it is imperative that all safety precautions in the User's Guide are observed.



2 Network and hardware

2.1 Data network

2.1.1 Purpose of connection to data network

Purpose of embedding in the data network is availability of central data stock of DICOM images on several computers and inter-device data exchange by

- sending/receiving DICOM images via DICOM Communication,
- sending/receiving jobs via DICOM Worklist and
- recalling/creating/transferring files as e.g. thumbnails, Worklist files, XML files, license files etc. through enabling Windows in Microsoft networks.

2.1.2 Properties and features required

- Network topology Ethernet
- Star topology
- Min. 100BaseT, but 1000BaseT or more is recommended

2.1.3 Configuration required

- Network protocol TCP/IP
- preferably static IP addresses. If dynamic addresses are used, an accurate name resolution of hostnames in the network is required (usage of DNS or WINS, in exceptions by editing the file "hosts")
- Windows operating systems (see Section 2.2.2.1)
- Windows working groups or domains
- RAID system (RAID1, RAID5 or RAID10) for data

2.1.4 Safety requirements

The PCs and the network must be protected against access of unauthorized persons by necessity of providing username and password. If the network is connected with internet, it must be protected against attacks from internet. Most devices for internet access (DSL router, Fritzbox etc.) already have an internet firewall for network protection. Local firewalls on particular PCs can be additionally activated in order to avoid unwanted communication from inside to outside to internet. However, in this case trouble-free network traffic between stations must not be impeded or completely blocked.

The following services and ports are required:

- image archive port 5678
- image querying at work stations port 104
- automatic capture of images at work stations port 105
- port 2200 on server that provides the Worklist, as well as read and write access to Worklist directory through the network from appropriate stations



- read and write access to further special directories on the server for license, thumbnails, Presentation States and other data if need be

Furthermore, the systems must be protected against malwares by installation of antivirus softwares. Should the above-mentioned ports already be in use, they can be changed. All free ports from 1024 can be used for this.

2.1.5 Other information on communication flow

- Reading and writing license file (folder-enable)
- Writing job files on server (folder-enable)
- Querying job list (Worklist) from server (DICOM Query C-FIND)
- Accessing images from server (DICOM Query Retrieve C-MOVE)
- Sending images to server (DICOM Send C-STORE)
- Querying information on patients, studies and images from server (DICOM Query)
- Reading and writing thumbnails on server (folder-enable)
- Reading and writing Presentation State files on server (folder-enable)
- Poss. exchanging GDT files with third-party systems (folder-enable)
- Poss. receiving and sending out HL7 messages (HL7 protocol)
- Poss. reading and writing the X-ray journal (folder-enable)
- Poss. reading and writing manually recorded patients list (folder-enable)

2.1.6 Possible risks if requirements are not met

- Time delays in cases of emergency because:
 - software does not start (no access to license file)
 - images cannot be queried or are queried only very slowly
- Other possible limitations that do not impact directly:
 - creating jobs impossible
 - querying job list impossible
 - long waiting times (if network is slow or configured inappropriately)

2.2 Hardware

2.2.1 Conditions for use

This product is designed for use on personal computers in residential and commercial premises. The used hardware must be adapted to the prevailing environment conditions. The user of PC must verify if hardware corresponds to requirements prevailing in location of its installation.



2.2.2 System requirements

2.2.2.1 Supported operating systems

Windows XP, Windows Vista, Windows 7, Windows 8 (Business/Pro or higher only) Windows Server 2003, Windows Server 2008, Windows Server 2012



When using Windows server 2008 or higher it is necessary that the feature "Desktop Experience" of Windows is installed. The installation is to be made in server manager above the switch "Add feature".

The maximum number of simultaneous accesses to network shares is limited to 10 in Windows XP and Vista, and 20 in Windows 7/8/8.1 (Business/Pro or higher on-ly).



For server operating systems, the appropriate CALs must exist. For more please refer to the license conditions for the operating system and/or ask your system vendor.

2.2.2.2 Server

Recommended system configuration:

Processor	Dual-core processor 2,5 GHz or higher	
Main memory	Min. 2 GB RAM	
Operating system	Windows 7 Prof.	
Graphics card	Minimum 128 MB DVI (dual), 1280 x 1024	
Harddisk	System disk min. 60 GB + additional image store (RAID system)	
Network	1000BaseT (Gigabit Ethernet)	

Minimum system requirements:

Processor	Pentium 4 or similar min. 2,1 GHz	
Main memory	Min. 1 GB RAM	
Operating system	Windows XP Prof. or higher	
Graphics card	On-board graphics, 1280 x 1024	
Harddisk	System disk min. 60 GB + additional image store (RAID system)	
Network	100BaseT	

2.2.2.3 Workstation

Recommended system configuration:

Processor	Dual-core processor 2,5 GHz or higher	
Main memory	1in. 2 GB RAM	
Operating system	Windows 7 Prof.	
Graphics card	Minimum 128 MB DVI (dual), 1280 x 1024	
Harddisk	60 GB or more	



Network 1000BaseT (Gigabit Ethernet)

Minimum system requirements:

Processor	entium 4 or similar min. 2,1 GHz	
Main memory	in. 1 GB RAM	
Operating system	Vindows XP Prof. or higher	
Graphics card	On-board graphics, 1280 x 1024	
Harddisk	Min. 60 GB	
Network	100BaseT	

RAID system size depends on the expected number of images.

2.2.3 RAID system and backup



The data of archivized images are to be saved on a RAID system to minimise the data loss risk. RAID 1 or RAID 5 is recommended. Use RAID systems with monitoring functions in order to signal immediately any malfunctions or failures of the RAID components to the user or administrator to allow them a prompt reaction as a failure of another components might cause a breakdown of RAID and damage of data stored on it.

In addition, the data are to be put on further harddisks by their mirroring or daily backup (see also chapter 22 Archiving).

2.2.4 Hardware and safety

The used hardware must be provided with CE and it must meet requirements provided in Electromagnetic Compatibility Directive and Low Voltage Directive. It is necessary to observe restrictions concerning the use and provisions regarding the maintenance and operation of the installed hardware according to the manufacturer's information and standard EN 60950–1.

It is necessary to ensure proper functioning of the installed hardware components before the software will be installed and taken in use.

2.2.5 Use within urgent care facilities

The equipment used within urgent care facilities, such as ambulance or hospital emergency department must meet specific requirements. In these places, prevention against possible malfunction or breakdown during time-critical medical procedures is needed. Computers must be protected against power blackout by uninterruptible power supply solutions, if the urgent care facility is not already protected by any kind of emergency power supply. Permanent availability of image and patient data as well as server services must be assured. This can be obtained by mirroring of image data or any other cluster solutions. Appropriate measures should also be taken in order to prevent failure of the work stations, which means providing a ready to use substitute station. Networks must meet the requirements of IEC 80001.



2.2.6 Noise level

The installed components, in particular fans of the system should meet the current directives in terms of noise level and keep the required noise limits.

2.2.7 Diagnostic display

The diagnostic workstation requires a special diagnostic display according to quality assurance directives for radiographic equipment. In order to ensure the quality of the display, a daily visual inspection is necessary. This can be made via software (e.g. "LUXOR DisplayQ") or by using the SMPTE test patterns. The staff must be trained accordingly.

2.2.8 Devices

The following devices can be connected to the digipaX software for data exchange:

Device type	Manufacturer	Unit
CR-Scanner:	iCRco	iCR–Serie
	Orex Computed Radiog-	Orex
	raphy Ltd.	
	Kodak (Carestream)	PoC-Serie
	Carestream Health	Vita LE
Detector:	Teleoptic PRA, Ltd.	Alpha 4600
	XCAN AG	XCAN DR-System
Generator:	JOSEF BETSCHART AG	GENESIS 50 RFT
	Provotec	ProVario
Dose-area-product meters:	Wellhöfer	KermaX IDP
MRI devices:	S.P. Helpic Ltd.	Everest 1.5T, Renex 0.3T
Video sources:	video sources from the manufacturer "The Imaging	
	Source" with "WDM Stream Class Driver" and DirectShow	
	supported	
Foot switch:	any USB foot switch with two programmable pedals for	
	key combination	
	Foot switch with a serial connection (RS232), here control	
	cables CTS, DSR, DCD and RI are supported (NO switch)	

While connecting the equipment the instructions of the manufacturers of devices must be followed. In particular it is to ensure galvanic isolation if necessary. Connection of devices is described in chapter 20 Device connections.



2.2.9 Installation and connection instructions

While installing and connecting the systems the specifications and precautions provided by the manufacturers must be followed.

The installed hardware must be CE marked and meet the requirements of EMC and Low Voltage Directive. The restrictions on application as well as maintenance and use instructions for the installed hardware are to be followed according to the manufacturer's information and DIN EN 60950-1.

It is to ensure that between the installed hardware components and a patient a distance of 1.50 meters will be kept (so that no simultaneous touch of hardware and patient is possible). Moreover, all the hardware must stand safely. Monitors should also stand safely so that they cannot be pulled down accidentally. Cables are to be so installed that loose hanging is avoided.

The hardware shall be located in such a manner to allow for quick and easy disconnection from power supply in emergency situations. The disconnectable power outlet strips with good access may be used as possible alternative.

The keyboard, mouse and monitor shall be located on workplace in such a manner to eliminate their physical impact on environment.

There are no known interactions between computer hardware and X-ray system. Therefore, no special precautions for their installation are given.

2.2.10 Uninterruptible power supply (UPS)



Check if an uninterruptible power supply of a device is necessary to prevent image loss during data transfer from external appliances and to exclude possible dangers for patients. The instructions of the manufacturers relating to this must be followed.

2.2.11 Cleaning with disinfectants

The installed hardware should be cleaned in principle with common disinfectants. The hardware components may not get damaged by using such disinfectants. Inform the staff especially if such cleaning of installed hardware is not acceptable.

2.2.12 Software

The same version of digipaX software is to be installed at all connected stations.



3 Installation guidelines

3.1 Server guidelines

Process	Page number
	for
	information
1. Installation of digipaX	
Installation of digipaX	20
2. Installation of image archive(s)	
 Installation of MySQL + MySQL Workbench 	21
 Installation of Conquest 	22
 Commissioning Conquest (AE Title, port, data base init.) 	26
3. Installation of worklist server	
 Installation of worklist server 	23
Configuration of worklist server	39
4. Archiving tool + DICOM tool	
 Installation and configuration of backup 	168
 Installation of DICOM editor 	
5. Installation of other tools	
 Installation of Nero 	23
 Installation of software remote control 	
 Installation of tool or image for daily visual inspection 	15
6. digipaX configuration	
 Commissioning digipaX (fill physician's data, enable modules) 	24
 Connecting image archives / DICOM configuration 	29
 Connecting worklist server 	40
 Adjusting caches 	99
 Adjusting X-Ray journal / storage location 	109
 Setting as veterinary version 	117
GDT connection	
 Configuration of various systems 	46 / 53 /
	od 46
 digipaX configuration 	80
 HL7 connection 	99



3.2 Workstation guidelines

Process	Page number for
	information
1. Installation of digipaX	
Installation of digipaX	20
2. Installation of other tools	
 Installation of Nero 	23
 Installation of software remote control 	
 Installation of tool or image for daily visual inspection 	15
3. digipaX configuration	
 Commissioning digipaX (fill physician's data, enable modules) 	24
 Connecting image archives / DICOM configuration 	29
 Connecting worklist server 	40
 Adjusting caches 	99
 Setting as veterinary version 	117
GDT connection	
 Configuration of various systems 	46 / 53 /
	od 46
 digipaX configuration 	80
HL7 connection	99

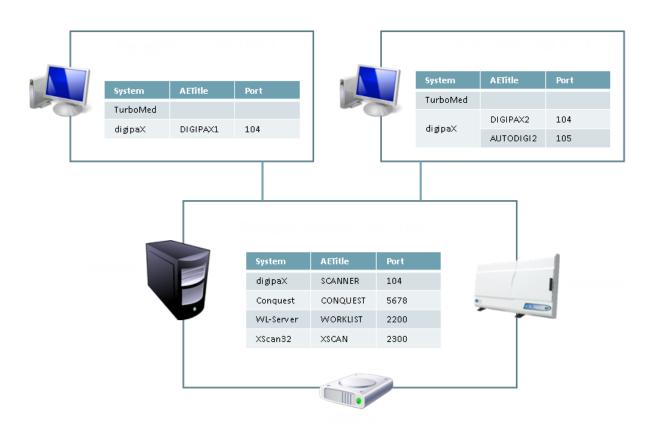
3.3 Completion of overall system

Process	Page number for
	information
1. Routing setup	
 Enabling image receiving in digipaX 	35
Adding ExportConverter in Conquest	35
2. Archiving	
 Configuration of Conquest 	167
 Setting up a backup CD/DVD 	169
 Setting drive monitoring in digipaX 	170
3. Acceptance of system	
 Acceptance testing 	157
 Completing checklist 	157



3.4 Installation and interconnection plan

Especially for larger systems in which DICOM router, worklist server, multiple image archives and even third-party system may be integrated, it is recommended to make an interconnection plan for the systems involved. For each computer, enter its name, IP address and systems which are to be installed. For each DICOM system, specify an AE Title and port, where it will be accessible (for servers – Service Class Provider (SCP)) or which will be used by it for image query as Service Class User (SCU).



Example of a simple system structure:



4 Program installations



For the installation the administrator rights are necessary. User account control as well as use of security software and firewalls may cause problems whilst installing the digipaX software. Settings of such programs may require adjusting (enabling of ports, approval of accession rights to the programs and for the user etc.).

All installation programs are started through the tool Xinstall.

Anwendungen	Informationen
digipaX	
Serversysteme	
MUSQL MySQL	
MySQL GUI Tools	
Bildarchiv (Conquest)	Klicken Sie auf das zu installierende Softwarepaket,
aciats Worklist Server	Beim Überfahren der Einträge mit der Maus erhalten Sie hier Informationen zu den Systemen.
Archivierung	
🙆 Datensicherung	
Tools	
DICOM Tageditor (DCM Editor)	
	Exit

By clicking on the appropriate menu item the setup of this software launches.

Adjusting this installation software Xinstall is possible and is explained in a separate document. Install the required components one by one. The necessary settings are described in the next section.

4.1 digipaX

The installation program installs the digipaX software (typically in directory C:\digipaX\digipaX).

If setting as a veterinary version is needed, then it can be enabled as preset in the setup (see also 16 Veterinary version).

After the installation has been completed, a BodyGenX tool is accessed optionally. With this tool the organ tables for various specialities of human or veterinary medicine can be installed. Also, the Procedure Codes of various devices can be installed. Use of BodyGenX is described in the section14 Body Generator (BodyGenX).



4.2 MySQL

First install MySQL server on usual way ("Typical").

Just at the end of the setup select "Configure" and do the settings like shown in the following dialogues:

MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration
Configure the MySQL Server 5.1 server instance.
Please select a configuration type.
C Detailed Configuration
Choose this configuration type to create the optimal server
setup for this machine.
Standard Configuration
Use this only on machines that do not already have a MySQL server installation. This will use a general purpose configuration
for the server that can be tuned manually.
< Back Next > Cancel
MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration
Configure the MySQL Server 5.1 server instance.
Please set the Windows options.
✓ Install As Windows Service
This is the recommended way to run the MySQL server on Windows.
tarrow the second
Service Name: MySQL 🗨
Launch the MySQL Server automatically
✓ Include Bin Directory in Windows PATH
Check this option to include the directory containing Mysus: the server / client executables in the Windows PATH
variable so they can be called from the command line.
Back North Const
< Back Next > Cancel
MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration
Configure the MySQL Server 5.1 server instance.
Please set the security options.
✓ Modify Security Settings
New root password: **** Enter the root password.
root Confirm: **** Retype the password.
Confirm: **** Retype the password.
Enable root access from remote machines
Create An Anonymous Account This option will create an anonymous account on this server.
Please note that this can lead to an insecure system.
< Back (Next >) Cancel

As password, here "root" was used.



MySQL Server Instance Configuration Wizard
MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance.
Ready to execute
O Prepare configuration
 Write configuration file
○ Start service
Apply security settings
Please press [Execute] to start the configuration.
< Back Cancel

Additionally, the installation of "MySQL Workbench" is recommended. It includes tools for testing and optimizing the database, which could be used immediately when only needed. The creating of an automatic backup of the MySQL database is described under point 22.2 Securing MySQL database.



If using Windows 7, after installation of MySQL a reboot is required!

4.3 MySQL Workbench

Additionally, the installation of "MySQL Workbench" is recommended. In it, you can establish a database backup (optionally), so that you do not need to recover the database in a slow recovery process from the DICOM images if a system crash occurs. It also includes tools for testing and optimizing the database, which could be used immediately when only needed.

4.4 Conquest

The Conquest (PACS server) is the image archive and absolutely necessary for operating the system.

Install the Conquest files on the target computer (e.g. C:\digipaX\Conquest).



The installation path must not include blank spaces as otherwise you would not be able to log in the Conquest as a service! The Windows program directories usually include a blank space in the path (C:\Program Files) and cannot be used as an installation path. Please keep this in mind at the installation and use the recommended path "C:\digipaX\Conquest" preferably.

4.5 Xadmin

If needed, the tool Xadmin can also be used to support some administrator's tasks. Currently Xadmin supports acquisition of already existing data (DICOM images from previous system), modifications of tags in batch mode and creation of X-ray journals from the tags of the DI-



COM files. The program starts through Xadmin.exe. For more, read the Xadmin user's manual.

Conquest image is based on database system MySQL.

4.6 Worklist server: wlmscpfs

The worklist server is only needed if the worklist component of the digipaX system is intended to be used.



Here at this place only the required components are copied on the PC. You still have to configure the worklist server and install it as a service. This operation is described in section 8.

4.7 Backup

This tool is necessary for creating image files backup on CD / DVD. It requires installation of Nero software.

4.8 DICOM Definition files / DICOM editor

With the DICOM editor, the DICOM tags of image files can be changed. This is necessary if e.g. wrong assignments of images occur.

Before the DICOM Editor can be installed the associated Definition Files must be installed.

4.9 Ghostscript

Ghostscript is required for importing the PDF documents with the import module.

4.10 Remote maintenance

For remote maintenance the Teamviewer is used. At the customer's the Quicksupport module is sufficient.

http://www.digipax.de/downloads/TeamViewer/TeamViewerQS_en.exe

4.11 Nero

Burning of patients' CDs (DVDs) is directly possible in digipaX. For this, an integrated Built-In-Burning engine as well as the Nero software can be used. To use Nero, the Nero software must be installed on the computer. The settings which software is to be used are described under point 18.8 Selection of burning software.



5 Commissioning / general configurations

5.1 digipaX

5.1.1 Configuration of information on practice and physicians

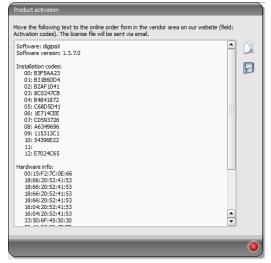
In the configuration on the page "Information on practice and physicians" doctor's name and address are to be put in. If necessary, doctor's or company identification number can be added (for more see Chapter 23 Tips for group medical practices (team practices).

5.1.2 Licensing

From digipaX version 1.2 software activation is required.

The program is installed on base of a standard, full-featured trial license, which expires after 30 days. Within those 30 days a new license file must be installed in the system. The application for new license file is possible just already during configuration of the server and hence the product activation can be done prior to delivery of the system.

- 5.1.2.1 Product activation flow
- 1. Launch the digipaX on the server and open the configuration page "License"
- 2. Click the button "Product activation ..."



- 3. Copy the data using the appropriate button to the clipboard or text file
- 4. Log in on the website www.digipax.eu entering the vendor information, fill out an order form in the vendor area, paste text copied from the product activation and submit the order.
- 5. The company digipaX sends back to the email address provided the license file which must be again copied onto the server.
- In the configuration of the server a new path to the license file must be specified, if the license file was copied in any another location.

It is recommended to overwrite the default license file.



All other digipaX stations in the network must also use this license file, that means that the path of the license file is to be customized to the configuration.

5.1.2.2 Extension of update period

When the update period expires, it must be first extended before new updates can be installed. For extension of the update period the number of the license file is required. It can be found in the license viewer (license configuration page). This number is needed to order an activation key from the manufacturer for extension of the update period. Enter this key in the license viewer (button "Activation key").

5.1.3 Activating modules

The desired modules of the station are activated / deactivated on the configuration page "License".

5.1.4 Errors when checking the license

If the license checking fails at the program launch, an error message with the error code is displayed. The following table presents the meaning of these codes:

Code	Meaning
0	Licence Passed
1	Licence Demo Mode
2	Lic File Not Registered
3	Module Is No
16	Licence Expired
17	Demo Licence Expired
32	Too Many Module User
64	User Is Deactivated
128	No Lic File Access
129	No Registry Access
256	Module Not Found
257	Key Already Used
258	Key Not Readable
512	Invalid Licence
1024	Invalid Inst Code
2048	Invalid Lic File
3001	Webservice Error
4096	No User
4097	No Item
4098	Entry Not Found
4099	Invalid Type
4100	Module Exists
4101	Invalid Parameter
4102	Insufficient Licence



5000	User Cancel
8192	Unsupported Version
8193	Unknown Language
8194	Not Implemented
16382	Sysdate Changed
16383	Lic Tampered
16384	Unhandled Error

If, for example, the license file has been moved, a new path can be set up using switch "Se-lect new license file".

Another reason for an error when checking the license can be that the PC has been replaced and the new computer has now a different computer name or the computer name has been simply changed in Windows only. Then, the old computer name is still activated in the li– cense file and there is no license for the new computer name left. If this is the case, then you can open license viewer using switch "License Viewer" and deactivate the old name in the list. Afterwards, the license is available again and will be allocated to the new name after restart of digipaX.

The license viewer does not open if no license file is selected or the license does not belong to the system (Code 1024) or is damaged.

5.2 Conquest

The MySQL is used as the database for the image archive. There is an additional description "windowsmanual.pdf" (in English only) delivered by the Conquest in the installation directory. The GUI of the Conquest is started by using a connection in the start menu or by executing the file ConquestDICOMServer.exe. At first start-up choose the "Native MySQL driver" as da-tabase driver.



On the first configuration page enter AE Title and port and save the settings. It is recommended to set the checkbox "Keep Server Alive" in order to restart the Conquest automatically after a server crash. Furthermore, select the file format DCM in order to be able to read the saved files images with every DICOM standard software. The selected directory for data storage should have enough space for the expected volume of coming images and be stored on a RAID system.



Q ConQuest DICOM server 1.4.16 - CONQUESTS	RV1	
Configuration Installation Maintenance Known DI	COM providers Browse database Server status Query / Move	
This screen contains essential parameter Local unique name of this DICOM server (app	s for operation of the ConQuest DICOM server.	Save configuration
Local unique name of this Dicom server (app		
TCP/IP port to use (other DICOM systems mu:	st know this number) : 5678	Restore original configuration
Local disk directory to store DICOM images :	C: [system]	
Make directory	C:\ reaction of the second se	
✓ Enable JPEG(2000) support	Conquest	Install server as NT service
Images on disk are stored: C Uncompressed C NKI compressed C JPEG or NKI C Lossless JPEG C Lossy JPEG C Lossless JP2000 C Lossy JP2000 C JPEG or Uncompressed	deto dbase HEAD_EXP_00097038 printer_files	Uninstall server as NT service
Images on disk are named: C V2 (allows NKI compression)		
DCM (standard format)		Hide the server (as tray icon)
Cleanup disk below: (MB) Cleanup nightly below: (MB)		About this server
Below 0 MB, move to:	C:\digipax\conquest\data	
✓ Keep Server Alive	Free disk space: 24539 megabyte	Close the server

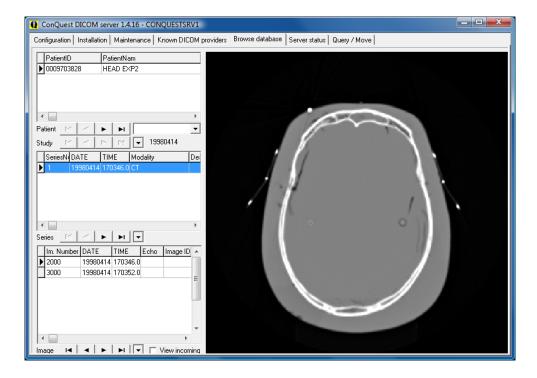
On the installation page, 5 top buttons on the right top-down can be used for proper creating and testing of the database.

Confirm the database name **conquest** (for multiple Conquest servers, you can select also e.g. "conquest1" and "conquest2") by using the button "Make mysql database" and enter it by using the password **root**. Confirm the question "Change TCPIP parameter to fix mysql problems?" with **Yes**.

ConQuest DICOM server 1.4.16 - CONQUESTSRV1	
Configuration Installation Maintenance Known DICOM providers Browse database Server status Query / Move	
However, active DICOM connections (image copy operations) may be terminated.	Verify TCP/IP installation
In the 'Configuration' page, set the server name; port number and data directory. The defaults will do fine in most cases. Push the 'Save configuration' button.	Make mysql database
In the 'Installation' page (this one), perform all installation steps (buttons top right) one by one from top to bottom.	Verify database installation
Verify TCP/IP installation: tests communication between the DICOM server and installation programs. This will fail if TCP/IP is not installed on this PC.	(Re)-initialize database
Make ODBC data source: defines the connection between a database on disk and the DICOM server. This fails if ODBC or the dBase driver is not installed. This option is not required when using the "DBASEIII without ODBC" driver	Clear worklist database
Verify database installation: Some DDBC versions (Drivers 3.40.2829) crash when used with this software. This test will fail to loop for 10 times if that is so. If the test fails, install newer DDBC drivers (e.g., supplied with office 97).	
[Re-jinitialize database: Deletes existing database tables (if they exist) and generates new tables from any images already stored on disk (if any).	
After these steps, configure your other dicom systems to know this one and put them in in the list on the page "Known DICOM providers".	
Output of the installation programs will go here:	
CONQUESTSRV1] This output is generated by the dicom server application	Hide the server (as tray icon)
[CONQUESTSRV1] If you can read this, the console communication is OK [CONQUESTSRV1] This is systemdebug output; can you read this ? [CONQUESTSRV1] This is a very long text output for testing This is a very long text output for testing This is a ver [CONQUESTSRV1]Successful end of test	About this server
	Close the server



On a tab "Browse database" you can see an image, which is already contained in the tab by default.



This installed test patient can be deleted in the context menu of the image by using "Delete this patient".

On the page "Configuration" use also "Install server as NT service", so that the server starts automatically always at the system boot and is always active in the background.



If using Windows 7, administrator rights must already be established and User Account Control (UAC) must be disabled before the installation as a Windows service ("Install server as NT service") will be done.

The installation is now completed.



5.2.1 Extensions in Conquest

It is recommended to get outright the extensions as described below. For the new installation of Conquest a pre-prepared configuration file "dicom.sql.ext" is installed in the Conquest directory. It contains all extensions described in the following sections. This file is to be just renamed to "dicom.sql" and the original file deleted priorly. It is recommended to create a backup of the original file before deleting.

If the file is edited manually, it is to keep in mind that the last line in each of the sections "*Study*", "*Series*" and "*Image*" is a link back to the upper section and thus it must not be modified. It is also described as a comment in the "dicom.sql".

The last defined element of Study is a link back to Patient

The last defined element of Series is a link back to Study

The last defined element of Image is a link back to Series

After the changes are made the Conquest needs to be robooted and the data base reinitialized.

5.2.1.1 Supporting international character sets and encoding

Supporting the international character sets and encoding when retrieving the archive is controlled through the tag "0008,0005 SpecificCharacterSet". To enable the supporting in the Conquest the file "dicom.sql" in the Conquest directory needs to be extended. For this, a next line must be added to each of the sections "*Patient*" and "*Study*".

Patient	
1 { 0x0010, 0x0020, "PatientID", 64, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x0010, "PatientName", 64, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x0030, "PatientBirthDate", 8, SQL_C_DATE, DT_DATE },	
{ 0x0010, 0x0040, "PatientSex", 16, SQL_C_CHAR, DT_STR }, { 0x0010, 0x1040, "PatientsAddress", 64, SQL_C_CHAR, DT_STR },	
{ 0x0008, 0x0005, "SpecificCharacterSet", 16, SQL_C_CHAR, DT_STR }	
}	
Study	
{ 0x0020, 0x000d, "StudyInstanceUID", 64, SQL_C_CHAR, DT_UI },	
{ 0x0008, 0x0020, "StudyInstanceOD, 01, SQL_C_DATE, DT_DATE },	
{ 0x0008, 0x0030, "StudyTime", 16, SQL_C_CHAR, DT_TIME },	
{ 0x0020, 0x0010, "StudyID", 16, SQL_C_CHAR, DT_STR },	
{ 0x0008, 0x1030, "StudyDescription", 64, SQL_C_CHAR, DT_STR },	
{ 0x0008, 0x0050, "AccessionNumber", 16, SQL_C_CHAR, DT_STR }, { 0x0008, 0x0090, "ReferPhysician", 64, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x1010, "PatientsAge", 16, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x1030, "PatientsWeight", 16, SQL_C_CHAR, DT_STR },	
{ 0x0008, 0x0061, "StudyModality", 64, SQL_C_CHAR, DT_MSTR },	
{ 0x0010, 0x0010, "PatientName", 64, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x0030, "PatientBirthDate", 8, SQL_C_DATE, DT_DATE }, { 0x0010, 0x0040, "PatientSex", 16, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x0040, PatientSex, 10, SQL_C_CHAR, DT_STR}, { 0x0008, 0x0005, "SpecificCharacterSet", 16, SQL_C_CHAR, DT_STR },	
{ 0x0010, 0x0020, "PatientID", 64, SQL_C_CHAR, DT_STR }	
}	

Please keep in mind that the last line in the section "Study" must not be modified. Please refer to chapter 5.2.1.

Finally, the Conquest needs to be rebooted and the data base re-initialized.



5.2.1.2 Extended patient data for the patient management

Additional columns can be activated in the patient management. These can be used e.g. for the address, telephone number and remarks and quoted at the manual recording patients data. This information will be then saved in the DICOM header on additional tags upon acquiring images. In order that this data can be also stored in the database and shown in the table of patients, an extension of the database layout is necessary. For this, the file "di-com.sql" in Conquest is to be edited. The same course of action applies for both database types (MySQL or DBASE III). In the sections "Patient*" and "*Study*", the entries marked in red for the datasets must be added, so that the section looks as on the example below. Placement of a finishing comma after each row with exception of the last row is important.

Patient
(0x0010, 0x0020, "PatientID", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x0010, "PatientName", 64, SQL_C_CHAR, DT_STR }.
{ 0x0010, 0x0030, "PatientBirthDate", 8, SQL_C_DATE, DT_DATE },
{ 0x0010, 0x0040, "PatientSex", 16, SQL_C_CHAR, DT_STR },
{ 0x0008, 0x0005, "SpecificCharacterSet", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1000, "OtherPatIDs", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1001, "OtherPatNames", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1040, "PatientsAddress", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x2154, "Patients TelephoneNumbers", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x0032, "PatientsBirthTime", 16, SQL_C_CHAR, DT_TIME },
{ 0x0010, 0x2160, "EthnicGroup", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x4000, "PatientComments", 254, SQL_C_CHAR, DT_STR }
i i i i i i i i i i i i i i i i i i i
i.
Study
{
{ 0x0020, 0x000d, "StudyInstanceUID", 64, SQL_C_CHAR, DT_UI },
{ 0x0028, 0x0020, "StudyInstanceoid", 04, 3QL_C_DATE, DT_DATE },
{ 0x0008, 0x0020, "StudyDate", 0, SQL_C_DATE, DT_DATE }, { 0x0008, 0x0030, "StudyTime", 16, SQL_C_CHAR, DT_TIME },
{ 0x0020, 0x0010, "StudyTime, 10, SQL_C_CHAR, DT_TIME },
{ 0x0028, 0x1030, "Study D', 10, SQL_C_CHAR, DT_STR },
{ 0x0008, 0x0050, "AccessionNumber", 16, SQL_C_CHAR, DT_STR },
{ 0x0008, 0x0090, "ReferPhysician", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1010, "PatientsAge", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1010, "PatientsAge", 10, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1050, ratifitisweight, 10, 3QL_C_CHAR, DT_STR }, { 0x0008, 0x0061, "StudyModality", 64, SQL_C_CHAR, DT_MSTR },
{ 0x0010, 0x0010, "PatientName", 64, SQL_C_CHAR, DT_M3TK },
{ 0x0010, 0x0010, PatientBirthDate", 84, SQL_C_DATE, DT_STK },
{ 0x0010, 0x0030, PatientBate, 8, SQL_C_DATE, DT_DATE },
{ 0x0010, 0x0040, ratificsx , 10, SQL_C_CHAR, DT_STR }, { 0x0008, 0x0005, "SpecificCharacterSet", 16, SQL_C_CHAR, DT_STR },
{ 0x0008, 0x0005, specificcinatecerset, 10, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1000, "OtherPatibs", 64, SQL_C_CHAR, DT_STR }, { 0x0010, 0x1001, "OtherPatNames", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1001, "OtherPathames", 64, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x1040, PatientsAddress, 64, SQL_C_CHAR, DT_STR }, { 0x0010, 0x2154, "PatientsTelephoneNumbers", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x2134, Patients relephoneNumbers, 16, SQL_C_CHAR, D1_STR }, { 0x0010, 0x0032, "PatientsBirthTime", 16, SQL_C_CHAR, DT_TIME },
{ 0x0010, 0x0052, PatientsBirthnine, 16, SQL_C_CHAR, DT_TIME }, { 0x0010, 0x2160, "EthnicGroup", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x2180, "Ethnicoroup", 18, SQL_C_CHAR, DT_STR }, { 0x0010, 0x4000, "PatientComments", 254, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x0020, "Patient Comments, 254, SQL_C_CHAR, DT_STR },
}

Here too, one should keep in mind that the last row in the section "Study" must not be modified. Please refer to chapter 5.2.1.

Finally the Conquest must be rebooted and the database re-initialized.

Activation and contents of the columns can be set up in the configuration under Administrator/Patient data (see chapter 17.1.6).



6 DICOM configuration

6.1 Without compression

In digipaX, one or more PACS systems can be set up. The system can work with multiple image archives at the same time.

					Configuration		
User 🖾	Administrator :: DICOM / network						
Informations about clinic and physician	I coal settings for query images						
Image preview	uos secura ysi to des y insiges At title pc1 Timeouti 60 seconds 🗘 Repetitions: 0 🗘						
Baseboard	AL UNCO POI		For For query integes. 104				
Loupe	local settings for automatic image receiving						
Image informations	X activate automatic image receiving	Ka advate automatic image receiving AE title: AUTOPC1 Port for automatic image receiving: 105					
Overlay / scout lines		decurate automatic mage receiving: AUTOPC1 Port for automatic mage receiving: 105					
Histogram	local (temporary) data	clocal (temporary) data					
Job management	awe local patent data File: C:\digpaX/digpaX/Patenti.st.xml						
Image acquisition		an fa Shari fa ann an a					
Other	Image archive (PACS) Worklist server	Printer					
Administrator	Designation	AE title	Host/IP	Port	Use		
License	1 Image archive 1	CONQSRV01	192.168.1.10	5678	yes		
Veterinary surgeon	2 Image archive 2	CONQSRV02	192.168.1.20	11112	yes		
DICOM / network	2 mage area e	Conquintz	and the second sec	*****	,0		
Job management							
GDT							
Caches / IPS							
Device links							
X-ray journal							
Image transfer							
Other							
Log							
General							
Cache							
DICOM							
Image processing							
File import							
Worklist							
GDT							
Print							
burning CD / DVD				New	Modify Delete Test		
Denires 💌							
Administrator login	Import E	xport Info			Save		
					0		

Each archive is to be added to a list of image archives by clicking on "New..." and all required information are to be entered in dialogue box. As name, enter the name, which will be later shown in the list of archives. For communication, AE Title, hostname or IP address and port are needed. For speeding up performance, the DICOM connection can be temporarily sustained (late disconnection). With subsequently coming data queries, the connection does not need to be permanently reconnected, hence an increase of performance is achieved.

configure DIC	OM connection			
Designation:	Image archive 1			
AE Title:	CONQSRV01			
Host/IP:	192.168.1.10			
Port:	5678			
Disconnect:	O never disconnect			
	after inactivity of 20 seconds			
Access:	X Reading			
	X Writing			
Colour:				
Use:	● yes ○ no			
	OK Cancel			
<u></u>				





Not all DICOM systems can handle multiple connections at the same time. Therefore, it can occur that the systems might be blocked by late or failed any disconnection. With Conquest, multiple connections are possible, with the worklist server (wlmscpfs) are not. Too many opened connections at the same time also decrease the performance. For that reason, the system should work without disconnections only in exceptional cases.

For each archive, access for reading and writing can be declared separately. This is useful, when e.g. data have to be transferred from archive 1 to archive 2.

It is to note here, that the archives without read access are not presented in the list of queryable archives. Contrariwise, the archives without write access are not presented in the list of available archives while sending data. This is for a better overview.

For a better support for the user, each archive has its own colour for faster and better identification, when data from different archives are shown in the system or the user has to choose only one archive. Thereby, colours are assigned in sequence automatically, if this is not modified.

Archives can be disabled. Disabled servers are ignored during run of the system as if they would not be included in the list.

Some details about communication:

A port, that is to be indicated for each archive, is the port for DICOM communication (e.g. DICOM C-FIND). For retrieving the images (DICOM C-MOVE), the port in local settings provided is used. Normally, a common port 104 in DICOM is here used. If this port is not assigned, it should be replaced by another, free port. According to standards, each DICOM system should have an AE Title. A character string entered in the AE Title field will be assigned to the system and used for DICOM communications.

These settings are to be entered in Conquest in the list of "Known DICOM providers" as well. Already assigned connections with "*" are to be deleted as they could cause errors. This first entry in the list should be connection to itself, in order to be able to retrieve "Query / Move" for the own archive. After the modifications in the list are made, the list needs to be confirmed with the button "Save this list".



ConQuest DICOM server 1	.4.16 - CONQUESTSRV1				
Configuration Installation Mai	ntenance Known DICOM pro	viders Browse datab	oase Server status Querj	/ Move	
Configuration Maintenance Known DICOM providers Browse database Server status Query/Move					Restore this list
CONQUESTSRV1	127.0.0.1	5678	un		
DIGIPAX DPCSTORESCP	$\begin{array}{c} 127.0.0.1\\ 127.0.0.1\end{array}$	104 105	un un		
					Hide the server (as tray icon)
					About this server
				-	Close the server

Correctness of settings can be checked by changing to patient management in the digipaX system and retrieving sample images.

Depending on performance of existing network and size of image files transfer of images can take a few seconds. Installed time-out aborts if errors occur. With slower networks and problems with connections it can be necessary to extend time-out accordingly in order to avoid aborts too early. The number of retries tells how often the system should repeat retrieving an image in the case of an error. The default time-out is 60 seconds, the default number of retries is 0.



While sending images to the Conquest archive it can occur that the archive does not support normally this type – e.g. Enhanced CT Image Storage. In this case acquire an appropriate SOP class into the file dgatesop.lst. For this, add a new entry at the end of the file, e.g.:

EnhancedCTStorage 1.2.840.10008.5.1.4.1.1.2.1 sop

Note that the line must end with a line break!

Normally, patients are identified in the archives by patient's name, date of birth and patient ID. This may cause problems in special cases, e.g. when letters of the patient's name differ in digipaX and practice management (McDonald – MacDonald). In the cases like this, identification should be reduced to patient ID. You find this settings under Administrator / Patient data.



6.2 With compression

With the digipaX processing of compressed image data is possible. This does not apply on the own image acquisitions. Those remain uncompressed. However, the documents and graphics can be imported via import components and thereby processed as compressed. For this, a lossless JPEG compression is used. This saves storage space on the server. Besides it is possible to open the compressed images of third-party manufacturers (patient CDs) and send them to the archive. In order to do that, the configuration in the Conquest "dicom.ini" is to be processed. The target is that the Conquest retains the art of the compression at the saving. For this, the "dicom.ini" is to be changed as on the example below. After the change is done, the Conquest must be rebooted.

```
# Configuration of compression for incoming images and archival
DroppedFileCompression = un
IncomingCompression = as
ArchiveCompression = as
```

It is to note here that all images added to the archive per drag & drop are saved uncompressed (un). The IncomingCompression is to be set on "as" (as = store images as is, i.e. without changing the compression).



In Conquest combined with digipaX only the options "un" and "as" for incoming files are allowed.

For new installations it is recommended to enable the compression straight away.

6.3 Enabling JPEG support for the modules "Easy Report" and "Import"

To be able to transfer compressed files to the Conquest, the JPEG support must be enabled in the Conquest.

ConQuest DICOM server 1.4.16 - CONQUESTS	RV1				
Configuration Installation Maintenance Known DICOM providers Browse database Server status Query / Move					
This screen contains essential paramete Local unique name of this DICOM server (app	·	nQuest DICOM server.		Save configuration	
TCP/IP port to use (other DICOM systems mu	st know this number) :	5678		Restore original configuration	
Local disk directory to store DICOM images : Make directory T Enable PEG(2000) support Images of disk are stored. C Up compressed C Up compressed C Lossless JPEG C Lossy JPEG C Lossless JPEG C Lossy JPEGO C Upsefor of Uncompressed Images on disk are named: C V2 (allows NKI compression) C Directory Lossless JPEGO	C:\ C:\ C:\ C:\ C: C:: C:: C:: C:: C:: C	0097038		Install server as NT service Uninstall server as NT service	
CDCM (standard format) Cleanup disk below: (MB) Cleanup nightly below: (MB)				Hide the server (as tray icon) About this server	
Below 0 MB, move to:	C:\digipax\cong	uest\data			
Keep Server Alive	Free disk space:			Close the server	

It is recommended to enable this option as a basic principle.

7 Routing

7.1 General

In routing the images which are sent to an archive are automatically forwarded from that archive to a work station as well. Hence, the images already exist there in a local cache for later viewing and do not need to be required first from server anymore – **speed and efficien**-**cy**. On the other hand, when using **worklist** component it can be defined for which jobs the images are ready. When using **GDT** interface, a response to the requesting system can be sent, that new images are available.

7.2 digipaX configuration

In digipaX, activate the automatic image receiving on the configuration page "DICOM / net-work". For this, a separate AE Title (e.g. DPSTORESCP or RECEIVER) and a separate port (e.g. 105) are to be indicated.



This port must not be the same as port for image query.

Whether the image receiving works correctly, can be tracked in DICOM log.

If the automatic image receiving is active, a C-STORE (SCP), i.e. an own small PACS server, that can receive the images, is running in the background of the digipaX system.

Thereby, the storescp.exe from DCMTK of the "Kuratorium OFFIS e.V." is used. It can be checked in the DICOM log, whether this background process started successfully. This process stores the received images in configured local cache for DICOM images.

The image receiving is also protocolled in the DICOM log and can be tracked there.

By modifications in the configuration conc. automatic image receiving the background process restarts. This can also be tracked in the log.

7.3 Conquest configuration

In Conquest, these connection data must be again acquired to the list of "Known DICOM providers" (e.g. "DPCSTORESCP 127.0.0.1 105 un"). Furthermore, the following changes or extensions in the file dicom.ini are necessary:

Configuration of forwarding and/or converter programs to export DICOM slices
ForwardAssociationLevel = IMAGE
ForwardAssociationCloseDelay = 5
ForwardAssociationRefreshDelay = 3600
ForwardAssociationRelease = 1
ExportConverters = 1
ExportConverters = 1
ExportModality0 = *
ExportConverter0 = forward to DPCSTORESCP
ForwardCollectDelay = 600
MaximumExportRetries = 5
MaximumDelayedFetchForwardRetries = 0





This section does not initially exist in the dicom.ini and needs to be added completely.

DPCSTORESCP must be replaced with an appropriately used AE Title.

The configuration for several redirections could look like in the following example:

```
# Configuration of forwarding and/or converter programs to export DICOM slices
                               = IMAGE
ForwardAssociationLevel
ForwardAssociationCloseDelav
                              = 5
ForwardAssociationRefreshDelay = 3600
ForwardAssociationRelease
                               = 1
ExportConverters = 2
ExportModality0 = *
ExportConverter0 = forward to AUTODIGI1
ExportModality1 = *
ExportConverter1 = forward to AUTODIGI2
ForwardCollectDelay
                                  = 600
MaximumExportRetries
                                  = 5
MaximumDelayedFetchForwardRetries = 0
```

To improve performance (e.g. when importing patients' CDs), it is better to send all the images in the archive first, and then distribute them closed among stations in one round. Images can be transmitted thereby by series, studies or entirely for the patient. In order to do this first you need to change the row for export converter.

```
ExportConverter1 = forward SERIES to ... forwards by series
ExportConverter1 = forward STUDY to ... forwards by studies
ExportConverter1 = forward PATIENT to ... forwards all images of the patient
```

In the case of the "forward PATIENT to" option it is necessary to consider that even when for a patient only one new image comes in addition, there are always transferred all images of the patient. This could overload the network. Hence, forwarding by studies is certainly the most reasonable solution for most systems.

Furthermore, the row "ForwardAssociationLevel =" should also be adjusted. Also here the rule: series, study or patient applies.

The waiting time is set in the row "ForwardCollectDelay =" in seconds.



If there are forwardings with waiting time the configuration, for example, could look like this:

```
# Configuration of forwarding and/or converter programs to export DICOM slices
                               = STUDY
ForwardAssociationLevel
ForwardAssociationCloseDelav = 5
ForwardAssociationRefreshDelay = 3600
ForwardAssociationRelease
                              = 1
ExportConverters = 2
ExportModality0 = *
ExportConverter0 = forward STUDY to AUTODIGI1
ExportModality1 = *
ExportConverter1 = forward STUDY to AUTODIGI2
ForwardCollectDelay
                                  = 600
MaximumExportRetries
                                 = 5
MaximumDelayedFetchForwardRetries = 0
```

In addition, the entry "QueueSize =" for the waiting queue of export converters should be adjusted. According to the Conquest manual, each entry in the waiting queue requires 1.5K pro export converter. So, if you want to import a patient CD with 500 MRT images and distribute them to 2 stations, you will need 1.5K x 500 x 2 = 1500 + buffer. Example: QueueSize = 2000

For more information read the Conquest manual. Restart the Conquest server after these changes.



With the bottom "Save configuration" on the Conquest configuration page the file dicom.ini will be newly written by Conquest and possibly brought into a new structure. After that it can be checked in the file if the changes were accepted.



7.4 Special routing

In special cases, it may be necessary to send selected images only to another station. For instance, this could be the case in a situation, in which only the DX images are sent from the acquiring station (e.g. the DROC or Fuji system) to the station, where the X-ray journal is maintained.

```
# Configuration of forwarding and/or converter programs to export DICOM slices
ForwardAssociationLevel
                              = IMAGE
ForwardAssociationCloseDelay = 5
ForwardAssociationRefreshDelay = 3600
ForwardAssociationRelease
                              = 1
ExportConverters
                  = 1
                  = DX
ExportModality0
ExportCalledAE0
                  = CONQUEST
ExportCallingAE0 = DROC
ExportFilter0
                  =
ExportConverter0 = forward to AUTO-XRAY-JOURNAL
```

ExportConverters	= 1	# number of recipients
ExportModality0	= DX	# only this modality
ExportCalledAE0	= CONQUEST	# AE Title of image archive
ExportCallingAE0	= DROC	# AE Title of acquiring station
ExportFilter0	= *	# filter not needed here
ExportConverter0	= forward to XRAY-JOURN	# AE Title of receiving station

Optionally, the station name entered on the image in the DICOM header by the acquiring station can be used:

ExportStationName0 = DROC # Station AE Title in TAG 0008,1010

7.5 Test

The routing function can be tested by drag & drop (only up to version 1.4.14) of a DICOM file onto the Conquest server (sample images are contained in the installation directory of digipaX software in the folder "Sample images"). From Conquest version 1.4.15, for the test purposes you must send an image from another source via DICOM to the Conquest server. As well in the server log (page "Server status") as in the log of the digipaX system (category "DICOM") the entries must exist, that the file was forwarded and received automatically.



8 DICOM worklist

8.1 General

In relation to job creation and deletion, the digipaX system can only work together with the worklist server wlmscpfs.exe from the DCMTK of "Kuratorium OFFIS e.V.". Thereby, creating and deleting of the jobs is made by the creation and deletion of files in the established communication directory (subfolder <AE Title>).

If the worklist server is installed on a different machine than that of the digipaX system, date and time must match on both machines. Otherwise problems can occur during timedependent, automatic deletion of the jobs.

MPPS (Modality Performed Procedure Step) for using the job status is not supported.

8.2 Configuration of worklist server

Install the worklist server files on the target system like described. The program wlmscpfs.exe is in effect the server which must be registered as a Windows service. This can be done with batch file WLSSetup.bat contained in the same directory. Execute this batch file by double click and select "I" to install the service. You can uninstall the service by re-executing the batch file and subsequent selecting the option "R".



Problems with Windows Vista/7/8 and Windows Server 2008:

Full administrator rights are necessary for installation of the batch file. In these operating systems the "user account control" might block in some circumstances accurate performance. In such a case start the command line (cmd.exe) under the admin account (right mouse key and select "Run as administrator"). Navigate in the input window to the path of the batch file (e.g. C:\digipaX\Worklist) and start the batch with the command "wlssetup".

Diverse parameters can be changed by editing the batch. Following changes may be necessary:

- ApplicationPath: customize installation path of worklist server
- *WorkListDir:* set another communication directory (local or network directory)
- *ServicePort*: change port for DICOM communication (default: 2200)

The service must be uninstalled before editing. Perform the changes in the file, saved them and re-install the service. The AE-Title setting of the worklist is done via digipaX configuration. The worklist server itself has no AE-Title and therefore there is also no need to specify any.

More information on the wlmscpfs.exe server can be obtained from the manual of the server ("wlmscpfs manual.pdf").



8.3 digipaX configuration

The configuration of the worklist server is to be done in the same way like configuration of the image archives on the administration page "DICOM / Network". Create a new connection. Name and AE Titles are freely selectable. The port must match the worklist server port (de-fault: 2200). The communication directory must also match directory of the worklist server. The worklist server delivered by digipaX (up to version 1.1) always allows for a single connection only. This means that when one station is connected to the worklist server, no other station can establish a connection at the same time. Therefore, the disconnection option must be always set to "after inactivity time of 0 seconds" (that is, immediately). The option "do not disconnect" or the longer inactivity time is designated for those worklist systems, which allow for multiple connections. The worklist server from the version 1.2 supports multiple connections

The "Read" and "Save" options are also designated for special circumstances. In the case of some systems, which use their own worklist server (such as AGFA systems), jobs may not be created or removed by digipaX, but only made available for preview. In such case, on the worklist server in digipaX, it is necessary to turn off the "Save" option to avoid errors. In absolutely exceptional cases, it is also possible to turn off the "Read" option as well.

The rows in the job list are presented in the colour selectable here. If more job lists are configured, particular lists in the job management can be optically easily distinguished by use of different colours.

Further settings for work with this component can be made on the administration page "Job management".

		_	Configuration
User			
		Administrator :: Job management	
Informations about clinic and physician	Job management / worklist		
User interface	X Automatically update job list	Update interval in seconds:	10 🗘
Image preview	Delete jobs automatically	Delete jobs after:	10 hours
Window split	Show the column with number of received images and mark with the colour the list e	entry when the image has come	
Baseboard	Deactivate check of the communication path (not recommended)		
Loupe			
Image informations	Study Instance UID	Source of entry in X-ray journal	
Overlay / scout lines	for all jobs the same UID	Source for the pre-allocation of the fields for a new entry in X-ray journal	:
Histogram		 selected worklist job 	
Job management	 for each job its own unique UID 	received images	
Image acquisition	O enter no UID	 no source (all entries are empti 	v)
Other	C enter no ozo	(Only if X-ray journal module activated.)	
Administrator	Visual selection		
License	Types: Configuration:		
Veterinary surgeon	X Referrals X Standard		
DICOM / network	X Standard		
Job management	Part of the body / refinement / beam projection	Procedure codes	
GDT	G-Head	r Procedure codes	
HL7	K Occipital bone Genvical vertebrae		
Caches / IPS	🕀 🗶 Skull		
Image acquisition	⊕ ¥ Orbit ⊕ ¥ Nasal bone		
Device links	E X Sinus		
X-ray journal	Bernasal sinuses Wramid		Ę
Patient CD	E Buramid (Echuallar (Stanuara)		
Image transfer	•		
Patient data	Tags procedure codes: Requested Procedure ID	Scheduled Procedure Step Code Meaning Scheduled Procedure Step Code Meaning	Code Value 👻
Other	integrate procedure codes in images		
Log	Summarize orders and Procedure Codes (Conaxx) Delmitor for Procedure Code	15 +	
General	additional informations		
Cache	Tag accession number: Accession Number	•	
DICOM	tag job number: Scheduled Procedure Step ID	 Save job number as Accession Number in the study 	
Image processing	tag job description: Scheduled Procedure Step Description	Use job description as study description	
Administrator login	Import Export Info		Save
Administration Inginiti	angoritit		3476
			0
			8

If digipaX is a station on which the jobs are worked on, then for certain an automatic list of jobs is refreshed. If the user opens the "Job management" component, the job list will be automatically updated in the programmed intervals to the most recent status.



If the station where the jobs are worked on is not a digipaX station, the jobs cannot be removed from the list. In this case, jobs can be deleted from the station where they have been created (or another digipaX station). This procedure can be done manually by the user directly, or while activating the option "Automatically remove jobs". Then, the jobs are deleted that are older than the programmed interval. It is necessary to set the interval in a way that the jobs are completed within that time.

The DICOM MPPS service is not supported, the system cannot inform of the jobs that have been completed. Deleting a file through the station working on the job poses no problem because you can easily know that by the lack of a job. If the station where the jobs are worked on is not a digipaX system, it therefore will not delete the jobs from the list, and no message is returned first. However, if the routing on the PACS server and the digipaX workstation is set correctly, digipaX can tell which images were transferred to the image archives. To the list of jobs you can add a column with the number of newly submitted images for each patient. Due to the simultaneous colour indications of rows for patients with a number greater than 0, the user can easily recognize whether the job has already been completed or is still in progress. In case of the workstation, this option is unnecessary. It should be used on the station on which the jobs are created or images are described.

When creating jobs for a patient, all the jobs get the same Study Instance UID by default (per generation process).

If the jobs are processed by another system, it can happen that those systems display then always the first job only (eg. Carestream). It can be set up for such cases that each job gets a separate Study Instance UID. However, each image lands in a separate study as a consequence.

If a third-party system should allocate the UID by itself, the UID can be released at the creating the job as a further possibility.

The entry in the X-ray journal can also be made through the job management system. If at the same time the image is completed the image parameters are saved (kV, mAs etc.), it is recommended to use these images as a base for new entries, because these values are automatically entered in the dialogue fields. Here also the column with the number of images received should be displayed. If the above mentioned values are not stored in the images, then you can create a job in the jobs database from the worklist, as it usually already contains the same values (the images do not contain additional values that are used for entries). Thanks to this option, you can create an entry, for example, during the scanning process.

8.4 Procedure Codes

For each beam projection, maximum of three Procedure Codes can be given, separated by a semicolon. From this we can distinguish between the positions body parts / organs (left, right, as well as front and back in the case of animals). The positions are defined when creating or customizing the Body.ini file, of the body of the patient. If the position does not have a Procedure Code, then a general Procedure Code is applied for the beam projection. If, for example, left and right sides are the same, the code is entered only once in the general field (first column).





A separate document exists for creating templates for visually selecting the organs.

Each Procedure Code is sent in a single tag. Which are tags set on the configuration page "Administrator / Job management". At the same time note the manufacturers of the devices information, which receive the jobs and analyze the Procedure Codes.

Procedure Codes can also be used for iCR devices manufactured by Xscan. However, they are transferred by the digipaX software, using the scanning interface with the provided ini files for this purpose to the software. It is not possible then to reselect the body parts by the user. The Procedure Code tag set in the job management configuration must also be defined in the device configuration on the target computer as a Procedure Code tag.

Optionally, the Procedure Codes can be saved on the image. This can, for example, automatically send this information to the X-rays journal and generate in this way settlements or statistics.

CONAXX

While acquiring images by use of the "CONAXX" system, the option "Consolidate jobs and Procedure Codes" must be activated. Several jobs for the one patient are then consolidated in the one job, in which the Procedure Codes are transferred in one line separated by a separator (e.g. C000.008.020.000+C000.008.020.003). This separator is defined in CONAXX in the menu under "Configuration/Import/DICOM Worklist" and must be identically set in digipaX as well. On identical configuration pages (in both systems) the tag for the Procedure Codes is set up. This tag must be also the same in both systems.

8.5 Additional information

If through the GDT or HL7 the job number and/or job description are also sent, they will be sent to the job of the worklist. For this purpose, 2 of 5 tags are required, which are also used to transmit Procedure Codes. For Procedure Codes only 3 tags are available. Furthermore, for identification of jobs for each worklist job is generated a unique accession number by the digipaX system. This number is independent from the job number. Initially the following tags are normally pre-set:

 Accession number Job number Job description 		AccessionNumber(0008, 0050)ScheduledProcedureStepID(0040, 0009)ScheduledProcedureStepDescription(0040, 0007)
Tag accession number: tag job number: tag job description:	Accession Number Scheduled Procedure Step ID Scheduled Procedure Step Description	save job number as Accession Number in the examination use job description as examination description

If image acquisition runs with third-party systems, it can be necessary to transmit the job number in the Tag AccessionNumber, to have it later available on the image. In such a case the tags for accession and job number are to be adjusted accordingly. An important advice is that it relates to the tags within worklist jobs and not the tags of the DICOM images. By checking the appropriate box, you can optionally save **on the image** the job number as Ac-



cession Number and description of the job as the Study Description. At the same time this data is also stored in the GDT response file.

For more information on this topic, refer to chapters 9.1 "GDT" and 9.1.16.3 "Field assignment (mapping)".



8.6 DICOM tags

The following tags are saved for a job:

The optional items can be enabled and disabled in the configuration under Administrator/Patient data (see 17.2).

SpecificCharacterSet		(0008, 0005)
PatientsName		(0010, 0010)
PatientID		(0010, 0020)
PatientsBirthDate		(0010, 0030)
PatientsBirthTime	(optional)	(0010, 0032)
PatientsSex		(0010, 0040)
OtherPatientIDs	(optional)	(0010, 1000)
OtherPatientNames	(optional)	(0010, 1001)
PatientsAddress	(optional)	(0010, 1040)
PatientsTelephoneNumbers	(optional)	(0010, 2154)
EthnicGroup	(optional)	(0010, 2160)
LastMenstrualDate		(0010, 21D0)
PatientComments	(optional)	(0010, 4000)
StudyInstanceUID		(0020, 000D)
RequestedProcedureDescrip	tion	(0032, 1060)

The following fields can be enabled and disabled in the configuration under User/Job management:

ScheduledProcedureStepStartDate	(0040, 0002)
ScheduledProcedureStepStartTime	(0040, 0003)
Modality	(0008, 0060)
ScheduledStationAETitle	(0040, 0001)
RequestedProcedurePriority	(0040, 1003)
PatientsWeight	(0010, 1030)
PregnancyStatus	(0010, 21C0)
ContrastAllergies	(0010, 2110)
RequestedContrastAgent	(0032, 1070)
MedicalAlerts	(0010, 2000)
PreMedication	(0040, 0012)
ReferringPhysiciansName	(0008, 0090)
RequestingPhysician	(0032, 1032)
ScheduledPerformingPhysiciansName	(0040, 0006)
InstitutionName	(0008, 0080)
CurrentPatientLocation	(0038, 0300)
AdditionalPatientHistory	(0010, 21B0)
CommentsOnTheScheduledProcedureStep	(0040, 0400)



Each job gets a unique accession number which is typically saved on the following tag:

The following tags are available for selection for transfer of Procedure Codes:

RequestedProcedureID	(0040, 1001)
ScheduledProceedureStepCodeMeaning	(0008, 0104)
ScheduledProceedureStepCodeValue	(0008, 0100)
ScheduledProcedureStepDescription	(0040, 0007)
ScheduledProcedureStepID	(0040, 0009)

When setting the tags for Accession Number and Procedure Codes, take care that these do not interfere with those described in the Additional information in chapter 8.5. Each tag can be selected once only.

Other tags are saved without values to conform to the DICOM standard.

8.7 Troubleshooting indicators

Problems can occur in case of incorrect network configurations. A registered digipaX system user must have access rights to a worklist computer server. You should check in the explorer, if you have access to set the path to the worklist files and the rights to read and save files. If necessary, contact your network administrator to have the correct settings. You should also check your firewall settings or deactivate it completely, if it will not cause any other problems. In some systems, you may need to edit the hosts file (C:\Windows\System32\drivers\etc) and indicate other computers on the network to enable a quick connection.

In some cases you may need to manually allow access to the communication directory. To do this you must first revoke the access rights, and then allow access to the folder on the net-work again.

In case of problems with the search speed, you can test the option of deactivating checking the communication paths. With this, you cannot check whether the directory exists and if the lockfile is in it.



9 Interfaces

9.1 GDT Interface

9.1.1 General

GDT tagging: GDT-D-11 The system uses GDT interface version 2.1.

9.1.2 Connecting TurboMed

9.1.2.1 General

The connection is done on the menu item "Devices / GDT interface settings" in the patient's record card.

The import and export paths must be the same as the paths set in digipaX. You can also use the same path for import and export.

The character set when exporting GDT files does not matter - digipaX identifies both correctly.

Because TurboMed performs the import only once at the end of the started GDT operations, you can choose in digipaX as an option for GDT response only "every job immediately or/and "after image acquisition". Jobs can also be consolidated. In this way, right after the request to digipaX system is made requesting a new study (record type 6302), the GDT response is written with information about the existence of new images, so that an appropriate new entry can be added to the record. The description of the created job in the worklist or a user-defined text is transferred, in this way an entry is also added to the record card.

During the import and export, you can work with both a fixed GDT extension, as well as incremental extensions, but in TurboMed enter digiturb.001 as an export file and turbdigi .* as an import file. While importing images of the patients, no matter whether via patient CD or import of images, a response file is written for each study (if more studies exist). Therefore, it is recommended to use an increasing file extension, if response for patient CD or image import is written.



9.1.2.2 digipaX settings

					Configuration
User 🖸			Administrator :: GDT		
Informations about clinic and physician	Identification				_
User interface	GDT-ID: DIGIPAX1		Abbreviation: DIGI		
Image preview					
Baseboard	Communication				
Loupe	Import directory:	C:\digipaX\digipaX\GDT			
Image informations					
Overlay / scout lines	Export directory:	C:\digipaX\digipaX\GDT			
Histogram	Type of file:	 fixed GDT file extension (".gdt") 	Incremental file extension (".001" - ".999")) 🔘 fixed file names	
Job management Image acquisition	Import file:	DIGIxxxx.gdt	e.g.: DIGIxxxx.003	import.gdt	
Image acquisition Other	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt	
- Cole	Check interval in seconds:	10	•		
Administrator	Readout delay in miliseconds:	0	\$		
License	Log:	log content of files	•		
Veterinary surgeon	Log.	by content of mea			
DICOM / network	Adapt field allocation (mapping) -				
Job management					
GDT	Create GDT answer				
HL7	GDT answer files can be created fo	r automatic acquited images (via this digipax station)	as well as for the images which have been receive	d in the background.	
Caches / IPS		Image acquisition and image receipt	-	ther events	
Image acquisition			ľ	and events	
Device links	Moment of creating:	for each image (immediately)	3	immediately after job	Collect jobs
X-ray journal	Homent of cleaning.	○ each series Waiting time: 3 minutes 🚖		after import of image	
Patient CD		◯ the study Waiting time: 10 minutes 🚖		arter import of image	
Image transfer		ask user before creating			
Other					
	Entry in comment field (6227):	 automatically (according to mode) 			
Log		 this comment text in answer file: 	Ne	ew images exist.	
General		add additional tags:			
Cache					
DICOM	Characteristics field:	Type of study carried out:	AL	LG00	
Image processing	Set of characters:	 IBM CP 437 (DOS) 		ISO 8859-1 (ANSI)	
File import	Require an answer in GDT standard	: 🗙 require (despite whether a request has been m	ade to this system or not)		
Worklist	require an another in doir atomotion	Redplent ID:		ipient abbreviation:	
GDT A		delete attached physician number	Rec	apient abbreviation.	A
Administrator login	Import	Export Info			Save

9.1.2.3 TurboMed settings for all functions

GDT Einstellun Übersicht	gen Export	Import GDT 2.1
Hyperlink Datei nicht kopiere X Datei auf Server ko Datei auf Server ko Karteieintrag X Karteieintrag nach	opieren opieren und löschen	Speicherpfad X TurboMed/Dokumente Anderer X JahrMonat
		Übernehmen <u>Q</u> K Abbrecher



9.1.2.4 Showing images of a study (record type 6311)





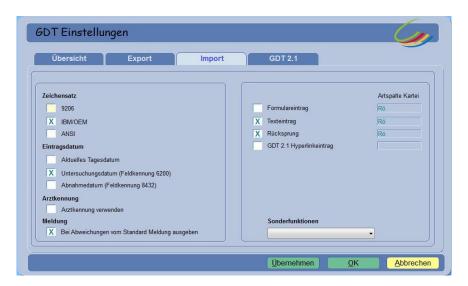




9.1.2.5 Creating worklist job (record type 6302)

GDTE	instellungen 🥠		
Über	sicht Export Import GDT 2.1		
Name	Worklist •		
	X GDT Anbindung 2.1 nutzen		
Programm	C:\digipaX\digipaX\digipax.exe 👻		
Parameter			
	X Programm aufrufen beim Export		
	Export Import		
Pfad	C:\digipaX\digipaX\digipaX\GDT C:\digipaX\digipaX\GDT		
Dateiname	digiturb.001 turbdigi.*		
	Beim Export aus dem Menü Formular anzeigen Import nur manuell		
	X Automatischer Export beim Formularaufruf aus dem Menü Beim Import Formular anzeigen		
	Beim Export aus der Karteikarte Formular anzeigen		
	X Automatischer Export beim Formularaufruf aus der Karteikarte		
Löscher	Kopieren Neu Menue Übernehmen OK Abbrechen		

GDT Einstellu	ngen				6
Übersicht	Export	Import	GDT 2.1	1	
GDT-ID Empfänger			Grösse/Gewicht		
GDT-Version Zeichensatz	02.10 IBM(Standard) CP 437	•	Dezimalzeichen	Punkt •	
Satzart		•			
8402 8410					
Patientenkennung Arztkennungen Ansicht		- - 14			
	Bei Rücksprung nur Pat.Nr. send	den			
			Übernehmen	<u>O</u> K	<u>A</u> bbrechen



For imports in digipaX, writing the GDT response file must be enabled.



The **character set** setting must match the character set setting in digipaX. Warning: If it's set to "9206", it will always automatically use the ANSI set (in TurboMed version 7.3.1).

For the **entry date**, select the current date. When using the "field 6200 tag", the entry is not created in the record card if this field contains a date (TurboMed version 7.3.1).

If the **text entry** is selected, then the comment text will be pasted to the patient's record card. This text can be defined as the default in digipaX or it may correspond to the job description.

If the **back option** is active then in the record card an entry is added, which when doubleclicked restarts the digipaX program and displays image record of type GDT 6311.



9.1.2.6 Reading patient-CD (record type 6302)

GDT E	instellungen
Über	rsicht Export Import GDT 2.1
Name	Patienten CD einlesen Patienten CD einlesen X GDT Anbindung 2.1 nutzen
Programm Parameter	C-digipaX/digipaX/digipax.exe
1 araineter	Programm aufrufen beim Export Export Import
Pfad	C\digipaX\digipaX\GDT
Dateiname	digiturb 001 turbdig: * Beim Export aus dem Menü Formular anzeigen Import nur manuell X Automatischer Export beim Formularaufruf aus dem Menü Beim Import Formular anzeigen Beim Export aus der Karteikarte Formular anzeigen X Automatischer Export beim Formularaufruf aus der Karteikarte
Löscher	Lopieren Neu Menue Übernehmen QK Abbrechen

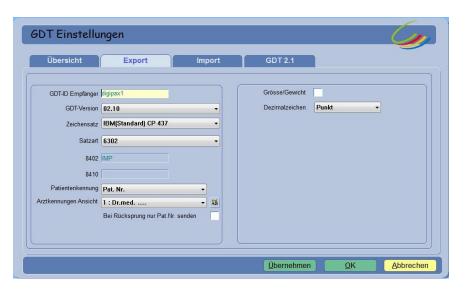
GDT Einstellu	ngen 🥠
Übersicht	Export Import GDT 2.1
GDT-ID Empfanger GDT-Version Zeichensatz Satzart 8402 8410 Patientenkennung Arztkennungen Ansicht	Dezimalzeichen Punkt
	Übernehmen QK Abbrechen





9.1.2.7 Import of images or documents through import component (record type 6302) Example for documentation of a wound

Name Wunddokumentation X GDT Anbindung 2.1 Programm C:\digipaX\digipAX\digipaX\digipX\digipAX\digipX\digipX\digip		Wunddokumentation	
Programm C:\digipaX\digipaX\digipa			
	X.exe		
X Programm aufrufen	beim Export		
Export		Import	
Pfad C:\digipaX\digipaX\GDT		C:\digipaX\digipaX\GDT	
Dateiname digiturb.001		turbdigi.*	
Beim Export aus d	m Menü Formular anzeigen	Import nur manuell	
	ort beim Formularaufruf aus dem Menü	Beim Import Formular anzeigen	
X Automatischer Exp			
	r Karteikarte Formular anzeigen		
Beim Export aus d	•		







9.1.3 Connecting PDE-TOP

9.1.3.1 General

To get to the GDT configuration interface, you must first go to the patient's dialogue, and then use the "Extern" (Ctrl + Shift + X). Here you can configure starting digipaX with GDT arguments. Automatic importing and analyzing GDT files in the background can be set in the main program. To do this, select in the main menu "Options / System". On this dialogue you can change the settings accordingly. Activate the automatic GDT import and set the GDT directory.

System - Einstellungen				
🗸 OK 🗶 Abbred	hen Protokoll			
Ansicht Installation Dienste Verschiedenes Geräte / System AutoGDT				
Automatischer BDT-Im	port			
GDT Verzeichnis:			active	
Kartenkürzel:		Kennfeld:	CODE	
Automatischer GDT-Im				
GDT Verzeichnis: C:\Prog	ramme\digipax\digipax	GDT	 active 	
Kartenkürzel:		Kennfeld:	CODE	
Systemanbindung Med+Org bidrektiona	PDE> Extern	<u>Extern</u>	- <u>> PDE</u>	
Medasys				
Protokollierung BDT/GD				
Diese Einstellungen bee Für weitere Hilfen zu dies				

9.1.3.2 Transferring constant data (record type 6301)

🗐 Externe Programme 📃 🗆 🔀	🛃 Externe Programme 📃 🗖 と
Eigenschaften BDTout Speichern Abbruch Optionen (BDT/GDT)	GDT / BDT - Optionen BDT out
Details Bezeichnung digipax - Stammdaten übermitteln Anwendung C:\Programme\digipax\digipax\digipax.exe Startparameter	Kommando Image: Stammdaten zum externen Programm übermitteln Satzart '6301' Image: Stammdaten zum externen Programm zum externen Satzart '6311' Satzart '6311' Image: Stammdaten zum externen Satzart '6311' Kürzel immer verwenden
I │ Menue-Eintrag │ Hintergrund-Programm │ Bestätigung (nur bei Aufruf aus Menü: EXTRAS) │ Menue-Beenden	GDT - Einstellungen Typ (z.B. EKG01) GDT-Empfänger DIGIPAX
Datentransfer C AUS C BDT C GDT C TEXT C XML Verzeichnisse	Labordaten übermitteln [max. 90 Tage alt] Erwarte Typ oder Kennfeld einer Objektdatei:
Export-Verzeichnis Dateien für Test sichern C:\Programme\digipax\digipax\GDT\DIGIPDE_gdt Import-Verzeichnis C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt	
4 GDT C:\Programme\digipax\digipax\digipax.exe	4 GDT C:\Programme\digipax\digipax\digipax.exe

Verify that the export and import directory have the file names entered.



🗐 Externe Programme	
GDT / BDT - Optionen BDTout	
Diese Werte gelten beim BDT-Export	
BDT Dateiheader ausgeben [SA 0020 und SA 0022] BDT Satzart 0010 ausgeben [SA 6100] BDT Dauerdiagnosen [SA 6100] BDT Dauerdiagnosen [SA 6100] BDT Dauerdiagnosen [SA 6100] BDT Abschluß erzeugen [SA 0021; SA 0023] GDT Benutzer / Arzt in GDT Satz als FK 9901 ausgeben	
4 GDT C:\Programme\digipax\digipax\digipax.exe	

These settings also apply to all subsequent connections.

9.1.3.3 Requesting new study (record type 6302)

🗐 Externe Programme 📃 🗆 🔀	🖌 🛃 Externe Programme 📃 🗖	
Eigenschaften BDTout	GDT / BDT - Optionen BDTout	
Speichern Abbruch Optionen [BDT/GDT] Details Bezeichnung Beigipax - neue Untersuchung anfordern Anwendung C:\Programme\digipax\digipax\digipax exe C:\Programme\digiparame\etaipax\digipax\digipax. Image: Comparison of the taiparameter is the tai	OK Kommando Stammdaten zum externen Programm übermitteln Satzart '630' Neue Untersuchung starten Satzart '630' Daten einer Untersuchung anzeigen Satzart '631' Kartenküzzel GDT - Einstellungen Typ (z.B. EKG01)	2'
Menue-Beenden Datentransfer AUS BDT GDT TEXT XML Verzeichnisse Export-Verzeichnis C.\Programme\digipax\digipax\GDT\DIGIPDE_gdt Import-Verzeichnis C.\Programme\digipax\digipax\GDT\PDE_DIGI.gdt	GDT-Empfänger DIGIPAX Labordaten übernitteln [max. 90 Tage alt] Erwarte Typ oder Kennfeld einer Objektdatei:	
5 GDT C:\Programme\digipax\digipax.exe	5 GDT C:\Programme\digipax\digipax\digipax.exe	



9.1.3.4 Requesting new study through the job worklist (record type 6302)

GDT / BDT - Optionen BDTout OK	
ОК	
Neue Untersuchung starten Daten einer Untersuchung anzeigen Kattenkürzel Kürzel immer verwenden GDT - Einstellungen	Satzart '6301' Satzart '6302' Satzart '6311'
GDT-Empfänger DIGIPAX	
Labordaten übermitteln [max. 90 Tage alt] Erwarte Typ oder Kennfeld einer Objektdatei:	
	Stammdaten zum externen Programm übermitteln Neue Untersuchung starten Daten einer Untersuchung anzeigen Kartenkürzel GDT - Einstellungen Typ (z.B. EKG01) GDT-Empfänger DIGIPAX Labordaten übermitteln [max. 90 Tage alt]

With the help of the $_{\rm m}/{\rm w}^{\rm m}$ start parameter a dialogue is displayed to create a new job from the worklist.

9.1.3.5 Displaying study data (record type 6311)

🛃 Externe Programme 📃 🗆 🔀	🗐 Externe Programme 📃 🗆 🔀
Eigenschaften BDTout	GDT / BDT - Optionen BDT out
Speichern Abbruch Optionen [BDT/GDT]	ОК
Details Bezeichnung Idigipax - Untersuchung anzeigen Anwendung C:\Programme\digipax\digipax\digipax.exe Startbarameter	Kommando Stammdaten zum externen Programm übermitteln Satzart '6301' Neue Untersuchung starten Satzart '6302' Daten einer Untersuchung anzeigen Satzart '6311' Kartenkürzel Kartenkürzel
 Menue-Eintrag ✓ Hintergrund-Programm Bestätigung (nur bei Aufruf aus Menü: EXTRAS) ✓ Menue-Beenden 	GDT - Einstellungen Typ (z.B. EKG01) GDT - Empfänger DIGIPAX
C AUS C BDT © GDT C TEXT C XML	Labordaten übermitteln [max. 90 Tage alt] Erwarte Typ oder Kennfeld einer Objektdatei:
Verzeichnisse Export-Verzeichnis Dateien für Test sichern	
C:\Programme\digipax\digipax\GDT\DIGIPDEgdt Import-Verzeichnis C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt	
2 GDT C:\Programme\digipax\digipax.exe	2 GDT C:\Programme\digipax\digipax\digipax.exe



9.1.4 Connecting MediStar

Jser 🙆 .			Administrator :: GDT			
Informations about clinic and physician	dentification					
lser interface	GDT-ID: DIGIPAX1		Abbreviation: DIGI			
nage preview	GOTID: DIGIPANT		Abbreviation. Dist			
aseboard	Communication					
oupe	Import directory:	Coloral .				
age informations		C:\pd				
verlay / scout lines	Export directory:	C:\digipaX\digipaX\GDT				
stogram	Type of file:	 fixed GDT file extension (".gdt") 	Incremental file extension (".001" - ".9	999") 🔘 fixed file names		
b management	Import file:	DIGIxxxx.gdt	e.g.: DIGDxxxx.003	import.gdt		
age acquisition her	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt		
7her	Check interval in seconds:	10	÷			
dministrator 🛛	Readout delay in miliseconds:	0	\$			
	Log:	log content of files	•			
terinary surgeon	Log.	_ log content of ties				
COM / network	Adapt field allocation (mapping)				
b management						
)T	Create GDT answer					
7	GDT answer files can be created	for automatic acquited images (via this digipax statio	n) as well as for the images which have been rec	eived in the background.		
aches / IPS						
	1.1	✓ X Image acquisition and image receipt		other events		
				other events		
nage acquisition	Moment of creating:	 for each image (immediately) 			Collect jobs	
nage acquisition evice links	Moment of creating:	 for each image (mmediately) each series Waiting time: 3 minutes ★ 		other events	Collect jobs	
nage acquisition evice links -ray journal atient CD	Moment of creating:	 for each image (immediately) 		other events	Collect jobs	
nage acquisition evice linis ray journal atent CD nage transfer	Moment of creating:	 for each image (mmediately) each series Waiting time: 3 minutes ★ 		other events	Collect jobs	
nage acquisition evice linis ray journal atent CD nage transfer		for each image (mmediately) each series Waiting time: 0 the study Waiting time: 0 minutes ask user before creating		other events	Collect jobs	
noge exclusion exice links exice links stemt CD sage transfer ther	Moment of creating:	for each image (mmediately) each series Walting time: 3 minutes ★ the study Walting time: 0 minutes ask user before creating automatically (according to mode)		other events immediately after job after import of image	Collect jobs	
nage explaintion exter Inisa aray journal asternt CD age bransfer ther 		for each image (mmediately) each series Walting time: [3:minutes \$] ak user before creating ak user before creating e automatical (according to mode) this comment text in answer file:		other events	Colect jobs	
nge souktion erke Iriks ang band stent CD nage bandfer ther age eneral		for each image (mmediately) each series Walting time: 3 minutes ★ the study Walting time: 0 minutes ask user before creating automatically (according to mode)		other events immediately after job after import of image	Collect jobs	
nage encueston evice inis a ren journal a teant CD ange transfer of ther entral a dre		for each image (mmediately) each series Waiting time: [] simultes ad user before creating autunstackly (according to mode) this comment text in answer file: add additional tags:		other events immediately after job after import of image New images exist.	Colect jobs	
nge squistion exile links ray journal stemt CD age transfer ther an eneral ache CCOM	Entry in comment field (6227): Characteristics field:	for each image (immediately) each perses Wating time: [>minutes] ack user before creating ack user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out:		other events immediately after job after import of mage New images exist.	Collect jobs	
nage kequitton ente links erat pomal stent CD ther one enter al exche ccoM	Entry in comment field (6227): Characteristics field: Set of characters:	for each image (mmediately) each series Watting time: 3 minutus ♀ the study Watting time: 0 minutus ♀ ask user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out: IBM CP 437 (DOS)		other events immediately after job after import of image New images exist.	Colect jobs	
nge equisition exite tris service tris service tris service tris service tris territories ther service tris service tris s	Entry in comment field (6227): Characteristics field: Set of characters:	for each image (immediately) each perses Wating time: [>minutes] ack user before creating ack user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out:	made to this system or not)	other events immediately after job after import of mage New images exist.	Colect jobs	
wage scalarston erse beks erse journal stemt CD ther " " oneral sche ccOM wage processing is hopot order	Entry in comment field (6227): Oharacteristics field: Set of characters: Require an answer in GDT stand	for each image (mmediately) each series Watting time: 3 minutus ♀ the study Watting time: 0 minutus ♀ ask user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out: IBM CP 437 (DOS)		other events immediately after job after import of mage New images exist.	Colect jobs	
nage exception exce bits eny pornal estent CD exage transfer ther conser eneral exce to conser to conser t	Entry in comment field (6227): Characteristics field: Set of characters: Require an answer in GDT stand	for each image (mmediately) each series Walting time: 3 minutes the study Walting time: 0 minutes the study Walting time: 0 minutes akuese before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out: IBM CP 497 (DOS) ard: ¥ require (deptie whether a request has been		other events immediately after job after import of mage New images exist. ALLGOO ISO 8859-1 (ANSI)	Colect jobs	
nage exclusion exise inks erry partal stent CD age brandler ther co eneral adve eccom age processing e import ovidat OT	Entry in comment field (6227): Oharacteristics field: Set of characters: Require an answer in GDT stand	for each image (mmediately) each series Walting time: 3 minutes if the study Walting time: 0 minutes actuser before creating actuser before creating actuser before creating additional tags: Type of study carried out: i BMC P437 (DOS) ard: ¥ require (despite whether a request has been Recipent IDE.		other events immediately after job after import of mage New images exist. ALLGOO ISO 8859-1 (ANSI)		Save

Settings in MediStar are done by the administrator of the system and cannot be independently adjusted.

The digipaX import directory is found on the local system, while the export directory is a directory shared on the network. It is recommended that incremental extensions of the file are applied to prevent data loss (in case of system failure data can be downloaded from there later).

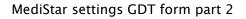
The response file should be created only in this system, in which the images are received (ideally for each completed study). For this purpose, it is necessary to establish proper communication with the Conquest server to that system.

MS3.FM_GDT				
Nr	Symbol Name	Symbol Definition	Kommentar	
001	name_fa	G <mark>eräteanbindungen</mark> Worklist	Name in FA-Auswahl	
	c_mtxt_1		Menupunkt 1	
003	c_gnam_1	Digipax	Geraet	
004	c_uart_1	WL	Untersuchungsart	
	c_sart_1	6302	Satzart	
	c_lzif_1	- 17.1	Leistung	
007	c_mtxt_2	Bilder zeigen	Menupunkt 2	
	c_gnam_2	Digipax	Geraet	
009	c_uart_2	6311	Untersuchungsart	
	c_sart_2 c_lzif_2	6311	Satzart	
	c_mtxt_3	Patienten-CD einlesen	Leistung Menupunkt 3	
013	c_gnam_3	Digipax	Geraet	
	c_uart_3	PM	Untersuchungsart	
	c_sart_3	6302	Satzart	
	c lzif 3	0502	Leistung	

MediStar settings GDT form part 1



MS3.FM_GDT		
Nr Symbol Name	Symbol Definition	Kommentar
016 c_lzif_3 017 c_mtxt_4 018 c_gnm_4 019 c_uart_4 020 c_sart_4 021 c_lzif_4 022 c_mtxt_5 023 c_gnm_5 024 c_uart_5 025 c_sart_5 026 c_lzif_5 027 c_mtxt_6 028 c_gnm_6 029 c_uart_6 030 c_sart_6 031 c_zif_6	Patienten-CD brennen Digipax PCD 6311 Wunddokumentation Digipax IMP 6302	Leistung Menupunkt 4 Geraet Untersuchungsart Satzart Leistung Menupunkt 5 Geraet Untersuchungsart Satzart Leistung Menupunkt 6 Geraet Untersuchungsart Satzart Leistung



Grundeinstel	lungen		
Gerät Digip	ax		
Aufruf	digimedi.001 c:\digipax\dig c:\digipax\dig	NOT (178)	exe
Import Importdatei Verzeichnis Anzeigeprogr	d:\rp	Kommentar	Antwort GDT konform Signatur Werte

MediStar basic settings GDT server

Gerät <mark>Digipax</mark>		Untersuchungs	sart WL	
Patientennummer				
Mit führenden Nullen	NN			
Mit Praxisnummer Rein numerisch	N			
kern numerisch	1			
Zeichensatz	DOS			
Export Größe/Gewicht	N			

MediStar export options GDT server



Gerät <mark>Digipax</mark>	Unt	ersuchungsart A	LLG00
Diagnose Fremdbefund Verweiseintrag Untersuchungsart eintragen Untersuchungsdatum eintragen Erste Kommentarzeile anhänger Datum und Uhrzeit aus Einzelm eistungsziffern Zeilentyp EBM Sonstige Einstellungen Eeichensatz	Kommentar Ergebnis J J essung J DOS	Signatur Größe/Gew. GOÄ	Werte
Corpelte Einträge vermeiden Reihenfolge der Einträge	00S J		

MediStar import options GDT server

9.1.5 Connecting x.concept (DOCConcept)

Connection has been made successfully with the following settings.

9.1.5.1 digipaX settings

(Configuration	
User 🖸 🏝			Administrator :: GDT			
Informations about clinic and physician User interface Image preview Window solt	Import directory: Export directory: Type of file:	C: \digipaX\digipaX\GDT C: \digipaX\digipaX\GDT fixed GDT file extension (".gdt")	Incremental file extension (".001" - ".999	n O fardfirmur	<u>م</u>	
Baseboard Loupe Informations Overlay / scout lines Histogram Job management	Import file: Export file: Check interval in seconds: Readout delay in miliseconds: Log:	DIGI:cocc.gdt xxxxxDiGI.gdt	e.g.: DIGboox.003 e.g.: DIGboox.003 e.g.: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	import.gdt export.gdt		
Image acquisition Other Administrator	Adapt field allocation (mapping) – Create GDT answer GDT answer files can be created for	r automatic acquited images (via this digipax station)	-			
leteriary surgeon DCOM / network 300 management GDT HL7 Caches / JPS	Moment of creating:	Image acquisition and image recept for each image (immediately) each series Waiting time: <u></u>		other events immediately after job X after import of image	Collect jobs	
Image acquisition Device Iriks Device Iriks Tray Journal Patient CD Image transfer Patient data Other	Entry in comment field (6227):	automatically (according to mode) this comment text in answer file: attach additional tags in front: attach additional tags at back: multime if longer than 60 characters		iew images exist.) e	
Log	Characteristics field:	Type of study carried out:	[DIGIPAX1		<u>i </u>
General	Set of characters:	IBM CP 437 (DOS) K require (despite whether a request has been ma	() ISO 8859-1 (ANSI)		
Cache DICOM Image processing File import	nequire an another in GUI standard	Redpient ID: delete attached physician number		ecipient abbreviation: CONC		•
Administrator login	Import	Export Info			Save	
						8



9.1.5.2 x.concept configuration

gdt.ini

IWL]
Titel=digipaX Worklist
Exe=C:\digipaX\digipaX\digipax.exe
GDTDatei=c:\digipax\digipax\gdt\DIGICONC.001
TYP=WL
Satzart=6302
UseDos=1
InternePatNr=0
[DIGIPM]
Titel=digipaX Pat-CD einlesen
Exe=C:\digipaX\digipaX\digipax.exe
GDTDatei=c:\digipax\digipax\gdt\DIGICONC.001
TYP=PM
Satzart=6302
UseDos=1
InternePatNr=0
[DIGIPAX1]
Titel=digipaX zeigen
Exe=C:\digipaX\digipaX\digipax.exe
GDTDatei=c:\digipax\digipax\gdt\DIGICONC.001
TYP=
Satzart=6311
UseDos=1
InternePatNr=0
[DIGIWD]
Titel=digipaX Wunddokumentation
Exe=C:\digipaX\digipaX.exe
GDTDatei=c:\digipax\digipax\gdt\DIGICONC.001
TYP=IMP
Satzart=6302
UseDos=1
InternePatNr=0
[DIGIPCD]
Titel=digipaX Pat-CD erstellen
Exe=C:\digipaX\digipaX\digipax.exe
GDTDatei=c:\digipax\digipax\gdt\DIGICONC.001
TYP=PCD
Satzart=6311
UseDos=1
InternePatNr=0

Creating new rubric

Patient	۲		100 @ F		2 3			5
Stammdaten	Þ	Eremdadressen			30 🛇			4
Drucken Faxen	Strg+P	Medikamente Rubrik	entendaten 1	Patientendaten 2	Patientendaten 3	⊻ersicherte(r)	Abrechnungsdaten	Scheinrückseite
Nachricht senden		Krankenblatt-Baustein-Editor Ziffern				Todo-Eintrag		
Laborda <u>t</u> en	•	Faktoren	BP AU ON	V LBD PT PBG KT HSK D	113 KHE D Z 🔎 -	Alle Enträge	*	
Anmelden als	Strg+A	Laborwerte	♦ Eintrag					ð Anw. ð 🔺 👔
Beenden		Krankenkassen	Pat. in der	Sprechstunde, caro			A-VS	
		Anwender Betriebsstätten	(gedruckt)			A-VS	C H-HHE
							A-VS	C H-HHE
		A					A-VS	C H-HHE
		z					A-VS	C H-HHE
		ÜBERW	EIS				A-VS	C H-HHE 🛛 👪

New rubric done

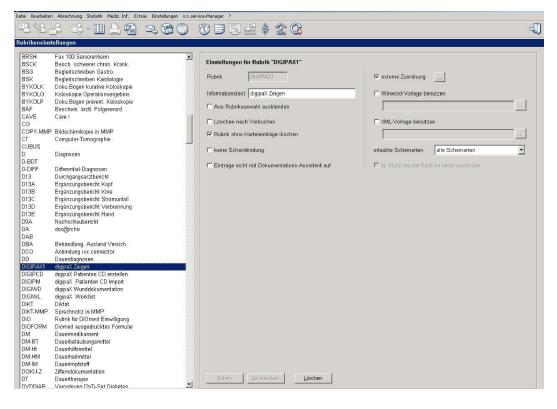
concept – Krankenblatt-Bausteir tei Bearbeiten Optionen Drucklisi		nkenblatt-Bausteine	DIGIPAX1]		_O ×			S.
ene Dokumentationsbausteine 💌	Rubrik	Name						
- 🖉 Z 📃	DIGIPAX1	DIGIPAX1			Name-Rubrik	1		
🗈 🧔 ZK	Suchpfad des	Objekts, das editiert wird				Versicherte(r)	Abrechnungsdaten	Scheinrückseite
- 🗿 Ü-Sch-SH						Todo-Eintrag	- X-	[
- 🚜 Überweis - 🛲 ÜP	Informationste	xt (kein Text für das Kranl	(enhlatt)			Ale Enträge	*	
- 20 UP - 20 W	diginaX Zeig	•0					∛ Arzt	♦Anw. ♦ ▲
BG-ABR	Text fü	das Krankenblatt / Infor	mationstext		-		A-VSC	H-HHE
ABLL							A-VSC	H-HHE
- 🥭 1							A-VSC	H-HHE
- 49 DIGIWL - 49 DIGIPM - 49 DIGIPAX1							A-VSC	H-HHE
- 🛵 ALLG00							A-VSC	H-HHE
							A-VSC	H-HHE
Krankenblatt-Bausteinfolge							A-VSC	H-HHE
7 Textvariablen Ziffernbegründungen					-1		A-VSC	H-HHE
Textfloskeln	X				E		A-VSC	
Recalivorgänge								
e höher Zeile tiefer Zurück								
Neu Lösc	nen Í	Ändern	Sichem	Zunicksetzen	Beenden			



Selecting rubric

				â G			¢
Stammdaten	Eremdadressen Medikamente						
Eaxen	<u>R</u> ubrik	entendaten <u>1</u>	Patientendaten 2	Patientendaten 3	⊻ersicherte(r)	Abrechnungsdaten	Scheinrigckseite
Nachricht senden Labordaten •	Krankenblatt-Baustein-Editor Ziffern Faktoren			D13 КНЕ <u>D</u> Z Д .	Todo-Eintrag Alle Einträge		
Anmelden als Strg+A	Laborwerte	*Eintrag		<u> </u>			ð Anw. ð 🔺
Beenden	Krankenkassen	Pat. in der	Sprechstunde, caro			A-VSC	H-HHE
	Anwender Betriebsstätten	(gedruckt)				A-VSC	H-HHE
	T AD					A-VSC	H-HHE
	A					A-VSC	H-HHE
	z					A-VSC	H-HHE
	ÜBERWE	IS				A-VSC	H-HHE

Assigning rubric



External links

B 8 B B Q3 - [Einstellungen bot.service-Manager ? Eormulare BG-Formulare Patienten-Ouittung über EBM-Leistungen	\$ 🛣 G				5
A Dr.med.	♀ Krankenblatt	Kartenlesegeräte Menü Mediz. Inf	2 Patientendaten 3	⊻ersicherte(r)	Abrechnungsdaten	Scheinrÿckse	ite
Name TZ	Dr.med.	Toolbar		Todo-Eintrag			
K 15:12 A	료료법육	Patientensuche Fremdanbindungen	Rubrikenabhängige	Alle Enträge	-		
K 16:00	Datum 🕹 Rut	Dokumentations-Assistent	Rubrikerunsbhängige		+ Arzt	• · · · · · ·	•
	04.07.2012	Zeitmanagementsystem	CSI O		A-VSC		_
	BL	To-Do-Listen			A-VSC		
	AB	Privatliguidation			A-VSC	H-HHE	
	A	BG-Abrechnung (R1) Chefarztabrechnung			A-VSC	H-HHE	
	Z	BG-Chefarztabrechnung (R3)			A-VSC	H-HHE	
	ÜB	Kostenträgerabrechnung			A-VSC	H-HHE	18
	B	Kassenbuch			A-VSC	H-HHE	1
	Т	Statistiken	-		A-VSC	H-HHE	∥D0
	D	Labor	•		A-VSC	H-HHE	
		Recal					li
	09.07.2012	Konfiguration Nachrichten Konfiguration arriba Konfiguration ixx.servicecenter					AN



Creating new external link

Modulte 00000012350 •	Beschrebung digipal Zeigen	
Automyp	EXE 💽	
Brogramm / Programmbiliicthek	C TO CONCEPTIBE APPERUNDO T EXE	
Brogramm / Programmbiliothek	CINCONCEPTIDEAPPSRUNDDT.EXE	
grogrømn / Progrømnbålisthek Perageter	C GOORDFOOLAMPRILACOT EXE Owner A Owner A Owne	

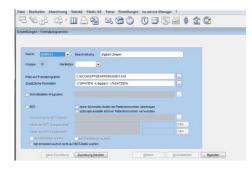
Configuring calling in general

8 B	\$ \$\$ - [bg-ronnuare	G		
Mittwoch, C	04.07.2012	P	Patienten- <u>Q</u> uittung über EBM-Leistungen Kartenlesegeräte			
🕎 Bestellte Patien	ten 👻	Krankenblat	Menü Mediz. Inf	Patientendaten	2	Patientendaten 3
Name	TZ	Dr.med.	Toolbar		F 1	
F	07:00 ^	8 4 6 8 A	Patientensuche		Alle Einträge	_
F	07:10		E Fremdanbindungen		Alle Dinosge	•
F	07:15	Datum 😽 Rubrik	Dokumentations-Assistent	Rubrikenunabhängige		
F	07:20	25.02.2010 PRA	XC Zeitmanagementsystem		_	
F	07:35	DA	To-Do-Listen			
к	08:15	DAB				
F	13:35	0/10	Envatiguidation			
F	15:15	14.09.2010 SH A	BG-Abrechnung (R1)			
F	15:20	14.09.2010 SH /				
к	16:30		BG-Chefarzt <u>a</u> brechnung (R3) Kostenträgerabrechnung			
			Kassenbuch			
			Statistiken Labor			
		24.01.2011 DA	Fanoi			
		DAB	Recall			
			Konfiguration Nachrichten			
		14.02.2011 PRA	Konfiguration arriba			
		09.09.2011 PRA				

Selecting rubric

ellungen - Fremdprogramme Rubrik Kin v KISDOKU v					
KISDOKU .					
KISDOKU .					
KISDOKU .					
	Beschreibung	Arztbrief			
Gruppe DIGWL ID					
DIGPU					
Plad auf FALLOOD					
Zusatzici DiGPCD					
Schutteries Programs					
(B07//		e Nation bei Patient			
			01080		
				Filter	
Neme der SOT-Erigebedetel				Filter	
Bei erneuten Aufruf nicht auf	inst Fremberop				

Entering calling in general



Polling settings for reverting entry

Einstellungen des	GDT-Servers			×
Allgemeine Einstel	lungen Gerät GDT-Client			
Importmasken ur	nd Verzeichnis			
Maske	Verzeichnis	Interval	Klasse Typ	Kennung 6300
*.gdt	c:\programme\custo med\temp\	4500	Natse Typ	Kennung 6300
".gdt	c:\programme\custo med\temp\	4500 4500		
'.gdt '.gdt	c:\programme\custo med\temp\ c:\IB\ncs	4500		lufu00
CONCDIGI."	C:\digipa\\digipa\\GDT	4500		101000
Pfad und Mas	ke ändern		2	1
Maske	Abfrageintervall in ms			
CONCDIGI.*	4500			
· ·	1			
Pfad C:\digipaX\dig	nine)GBDT			
Spezielle Num	nerkreise:			
Klasse T	qu			
Gerätekennun	g (Einstellung f. Stammdaten anfordern)			
	•			
	ſ	OK	Abbrechen	
		UK.		
				-
			0	K Abbrechen



9.1.6 Connecting Quincy

Connecting to the Quincy clinic management software can be done independently if the system administrator is not present.

ne		eburtsdatum Alter	Status	Kasse: 61125	Kassenart		Scheine PG Straße			
azi, Imer	Arbeitsplatz	0.04.1960 48 Jahre	Mitglied	AUK Baden-	württemb R / AOK	BMÄ	Im Gaise	graben 17 ×		
nerkungen		einstellungen	~		• •			<u> </u>	-	
Programmans 10	chlüsse		_	-					_ _	
4	ommentar	Programmaufruf	Datenverz	statuate	Anschlußart	Kennwort	Arbeitsverzeichnis	Übergabedatei		
	mmeritar menteneinnänne		Datenverz	0/2097/225	Funktion	Kennwolt	Arbeitsverzeichnis	Obergabedater		
	Ris GDT-Apsoble			Thuse	Let ing from			×		
Nachricht an DIGIPAX1	ar Menü									
	Bezeichnung des	angeschlossenen Programme	s/Gerätes		Kennung von OU	INCY WIN (4 Buchsta	ben zur Bildung der Dateir	ameni		
AMIS Plus	Röntgen				QWIN	nach wira (a buchsid	ben zur bildung der batei	lamony		
	GDT-ID des Frem	dorogrammes			- Linner	ndorogramme (4 Buck	istaben zur Bildung der Da	(nemeniet		
		obligatorisch, dient der Identif	ikation des Anschlu	29221	DIGI		and any doi by			
	1	eschlossene Gerätesoftware			1					
		sene Programm kann als Serv		en. 🔻	🛛 🔽 Austauschdat	eien mit einer laufende	n Nummer versehen			
	and the second s	programms mit kompletter Pfac			Sonderoption	dieser Aufruf soll kein	en Neubefund auslösen			
	-	jogramms mic Kompletter Frac igipax\digipax.exe	Jangabe		Sonderoption: alle Dateien in den Briefkastenverzeichnissen akzeptieren					
	C:\GDT	hnisses für den Datenexport			Sonderoption: ab	weichender Programm	aufruf für Aufruf aus der Ka	artei		
	1 States and a second									
		hnisses für den Datenimport			Sonderoption: ab	weichende GDT-Anfor	derungsdatei bei Aufruf au	is Kartei		
202	C:\GDT									
		hrensspezifische Kennung			C QUINCY WIN	wartet bis es manuell	wieder aktiviert wird			
	ALLG00				🔲 bei Stammdat	enübergabe mehr Info	mationen (z.B. Kasse) mitg	geben		
					ANSI Zeicher	isatz verwenden (sons	t DOS-ASCII/OEM)			
					🖵 Karteieintrag r	nur neu erzeugen, wen onst alten Eintrag aktu	n dieser noch nicht			
					' vorhanden, so	onst alten Eintrag aktu	alisieren			
	41-1		114-	N/ml	testes 1	V-1				
	Abbrec	nen <u>F</u>	life	Vorlage	aden als	⊻orlage speiche	rn <u>S</u> peiche	m		
				-					1	
		a		Ó/	ป					
		e e e e e e e e e e e e e e e e e e e		lo Io	Ψ					
A	bbrechen	<u>H</u> ilfe		Ansch	lüsse	S <u>c</u> haltfläch	en	<u>S</u> peichern		
-			BMĂ 4		Muster, A	Ifred		-		
		Diagnosed	Vex 💓	- 18 F-G0	Gol- pft			Erika Musterfrau 1234567890 7/2007		

The menu item "Administration of support files / Workstation settings", then other programs (button below).

If new:

- Select empty row
- "Connect" button
- Choose the other program with GDT connection

To modify job:

• Click the row number

Setting for connections should be done as shown in the above illustration.



In digipaX it is necessary to set the incremental extension of data.

			Administrator :: GDT			
nations about clinic and physician	Identification				aund. after job X Collect jobs of mage	
preview	GDT-ID: DIGIPAX		Abbreviation: DIGI			
oard						
informations	Communication					
informations ay / scout lines	Import directory:	C:\gDT				
ram	Export directory:	CIMEDI				
anagement				0.0.10		
acquisition						
		-				
		-		export.gdt		
nistrator	Check interval in seconds:	10				
e	Readout delay in miliseconds:	0	\$			
nary surgeon	Administrator :: 60T Identification GOTED: [DIGIPAX Administrator :: 60T Expert dectory : Communication Import dectory : Communication Type of file: Disclose-coupt Readout delay in mileconds: Disclose-coupt Adapt field ablocation (mapping) K Create GOT answer GOT answer files can be created for automats capited mages (with this digges station) as well as for the images which have been received in the badground. Mement of creating: Construction file disclosed in antime file in addition and mage receiver If the late job is nearboy Collect jobs Import dectory: Collect jobs Import dectory: Construction file can be calculated mages (with this digges station) as well as for the images wellabe Import dectory:					
1 / network						
anagement	Adapt field allocation (mapping)				
s / IPS						
inks						
journal						
inks journal transfer		X Image acquisition and image receipt		ther events		
journal	GDT answer files can be created	Image acquisition and image receipt for each image (immediately)		ther events	X Collect jobs	
inks journal transfer	GDT answer files can be created	Image acquisition and image receipt for each image (mmediately) each series Waiting time: 3 minutes) 	immediately after job	X Collect jobs	
s links journal transfer	GDT answer files can be created	Image acquisition and image receipt for each image (immediately) each series Waiting time: 3 minutes \$ examination Waiting time: 10 minutes \$) 	immediately after job	X Collect jobs	
e links journal transfer	GDT answer files can be created	X Image acquisition and image receipt If or each image (mmediately) each series Waiting time: [3 minutes] examination Waiting time: [10 minutes] if the last job is ready) 	immediately after job	X Collect jobs	
i Inks pounal transfer al	GDT answer files can be created	X Image acquisition and image receipt If or each image (mmediately) each series Waiting time: [3 minutes] examination Waiting time: [10 minutes] if the last job is ready) 	immediately after job	X Collectjobs	
links journal transfer al	COT answer files can be created Moment of creating:	X Image acquisition and image receipt If for each mape (immediately) each series Waiting time: 3 minutes examination Waiting time: 10 minutes if the last job is ready ask user before creating) 	immediately after job	X Collect jobs	
i his journal and f rocessing	COT answer files can be created Moment of creating:	X Image acquisition and image receipt for each image (immediately) each series: Watting time: [3 immutes \$\overline\$ examination Watting time: [3 immutes \$\overline\$ if the last job is ready ask user before creating eautomatically (according to mode)		her events	X Callectjobs	
links journal transfer al	COT answer files can be created Moment of creating:	M Image acquisition and image receipt for each image (immediately) ends retrieved. Waiting time: <u>10 minutes</u> examination Waiting time: <u>10 minutes</u> for last top is ready ark user before creating automatically (according to mode) this comment text in answer file:		her events	¥ Collect jobs	
Inis jound al 4 processing port	COT answer files can be created Moment of creating:	M Image acquisition and image receipt for each image (immediately) ends retrieved. Waiting time: <u>10 minutes</u> examination Waiting time: <u>10 minutes</u> for last top is ready ark user before creating automatically (according to mode) this comment text in answer file:		her events	X Collect jobs	
Inis jound al 4 processing port	COT answer files can be created Moment of creating: Entry in comment field (6227):	Image acquisition and image receipt for each mage (immediately) each series Wating time: <u>1 minutes</u> continuition Wating time: <u>10 minutes</u> if the last poli sready akuser before cready automatically (according to mode) this comment text in answer file: add additional tage:		her events E immediately after job after import of image ere are new images available	X Collect jobs	
Inis jound al 4 processing port	COT answer files can be created Mament of creating: Entry in comment field (6227): Characteristics field:	X: Image acquisition and image receipt If for each mape (immediately) each series ymmutes each series ymmutes of the last job is ready a durametion ymmutes a autometical (according to mode) this comment text in answer file: add additional tags: Type of examination carried out:		fer events i innediately after job after import of mage ere are new images available LG00	X Collect jobs	
Infis pormal al 4 processing port st g CD /DND ~	COT answer files can be created Mament of creating: Entry in comment field (6227): Characteristics field:	Image acquisition and image receipt for each mage (immediately) each series Waiting time: <u>1 minutes</u> each series Waiting time: <u>10 minutes</u> if the last pol is ready ak user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of examination carried out: IBM CP 437 (DOS)		fer events i innediately after job after import of mage ere are new images available LG00	X Callect jobs	
Inits sound al 4 9 port st g CD / DVD	COT answer files can be created Moment of creating: Entry in comment field (6227): Characteristics field: Set of characters:	Image acquisition and image receipt for each mage (immediately) each series Waiting time: <u>1 minutes</u> each series Waiting time: <u>10 minutes</u> if the last pol is ready ak user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of examination carried out: IBM CP 437 (DOS)		fer events i innediately after job after import of mage ere are new images available LG00	X Collect jobs	



9.1.7 Connecting ALBIS

9.1.7.1 digipaX settings

Configuration in digipaX should be done as shown in the illustration below:

					Configuration
r			Administrator :: GDT		
rmations about clinic and physician	Identification				
r interface	GDT-ID: DIGIPAX		Abbreviation: DIGI		
ge preview					
board	Communication				
e e informations	Import directory:	C:\digipaX\digipaX\digipaX\GDT			
: informations ay / scout lines	Export directory:	C:\digipaX\digipaX\digipaX\GDT			
ram]
anagement	Type of file:	 fixed GDT file extension (".gdt") 	 incremental file extension (".001" - ".999") 		
acquisition	Import file:	DIGIxxxx.gdt	e.g.: DIGIXXXX.003	import.gdt	
	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt	
	Check interval in seconds:	10	•		
nistrator	Readout delay in miliseconds:	0	\$		
	Log:	log content of files			
ary surgeon					
l / network	Adapt field allocation (mapping)				
anagement					
	Create GDT answer				
	GDT answer files can be created f		 as well as for the images which have been received 	d in the background.	
s / IPS		Image acquisition and image receipt	ot	her events	
acquisition		O for each image (immediately)			
e links	Moment of creating:	each series Waiting time: 3 minutes	×	immediately after job	 Collect jobs
journal	Former of deburg.	O the study Waiting time: 10 minutes			
tCD		O if the last job is ready	×	after import of image	
transfer		C II the last job is ready			
		ask user before creating			
	Entry in comment field (6227):	 automatically (according to mode) 			
al		 this comment text in answer file: 	Nes	w images exist.	
		add additional tags:			
4					1
processing	Characteristics field:	Type of study carried out:	ALL	LG00	
port	Set of characters:	 IBM CP 437 (DOS) 	01	ISO 8859-1 (ANSI)	
st	Rear ins an assure in CDT shade	d: require (despite whether a request has been	made to this sustant as not)		
	Require an answer in GDT standar				
		Recipient ID:	Red	pient abbreviation:	
Administrator login	Import	Export Info			Save

9.1.7.2 Settings in ALBIS

First, it is necessary to close all of the open tabs using "View/ Close all".

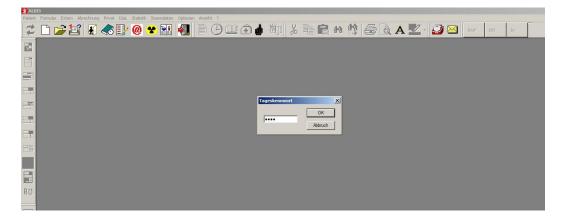
			n / 01.01.2000 / AO							
1				L Statistik Stammdaten Optionen					1	- E
2		1	0 📣 🛃	@ 😤 🔝 🛃 🛽	✓ Statuszele		🗟 🗛 🗹 ·	brief	bild	bv
	Kartekarte		alle	╺╴┍┛┎╺╓╹	Nur Stammdaten Geteilt Nur Dokumentation	Strg+Alt+X Strg+Alt+Y Strg+Alt+Z				
8	20030 01.0	1.2000		Mitglied (BMÄ), West	Filterregister anwählen	Strg+Alt+Shift+C				
	Name, Vomame, Ges Test, Toni (r			AOK Niedersachsen	Überlappend					
	Adresse	,		Vers-Nr.	Nebeneinander					
				- Einlesedatum (Gültig)	Symbole anordnen Verankern	,				
	Tel. :			fehlt (-)	Alle schließen					
	Arbeitgeber			Ent/errung	✓ 1 20030 / Test, Toni / m / 01.01.2000 / AOK Ni	iedersachsen				
	Hausarzt			Zuständiger Arzt						
P	-									
23	<u>.</u>	6		, 		18	1			
HMU	alle Anamnese			Leistung Rezepte Therapie Rönt	en Ascan					
13 a	28.10.2011 fau		1 Tag, 28.10.2011	(Erstbescheinigung)						
	fakū	r i	Antrag auf Kosteni	übernahme Muster 56						
RÖ	02.11.2011 fhv1:	3	E-VO							
	20.12.2011 brief	٥								
	07.02.2012 b	-	AA-Schulter-E	Befund re/li: Nackengriff	verzögert; Schürzengriff verzö	ge				
			HWS: LR/RR	50-0-50 , LN/RN : 25-0-2	5,Kinn-Jugulum-Abstand 5 cm,	Reklin				
	brief	n	nicht definiert							
		D1								

The ALBIS settings are available in the menu "Options/Service/External programs ...".



💈 ALBIS			<u>_ 8 ×</u>
Patient Formular Extern Abrechnung Privat IGeL Statistik Stammdaten Optionen	Ansicht ?		
	gulanten-Pass	👬 🏥 🧟 👌 🔽 - 🥥 🖂 🔤 666. 6	
Arbeite Arzthie Aufrah			
Bidvorla			
Biometri Com EL Cardoba			
CSD Pat	tenten Langzeitstudie V		
ET Diagnos DMP-As eGK			
Formula	,		
Hubber HZV Ifap	suchsmodul		
ifap imp	fCENTER IC		
IQ-Pre Karteka Kasent	arte		
Ridi Labor	Alle Indizes löschen		
OPS	hten / Kommunikation Datenbarkeditor Datenbarkeditor enfenster		
Praxige	ebühr Diagnosen P		
Program	puldation Export Externe Programme Freischaltungen		
	INI-Editor		
Rontiger Schen- Schrifta Scher Statesk	Installation		
Stempel	Manuelle Lizenzierung I Patienten zusammenführen		
Verordn Versorg	ungen Update		
Wartzi Zeitinte	nmer Verax Informationen rvalle Verzeichnisse		
Externe Programme einbinden	g Verzeichnisse externer Programme		08 2012

A single-day password is required for external program settings. In order to get the password, it is necessary to contact ALBIS.



Upon expiry of the external program use period, it is also necessary to contact ALBIS.



& ALBIS	
Patient Formular Extern Abrechnung Privat IGeL Statistik Stammdaten Optionen Ansicht ?	
🔁 🗅 🚄 🔛 🐟 🗗 🥘 😤 🛐 🗐	🔐 🕣 🧑 🐰 🔓 🔓 🛤 🏥 🎒 💁 💁 🗛 👱 🔛 🗤 👘
=	
	Externe Programme
	Meriväelträge: Einfügen Höher OK
	Löschen Tiefer Abbruch Hife
	Befeht Übergabedateien
	Befehi ALBIS
	Merrik Param A. De Freschaltung für dEnfügen externer Programme genehmigen / für 55-4, (0)-44-1), 374+40000 lauft in 3 Tagen aust D. b. die Fregeschaltete
	Atbeits Funktion steht timen nach dem 05.08.2012 nicht mehr zur V Karteik Verfügungt
RØ	Status: Bitte nehmen Sie Kontakt zu Ihrem ALBIS Vertriebs- und age Servicepartner auf.
	Program
	Aktion bei erneuter Valkionung: Nicht übernehmen
8	

Creating a job:

fenüeinträge:				
Digipax	A	Einfügen	Höher	OK
Import PatCD imp		Löschen	Tiefer	Abbruch
	-			Hilfe
Befehl:	C:\digipaX\digi)bergabedateien Aufruf C Ohne C	GDT 6301
Menútext:	Digipax		 ○ BDT (7/92) ○ ○ BDT (2/94) ○ 	Office-Dokument GDT 6302
Parameter:			C BDT (Mix) C C Convis C	Diabetes BDT 2.0 GDT 6301 + 6302
Arbeitsverz. (\$VERZ): Karteikartenkürzel: Statuszeilentext:	C:\digipaX\digip digi		Untersuchungsart: Allergologie, allge	ALLE00 💌
Ausführung:	C immer	Patient aktiv	Dateibezeichnung (C:\digipaX\digipa>	and the second se
16 Bit Windows- Programm	Programmen	de abwarten	Rückgabe C Ohne C BDT/ Dateibezeichnung C:\digipaX\digipa> Aktion bei erneuter	'GDT (\$EIN):
			Neuen Eintrag erz	eugen 💌

Command line: C:\digipaX\digipaX\albis\start.bat (\$AUS): C:\digipaX\digipaX\gdt\digialbi.gdt (\$EIN): C:\digipaX\digipaX\GDT\albiDIGI.gdt

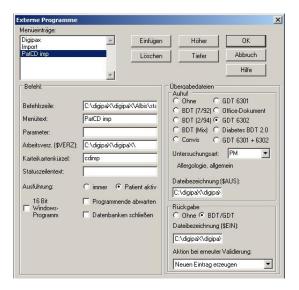


File import (wound documentation):

Digipax Import	*	Einfügen	Höher	OK
PatCD imp		Löschen	Tiefer	Abbruch
	-			Hilfe
Befehl: Befehlszeile: Menütext: Parameter: Arbeitsverz. (\$VERZ): Karteikartenkürzet: Statuszeilentext: Ausführung:	C:\digipaX\digip Impot C:\digipaX\digip Imp C immer	paX\albis\ste c paX\albis\ste c c c c c c c c c c c c c c c c c c c	BDT (7/92) C BDT (2/94) C BDT (Mix) C	Diabetes BDT 2.0 GDT 6301 + 6302 IMP • emein (\$AUS):
16 Bit Windows- Programm	☐ Programmen ☐ Datenbanke	n schließen	ückgabe Ohne BDT ateibezeichnung NdigipaX\digipa ktion bei erneuter Neuen Eintrag erz	(\$EIN): Validierung:

Command line: C:\digipaX\digipaX\albis\start.bat (\$AUS): C:\digipaX\digipaX\gdt\digialbi.gdt (\$EIN): C:\digipaX\digipaX\GDT\albiDIGI.gdt

Import of patient-CD:



Command line: C:\digipaX\digipaX\albis\start.bat (\$AUS): C:\digipaX\digipaX\gdt\digialbi.gdt (\$EIN): C:\digipaX\digipaX\GDT\albiDIGI.gdt



9.1.7.3 Start.bat

If the GDT response file has not been received by ALBIS, digipaX may not write a new returned response. Therefore, the unnecessary GDT file must be removed prior to relaunching of digipaX. Therefore, digipaX is launched by ALBIS via a batch file.

Create folder "ALBIS" in the local directory C:\digipaX\digipaX\.

 $-> C:\digipaX\digipaX\ALBIS$

In this folder, create start.bat with following contents:

@echo off
setlocal
del C:\digipaX\digipaX\GDT\ALBIDIGI.gdt /q
start /d C:\digipaX\digipaX digipax.exe
set /P V= $<$ C:\digipaX\digipaX\GDT\DIGIALBI.gdt
echo %V%
if %V% NEQ 01380006311 goto End
if exist "C:\digipaX\digipaX\GDT\ALBIDIGI.gdt" goto End
echo 0000 > C:\digipaX\digipaX\GDT\ALBIDIGI.gdt
:End
endlocal

With the batch it is specific that ALBIS, when GDT 6311 (Show images) is enabled, awaits seemingly a response and displays a dialog box for import. In order to avoid this digipaX writes a "dummy GDT" with a content of "0000".

If the digipaX is installed in another path, the path must be adjusted in the batch file as well and put in the path separated by blank spaces or in quotation marks.

Example:

 $start \ /d \ C: \ Programme \ digipaX \ digipaX \ digipax.exe$

start /d "C:\Program Files\digipaX\digipaX" digipax.exe



9.1.8 Connecting Duria

The Duria system does not possess a polling server. The digipaX server creates incremental GDT files on a shared disk on the server (locally is not possible).

While importing into the Duria system, all GDT files are imported in one sequence with assignments to the appropriate patients.

The illustrations below demonstrate the configurations:

GDT configuration on a digipaX workstation

User 🖾			Administrator :: GDT	Configuration
Informations about clinic and physician Image preview Baseboard	Import directory: Export directory:	C:\digipaX\digipaX\GDT \\Server001\C\befund\GDT		<u>a</u>
Loupe Image informations Overlay / scout lines Histogram	Type of file: Import file: Export file:	fixed GDT file extension (".gdt") DIGEboool.gdt xooxDIGI.gdt	 incremental file extension (".001" - ".999") e.g.: DIGIxxxxx.003 e.g.: xxxxxIGL.017 	
Job management Image acquisition Other	Check interval in seconds: Readout delay in milseconds: Log:	10 0 log content of files	\$ \$	
Administrator	Adapt field allocation (mapping)			

Configuration of the worklist job in Duria

a Duria Telnet Client	
Werbindung Bearbeiten Einstellungen Duris Fanster Hilfe Hilfe 7 F2 F3 F4 F5 F6 F7 F8 F9 F10	F11 0K
Dateien erstellen	23.04.2010
Export Gerät/Typ: DIGI1 Dateiname / Port: //LOCALHOST/C:/DIGIPAX/DIGIPAX/GDT/DIGIDU 8-bit Code	
Datei-Format BDT Feldkennung,Textgruppe:	
Zeichen ersetzen: durch	
vorher Import-Programm: externes Programm: c:ÖdigipaxÖdigipaxÖdigipax.exe	
Freitext oder Anfangsbuchstaben Vorauswahlen-> ,(<>) #2 2/00	3 23.04. Kyo E
	16:27:14
	, souther /





Row configuration for creating a worklist job (6302)

r <mark>ia Telnet Clie</mark> lung Bearbeiten		luria Fenster	Hife													-
Hilfe ?	F2	F3	F4		F5	F6	F7		F8		F9		F10	F1	1 C	ж
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AB	ten Einstellungen Duria Fenster Hilfe				Pentl	ina		_			_			_		
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2 3							_							Ja	Nei	
			_				Vr.							Ja	Nei	
5 6		-												Ja Ja	Nei Nei	
7		-					1100							Ja	Nei	
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10			Ŭ		0000		1, 1							0 a		
		Korre	ktur			<mark>B</mark> rfz	assuna				T.C	isch	ien			
		area a c	II O'CL				and and									
																16

Row configuration to display images (6311)

Allen: PR	erstr. 35, 594	57 Werl	0DKM 02 PRE M			2922-9792.0 Kein Fall		
AB gesund			entling.com neitszentrum Pentling					
		1.500 411011			1			
<mark>Zeile</mark> 1	Inhalt (fix) 01380006311	ab Pos.	Inhalt (variabe	el)		Textgr.	BDT Ja	L.ze Nein
2 3	xxx8100§§§	8	Patienten Nr.				Ja Ja	Nein Nein
5	xxx3101	8	Nachname				Ja	Nein
6 7 13	xxx3102 xxx3103 xxx3110	8 8 8	Vorname Geburtsdatum Geschlecht 1/2				Ja Ja Ja	Nein Nein Nein
		1	1					1



22

Configuration in Duria for importing GDT files

📰 Duria Telnet C											
Verbindung Bearbeit						[1		1	
Hilfe ?	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	ок✔
			Date	eien ei	nlesen					23.	04.2010
Datei	.name /	t/Typ Port en		.: //SE	RVER001,	/C/BEFU		OURIDIGI . einles		Ja	
Feldk	Datei-Format BDT Feldkennung,TG.: 8402,DPAX-6227,DPAX-6201,DPAX-6200,DPAX (siehe F1).:										
Hinte	Hintergrund / Bildschirm.: Vordergrund Warte Sekunden:										
Zeich	Zeichen ersetzen: durch										
		ogramm. rt-Progi									
Freite	•xt ode	r Anfanq	gsbuchs	staben	Vorauswa	ahlen->	, (<	>) #2	2/00	3 23.0	4. Kyo E
											16:32:52 //



9.1.9 Connecting KiWi (KIND - Hearing Aids)

The illustrations below demonstrate connecting GDT to the KiWi system.

Manfred Testm	nann, Wolfsburg *12.08.1954, 55 Jahre
	0 Deuer Oisgnoten
um Arz A K 010	Kein Azzt - Bameria
	Untersuchung ALLG00 vom 29.07.2010 - LWS
	CDT - Untersuchargergebns
	Gesantergobris Details
	Datum: 23.07.2010 🛐 Uhrzeit 17:11:46 Gerälei D. DIGIPACO Art der Untersuchung ALLGOO
	Diagnose:
	Befund I
	Frendbefund.
	Kommentar:
	Ergebnie:
	Dateiarchiz.
	Signatur
	Testeinen: Messdatum TestID Bezeichnung ProbeniD Ergebnis Einheit Normwerte Ergebnis
	Iest arzeigen Untersuchung am Gerät arzeigen 🖉 Ducken 🗶 Abbrechen
-	
	Bilder/Dokumente zeigen GDT 6311
	Diraces Dukamente zeigen DD. DDir
eine 🗖 🔪 Kart	

User 🖸 📥	Administrator :: GDT							
Informations about clinic and physician Image preview Basebard Loupe Image Informations Overlay / social Ires Histogram Job margement Image Acquisition Other	Import directory: Export directory: Type of file: Import file: Export file: Check interval in seconds: Readout delay in miliseconds: Log:		incremental file extension (".001" - ".999 e.g.: DiGLooox.003 e.g.: xoox01GL 0.17 €) fød fle names mport.gdt export.gdt				
Administrator	Adapt field allocation (mapping)	automatic acquited images (via this digipax station)	is well as for the images which have been receiv	ed in the background.				
Job management GDT Caches /PS Device Inks X-ray journal Image transfer Other	Moment of creating:	Image acquisition and image recept O for each image (mmediately) (model action ac		other events immediately after job after import of image	X Collect jobs			
Log General Cache DICOM		automatically (according to mode) this comment text in answer file: add additional tags:		here are new images available				
Image processing File import		Type of examination carried out: IBM CP 437 (DOS)		LLG00) ISO 8859-1 (ANSI)				
Worklast	Require an answer in GDT standard:	require (despite whether a request has been me Recipient ID: delete attached physician number	de to this system or not)	ecipient abbreviation: KIWI				
Administrator login	Import	Export Info			Save			



GDT-Konfiguration Allgemein Schnittstellen		<u>_ ×</u>
Schnittstellenbezeichnung:	DigiPacs	
Basiseinstellungen spezielle	e Einstellungen	
WSID:	0	
_ Exportdatei (KiWi -> Gerät,	Beispiel: Satzart 6302)	
Zeichensatz:	Standard 💌	
Verzeichnis:	C:\gdt	
Dateiname:	digikiwi.gdt	
Importdatei (Gerät-> KiWi,	Beispiel: Satzart 6310)	
Zeichensatz:	Standard 💌	
Verzeichnis:	C:\gdt	
Dateiname:	kiwidigi.gdt	
Kennfeld:	ALLG00	
⊕ Schnittstelle <u>e</u> infügen	🖉 Schnittstelle Jöschen 🛛 🔚 Speichern 🗶 ,	Abbrechen

Schnittstellenbezeichnung: DigiPacs Basiseinstellungen spezielle Einstellungen Schnittstelle: ✓ Aktiv Hochgählend Untersuchungsanforderung automatisch erstellen ✓ Untersuchungsengebnisse automatisch einlesen ✓ Untersuchung vom'' in Karteikarteneintrag einfügen GDT-ID Gerät: DIGIPACO Test-ID neue Untersuchung Eintrag Karteikarte: Karteikarte ergänzen um: Kommentar	GDT-Konfiguration	
Schnittstelle: ✓ Aktiv Hochgählend Untersuchungsanforderung automatisch erstellen ✓ Untersuchungsergebnisse automatisch einlesen ✓ "Untersuchung vom" in Karteikarteneintrag einfügen GDT-ID Gerät: DIGIPACO Test-ID neue Untersuchung: Eintrag Karteikarte: Karteikarte ergänzen um: Kommentar	Schnittstellenbezeichnung:	DigiPacs
 Hochgählend Untersuchungsanforderung automatisch erstellen ✓ Untersuchungsergebnisse automatisch einlesen ✓ "Untersuchung vom" in Karteikarteneintrag einfügen GDT-ID Gerät: DIGIPACO Test-ID neue Untersuchung: Eintrag Karteikarte: Karteikarte ergänzen um: Kommentar 	<u>B</u> asiseinstellungen s <u>p</u> ezielle	e Einstellungen
Test-ID neue Untersuchung: Eintrag Karteikarte: Karteikarte ergänzen um: Kommentar	Schnittstelle:	Hochgählend Untersuchungsanforderung automatisch erstellen Vitersuchungsergebnisse automatisch einlesen
Eintrag Karteikarte:	GDT-ID Gerät:	DIGIPACO
Karteikarte ergänzen um: Kommentar	Test-ID neue Untersuchung:	
	Eintrag Karteikarte:	
	Karteikarte ergänzen um:	Kommentar
Spezielle Anpassungen:	Spezielle Anpassungen:	×
Anzeige am Gerät: ['C:\digipaX\digipaX Demo\digipax.exe''	Anzeige am Gerät:	l'C:\digipaX\digipaX Demo\digipax.exe''



9.1.10 Connecting MCS Isynet (configuration with Windows terminal servers)

These instructions describe connecting of MCS using Windows terminal servers. MCS works on a terminal server and from each workstation a terminal client session is run on that server to allow working with MCS. However, digipaX runs locally on each workstation. The image server is not connected to MCS. The server receives the jobs through the worklist, scans images, stores them in the archive and writes the GDT response.

9.1.10.1 Terminal server configuration:

On the server a GDT directory is required. The directory is created on "I:\" (standard path Isynet). For each digipaX station, a separate subdirectory should be created. Responses are written directly in the GDT directory, which are used by all stations. Paths to individual stations may look like this:

I:\GDT\AP01 I:\GDT\AP02

•••

I:\GDT\AP05

9.1.10.2 Workstation configuration

9.1.10.2.1 digipaX

					Configuration		
User		Administrator :: GDT					
Informations about clinic and physician	Identification						
Image preview Baseboard	GDT-ID: DIGIPAX1 Abbreviation: DIGI						
Loupe							
Image informations	Communication						
Overlay / scout lines	Import directory:	I:\GDT\AP01					
Histogram	Export directory:	I:\GDT					
Job management Image acquisition	Type of file:	 fixed GDT file extension (".gdt") 	 incremental file extension (".001" - ".999") 	fixed file names			
Other	Import file:	DIGIxxxx.gdt	e.g.: DIGIxxxx.003	import.gdt			
	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt			
Administrator	Check interval in seconds:	5	-				
License	Readout delay in miliseconds:		\$				
Veterinary surgeon	Log:	log content of files					
DICOM / network	Adapt field allocation (mapping) -						
Job management GDT							
Caches / IPS	Create GDT answer						
Device links	GDT answer files can be created for	r automatic acquited images (via this digipax station)	as well as for the images which have been receive	d in the background.			
X-ray journal		Image acquisition and image receipt	10	ther events			
Image transfer		for each image (immediately)					
Other	Moment of creating:	● each series Waiting time: 3 minutes 🚖		immediately after job	Collect jobs		
Log		🔘 examination Waiting time: 10 minutes 🌲		after import of image			
General		O if the last job is ready		, and importantinge			
Cache		ask user before creating					
DICOM							
Image processing	Entry in comment field (6227):	 automatically (according to mode) this comment text in answer file: 	-				
File import Worklist			(Th	ere are new images available		H	
GDT		add additional tags:					
Print	Characteristics field:	Type of examination carried out:	AL	LG00			
burning CD / DVD	Set of characters:	 IBM CP 437 (DOS) 	0	ISO 8859-1 (ANSI)		•	
Administrator login	Import	Export Info			Save		
						8	

GTD-ID should be the same for all stations, because MCS works while creating files with predefined templates. For each station the import directory should be modified. The export directory is the "I:\GDT" directory. As the incremental file extension file types are used. Stations save the response only in the case of patient's CD import. For the character set use IBM CP-437. digipaX must be in the system tray and should launch on system start up. The im-



port directory is monitored and digipaX launches itself when a GDT file is created in the directory.

9.1.10.2.2 MCS Isynet:

In Isynet, 3 buttons are required: "Create a job", "Show image" and "Load patient's CD." The above mentioned templates are used for this.

3 buttons need to be configured individually for each station using the "Online service management." Also here, the GDT directory must be modified for each station. The GDT file name for digipaX is set permanently as "digiisyp.001" (the basis for the 001 is an incremental extension of the file in digipaX).

For the GDT file, specify the template (here, "worklist.tpl").

The import directory for the response is "I:\GDT." The file name is isypdigi.* and as a template the file "rueck.tpl" is used. Responses need to be configured only on one station. Only it controls the import directory.

Direktsuche: Pat-CD	Direktsuche: Zeigen
Onlines	Onlines
Online OnlineNummer: 1 Arbeitsplatz: 1 FAktiv V ASCII-Format	Online Online Arbeitsplatz: 1 Aktiv V ASCII-Format
Suchwort: Pat-CD	Suchwort Zeigen
Beschreibung:	Beschreibung:
Export Dateiname: [:\GDT\AP01\digityp.001	Export Dateiname: [I:\GDT\AP01\digityp.001
Vorlage: [:\W/INACS\VORLAGE\patcd.tpl >> Bearbeiten	Vorlage: [I:\//INACS\VORLAGE\zeigen.tpl >> Bearbeiten
Programmdatei: >>	Programmdatei
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
Dateityp: Datei überschreiben V Scheinaktivierung	Dateityp: Datei überschreiben 🔻 🔽 Scheinaktivierung
Dateiname: testen	Dateiname testen
Volage: >>> Bearbeiten	Volage: >> Bearbeiten
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
vy, rokaci(son) ✓ immerlöschen	igner instantial (solid) □
	Ta muru vastan
Q → Pa a Bernehmen Hite	Q + Pa a Ubernehmen Hille
	<u> </u>
Driektzuche: Worklist Online Online Online OnlineNummer: 1 Arbeitsplatz: 1 FAktiv AsCII-Format Suchwort: Worklist Beschreibung:	Direktsuche: Rückantwot Onlines Online Online Online Online Atbeitsplatz 5 V Aktiv Aktiv ASCII-Format Beschreibung
	1
Export Dateiname: I:\GDT\AP01\digityp.001	Export Dateiname:
Vorlage: I:\WINACS\VORLAGE\worklist.tpl >>> Bearbeiten	Vorlage: >>> Bearbeiten
	Programmdalei >>
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
Dateityp: Datei überschreiben 💌 🗖 Scheinaktivierung	Dateityp: Datei überschreiben 🔽 🗖 Scheinaktivierung
Import	Import
Dateiname: testen	Dateiname: It/GDT/isypdigi.*testen
Vorlage: >>> Bearbeiten	Vorlage: I:\WINACS\VORLAGE\rueck.tpl >>> Bearbeiten
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
✓ immer löschen	immer löschen
Q + Pa D DK Abbrechen Übernehmen Hille	Q Abbrechen Übernehmen Hite



To be able to re-call the images with double click at the revertive entry in the record card, the entry in MCS database is needed. In order to do this, "KRABLMEMO" must be entered in the "dbo.krablfeld" table after "Show digipaX".

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🏥 📧 🔠 Typ ändern 🕶 🕴 🔫 🛛 🕼 📩	1 s											
-Explorer - A X	W2K3.WINACS -	dbo.KrablFeld Deta	ils zum Objekt-Exp	olorer							• X	Eigenschaften -
nden 🕶 📑 📰 🖤	Nummer	Suchwort	Satzart	Kategorie	SymbolNummer	KategorieLangt	ProgrammName	FixedFont	Format	Maske	ZielTabelle 📩	[Abf] Query
🕑 🔝 dbo.lfappers 🛛 🔺	258	FREI REZ	100088	REZ	0	Rezept		False			-	21 0
I dbo.IFFeld	23	Röntgen	8000	RŐ	0	Röntgen	@ao DigiPAXzeigen	False			KRABLMEMO	⊟ (Identität)
dbo.IFVorlage	260	FREI_OPTAG	100102	OPTAG	0	Operations-Tag		False				(Name) Query
	261	FREI_OPBEZ	100099	OPBEZ	0	Operation		False			the state of the state	Datenbankname WINACS
doo.images doo.importKonfig					18							Servername w2k3
do.ImportKonfigSpake	262	FREI_OPOPE	100101	OPOPE	0	Operateur		False				Abfrage-Designer
	263	FREI_OPASS	100098	OPASS	0	OP-Assistenz		False				Abfrageparameterli Für diese Abfra
dbo.ImportNDTDatei	264	FREI_OPNAR	100100	OPNAR .	0	Anästhesie		False				Alle Spalten ausgeb 3a
🗉 🛄 dbo.ImportProtokoli	265	FREI_OPLAGE	100108	OPLAGE	0	Lagerung		False				DISTINCT-Werte Nein
I dbo.ISoftCCPBefehle	266	FREI OPAN	100097	OPAN	0	Anästhesist		False				GROUP BY-Erweiter <keine></keine>
E dbo.IsyDokuMandantModul	267	FREI_OPBLUT	100109	OPBLUT	0	Blutsperre		False				E Oberste Angabe Nein
dbo.IsyDokuModule dbo.KaBuKassenbuch												SQL-Kommentar
 dbo.KabuKassenbuch dbo.KaBuKassenbuchMandanb 	268	DCDMPTEDMPI	48200	DCDMP	0	indikationsüberg		False			KRABLMEMO	Zieltabelie
do.KaBuKassenbuchmandario do.KaBuKassenbucher	269	DCDMPEHKS	48220	DCDMP	0	Früherkennung	@AO DCDMP	False			KRABLMEMO	
do.KaBuKategorien	270	DCDMP201	48240	DCDMP	0	Früherkennung	@AO DCDMP	False			KRABLMEMO	
dbo.KaBuKategorienBuchungst	271	FREI CHIRO	100110	CHIRO	0	Chirotherapie		False				
🛞 🔝 dbo.KaBuKategorienMandante	272	ISYDOKUMA	71000	MAKRO	0	Workflow		False				
🖅 🛄 dbo.Kartenleser			70300		0	Rechnung §116b		False				
🗄 🛄 dbo.KasseSammelstellen	273	ABKLQ		ABKLQ								
dbo.KategorieAuswahl	274	ABKS	70400	ABKS	0	Gutschrift/Storn		False				
do.KBVPrüfnummer do.Kennziffern	275	ABKFS	70500	ABKFS	0	Falstorno §116b		False				
H doukenzifenDetail	276	LAN	9600	LAN	0	Laborauftrag		False				
dbo.kISEventLog	277	HeiRezSSST	2090	R	0	Rezept für Stim		False				
🗄 🛄 dbo.kISFall	278	PIALO	70600	PIALQ	0	Rechnung 6118		False				
🗄 🛄 dbo.kISFalBesuche 👘	279	PIAS	70700	PIAS	0	Gutschrift/Storn		False				
E dbo.kISFalBesucheProt												
dbo.kISFalDiagnosen	280	PIAFS	70800	PIAFS	0	Fallstorno §118		False				
do.KISFalHistorie do.KISFalinformation	281	SPZLQ	71100	SPZLQ	0	Rechnung §119		False				
dbo.KISFallProzeduren	282	SPZS	71200	SPZS	0	Gutschrift/Storn		False				
do.KIS/ air ozedulen	283	SPZFS	71300	SPZFS	0	Fallstorno §119		False				
doc.KissFallChangeLog	284	5M5	9700	SMS	Ó	SMS		False				
🗉 🔄 dbo.KISStationMapping	285	DIKT	12100	DIKT	0	Diktat		False				
I dbo.KKDlagnosenSort	to a second s				1.5						KRABLMEMO	
Image:	286	FREI_PACS	100111	PACS	0	DigPAX	@ao DigiPAXzeigen					
dbo.KKWerkzeugToolbar dbo.kKWerkzeugToolbar	* 1000	NERL	NULL	ARRI	MAL	NULL	ARRI	MAL	NULL	ARRI	MAL _	
	and and			-							*	GROUP BY-Erweiterung

9.1.10.3 Image server configuration

				Confi	guration		
User			Administrator :: GDT				
Informations about clinic and physician	Identification	dentification					
User interface	GDT-ID: DIGIPAX1	DTHD: DtGIPAX1 Abbreviation: DtGI					
Image preview	GDT-ID: DIGIPART						
Baseboard	Communication						
Loupe	Turner deserves						
Image informations	Import directory:	C:\digipaX\digipaX\GDT					
Overlay / scout lines	Export directory:	I:\GDT			<u>í</u>		
Histogram	Type of file:	 fixed GDT file extension (".gdt") 	 incremental file extension (".001" - ".999) 🔿 fixed file names			
Job management	Import file:	DIGIxxxx.gdt	e.g.: DIGIXXXX.003	import.gdt			
Image acquisition	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt			
Other	Check interval in seconds:			Copperagae			
Administrator	Readout delay in miliseconds:						
License	Log:	log content of files					
Veterinary surgeon	Adapt field allocation (mapping)						
DICOM / network Job management							
Job management GDT	Create GDT answer						
HL7		or automatic acquited images (via this digipax station) a	s well as for the images which have been receiv	and in the background			
Caches / IPS	do i answer nies can be dreated to	 Image acquisition and image receipt 		other events			
Image acquisition				other events			
Device links	Moment of creating:	 for each image (immediately) 		immediately after job Collect jobs			
X-ray journal	Moment of creating:	🔾 each series Walting time: 3 minutes 🚔					
Patient CD		the study Waiting time: 0 minutes		X after import of image			
Image transfer		ask user before creating					
Other		ask user before creating					
	Entry in comment field (6227):	 automatically (according to mode) 					
Log		O this comment text in answer file:	N	lew images exist.			
General		add additional tags:					
Cache							
DICOM	Characteristics field:	Type of study carried out:	A	ALLG00			
Image processing	Set of characters:	 IBM CP 437 (DOS) 		ISO 8859-1 (ANSI)			
File import	Require an appropriation CDT standar	d: 🕱 require (despite whether a request has been ma	de to this sustem or pot)		U		
Worklist	Require an answer in GDT standar	Recipient ID:		and the second second			
GDT A			Re	ecipient abbreviation: ISYP			
lun .		delete attached physician number					
Administrator login	Import	Export Info			Save		
					8		

The image server is not actually connected to MCS, but here also an Isynet directory on the terminal server is connected to a network drive "I:\" and the export directory is set to "I:\GDT". A response file is saved after image acquisition, when the last job is completed and when the image is imported. The forced GDT response function must be active and set as a ISYP recipient shortcut.



As a result, all digipaX stations receive the GDT file for all 3 activities in its own GDT directory, but only write the response when loading the patient's CD to the commonly used GDT directory as an incremental file.

The image server saves the response file when scanning and loading into the same directory. For all 3 activities, 3 buttons are available in MCS. For the buttons, you can define different symbols.

Create	e a job	Show images	(Load patient's CD
	-			
MCS-ISYNET 11.2v (6.80.17) - SQL Versi		10.100.100.99 5	X .1979 Alte	r: 32 Jahre; M] 📃 🖪 🗵
	minmanager Labor Auswertung Extras Sy	rstem Fenster Hilfe		_ 6 ×
🔟 🤔 🛎 🔊 🔊	R KH 🔍 🔍 💯 😰 질	📑 🖸 👬 📫 🖬 🔮 🚨 🕯	<u> </u>	
on 💌 🔽 13	34 Testmann, Otto	02.02.1979 AOKBadenBaden M F	Syriste (LP)	×.
Cave :			• + +	Befehl :
Allgemein Selektiv 3. Diagnoser	. 1			X
Ansicht : Alle Einträge - (11 Einträg Datum: Kategorie: Direktsur	Provide State Stat			
08.06.2011 Konsultationsbe				
Datum Kategorie Onlines	1			
NE 09.00 2011 KPEM	Nummer: 1 Arbeits	platz: 1 Aktiv	ASCII-Format	
	uchwort: Worklist	and b.		-
KBEM Besch	reibung:			
AND AND A	1			
24.08.2004 AKTAM Export	teiname: I:\GDT\AP01\digiisyp.001			
00.11.2001 FRLQ	Vorlage: I:\WINACS\VORLAGE\worklist.tpl		>> Bearbeiten	1
L 27.07.2001 GKS Program	nmdatei:		>>	
	Typ: Textdatei (ASCII)			
		cheinaktivierung		
PN3 Import				
Dab	teiname:		testen	
N 1	Vorlage:		>> Bearbeiten	
	Typ: Textdatei (ASCII)			
	🔽 immer löschen			
		or Laborator L (here		
<u> </u>		<u>OK</u> <u>Abbrechen</u> <u>Uberr</u>	hehmen <u>H</u> ilfe	
P				
	<u>b</u> 44		ОК АЫ	orechen Übernehmen Hilfe
Direktsuche	@ 08.06.2011 14:50 MCS Anmel	ldung 1 📑 (134) Testmann, Otto 32J 4M 6T N/N	100	
Agstart 📔 🚠 😖 🍃 🕼 💺				DE 🎗 🍽 👘 🔥 14:50 📰



9.1.10.4 Templates

Templates are simple text files with "tpl" extensions. They can be edited using an editor, demonstrated in the 4 following examples:

worklist.tpl

show.tpl

patcd.tpl

	1	
*** Create GDT worklist ***	'*** Show GDT images ***	'*** Read GDT Pat CD ***
[@SL]80006302	[@SL]80006311	[@SL]80006302
[@SL]8100[@FL]	[@SL]8100[@FL]	[@SL]8100[@FL]
[@SL]8315DIGIPAX1	[@SL]8315DIGIPAX1	[@SL]8315DIGIPAX1
[@SL]8316MCS-ISYNET	[@SL]8316MCS-ISYNET	[@SL]8316MCS-ISYNET
[@SL]8402WL	[@SL]92180100	[@SL]8402PM
[@SL]92180100	[@SL]3000[3000]	[@SL]92180100
[@SL]3000[3000]	[@SL]3100[3100]	[@SL]3000[3000]
[@SL]3100[3100]	[@SL]3101[3101]	[@SL]3100[3100]
[@SL]3101[3101]	[@SL]3102[3102]	[@SL]3101[3101]
[@SL]3102[3102]	[@SL]3103[3103]	[@SL]3102[3102]
[@SL]3103[3103]	[@SL]3104[3104]	[@SL]3103[3103]
[@SL]3104[3104]	[@SL]3105[3105]	[@SL]3104[3104]
[@SL]3105[3105]	[@SL]3106[3106]	[@SL]3105[3105]
[@SL]3106[3106]	[@SL]3107[3107]	[@SL]3106[3106]
[@SL]3107[3107]	[@SL]3108[3108]	[@SL]3107[3107]
[@SL]3108[3108]	[@SL]3110[3110]	[@SL]3108[3108]
[@SL]3110[3110]	[@SL]3622[3622]	[@SL]3110[3110]
[@SL]3622[3622]	[@SL]3623[3623:/ 1000 # 000]	[@SL]3622[3622]
[@SL]3623[3623:/ 1000 # 000]	[@SL]3628[3628]	[@SL]3623[3623:/ 1000 # 000]
[@SL]3628[3628]	[@SL]8402[@KKDATA MEMO.Category]	[@SL]3628[3628]
	'*** Category can vary, see Return	
	[@SL]8432[@KKDATA MEMO.Date]	
	[@SL]8439[@KKDATA MEMO.Time]	
	[@SL]6200[@KKDATA MEMO.Date]	
	[@SL]6201[@KKDATA MEMO.Time]	

burnpatcd.tpl

'*** Burn GDT images on CD ***
[@SL]80006311
[@SL]8100[@FL]
[@SL]8315DIGIPAX1
[@SL]8316MCS-ISYNET
[@SL]8402PCD
[@SL]92180100
[@SL]3000[3000]
[@SL]3100[3100]
[@SL]3101[3101]
[@SL]3102[3102]
[@SL]3103[3103]
[@SL]3104[3104]
[@SL]3105[3105]
[@SL]3106[3106]
[@SL]3107[3107]
[@SL]3108[3108]
[@SL]3110[3110]
[@SL]3622[3622]
[@SL]3623[3623:/ 1000 # 000]
[@SL]3628[3628]

imageimport.tpl

'*** Import GDT image/graphics ***
[@SL]80006302
[@SL]8100[@FL]
[@SL]8315DIGIPAX1
[@SL]8316MCS-ISYNET
[@SL]8402IMP
[@SL]92180100
[@SL]3000[3000]
[@SL]3100[3100]
[@SL]3101[3101]
[@SL]3102[3102]
[@SL]3103[3103]
[@SL]3104[3104]
[@SL]3105[3105]
[@SL]3106[3106]
[@SL]3107[3107]
[@SL]3108[3108]
[@SL]3110[3110]
[@SL]3622[3622]
[@SL]3623[3623:/ 1000 # 000]
[@SL]3628[3628]



respons.tlp

'*************************************
'*** Find character string '3000' on position 4 and take in the found '*** row from pos. 8 20 characters and assign them to variable "PATNR". [@PATNR:\$FIND(4,3000);8;20]
'*** Date in format DDMMYYYY [@DATUM:\$FIND(4,6200);8;8]
'*** Time in format HHMMSS [@ZEIT:\$FIND(4,6201);8;255]
 **** 8402 specific characteristic field for device or process (must be compiled as case sheet **** category in MCS-NEXUS for MCS-ISYNET). *** With the command \$MAP characteristic fields are transformed in corresponding KK categories. *** There are significantly more characteristic field existing, e.g.EKG05 etc Those are to be adjusted if need be. [@KAT:\$FIND(4,8402);8;6\$MAP "R" RÖ EKG00 "EKG" EKG01 "R-EKG" EKG04 "LZ-EKG" ERGO00 "ERGO" ERGO01 "ERGO" LUFU00 "LUFU" LUFU01 "LUFU" BDM00 "BDM" BDM01 "BDM"]
'*** Find all rows with character string '6228' (tabular text) '*** on position 4 and take all in the found rows from pos. 8 to the '*** row end (255) and assign it to variable "TEXT". [@TEXT:\$FIND+(4,6227);8;255]
'*** 6220 is result characteristic of GDT [@BEF:\$FIND+(4,6220);8;255]
'*** 6221 is foreign result characteristics of GDT [@FBEF:\$FIND+(4,6221);8;255]
'*** Variable MEMO [@MEMO:Datum(]
'*** Attach date (8432) to Variable MEMO. '*** Date can also be in another field characteristic, e.g. 6200 [@MEMO+:\$FIND(4,6200);8;255]
'*** Attach time to Variable MEMO. [@MEMO+:)[CRLF]Time(]
'*** Attach time (6201) to Variable mEMO (original value:8432) [@MEMO+:\$FIND(4,6201);8;255]
'*** Attach time to Variable MEMO. [@MEMO+:)[CRLF]Category(]
'*** Attach category (8402) to Variable MEMO. [@MEMO+:\$FIND(4,8402);8;255]
'*** Attach bracket to Variable MEMO. [@MEMO+:)]
**** Space for sequential control in MCS-ISYNET starts here \$ASS
'*** Entry of program linkage for the case sheet '*** M command for easy transfer without memo entry '*** MX command for memo entry fwd. double click from KK
'MX [KAT] Measurement [MEMO]
MX [KAT] [Date] [Time] [TEXT] [MEMO]

Symbols and templates can also be downloaded from the website <u>www.digipax.eu</u> on the "Downloads" tab.



9.1.11 Connecting ABOMED

9.1.11.1 ABOMED configuration

The settings for ABOMED must be performed on each local computer. ABOMED works solely on the network drive Z: and supports only file and directory names with max. 8 characters + 3 characters for file extension as it was with the old DOS file system (example: TEXT-FILE.TXT).

Call up the configuration by using the Z I P keys. On the page 3 there are settings for the GDT interface. A separate directory for the GDT file transfer must be established for each PC.

	stöckle	□ □ ∞ 29.08.2013
SYSTEMPARAMETER (1)	SLOCKTE	
3.0 PARAMETER ZUR ZAHLUNG		Seite 3/4 -
Übernahme der Rechnungs- daten in die Buchhaltung : Au	GDT Einstellungen	
3.1 PARAMETER FÜR DIE MAHNUNG	AIS-Kürzel ABMD Verzeichniss	Z Aktiv
Mahnung	Geräte-Kürzel DIGI Zeichensatz ANSI =	laste: Alt + G
1. Mahnung nach Rechnungsdru⊄ 2. Mahnung nach 1. Mahndatum 3. Mahnung nach 2. Mahndatum	GDT-Verzeichnis Z: \abomed\gdt\PC-AMLT\ Dateiname 《Geräte-Kürzel> <ais+kürzel>.<thochzählende <br="">Modus 6302 - Neue Untersuchung anfordern</thochzählende></ais+kürzel>	*
3.2 PARAMETER FÜR IFAP-INDEX / ME	Programm Aufruf	•
ifap-PraxisCENTER inst. auf u ifap-version Browser für DOS-/Windowsbetri GDT-Schnittstelle	seecher ED: DOS : Einstellungen	Abbrechen
F1-Hilfe F2-Tasten в	ild↓/Bild† F10	-Sichern Esc -Ende

9.1.11.2 digipaX configuration

For each PC a corresponding directory must be established in the digipaX. Incremental file extensions are used. A revertive entry is not supported at present.

					Configuration
User			Administrator :: GDT		
User	Samification GDT-DC (DEC Communication Support directory : Export directory : Export file: Deck intervin in seconds: Readout delay in milleconds: Log: Adapt field allocation (inapping) Ensate GOT anomer)	2;\u00edf00TVC-444_T C:\u00edf00TVC-444_T C:\u00edf00TVC-444_T 0000000000000000000000000000000000	Abbreviation: [000] Abbreviation: [000] € incremental file extension (7.001*-*.9997) e.e.:00020000.003	food fle names (moort.git export.git	
Log Greenil Code OCCM OCCM Disky processing He moot Tops	Import	Export Info			Save
<u></u>					8



9.1.12 Connecting M1

9.1.12.1 M1 configuration

For M1 a path for the exchange directory must be configured in the registry.

a special spec		*		
Dies Bearbeten Ansicht Faverlen SSS Lids Trendfulce Werst Aufo Werst Aufo Werst Aufo Werst Aufo Merst Aufo Addy Cosses Cosses Cosses Cosses Const Cosses Const Const Const Const Const Const Cosses Const Cosses Cosse	Name	Τγρ NEG 522 NEG 522	Daten (Wort richt festgelegt) 1 1 256 Oracle McCOMPUNEDMAILORANTOR_ML COMPUNED MA COMPUNED MA Computer Management A A A A A A A A A A A A A	

Two configuration files are required in this path. The first one is a GDT configuration file of M1. Any name can be chosen for this file. The GDT parameters are set in the file. Example:.digipax_gdt.ini:

```
[Allgemein]
Prog = C:\digipaX\digipaX\digipax.exe
XDTRAT = GDT
XDTVER = 2.0
DATKEN = DIGI
EXTENS = GDT
BCKDAT = DEF
[Modi]
Modus001 = Anzeigen
Modus002 = Auftrag
[Modus002]
OutVerz = C:\digipaX\digipaX\GDT\
InVerz = C:\digipaX\digipaX\GDT\
[Modus002]
OutVerz = C:\digipaX\digipaX\GDT\
[Funktionen]
Funkt01 = Worklist
[Funk001 = Worklist
[Funk001 = Worklist
[Funk001 = 6302
[6301]
Felder = 8000;8100;9218;3000;3101;3102;3103;3110
[6302]
Felder = 8000;8100;9218;3000;3101;3102;3103;3110
[6311]
Felder = 8000;8100;9218;3000;3101;3102;3103;3110
[6311]
Felder = 8000;8100;9218;3000;3101;3102;3103;3110;8410
```

The other one is the "mlgeraet.ini" file, in which reference is made to configuration file and the program switch in M1 is defined. Example mlgeraet.ini:

[Allgemein] Geraet001=digipax_gdt.ini;digipaX



9.1.12.2 digipaX configuration

	_	_	_		Configuration
User			Administrator :: GDT		
Informations about clinic and physician	GD1-ID: DIGIPAX		Abbreviation: DIGI		
User interface	Communication				
Image preview					
Window split Baseboard	Import directory:	C:\Program Files\digipaX\digipaX\GDT			<u>ia</u>
Baseboard Loupe	Export directory:	C:\Program Files\digipaX\digipaX\GDT			A
Image informations	Type of file:	 fixed GDT file extension (".gdt") 	 Incremental file extension (".001" - ".999")) 🔿 fixed file names	
Overlay / scout lines	Import file:	DIGIxxxx.gdt	e.g.: DIGIxxxx.003	import.gdt	
Histogram	Export file:	xxxxDIGL.gdt	e.g.: xxxxDIGI.017	export.adt	
Job management	Check interval in seconds:	10	3		
Image acquisition	Readout delay in miliseconds:	0			
Other	Log:	log content of files	L		
Administrator					
	Adapt field allocation (mapping)				
Ucense					
Veterinary surgeon	Create GDT answer				
DICOM / network Job management	GDT answer files can be created for a	automatic acquited images (via this digipax station) a	s well as for the images which have been receive	ed in the background.	
GDT		X Image acquisition and image receipt		other events	
HL7		 for each image (immediately) 		immediately after job	Collect jobs
Caches / IPS	Moment of creating:	each series Waiting time: 3 minutes		Intractavery area job	Lowell jobs
Image acquisition		• the study Waiting time: 10 minutes ≑	1	after import of image	
Device links					
X-ray journal	·	ask user before creating			
Patient CD	Entry in comment field (6227):	 automatically (according to mode) 			
Image transfer		O this comment text in answer file:	14	ew images exist.	
Patient data Other		add additional tags:			2
	Characteristics field: T	Type of study carried out:	A	11 600	
Log	Set of characters:	 IBM CP 437 (DOS) 		ISO 8859-1 (ANSI)	
General			-		
Cache DICOM		require (despite whether a request has been made			
Image processing		Redpient ID:	Re	cipient abbreviation: CMED	
File import		delete attached physician number			
Administrator login	Import	Export Info			Save
					8



9.1.13 Connecting Apple Tomedo

Connection to Tomedo has been made successfully with the following settings.

9.1.13.1 Tomedo settings

töntgen	Exporteinstellungen	GDT-Version: 03.00
CD einlesen		DIGIPAX1
		tomedo
	/Users/AnmOG1/tomedo/GDT	+ - DIGI2TOM.gdt
		Sender Sustant Sender Szusatz Dateilange Empfanger Sender Version
		Patientenn
	Button	reset
	Button I Sutton zur Auswahi in Tagesliste	reset
	Button ✓ Button zur Auswahl in Tagesliste ✓ Button zur Auswahl in Kartei	

Exporteinstellungen //Users/AnmOG1/tomedo/GDT Eporttyp CDT :: GDT-Definition G311 - Daten einer Untersuchung anzeigen :: DICO - Dicom :: :	CDT-Version 03.00 DIGIPX1 _TOMED
/Users/AnmOG1/tomedo/GDT Eportyp CDT : GDT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen : DiCD - Dicom :	DIGIPAX1 _TOMEDO_
Eporttyp (EDT 3) COT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen 2) DICO - Dicom 2)	DIGIPAX1 _TOMEDO_
Eporttyp (EDT 3) COT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen 2) DICO - Dicom 2)	_TOMEDO_
Eporttyp (EDT 3) COT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen 2) DICO - Dicom 2)	_TOMEDO_
Eporttyp (EDT 3) COT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen 2) DICO - Dicom 2)	
Eporttyp (EDT 3) COT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen 2) DICO - Dicom 2)	OIGI2TOM.gdt
GDT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen DICO - Dicom]
GDT-Definition Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen DICO - Dicom]
Standardfelder Eigene 6311 - Daten einer Untersuchung anzeigen 1 DICO - Dicom 1]
6311 - Daten einer Untersuchung anzeigen ‡ DICO - Dicom ‡	
DICO - Dicom +	
:	
Satzart Dateilänge Empfänger Sender	GDT-Felder Satzart
	Dateilänge
Geschlecht Wohnort Strasse Untersuchun	a
Untersuchungsdatum AbnahmeDatum	Empfänger
Abhannezen	
	Version
	Patientenn
	reset
Button	
Sutton zur Auswahl in Tagesliste	
Sutton zur Auswahl in Kartei	
	Speicher
	Abbrechen
	Version Patientennummer Namenszuatz Titel Nachname Vorname Coburtstag Geschiecht Wohnort Strasse Untersuchun Untersuchungdatum AbnahmeDatum AbnahmeZeit Button I Button zur Auswahl in Tagesliste



9.1.13.2 digipaX settings

GDT directory set in Tomedo is enabled, afterwards embedded in Windows as network drive and used for digipaX as GDT directory.

r			Administrator :: (COT.	
rmations about clinic and physician r interface	Import directory:	W:\			
ge preview	Export directory:	W:\			
dow split					
eboard	Type of file:	 fixed GDT file extension (".gdt") 		.001" - ".999") O fixed file names	
xe	Import file:	DIGIxoox.gdt	e.g.: DIGIxxxx.003	import.gdt	
e informations	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt	
lay / scout lines	Check interval in seconds:	10	÷		
sgram	Readout delay in miliseconds:	0	•		
nanagement	Log:	log content of files			
ge acquisition					
er	Adapt field allocation (mapping)				
ninistrator	Create GDT answer				
		or automatic acquited images (via this digipax station			
nse rinary surgeon	GUT answer nes can be created in		i) as well as for the images which have		
om / network		Image acquisition and image receipt		other events	
management	Moment of creating:	for each image (immediately)		X immediately after job	X Collect jobs
T	Moment or creating:	O each series Waiting time: 3 minutes		* after import of image	
7		Ite study Waiting time: 10 minutes -		arter inport of mage	
hes / IPS		ask user before creating			
ge acquisition					
ice links	Entry in comment field (6227):	 automatically (according to mode) 			
iy journal		 this comment text in answer file: 		New images exist.	
lent CD		attach additional tags in front:			
ige transfer jent data		attach additional tags at back:			
sent Gata		multime if longer than 60 characters			
	Characteristics field:	Type of study carried out:		DPAX	
9	Set of characters:				
neral		IBM CP 437 (DOS)		 ISO 8859-1 (ANSI) 	
he	Require an answer in GDT standar	d: 🕱 require (despite whether a request has been	made to this system or not)		
OM		Recipient ID:		Recipient abbreviation: ZTOM	
age processing	* *	 delete attached physician number 			
mport					
Administrator login	Import	Export Info			Save



9.1.14 Connecting medatixx comfort

9.1.14.1 General

This description refers to installation and terminal server solution of medatixx comfort. The user is logged in to the terminal server from which comfort operates. However, digipaX is run at the local workstation. In this case you always need to start up digipaX when a GDT file is transmitted because the (local) program cannot be started from a terminal session (remotely). The GDT file is only copied into a shared communication directory.

9.1.14.2 comfort settings

Each user have their own username with a directory (irrespectively of Windows login data). The name can be found in the comfort main menu top right.

User directories are kept on the terminal server in the path "F:doc2USERS".

Both files, "degexprt.ini" and "docfest.ini" need to be adjusted in each user directory. Example: degexport.ini with all available functions:

<pre>[DIGIWL] Titel=digipaX Worklist ;Exe=C:\digipaX\digipaX\digipax.exe GDTDatei=W:\DIGICONC.001 TYP=WL Satzart=6302 UseDos=1 InternePatNr=0</pre>	
[DIGIPM] Titel= digipaX Patienten-CD einlesen ;Exe=C:\digipaX\digipaX\digipax.exe GDTDatei=W:\DIGICONC.001 TYP=PM Satzart=6302 UseDos=1 InternePatNr=0	
<pre>[DIGIPAX1] Titel= digipaX Bilder zeigen ;Exe=C:\digipaX\digipaX\digipax.exe GDTDatei=W:\DIGICONC.001 TYP= Satzart=6311 UseDos=1 InternePatNr=0</pre>	
[DIGIWD] Titel= digipaX Wunddokumentation ;Exe=C:\digipaX\digipaX\digipax.exe GDTDatei=W:\DIGICONC.001 TYP=IMP Satzart=6302 UseDos=1 InternePatNr=0	
<pre>[DIGIPCD] Titel= digipaX Patienten-CD erstellen ;Exe=C:\digipaX\digipaX\digipax.exe GDTDatei=W:\DIGICONC.001 TYP=PCD Satzart=6311 UseDos=1 InternePatNr=0</pre>	

These segments must be added in the file at the end, in doing so you can omit the segments that are not required. As indicated above, digipaX is not activated through terminal session, activating the software is commented out in this exmaple file (; $Exe=C:\...$).



Example: docfest.ini with the functions set above:

<pre>[Extern] AnzRec=7 Rec1=Wordanbindung,C:\doc2\prog\wprog\wordex.exe Rec2=Doc@rchiv,C:\doc2\prog\wprog\rungdt.exe /k:DIGIWL /S:1 Rec3=digipaX Bilder zeigen ,C:\doc2\prog\wprog\rungdt.exe /k:DIGIWL /S:1 Rec5=digipaX Bilder zeigen ,C:\doc2\prog\wprog\rungdt.exe /k:DIGIPAX1 /S:1 Rec5=digipaX Patienten-CD einlesen ,C:\doc2\prog\wprog\rungdt.exe /k:DIGIPM /S:1 Rec6=digipaX Patienten-CD erstellen ,C:\doc2\prog\wprog\rungdt.exe /k:DIGIPD /S:1 Rec7=digipaX Wunddokumetation ,C:\doc2\prog\wprog\rungdt.exe /k:DIGIWD /S:1 SchreibeBDT=1</pre>

Above in the segment "[Extern]" each of the functions must be entered with prefix "Rec < x > = ..." and the value after AnzRec= accordingly adjusted. Afterwards the functions are available in comfort via menu.

Exchange between GDT files runs through the network drive ",W:\". For response an entry for importing the GDT response must be added on medatixx GDT polling server. On the other card you assign the reponse to the required tab.

The settings are in SystemTray -> Context menu -> GDT server settings.

Einstellungen o	des GDT-Servers	Einstellungen des GDT-Servers
Allgemeine Einstellungen Gerät GDT-Client		Allgemeine Einstellungen Gerät (GDT-Citent)
Importmasken und Verzeichnis Maske Verzeichnis CONCDIGI.* W:\	Intervall Masse Typ Kennung 6300 4000	Spezifache Einstellungen erfolgen für Gerätekennung Buchen in Kartei: ROE ROE Vortage importieren Neue Gerätekennung anlegen
Andem Neu Löschen		I⊄ DOS Zeichensafz verwenden
		Samndaten arforden
	OK Abbrechen	OK Abbrechen

9.1.14.3 digipaX settings

In digipaX "DIGI" is set as the abbreviation, the network drive "W:", incremental file extension and "IBM CP 437 (DOS)" as character set.

					(Configuration)
User 🖸 🗖			Admi	inistrator :: GDT			
Informations about clinic and physician User Interface Image preview Window split / HP	Identification GDT-ID: DIGIPAX Communication			Abbreviation: DIGI			
Basebond Loge Image informations Overlay / social tes Hotogran Sub nanopement Image acquation Other	Import file: DIGD Export file: x000 Check interval in seconds: 10 Readout delay in milseconds: 0	fixed GOT file extension (".gdt") boxoc.gdt kDIGI.gdt	Incremental file extension (".001" - ".999 .g. : DIGDoox.003 .g. : xxxx0DIGL017	 incremental filenames e.g.: DIGI0003.gdt e.g.: 0017DIGLgdt 	ा fixed fle names [mport.gdt export.gdt		
Lonner Ucone (Ucone) Vetronny surgeon DCCM / return k 3xb management GDT (Ucone) 1x7	Worklist: G	Reconcile patient data in image arc Generate entry in DBCOM Worklet og content of files					

Other settings are optional and must be set depending on the environment.



9.1.15 Connecting MEDICAL OFFICE

9.1.15.1 Creating a GDT job:

As the first step, you need to create subdirectories "Import" and "Export" in the directory "C:\digipaX\digipaX\GDT". Using a device in MEDICAL OFFICE requires creation of a one-off job that contains the configuration. In order to do this proceed as follows:

Launch the data maintanance system (from the central unit via menu "Extras") with the user that has the right to create and process the jobs. Afterwards select in the list on the left side the item Core Data-Jobs-Jobs. Click "New" above the list.

This is the input mask for creating and processing the jobs in MEDICAL OFFICE. First allocate a unigue key for the job and a specific description with that the entry should be shown later in the patient's chart. For connecting a device you need to tick the box "Connecting devices". After you do it a new tab "Connecting devices" appears on the screen. Next you need to tick the boxes at the tariffs for those this device will be used.

The result looks as the example below:

ichlüssel Inte	rn Favoritenkategorie Grundleist	ungsabschnitt Abrechnung Geräteanbindu	ng Ergebnistext Normwerte
Schlüssel	DIGIPAXWL Typ		Einheit
Bezeichnung	Digipax Worklist	U	
Auftragsart	Einzelauftrag	Auftragsortium Grundleistung	_
Ausführung	intern	💌 🗙 Geräteanbindung	
Verknüpfung		Dokumentation im Kran Sohne Bestätigung	kenblatt
	Tarif	Rusatztext erford mich	
	X BMÄ X GOÄ	Keine Dokumentation in	n Auftragsblatt
	X UV-GOÄ		
	× sv		

Afterwards jump to the tab "Connecting device". Here you record the information on communication with the software of the connected device. Switch the interface to GDT if need be or alternatively to GDT (extended) if you want to transfer additional information on the payer. Tick the box "Save results" if you want to have the returned information saved in the patient's chart.

Now insert the paths for export and import files in the appropriate fields. MEDICAL OFFICE is not assigned to any particular directory here. Please note that the path must be available if you are accessing the other computer via the network. Furthermore please keep in mind that for the other programs the export files from MEDICAL OFFICE are import files, and the other way round. For saving response please enter the field identifier at the Testident and "Process-specific code field" from which MEDICAL OFFICE will gather information and by which the assignment will be made. For some devices the appropriate study will be selected direct-ly by the process-specific code field (EEG/long-term EEG).

After all required data has been entered, the dialog box looks as the example below:

Schablone	▼		
Schnittstelle	GDT	Zeichensatz IBM	Ohne FK
l'estident	WL	Verfahrenspez. Kennfeld	WL
	Zusatzinfos abfragen 🛛 🗙 Er	gebnisse speichern	Ergebnis abwarten
Exportdatei	C:\digipaX\digipaX\GDT\exp	ort\digiinda.gdt	
mportdatei	Nichts eint	ragen!!!	
)atenaufnahme-Programm	C:\digipaX\digipaX\digipaX.	exe	
Auswertungsprogramm	C:\digipaX\digipaX\digipaX.	exe	
DDE-Service		DDE-Topic	
)DE-Kommando <senden></senden>			
)DE-Kommando <empfangen< td=""><td></td><td></td><td></td></empfangen<>			

Shut down this mask and the job management by pressing "OK". In this way the job has been created.

If the import file is not presented while shutting down the software or there are multiple import files existing, no import path or import file may be specified.

The GDT import path must be specified in the data maintenance system under the item "Workstand" on the tab "General":

Please note: this setting must be made individually at each workstand. This setting is not global. If there is no node "Workstand" shown on the left side, you need to log out and log in again with the password "admin".

MEDICAL OFFICE Arbeitsplatz	Arbeitsplatz updaten
-B Allgemein	System Replikation Parameter
📰 Kartenleser	Nehmen Sie hier die Einstellungen f ür die aktuelle Arbeitsstation von MEDICAL OFFICE vor.
-2 Telefon	Nehmen Sie hier die Einstellungen für die aktuelle Arbeitsstation von MEDICAL OFFICE vor.
- Mill Termine	BDT-/GDT-/LDT-Import
Datensicherung	xDT-Importpfad: C:\digipaX\digipaX\GDT\import
🖻 🗒 System	
😑 🎭 Einstellungen	xDT-Dateiendung:
	QSMED-Bildimportpfad: ····
🕺 Rechnungsnumm	Allgemein

If you do not specify the file extension, all data will be imported from this folder. Please note that the files that cannot be processed will be deleted! The import path is monitored and the files will be assigned to the appropriate patients by Testidents. Now you can call the job in the MEDICAL OFFICE central unit in the patient's chart.

9.1.15.2 Creating switch

For simplifying the use you can create a switch in the patient's chart. Click the switch area with the right mouse button and activate the design mode. You can create a new template by clicking the right mouse button.



) einlesen •
<u>•</u>
rif
bearbeiten

You can name and set these switsches as you wish. You call the dialog box for the templates with "OK" button. Select "Job–Job" in the **list and enter the abbreviation for your job in up-percase.**

Auftrag - A	uftrag	
Zusatzkürzel		2
	OK	Abbrechen

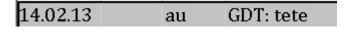
Complete creating the switch with "OK" and you can deactivate the design mode via the context menu by the right mouse button.



9.1.15.3 Using the job

When you call a new patient with the appropriate case you can arrange the job through the switch. The import file will be re-created by work with the device and analysed by MEDICAL OFFICE while shutting down the program, the result will be saved in the patient's chart if the job has been accordingly configured.

You will find two messages attached. One of them is "export.gdt" that was created when the job was called and the external program was launched by MEDICAL OFFICE. The other one is "import.gdt" that writes the result back in the patient's chart. Please save the "import.gdt" in the specified path as soon as the job has been called. Then you can see the following result in the patient's chart:



Please note that this exemplar result was set for 14.02.2013 and in some circumstances you may need to search after the entry. On the second place the job name appears, and after it the result if, as in this example, it was returned in the field identifier 6220 in the GDT file. If you open the job by double-click, you can call the contents of the import file via "Additional Info". You can launch the analysis program contained in the job. If you do so, a GDT file will be again created in the export path. If, for instance, date and time need to be forwarded in the import file to MEDICAL OFFICE, these values are written in the export file as well, so that the study can be directly assigned and called also in other programs.

uu	Digipux workist	
au	Digipax Worklist	
au	Digipax Worklist: BWS (AP/LAT)	
au	digipaX Patienten CD einlesen	
au	digipaX Patienten CD einlesen	Auftragsbestätigung bearbeiten
au	digipaX Patienten CD einlesen doppelklick	Datum 29.12.2015 Di Uhrzeit 13:11 Sitzung 1 💌
au	digipaX Patienten CD einlesen	Auftrag
au	Digipax Worklist	Digipax Worklist
au	Digipax Worklist	
au	Digipax Worklist	
au	Digipax Worklist: Throrax (PA/AP)	Ergebnis (Zahlenwert)
au	digipaX Patienten CD einlesen	Externe Auswertung
au	Digipax Worklist	Ergebnistext Hüfte rechts (AP/LAT), Kreuz- und Steißbein (AP)
au	Digipax Worklist	nute recitis (AP/LAT), rieuz- unu Steisbein (AP)
au	Digipax Worklist: Hüfte rechts (AP/LAT), Kreuz- und Steißbein (AP)	
au	digipaX Patienten CD einlesen	
au	digipaX Patienten CD einlesen	
au	Digipax Worklist	
au	Digipax Worklist	
au	Digipax Worklist	Drucken OK Abbrechen
au	Digipax Worklist	
au	Digipax Worklist	



9.1.15.4 Reading patient's CD

Auftrag bearbeiten Schüssel Intern Favorierkategorie Grundleistungsabschnit Schüssel DIGIPAXPCD Typ Bezeichnung digipaX Patienten CD einlesen	Abrechnung Geräteanbindung Ergebnistest Nomwerte Einheit		sategorie Grundleistungsabsc GDT PM	hmit Abrechnung Geräteanbir Zeichensatz IBM Verlahrenspez Kennli	
Aufrograet Einzelauffrag Austihnung intern Verknüpfung Tari X BMÄ X GDÄ X UV-GDÄ X SV	Auftragroptionen Grundeitrung Grüdeitrung Grüdenteindung Cohkennethaton im Krankenblatt Cohen Bestätigung Zusatztest erfordelich Mehrfachanordnung Keine Dokumentation im Auftragsblatt	Exportablei Importablei Datenaufankme-Programm Auswertungsprogramm DDE-Service DDE-Kommando (Senden) DDE-Kommando (Empfangen	Zustanios abiragen C:\digipaX\digipaX\di C:\digipaX\digipaX\di C:\digipaX\digipaX\di C:\digipaX\digipaX\di	igipax.exe	Eigebnis abwaten
	OK Abbrechen			[OK Abbrechen

9.1.15.5 Opening import card or Twain interface

Schlüssel Bezeichnung	DIGIPAXIMP Typ digipaX Import Karte öffnen z.B Wu	Einheit	Schablone Schnittstelle Testident	GDT IMP	Zeichensatz	Contraction of the local data and the local data an
Auftragsart Ausführung Verknüpfung	Einzelauftrag intern Taaf Taaf X BMÁ X GOÁ X UV-GOÄ X SV	Auftragroptionen Grundleistung Graitearbindung Graitearbindung Cusatext efforderlich Graitearbindung Cusatext efforderlich Mehrfachanordnung Keine Dokumentation im Auftragsblatt	Exportdatei Importdatei Datenaufnahme-Programm Auswettungsprogramm DDE-Service DDE-Kommando «Sendero DDE-Kommando «Empfangen	C:\digipaX\digipaX\d C:\digipaX\digipaX\d		Eigebris abwaten

9.1.15.6 digipaX settings

					Configuration
User 🖸 🔺		Adminis	trator :: GDT		
Informations about clinic and physician	Identification				_
User interface	GDT-ID: DIGIPAX1	A	bbreviation: DIGI		
Image preview					
Window split / HP	Communication				
Baseboard	town of the street	ete et this situate			
Loupe		C:\Program Files\digipaX\digipaX\GDT			
Image informations	Export directory:	C:\Program Files\digipaX\digipaX\GDT			K
Overlay / scout lines	Type of file:	 fixed GDT file extension (".gdt") incremental file extension (".001" - ".999") 	 incremental fil 	enames 🔘 fixed file names	
Histogram	Import file:	DIGIXXXX.gdt e.g.: DIGIXXXX.003	e.g.: DIGI0003.gd	dt import.gdt	
Job management	Export file:	cooxDIGLadt e.g.: xxxxDIGL017	e.g.: 0017DIGI.go	dt export.gdt	
Image acquisition Other	Check interval in seconds:	10		[
Other	Readout delay in miliseconds:	1.000			
Administrator					
		Reconcile patient data in image archive			
License		Generate entry in DICOM Worklist automatically			
Veterinary surgeon	Log:	K log content of files			
Dhage preview					
Window split / HP	Adapt field allocation (mapping	0)			
Baseboard	Create GDT answer				
Loupe Image informations					
Image informations Overlay / scout lines	GDT answer files can be create	d for automatic acquited images (via this workstation) as well as for the images whic	th have been receiv		
Histogram		Image acquisition and image receipt		other events	
Job management		for each image (immediately)			
Image acquisition	Moment of creating:	each series Waiting time: 3 minutes		 immediately after job 	X Collect jobs
Other	Planete or a cataly.	O the study Waiting time: 10 minutes			
		O the patient Waiting time: 10 minutes		 after import of image 	
Administrator		ask user before creating			
License					
Veterinary surgeon	Entry in comment field (6227):				
DICOM / network		 this comment text in answer file: 		New images exist.	
Job management		attach additional tags in front:			2
GDT		attach additional tags at back:			
HL7		multiline if longer than 60 characters			
Caches / IPS		multime if longer than 60 characters			
Image acquisition	Characteristics field:	Type of study carried out:		X-RAY	
Device links X-ray journal		Designation:	GDT field:	Value:	
Patient CD		1:	0	•	2
Image transfer	Additional fields:	2:		•	2
Patient data					
Other		3:	0	* *	ď
	Thumbnail:	GDT field for filename of the thumbnail:		0	÷
Log 🕞	Set of characters:	 IBM CP 437 (DOS) 		O ISO 8859-1 (ANSI)	
Cache	Require an answer in GDT star	dard: require (despite whether a request has been made to this system or not)			
DICOM		Recipient ID: ADDR-ID		Recipient abbreviation:	
Image processing	-				
File import	Remove physician number:	delete attached physician number			×
Administrator login	Import	Export Info			Save
					8
					0



12

9.1.16 Additional digipaX GDT settings

ser	A 1			Admin	istrator :: GDT			
				Admin	Istrator II GD1			
formations about clinic and physician	Identification							
per interface	GDT-ID: DIGIPAX				Abbreviation: DIGI			
age preview ndow split								
ndow spit seboard	Communication							
seboard .pe	Import directory:	C:\digipaX\digipaX\GDT						6
age informations	Export directory:	C:\digipaX\digipaX\GDT						
rlav / scout lines						0.0.10		
ogram	Type of file:			file extension (".001" - ".999"				
management	Import file:	DIGIxxxx.gdt	e.g.: DIGDoox.(003	e.g.: DIGI0003.gdt	import.gdt		
ge acquisition	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGL	017	e.g.: 0017DIGI.gdt	export.gdt		
EL	Check interval in seconds:	10	\$					
	Readout delay in miliseconde	s: 0	÷					
ninistrator	Data reconcilation:	Reconcile patient data	a in image archive					
321	Worklist:		COM Worklist automatically					
rinary surgeon	Log:	log content of files						
DM / network								
nanagement	X Adapt field allocation (ma	apping)						
	Patient data							
	Patient number:	3000	Name affix:	3100	Name:	3101	Name:	3102
hes / IPS								
ge acquisition	Date of birth:	3103	Title:	3104	Insurant number:	3105	Place of residence:	3106
ice links	Street:	3107	Sex:	3110	Date of record:	6200		
y journal	Control system							
ent CD	Job number:	0	Job description:	0	Station name:	0	Modality:	0
ge transfer								
ent data	Procedure Code:	0	StudyInstanceUID:	0	SeriesInstanceUID:	0	SOPInstanceUID:	0
r	Veterinary surgeon							
	Owner's last name:	0	Owner's first name:	0	Owner's name affix:	0	Owner's title:	0
	Owner's date of birth:		Owner's sex:		Animal name:		Animal species:	
eral		0		0		0		0
he	Breed:	0	Color of animal:	0	Animal's date of birth:	0	Animal's sex:	0
DM	Pedigree:	0	Tattoo / chip:	0	Breeding number:	0		
e processing								Set up GDT standard fiel
mport	•							Set up GDT standard field
Administrator login	Import	Export	Info					Save

									Configuration
User				& down	inistrator :: GDT				
Informations about clinic and physician		0	Owner's sex:	0	Animal name:	0		Animal species:	0
User interface									
Image preview		0	Color of animal:	0	Animal's date of birt			Animal's sex:	0
Window spit	Pedgree:	0	Tattoo / chip:	0	Breeding number:	0			
Baseboard									Set up GDT standard field
Loupe									act up con a concer o not
Image informations	Create GDT answer								
Overlay / scout lines	GDT answer files can be creat	ed for automatic acquited	images (via this workstation)	as well as for the images w	hich have been received	in the backgro	xund.		
Histogram			tion and image receipt			ther events			
Job management			ge (immediately)						
Image acquisition	Moment of creating:					immediatel	y after job	Collect jo	obs
Other			Waiting time: 3 minutes			K after impor	tofimage		
Administrator		 the study 	Waiting time: 10 minutes 🌲						
		ask user before	e creating						
License	Entry in comment field (6227):		according to mode)						
Veterinary surgeon DICOM / network	Entry in comment neid (6227):	 automatically (this comment to 							
Job management					[N	ew images exi			
GDT		attach addition	al tags in front:						6
HL7		attach addition	al tags at back:						C
Caches / IPS		multiine if longe	er than 60 characters						
Image acquisition	Characteristics field:	Type of study carri	ind as the			LG00			
Device links			eu ou.			LGOO			
X-ray journal		Designation:			GDT-Feld:		Wert:		
Patient CD	Zusatzfelder:	1:			0		•		C
Image transfer	Zusatzreider:	2:			0		•		C
Patient data		3:			0		•		C
Other									,
Log	Vorschaubild:	GDT-Peid für Dater	name des Vorschaubildes:		0				2
	Set of characters:	IBM CP 437 (D)	OS)		•	ISO 8859-1	(ANSI)		
General	Require an answer in GDT star	ndard: require (despite	e whether a request has beer	made to this system or no	t)				
Cache DICOM		Recipient ID:				cipient abbrev	iation:		
Image processing	-								
File import	Remove physician number:	delete attacher	d physician number						
									(r
Administrator login	Import	Export	Info						Save

9.1.16.1 Identification

As described in the GDT standard in version 2.1, it is necessary to enter a unique identification (GDT-ID, 8 characters) and an abbreviation (4 characters).

9.1.16.2 Communication

Import and export files are exchanged through configured communication directories. As for file names, the following options are supported:

Variant	Description	Example	Standard
Constant GDT file extension (".gdt")	<receiver abbreviation=""><sender abbreviation=""> . GDT</sender></receiver>	DIGITURB.gdt TURBDIGI.gdt	yes
Incremental file extension (".001" – ".999")	< receiver abbreviation >< sender abbreviation > . <incremental no=""></incremental>	DIGITURB.003 TURBDIGI.017	yes
Incremental file names (".0000" – ".9999")	< incremental No> <sender abbreviation=""> . <gdt></gdt></sender>	DIGI0003.gdt 0017DIGI.gdt	no
Constant file names	Any file name – this is often a simple alternative and allows you to adjust to most systems	import.gdt export.abc	no

Communication directory is monitored after each activity and also periodically searched to find new GDT files (polling), if there were to be problems with normal activity reception. The interval can be adjusted with the value of the periodic search (value in seconds, 5 seconds is recommended). The files, which could not be read or which are addressed to other recipients remain in the directory and are not read the second time (until you restart the application). All other files are imported, processed appropriately, and then the file is deleted, as required by the standard. In some other systems, it may be that the GDT is not written in one sequence. In such cases, you can enter a delay for reading the GDT.

With the option Data reconciliation, the patient's name in the practice management is checked against the patient's name stored in the archive when GDT transfer is executed. If the name has changed, e.g. after marriage or spelling was corrected, the discrepancies will be shown in an information dialog box. Date of birth is checked as well.

To instantly adjust data at this point, you need to enable the archived data edit feature (see section 26.1) and inform staff on the use of this feature.

The option "Generate entry in DICOM Worklist automatically" enables automatic generation of Worklist jobs in the background when GDT transfer with record type 6302 is executed. This feature is only used if the job description and, optionally, the Procedure Code is configured directly in the practice management and transferred via GDT. To do this, you also need to define the appropriate GDT fields in GDT mapping settings in the control area (see section 9.1.16.3.2).

For the purpose of testing and analysis of the contents of GDT files (incoming and outgoing) a log can be recorded (category GDT).

9.1.16.3 Field assignment (mapping)

9.1.16.3.1 Patient data area

GDT files that are inconsistent with the standard can cause errors in interpretation of the fields. Configuration of field assignments allows you to customize importing. For each value an appropriate field number can be given, from which value is read. When exporting, the data is restored back from the customized fields.



9.1.16.3.2 Controlling area

If the clinic management system sends the job number and a description of the job, you can configure the appropriate fields. Further processing of this data is done through job management. See chapter 8 DICOM worklist section 8.5 Additional information.

The following fields are the station name and modality. If they are defined, the data from the fields are passed to job management and while creating a job, the station number and modality will be set by default.

The "Procedure Code" field must be configured if Procedure Codes are to be transferred directly from the practice management system and written into the job (see section 9.1.16.2).

The Code is transferred on the first (left) tag of the tags configured in job management. If the GDT feature "Generate entry in DICOM Worklist automatically" is disabled, the GDT field configured here is ignored.

Three additional fields are available: StudyInstanceUID, SeriesInstanceUID, and SOPInstanceUID. If the apropriate field is configured, it is analysed instantly when the GDT feature "Show images" is called up, and the corresponding study, series or image is displayed. When acquiring images or sending GDT response after automated image receipt, these UIDs, if configured here, are automatically written into the GDT response.

When GDT response is written following Worklist job, these fields are ignored, as UIDs are only generated when the image is acquired – so they are unknown at the time the job is being created.

9.1.16.3.3 Veterinary area

This area is used for customizing the veterinary version. For this purpose, see section 16.5.

9.1.16.3.4 Standard fields

With the help of the "Set standard GDT fields" button, the field numbers are reset to the initial values.

9.1.16.4 Response file

For studies which have been requested from other systems using GDT files, a response GDT file can be created. As the recipient's ID, enter the requestor's ID. When using a GDT file type with a permanent extension, the requestor's abbreviation is used in the file name.

9.1.16.4.1 Point in time of creation

Usually the response GDT files are created after downloading the images for the respective study, and after directly acquiring the images in the digipaX system or when digipaX get the pictures from another system. This does not work, however if the target device may "incidentally" receive and analyze the GDT files. If that is not the case, then the GDT respond file must be created immediately after the creation of a job. Besides this, optionally you can also generate the GDT file after successful import of raster images.

With the "Immediately after job" option, the response GDT file is created when you create a job with the description contained in the order on the worklist or after the creating the job with a user-defined comment (after reading the GDT file of record type 6302). The clinic management systems, such as TurboMed, which do not constantly monitor the GDT directory, can read responses immediately after requesting them and then add entries to the pa-



tient's record card. It is recommended to activate the option "Job summary" to create a response file with a description of the summary for all jobs. Otherwise the system will try to generate a response file for each job. Systems, which also periodically search the communication directory for the presence of GDT files, should first obtain information if images were actually uploaded. Thus, one of the options in the "image acquisition and image receipt" must be selected. If the images on the station are not scanned by digipaX, the routing PACS server and digipaX system must be properly set, as this is the only way you can determine the creation of new images. If the "For every image" option is selected, the response GDT file is created when receiving an image or when saving a study for each scanned image. If the GDT file already exists with the same name (conflict if the permanent GDT file extension is used, when the previously created file has not yet been received by the recipient), the system will repeatedly try to create this file, with a specified time interval between the trials. If these attempts fail repeatedly, the process is interrupted. Therefore, we recommend the use of incremental file extensions, if it is supported by the second system

When creating a GDT response for an image series or study, or a patient, a "countdown" for received images begins after receipt of the first image. If until the moment the countdown ends no other images isuploaded for this series or study, or patient the image acquisition will be deemed complete and a response file will be created. When the option "Response for the patient" is active, the series descriptions will be summarized and written in the GDT response. For this purpose the data is read from the tag 0008,103E "SeriesDescription" of received images.

The countdown can be configured by entering the waiting time in minutes. If you enter 0, then immediately after the arrival of further images for a series or study response files will be created. If other images are not received to the series or study, no further response files will be created for this series / study.

If this digipaX station acquires images or image series directly, the image acquisition process will end after saving and the GDT response will be written. With this option, waiting time makes no sense and should be set on "0".

When creating a GDT response file after importing an image (option "After image import") a GDT file is created, which in an automatic mode (see **entry in comment field 6227**) provides a description of the study, in the images which were saved. This GDT file is created when a user imports raster graphics (graphic files or images from a scanner) or DICOM files (e.g. patient's CD).

Due to the option "Prompt user before creating" each time before generating a response GDT file, user agreement is obtained. This option is useful when information for all tests or images is not to be sent back.

9.1.16.4.2 Comment field entry (6227)

In the comment field of the GDT response file (field number 6227) you can enter text. Text may be automatically specified to the description field of the worklist job (Requested Procedure Description: 0x0032, 0x1060), comment tag of the image (Image Comment: 0x0020, 0x4000), series (Series Description: 0x0008, 0x103e), study (Study Description: 0x0008, 0x1030) or user-defined. For option <When last order is ready> the Study Description of a new study is also used.



To the comment field you can also add user-defined tags and text. As in the case of displaying image information on the overlay, you can add up to 3 tags, or their parts.

ption: (Reffering: %)	I, Date: %2, Time: %3)					
lue 1: DICOM tag: (0	008,0090) - ReferringPhysiciansName	¥	Tag element:	completed	Position: 1	4
lue 2: DICOM tag: (0	008,0020) - StudyDate	1	Tag element:	completed	Position:	4.2
lue 3: DICOM tag: (0	008,0030) - StudyTime		Tag element:	completed	▼ Position: 1	1
mark:						

Which tags will be used depends on the selected type of response (job, image, series or study). For one job different tags are available than for images.



On the configuration page "Administrator / Image acquisition" you can specify whether the beam projections are to be included in the description of the study.

If the comment field contains too many characters (long study descriptions), it can occur that the clinic management system cuts off the last characters. However, the comment field can be divided into several lines if the clinic management system supports this feature. Then, several lines are generated automatically, where each line contains up to 60 characters. For this feature, this option must be activated.

9.1.16.4.3 Characteristic field

The value sent in field 8402 can be selected freely. The "ALLG00" is standard for general studies.

9.1.16.4.4 Additional fields

You can configure 3 GDT fields of your choice to enter a freely set value (fixed text) and/or DICOM tag values (up to 3 per field) into the response.

Configuration is performed as described in section 9.1.16.4.2.

9.1.16.4.5 Character set

You can select the character set used to create a GDT response file. The standard is "IBM CP 437". When downloading GDT files character set is automatically recognized and used. 7-bit character set is not supported by the system.

9.1.16.4.6 Thumbnail

Here, you can enter the thumbnail filename into the GDT response. This option only works along with responses "for each image (immediately", both when images are acquired through digipaX, and when they are received automatically when created by a third-party system. For example, you can configure Vetera in this way that the thumbnails are displayed in the tab. Then, you will be able to call up the corresponding DICOM image in digipaX just by double-clicking the thumbnail.

9.1.16.4.7 Forced GDT responses

The "Forced GDT response file" allows you to create response messages, to given stations where there has been no request by the GDT. If, for example at station A, a new study was requested by the GDT, then after creating the job, you can close the system, and at station B after the images have been created, a GDT response will be generated. At this time the receiver's GDT-ID and its GDT abbreviation is not known, therefore it should be entered into the configuration.

Since in this case you cannot determine whether the physician ID (or the company number) in the digipaX system was added to the patient ID, removal of such an identifier may only be done by using the option "Remove the added physician ID" (relates only to devices used by many physicians).

9.1.16.4.8 Removing physician number

You can use this option to remove the physician number/company registration number from the patient ID in GDT responses in systems used by joint medical practices.

This removes all characters following the last hyphen and the hyphen itself (e.g. from abc-xyz-007-123, "-123" is removed).

This feature is only required when either (1) the option "Require a GDT response" is enabled, i.e. when the GDT transfer and attaching the physician ID run at another station, or (2) the physician ID is already attached in the GDT transfer file. For more please refer to section 17.1.2.

9.1.16.4.9 Program exit

If at the end of the program not all GDT response files have been created yet (in the case of option of series or study with a programmed waiting time), they will be saved automatically.

9.1.17 Activities control system digipaX

9.1.17.1 Program parameter

If in the set GDT communication directory, a valid, addressed to this system GDT file is found, then the effect on the start on the program will depend on the contained in the record type and the eventual passed the program parameter "/w" or "/i" (or $_{\rm w},_{\rm w},_{\rm w},_{\rm w}$ " as opposed to $_{\rm w},_{\rm i}$ ", $_{\rm w}$ ". This parameter determines the losing of the worklist or import component.

GDT record type	Action
6301:	 Patient management start
Send constant data	 The patient passed in the GDT file is selected if the
	patient exists in the archives, or on the contrary, the
	patent in this case will be created locally
6302:	 Here also the patient gets selected or created locally
Request new study	 If the image acquisition module is active, at this
	time the patient is updated and images can be read
	in (since digipaX version 1.1.0).



	 If the image acquisition module is not available or the "/w" parameter was passed, at this time the worklist component is loaded and a dialogue for creating new jobs is displayed. If the "/i" parameter was passed, at this time the import component is loaded. If the "/pm" parameter was passed, at this time the patient management module is loaded.
6311:	 Here as well the patient is selected or created local-
Show study data	ly.
	• No component is loaded, but all the available stu-
	dies for this patient are displayed in a tree view
	format and can be immediately viewed in the
	browser.
	 The first study image is displayed (if a study date
	has been passed and such study with this date has
	been found).
	• If the "/pcd" parameter was passed, at this time the
	patient is selected and the module for creating the
	patient's CD is loaded.

If at the start of the program no valid GDT file is found, the parameter "/w", "/i" as opposed to "/pm" has no meaning.

9.1.17.2 GDT 8402 or 8410 field

In the GDT file record type 6302 ("Request a new study") or record type 6311 ("Show study data"), you can use the 8402 field "Tools and process characteristics map" or 8410 "Test-Ident", in order to pass instructions for a particular action.

The following table shows the possible settings: Value Name Record type Meaning ACQ ACQUIRE 6302 Requests direct image acquisition. Available only if the image acquisition module is active. WL WORKLIST 6302 Loading the worklist component and opening the dialogue to create the job. IMP IMPORT 6302 Loading the import component for importing image files or scanning of documents. PATIENT MANAGEMENT PM 6302 Loading patient management, e.g. for importing patent's CD or other DICOM images for this pa-

tient.



PCD	PATIENT'S CD	6311	Loading the patient's CD module
			for creating patient's CD of the selected patient.

Please enter only one of two fields, depending on what is supported by the system that creates the GDT file.

9.1.18 Working without being connected to GDT

digipaX can also be operated without being connected to the GDT as opposed to being connected to the clinic management system and perform basic patient management functions. It does not, however, have a local database of patients. This means that patient data are saved only when the image is in the archive.

However, you can temporarily save the patients created locally. This option can be activated in the configuration of the DICOM network "Save patients locally." These data can be archived centrally in the network and can be used by all stations. Thanks to this, patients who do not yet have images in the archive are also available to all other stations.

9.2 HL7 Interface

9.2.1 General

With HL7 the connection with radiology and hospital information systems is possible. Data exchange between digipaX and other systems takes place via the TCP/IP connection. Exchange of messages over the files is not possible. The settings in digipaX are made over the page Configuration / Administrator and over a configuration file (HL7.ini) in the digipaX directory.

9.2.2 Types of messages

ORM – general order message (event O01)

From the data fields of ORM message a worklist job is derived. It is either saved directly in the background in the worklist or a dialogue for creating a job is opened.

ORR - general response message to any ORM (event O02)

If the option for sending an acknowledgement is enabled, after the ORM message the ORR message is sent to the sender.

ORU - unsolicited transmission of an observation message (event R01)

After each image received via automatic image receipt or when the last job is completely processed and ready, a message is sent to the radiology/hospital information system, that the job is executed.

9.2.3 Action type

As with the GDT interface, an action type control can be forwarded with the HL7. The following functions are possible.



Value	Designation	Type of message	Meaning
ACQ	ACQUIRE	ORM	Requires direct image acquisition. Only pos- sible if image acquisition module is enabled.
WL	WORKLIST	ORM	Depending on setting in the digipaX recalls worklist components and opens the dialogue for job creation or automatic job creation in the background.
IMP	IMPORT	ORM	Recalls import components for import of image data or scanning of the documents.
РМ	PATIENT MANAGEMENT	ORM	Recalls the patient management, e.g. to im- port a patient CD or another DICOM images for that patient.

9.2.4 digipaX configuration

		ifiguration
User	Administrator :: HL7	
Informations about chric and physician User interface Image preview Baseboard Loupe Image informations Overlay / scout lines Histogram Job management	General Identification: Segrent texperator: • HL 7 Standard <0x00>	•
Image acquisition Other Administrator License Veterinary surgeon DICOM / network 3/do mangement GOT	Configuration file: C:\doppaXidgpaXiVeZ.rm Incoming messages Port: 2575 Response: X Send receipt Datag box: Send receipt Send response Send reponse Send reponse Send reponse Send reponse Send PiZ reponse Send PiZ reponse	rebad
H.7 Codres / IPS Image exclusition Device Inks X-ray journal Patient CD Image transfer Other	Note X soft of refrequence Port: 21110 Mode: X soft-control studies excelved studies Wating time: 10 minutes 1/2	Test the connection
Ceneral Cache DICOM Dicom Image processing File import Workfast COT COT U		
Administrator login	Import Export Info	Save

General

Identification: determines a unique identification name for a station. In this case only HL7 messages are processed, that are exactly defined for the system. If the field is blank, all incoming messages will be processed.

Segment separator: determines, what character the segments within an HL7 message are separated with. The setting must be the same for all systems.

Character set: determines the set of characters that is used in the messages. As a standard the typical character set for Windows is used.

Timeout for sending: timeout for sending a message, if the recipient is not available. **Log output**: all HL7 messages with the contents are protocolled in the log.



Configuration file: path to HL7 configuration file (HL7.ini), name and path can be freely chosen.

reload: with this button the loading of the configuration file is refreshed (e.g. after changes).

Incoming messages
 Port: port, on that digipaX receives the HL7 messages.
 Response: if enabled, each incoming message is confirmed to the sender with receipt acknowledgement.

Dialogue: if enabled, a dialog box for creation a job is opened for incoming HL7 job. If disabled, a worklist job is created in the background.

Send response

Response: if enabled, the messages can be sent to other systems, that e.g. a new image exists.

Host: the host name or IP address of another HL7 recipient.

Port: the port, on that the system receives the HL7 messages.

Test the connection: tests the connection with the defined recipient.

Self-created study: for each study acquired a message to the recipient is sent.

Received study: for images received via automatic image receipt a message for each study is sent.

Waiting time: waiting time after receipt of the last image; if no further image for the study comes in during this waiting time, a message for corresponding study is sent. **when the last job is executed**: when the last job for the patient is executed and the image has been saved, a response is sent.

9.2.5 Configuration file HL7.ini

Various informations such as patient's name, patient CD, date of birth etc. are transmitted in each HL7 message in a defined field. The fields which those data are transmitted in can vary for different radiology / hospital information systems. In the HL7.ini the assignment of the fields is configured, so that the data are assigned properly. To be able to make the correct settings, you should also know which fields the data are transmitted in by the system to be connected.

Example for an HL7 message (ORM)

This message creates for Max Mustermann, sex "male" with the patient ID "1234567890" a job "Cervical spine/AP" of the institution with a name "Institution".

Each row is designated as a segment. First 3 characters make the segment name. The segments are subdivided into fields separated with a pipe "|". In the fields the components are contained that again are separated (e.g. with a symbol "^").



In this example, the patient ID (1234567890) is in the segment **PID** field 3, patient's name Max Mustermann in the segment **PID** field 5, sex in the segment **PID** field 8 and name of the institution in the segment **ORC**, field 17, Component 2.

The HL7.ini is divided into 3 sections:

In the section "Incoming messages" [ORM] the fields for incoming messages and in the section "Outgoing messages" [ORU] the fields for outgoing messages are assigned. In the section "Value replace tables" the abbreviations used in DICOM and their values useable in HL7 standard are assigned. Thus the "US" modality from the DICOM corresponding with "RUS" in HL7 or pregnancy status is presented as "3=pregnant" in the DICOM and "B6=pregnant" in the HL7. As not all values are assignable, user-defined ones can be used as well.

The following fields are assignable with the job creating:

```
PatientName = Patient name
Birthdate = Birth date
PatientID = Patient ID
Sex = Gender
Address = Address
Telephone = Phone number
DateStart = Fixed date
TimeStart = Fixed time
           = Modality
Modality
StationAET = Station (AE Title)
RequestedProcedurePriority = Priority
PatientsWeight = Weight oft the patient
Pregnancy
                   = Pregnancy
LastMenstruation = Last menstruation
RequestedProcedureDescription = Job
ContrastAllergies
                        = Allergies
RequestedContrastAgent = Contrast agent
                    = Medical notes
= Premedication
MedicalAlerts
PreMedication
ReferringPhysician = Referring physician
RequestingPhysician = Requesting physician
Requestingraysician = Astronomy Performing Physician = Performing physician
InstitutionName = Institution
PatientLocation = Patient's place of residence
PatientHistory = Patient history/indication
                 = Remarks
Comments
AccessionNumber = Accession number
StudyInstanceUID = Study ID
ProcedureCode1 = Procedure Code 1
ProcedureCode2 = Procedure Code 2
ProcedureCode3 = Procedure Code 3
ActionType = Action type
                = RIS ID
RISID
RISDescription = RIS description
PlacerOrderNumber = Placer Order Number according HL7 standard
FillerOrderNumber = Filler Order Number according HL7 standard
```

The table below shows possible values and abbreviations of the section "Value replace tables". On the left the definitions for HL7 and on the right for DICOM are placed. For the values with no assignment individual definition should be made.



.Table for sex

;Table for sex [Sex]
;female F=F
;male M=M
;other O=O
;unknown ;U=
;Table for priority [Priority]
;promptly S=STAT
;high A=HIGH P=HIGH C=HIGH
;normal R=ROUTINE
;low T=MEDIUM
;Table for pregnancy status [Pregnancy]
;not pregnant ;=1
<pre>;eventually pregnant ;=2</pre>
;pregnant ;B6=3
;unknown ;=4
;Table for modality [Modality]
;Radiology RAD=CR
;Ultrasound RUS=US

Some rows of the HL7.ini, adequate for the message above look then as follows: PatientID=PID|3(CX) PatientName=PID|5(XPN) Sex=PID|8(IS|Sex) InstitutionName=ORC|17|2(ST)

The syntax up to that point is:

Identifier=Segment|Field{|Component}(DataType{|ValueReplaceTable})

The identifier, field and component are separated with a pipe. Afterwards the data type is attached in brackets. The data type is compatible with the way of interpreting of the data record. The used data type must correspond with that of the radiology / hospital information system.

The Component and ValueReplaceTable are thereby optional and do not have to be specified.



For the sex, the HL7 value must be converted into the DICOM value. For this, the table provided in the section "Value replace tables" [Sex] must be evaluated. Therefore, the name of the table pipe delimited is attached to the data type. Thus the value incoming from the HL7 (M for male) is translated by the DICOM for the worklist job (in this case also M).

Next segment of the HL7.ini is for outgoing messages. This segment is defined under [ORU]. For outgoing messages there are three forms of the values. The syntax is basically reversed here. The specified value, such as Patient-ID or Study-ID, is transmitted to radiologi-cal/hospital information system on the "X" segment in the "Y" field. In addition, each segment receives a segment number. This is important when one segment type is used repeatedly (e.g. OBX1 for Patient-ID or OBX2 for Study-ID).

There are three options of values for outgoing messages. The first one is transfer of variable values such as patient ID or patient's name. Another form is fixed values which are sent with each message always on the same position. Most of radiology / hospital information systems need such the fixed values for further internal processes.

As the third the contents of the DiCOM tags of received or self-acquired images or the assigned worklist job can be transferred. It is important to use the pipe symbol also upon specifying the tag.

In all three variants, the left part of rows begins always with the segment and segment number, followed by field and component, all separated with the pipe symbol. As for incoming messages, the value "Component" is optional and depends on the used radiology / hospital information systems as well as the segment and field.

The syntax for all three variants is: Segment|SegmentNumber|Field{|Component}(DataType)=Identifier Segment|SegmentNumber|Field{|Component}(DataType)=FixValue(Wert) Segment|SegmentNumber|Field{|Component}(DataType)=DcmTag(xxxx|xxxx)

Variant 1 for variable values: Example for patient-ID: PID|1|3(CX)=PatientID

Variant 2 for fixed values: In the following example, the value "F" is transferred on two fields.

Example for fixed values: OBR|1|25(ID)=FixValue(F) OBR|2|11(ID)=FixValue(F)

Variant 3 for DICOM tag: Example for performing physician: OBR|1|34(CM)= DcmTag(0008|1050)

Example of the section [ORU] for outgoing messages:



[ORU] PID|1|3(CX)=PatientID PID|1|5(XPN)=PatientName PID|1|7(TS)=Birthdate PID|1|8(ID)=Sex ; Receiving Application MSH|1|4(HD)=FixValue(RIS-SYSTEM) ; Process Type MSH|1|11(PT)=FixValue(P) ; Order Type (RE - observations to follow) ORC|1|1(ID)=FixValue(RE) ; Result Status (always F - verified results) OBR|1|25(ID)=FixValue(F) ; Observ Result Status (always F - verified results) OBX|1|11(ID)=FixValue(F) ; Number of Segment OBX OBX|1|1(SI)=FixValue(1) ; Value Type OBX|1|2(ID)=FixValue(TX) ; Date and Time of performing OBR|1|7(TS)=DcmTag(0008|0020) ; Date and Time of the Observation OBX | 1 | 14 (TS) = DcmTag (0008 | 0020) ; Unique Order ID (Accession Number) ORC | 1 | 2 (EI) = DcmTag (0008 | 0050) ; Orders Local Number OBR|1|2(EI)=DcmTag(0008|0050) ; Exam's Name OBR | 1 | 4 (CE) = DcmTag (0008 | 1030) ; Exam's Name OBX | 1 | 3 (CE) = DcmTag (0008 | 1030) ; Technician OBR|1|34(CM)=DcmTag(0008|1070)



10 Caches / IPS

10.1 General

Three areas in which files can be archived in must be defined. These areas are called caches, and in them DICOM files are stored for their temporary use by digipaX software, the related thumbnail and Presentation States, in which the user-defined information about the presentation of different images are archived.

Caches are created on the configuration page "Caches" and there they may also be cleared. There is an option to automatically clean the caches when exiting the program. For each cache a size in MB is set. If the file size exceeds the size set for files stored in the given cache, then the old data is removed from the cache. This process can be deactivated, so you can archive any number of files without checking the available memory space, or automatically delete old files.

Processes of caches can be tracked in the cache-log.

10.2 DICOM images

DICOM images must be saved in a local cache so that you can use them. The cache for DI-COM images should have the appropriate size. Cache size should be more than 0,1 GB – this is the minimum capacity of the cache.

10.3 Thumbnails

Image thumbnail cache must be set up in a central place on the network. Checking for free space in the cache should be deactivated.

If it is necessary to limit the space, you should check the free space in the cache on your computer, which it is physically part of.

10.4 Presentation States

Information on the presentation of greyscale images are stored in Presentation State files, which also can be managed in the cache. These files are saved automatically.

The cache path should be created in such a way, so that all stations in the network have access to the same directory. Then the images will be displayed in the same way at all stations. Deactivate the control of the cache.

10.5 Intelligent Prefetch System (IPS)

IPS allows you to load images of the chosen patient, depending on the working memory option selected in the background, making them quickly accessible. It is useful, for instance, in the case of CT or MR series. Loading status is shown in the tree view format next to each node as a percentage and as the general status under the image preview bar in the form of a progress bar. With the option "Automatically download remaining images of the series", after clicking on the image other images in this series are downloaded automatically (without waiting time when scrolling through the CT or MR series). With the option "Automatically download images of the newest study", after activating the patient, images are immediately and automatically downloaded from the new study. Both of these options can be combined with each other. With the option "Automatically download all images", all images are automatically downloaded to the working memory when you select a patient.

It is recommended to activate this feature only for the describing station and equip it with sufficient capacity working memory.



11 Image acquisition configuration and connecting devices

11.1 General

For image acquisition functions, you can integrate various types of devices with the system: scanners, detectors, generators and equipment for measuring dose-area product. These devices provide the appropriate values, or image data.

On the "Connected devices" configuration page you can activate and configure connected devices. First, you must activate the appropriate device type, if needed (for example, "Scanner"), deactivate the non existing types. From the drop-down list of available devices, select the appropriate device and adjust the settings according to the system. In the "Scanning" tools set on the right side of the main window (with image acquisition module activated), you can see at the top the integrated device. The operation and processes of the system with connected devices are described in the User's Guide.



Additional instructions are available for connecting specific devices!

11.2 Image acquisition configuration

Settings for image acquisition may be mostly defined by the user (automatic transformations of images, the number of backups, etc.) As administrator the following optional settings are assigned:

General: :: Station: if the station name and modality have been provided, these will be used automatically for new jobs, created directly in the planning tab, and the job display in the planning tab will be filtered according to the options provided here

General: :: Study description: upon launching, the beam path will be applied directly in the study description

General: :: Action after saving: after saving of all images, the part of the program specified here will be opened automatically

The option "Clear acquisition assistant box" causes that this box is cleared after each saved study. This is handy if several assistants work at one acquiring station (e.g. joint practices that share one acquiring station).

X-ray image acquisition :: Image parameters for image acquisition: specifying whether the kV, mAs and dose area product parameters are optional or mandatory data.

You can select the unit for the dose-area product (dGy^*cm^2 , μGy^*m^2 or mGy^*cm^2), depending on which unit is indicated by the device. The system performs automatic conversion of units. If necessary, instead of entering mAs, you can enter the mA and ms separately, the system automatically calculates the mAs product. In this case, the value of mA and ms are also transferred to the relevant DICOM tags (0018.1151 and 0018.1150). If entering of the mAs value is marked as optional (and therefore not a mandatory field), the same applies to the individual values of mA and ms.



With the "Allow mAs as decimal numbers" option, the values may also contain decimal places.

When entering you should use for all values the decimal separator used in the Windows regional and language settings.

The "Text mode" allows you to enter any text into the fields. This is useful when a few images are to be found on one film. This allows you to enter multiple values separated by a separator.



Decimal places for any mAs text are incompatible with the DICOM standard and should be activated only when it is actually necessary.

With the "Enter mAs and ms separately" and "Unit for the dose-area product in μ Gy*m²" options, the values for the tags are calculated from the input boxes. In such cases, the option "Free text" is not available.

Frame grabber :: Modality: the option "Modality of image series" sets the modality of image series delivered by image acquiring devices (i.e. US for sonographic units)

11.3 Simulation

The program can be started with the help of the /ds (Device Simulation) parameter to activate the simulation mode. In the simulation mode, there is an additional simulation device for each device type, which can be used for demo or testing purposes. In addition, in the "Scanning" toolbox, under the information specifying the type field, a "Simulate reception of values" button is added. As a result, when you press this button, the system simulates the receipt of new values, just as if they actually were received by the device. In this way, you can check and demonstrate the system.



12 X-ray journal

The X-ray journal is activated and deactivated by the license setting.

12.1 Entry settings

The X-ray journal uses flexible fields, which can be set by the administrator. For this purpose, there is a special digipaX configuration page. It shows journal entries in a table. In the

first column, the used entries are marked with a check mark. Double clicking on an entry in the table allows for modification of the field to the X-ray journal. A term creates a name in the header of the journal table and it is also used in the mask for the new entries. Some entries can be deactivated. Some fields, such as date and name of the patient, are mandatory fields and can not be deactivated.

Entry definition		
Designation:	Optional 1	
use:	🔾 yes 💿 no	
DICOM tag image:	(0028,0010) - Rows	3
DICOM tag order:	(????,????) - Unknown Tag & Data	3
optional entry:	• yes O no	
	OK Cancel	

When pregnancy status is used, a query dialog box is

displayed while recording data but only if the patient is female aged between 10 and 60 years and there is no information on pregnancy status in the data (job or image) so far. The stated pregnancy status is saved max. 24 hours or until reboot of digipaX software, so that the status for this patient is not inquired again in this time span. If the dialog box is closed without giving information on pregnancy status, the status is regarded as not inquired or not answered – so unknown – and will be inquired again if needed.

12.2 New entry

It is possible to paste the values from the DICOM image that was previously received in the background, or from a DICOM worklist job.

To paste the entries from the image, the routing must be correctly set. If you make a new entry in the X-ray journal, you can choose from a list of previously received images and image for which you wish to make a new entry for. In the dialogue for creating a new entry fields are already filled, according to the parameters for the selected image, but only if the image contains the appropriate parameters. Therefore, in the above dialogue, a connection to DICOM tag (image) is made, which contains the required parameters.

The X-ray journal entry may also be done on the order management system. At this time tags from the DICOM worklist job serve as a template for the entry. The connection is defined here, in the configuration using the DICOM tag for the job.

In case it lacks an existing tag which might be pasted to the X-ray journal, you should enter FFFFxFFFF.

There are fields that must be filled by the user and cannot remain empty. For these fields, set the "Entry optional" to "No". The user cannot add a new entry if not all fields are filled.

In the standard configuration, there are 3 not yet used entries which are optional for the X-ray journal. They can be freely configured to add additional fields to the journal.



It is also possible to apply values from a DICOM image that was previously received in the background. Routing must be set up properly in order to do this. Entries can be created au-tomatically or manually.

<u>Manually</u>: if the user creates a new entry in the X-ray journal, he or she can prior to this select the image from a list of received images, for which the new entry is to be created. The fields in the dialog box for acquisition of the new entry are already completed accordingly to the values of the selected image provided that the values are contained in the image. Therefore a connection to DICOM tag (image) is established that contains the required value.

<u>Automatically</u>: entries for received images can be also made automatically in the background. The option for this feature must be activated. It should be noted that all required details must already exist in the image and no entry will be made, even for mandatory fields, if there is a lack of data in the image.

12.3 Storage location

The X-ray journal file location in memory can be set freely in the configuration. The place can be chosen so that, for example, the journal is always saved in the backup system or an increased protection by the RAID system is given.

The X-ray journal is edited on one station only, but, as an option, it can be viewed on other stations. For this purpose a path to the X-ray journal must be set by enabling or through the network drive. The checkmark "read only" must be activated on these stations.

12.4 Backup

Each time you start the program after a successful reading of the X-ray journal, a backup copy is created (file: xray.journal.bak). In the event of damage to the original file while saving the journal, you can use it as a backup.

12.5 Automatic generating of the journal

Using the Xadmin program, you can create the X-ray journal based on the DICOM files, further information on this topic can be found in the appropriate manual.



13 Visually choosing organs

On the "Order Management" configuration page, you can specify settings for the selection of organs in the image while creating worklist jobs. Depending on the specialization, the connected devices and modalities you can install different types of organ tables (Bodies). With the help of the BodyGenX tool (see chapter 14), you can create Bodies for various connected devices.



The standard license includes the use of only one modality due to organ tables. To use other modalities such as fluoroscopy apparatus, additional license is needed. The exception is the veterinary version, because in this case you need one table for all the animal species.

Types that are used are activated with the help of optional fields in front of their names. If several types are activated, they are displayed on various tabs for creating a job.

For a selected type, you can define on the configuration page on the right side of the tree view the details and beam projections. For further detailed instructions for this, refer to the User's Guide, as the user is also able to modify this list to your needs.

For each beam projection you can define up to 3 Procedure Codes. These codes must be separated by semicolon (";"). The Procedure Codes are transmitted on the specific DICOM tags. These tags can be chosen from the drop-down lists of "Procedure Code tags". When defining the Codes as well as selecting the tags defaults of target device must be overtaken or the device must be aligned to them.

The configuration files for different types are located in a subfolder "Body" in the digipaX installation directory. For each type there exists a folder, such as "human" for type "Man". It contains the file "Body2.ini" containing definitions of regions. In [GeneralSettings] you can preset for each type of modality and the station name for the jobs and a small icon. This icon will be displayed on the user interface on the tabs when there are multiple types activated. You can also specify an overlay image to be displayed. This overlay can also be an icon or a description, such as "X-RAY" or "ULTRASOUND".

While creating a job, only the organ/body part (e.g. knee) with no beam projection is required for certain organ tables (e.g. MRI). In order to do so, you need to add the entry "EnableOrganSelection" and set it on "true". If this line is missing or is set on "false", a beam projection (e.g. knee/AP) must always be selected in submenu of the organ/body part.

Example: LocalName=Radiology Image=Body.png Modality=DX Station=STATION1 Symbol=Symbol.png Overlay=Overlay.png





The file "Body2.ini" must be saved when editing in the file format "UTF-8" without BOM (Byte Order Mark). This is not possible with the Windows editors (Notepad & WordPad). It is recommended to use PSPad editor provided on the installation CD. A possibly still existing file "Body.ini" originates from the previous digipaX versions (1.3.4 or older) and is not used anymore. That file will be automatically converted onto "Body2.ini" (UTF-8 without BOM).

The symbol is an image of 64x64 px in PNG, BMP or JPG format. The file "BodyParts.xml" containes definitions of details and beam projections include Procedure Codes. This file can be replaced manually to e.g. upload a completed definition of all Procedure Codes for the specific device type.

It is also possible to set the background image for visual selection of body parts. It will be shown as the background when creating jobs and in the planning tab of the image acquisition module. For this purpose, it is sufficient to copy the image in the PNG format with the filename "background.png" to the "Body" register in the digipaX installation folder. Any resolution can be set; however, it should be adapted to the parameters of the monitor used.

14 Body Generator (BodyGenX)

14.1 General

The Body Generator (BodyGenX) tool allows you to create and install predefined types for job creation in human and veterinary version, including visual organs and Procedure Codes. Thereby, various specialities (ENT, urology etc.) or various animal species for the veterinary version can be selected in several languages. Moreover, the Procedure Codes for various devices are available and can be transferred into the BodyParts.xml whilst generating as well. Possibly, the Procedure Codes not for all organs and beam projections may be available. Those can be added manually later as described under point 13 Visually choosing organs.



Generated organ tables with the Procedure Codes serve only as templates. Therefore, correctness of the Procedure Codes must be verified before they are put into service.

The program is started by loading BodyGenX.exe in the digipaX installation directory. The language of the program corresponds with the language of the digipaX installation.



14.2 Selection and preview

14.2.1 Selection of area, subarea and language

After the tool has been loaded, the selection begins on the top left with "Area". The following areas are available: human medicine, veterinary medicine and "Other". Depending on the selection, which was made here, next possible selections are available in the field "Subarea". That means various specialities in the case of human medicine and various animal species in the case of a veterinary version can be selected. In the third field the target language for output data can be selected.

inge:		Sub-range:	Orthopedic		▼ Target language:	German	
ocedure Code 1:	DROC / ProVario	Procedure Code 2:	iCRco Huma	an	Procedure Code 3:	Teleoptic Alph	a
ody part / detail / ray beam	Target language	Procedure Codes	PCodes left	PCodes right	<u> </u>		
- Head	Kopf						
E- Skull	Schädel						
a.p.	AP	P5-000122;Skull, AP;0					
lateral	lateral	P5-000182;Skull, LAT;7	'1				
lateral left	lateral links	and the second second					Head
lateral right	lateral rechts						(Kopf)
p.a.	PA	P5-000101;Skull, PA;0					ALC: NR. CO.
axial	axial	P5-000119;Skull, AP;13					
obl	schräg	:Skull, OBL				/舟1 / 檀	
obl 45° left	schräg 45° links	:Skull, OBL					
obl 45° right	schräg 45° rechts	:Skull, OBL					
Occipital bone	Kopfgelenk						31
a.p.	AP	;Kopfgelenk Dens, AP					17 N 18
p.a.	PA	;Kopfgelenk Dens, PA					
obl	schräg	:Odontoid, OBL				· · · · · · · · · · · · · · · · · · ·	199
Cervical vertebrae	HWS						
2L a.p./lateral	2E AP/lateral	P5-000820					
3L a.p./lateral/obl	3E AP/lateral/schräg	P5-000201				163	Cert
4L a.p./lateral/obl left/obl rig	At 4E AP/lateral/schräg links/schräg r	echts P5-000201				100	N72
a.p.	AP	P6-S00100;C-Spine, AF	2:4				
lateral	lateral	P6-S00101;C-Spine, LA	1:75				
lateral left	lateral links	contraction of the second second				W/A	
- lateral right	lateral rechts					AUX /	
p.a.	PA	:HWS, PA:4				MA .	2.U
oblieft	schräg links	P6-S00102					124
oblight	schräg rechts	P6-S00103				2000	C1/10
Open mouth	mit geöffneten Unterkiefer						
Dens	Dens	;C-Spine, ODN					
C-Spine Special a.p. (Dens)	HWS Spezial AP (Dens)	P6-S00113					
Indination	Inklination	0 000115				Add overlay	😥 Remove overlay
Reclination	Rekination						
Indination/reclination	Inkination/Reklination	P6-S00112				Name: Others I	
foramina left	foramina links	0 000112				Name: Orthopädie	
foramina right	foramina rechts						
foramina both sides	foramina beidseitig					Modality:	•
foramina left p.a.	foramina links PA						
foramina right p.a.	foramina rechts PA					Station:	
foramina both sides p.a.	foramina beidseitig PA						
 Neck 	Hals					Symbol:	
a n	AD						

14.2.2 Selecting device (Procedure Codes)

The Procedures Codes for up to three devices can be passed into the organ table. Usually please select the requested device beginning from the left. The item selected in BodeGenX must then also be set in digipaX in the configuration of the job management as well as in the device connection.



14.3 Main window and preview

After the device has been selected, the corresponding Procedure Code appears in overview window behind the beam projection. If more devices are selected, the Codes are separated with semicolons. Rows marked in red indicate that there is no Procedure Code or the Procedure Code not for all selected devices for this beam projection is available. It is an important issue later for the generating. In the left column the body parts, organs / details and beam projections in the language of the program are shown, in the right column those are displayed already translated into the target language. In the right preview window an image for visual organ selection is displayed. By moving with the mouse over the body, its areas are displayed in the language of the program and in the target language as well.

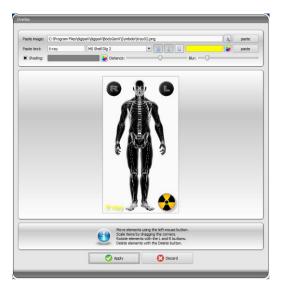
14.4 Body2.ini settings

14.4.1 Inserting overlay

For optical shaping of visual organ selection overlays can be inserted, which will be then codisplayed. You may insert any symbols and text.

Click on overlay to add it. Select a symbol and click on "Insert".

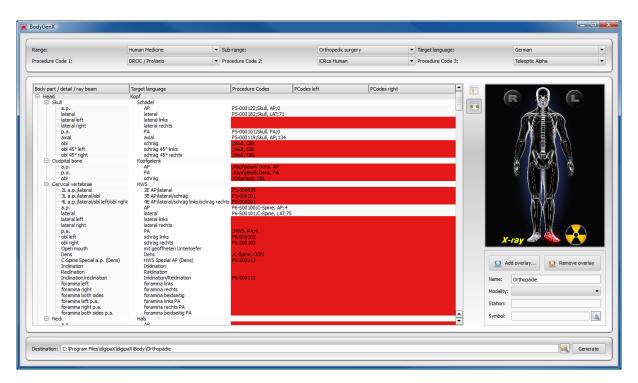
Using the mouse, the symbol is moved to a desired location. In the same way you can insert a text. Using the mouse wheel, text and symbols can be made larger or smaller, rotated with the keys L and R on the keyboard, and deleted by pressing on "Delete" ("Del" key). By pressing on "Apply" the overlay is inserted.





14.4.2 Name and other settings

In the field "Name" the name of the type is entered into Body2.ini under LocalName, which will then be displayed in the job management. Moreover, you can predefine settings for a station name and modality. Here you can also select a symbol, which will then be displayed in the tab of the user interface in the digipaX job management.



14.5 Output destination and generating

The output destination is by default the Body directory in the digipaX installation directory. However, a different output destination can be entered, e.g. in order to prepare the organ table for another system. After the output destination has been selected, click on "Generate". In most cases a dialogue in the form of questions follows, asking whether items with missing Procedure Codes are also to be applied. Please note that with "No" only the elements will be applied for those a Procedure Code at all selected devices is available. All items marked in red will not be applied. In the destination path the selected folder will then be created and all configuration and image files will be saved in it. This directory can be copied into any digipaX installation.



15 DICOM print



DICOM Print is available only when the appropriate module is active.

15.1 General configuration

DICOM printers are connected in the same way as the image archives and worklist servers. On the "Administrator :: DICOM / Network" configuration page, you can add a printer to the system. To do this, click on "New ..." in the "Printers" group. Next on the new DICOM printer settings dialogue, (see illustration at right). As usual, you need to provide a name, AE Title, IP and port. The connection should disconnect immediately, so after 0 seconds. The printer type refers to the desired device to be connected. The Printers.cfg file in the installation directory indicates which types of printers are available (see 15.2 Supported DICOM printers). With the additional parameters you can customize the printout (see 15.3 Additional print parameters). Also here you can specify the colour, which can

New DICOM connection	
Her Dicon connection	
Designation:	DICOM Printer
AE title:	FUJI_PR
Host/IP:	192.168.1.20
Port:	5685
Disconnect:	○ never disconnect
	after inactivity of 0 seconds
Type of printer:	FUJI
additional printer parameters:	
Colour:	
Use:	● [yes] O no
0	K Cancel

later be helpful in the case of a choice of many printers. Also, the DICOM systems can be activated and deactivated.

15.2 Supported DICOM printers

In the installation directory there is a configuration file called printers.cfg. In this directory, the entire series of DICOM printers are pre-configured. Because different models are appropriate for different settings and different types of film, you must enter them in the configuration file. The printers.cfg file can be freely edited and add without any additional printers. As a template, existing configured printers can be used. All keys are explained in the upper part of the file. With the help of these explanations and printer manufacturers information (technical data, DICOM Conformance Statement) other devices can also be connected.

15.3 Additional print parameters

You can use a number of additional parameters for print. It should be noted that not all printers will have all the DICOM print capabilities.

Details on the significance of the parameters can also be adopted from the DICOM standard, part 3 (BASIC FILM SESSION PRESENTATION MODULE ATTRIBUTES, BASIC FILM BOX PRESEN-TATION MODULE ATTRIBUTES, IMAGE BOX PIXEL PRESENTATION MODULE ATTRIBUTES).



15.3.1 Trim (border) options

```
--trim
  set trim on
--no-trim
  set trim off
--default-trim
  use printer default (default)
```

15.3.2 Print presentation LUT options

```
--default-plut
do not create presentation LUT (default)
--identity
set IDENTITY presentation LUT shape
--plut [l]ut identifier: string
add LUT 1 to print job
--inverse-plut
render the inverse presentation LUT into the
bitmap of the hardcopy grayscale image
--illumination [v]alue: integer (0..65535)
set illumination to v (in cd/m^2)
--reflection [v]alue: integer (0..65535)
set reflected ambient light to v (in cd/m^2)
```

15.3.3 Basic film session options

```
-copies [v]alue: integer (1..100, default: 1)
set number of copies to v
-medium-type [v]alue: string
set medium type to v
-destination [v]alue: string
set film destination to v
-label [v]alue: string
set film session label to v
-priority [v]alue: string
set print priority to v
-owner [v]alue: string
set film session owner ID to v
```

15.3.4 Annotation options

```
--no-annotation
    do not create annotation (default)
-a --annotation [t]ext: string
    create annotation with text [t]
```



+pd	print-date prepend date/time to annotation (default)
-pd	print-no-date do not prepend date/time to annotation
+pn	print-name prepend printer name to annotation (default)
-pn	print-no-name do not prepend printer name to annotation
+pl	print-lighting prepend illumination to annotation (default)
-pl	print-no-lighting do not prepend illumination to annotation

15.3.5 Overlay options

```
+0 --overlay [f]ilename : string, [x] [y] : integer
load overlay data from PBM file f and display at position (x,y)
+0g --ovl-graylevel [v]alue: integer (0..4095)
use overlay gray level v (default: 4095 = white)
```

15.3.6 Other print options

```
-1
    --layout [c]olumns [r]ows: integer (default: 1 1)
      use 'STANDARD\c,r' image display format
    --filmsize [v]alue: string
     set film size ID to v
    --magnification [v]alue: string
      set magnification type to v
    --smoothing [v]alue: string
      set smoothing type to v
    --configinfo [v]alue: string
      set configuration information to v
    --resolution [v]alue: string
      set requested resolution ID to v
    --border [v]alue: string
      set border density to v
    --empty-image [v]alue: string
      set empty image density to v
    --max-density [v]alue: string
      set max density to v
    --min-density [v]alue: string
      set min density to v
    --img-polarity [v]alue: string
      set image box polarity to v (NORMAL or REVERSE)
```



--img-request-size [v]alue: string set requested image size to v (width in mm)
--img-magnification [v]alue: string set image box magnification type to v
--img-smoothing [v]alue: string set image box smoothing type to v
--img-configinfo [v]alue: string set image box configuration information to v



16 Veterinary version

digipaX system can be used for veterinary purposes. To do this, change the appropriate settings in the "Veterinary medicine" configuration page. Fields which are inactive here are also not available in the creating of a new patient dialogue.

ser		Administrato	or :: Veterinary surgeon			
formations about clinic and physician	Veterinary version					
ser interface	X Activate veterinary version					
nage preview	You can modify this entry with a double	click on the verse in the table. Entries can be deactivated and will be the	n not used in the system.			
aseboard	Designation	DICOM tag	Tag element	Position	Level	٦.
upe			Name	1	Patient	-
age informations erlay / scout lines	X Owner Name	(0010,0010) - PatientsName				10
stogram	Owner Birthdate	(????,????) - Unknown Tag & Data				-11
b management						- 4
age acquisition	Owner Sex	(????,????) - Unknown Tag & Data				-
her	X Animal Name	(0010,0010) - PatientsName	Surname	1	Patient	
	Species	(0010,0010) - PatientsName	2. name	1	Patient	
dministrator		(0010,0010) - Patientsivanie	Name affix	1	Patient	-
cense	Race of Animal	(0010,0010) - PatientsName	Name amx	1	Patient	
eterinary surgeon	X Color	(0010,0010) - PatientsName	Title	1	Patient	
ICOM / network			completed	1	Patient	-
b management	 Birthdate of Animal 	(0010,0030) - PatientsBirthDate	completed	· ·	Faueric	
τ	X Sex of Animal	(0010,0040) - PatientsSex	completed	1	Patient	
7			completed	1	Study	-
aches / IPS	X Pedigree	(0008,1040) - InstitutionalDepartmentName	compre ce o			
age acquisition evice links	X Tattoo / Chip	(0010, 1030) - PatientsWeight	completed	1	Study	
ray journal						-
tient CD	Breeding number	(????,????) - Unknown Tag & Data				
hage transfer						
ther						
9						
meral						
che						
COM						
age processing						
import						
rklist						
Administrator login	Import	Export Info			Sav	/e

The DICOM standard does not provide tags for the different characteristics of animals (e.g. name of the animal and the animal species). Therefore, these features must be placed in other, initially unforeseen, tags for this purpose. Various companies, that provide software with DICOM tags, choose variety of tags for this purpose, and even parts of DICOM tags. If images already exist from other manufacturers or configuration must be adjusted so that digipaX can work with these systems, the tags used in digipaX must be modified according to the tags from other suppliers. In the installation program of the digipaX software, you can now choose preset configurations of tags.

If the cooperation with the systems of other suppliers is not needed, the tags can be selected freely. It should be noted that above all, you must choose the tags for the names of animals and animal species that will be available on the server when searching for C-FIND.

By double clicking on a row in the veterinary configuration table, the entry can be changed. Inactive entries are not used by the system (not all entries can be deactivated – some must be used by the system). If the selected tag is the patient's name (tag type PN), then you can choose whether all or only a part of the tag is to be used. If the selected tag has more entries (multiplicity), you can optionally specify the value's position. The level will be used to determine where on the Query-Retrieve-Level the information will be found. This means that if you select a tag level "series" (e.g. Series Description 0x0008,0x103e), then to determine the information a patient must first be searched for in all studies, and then all the image series, so that the server's response is searched for a specified tag (images are not transferred, but



only database entries). This may lead to a significant system slowdown. Therefore, it is recommended to always use patient level tags or, when necessary, the study level. We do not recommend the series or image level.

For tags that are not available on the server in searching C-FIND (on any of the levels), or for private tags you should provide the patient's level as the level, so as not to send unnecessary queries to the server.

Also, when reading DICOMDIR (patient's CD) there, the system tries to find information about the relevant tags. However, in DICOMDIR there is much less information than in the databases, so most of the information is relatively unused compared to being shown direct-ly.

Viewing the information about the images on the overlay should be modified using selected settings ("About images" configuration page). Alternatively, change to the appropriate modality (modalities) settings which have already been entered, and enter new rows to display the requested information about the animals. Use the same tag settings as in the veterinary medicine configurations.

16.1 Adaptation to XScan

The XScan software in the veterinary version uses the following tags for the animals' characteristics:

Description	Tag	Tag element	Position	Level
Owner's name	0010,0010	First name	1	Patient
	(PatientsName)			
Name of animal	0010,0010	Surname	1	Patient
	(PatientsName)			
Animal species	0008,0050	entirely	1	Study
	(AccessionNumber)			
Animal's date of birth	0010,0030	entirely	1	Patient
	(PatientsBirthDate)			
Animal's sex	0010,0040	entirely	1	Patient
	(PatientsSex)			

Observe the comments on the Accession Number tag in section 16.4.



16.2 Adaptation to Promis / Hipax

Promis and Hipax software systems use the following settings:

Description	Tag	Tag ele- ment	Position	Level
Owner's name	0010,0010	entirely	1	Patient
	(PatientsName)	,		
Owner's date of birth	0010,0030	entirely	1	Patient
	(PatientsBirthDate)			
Owner's sex	0010,0040	entirely	1	Patient
	(PatientsSex)			
Name of animal	0008,1030	entirely	1	Study
	(StudyDescription)			
Animal species	0008,0090	entirely	1	Study
	(ReferringPhysiciansName)			
Breed	0021,0040	entirely	1	Patient
	(private)			
Colour	0021,0070	entirely	1	Patient
	(private)			
Animal's date of birth	0008,0020	entirely	1	Study
	(StudyDate)			
Animal's sex	0008,1010	entirely	1	Study
	(StationName)			
Pedigree	0020,0010	entirely	1	Study
	(StudyID)			
Tattoo / Chip	0008,0050	entirely	1	Study
	(AccessionNumber)			

Observe the comments on the Accession Number tag in section 16.4.





16.3 Self-defined settings

If compatibility with other systems is necessary, you can make your own settings yourself. We recommend the following definitions:

Description	Tag	Tag element	Position	Level
Owner's name	0010,0010	First name	1	Patient
	(PatientsName)			
Name of animal	0010,0010	Surname	1	Patient
	(PatientsName)			
Animal species	0010,0010	2. name	1	Patient
	(PatientsName)			
Breed	0010,0010	Name affix	1	Patient
	(PatientsName)			
Animal's sex	0010,0040	entirely	1	Patient
	(PatientsSex)			

Features such as owner's date of birth, owner's sex, colour, animal's date of birth, pedigree, tattoo / chip and breeding number should be used only if they are actually needed. First of all, in the 0010.0010 (name of patient) tag, "Title" tag element should be used, and then the appropriate tags from the study level, on which you can skip the actual content in practice. The following tables provide a guide regarding the tags on different levels, which are generally suitable for use and are available on the DICOM server in the standard version of the Conquest system (conquest can accept additional tags to the database with appropriate configurations). When using another PACS, Conformance Statement should be searched for available and appropriate tags.

Level Patient:

Tag	Description	Туре	Multiplicity
0010,0020	PatientID	Long String	1
0010,0010	PatientsName	Person Name	1
0010,0030	PatientsBirthDate	Date	1
0010,0040	PatientsSex	Code String	1

Level study:

Tag	Description	Туре	Multiplicity
0008,0020	StudyDate	Date	1
0008,0030	StudyTime	Time	1
0020,0010	StudyID	Short String	1
0008,1030	StudyDescription	Long String	1
0008,0050	AccessionNumber	Short String	1
0008,0090	ReferringPhysicianName	Person Name	1



0010,1010	PatientsAge	Age String	1
0010,1030	PatientsWeight	Decimal String	1
0008,0061	ModalitiesInStudy	Code String	1 – n
0008,1010	StationName	Short String	1
0008,1040	InstitutionalDepartmentName	Long String	1

Level Series:

Tag	Description	Туре	Multiplicity
0020,0011	SeriesNumber	Integer String	1
0008,0021	SeriesDate	Date	1
0008,0031	SeriesTime	Time	1
0008,103E	SeriesDescription	Long String	1
0008,0060	Modality	Code String	1
0018,5100	PatientPosition	Code String	1
0018,0010	ContrastBolusAgent	Long String	1
0008,0070	Manufacturer	Long String	1
0008,1090	ManufacturersModelName	Long String	1
0018,0015	BodyPartExamined	Code String	1
0018,1030	ProtocolName	Long String	1

Level Image:

Tag	Description	Туре	Multiplicity
0020,0013	InstanceNumber	Integer String	1
0008,0023	ImageDate	Date	1
0008,0033	ImageTime	Time	1
0018,0086	EchoNumbers	Integer String	1 – n
0008,0022	AquisitionDate	Date	1
0008,0032	AquisitionTime	Time	1
0018,1250	ReceiveCoilName	Short String	1
0020,0012	AquisitionNumber	Integer String	1
0054,0400	ImageID	Short String	1

16.4 Adjusting tags in association with worklist

When adjusting tags for veterinary application, special care must be taken that no collision with tags used in the job management or Procedure Codes occurs (see chapter 8.6). If one of the tags that are used there must be compulsorily used for one of the characteristics of the animal, then the other tag in the job management must be configured in another way accordingly.



16.5 GDT Field assignment / mapping

When connecting using GDT to the veterinary clinic's management systems, the GDT connection fields should be adjusted. For example, on the 3110 field, patient's sex is transferred. In the veterinary version, this field often is the sex of the animal that is transferred. If and which fields do you need to adjust depend on the clinic's management system. These fields can be modified under GDT configuration / Field assignment (mapping) / Veterinary medicine. See section 9.1.16.3 "Field assignment (mapping)".

				_					Configuration
User					,	Administrator :: GDT			
Informations about clinic and physician	Identification								
Image preview	GDT-ID: DIGIPAX1	GDT-ID: DIGIPAX1 Abbreviation: DIGI							
Baseboard Loupe									
Image informations	Communication								
Overlay / scout lines	Import directory:		C:\digipaX\	digipaX\GDT					
Histogram	Export directory:		C:\digipaX\	digipaX\GDT					
Job management	Type of file:		fixed GD	T file extension (".gdt")	 incremental 	l file extension (".001" - ".999")	fixed file names		
Image acquisition	Import file:		DIGIxxxx.go	dt	e.g.: DIGIXXXX	.003	import.gdt		
Other	Export file:		xxxxDIGI.go	dt	e.g.: xxxxDIGI	.017	export.gdt		
Administrator	Check interval in seconds:		60		\$				
License	Readout delay in miliseconds		0		•				
Veterinary surgeon	Log:		log conte	ent of files					
DICOM / network									
Job management	Adapt field allocation (ma	opping)							
GDT	Patient data								
Caches / IPS Device links	Patient number:	3000		Name affix:	3100	Name:	3101	Name:	3102
X-ray journal	Date of birth:	3103		Title:	3104	Insurant number:	3105	Place of residence:	3106
Image transfer	Street:	3107		Gender:	3110	Date of record:	6200		
Other	Control system								
Log 🛛	Job number:	0		Job description:	0	Station name:	0	Modality:	0
General	Veterinary surgeon								
Cache	Owner's last name:	3201		Owner's first name:	3202	Owner's name affix:	3200	Owner's title:	3204
DICOM	Owner's date of birth:	3203		Owner's gender:	3210	Animal name:	3101	Animal species:	3100
Image processing	Breed:	3102		Color of animal:	3104	Animal's date of birth:	3103	Animal's gender:	3110
File import Worklist	Pedigree:	3106		Tattoo / chip:	3105				
GDT									
Print									Set up GDT standard fields
burning CD / DVD	Create GDT answer								
Devices									
Administrator login	Import	Ð	xport	Info					Save

These settings are effective only with an active veterinary version and partially annulled settings for patient data. The place of residence is taken in accordance with settings from the patient data, if it exists.

16.6 Viewer

Settings for the veterinary version are stored in the vet.ini file. Along with burning the patient's CD (DVD), they are transferred to the viewer. Thus, the viewer uses the same settings. Change of the settings in the digipaX viewer is not possible.

16.7 Connecting Vetinf

Vetinf can operate with transferred files both with fixed GDT, as well as incremental file extensions. You can also freely choose the import and export path, and the GDT fields have the flexibility to be adjusted, with a few exceptions. Vetinf supports "Send a request to the PACS," and "Request data from PACS." Additional request of patient's CD, or image import is not possible. A specific important feature is the Ventif **job number**, which is transmitted via the **GDT 8480** field. The job number can also be transferred to the image. Then it is possible to load the exact image using GDT. Field 8402 (specific for the characteristic map device) is used to transfer modalities, and the field 8410 (TEST-IDENT) is to transfer the AE Title. Therefore, when creating a job, loading digipaX with the "WL" option via GDT 8402 or 8410



fields cannot be applied. digipaX must be loaded by "digipaX.exe /w". The following settings have been tested on Vetinf 17.06 version. Incremental file extensions were used. For tags settings, the standard settings were used (see chapter 16 Veterinary version). The "Tag for the access number for the job work list" is a tag which stores the Ventif job number in the image (default = 0008,0050).

16.7.1 digipaX settings

16.7.1.1 GDT settings and field assignment (mapping)

Another specific feature is that Ventif always sends the GDT file to the recipient ID "PACS". This recipient ID must be entered into digipaX, so that digipaX can accept the GDT.

								Configuration
er				Ad	ministrator :: GDT			
nformations about clinic and physician	Identification							
mage preview	GDT-ID: PACS				Abbreviation: DIGI			
aseboard								
ipe age informations	Communication							
ge informations trlav / scout lines	Import directory:		C:\digipaX\digipaX\GDT					6
togram	Export directory:		C:\digipaX\digipaX\GDT					
management	Type of file:		fixed GDT file extension (".gdt")	incremental fil	le extension (".001" - ".999")	fived file namer		
ge acquisition	Import file:		DIGDxxxx.gdt	e.g.: DIGIxxxx.0		mport.gdt		
her	Export file:		xxxxDIGI.qdt	e.g.: xxxxDIGI.0	2			
Iministrator					1/	export.gdt		
ministrator	check interval in seconds.		60	÷				
ense	Readout delay in milisecond		0	-				
terinary surgeon	Log:		log content of files					
ICOM / network	Adapt field allocation (m	(apping)						
ob management DT	Patient data							
17	Patient number:	3000	Name affix:	3100	Name:	3101	Name:	3102
aches / IPS	Date of birth:	3103	Title:	3104	Insurant number:	3105	Place of residence:	3105
evice links							Place of residence:	3106
atient's CD	Street:	3107	Gender:	3110	Date of record:	6200		
ray journal	Control system							
nage transfer	Job number:	8480	Job description:	8411	Station name:	8410	Modality:	8402
ther								
9g	-Veterinary surgeon							
eneral	Owner's last name:	3201	Owner's first name:	3202	Owner's name affix:	0	Owner's title:	3204
heral che	Owner's date of birth:	0	Owner's gender:	0	Animal name:	3101	Animal species:	3100
COM	Breed:	3102	Color of animal:	3104	Animal's date of birth:	3103	Animal`s gender:	3110
age processing	Pedigree:	3108	Tattoo / chip:	6340				
eimport								Set up GDT standard fie

The returned response from GDT is either **after the job**:

Veterinary surgeon	Create GDT answer		
DICOM / network	GDT answer files can be created f	or automatic acquited images (via this digipax station) as well as for the images which have been	received in the background.
Job management		Image acquisition and image receipt	other events
GDT		O for each image (immediately)	
HL7			X immediately after job X Collect jobs
Caches / IPS	Moment of creating:	● each series Waiting time: 3 minutes	
Device links		○ examination Waiting time: 10 minutes	after import of image
Patient's CD		O if the last job is ready	
X-ray journal		ask user before creating	
Image transfer	i		
Other	Entry in comment field (6227):	 automatically (according to mode) 	
Log		 this comment text in answer file: 	There are new images available
Log		add additional tags:	
General			
Cache	Characteristics field:	Type of examination carried out:	ALLGOD
DICOM	Set of characters:	IBM CP 437 (DOS)	 ISO 8859-1 (ANSI)
Image processing			
File import	Require an answer in GD1 standa	rd: require (despite whether a request has been made to this system or not)	
Worklist		Recipient ID: VETINF	Recipient abbreviation: VETX
GDT		delete attached physician number	× ×
HI7 C			
Administrator login	Import	Export Info	Save
			(R



or after downloading the image:

License			
Veterinary surgeon	Create GDT answer		
DICOM / network	GDT answer files can be created for	r automatic acquited images (via this digipax station) as well as for the images which have been re	ceived in the background.
Job management		X Image acquisition and image receipt	other events
GDT		 for each image (immediately) 	
HL7			immediately after job Collect jobs
Caches / IPS	Moment of creating:	each series Waiting time: 3 minutes	
Device links		 examination Waiting time: 10 minutes 	after import of image
Patient's CD		 if the last job is ready 	
X-ray journal		ask user before creating	
Image transfer		ask user before creating	
Other	Entry in comment field (6227):	 automatically (according to mode) 	
		O this comment text in answer file:	There are new images available
Log		add additional tags:	
General			
Cache	Characteristics field:	Type of examination carried out:	ALLGOD
DICOM	Set of characters:	IBM CP 437 (DOS)	ISO 8859-1 (ANSI)
Image processing File import	Require an answer in GDT standar	d: require (despite whether a request has been made to this system or not)	
Worklist		Recipient ID: VETINF	Recipient abbreviation: VETX
		delete attached physician number	
GDT A		delete attached physician number	
Administrator login	Import	Export Info	Save
			۵)

If the job sending station and receiving station are the same, digipaX must be loaded using the "/w" option. If images are not received at the job sending station, you can set in the configuration so that it is not the ordering station that responds, but the receiving station. In this case, on the receiving station the option "Request GDT response" must be activated and the recipient's abbreviation provided.

16.7.1.2 Job management

						Configuration
User			Administrator :: .	Job management		
Informations about clinic and physician	Job management / worklist					
User interface	× Automatically update job list		Update inter	val in seconds:		10
Image preview	Delete jobs automatically		Delete jobs a	after:		10 hours
Window split	Show the column with number of re	eceived images and mark with the colour the list er				
Baseboard	Deactivate check of the communication					
Loupe		,				
Image informations	Study Instance UID			Source of entry in X-ray jou	mal	
Overlay / scout lines				Source for the pre-allocation	n of the fields for a new entry in X-ray jour	mal:
Histogram	 for all jobs the same UID 				 selected worklist job 	
Job management	 for each job its own unique UID 				received images	
Image acquisition	o enter no UID				O no source (all entries are er	mpty)
Other	enter no ULD			(Only if X-ray journal module		
Administrator	Visual selection					
License	Types:	Configuration:				
Veterinary surgeon	X Cat X Dog		10			
DICOM / network	X Swine		le		r V	
Job management		Part of the body / refinement / beam projection	Procedure codes	PCor	des left PC	Codes right
GDT		Head				
HL7		B X Skull				
Caches / IPS		K Frontal sinus				
Image acquisition		X Nasal bone Paranasal sinuses				
Device links		H X Nasal cavity				
X-ray journal		Pyramid Cheek bone				
Patient CD		K Mandible				
Image transfer		X Temporomandibular joint X Teeth				
Patient data						10-11-
Other			1 - W		1. V.	[•]•
	Tags procedure codes: Requested Pro		 Scheduled Procedure S 	Step Code Meaning	 Scheduled Procedure Str 	ep Code Value
Log	integrate procedure codes in image	es				
General						
Cache	additional informations					
DICOM	Tag accession number: Accession Num	nber	•			
Image processing	tag job number: Scheduled Pro	cedure Step ID	 Save job number as 	Accession Number in the study	(
File import	tag job description: Scheduled Pro	cedure Step Description	▼ ¥ Use job description a	as study description		
Administrator login	Import	Export Info				Save

Here "Additional information" must be activated. There are the tags set, for which the worklist jobs will have the Vetinf job number sent and a description of the Ventif job. These settings must be identical at all stations, which use the worklist or GDT. In this way you can use preset tags, if they are still available, and not already used by the transmission of Procedure Codes.



16.7.2 Vetinf settings

The GDT settings are under Extras/Diagnostic Equipment/GDT. There you set the import and export paths and program parameters.

/etabc/Vetabc Plus	VetS	can/VetscanHM5	VetScan VS2	Spotchem	Reflovet+	KoneLab 20	Abacus j.vet3/ve
pocH-100iV Diff	·	FDC <u>3</u> 500i/4000i	VetT	est <u>8</u> 008	VetLab-IDEXX	EKG	<u>G</u> DT
						Auftr	ag an das PAC
Pfad: C:\c	ligipa	X\digipaX	GDT				
Datei:	(fest	: DIGIVE	EX CI	fd.Nr.	GDT-Kennun	gssatz:	6302
Extension:	⊂ fest	:	(I	fd.Nr.	Zuor	dnung GDT-Datensätze	<i>a</i>
PACS: C:	\digi	paX\digipa	ax\digip	ax.exe			
						Antwort v	om PACS an P
Pfad: C•\c	liging	V\diginaV	CDT			,	
Datei:	i⊥g⊥pa € fest	X\digipaX' : VETXDI		fd.Nr.	GDT-Kennun	assatz.	6310
Extension:	(fest			fd.Nr.		dnung GDT-Datensätze	0310
							PC an das PAC
Pfad: C·\c	14	X) di stist a X	CDU			Amorderung	
Datei:	• fest	X\digipaX		fd Nr.	GDT-Kennun	aeeatz.	C211
Extension:	(fest		a transmission	fd.Nr.			6311
	1000	50 A			Zuor	dnung GDT-Datensätze	<i></i>
viewei.	\algı	paX\digipa	ax/ardib	ax.exe			
Polling in sec:		5 🔽 0	DT aktiv	GDT bei Kunde	enaufruf		
(pacsgdt.exe)			allgor	neine GDT-Parameter		speid	hern 🥢 🚮

In the "General GDT parameters" section in case of Vetinf content fields in GDT content (record types) are set. Moreover, you can set initial settings for modalities, AE Titles and study description.

Tierdaten:	Platzhalter:	Auswahl:
Tierart (03)		3100=Tierart 030000
Name (06)		3101=Name des Tieres 060000 3102=Rasse 040000
Rasse (04)		3103=Geburtsdatum 070000 3104=Farbe 220000
Geburtstag (07)		3104=Farbe 220000 3105=EU-Ausweis/Lebensnummer 230000
Geschlecht (05)		3106=Halter Wohnort PZWO00 3107=Halter Strasse ST0000
		3108=Stammbaum 320000
Ohrmarke/Täto (08)		3109=frei 000000 3110=Geschlecht 050000
Farbe (22)		
EU-Pass (23)		Halter Wohnort PZWO0
Chip-Nummer (24)		Ü <u>b</u> ernehmen
Zusatz KT (3x)	Bild-ID (27)	Vorschaubild-Verzeichnis (28)
Besitzerdaten:	Tier-ID (25)	Modalität: (CR,CT,etc.)
Name Halter (NH)		CR 🖌 🎺 😼
Vorname (VN)		AE-Title: (auslösende Software)
Titel (TH)		SCANNER -
Postleitzahl (PZ)		Studienbeschreibung:
Ort (WO)		Untersuchung (CR)
Strasse (ST)		speichern 🖌 🔽 🔤 zurück 🚽

With "Record types assignment" requested GDT fields are selected.



Creating job:

and the second	
erfügbar:	ausgwählt:
219=Überweiser 220=Untersucher	9206=verwendeter Zeichensatz 9218=Version GDT
220=Untersucher 200=U-Datum	8000=Satzidentifikation
200-0-Datum 201=U-Zeit	8100-Satzidentinkaton
205=frei 000000	8315=GDT ID des Empfängers
221=Fremdbefund	8316=GDT ID des Einfligers
227=Studie	8402=Modalität
228=Testbezeichnung	8410=AE-Title
302=frei 000000	8411=Studie
305=frei 000000	8480=Auftragsnummer
325=Bildkennung	3000=Tier/Haiter ID
330=frei 000000	3100=Tierart 030000
331=frei 000000	(x) 3101=Name des Tieres 060000
332=frei 000000	3102=Rasse 040000
333=frei 000000	3103=Geburtsdatum 070000
334=frei 000000	3104=Farbe 220000
335=frei 000000	3105=EU-Ausweis/Lebensnummer 230000
336=frei 000000	 3106=Halter Wohnort PZWO00
337=frei 000000	3107=Haiter Strasse ST0000
338=frei 000000 339=frei 000000	3108=Stammbaum 320000 3110=Geschlecht 050000
339=frei 000000 340=Chip/Transp/Ohrmark/Täto 240800	3100-Geschiect 050000 3201=Halter Nachname NH0000
340=Chip/Transp/Onrmark/Tato 240800 341=frei 000000	3201=Haiter Vacname VN0000
342=frei 000000	3202-Halter Viname VN0000
343=frei 000000	6209–U-Datum
344=frei 000000	6201=L-Zeit
345=frei 000000	6340=Chip/Transp/Ohrmark/Täto 240800 -
000=Satzidentifikation	

Returned response:

	Pflichtsätze: 8000, 8100, 3000, 8480
verfügbar:	ausgwählt:
4219-Überweiser 4220-Uhtersücher 6200-U-Datum 6201-U-Zeit 6205-frei 000000 6221-Fremdbefund 6227-Studie 6322-Fistbezeichnung 6332-frei 000000 63325-Bildkennung 6330-frei 000000 6333-frei 000000 6333-frei 000000 6334-frei 000000 6336-frei 000000 6336-frei 000000 6336-frei 000000 6336-frei 000000 6336-frei 000000 6341-frei 000000 6341-frei 000000 6343-frei 000000 6345-frei 0000000 635	9206=verwendeter Zeichensatz 9218=Version GDT 8000=Satzidentifikation 8100=Satzidentifikation 8100=Satzidentifikation 8316=GDT ID des Empfängers 8316=GDT ID des Senders 8402=Auftragsnummer 3000=Tier/Haiter ID 3100=Tierart 03000 3101=Name des Tieres 060000 3102=Rasee 040000 3103=Geburtsdatum 070000 3104=Farbe 220000 3105=EU-Ausweis/Lebensnummer 230000 3107=Haiter Ko50000 3107=Haiter Ko50000 3107=Haiter Ko50000 3107=Haiter Nonort PZWO000 3101=Haiter Vorname VH0000 3202=Haiter Vorname VH0000 3204=Haiter Titel TH0000



Request for data:

6200=U-Datum 6201=U-Zeit 6205=frei 000000 6221=Fremdbefund 6227=Studie 6228=Testbezeichnung 6302=frei 000000 6305=frei 000000 6325=Bildkennung 630=frei 000000		19218=Version GDT 8000=Satzlientifikation 8100=Satzlientifikation 8315=GDT ID des Empfängers 8316=GDT ID des Senders 8402=Auftagsnummer 3000=Tier/Halter ID 3100=Tierar 030000 3101=Name des Tieres 060000 3101=Name des O4000	
6330=frei 000000 6331=frei 000000 6332=frei 000000 6334=frei 000000 6335=frei 000000 6335=frei 000000 6337=frei 000000 6339=frei 000000 6340=ChipTransp/Ohrmark/Täto 240800 6341=frei 000000 6342=frei 000000 6342=frei 000000 6342=frei 000000 6343=frei 000000 6344=frei 000000 6344=frei 000000 6344=frei 000000 6345=frei 000000	« »	3102=Rasse 040000 3103=Geburstadum 070000 3104=Farbe 220000 3201=Halter Nachname NH0000 3202=Halter Vorname VN0000 3204=Halter Titel TH0000 6200=U-Datum 6325=Bildkennung	

Complete GDT settings are in the file XX in the YY Vetinf directory in the [GDT Interface] section. This section with the applied settings in this example can be downloaded in the downloads area on the <u>www.digipax.eu</u> site.



16.8 Connecting Vetera

In the Download area at <u>www.digipax.eu</u>, ready-configured files for the Worklist and for calling up studies, series and images are available. The files must be copied to the directory "C:\DATA\Vetera\DATEN".

16.8.1 digipaX settings

16.8.1.1 GDT mapping

Connection has been made successfully with the following settings. These settings apply to all digipaX stations.

								Configuration
User 🕞 📥				Adn	ninistrator :: GDT			
Informations about clinic and physician User interface	GDT-ID: DIGIPAX	Abbreviation: DIGI						
Image preview Window solt Baseboard Loope Image Informations Overfary / southines Histogram	Import file:	DIGIxxxx.gdt	e.g.: DIGDoood	003	9") O hochzählende Dateinar e.g.: DIG10003.gdt	import.gdt		A
Joh rangement binge Arguidon Other Ad ministrator License Wetherlany popon	Export file: Check interval in seconds: Readout delay in milseconds: Data reconcilation: Worklist: Log:	xxxxDIGLgdt 10 0 Reconcile patient data Generate entry in DIC log content of files		217	e.g.: 0017DIGLgdt	export.gdt		
DICOM / network Job management GDT	X Adapt field allocation (map Patient data	sping)						
HL7 Caches / IPS Image acquisiton	Patient number: Date of birth: Street:	3000 0 3207	Name affix: Title: Sex:	0	Name: Insurant number: Date of record:	0	Name: Place of residence:	3206
Device links X-ray journal Patient CD Image transfer	Control system Job number: Procedure Code:	0	Job description: StudyInstanceUID:	0 6331	Station name: SeriesInstanceUID:	0	Modality: SOPInstanceUID:	0
Patient data Other Log	Veterinary surgeon Owner's last name: Owner's date of birth:	3201	Owner's first name: Owner's sex:	3202	Owner's name affix: Animal name:	0	Owner's title: Animal species:	0
General Cache DICOM	Breed: Pedigree:	3102	Color of animal: Tattoo / chip:	3104 3125	Animal's date of birth: Breeding number:	3103 3124	Animal's sex:	3110
Image processing File import	Import	Export	Info					Set up GDT standard fields
								8

16.8.2 Response

Job number (field 8410) is mandatory for responses in Vetera. The job numer is assigned when the job is created, and it must be included in the response, as data of the response is re-assigned through this job number.

Another GDT field is status field 6336. When a job is created in Vetera, it is provided with the status "created" on the tab. If you send back the value "1" on this field in the response, the status on the tab will be marked as "in processing". This would be useful just right after job creation. When the job is finished, and all images have been acquired, another response is created. In this response, the value "2" is transferred, and the job is marked as "completed" on the tab.



In Vetera, you can call up specific studies, series or images directly through the tab. For this feature to work, the StudyInstanceUID needs to be transferred on field 6331, SeriesIn-stanceUID on field 6330, and SOPInstanceUID on field 6302. This data can only be entered after the image has been received, as the IDs are only generated during the process of image acquiring. Each image requires instant response. And here again, data can only be assigned if the response contains the job number (field 8410, see above). For that to happen, you need to save the job number in the image, and enable the "Save job number as Accession Number in the study" option at the image acquiring station. It can be switched in the Configuration under Administator/Job Management.

additional informations			
Tag accession number:	Accession Number	-	
tag job number:	Scheduled Procedure Step ID	-	🗶 Save job number as Accession Number in the study
tag job description:	Scheduled Procedure Step Description	-	Use job description as study description

Additionally, Vetera can display thumbnails on the tab. For that to happen, the filename of the thumbnail must be transferred in the response on the field 6305.

If images are obtained from an external system, you need to enter a job number identical to the Accession Number in digipaX. Another appropriate tag for the Accession Number is to be selected in digipaX. After image acquisition from the external system, all images need to be routed to the digipaX station, and from there out, GDT responses must be created. Doing this, do not forget the "Require GDT response" option.

If the external system is unable to enter the job number in images, the direct call-up and display of thumbnail on the tab features are not be available. In such cases, just write the response with the "Collect jobs" option and the value "2" on the status field 6336 right after job creation.

lser						Administrator :: GDT					
informations about clinic and physician		Owner's date of birth:	0	Owner's sex:	0	Animal name:	31	01	Animal species:	3100	T
Jser interface		Breed:	3102	Color of animal:	3104	Animal's date of b	irth: 31	03	Animal's sex:	3110	
mage preview		Pedgree:	0	Tattoo / chip:	3125	Breeding number:	31	24			
Nindow split											
laseboard oupe										Set up GDT standard field	ids
oupe inage informations											
mage informations Overlay / scout lines			Create GOT answer GDT answer files can be created for automatic acquited images (via this workstation) as well as for the images which have been received in the background.								
fistogram		GDT answer files can be crea			on) as well as for the ima	ages which have been receive					_
lob management				Image acquisition and image receipt							
mage acquisition			 for ear 	 for each image (immediately) 				tely after job	Collect jo	bs	
Other		Moment of creating:	 each s 	🔿 each series Waiting time: 🛽 minutes 🚖							
			 the stu 	dy Waiting time: 10 minutes			after im	port of image			
Idministrator	6			before creating							
lcense				-							_
leterinary surgeon		Entry in comment field (622)	Entry in comment field (6227):								
DECOM / network			 this comment text in answer file: 				New images	exist.			
lob management			attach a	dditional tags in front:						0	ಿ
IDT			attach a	dditional tags at back:							2
£7				flonger than 60 characters							_
Caches / IPS mage acquisition				-							_
Device links		Characteristics field:	Type of stud	y carried out:			ALLG00				
(-ray journal			Designatio	on:		GDT-Feld:		Wert:			
Patient CD			1: Status			6336		¢ 2		0	2
mage transfer		Zusatzfelder:	2:			0		1¢			2
Patient data			3:			0		1			~
Other			54)-	_
09	-	Vorschaubild:	GDT-Feld für	Dateiname des Vorschaubildes:			6305				\$
		Set of characters:	O IBM CP 4	137 (DOS)			ISO 8859	1 (ANSI)			
Seneral		Require an answer in GDT st	tandard: 🕱 require (despite whether a request has b	een made to this system	(or not)					-
Cache			Recipient ID				Recipient abb	reviation-			
DECOM							incopient dee				_
image processing File import	÷	Remove physician number:	delete at	ttached physician number							
Administrator login		Import	Export	Info						Save	

16.8.2.1 Settings for response after image acquisition resp. routing

If jobs are created immediately at the image acquisition station, the "Require GDT response" option is not required.



16.8.2.2 Settings for response after creating a job

er 🙆	Fi I				Administrator :: GDT				1
formations about clinic and physician	Owner's date of birth:	0	Owner's sex:	0	Animal name:	3101	Animal species:	3100	
er interface	Breed:	3102	Color of animal:	3104	Animal's date of birth:	3103	Animal's sex:	3110	
age preview ndow solt	Pedgree:	0	Tattoo / chip:	3125	Breeding number:	3124			
ndow spec seboard								(a	
upe								Set up GDT standard fiel	505
age informations	Create GDT answer								
erlay / scout lines	GDT answer files can be cre	ated for automatic ac	ouited images (via this workstati	on) as well as for the im	ages which have been received in th	e background.			
itogram			acquisition and image receipt			events			-
b management			(a) for each losses (monodiately)						
age acquisition	Moment of creating:		for each image (immediately) each series Waiting time: 3 minutes				X immediately after job X Collect jobs		
her			udy Waiting time: 10 minutes		🗆 a	fter import of image			
ministrator				w					
ense		ask user	before creating						
terinary surgeon	Entry in comment field (622)	7): 🔹 automat	ically (according to mode)						
COM / network		O this comment text in answer file:			New in	nages exist.			1
b management		attach a	dditional taos in front:						0
π		attach a	dditional tags at back:						2
7			if longer than 60 characters						Ĩ
ches / IPS age acquisition			-						_
vice links	Characteristics field:	Type of stud	ly carried out:		ALLGO	0			_
ay journal		Designatio	on:		GDT-Feld:	Wert:			
tient CD		1: Status			6336	1			¢
age transfer	Zusatzfelder:	2:			0	\$			Q
tient data		3:			0	÷			c
her	Vorschaubild:		Dateiname des Vorschaubildes:		6305			,	
a 🛛									1
neral	Set of characters:		437 (DOS)		 ISC 	0 8859-1 (ANSI)			
che	Require an answer in GDT st	Require an answer in GDT standard: C require (despite whether a request has been made to this system or not)							
COM		Redpient ID:	:		Recipie	nt abbreviation:			
age processing	Remove physician number:	delete at	ttached physician number						-
e import	 Remove physician number: 	Objecte of	Coordinate persystement interfactor						
Administrator login	Import	Export	Info					Save	

Here again an indication that the responses are to be transferered only following the job and not following the image acquisition on the status field 6336 equally to the value "2".

16.8.3 Vetera settings

Settings of paths for GDT directories, paths for thumbnails and program call-up must be adjusted correctly.

The relevant configuration page is available in menu under Extras/Settings.

	Engabe Darstellung Abgabebeleg Antibiotikamonitor	ng Dicom (PACS) Diagnosen Sperrung BOVI-CONCE	Worklisteinträge einrichten
Adjenne Adjene Adjenne Ad	Brayle Denhilling Algobalung Arsbotkwonten P. Reingsmanke V. Carshyster Make V. Car	Cara Genetiang Program () Some () Some () Some () Some () Program () Product	Worklisteinträge einrichten vorklisteinträge Uvolaiseinträge Bessichnung Fild Voraliseinträge Mesder 8000/02 Sietion Tierrar Tierfart 300 Tierrar Tierfart 310 Tierrare Name 310 Tierrari Fierfart 310 Tierrari Fierfart 310 Tierrari Fierfart 310 Tierrari Tierrari 310 Tierrari Sittein 310
	The Contract of the Contract		Farbe Farbe 3104
	Benutzer Pessiont V Withildmodus	Externe Ter-Ve: for IQ-Veex verwenden HeRAX Ivi Pted (I) Ptegramm (D	TatoLinis 3122 Tercracidem Datunsformat individual * Parameter Keine * V Zeitensumme V/ CRLF dd88Mbyyy Test *
	UBLAuhuftesten	GOT-Rückanswot Verzeichnis CridgesXddpesXGOTOut - Dienst einrichten	Detei C. Lidgeak/digeak/GDT widg0001 git Programm C. Lidgeak/digeak/digeak exe PT Zellerumbrüche entlemen CKAbbrecher

Required settings:

- under "Dicom settings" data path (I) for thumbnails is to be configured (if this function is available)
- under "GDT response" directory for response
- under "Dicom settings / GDT job" file and program
- w "Dicom settings / GDT call-up" for animal, series and image file and program respectively

GDT fields are already defined based on the previousy downloaded ready-configured files.



17 Configuration card for patient data

17.1 Patient-ID

17.1.1 Building next patient-ID always as a new one

With this option the patient-ID is always automatically built as a new one, regardless of whether the data is delivered per GDT, HL7 or the patient data is recorded manually. The ID is always built as the last name-first name-date of birth.

17.1.2 Adding identifier to the patient-ID

For forwarding the patient-ID via GDT, HL7 or manual quotation of the patient-ID you can specify whether an identifier is to be added to the patient-ID. This may be required e.g. in joint practices with data separation where, for example, one router forwards images with "Patient-ID-001" to the archive A and images with "Patient-ID-002" to the archive B.

If, following the GDT transfer, the station also writes the GDT response (e.g. directly after the job), the ID attached here is automatically removed from the response.

Further configuration options are described in section 9.1.16.4.8.

17.1.3 Adding GDT abbreviation to the patient-ID

A GDT abbreviation of the surgery management program will be attached to the patient–ID. This is necessary for data separation when various surgery management programs are used in one joint practice on the same computers and the jobs are to be forwarded to digipaX. A corresponding GDT abbreviation is then attached to the patient–ID, e.g. to the ID 12345 an abbreviation MEDI will be attached by the GDT file DIGIMED.gdt of Medistar and to the ID 56789 an abbreviation QUIN by the GDT file DIGIQUIN.gdt of Quincy. The IDs would then read 12345–MEDI and 567890–QUIN. If it is configurable in the surgery management system, digits can be used instead of letters. The GDT file of Medistar could then read DIDI0001.gdt instead of DIGIMEDI.gdt and the GDT file of Quincy DIGI0002.gdt instead of DIGIQUIN.gdt. However, this is only necessary if no letters are wanted in the patient–ID as the IDs are saved with a corresponding attachment in the DICOM header of the images.

17.1.4 Identification of the patient

This setting specifies whether e.g. the first and last name, date of birth and patient-ID or only the patient-ID is to be used for an unambiguous identification when calling the patient via GDT.

The "only patient ID" option may be necessary if the patient's name and date of birth in the practice management are not identical to the data stored in the image archive, and consequently, correct patient assignment is impossible. This may happen when data has been prior transferred from an older archive.



17.1.5 Assigining next ID automatically

With this option the patient-ID is assigned automatically when creating patient manually. The archive is retrieved at that and the next higher number than the highest ID is selected. If this option is non active, an unambiguous ID must be assigned manually.

17.1.6 Using PESEL Number (Poland)

When this option is activated, the PESEL Number is used as the patient ID. The PESEL Number is a 11-digit number of the Universal Electronic System for Registration of the Population in Poland. The number has the form of YYMMDDZZZXQ with the date of birth, personal identification number, sex and a check digit encoded in it. If you record the patient data manually through the patient management the validity of ID is verified and the date of birth and sex are automatically derived from it and put in the dialog box.

17.1.7 Capture title of the patient

If this option is deactivated, title of the patient, as Doctor or Professor, can be indicated when recording patient data. Titles in names are not common in some countries.

17.2 Additional fields

Additional fields can be activated for additional information on patients. These fields are then available at the manual recording of the patient data and can be shown as additional columns in the patient management. The columns can be shown and hidden with the right click on the head of the table. When acquiring the image this information is saved in the DI-COM header. In order to be able to use these fields the data base scheme of the archive needs to be extended (see chapter 5.2.1.2).



18 Other configurations

18.1 Edit and delete features

These features are described in chapter 26.1 "Enabling and configuring edit and delete features ".

18.2 Easy Report

Easy Reports can be automatically stored as text files in other systems. Therefor you have to define a directory.

With this option, the user can easily open an image or a series, enter text into input field for Easy Report and as soon as image/series is closed again, the Report is automatically stored in a text file in the configured directory without the need for saving it separately as a DICOM file in the archive.

The Report is automatically shown again at the next image/series request and can be also modified at this point. Allocation between the image and text file occurs at that through SOPInstanceUID of the image or through SeriesInstanceUID in case of CT and MRT series. The text file receives this ID (e.g. 1.2.840.10008.5.1.4.1.1.1.txt) as filename.

If the text file is deleted from the directory, the Report will be no more shown too.

If an image is opened on several monitors at the same time and Easy Report is available on these monitors, the text can be then entered into input fields of the initially opened image only. The field of another image is then write-protected.

18.3 MS Word report

Here, the directories for the templates and the output dirctory of the reports are defined. These must be separate directories. Creationg, editing and deleting templates as well as reports should also be possible for the user. Thus the directories must be known and accessible to the user. The course of action for creating templates is described in details in th User's Manual.

Deleted files will not be deleted from the data medium but moved into the subdirectory "Recycled" in the output directory. The permanent removal of the reports from the data medium must be executed manually.

WordPad-processable files in RTF format can be used alternatively to MS Word. WordPad is a component of Windows.

Please note that the RTF files with integrated images or graphics can eventually be very large. Optionally other text editing softwares, e.g. OpenOffice, can be used for processing the RTF files. However, those softwares need to be tested priorly. All workstands within the same institution should use the same program in the same version.



18.4 System tray icon

In order to have digipaX active permanently, you can activate this option on the "Administrator / Others" configuration page, which after ending (red X) minimizes digipaX to the system tray as an icon. This is also the default setting.

When the application is minimized to the System Tray, images are still received in the background, the cache is monitored and the "awakening" by GDT is faster than restarting the program. Through the context menu of system tray, you can re-open the main window, or close the application.

If by clicking on the red X to close the application at the same time you press one of the Shift or Ctrl controls keys, then the application will actually closed completely.

The computer can be normally shut down or restarted without closing digipaX. In such a case, digipaX is properly closed during the shutdown process.

18.5 Automatic start

Also on the "Administrator / Others" configuration page, you can activate the option to automatically start. With this, digipaX starts automatically with Windows and will be found on the system tray. When the desktop icon is double-clicked or it is loaded by another system (GDT), only the window is activated, which allows a faster "start". You can choose whether the patent's data is to be initiated at this time, and whether during the automatic loading process the digipaX logo is to be shown.

With the setting of initializing delay the auto boot of digipaX can be delayed e.g. to wait for start of the Windows and network services.

18.6 Patient's CD auto-start

In the installation directory there is file "dpview.ini". This file is copied to patients' CDs, if "Integrate browser" option is set. In this file, on the line "StartQuestion = true" resp. "StartQuestion = false", you can set whether the user will be prompted when you insert the CD, or whether you want to launch the browser. If "true", then the user will be prompted, and if "false", the browser will run automatically without asking the user. This setting must be set manually in the file with an editor.

18.7 Disabling CD/DVD AutoPlay

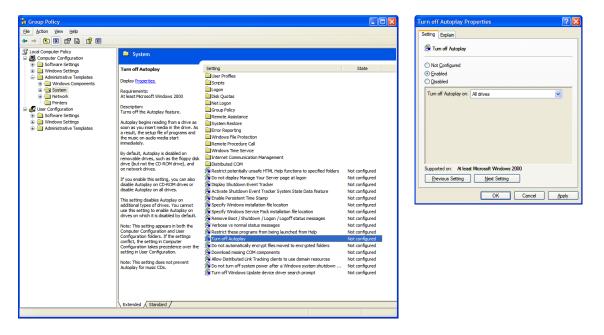
In order that the Windows dialog box does not appear permanently when inserting data medium in the disc burning driver, the Windows AutoPlay function can be disabled in the local group policies.



18.7.1 Windows XP

Through "Start", then "Execute" with the "qpedit.msc" command the Local Group Policies are opened.

In the subdirectory "\Computer configuration\Administrative templates\System" open "Disable AutoPlay" and set on "Activated/All drives".

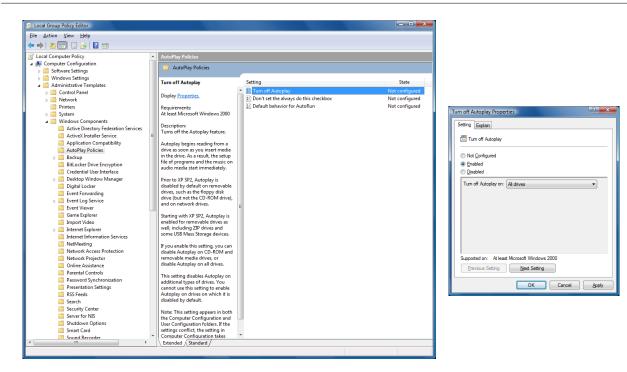


18.7.2 Windows Vista/7/8/8.1/10

Through "Start"("Start" with the right mouse button for Windows 8/8.1 and 10) and then "Execute", or through "Start"and then "All programs / Accessories / Prompt" with the"qpedit.msc" command the Local Group Policies are opened. In the subdirectory "\Computer Configuration \ Administrative Templates \ Windows Components \ AutoPlay

Policies" open the entry "Disable AutoPlay" and set on "Activated/All drives.





Changes will be effective only after Windows reboot and they apply to all users of that computer. For computers that are members of Windows domain, the domain policies are binding. If other settings were done there, the settings done here are ineffective. In such a case, the group policies of the domain must be adjusted on the domain controller

18.8 Selection of burning software

In the configuration, you can set under the "Administrator/Patient's CD," whether for burning patients' CDs/DVDs you want to use the built-in burning engine or Nero. To use Nero, Nero must be installed. The installation is described under point 4.11 Nero.

18.9 Burning robot

digipaX can support a connection to a burning robot. With the help of the robot, patients' CDs can be burned and printed automatically. Settings for the burning robot can be found in the configuration under "Administrator/Patient's CD." digipaX uses only devices shown in the drop-down list on "Burning robot type". A detailed description of the connecting and configuring is provided in the additional document designed for this purpose. The burning software choice described in chapter 18.8 has no impact on the use of the burning robot.

18.10 Specials

Activating checkbox "Specials" activates an additional feature in the dialog box for patient CDs.

Thereby, the data of patient CD are copied into a target directory and can optionally undergo further processing by an external program. This can be necessary if e.g. special drives or special data storage media are used.



Caption:

Under this indication a function appears in the dialog box for creation of patient CDs

- Target directory:
 A directory which the data of the patient CD is copied into
- Clean up target directory priorly: All data in the target directory are priorly deleted (no overwriting of existing data is possible, this means that no new data can by copied if data of the previous patient CD is still contained in the target directory)
- Program to be called up: This program is called up after data is copied (e.g. a special batch file that processes data subsequently)
- Attach disc name as a parameter: The disc name from the dialog box for patient CD is transferred as a parameter upon program start-up.

18.11 Area of application settings

In the 1.2.4 version, all the settings for each user are stored separately. From version 1.2.5, you can choose in the administrator (Others) settings, if the settings are to apply to all users or only for the current/logged in user. By default, with a new installation the option to all users is applied. When updating an older version, the option for the current user is still used – but it can be changed manually.

18.12 Label print

Templates, background images and graphics for printing labels can be found in the digipaX installation directory "Label print". Each template can be transferred to other stations simply by copying the "Label print" folders.

18.13 Hanging Protocols

The module is available only if it is enabled in the license configuration.

The Hanging Protocols can be configured only through edition of the protocol files in the subdirectory "Hangings" of the instalation directory. A separate file must be created and configured for each Hanging Protocol. The number of possible protocols is unlimited. The filename for a protocol file is freely choosable, the file extension must be "hp" (example: mammo.hp) and the file content is text-based in the XML format. Edition in an UTF-8 capable text editor is necessary.

When starting digipaX loads the available protocols. If an error occurs during this process, digipaX produces a warning message. For error analysis you can take a look in information in the log "Hanging Protocols". After rectyfying in the protocol digipaX must be restarted in order to re-load the protocols.



Adjusting and extending protocol files can be done cooperatively with the manu-facturer only.





The user must be informed of any modifications or extensions carried out in the Hanging Protocols. Additionally, the user must be informed that not all images might by automatically presented in the layouts and that further images need to be activated manually from the preview tree.



19 Program parameters list

The following table provides a list of possible parameters that can be passed to digipaX, and their meaning. Parameters can be passed in the following forms: $/p \ p \ r -p$.

Parameter	Meaning	Description
/w	Worklist	Create a new job, even when the image receiving mod-
		ule (GDT) is active. Usually it is assumed that a new
		study is required as opposed to being received directly
		at the station.
		Do not use together with /i.
/i	Import	Loading the importing component, also when the im-
		age reception module (GDT) is active. Usually it is as-
		sumed that a new study is required as opposed to be-
		ing received directly at the station.
		Do not use together with a /w.
/pm	Patient Man-	Loading patient management when a new study is re-
	agement	quested by the GDT. In this way, for example, patient's
		CD can be imported, and even follow up with a re-
		vertive entry in the record card. Do not use together
		with /w or /i.
/pcd	Patient's CD	Executing the patient's CD component after selecting a
		patient (GDT interface with record type 6311). In this
		way you can start burning the patient's CD directly in
		the patient management.
/a< <i>password</i> >	Admin	Automatically login as an administrator. Manual log-
		ging in with providing a password is no longer neces-
		sary.
		For "password" please use the set password.
		Warning: Do not use it with a client!
/ds	Device Simula-	Activation of the simulation module for receiving the
	tion	image. Additional devices are then available only for
		simulation. Additional buttons in the toolbox for re-
		ceiving an image to simulate the reception of values.
/systray	System Tray	Running the application in the system tray - thus only
		as a symbol on the right side of the taskbar.
/noinit	No Init	Without initiating patient data when you start it in the
		system tray. Only with the /systray option.
/nologo	No Logo	Without showing the start up logo when starting in the
		system tray. Only with the /systray option.
/mp	Multi-Patient-	Activation of the multi-patient module for this session.
	Module	The image receiving module, alternatively is deactivat-
		ed for this session. This makes it possible to burn a
		few patients' CDs on the receiving station.



/ami	Allow Multiple	With this option launching of several digipaX instances
	Instances	is possible.
/pid <patien-< td=""><td>Patient-ID</td><td>Patient with appropriate patient-ID is loaded after pro-</td></patien-<>	Patient-ID	Patient with appropriate patient-ID is loaded after pro-
tID>		gram startup (example: /pid 12345)
/study	Study	Study with appropriate StudyInstanceUID is loaded after
<studyuid></studyuid>		program startup (example: /study 1.2.345.0.123)



20 Device connections

Particular devices are activated by activating the group and then by selecting the device. Most devices require accompanying software that must be previously installed and set up. The pre-defined program paths and parameters correspond to the ordinary default settings or, if necessary, they must be adjusted accordingly.

Procedure Codes for different devices may be transferred to their softwares. The system supports up to 3 devices. For transfer, a separate tag in the worklist job for each Procedure Code is used. The set tag must also be additionally adapted in the job management (see also section 8.4 Procedure Codes).



Thorough staff training in details of using Procedure Codes is necessary. Depending on used devices resp. systems possible control means are to be pointed out that are available for checking transfer of the correct Codes (e.g. displaying clear text message for verification of chosen system settings). The user must check accuracy of the settings prior to each image acquisition process by this system. If settings are incorrect, please check Procedure Code and contact your system administrator if need be.

20.1 Scanner connections (CR-Reader)

20.1.1 Connecting iCRco

The following CR-Readers of this manufacturer are supported: iCR-1000, iCR-2600, iCR-3600. Installed XScan32 software and existing iscan.exe program are the prerequisites. crProc.icr and crProc.ini files are read from the set image path and imported. If necessary, further files can also be imported from this transfer folder (then, the filenames are: crProc.icr/ini, cr1Proc.icr/ini, cr2Proc.icr/ini etc.). Progressive image after image processing is recommended.

Scan program:	C:XScan32 iscan.exe
Image path: (import):	C:\XScan32\import
Name of manufacturer:	iCRco
Name of model:	iCRxxxx

The options "Forward patient data and job description" and "Transfer Procedure Codes" are usually activated at the time. You must select a tag for Procedure Codes.

Due to XScan software it is possible that port 104 is already occupied and it cannot be used for image search. In this case, the port must be changed in the digipaX (configuration site "DICOM / Network" -> Port for image search). You can select any port from 1024, i.e. 2300. Care has to be taken that this port is also to be entered properly in Conquest ("Known DI-COM Providers").



20.1.2 Orex connection

The following device is supported: PcCR 1417 ACL4 System. Properly installed software for the device is a prerequisite.

Scan program:	C:\WINDOWS\scanner_interface.exe
Image path: (import):	C:\Orex
Name of manufacturer:	Orex
Filename of image file:	Orex.raw
Configuration file (INI):	C:\WINDOWS\Digident.ini

It may be necessary to adjust the path for image import and the name of image file in the Orex configuration.

20.1.3 Connecting Kodak PoC 360

The following device is supported: Kodak PoC 360 (in the meantime Carestream POINT-OF-CARE CR 360 System).

Properly installed "Kodak QC" software for the device is a prerequisite.

Scan program: C:\Program Files\Kodak\KodakQC\PoC 360\GenRAD\Bin\KodakQC.exe		
Program parameters:	C:\Program Files\Kodak\KodakQC\Images\RTImages	
Name of manufacturer:	Kodak	
Name of model:	PoC 360	

In order to avoid overflow of the harddisk storage capacity the RAW data in the $...KodakQC\Images\RTImages$ and $.KodakQC\Images\RTImages\Ar$ directories is deleted after acquisition of each image.

Setting mode determines which mode the Reader will be driven in. For a Single Mode, a tag for transfer of Procedure Codes must be determined. Kodak software configuration can be accessed via "Kodak Setup".

20.1.4 Connecting Carestream Vita

The following device is supported: Carestream Vita.

The product Carestream Classic can be integrated as a Standalone System using DICOM interface, but not through a direct interface.

Properly installed software for the device is a prerequisite.

Scan program: C:\Program Files\Carestream\CarestreamCR\GenRAD\Bin\KodakQC.exe		
Program parameters:	C:\Program Files\Carestream\CarestreamCR\Images\RTImages	
Name of manufacturer:	Carestream	
Name of model:	Vita LE	

As in the case of Kodak, the RAW data in respective directories "...\Carestream\CarestreamCR\Images\RTImages" and



"...\Carestream\CarestreamCR\Images\RTImages\Ar" is deleted after each image acquisition in order to prevent data overflow.

These settings are the same as in the case of Kodak system. Procedure Codes of Kodak are also used. Setting mode determines which mode the Reader will be driven in. For a Single Mode, a tag for transfer of Procedure Codes must be determined. Carestream software configuration can be accessed via "Carestream Setup".

20.1.5 Connecting Carestream Vita Flex

The following device is supported: Carestream Vita Flex.

The software digipaX communicates with the device via Carestream Vita CR UltraLite interface. Instalation of the software "Carestream CR Software" is required (version 3.2.4.6 or higher). After installation the language of the software must be set in the configuration file "UltraLite.ini" that is kept in the following path:

C:\Program Files (x86)\Carestream\CarestreamCR\GenRAD\General Config\UltraLite\ The language setting in the section "[UI_SETTINGS]" in the segment "Language=". Example for German:

[UI_SETTINGS] Language=de-DE

English is set as a default language. For setting other languages please refer to the documentation of Carestream.

For optimal postprocessing the Procedure Codes for "Carestream Vita Flex" in the organ table are required. The tag for transfer of the Procedure Codes must be set in digipaX (configurationspages Administrator/Job management and Connecting devices).

20.1.6 Connecting DICOM scanner

This (virtual) scanner can be used when no direct connection to the device is possible as i.e. Proscan. In this case, the images are acquired regardless of digipaX and must be then transmitted manually to the import directory in order to be imported from there to the system. For this purpose, a path to the import directory must be set and, if necessary, a filter for the file ending of images.

Image path: (import): C:\Import Import filter (filename): *.dcm

20.2 Detector connections

20.2.1 Connecting Teleoptic Alpha 4600

The following device is supported: Alpha 4600.

Properly installed software (SDK) to the device is a prerequisite. It must also be set in that manner that the file AlphaDR_Image.dcm is created in the specified image path.

 $Scan \ program: C: \ Program \ Files \ Teleoptic \ Alpha Plus EUC on trol. SDK \ Client \ APGUI. exe$



Image path: (import): C:\Program Files\Teleoptic\AlphaPlusEUControl.SDK\Server\Win32Name of manufacturer:TeleopticName of model:Teleoptic Alpha 4600

Procedure Codes can also be transferred for Alpha 4600. in order to do that the option must be activated and the tag selected.

20.2.2 Connecting Xcan detector

The following device is supported: XCAN DR-System. Properly installed software to the device is a prerequisite.

Scan program:	C:\Program Files\X-Ray Scanner System\XR_Scan.exe
Program parameters:	$C:\Program Files\X-Ray Scanner System\Images\dx.tif$
Image path: (import):	C:\Program Files\X-Ray Scanner System\Images
Name of manufacturer:	XCAN AG

Optionally, the values "Body Part Examined" and "View Position" can be read from "dx.ini" and inserted and saved as an image description. This is reasonable, for example, when you work without job management, where this data would be taken over from the jobs as a rule.

First, a directory for image import must be created. In doing so, the path can be chosen freely. If a different path is set, it must also be adjusted in the "Program parameters". The filename "dx.tif" **must not** be changed.

Acquisition parameters can also be transmitted through Xcan detector, if the detector is connected to a suitable measuring device. The values will be adopted automatically when they are transferred by the detector in the "dx.ini" file. The unit of transferred dose area product is "dGy*cm²".

20.3 Generator connections

The generator values can optionally be provided for manual creating the X-ray journal entries. For this purpose, an appropriate option must be activated.

The Procedure Codes can be automatically transferred by pressing the acquisition switch on the generator, if the generator supports a direct activation with Procedure Codes (i.e. GENE-SIS 50 RFT and DT). This feature is not available in combination with a CR reader but only with a detector. When a CR reader is used as an image acquiring device this option has no effect.

20.3.1 Connecting GENESIS 50 RFT / DT

The following devices are supported: GENESIS 50 RFT / GENESIS DT.

Data exchange can run, depending on the generator, either via FTP connection or directly via a local or a network directory.



Direct data exchange via a directory requires a software provided by the manufacturer (user interface). The data is exchanged through a joint directory. Otherwise an FTP connection via a COM port (RS232) is required.

20.3.1.1 Connecting directly via a directory

The option "directly" is selected on the configuration page for connectiong devices in digipaX. The same directory is selected as transferring directory that is also set in the software of the manufacturer od the generator. For more details please refer to the documentation of the device.

20.3.1.2 Connecting via a COM port (RS232).

A new conection must be established for the device.

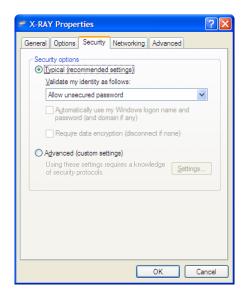
20.3.1.2.1 Creating network connection via RS232 (Windows XP)

- Assistant for new connections
 - Setup extended connection
 - Establish connection directly with another computer
 - o Guest
 - Enter name of another computer (e.g. X-RAY)
 - Select the appropriate connection (e.g. COM1)
 - Complete
- Connection properties
 - General: check COM1 (must be selected)
 - Configure
 - Baud rate: 38400
 - o Options:

eneral Option	ns Security	Networking	Advanced	
- Dialing option				
	progress while or name and i	connecting bassword, cert	ficate etc.	
	<u>W</u> indows logo			
De de la contra				
Redialing op			0	*
<u>R</u> edial atten			-	*
<u>T</u> ime betwe	en redial atter	npts:	1 second	*
Idle time before hanging up:		never	*	
Redial if	line is droppe	d		



• Safety: typical (recommended setting); Allow unsafe password



- o Network
 - PPP
 - TCP/IP properties:
 - o Obtain IP automatically
 - Extended: Deactivate "Use standard gateway for remote network"
- Activate Save the password If needed, activate temporarily the option "Retrieve name, password, certificate etc." and then create the connection

Connect X-RA	Y ?🛛	
<u>U</u> ser name:	edv1	
Password:	[To change the saved password, click here]	
 ✓ Save this user name and password for the following users: ○ Me only Only Only 		
Connect Cancel Properties Help		

 Verifying connection, if it can be created and then disconnected by connection context menu without showing the dialog boxes.



20.3.1.2.2 Creating network connection via RS232 (Windows Vista / Windows 7)

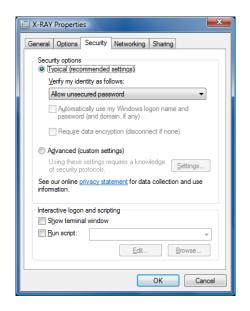
Installation of a "communication cable between two computers" may be necessary for Windows Vista or Windows 7.

- System control panel / hardware
 - Select hardware manually from the list...
 - o Modems
 - Activate selection of the modem (no automatic identification)
 - Communication cable between two computers
 - Select the appropriate connection (e.g. COM1)
 - Complete
- System control panel / network and sharing centre
 - Setup connection or network
 - Setup dial-up connection
 - Dial-in number=0; User name=edv1; Password=edv1
 - Activate Save this password
 - Give the connection name X-RAY
 - \circ Activate Allow other users, ...
- Connection properties
 - General: check COM1 (must be selected)
 - Configure
 - Baud rate: 38400
 - Call number can be deleted
 - Deactivate Use dial-up rules
 - o Options:

General Options Security Network	king Sharing
Dialing options Dialing options Display progress while connect Prompt for name and password hclude Windows logon domain Prompt for phone number	, certificate, etc.
Redialing options	0
<u>R</u> edial attempts:	1 second ▼
Time between redial attempts:	
<u>Time between redial attempts:</u> Idle time before hanging up:	never 🔻
	never
ldle time before hanging up:	never
 Idle ti <u>m</u> e before hanging up: Idl <u>e</u> threshold:	never



• Safety: typical (recommended setting): Allow unsafe password



- o Network
 - Deactivate all except of TCP/IPv4
 - TCP/IP properties:
 - Obtain IP automatically
 - Extended: deactivate "Use standard gateway for remote network"
- Activate Save the password

if needed, activate temporarily the option "Retrieve name, password, certificate etc." and then create the connection

Connect X-RAY			
User name:			
Password:	[To change the saved password, click here]		
✓ Save this user name and password for the following users: ○ Me only Image: Suppose who uses this computer			
Dial	Cancel (Properties) Help		

 Verifying connection, if it can be created and then disconnected by connection context menu without showing the dialog boxes.



20.3.1.3 digipaX settings

On the configuration page "Device connections" in the digipaX the generator connection is to be activated. Select "GENESIS 50 RFT" as the generator type in the drop-down menu. If the connection to the generator was not automatically established in a different manner, it must be created by digipaX first. Activate the option "Connect and disconnect automatically" and enter the selected name for connection (X-RAY).

The following settings are recommended by the manufacturer:

Hostname / IP	10.10.10.10
User name	edv1
Password	edv1
Directory	pub

Update interval indicates in how many seconds the new values are to be searched for (standard: 10 seconds).

20.3.1.4 Sending Procedure Codes

Using this connection, it is also possible to send the procedure codes for the generator. For procedure codes, it is necessary to select the tag, which has also been set for the generator codes in the job management. Moreover, the organ chart for job creation must contain the codes for this device.

20.3.1.5 Adjusting X-ray journal settings

The dose area product (DAP) is transferred by the device in mGy*cm². dGy*cm² m is a default setting in the X-ray journal. Therefore, the designation of that field in the X-ray journal should be adapted to mGy*cm². No conversions are done (see 12 X-ray journal).

20.3.2 ProVario connection

Filename:	$C: \ \ C: \ \ \ C: \ \ \ \ \ \ \ \ \ \ \$
Update interval:	10 seconds

When using Procedure Codes for ProVario, the tag for them cannot be changed. The tag "Requested Procedure ID" is always used. If Procedure Codes are additionally to be transferred from other devices (scanner), care should be taken to use a different tag for these devices.

20.4 Dosimeter connections

20.4.1 Connecting KermaX

The following device is supported: Wellhöfer/Pehamed KermaX (IDP/SDP). Proper connection of the device to a RS232 interface (COM1 to COM10) is a necessary condition.

20.4.1.1 Default settings Interface: COM1



Update interval:	10 seconds
Threshold value:	0,00 µGy*m²
Reset:	activated

20.4.1.2 Connecting the device

The device shall be connected with the PC through one of COM-Ports 1 to 10 according to manufacturer's information (RS232). The settings for serial interface (Baud rate, parity etc.) do not need explicitly to be used. They will be set automatically implicitly by digipaX.

20.4.1.3 Device configuration

First, select the desired COM port in the configuration. The connection can be checked by pressing the "Device Info" button when the device is turned on. If errors occur while retrieving data, the port may be changed.

Update interval indicates in how many seconds the new values are to be searched for (stand-ard: 10 seconds).

While shaking the device may show minor deviations. Therefore, you can specify the threshold value for retrieving values in the configuration. If the shakes that may lead to deviations are in principle excluded, then the preset 0.0 can be retained any value greater than 0 will then be accepted as a new measurement result. If, however, slight deviations can occur, it is recommended to rise the threshold value slightly. The two tables below show the pointers for their assignment.

X-ray	Dose area product (Priority)	Incident dose	Surface dose
	[cGy x cm ²]	[mGy]	[mGy]
Skull ap/pa	110	3,7	5,0
Skull lat	100	2,3	3,0
Thorax pa	20	0,21	0,3
Thorax lat	100	1,1	1,5
Thoracic spine ap	220	5,2	7,0
Thoracic spine lat	320	9,0	12
Lumbar spine ap	320	7,4	10
Lumbar spine lat	800	22	30
Pelvis ap	500	7,0	10
Abdomen	550	7,0	10
Mammography (cc and mlo)	_	_	10

Diagnostic reference levels for X-rays of adults

(Source: Bundesamt für Strahlenschutz)



Type of study	Age	Dose area product (Priority) [cGy x cm²]
Thorax ap/pa	Premature babies (ca. 1000 g)	0,3
	Premature babies (ca. 3000 g)	0,8
	10 ± 2 months	2
	5 \pm 2 years	3
	10 ± 2 years	4
Thorax lateral	5 \pm 2 years	7
	10 ± 2 years	8
Abdomen ap/pa	10 ± 2 months	25
	5 \pm 2 years	50
	10 ± 2 years	60
Pelvis ap	5 \pm 2 years	25
	10 ± 2 years	30
Skull ap	10 ± 2 months	30
	5 \pm 2 years	40
Skull lateral	10 ± 2 months	30
	5 \pm 2 years	30
Miction cystourology	Premature babies (ca. 3000 g)	60
	10 ± 2 months	90
	5 \pm 2 years	120
	10 ± 2 years	240

Diagnostic reference levels for paediatric X-rays (Source: Bundesamt für Strahlenschutz)

For thoracic X-rays of premature babies the threshold value is to be set to a maximum of 0,3 μ Gy*m² (this is the equivalent of 0.3 cGy*m²). If, however, no thoracic X-rays of children but only those of adult patients will be done, the safer threshold value of 10 or 15 μ Gy*m² is possible. With this setting, receiving new values "accidentally" should not take place.

Usually, the values are reset immediately after their receipt by the device. If a longer displaying of the values on the device is needed, the option "Reset" can be deactivated. After receipt of a new value the system will then wait as long as the user prompts on his own the reset of the values by pressing the RESET button on the device. On that point, the values will still be retrieved until the 0 value for the dose is delivered. Then subsequently the values greater than 0 are again evaluated. Reset of the displayed values might be done just before the next acquisition, thus a shorter update interval is recommended, so as not to miss the 0.

20.4.1.4 Errors

What to do if a wrong value has been read anyhow?

Provided that the receipt of the value has been noticed immediately, the new job created as the result of that can be rejected on the spot. However, this usually does not happen. All acquisitions can be performed further on irrespective of a redundant value. In such case, values must be assigned manually to the appropriate image.



The received values can also be gathered entirely from the list of backups so that they are properly assigned and can be transferred to the appropriate images.

Should receiving of "wrong" values occur more often and the threshold value cannot be raised any higher, it is recommended to disconnect the device from the system and to enter the values manually.

20.4.1.5 Adjusting digipaX

The device displays DAP in μ Gy*m². Therefore it is recommended to adjust this unit also in the digipaX. The unit can be activated on the configuration page, Admin / Others (dGy*m² is the default setting because it is the value used in the DICOM standard). The value entered resp. shown on the memory card in the digipaX is automatically converted and stored in the "dGy*m²" unit in the DICOM Header.

20.4.2 Dosimeter values for entry in X-ray journal

If entries in X-ray journal are made not directly at the image acquiring station but manually, e.g. In the job management or via image reception, dosimeter values can be made available optionally through an additional table of values in the dialog box for data recording.

It is to be noted that the values are converted to $_{,d}Gy^*m^{2^{"}}$ upon receipt to be in conformity with DICOM standard. Hence designation of the appropriate field in the X-ray journal is to be be checked and adjusted accordingly if needed.

20.5 Connecting foot switches

When using the frame grabber module, foot switches can be used to control the functions "Start/Stop Livebild" and "Snapshot" as well as "Acquisition of image series".

Foot switches that simulate keypress on the keyboard (F5, F9) do not need to be specially configured in the digipaX. The keys to be controlled are set by the corresponding software.

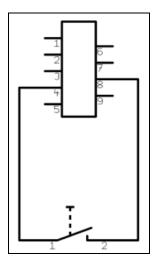
Moreover, there are foot switches with RS232 interface (COM port) supported that switch one of the control cables CTS, DSR, DCD or RI per pedal. The cables must be open (signal 0) and close only after pushing the pedal (signal 1). There must be a pedal connected for each function. Individual foot switches or one foot switch with a number of pedals can be used to various COM ports. For cable allocation to the devices in use please refer to the related doc-umentation. The allocation can also be tested with the "Test control cable" in the configuration.

Foot switch type:	RS232					
	X Start live image	Interface:	COM1	•	Control wires test	
		Control wires:	CTS	-	COM1 Start / Stop	
	X Acquire snapshot / image series	Interface:	COM1	-		
		Control wires:	CTS	-	COM port dosed CTS: 1 DSR: 1 DCD: 0 RI: 0	
					CTS: 1DSR: 1DCD: 0 RI: 0	
					CTS: 1 DSR: 1 DCD: 0 RI: 0 CTS: 0 DSR: 0 DCD: 0 RI: 0	
					CTS: 0 DSR: 0 DCD: 0 RI: 0	^

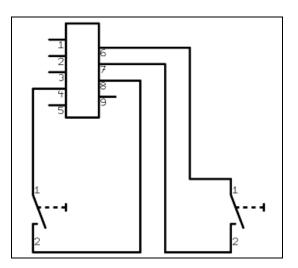
For that, select the COM port which the switch is connected to and start the test by pressing "Start/Stop". Four supported cables with related status are shown behind it. They all must be 0 when the pedals are not pushed. When a pedal is pushed and the cable connected to this pedal closes, the status changes from 0 over to 1. The pedals in the left part for live image and snapshot can be configured according to the cable allocation.



Example: schematic of one pedal



Example: schematic of two pedals



20.6 Connecting acquisition of image series

20.6.1 Importing graphics

With use of graphics import the devices can be connected, that acquire the images or image series independently and store them in a directory. Pixel graphics, RAW images or DICOM images can be processed. The directory is monitored by digipaX and imports image data after the adjustable waiting time.

Image path:	the path where the image data are stored
Delay:	waiting time until the import starts after receipt of the last image
Filter image files:	filter for filenames which are to be imported
Sorting:	sorting by filename or timestamp (change) of the file
Filter deletion:	filter for files, which are to be deleted from the directory after import
Error message:	shows error message when a file cannot be deleted,



because it is still blocked by another application

Format: Format of imported data

• DICOM:

0

RAW format:

DICOM images

- \circ Standard pixel graphics: $\hfill JPEG, BMP \mbox{ or TIFF}$
 - only 8-bit greyscale is supported
 - Image width: width in pixel of RAW data
 - Image height: height in pixel of RAW data



20.7 Connecting MRI

20.7.1 Connecting Helpic

The MRI devices Everest 1.5T, Renex 0.3T manufactured by S.P. Helpic Ltd. are supported. A prerequisite is that the software "dtcomm" is installed and the program dtcomm.exe is present.

From the setup image path out the files are imported in DICOM format.

Scanprogramm: C:\tomwork\dtcomm.exe Image path: (Import): Path in which the images are transferred (must be defined manually) Name of the manufacturer: Helpic Name of the model: Everest 1.5T or Renex 0.3T

20.7.2 Filters for MRI

Optionally, filters for MRI image acquisition can be used. Using filters must be enabled in digipaX. Furthermore, a special license with a dongle is required that is to be purchased.

For the dongle, the file "Sentinel Protection Installer 7.6.6.exe" must be installed. In some circumstances, certain C++-Libraries with "vcredist_x86.exe" still need to be installed.

The license file "CVLicense.def" must be copied into the subdirectory "CVHelpic" in the digipaX installation path. Afterwards, the program "CVLicense.exe" must be launched in the same path, and the license file must be selected in the menu under "File/Import license file...". The license key will then be entered in the menu under "Edit/Set License Key for selected product...". Following the succesfull entry filters for MRI are available. There are several predefined filter files in the directory "CVHelpic". New filter files should also be copied into this directory. They are not automatically active but need to be added by the user to the list in the tab for MRI image acquisition.



20.8 Connecting video sources

By means of the frame grabber module video sources such as video converters, ultrasound devices or fluoroscopic X-ray units can be connected. There are frame grabbers/converters of the manufacturer "The Imaging Source" supported (e.g. DFG/USB2pro Video-to-ISB converter). They must have "WDM Stream Class Driver" (suitable for Windows version used) and support DirectShow. The operating systems Windows XP SP2 or higher, Windows Vista and Windows 7 all from version Professional or Business with 32 bit and 64 bit are supported. Moreover, DirectX9.0c or higher must be installed.

For video transmission and acquisitions acoustic signal tones can be played. These signal tones signalize that e.g. an image acquisition occurred. This function is used for control when the user does not have the monitor in view. For that, the PC must be equipped for sound playback (sound card, loudspeakers etc.).

For control foot switches with USB connections or serial interfaces (RS232) can be used. The foot switches with USB connections must have two pedals for which the "F5" and "F9" keys can be programmed. An example device for the USB connection is the USB Double Foot Switch II of Scythe.

Foot switches with serial connections must be devices that close the control cable by pushing them (NO switch) - see also section 20.5 Connecting foot switches.



20.9 Connecting burning robots

The settings for connecting a burning robot can be found in the configuration under Admin / Patient CD.

20.9.1 Connecting Epson Disc Producer PP-100/PP-100N

The burning robot is either connected via USB to the server or added via network interface to a network.

Burning jobs are forwarded from individual digipaX stations through shared folder on the server. The software of Epson burning robot takes over the execution of jobs and provides the tools for their control. This can be effected by means of PP-100N model from each station using the browser.

20.9.1.1 Installation

The following software systems are to be installed on the server (or at any other station, e.g. reception desk):

- Total Disc Maker (full)
- TD Bridge

Both systems are included in the delivery. Install the systems following the guides of the manufacturer.

The software "Total Disc Maker" is a generic interface for using the device. Using the software "TD Bridge" other applications, as the digipaX software in this case, can forward burning and printing jobs to the system.

20.9.1.2 Configuration

20.9.1.2.1 Total Disc Maker

Start the application "EPSON Total Disc Setup" in order to get to the configuration of the PP-100N model. Select the device and subsequently the function "Start Total Disc Net Administrator". A standard browser with a Login mask opens. This configuration is to be called-up at each workplace through the shown address (URL). While calling this site the first time, you will be asked to register as Admin. After you have successfully logged in, you can access to the settings of the device.

The device got two so-called staplers for blank disks. They can be filled with various types of media (CD, DVD or DVD-DL). The types used are determined in the configuration. While creating a patient CD in the digipaX, the medium type is indicated and while burning, the appropriate stapler is automatically accessed.



20.9.1.2.2 TD Bridge

You reach these configurations calling-up the program "EPSON TD Bridge Environment Settings". The "Monitoring folder" selected here, and so the folder through which the jobs and data are exchanged, shall be shared in the network, so that all other users are able to write in it.

Additionally, set in the configuration the option "TD Bridge Startup Type" on "Automatic (when starting PC/service)". In this way, after computer boot all is ready for use of the device with the digipaX.

EPSON TD Bridge Environment Settings	
General PP-100/PP-100N PP-100AP	_
Monitoring Folder C:\EPSON\TDBridge\Orders Browse	
TD Bridge Startup Type	
Automatic (when starting PC/service)	
Start Total Disc Monitor minimized	
Default output device	
PP-100N 1 -	
Default output stacker in standard mode	
Stacker4 🔹	
Print Setting Label Type	
CD/DVD Label	
OK Abbrechen	

20.9.1.2.3 digipaX

Burning robot			
Burning robot type:	EPSON Disc Proc	lucer PP-100 / PP-100N	-
	Monitoring Folder	: C:\EPSON\TDBridge\Orders	
	Device name:		
Burning robot settings:	Writing speed:	12	-
	Compare:	Compare summary (recommended)	
	Job name:	Patient's name (ASCII characters only)	
		Computer name + time stamp	

On the configuration page "Admin / Patient-CD" you define the necessary settings for proper use of the device with the digipaX.

First select the Epson Disc Producer as type of burner. Enter the same **Monitoring Folder** as in the settings for TD Bridge resp. folder shared in the network.

If you use more devices you can specify the target device for this station, indicating the **name of the device**. Leave this box blank if you have registered only one device in the net-work.

Specify burning speed that will be used in the setting **Writing speed**.

It is recommended to activate the option **Match** in order to discover errors in burning process. In the case of error an incorrect image will be printed on the disk and the disk will be automatically re-produced.

In the burning job management the jobs are listed with the **job names**. It is recommended to activate the option "Patient name" here so that it is easily recognized in the list of jobs, which patient-CDs will be burned. A serial number is added to each job, because the job names must be unique. However, the job names must be converted into ASCII codes, which is not always possible with character codes set in some systems. In such case the coming up job names are no longer read easily and it is recommended to change to option "Computer name + timestamp".



20.9.1.2.4 Printer

Size of printable space is to be set in the print settings of the EPSON DiscProducer. In order to do this, call up the dialog box "Print properties" from the context menu of the printer "EPSON PP-100"/"EPSON PP-100N". Select "User-defined" as the label size. A dialog box for setup of circle diameter opens. Set "digipaX" as the name and specify inner and outer diameter in millimetres x 10. Confirm with OK and subsequently select "digipaX" as the label size.

Druckeinstellungen t	für EPSON PP-100NPRN	Indiana Indiana	×
Haupteinstellungen	📑 Utility		
	Zufuhrstapler ([)	Stapler 1 CD-R	Tintenstand
e	Ausgabestapler (<u>0</u>)	Stapler 4 👻	
4	Etikettentyp	CD/DVD-Etikett 🔹	
Standard Außenseite:1160 Innere :450	Moduseinstellung	Schnell	
Farbanpassung Foto-realistisch Versionsinformation	Etikettengröße (S) Exemplare	Standard Trockeding Drucks	gszeit(<u>D</u>) 0 🗼 sec <u>v</u> orschau
		OK Abbrechen Ober	nehmen Hilfe



20.9.2 Connecting PRIMERA Disc Publisher

Burning robots are connected via USB to the server.

Through an enabled folder on the server burning orders are transmitted from particular digipaX stations. Software of the PRIMERA burning robot undertakes processing of the orders.

The following models are supported: Bravo XRP, Bravo XR, Bravo II, Bravo Pro, Bravo SE, Bravo Pro Xi and Bravo 4100.

20.9.2.1 Installation

The following software systems are to be installed on the server (or at any other station, e.g. reception desk):

- driver
- PTBurnService
- PTPublisher

The installation begins with the driver CD delivered by the manufacturer. Insert the CD and execute the steps up to and including "Printer setup".

🐖 Disc Publisher SE Installation	
Disc Pub	ISREF DE
Deutsch ·	Drucker einrichten
Willkommen	Windows Security
System prüfen	1 Windows can't verify the publisher of this driver software
Drucker einrichten	Don't install this driver software You should she's your manufacture's whole for updated sheer software
Installation SureThing	Voi should bink, you minute access a require a voice and some of the some of
Installation PTPublisher	 proslati titis utiveti souvente anyvely Ooi justi divis othera debaied from your manufacturer's veloste or doz. Disigned software from other sources may herm your computer or their information.
Registration	🛞 See getaals
Fertig	
	Installisen Gie den Durckertweiber. Klösten Gie auf "Installisen Gie den Treber" um den Druckertweiter auf dem Computer zur einstellisen i Volknet der Treberinstellisten wird eine Medung einstellisten das diesen Treber nicht verlitizeren kann. Klicken Sie auf "Software totzdem installieren" um die Installation abzuschliessen.
Benutzerspezifische Inst	Treiberinstallation
PRIMERA TECHNOLOGY, INC.	🗢 👄

Next, PTBurnService and PTPublisher are to be installed. These are provided on the digipaX homepage in the download area. Versions of both programs must harmonize with each other. On the CD PTPublisher is delivered only, however, it might be that it has another version and does not work with the PTBurnService provided on the homepage.

Optionally, SureThing can be installed. This is a software delivered by the manufacturer for editing CD labels, however, it is not to be used for the labels on patient CDs.

After the installation is completed, reboot the computer. Leave at that PRIMERA on and connected. After reboot drive of the device will be installed automatically.



20.9.2.2 Configuration

20.9.2.2.1 Monitoring Folder

During the installation, a transfer folder for data is set up and configured in the software of the device. The default path is "C:\PTBurnJobs". This path can be changed. To do this, the line "LocalPath=C:\PTBurnJobs\" in section "SHARED FOLDER" of "PTSETUP.INI" of the PTBurnService must be adjusted accordingly. This file is in the directory "C:\Program Files\Primera Technology\PTBurnService". After a change is implemented, the service "PTBurnService" must be rebooted. In order that the other digipaX stations in the network can use Primera, the folder must be enabled with write permissions, so that those stations can store the jobs there.

Further settings for PRIMERA software are not required.

20.9.2.2.2 digipaX

Burning robot		
Burning robot type:	Primera Disc Pub	lisher / Bravo
	Monitoring Folder	: C:\PTBurnJobs
Burning robot settings:	Device name:	
	Writing speed:	12
burning robot settings.	Compare:	Compare summary (recommended)
	Job name:	Patient's name (ASCII characters only)
		O Computer name + time stamp

On the configuration page "Administrator / Patient CD" the settings required for proper use of the device with digipaX are defined.

First, select Primera Disc Publisher as a burner type. On the station, on that the device is connected, enter the same **Monitoring Folder** as in the settings of PTSETUP.INI. On the other stations select a network path for enabling (e.g. \\SERVER\PTBurnJobs).

If you use several devices, you can indicate a target device for this station by indicating the **Device name**. Leave this field blank if only one device is used.

With the setting **Write speed** you define burning speed to be used.

It is recommended to activate the option **Compare** in order to detect errors in burning process. If error occurs, a wrong image will be printed on the disc and a new disc will be automatically produced.

In the job management of burning orders these are listed by **Order name**. it is advisable to activate the option "Patient name" here, so that you can easily recognize in the job list (file list) which patient CDs are to be burned. In addition, always a serial number is yet attached, as job names must be unique. However, job names must be converted into ASCII characters which can be impossible for some defined character sets in the system. In this case, result-ing job names are no more good readable and it is recommended to switch over to option "Computer name + timestamp.



21 Image archive with multiple disks

For larger data resources you can use multiple disks to save the image data to. The disks settings are configured in the dicom.ini file in the Conquest system. This procedure is illus-trated in the following example:

# Configuration of disk(s) to	store images
MAGDeviceThreshhold	= 0
MAGDevices	= 2
MAGDevice0	$= E: \ E: $
MAGDevice1	= F: Images 1
NightlyCleanThreshhold	= 0
NightlyMoveThreshhold	= 0
NightlyMoveTarget	= 0

When the E disk is full, new images are automatically archived to the F disk. With digipaX the difference is unnoticeable, from which disk the images are downloaded from.



Do not use values for MAGDeviceThreshhold and NightlyCleanThreshhold because they remove the images, when the hard disk is full! These values must always be set to 0!

With the usage of the values for NightlyMoveThreshhold, images can be transmitted at night at 2:00 from the MAGDevice0 to NightlyMoveTarget, when the free memory space on the disk falls below the specified value in MB. Value for NightlyMoveTarget may be, for example, "MAG1.".



22 Archiving

22.1 General



The image archive data must be stored on a RAID system to guarantee data security. Every day, data should be protected on a separate disk, and once a week or every 14 days is to write new data to a CD or DVD.

Archiving of images is done by mirroring all incoming objects on a second and even a third data media. For this purpose, USB drives with appropriate size are suitable for this. The NTFS file system must be set on them (typically FAT32).

The method described in this manual uses the "robocopy.exe" tool for data mirroring capabilities of image archives. You can also use a different solution, such as special software used for backing up.

In addition, once a week or every 14 days, you should archive image data on CD/DVD manually.

22.2 Securing MySQL database



Just the backup copy of the MySQL database, without archived images is useless! Therefore, you must immediately secure the images.

As a rule, securing the MySQL database is not strictly necessary, because it contains only references to the actual data (images). In the case of data loss in the system, it is sufficient to restore the image archive and create a new database in the Conquest using the "(Re) initiate the database" button. However, the duration of creating a new database will depend on the system performance and the amount of data, from several seconds to several hours. To secure the database use the MySQL mysqldump.exe tool. With the help of a batch file and the Windows task scheduler, you can program periodic database backups.



Here a template for the batch file: MySQL_Backup.bat:

@echo off setlocal	
set hostname=localhost set username=root set password=root set port=3306 set backup_file=C:\digipaX\MySQL_Backup.spl	
set database1=conquest1 set database2=conquest2 set database3=	
mysqldumphost=%hostname%user=%username%password=%password%port=%port%databases "%database1%" "databse2" > %backup_file%	

Here, only the variables listed as a "set" have to be adjusted to the current system. Then you must add a new task to the task scheduler and select the batch file as the application, and set the desired schedule and extended settings for this task.

MySQL_Backup	MySQL_Backup	MySQL_Backup
Task Schedule Settings Security	Task Schedule Settings Security	Task Schedule Settings Security Scheduled Task Completed
Bun: C.\digipaX\MySQL_Backup bat		Delete the task if it is not scheduled to run again. Stop the task if it runs for: Delete the task if it runs for: Delete the task if it runs for: Delete task if it runs for:
Browse Start in: C^idigipaX	Schedule Task: Start time: Weekly V 12:00 PM C Advanced	Idle Time Only start the task if the computer has been idle for at least: Only minute(s)
<u>Comments</u>	Every 1 🔷 week(s) on: Mon Sat	If the computer has not been idle that long, retry for up to: Impute(s) Stop the task if the computer ceases to be idle.
Run as: PC1V4dministrator Set password	☐ Wed ☐ Thu ☑ Fri	Power Management Don't start the task if the computer is running on batteries.
Run only if logged on Cabled (scheduled task runs at specified time)	Show multiple schedules.	Stop the task if battery mode begins. Wake the computer to run this task.
OK Cancel Apply	OK Cancel Apply	OK Cancel Apply

After a system crash, you first must restore Conquest, restore the backup database on the MySQL server and upload the images from the last backup created before the failure, back to the archive. Restoring the database can be done with the help of MySQL-Workbench, or through the command line, e.g.:

mysql --user=root --password=root <MySQL_Backup.spl

22.3 Mirroring archive data

To perform data mirroring of the Conquest DICOM server, you can use "robocopy.exe". Since Windows Vista, this tool is already a component of the operating system. For Windows 2000/XP this utility is also found on the digipaX installation CD in the "Tools" directory. Mirroring of the Conquest data directory "data" is performed. For this purpose, empty "Data" directory is created on the destination data medium. To make a mirror image of the data,



e.g. "C/digipaX" to "E/backup" the following command must be executed on the command line:

robocopy C:\digipaX\Conquest\data E:\Backup\data /mir

The details of the path to other systems are to be adjusted accordingly (the drive that the mirroring is to be saved on). To automate the mirroring you need to create a task in the task scheduler as described above in Section 22.2 Securing MySQL database. These tasks can also be combined, simply by adding the command line to the local batch file. The destination drive must be properly controlled in digipaX (footer bar – see 22.5 Monitor-ing the capacity status of the archive).

Through this configuration all incoming data are additionally secured on the selected drive and eventually also deleted when data deleting follows in Conquest. The folder structure is thereby the same as for original data.

22.4 Software "Datensicherung"

With the help of the software "Datensicherung", which is also available from digipaX, you can search and automatically burn files to CD / DVD based on specified dates. It is required that the software "Nero" is installed on the same computer.



The selected date is used to find files (from, to) and the type of files, directory, the burner and the name of the CD / DVD. Settings are saved automatically and you do not have to enter them again. The end date becomes the start date next time the program starts. The ending date is always the current date.



Therefore, to this tag no further images should be added (in other cases, selected as the end date, the date for the previous day)!



For the appropriate drive, insert a blank data media and using the "Search and burn" change the display. Files are searched and automatically secured on one or more data media (with-out directory structure). At the end, a message appears on successful completion of burning, or in case of an error – an error message.

It is recommended to automatically start the program using the Windows task scheduler. Respective to the influx of data and the used media (CD/DVD) you can set the backups every week or every 14 days.

22.5 Monitoring the capacity status of the archive

22.5.1 digipaX

On the "Footer bar" configuration page, you can indicate any 3 disks to be checked. You can then permanently monitor, e.g. the local memory free space, the image archive memory free space, and free space on an external drive for data backups. As a prefix you should provide the usable description which is to be later displayed in the footer bar in front the free space on the disk. The critical value is the amount which is designed to show the user a warning. When the free disk space falls below the critical size determined for the drive, the message is sent to the user (once per session), so you can contact your system administrator or supplier for more memory. When the actual free memory will decrease to less than twice the size of the critical value, the display turns red, but a message does not yet appear. The user has a possibility to communicate with the system administrator for a sufficiently long time.

When the disk no longer has available space, a warning message is sent (once per session).

22.5.2 Quick-Drive-Info

On the installation CD is a small tool, "Quick-Info-Drive," which can also be used to monitor the drives. Even if digipaX system is not installed on all computers, it should still be possible to monitor the status of available disk space. For this purpose, you can install this tool on those computers. To install the tool, simply copy the file GDI.EXE to the target computer and run it. Using the context menu (right mouse click in the window – not on the frame) you can select "Options ...". The possible settings are self explanatory. The tool runs on Windows. On the "Disks" configuration page, you can double click on an entry to adjust its settings. Specify the critical value. The display, depending on the settings, becomes red for example when the critical value is exceeded. Alternatively, you must first share the drives using the "Connect network drive ..." (under the drive context menu). In this way, from any workstation, you can check both the free space in the archives memory, as well as the free space of mirrored records memory.



23 Tips for group medical practices (team practices)

In the following sections guides are provided on the configuration of the systems for medical group practices, when a single apparatus for imaging is used, but the data are stored in separate archives.

23.1 General rules of conduct

It is recommended to use a PACS server as a router that transmit incoming DICOM images to various archives. For transferring, an identification tag is sent (ID number, e.g. physician number or company number), which is added to the patient ID. At the receiving station, the DICOM router is given as the archive target.

23.2 Adding physician identification tag to the patient ID

23.2.1 Without GDT

In the "Administrator / Others" configuration page, you can add any identification to each patient ID. Neither the number nor the option activation can be subsequently changed.

23.2.2 With GDT

In some clinic management systems, such as TurboMed, you can specify in the GDT device configuration, that the GDT export files will have the physician ID added to the patient's number.

Übersicht Export Import	GDT 2.1
GDT-ID Empfänger DIGIPAX1 GDT-Version 02.10 Zeichensatz IS08859-1 (ANSI) CP 1252 Satzart 6302 8402 8402 8410 Patientenkennung Pat. Nr Arzt Nr.	Grösse/Gewicht Dezimalzeichen Punkt
Bei Rücksprung nur Pat.Nr. senden	

Additionally, you can also here use the same options as described in section above, without connecting the GDT. Thanks to this, the number is also added in patients created directly in digipaX. The number must match the physician's number set in the clinic management system.



23.3 DICOM router configuration

At the imaging station, e.g. the X-ray apparatus, as the archive destination the Conquest server is given, which functions as a router. It should be given an appropriate AE Title, such as "DCMROUTER."

The following settings are to be made in the file dicom.ini of the router with an own archive:

# Configuration of forwarding and/or converter programs to export DICOM slices		
ForwardAssociationLevel ForwardAssociationCloseDelay ForwardAssociationRefreshDelay ForwardAssociationRelease	= IMAGE = 5 = 3600 = 1	
ExportConverters ExportModality0 ExportFilter0 ExportConverter0 ExportModality1 ExportFilter1 ExportConverter1 ExportModality2 ExportFilter2 ExportConverter2	<pre>= 3 = * = ImagePat LIKE '%-1' = forward to CONQUEST1 = * = ImagePat LIKE '%-2' = forward to CONQUEST2 = * = ImagePat NOT LIKE '%-1' AND ImagePat NOT LIKE '%-2' = forward to CONQUEST3</pre>	
ForwardCollectDelay MaximumExportRetries MaximumDelayedFetchForwardRetries	= 600 = 0 = 0	

Connections used for AE Titles must be given in the "Known DICOM providers" card in the router.



Conquest Archive, which is used as a router, cannot use the DBASE database, it can only be based on a MySQL database, otherwise the SQL-Statement "ImagePat NOT LIKE '%-1' AND ImagePat NOT LIKE '%-2'" will not work properly.

Each image sent to the archive is checked. If the patient ID ends in "-1", the image is transferred to the archive CONQUEST1. If the ID ends in "-2", it is transferred to CONQUEST2. All other images, which indicate an error, as it was not possible to use any assignment of ID, are transferred to CONQUEST3. When the images are lost, you need to load the CONQUEST3 archive, and from there manually send them to the appropriate archive. The values "-1" and "-2" should be adapted to the actual number used by the physician as well as the AE Title and target archives.

All images incoming by the router are saved in this DICOM archive too. This provides additional safety because a copy of the images comes automatically to existence though requires obviously more storage capacity. If you want to limit the storage capacity requirements needed additionally or to avoid router overflow, you will need to determine a threshold value from which the cache is emptied. For this purpose the value in the dicom.ini must be adjusted accordingly:

MAGDeviceThreshhold = 1024



This value is a size of free storage space in MB that must not be undershot. The least used patients are always deleted if the remaining free space comes under this value.

The other possibility is limitation of time over that the files remain saved in the router and regular cleaning of the router and removing all files older than 30 days.

There are the "Tools for deleting older files from the archive (delage)" in the Downloads under <u>http://www.digipax.de/downloads/Others/delage32.zip</u> available for this operation. The course of action is described in a separate document that can be requested at digipaX.

23.4 Tips for worklist

If the receiving station system supports the downloading of worklist jobs from different worklist servers, you should also use separate worklist servers as opposed to the same server with different AE Titles (see Chapter 8 DICOM worklist).

If the receiving system supports only the retrieval of jobs from one server, for example Xscan, then you would have to always choose between the two lists of jobs, which is very inconvenient and uncomfortable. Here, it is recommended to use a common worklist and use different station names, if no station name is to be used as a filter on the receiving station. When creating jobs for list 1, understandable station names should be used, for example, "PHYSICIAN1" and for list 2, "PHYSICIAN2." If the system receives all jobs, they are displayed without filtering. In the case of physician 1's system, as a filter for worklist jobs, enter the station name "PHYSICIAN1", so that only his/her jobs are received. In the case of a physician 2, it should appropriately be entered, "PHYSICIAN2."

24 Transferring the image

This module is used to transmit to its own archive an image, that for example has been received from an external device. To use this, you must activate the "Image transfer" license module. With the activation of this module, it will automatically grant the license and start another modality (see chapter 13 Visually choosing organs) to set up special jobs for referrals.

24.1 Receiving the image

Activate in the configuration under sending the image automatically, receiving the image and the AE Title and port of the receiving station. These settings must also be set for the other side (remote PACS, which sends images). Next, you should establish the local or a directory which is not found on the network, where the received images will be saved. Once this is done, the image reception is active.



Important: The image receiving only works when digipaX is running and the station is ready for receiving. Stations, which for example receive images at night, cannot go into standby or sleep. There must also be carried out control over effective transmission on the transmitting station.



24.2 Image acquisition

Image acquisition may not necessarily be on the receiving station, but it can also be done by one of the other digipaX stations. To do this you must activate the appropriate station by the option "Notify the user" and set the path to which the receiving station stores the images on. The transmitting station checks the directory and notifies the user when the images are sent, using a symbol on the footer bar. The waiting time can be freely selected and it's the time the system waits for after the arrival of the last image. In this way, the user is informed of the arrival of the series after receiving the last image. Zero minutes means immediately after the first image.

24.3 Customization of the worklist

To integrate images into your own archives is necessary to adjust patient data (in particular patients ID). This is achieved best by creating the worklist jobs. With this, each time the patient is transferred, a job is created on the worklist. To do this, use a separate name for the station, even if the orders are generated for its own modalities.

Before importing, digipaX checks each received patient, whether a job exists for him/her on the worklist. It compares the first and last name, as well as the date of birth. By default the entire worklist is checked. By entering "Station (AE Title)" you can filter your list search by the specified work station names. Optionally, jobs can be automatically deleted after imported images are found. To do this, activate the check "Automatically delete worklist jobs".

25 System commissioning

25.1 Acceptance testing

After completing all the work related to installation and configuration, you should carry out an acceptance test. A separate document exists for the acceptance test.

In the acceptance test, the entire process in practice is checked, from creating a job to viewing of the completed image. The test should confirm proper operation of the workflow.

If necessary, this document can also be signed and given to the client as a confirmation of its proper operation.

25.2 Checklist

Based on the checklist, which is also available separately, you should check that you have fulfilled all the conditions necessary for proper usage of the system.

You should check and mark all the points of the checklist. Upon request, this document can also be signed and given to the client.



26 Image assignment correction

If the image has been mistakenly assigned to the incorrect patient, this can be corrected in some various ways. It is necessary to change the appropriate tags in the DICOM image. This can be done in several ways. The easiest way is enabling the edit feature in digipaX. You can also enable and configure the delete feature. This function allows the user to export images in several steps and then delete them and import them again with new patient data. Another possibility is to manage the data directly in the DICOM header, using the Conquest and the DICOM editor, which is to be done by the administrator.

26.1 Enabling and configuring edit and delete features



Edit and delete features for the users work only if Conquest DICOM server from Version 1.4.1.4 is used. Other image archives are not supported.

Both features are to be activated in the configuration, in the Administrator/Others tab. It is necessary to enter the backup folder name. This folder will be used for storage of backups of all images that have been moved, edited or removed from the archive. The folder location should be the same as that of the archived data (e.g. RAID), and it should be secured regularly. The backup folder requires a certain amount of free memory space, as original images will remain permanently saved in the backup folder, and they can be deleted from this location only manually (if necessary). Upon each deletion procedure, images are moved to a separate sub-folder with date and time. For information purposes, a text file is always saved along with each image (info.txt). It is used to store the user data and the reason for moving, editing or removing images. The user must provide this information before the data may be deleted.

It is also necessary to establish the deletion procedure password, which must be entered by the user for activation of the delete function.

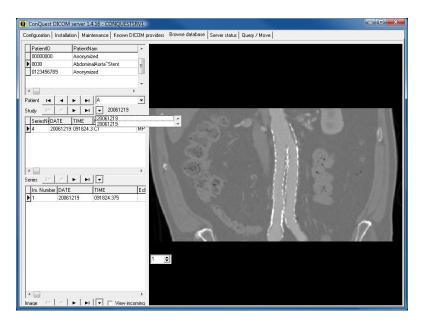


Images should be moved, edited or deleted only by selected and properly trained persons, who are also familiar with the appropriate chapter of the User's Guide. The deletion password should be disclosed only to these persons.

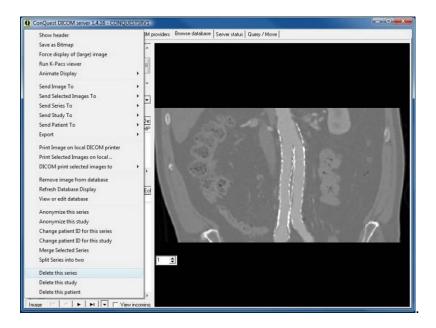


26.2 Change of patient data in Conquest

In the Conquest the patients can be selected directly under "Browse database" or from the drop-down list. With the input into the field it can be filtered by name or ID. In the middle and bottom part various studies of the patient and the series contained therein are shown, if more of them exist. You can also change between them with the local drop-down lists or arrow keys.



The single functions can be recalled there for each patient over the context menu with the right mouse key. Thereby the single images will show in the preview. Images from a size of 4096 KB are standardly not shown. It can be enforced with "Force display of (large) image". To present larger images automatically, the value "LargeFileSizeKB = 4096" must be increased in the "dicom.ini".





26.2.1 Change of patient ID

If there is a patient with several patient IDs in the archive, it is possible in the Conquest to change the ID. Mark the patient whose ID should be changed and select in the context menu "Change patient ID for this study", enter the desired ID and confirm with "ok". Possibly there are more studies under that ID. Then the procedure must be repeated for the other studies until all they have the same ID.

26.2.2 Deleting series, study or complete patient



NOTE! All deleting procedures are immediately effective and cannot be undone. The images are thereby deleted from the hard disk and from the database. Hence it is necessary to secure data prior to deleting!

A patient is simply deleted with "Delete this patient". Thereby all studies, series and images of this patient are deleted. To delete a single study, it must be first selected from the drop-down list and then removed with "Delete this study". Thereby only this study with all therein contained series and images is deleted. According to the same principle a series under a study is deleted. First select a series in the bottom part and then delete with "Delete this series".

26.2.3 Deleting single images

Deleting single images is not provided in the Conquest. Except of CT or MRT series, most often each image is in its own series, so that it can be deleted simply by deleting the series. To delete a single image within a series is a little bit more complicated. Initially the image must be found and selected, so that it can be seen in the preview. Using "Remove image from database" the image is deleted from the database but not from the archive.

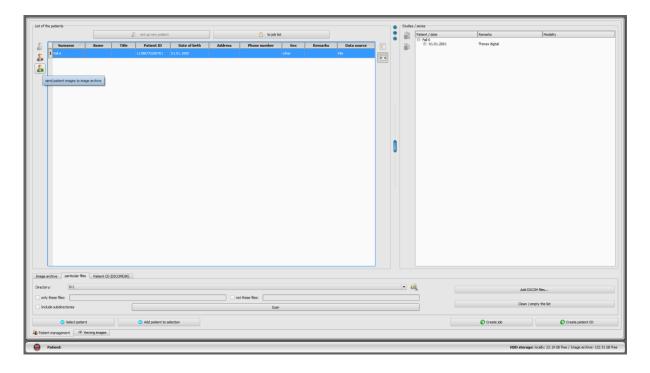


An image file shown in the message must be now deleted manually from the archive directory structure. If the image is deleted only from the database, it would be again recorded in the database by eventually rebuild of the database of the archive.



26.2.4 Assigning false assigned images to appropriate patient

Initially false assigned images must be exported. Export the images e.g. to a drive "C:\Failures". It can be done in the digipaX by export functions or directly in the Conquest too. Thereafter those images must be deleted from the archive. Finally the images must be again imported and assigned thereby to appropriate patient. Reboot the digipaX and open the appropriate patient and then go back to the patient management. Select using the component Single files the exported images that should be assigned to the patient. With the switch "Send patient images to image archive " the import dialogue is opening.



Press in the dialogue a switch "Data current patient", to apply data of the already opened patient.

	stored data		
		Target data	•
	11788772290701	123456790	
Title:			
Name:		Max	
Surname:	Fall 6	Mustermann	
Date of birth:	01.01.1900	01.01.2000	4
Gender:	other	masculine	-
Accession Number:	11788772290708	11788772290708	
		🔱 data current	patient
Perform import			
	Name: Surname: Date of birth: Gender:	Tide:	Inter Inter Name: Max Sunname: Fd.6 Gold Status Gl.0.1.000 Gold Status Gl.0.1.000 Gendert: Inter Accession Number: 1110/072202020

With "Perform import" they are then assigned to the desired patient and afterwards can be recalled with the appropriate patient in the archive. Subsequently the exported images can be again deleted.



26.3 Change of patient data with DICOM tag editor

DICOM Tag Editor provides another possibility for adjusting patient data.

Incorrectly assigned images should be found in Conquest, backup copy saved and deleted from the archive. Eventually, you must also remove the files from the backup to (external) drive. These files should be edited in the DICOM tags editor. Using drag & drop, add all the patient's files back to the Conquest, which now has properly assigned images.

26.3.1 Change of patient data in DICOM tag editor

On the installation CD you can find the "DCM Editor" program, which can be used for this purpose. However, you can also use any other program to edit the DICOM tags. "DCM Editor" you must install and run.

Backed up and improperly assigned files should be opened in an editor and the following tags modified:

Tag	Tag name	Meaning	
0010,0010	Patients Name	Enter the name of the appropriate patient, Syntax:	
		Last name/First name/2. First name/Title/Suffix	
0010,0020	Patients ID	Enter the ID of the correct patient	
0010,0030	Patients Birth Date	Patient's date of birth	
0010,0040	Patients Sex	Sex of the patient,	
		enter the appropriate letter:	
		M – male	
		F – female	
		O – other	
0020,000d Study Instance UID UIE		UID study of a patient to which you want to add this	
		picture (or series)	
		or	
		create a new study number (UID) by adding addi-	
		tional digits (e.g. "1" or ".1")	

Save the changed file.

This procedure must be repeated for all files assigned incorrectly.

26.4 Sending changed files to the archive

All changed files can be sent back the Conquest image archive with the help of drag & drop. In this way, the images are properly saved in the database.

Next, check the appropriate assignment in digipaX.

The temporary files (in C:\Failed) can be deleted.

Files are saved automatically the next time you save a backup.



27 Others

27.1 Log

In the configuration, you can view the current session's process, divided into subgroups. In the log subfolder in the installation directory, the log files are written respectively for groups (e.g. dicom.log). When closing the session, they are automatically deleted. In case of system failure, these files are retained and when you restart the application they are located in the subfolders for error analysis.

In the installation directory the global.log file is written, which is constantly continued by all sessions.

In case of problems, you can activate a detailed reading of the log (the log configuration page) for more log entries.

If the "global.log" logfile is larger than 50 MB, it will be compressed and archived in the "Log\Archive" subdirectory. Afterwards, the process proceeds with a new empty logfile. The operation will be performed at program startup, which can be slightly delayed as a result.

The logfile is compressed using "gzip". To open the archived file, you need to extract it first. It can be done in the digipaX directory, using the command line.

Example:

cd C:\digipaX\digipaX gzip.exe -dN Log\Archive\xyz-global.log.gz

27.2 Saving settings

The digipaX system settings are stored in the following locations. when "Save the settings for: all users" installation path at the digipaX.ini

when "Save the settings for: current users" at the registry at HKEY_CURRENT_USER\Soffware\digipaX\digipaX

Furthermore, when working, the following path is used (e.g. saving presets, user-defined texts):

C:\Documents and Settings\<Username>\Application Data\digipaX\digipaX



The folder "Application Data" is a hidden folder. The option "Show all files and folders" need to be activated in Windows Explorer folder options.





Under Windows Vista and Windows Server 2008, Windows 7 and Windows 8 this path is:

 $Users \ < Username > \ AppData \ Roaming$

27.3 Splash screen on program startup

An own user-defined image can be displayed on program startup. The image must be in PNG format, have filename "splash.png" and be copied to the digipaX installation directory. The image will be displayed 1to1 in the original pixel size on the program startup.

27.4 Transferring configurations

After logging into digipaX as administrator, you can use in the configuration the "Export ..." and "Import ..." buttons, so that all or part of the configurations are saved to the INI file, or are read from it. With the exception of the veterinary version settings (vet.ini) and tags for the image information (display.xml), which are archived in the specified files in the installation directory and can be exchanged between stations by a separately copying them.

27.5 Internet addresses

Conquest: <u>http://www.xs4all.nl/~ingenium/dicom.html</u> <u>http://www.image-systems.biz/forum/viewforum.php?f=33</u>

OFFIS-Tools DCMTK: http://dicom.offis.de/dcmtk.php.de http://forum.dcmtk.org/



28 Administrator password

To log into the configuration page and to choose another license file at the startup of the program as well as to call up the license viewer, please provide the following (pre-defined) password:

digi4admin

The system here distinguishes between uppercase and lowercase letters. Password can be changed on the configuration page under Administrator / Other.

The software can be started with the program parameter /a password (e.g. /a digi4admin), so that administrator rights are immediately given without having to log on. This option should be activated only during the administration or maintenance works.

The password is used to protect the software from unauthorized and erroneously settings changes. It should therefore be provided only to the persons responsible for managing the system.

If you lose your password, digipaX can reset it and set a new password.



Product: digipaX

Manufacturer: digipaX GmbH Arno-Nitzsche-Str. 45 04277 Leipzig GERMANY

The product is CE marked: CE 0494

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