

Version 1.4.2

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.

1.2 Symbols and illustrations

Symbol	Meaning
<u>_!</u>	Note
	Тір

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 2.4 Hardware and safety and 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 2.3 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 Hardware

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 System requirements

2.2.1 Supported operating systems

Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7



When using Windows server 2008 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".

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	

2.2.3 Workstation

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	60 GB or more
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	Min. 60 GB
Network	100BaseT

RAID system size depends on the expected number of images.

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.

In addition, the data are to be put on further harddisks by their mirroring or daily backup (see also chapter 21 Archiving).

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.

2.5 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.



2.6 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.

2.7 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.

2.8 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	Orex
	Radiography 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
Video sources:	any video sources with "WDM Stream Class Driver" and	
	DirectShow supported.	
Foot switch:	any foot switch with two programmable pedals for key	
	combination	

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 19 Device connections.



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.

2.10 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.

2.11 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.

2.12 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	17
2. Installation of image archive(s)	
Installation of MySQL + MySQL GUI tools	21
Installation of Conquest	18
Commissioning Conquest (AE Title, port, data base init.)	21
3. Installation of worklist server	
Installation of worklist server	18
Configuration of worklist server	37
4. Archiving tool + DICOM tool	
Installation and configuration of backup	136
Installation of DICOM editor	
5. Installation of other tools	
Installation of Nero	18
Installation of software remote control	
Installation of tool or image for daily visual inspection	12
6. digipaX configuration	
Commissioning digipaX (fill physician's data, enable modules)	19
Connecting image archives / DICOM configuration	25
Connecting worklist server	37
Adjusting caches	78
Adjusting X-Ray journal / storage location	89
Setting as veterinary version	98
GDT connection	
Configuration of TurboMed / PDE-TOP /	42 / 49 /
MediStar / DOCConcept / Quincy /	52 / 54 / 55 /
ALBIS / Duria / KiWi /	57/62/65/
MCS lsynet	67
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HL7 connection	79



3.2 Workstation guidelines

Process	Page number
	for
	information
1. Installation of digipaX	
Installation of digipaX	17
2. Installation of other tools	
Installation of Nero	18
Installation of software remote control	
Installation of tool or image for daily visual inspection	12
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Commissioning digipaX (fill physician's data, enable modules)	19
Connecting image archives / DICOM configuration	25
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Setting as veterinary version	98
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Configuration of TurboMed / PDE-TOP /	42 / 49 /
MediStar / DOCConcept / Quincy /	52 / 54 / 55 /
ALBIS / Duria / KiWi /	57 / 62 / 65 /
MCS lsynet	67
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3.3 Completion of overall system

Process	Page number
	TOP
	information
1. Routing setup	
Enabling image receiving in digipaX	33
Adding ExportConverter in Conquest	34
2. Archiving	
Configuration of Conquest	135
Setting up a backup CD/DVD	137
Setting drive monitoring in digipaX	138
3. Acceptance of system	
Acceptance testing	142
Completing checklist	142



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.).

4.1 Xinstall

All installation programs are started through the tool Xinstall.

Anwendungen	Informationen
💥 digipaX	
Serversysteme	
Musqu MySqL	
MySQL GUI Tools	Wishen Sie zuf das zu installievende
Bildarchiv (Conquest)	Softwarepaket. Beim Überfahren der Einträge mit der
dreije Worklist Server	Maus erhalten Sie hier Informationen zu den Systemen.
Archivierung	
1005	
	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.

4.2 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 section 14 Body Generator (BodyGenX).

4.3 PACS server: Conquest + Xadmin

A PACS server is absolutely necessary for operating the system.



The installation directory must not contain blank spaces. Otherwise, Conquest server cannot be logged in as a service! Select also e.g. under Windows Vista or Windows 7 the directory C:\Conquest or C:\digipaX\Conquest.

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

Conquest image is based on database system MySQL.

4.4 Worklist server: wlmscpfs

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

4.5 Backup

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

4.6 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.

4.7 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 17.6 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 22 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 ..."

Product activation	
Move the following text to the online order form in the vendor area on Activation codes). The license file will be sent via email.	our website (field:
Software: digipaX Software version: 1.3.7.0 Installation codes: 00: B3F5AA23 01: B316BD04 02: B2AF1041 03: 8C0247CB 04: B4841872 05: C68D5D41 06: IE714CEE 07: C039326 08: A6349696 09: 11313C1 10: 54396E22	
11: E7024C65 Hardware info: 00: 15:F2:7C:0E:66 18:66:20:52:41:53 18:66:20:52:41:53 18:66:20:52:41:53 18:66:20:52:41:53 16:04:20:52:41:53 16:04:20:52:41:53 16:04:20:52:41:53 23:50:6F:45:30:30	A
	8

- 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 Error codes for license checking

If the license checking fails at the program launch, an 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	

5.2 Conquest

For trial or demo installation with low volume of coming images DBASE III as database is offered. It is accessible easily without any additional softwares. But compared to other databases, it is very large and the startup time can be very long.

In normal systems, MySQL database should be used. At the installation you can additionally use the user's guide "windowsmanual.pdf" provided by the Conquest system (English).



Consider exactly your choice of database in advance. A later change of the database system is possible only with high expenses.

5.2.1 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:





AysQL Server II	istance Configuration	on:			Ee
Configure the	MySQL Server 5.1 s	erver instance.			
Please set the	Windows options.				
🔽 Install As	Windows Service				
Ora	This is the recomm server on Window	ended way to ru s.	in the MySQ	L	
	Service Name:	MySQL	•		
		🔽 Launch the M	/lySQL Serve	r <mark>auto</mark> mati	cally
✓ Include B	n Directory in Win	dows PATH			
MySQL»,	Check this option the server / client o variable so they ca	to include the d executables in th n be called from	irectory con le Windows the comma	taining PATH nd line.	
		< Back	Ne	ext >	Cancel
		< Back	Ne	ext >	Cancel
QL Server Inst IySQL Server In Configure the	ance Configuration Instance Configuration MySQL Server 5.1 s	< Back Wizard on erver instance.	Ne	ext >	Cancel
QL Server Inst IySQL Server In Configure the Please set the	ance Configuration Instance Configuration MySQL Server 5.1 s security options.	< Back Wizard on erver instance.	Ne	ext >	Cancel
QL Server Inst MySQL Server In Configure the Please set the I Modify Se	ance Configuration Istance Configuration MySQL Server 5.1 s security options. curity Settings	< Back Wizard on erver instance.		ext >	
QL Server Inst MySQL Server In Configure the Please set the IV Modify Se	ance Configuration Istance Configuration MySQL Server 5.1 s security options. curity Settings New root passwor	< Back Wizard on erver instance. d: ****	Ent	ext >	Cancel
QL Server Inst tySQL Server In Configure the Please set the I Modify Se I Toot	ance Configuration Instance Configuration MySQL Server 5.1 s security options. Curity Settings New root passwor Confirm:	< Back Wizard on erver instance. d: exxx xxxx	Ent Ret	ext >	t password.
QL Server Inst IySQL Server In Configure the Please set the IV Modify Se	ance Configuration Instance Configuration MySQL Server 5.1 s security options. curity Settings New root passwor Confirm:	< Back Wizard on erver instance. d: **** **** Enabl	Ent Ret e root acces	ert >	t password.
QL Server Inst tySQL Server In Configure the Please set the IV Modify Se IV Modify Se	ance Configuration Instance Configuration MySQL Server 5.1 s security options. curity Settings New root passwor Confirm:	< Back Wizard on erver instance. d: **** **** Enabl	Ent Ret e root acces	er the roo ype the pa s from ren	t password.
QL Server Inst MySQL Server In Configure the Please set the IV Modify Se IV Modify Se	ance Configuration Instance Configuration MySQL Server 5.1 s security options. Curity Settings New root passwor Confirm: Anonymous Account This option will cre	d: **** **** #**** #**** #****	Ent Ret e root acces	er the roo ype the pa s from rem on this se	t password. ussword. uster machines

As password, here "root" was used.

MySQL Server Instance Configuration Wizard	×
MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance.	0
Ready to execute	
O Prepare configuration	
 Write configuration file 	
 Start service 	
 Apply security settings 	
Please press [Execute] to start the configuration.	
< Back Execute	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.





Install the Conquest files on the target computer (e.g. C:\digipaX\Conquest) and launch ConquestDICOMServer.exe. At the first launch select "Native MySQL driver" as database 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.

iguration Installation Maintenance Known DICOM providers B	irowse database Server status Query / Mov	e
This screen contains essential parameters for operation of I	he ConQuest DICOM server.	Save configuration
Local unique name of this DICOM server (application entity, AE)	: CONQUESTSRV1	Make mysql database
TCP/IP port to use (other DICOM systems must know this numb	er): 5678	Restore original configuration
Local disk directory to store DICOM images : 🛛 📾 c: [system] Make directory	<u>.</u>	
✓ Enable JPEG(2000) support		Install server as NT service
Images on disk are stored: C Uncompressed C NKI compressed C Lossless JPEG C Lossless JPEG C Lossy JPEG C Lo	EXP_00097038 files	Uninstall server as NT service
Images on disk are named: V2 (allows NKI compression) DCM (standard format) Cleanup disk below: (MB) 0		Hide the server (as tray icon)
Cleanup nightly below: (MB)		About this server
Below MB, move to: C:\digipax\	conquest\data	
Keep Server Alive		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**.

onfiguration 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
follow the following steps for (re-)installing this program:	
n the "Loninguration" 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
n the 'Installation' page (this one), perform all installation steps (buttons top ight) one by one from top to bottom.	Verify database installation
/erify TCP/IP installation: tests communication between the DICOM server and installation programs. This will fail if TCP/IP is not installed on this PC.	1
Make ODBC data source: defines the connection between a database on disk and the DICOM erver. This fails if ODBC or the dBase driver is not installed. This option is not	[He]-initialize database
equired when using the "DBASEIII without DDBC" driver	Clear worklist database
(arity database installation: Some ODBC 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 ails, install newer ODBC 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 the list on the page 'Known DICOM providers'.	
Jutput of the installation programs will go here:	
	Hide the server (as tray icon)
CONQUESTS HYT IT INS OUTPOINT SECTION OF THE CONSIDERATION OF A CONSIDERATION OF	1
CONQUESTSRV11 This is a very long text output for testing This is a very long text output for testing This is a very CONQUESTSRV11	About this server
s	Close the server

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



ConQuest DICOM server 1.4.16 - CONQUESTSRV1	
Configuration Installation Maintenance Known DICOM provide	rs Browse database Server status Query / Move
PatientID PatientNam	
▶ 0009703828 HEAD EXP2	
×	
Patient 7 P PI	
Study K / P P 19980414	
SeriesN DATE TIME Modality De	
▲ 1 13360414 170346.9[C1	
·	
Series 🥂 🖌 🕨 🔽	
Im. Number DATE TIME Echo Image ID A	
▶ 2000 19980414 170346.0 3000 19980414 170352.0	
E	
Timage I◀ ◀ ► ► ▼ View incoming	

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.

5.2.2 DBASE III

At the first launch of Conquest the database "DBASE III" is to be selected.

New Installation				
Conquest DICOM server vers. 1.4.16 The Netherlands Cancer Institute				
This is a new installation; please select the (DDBC) database to be used, push OK, then fill in the configuration page and push "Save configuration". Then proceed to the installation page. Or use the default install button to install without questions.				
Database type Built-in DBASEIII without ODBC (*.DBF) 👤				
Cancel OK Default install				

Then enter AE title (e.g. CONQUEST1 or CONQUEST2) and a port, which is still not yet used (5678 can be left or e.g. 5679, if another server already runs).



Coming images will be saved in a Conquest-specific format V2 by default. The format can be later also read only with Conquest. Select the option "DCM (standard format)" in group "Images on disk are named" in order to store files in the standard DICOM format so that they can be then read with any program.

It is recommended to use option "Keep Server Alive", because it restarts the server automatically after a crash.

Choose a suitable storage location (directory) on the RAID system for the data. Make sure that there is enough disk space for the coming images. You can do the choice in the middle of directory window.

With button "Install server as NT service", register this PACS server as a Windows service, so that the server starts automatically always at the system boot and is always active in the background.

This screen contains essential parameters for	operation of the Cor	nQuest DICOM server.		Save configuration
Local unique name of this DICOM server (application	n entity, AE) :	CONQUESTSRV1		Make mysql database
TCP/IP port to use (other DICOM systems must kno	ow this number) :	5678		Restore original configuration
Local disk directory to store DICOM images :	🛙 c: [system]		•	
Make directory) C:\			
✓ Enable JPEG(2000) support	→ aigipax → conquest			Install server as NT service
Images on disk are stored:	👝 data			
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	dbase HEAD_EXP_0 printer_files	0097038		Uninstall server as NT service
Images on disk are named: C V2 (allows NKI compression)				
				Hide the server (as tray icon)
Cleanup disk below: (MB) U				ábout this server
Cleanup nignity below. (MD) 0				

On the page "Installation" use the buttons for testing the TCP/IP connection and the database and create the database with the button "(Re)-initialize database".



ConQuest DICOM server 1.4.16 - CONQUESTSRV1	
Configuration Installation Maintenance Known DICOM providers Browse database Server status Query / Move	
ICONDUESTSBV11 Dropping test table	
[CONQUESTSRV1] Closing database	Verify TCP/IP installation
[CONQUESTSRV1] Attempting to open database; test #9 of 10	
[CONJUESTSHV1] Creating test table	
ICONQUESTSRV1 Dronoing test table	Make ODBC data source
[CONQUESTSRV1] Closing database	
[CONQUESTSRV1] Attempting to open database; test #10 of 10	1
[CONQUESTSRV] Creating test table	Verify database installation
[CONQUESTSNY] Adulty a lecolu	
[CONQUESTSRV1] Closing database	1
[CONQUESTSRV1] Succesful end of test	(Re)-initialize database
Chest distals and in a second s	
ICONQUESTSBY1Bener In and regeneration	
[CONQUESTSRV1] Step 1: Re-initialize SQL Tables	Clear worklist database
[CONQUESTSRV1] Creating index on field 19 for C:\digipaX\Conquest\Data\dbase\DICOMImages.DBF with 0 rect	
[CONQUESTSRV1] index for C\digipaX\Conquest\Data\dbase\DicUMimages.DBF trinshed in 62 ms; total space =	
[CDNQUESTSBY] I lotex for new of new of new of the construction of	
[CONQUESTSRV1] Creating index on field 15 for C:\digipaX\Conquest\Data\dbase\DICOMSeries.DBF with 0 recor	
[CONQUESTSRV1] Index for C:\digipaX\Conquest\Data\dbase\DICOMSeries.DBF finished in 344 ms; total space	
[CONQUESTSRV1] Creating index on field 13 for C:\digipa\Conquest\Data\dbase\DICOMStudies.DBF with 0 recipions (Conquest\Data\dbase\DICOMStudies.DBF with 0 recipions (Conquest\Data) (Conquest	
CONVICES 15 MV1 (molex for C. Gigipa Aconquest of a double control of sourcest of a mission of the mission of the control of t	
[CONQUESTSRV1] Index for C:\digipaX\Conquest\Data\dbase\DICOMWorkList.DBF finished in 172 ms; total spac	
[CONQUESTSRV1] Creating index on field 1 for C:\digipaX\Conquest\Data\dbase\UIDMODS.DBF with 0 records	
[CUNQUESTSHV1] Index for C:\digipaX\Longues\Uba\dbase\UDMUDS.DBF trinshed in 234 ms; total space = 2 [CONULESTSEV1] Store 2. Lond (Add DICOM Object Base	
CONQUESTSRV13692. Coda 7 Add 7 Coda est Data HEAD EXP. 00097038\0001_002000_892665661 v2-SI	Hide the server (as tray icon)
[CONQUESTSRV1] [Regen] C:\digipaX\Conquest\Data\HEAD_EXP_00097038\0001_003000_892665662.v2 -SL	
[CONQUESTSRV1] Regeneration Complete	· · · · · · · · · · · · · · · · · · ·
Finished database regeneration	About this server
Clearing worklist	
· · · · · · · · · · · · · · · · · · ·	Close the server

Now, an image should be already seen in the tab "Browse database".

ConQuest DICOM server 1.4.16 - CONQUESTSRV1	o x
Configuration Installation Maintenance Known DICOM providers Browse database Server status Query / Move	
▶ 0009703828 HEAD EXP2	
Patient Image: Construction of the second	
Seiles 14 + H	
Im. Number DATE TIME Echo Image ID 🔺	
2000 19980414 170346.0	
3000 19980414 170352.0	
-	
×	
Image H I F I F View incoming	

This installed standard test patient can be removed in the context menu of the image ("Delete this patient").

The installation is now completed.



5.2.3 Extended patient data on the list of the patients

In the patient management, the columns for address, telephone number and remarks can be additionally activated. In order that those data can be queried also through the database, an extension of the database layout is necessary. For this, the file "dicom.sql" in Conquest is to be edited. The same course of action applies for both database types (MySQL or DBASE III). In the section "*Patient*", 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
{ UXUUIU, UXUUZU, PatientiD, 64, SQL_C_CHAR, DI_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 },
{ 0x0010, 0x2154, "PatientsTelephoneNumbers", 16, SQL_C_CHAR, DT_STR },
{ 0x0010, 0x4000, "PatientComments", 10240, SQL_C_CHAR, DT_STR }
}

Saving data. Finally the Conquest must be rebooted and the database reinstalled. For a new installation it is recommended to settle that extension at once.



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 :: DICCM / network				
Informations about clinic and physician	local settings for query images				
Image preview	AE title: PC1		Port for query images: 104		Timeout: 60 seconds 💠 Repetitions: 0 🌩
Baseboard					
Loupe	local settings for automatic image receiving				
Image informations	X activate automatic image receiving AE til	le: AUTOPC1		Port for automatic image recei	iving: 105
Ovenay / scout mes					
Tob management	local (temporary) data				
Image acquisition	save local patient data File: C:\digipaX\	digipaX\PatientList.xml			
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	CONOSRV02	192.168.1.20	11112	ves
DICOM / network					
Job management					
GDT					
Cadres / IPS					
X-ray inumal					
Image transfer					
Other					
Log					
General					
Cache					
DICOM					
Image processing					
File import					
GDT					
Print					
burning CD / DVD				New.	. Modify Delete Test
Detárec					
Administrator login	Import Expo	irt Info			Save
					8

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 DIO	OM connection
Designation:	Image archive 1
AE Title:	CONQSRV01
Host/IP:	192.168.1.10
Port:	5678
Disconnect:	 never disconnect
	after inactivity of 20 seconds
Access:	X Reading
	X Writing
Colour:	
Use:	• yes O no
	Cancel





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				
onfiguration Installation Mai	ntenance Known DICOM pro	viders Browse datab	ase Server status Qu	ery / Move	
<pre>/* ***********************************</pre>	<pre>************************************</pre>	<pre>************************************</pre>	Port map * from the * correct * rr. * ble. * mpression * * pressed; * =both * ti private * * **********	*	Restore this list
CONQUESTSRV1	127.0.0.1	5678	un		
DIGIPAX DPCSTORESCP	127.0.0.1 127.0.0.1	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 / Others.



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.

uration Installation Maintenance Known DICOM providers Browse (database Server status Query / Move	
This screen contains essential parameters for operation of the Con	Quest DICOM server.	Save configuration
Local unique name of this DICOM server (application entity, AE) :	CONQUESTSRV1	Make mysql database
TCP/IP port to use (other DICOM systems must know this number) :	5678	Restore original configuration
Local disk directory to store DICOM images : Make directory	<u>×</u>	
Enable PEG(2000) support Conquest		Install server as NT service
Images ordisk are stored: C Unompressed C Unompressed C Ussless JPEG C Lossless JPEG C Lossless JPEO C JPEG or Uncompressed JPEG or Uncompressed	0097038	Uninstall server as NT service
Images on disk are named: C V2 (allows NKI compression) C DCM (standard format)		Hide the server (as tray icon
Cleanup disk below: (MB) 0		
Cleanup nightly below: (MB) 0		About this server
Below 0 MB, move to: C:\digipax\conqu	uest\data	

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 efficiency**. 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 / network". 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 can be replaced with another, 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
ForwardAssociationLevel
                              = IMAGE
ForwardAssociationCloseDelay = 5
ForwardAssociationRefreshDelay = 3600
ForwardAssociationRelease
                               = 1
ExportConverters = 2
ExportModality0 = *
ExportConverter0 = forward to AUTODIGI1
ExportModalitv1 = *
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
ForwardAssociationLevel
                              = STUDY
ForwardAssociationCloseDelay
                              = 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
ExportModality0
                  = DX
                  = CONQUEST
ExportCalledAE0
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 most easily with batch file WLSSetup.bat contained in the same directory. Open it first to edit and adjust the values, which are set in it, to your custom needs. The 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)

Save the changes and run the batch by double click. Choose "I" for installation of the service. You can uninstall the service by rerun of the batch file and then choose of the option "R".

For more information about the server wlmscpfs.exe read server's manual ("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 (default: 2200). The communication directory must also match directory of the worklist server. The worklist server, delivered by digipaX, 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 many simultaneous 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. 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 / workist
Image preview	🕱 Automatically undate tob liet
Baseboard	The province of the product of the second se
Loupe	Detre jobs accompany Detre in the second sec
Image informations	show the column with number or received mages and mark with the colour the list entry when the image has come
Overlay / scout lines	Deactivate check of the communication path (not recommended)
Histogram	- Source of entry in X-ray Journal
Job management	Survey for the provided state of the fields for a new entry in X year (or mal-
Image acquisition	selected workist tob
Other	received images
Administrator	Only if X-ray tournal module activated.)
License	
Veterinary surgeon	Visual selection
DICOM / network	Types: Configuration:
Job management	Referals
GDT	x saudard
HL7	Part of the body / refinement / ray path Procedure codes
Caches / IPS	Head
Device links	E X Occipital bone
Patient's CD	B X Cervical vertebrae
X-ray journal	tienes Skult PD-120 Orbét
Image transfer	0 38 Nasal bone
Other	E X Sinus
	Paranasi sinuses Verential
Log	
General	Tags procedure codes: Requested Procedure ID 🔹 Scheduled Procedure Step Code Meaning 💌 Scheduled Procedure Step Code Value 💌
Cache	integrate procedure codes in images
DICOM	
Image processing	additional informations
File import	Tag accession number: Accession Number
Worklist	tag job number: Scheduled Procedure Step ID 🔹 save job number as Accession Number in the examination
GDT	tao tob description: Scheduled Procedure Step Description 🔹 use tob description description
HI7	
Administrator login	Import Export Info Save
· · · · · · · · · · · · · · · · · · ·	

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.

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.

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 ScheduledProcedureStepID ScheduledProcedureStepDescription (0x0040, 0x0007)

(0x0008, 0x0050) (0x0040, 0x0009)



additional informations		
Tag accession number:	Accession Number	•
tag job number:	Scheduled Procedure Step ID	 save job number as Accession Number in the examination
tag job description:	Scheduled Procedure Step Description	 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 Accession 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 9.1.11.3 "Field assignment (mapping)".

8.6 DICOM tags

The following tags are saved for a job:

AccessionNumber	(0x0008, 0x0050)
PatientID	(0x0010, 0x0020)
PatientsName	(0x0010, 0x0010)
PatientsBirthDate	(0x0010, 0x0030)
PatientsBirthTime	(0x0010, 0x0032)
PatientsAddress	(0x0010, 0x1040)
PatientsTelephoneNumbers	(0x0010, 0x2154)
PatientsSex	(0x0010, 0x0040)
PatientComments	(0x0010, 0x4000)
RequestedProcedureDescription	(0x0032, 0x1060)
RequestedProcedurePriority	(0x0040, 0x1003)
PatientsWeight	(0x0010, 0x1030)
PregnancyStatus	(0x0010, 0x21c0)
LastMenstrualDate	(0x0010, 0x21d0)
ContrastAllergies	(0x0010, 0x2110)
MedicalAlerts	(0x0010, 0x2000)
RequestingPhysician	(0x0032, 0x1032)
ReferringPhysiciansName	(0x0008, 0x0090)
InstitutionName	(0x0008, 0x0080)
CurrentPatientLocation	(0x0038, 0x0300)
AdditionalPatientHistory	(0x0010, 0x21b0)
ScheduledProcedureStepSequence	(0x0040, 0x0100)
Modality	(0x0008, 0x0060)
RequestedContrastAgent	(0x0032, 0x1070)
ScheduledStationAETitle	(0x0040, 0x0001)
ScheduledProcedureStepStartDate	(0x0040, 0x0002)
ScheduledProcedureStepStartTime	(0x0040, 0x0003)
ScheduledPerformingPhysiciansName	(0x0040, 0x0006)



(0x0040, 0x0007)
(0x0040, 0x0009)
(0x0040, 0x0012)
(0x0040, 0x0400)
(0x0020, 0x000d)
(0x0040, 0x1001)

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

For transferring Procedure Codes, depending on the settings, the following tags are added or overwritten:

RequestedProcedureID	(0x0040, 0x1001)
CodeMeaning	(0x0008, 0x0104)
CodeValue	(0x0008, 0x0100)
ScheduledProcedureStepDescription	(0x0040, 0x0007)
ScheduledProcedureStepID	(0x0040, 0x0009)
ScheduledProtocolCodeSequence	(0x0040, 0x0008)

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 network 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

					Cont	iguration	
Jser 🔘 📥			Administrator :: GDT				
Informations about clinic and physician	Identification						
Jser interface	GDT-ID: DIGIPAX1		Abbreviation: DIGI				
mage preview Barahoard							
oupe	Communication						
mage informations	Import directory:	C:\digipaX\digipaX\GDT				<u>e</u>	
Overlay / scout lines	Export directory:	C:\digipaX\digipaX\GDT				6	
listogram	Type of file:	fixed GDT file extension (".gdt")	 incremental file extension (".001" - ".999") 	fixed file names			
ob management	Import file:	DIGIxxxx.pdt	e.g.: DIGIXXXX.003	[import.odt			
tage acquisition	Export file:	vxxxDIGLadt	e.g.: xxxxxDIGL017	export adt			
ther	Check interval in seconds:	10		Contrast of the			
dministrator	Readout delay in mileeconde:	0	.				
	Leon	los content of files					
aterioany surgeon	Log.						
ICOM / network	Adapt field allocation (mapping)						
b management							
DT	Create GDT answer						
L7	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	d in the background.			
aches / IPS		Image acquisition and image receipt	oth	ner events			
mage acquisition		for each image (immediately)		immediately after teh	Collect tobs		
evice links	Moment of creating:	🔘 each series Waiting time: 3 minutes 🚔	•	mineulately after job	Collect jubs		
-ray journal		O the study Waiting time: 10 minutes	×	after import of image			
abent CD							
ther		ask user before creating					
	Entry in comment field (6227):	 automatically (according to mode) 					
9 9 -		O this comment text in answer file:	New	v images exist.			
ieneral		add additional tags:				2	
Cache				787200			
DICOM	Characteristics field:	Type of study carried out:	ALL	G00			
mage processing	Set of characters:	 IBM CP 437 (DOS) 	01	ISO 8859-1 (ANSI)			
ile import	Require an answer in GDT standar	d: 🗶 require (despite whether a request has been r	nade to this system or not)				
Vorklist		Redpient ID:	Recir	pient abbreviation:			
		delete attached physician pumber					
Administrator Ingin	Import	Exmert				5700	
		EXTRA INTO				Save	

9.1.2.3 TurboMed settings for all functions

ƏDT Einstellungen Übersicht Export	Import	GDT 2.1		
Hyperfink Datei nicht kopieren X Datei auf Server kopieren Datei auf Server kopieren und löso Karteieintrag X Karteieintrag nach Typ	en S	peicherpfad X TurboMed\Dokumente Anderer X JahrMonat		
			OK	Abbreaken



9.1.2.4 Showing images of a study (record type 6311)









9.1.2.5 Creating worklist job (record type 6302)

		0012.1					
Name	Worklist	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\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						
	V Automationkar Event heim Formularaufruf aus der Katelkeite						

GDT Einstellu	ngen		_			_	4
Übersicht	Export	npo	t	GDT 2.1			
GDT-ID Empfänger	digipax1			Grösse/Gewicht			
GDT-Version	02.10	,		Dezimalzeichen	Punkt	•]
Zeichensatz	IBM(Standard) CP 437	ę]				
Satzart	6302						
8402	WL						
8410							
Patientenkennung	Pat. Nr.	•					
Arztkennungen Ansicht	1 : Dr.med	•	j				
	Bei Rücksprung nur Pat.Nr. senden	Γ]				
)
				Übernehmer		<u>O</u> K	Abbrechen



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)

GDTE	instellungen 🥥						
Über	rsicht Export Import GDT 2.1						
Name	Patienten CD einlesen						
	X GDT Anbindung 2.1 nutzen						
Programm	C:\digipaX\digipaX\digipax.exe						
Parameter							
	X Programm aufrufen beim Export						
	Export Import						
Pfad	C.\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						

GDT Einstellu	ngen		6
Übersicht	Export Import	GDT 2.1	
GDT-ID Empfänger GDT-Version Zeichensatz Satzart 8402 8410	Figipax1 02.10 • IBM(Standard) CP 437 • 6302 • PM	Grösse/Gewicht Dezimalzeichen Punkt 🗸	
Arztkennungen Ansicht	1 : Dr.med Bei Rücksprung nur Pat Nr. senden		
		<u>Ü</u> bernehmen <u>O</u> K	Abbrechen





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

Name	Wunddokumentation	Wunddokumentation -
	X GDT Anbindung 2.1 nutzen	
Programm	C:\digipaX\digipaX\digipax.exe	
Parameter		
	X Programm aufrufen beim Export	
	Export	Import
Pfad	C:\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 Kateikate Formular anzeigen	
	Denn Export aus der Narteikalte i official anzeigen	







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	
V UK X Abbrechen	Protokoll
Ansicht Installation Dienste Ver	rschiedenes Geräte / System AutoLiD
Automatischer BDT-Import	
GDT Verzeichnis:	active
Kartenkürzel:	Kennfeld: CODE
Automatischer GDT-Import	
GDT Verzeichnis: C:\Programme\	\digipax\digipax\GDT
Kartenkürzel:	Kennfeld: CODE
Systemanbindung PDE Med+Org bidirektiona	> Extern Extern> PDE
MediDok	
Medosys Protokollierung BDT/GDT -Impo	ort
viese Einstellungen beeinfluss ür weitere Hilfen zu diesem Th	sen die Funktionalität von PDETOP. hema betätigen Sie bitte die F1-Taste.

9.1.3.2 Transferring constant data (record type 6301)

🛃 Externe Programme 📃 🗖 🗙	🛃 Externe Programme 📃 🗖 🗙
Eigenschaften BDTout	GDT / BDT - Optionen BDT out
Speichern Abbruch Optionen [BDT/GDT] Details Bezeichnung Idigipax - Stammdaten übermitteln Anwendung C:\Programme\digipax\digipax\digipax exe Startparameter	OK Kommando Stammdaten zum externen Programm übermitteln Satzart '6301' Neue Untersuchung starten Satzart '6302' Daten einer Untersuchung anzeigen Satzart '6311'
 ☐ 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 I GDT C TEXT C XML	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	đ
Diese Werte gelten beim BDT-Export	
BDT Dateiheader ausgeben [SA 0020 und SA 0022] BDT Satzart 0010 ausgeben [SA 0100] 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 digipax - neue Untersuchung anfordern Anwendung C:\Programme\digipax\digipax\digipax.exe Startparameter Menue-Eintrag Image: Mintergrund-Programm Bestährung. (nur bei Aufruf aus. Menii: EXTBAS)	OK Kommando Stammdaten zum externen Programm übermitteln Satzatt '6301' Neue Untersuchung starten Satzatt '6302' Daten einer Untersuchung anzeigen Satzart '6311' Kartenkürzel Kürzel immer verwenden GDT - Einstellungen Typ (z.B. EKG01)
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 Import-Verzeichnis C:\Programme\digipax\digipax\digipax\GDT\PDE_DIGI.gdt	GDT-Empfänger DIGIPAX
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)

🛃 Externe Programme 📃 🗖 🔀	🛃 Externe Programme	
Eigenschaften BDT out	GDT / BDT - Optionen BDT out	
Speichern Abbruch Optionen [BDT/GDT] Details Bezeichnung Bigipax - neuer Worklistauftrag Anwendung C:VProgramme\digipax\digipax.exe Statparameter //w /w Menue-Eintrag ✓ Hintergrund-Programm Bestätigung (nur bei Aufruf aus Menü: EXTRAS) ✓ Menue-Beenden	OK Kommando Stammdaten zum externen Programm übermitteln Satzart '630 Neue Untersuchung starten Satzart '630 Daten einer Untersuchung anzeigen Satzart '630 Kartenkürzel GDT - Einstellungen Typ (z.B. EKG01) GDT-Empfänger	01' 02' 111'
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	Labordaten übermitteln [max. 90 Tage alt]	
3 GDT C:\Programme\digipax\digipax.exe	3 GDT C:\Programme\digipax\digipax\digipax.exe	

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 BDTout
Speichern Abbruch Optionen [BDT/GDT]	ОК
Details Bezeichnung digipax - Untersuchung anzeigen Anwendung	Kommando Stammdaten zum externen Programm übermitteln Satzart '6301' Neue Untersuchung starten Satzart '6302' Daten einer Untersuchung starten Satzart '6302'
C:\Programme\digipax\digipax\digipax.exe 😰	Kartenkürzel
 ☐ 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 © 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	
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

User			Administrator :: GDT			
Informations about clinic and physician	Identification					
User interface	GDT-ID: DIGIPAX1		Abbreviation: DIGI			
Image preview						
Baseboard	Communication					
oupe	Import directory:	C:'od				6
mage mormations Twentay / scout lines	Export directory:	C:\dimpaY\dimpaY\GDT				
fistogram	Export directory.	C: bigbax bigbax (sb1		0.0.10		(PS)
ob management	Type of file:	 fixed GDT file extension (".gdt") 	 Incremental file extension (".001" - ".999") 	O fixed file names		
mage acquisition	Import file:	DIGIxxxx.gdt	e.g.: DIGIXXXX.003	import.gdt		
Other	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt		
	Check interval in second	:: 10	.			
dministrator	Readout delay in miliseco	nds: 0	\$			
cense	Log:	log content of files				
eterinary surgeon						
ICOM / network	Adapt field allocation (r	napping)				
b management						
DT	Create GD1 answer					
1.7	GDT answer files can be	created for automatic acquited images (via this digipax statio	 as well as for the images which have been received 	d in the background.		
aches / IPS		 Image acquisition and image receipt 	ot	her events		
mage acquisition		 for each image (immediately) 		immediately after tob	Collect jobs	
i-ray inumal	Moment of creating:	🔘 each series Waiting time: 3 minutes 🚔				
atient CD		the study Waiting time: 0 minutes		after import of image		
mage transfer		and some the first second second				
Other		ask user before creating				
	Entry in comment field (6	227): automatically (according to mode)				
og		O this comment text in answer file:	Ne	v images exist.		
General		add additional tags:				2
Cache				10201		
DICOM	Characteristics field:	Type of study carried out:	AL	.G00		
mage processing	Set of characters:	 IBM CP 437 (DOS) 		ISO 8859-1 (ANSI)		
ile import	Require an answer in GD	T standard: X require (despite whether a request has been	made to this system or not)			
/orklist		Regiment ID:	Red	plant abbraviation:		
DT	-	delate attached obversion municipation	, Keo	periodore notofit		
n /		Dent 16				C
Aumnistrator login	import	export into				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.

	FM_GUT		
Nr	Symbol Name	Symbol Definition	Kommentar
001	name_fa	Geräteanbindungen	Name in FA-Auswahl
002	c_mtxt_1	Worklist	Menupunkt 1
003	c_gnam_1	Digipax	Geraet
004	c_uart_1	WL	Untersuchungsart
005	c_sart_1	6302	Satzart
006	c_lzif_1		Leistung
007	c_mtxt_2	Bilder zeigen	Menupunkt 2
800	c_gnam_2	Digipax	Geraet
009	c_uart_2		Untersuchungsart
010	c_sart_2	6311	Satzart
011	c_lzif_2		Leistung
012	c_mtxt_3	Patienten-CD einlesen	Menupunkt 3
013	c_gnam_3	Digipax	Geraet
014	c_uart_3	PM	Untersuchungsart
015	c_sart_3	6302	Satzart
016	c_lzif_3		Leistung

MediStar settings GDT form part 1



MS3.FM_GDT				
Nr Symbol Nar	ne Symbol Definition	Kommentar		
016 c_lzif_3 017 c_mtxt_4 018 c_gnam_4 019 c_uart_4 020 c_sart_4 021 c_lzif_4 022 c_mtxt_5 024 c_uart_5 024 c_uart_5 025 c_sart_5 026 c_lzif_5 027 c_mtxt_6 028 c_gnam_6 029 c_uart_6 031 lizif 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		



Grundemster	lungen				
Gerät <mark>Digip</mark>	ax				
Export Exportdatei Verzeichnis Aufruf Programm Parameter Verzeichnis	digimedi.001 c:\digipax\dig c:\digipax\dig	gipax\gdt gipax\digipax.	exe		
Import Importdatei	medidigi.* d:\rp		Antwort GDT	konform	

MediStar basic settings GDT server

Gerät <mark>Digipax</mark>		Untersuchun	gsart WL	
Patientennummer				
Mit führenden Nullen	N			
Mit Praxisnummer	N			
Rein numerisch	1			
Zeichensatz	DOS			
Export Größe/Gewicht	Ν			

MediStar export options GDT server



ät Digipax		Unte	rsuchungsart W	L
lentypen weis E Befund gnose Fremdb	l Kom Defund Erg	mentar Jebnis	Signatur Größe/Gew.	Werte
velseintrag ersuchungsart ei	ntragen	1		
ersuchungsdatum	eintragen	Ĵ		
te Kommentarzeil	e anhängen	J		
um und Uhrzeit a	us Einzelmess	ung J		
lentvp EBM			GOA	
stige Einstellun	igen			
chensatz		DOS		
pelte Einträge v	ermeiden	J		

MediStar import options GDT server

9.1.5 Connecting DOCConcept

						onfiguration)
User			Administrator :: GDT				
Informations about clinic and physician	_ Identification						
Image preview	GDT-ID: DIGIDAY 1		Abbreviation: DIGI				$\neg \Box$
Baseboard	ODI ID. DIGIPARI		Abbreviework [Digi				
Loupe	Communication						
Image informations	Import directoriu	Culder-syldeline/icom				1	
Overlay / scout lines	Import directory.	C: lugpax lugbax (ab1					244
Histogram	Export directory:	C:\digipaX\digipaX\GDT					
Job management	Type of file:	 fixed GDT file extension (".gdt") 	 incremental file extension (".001" - ".999) 🔘 fixed file names			
Image acquisition	Import file:	DIGIxxxx.gdt	e.g.: DIGDoox.003	import.gdt			
O MA	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt			
Administrator	Check interval in seconds:	10	•				
license	Readout delay in miliseconds:	0	•				
Veterinary surgeon	Log:	log content of files					
DICOM / network							
Joh management	Adapt field allocation (mapping)	<u>}</u>					
License							
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	ed in the background.			
Job management		X Image acquisition and image receipt	10	other events			
GDT		for each image (immediately)					
Caches / IPS	Menund of markets	🔿 each series Waiting time: 3 minutes 🚖		immediately after job	Collect jobs		111
Device links	moment of creating:	evamination Waiting time: 10 minutes					22
X-ray journal		Grannadari Malang andr [10 minato]]		after import of image			
Other							
		ask user before creating					
Log	Entry in comment field (6227):	 automatically (according to mode) 					
General		O this comment text in answer file:	T	here are new images available			
Cache		add additional tags:					2
DICOM	Characteristics field:	Type of examination carried out:		11.600			=
File import				100 0070 + (1107)			-1
Worklist	Set of characters:	 TRM CF 437 (DO2) 		12O 8828-1 (MM21)			
GDT	Require an answer in GDT standar	d: 🕱 require (despite whether a request has been n	ade to this system or not)				
Print		Recipient ID: DOCCONC	Re	cipient abbreviation: EDV1			
burning CD / DVD		delete attached physician number					
Administrator login	Import	Export Info				Save	
	_				_	_	0
							0

The settings shown in the above illustration outline the correct connection set up.



9.1.6 Connecting Quincy

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

, Imer	30.04.1960	48 Jahre	Mitglied AOK B	aden-Württemb R / /	AOK BMÄ	Im Gais	graben 17
ungen	Arbeitsplatzeinstellung	en					<u>×</u>
ogrammanschlü	sse	-					
Maria			D (A 11.0 F	1 12 1	Laux and	
Nomme	ntal Pro	igrammaurrur	Datenverzeichnis	Anschlubart	Kennwort	Arbeitsverzeichnis	Ubergabedatei
Joshicht an ar	GDT-Anschluß definiere	n		110000000000000			×
Nachlicht an ar M	lenü						
B	ezeichnung des angeschloss	enen Programmes/Ge	ätes	Kennung vor	QUINCY WIN (4 Buchst	aben zur Bildung der Datei	namen)
INTO FILIS	Röntgen			QWIN			
G	iDT-ID des Fremdprogrammes			Kennung des	Fremdprogramms (4 Buc	hstaben zur Bildung der Da	ateinamen)
[DIGIPAX obligatorisch,	dient der Identifikation	n des Anschlusses	DIGI			
N	vas kann die angeschlossene	Gerätesoftware?					
	Das angeschlossene Program	m kann als Server und	Client arbeiten.	Austause	nuatelen mit einer laurenu	en Nummer Versenen	
A	Aufruit des Fremdprogramms mit kompletter Pfadangabe 🔽 Sonderoption: dieser Aufruit soll keinen Neubefund auslösen						
[c	::\programme\digipax\digipax	:\digipax.exe		C Sonderop	otion: alle Dateien in den B	riefkastenverzeichnissen a	akzeptieren
P	'fad des Verzeichnisses für de	n Datenexport		Sonderoption	: abweichender Programn	aufruf für Aufruf aus der K	artei
[0	D: \GDT						
P	fad des Verzeichnisses für de	n Datenimport		Sonderoption	: abweichende GDT-Anfo	rderungsdatei bei Aufruf ar	us Kartei
P	2:NGD T						
G	ieräte und verfahrensspezifisc	he Kennung			WIN wartet bis es manuel	wieder aktiviert wird	
^e	ALLGOU			🔽 bei Stam	ndatenübergabe mehr Info	ormationen (z.B. Kasse) mit	igeben
				T ANSI Zei	chensatz verwenden (son	st DOS-ASCII/OEM)	
				□ Karteieint vorhande	rag nur neu erzeugen, we en sonst alten Eintrag akti	nn dieser noch nicht Jalisieren	
	1			1		1 1	1
	Abbrechen	<u>H</u> ilfe	Va	orlage laden	als ⊻orlage speiche	ern <u>S</u> peiche	em
		-			2		
		a		നവ			
2	1	- de		TVQ			
<u>A</u> bbre	echen	Hilfe	1	Anschlüsse	S <u>c</u> haltfläc	nen	Speichern
					ar Alfred		

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		
ations about clinic and physician	Identification				
preview	GDT-ID: DIGIPAX		Abbreviation: DIGI		
bard					
In forma Mana	Communication				
w / scrut lines	Import directory:	C:\GDT			
ram	Export directory:	C:\GDT			
anagement	Type of file:	fixed GDT file extension (".odt")	incremental file extension (* 001* - * 999*)	fixed file names	
acquisition	Import file:	DIGIYYYY adt	e a : DIGIXXXX 003	limovet adt	
	Expert flat	storeDIGL adt	e e : vorreDIGI 017	ample cigor	
istrator	Charle internal in secondar	10	A	fextoreau.	
	Check interval in seconds:	10	*		
•	Readout delay in miliseconds:	0	•		
ary surgeon 4 (patwork	Log:	ing content of thes			
nanement	Adapt field allocation (mapping)	/////////////////////////////////////			
a regenterit.					
/ IPS	K Create GDT answer				
s / IPS links	GDT answer GDT answer	for automatic acquited images (via this digipax station) as well as for the images which have been received	in the background.	
s / IPS links ournal	Create GDT answer	for automatic acquited images (via this digipax station	as well as for the images which have been received	in the background. er events	
s / IPS links ournal transfer	COT answer files can be created to	for automatic acquited images (via this digipax station I image acquisition and image receipt for each image (immediately)	n) as well as for the images which have been received	in the background. er events	
s / IPS Inks ournal transfer	Create GOT answer GOT answer files can be created to	for automatic acquited images (via this digipax station X Image acquisition and mage receipt for each image (mmediately) each ensets Waitin time (3 minutes (2))	a) as well as for the images which have been received of	in the background. er events immediately after job	Collect jobs
s / IPS - Iniks ournal transfer	Greate GDT answer GDT answer files can be created f	for automatic acquited images (via this digipax station X Image acquisition and image receipt • for each image (mmediately) • each series Waiting time: 3 minutes (*) • avening the Waiting time: (*)	a) as well as for the images which have been received	in the background. er events immediately after job	E Collect jobs
s / IPS Inits cumal transfer	Create GDT answer GDT answer files can be created to Moment of creating:	for automatic acquited mages (via this diginax station X Image acquisition and mage receipt • for each image (mmcdately) • each series Waiting time: <u>3</u> minutes <u>\$</u> • seximination Waiting time: <u>10 minutes</u>) as well as for the images which have been received	in the background. er events immediately after job A after import of image	Collect jobs
s/IPS Inits cumat transfer I	M Create GOT answer GOT answer files can be created to Moment of creating:	for automatic acquited mages (via this digpax station M Image acquisition and mage receipt for each mage (mmediately) examination Walting time: <u>10 minutes</u> or structures <u>10</u> if the last job is ready) as well as for the images which have been received	in the background. er events immediately after job # after import of image	Collect jobs
s/IPS Inis oumal transfer	Moment of creating:	for automatic acquited mages (via this digpax station B Image acquisition and mage receipt of or each mage (mmcdately) each series Walting time: [3mmutes] of the leat job is ready distu user before creating) as well as for the images which have been received	in the background. er events immediately after job X after import of mage	Collect jobs
s / IPS Inits cound transfer	K Greate 607 answer GOT answer GOT answer GoT answer Moment of creating: Drive in comment field (6227):	for automatic acquited images (via this digeax station I Image acquisition and image receipt of or each image (mmcdately) each series Waiting time: <u>10 minutes</u> of the last job is ready adv user before creating automaticaly (according to mode)) as well as for the images which have been received	in the background. er events immediately after job	E Collect jobs
s / IPS Initis cumal transfer S S 1 forcessang cost	K Greate GOT answer GOT answer GoT answer GoT answer GoT answer Get an be created 1 Moment of creating: Entry in comment field (6227):	for automatic acquited mages (via this digpex station X Image acquisition and mage receipt for each image (rmediately) ach series Walting time: (<u>Similates</u>) if the last job is ready adv.user before creating automatically (according to mode) this comments red in some (Fer-) as well as for the images which have been received	in the background. er events immediately after job # after import of image	Collect jobs
s / IPS Inits cumal transfer al 1 processing port at	Moreate GOT answer GOT answer files can be created to Moment of creating: Entry in comment field (6227):	for automatic acquited mages (via this digeax station * Image acquisition and mage receipt • for each mage (mmcdately) • each series Walting time: [<u>Simutes</u>] • examination Walting time: [<u>Simutes</u>] • if the lead by a ready • atk user before creating • automatically (according to mode) • this comment text in answer file: • and additional hore:) as well as for the images which have been received of #	In the background. er events immediately after job after import of mage re are new images available	E Colect pos
s/JPS Initis Juma Iteransfer al 1 f processing port st	K Create 607 answer GOT ans	for automatic acquited mages (via this digpax station * I mage acquisition and mage recept for each mage (mmediately) each series: Walting time: <u>10 minutes</u> if the last job is ready at user before creating automatically (according to mode) this comment text in answer file: add additional tags:) as well as for the images which have been received	in the background. er events immediately after job X after import of mage	E Collect jobs
s / IPS Initis curunal transfer sl sl f processing sort t	Create COT answer COT answer COT answer COT answer COT answer COT answer Cot	for automatic acquited mages (via this digpex station for each image acquisition and mage receipt for each series. Waiting time: [Similutes] each series. Waiting time: [Similutes] for the last job is ready ask user before creating e. automatically (according to mode) this comment text in answer file: add additional tags: Type of examination carried out:) as well as for the images which have been received	in the background. er events after inport of image re are new images available 500	E Colect jobs
r/ IPS Inks sound tansfer 4 processing out t t (CD / DND	K Create 607 knower GOT answer GOT answer GOT answer GOT answer GOT answer Get an be created 1 Moment of creating: Entry in comment field (6227): Oharacteristics field: Set of characters:	for automatic acquited mages (via this digpax station M Image acquisition and mage receipt for each mage (mmdalativ) each series Waiting time: <u>Similartes</u> of the last jab is ready automatically (according to mode) this comment text in answer file: add additional tags: Type of examination carried out: 188(0-74 ZhOS)) as well as for the mages which have been received	in the background. if when the	E Collect jobs
s / IPS Inits cound transfer I I I I I I I I I I I I I I I I I I I	K Create GOT answer GoT ans	for automatic acquited mages (via this digpex station M Image acquisition and mage receipt for each mage (mmediately) each series: Walting time: (<u>simulates</u>) in the last job is ready add user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of examination carried out: I EM (CP 437 (DOS))) as well as for the images which have been received	in the background. er events immediately after job # after import of image tre are new images available 500 500 859-1 (ANSI)	E Collect jobs
s / IPS Initis numal transfer al f f processing processing prot s g CD / D/D s s	K Create 607 answer GOT answer GOT answer GOT answer Get an be created 1 Moment of creating: Entry in comment field (6227): Oharacteristics field: Set of characters: Import	for automatic acquited mages (via this digpax station Stimage acquisition and mage receipt of or each same (mmcdately) examination Walting time: [3mmutes] of streets Walting time: [3mmutes] of the last job is ready ask user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of examination carried out: 1BM CP 423 (DoS) Export Info) as well as for the images which have been received	In the background. If the backgr	t Colect jobs



9.1.7 Connecting ALBIS

9.1.7.1 Settings digipaX

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

	6) -		Administrator :: GDT		
mations about clinic and physician	Identification				
r interface	GDT-ID: DIGIPAX		Abbreviation: DIGI		
je preview					
eboard	Communication				
e n informations	Import directory:	C:\digipaX\digipaX\digipaX\GDT			
rlav / scout lines	Export directory:	C:\dgipaX\dgipaX\dgipaX\GDT			
ogram	Turne of files	fixed GDT file extension (" odt")	incremental file extension (* 001* - * 000*)	O fived file namer	
nanagement	Import file-	DiGivery off	e a : DiGivvvv 003	limpart off	
e acquisition	Emport files			Importagot	
r	Export ne:	xxxxDiGi.got	e.g.: xxxxDiGL017	Lexport.gat	
inistrator	Check interval in seconds:	10	-		
	Readout delay in miliseconds:	0			
nse	Log:	log content of files			
rinary surgeon	Adapt field allocation (mapping)				
JM / HELWOR					
insi togenieri.	Create GDT answer				
	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	d in the background.	
nes / IPS		Image acquisition and image receipt) ot	her events	
ge acquisition		O for each image (immediately)			
ice links	Moment of greating:	each series Waiting time: 3 minutes	×	immediately after job	X Collect jobs
y journal	Moment of dealing.	O the study Waiting time: 10 minutes			
ent CD	1	○ if the last soh is ready	•	e arter import of image	
ge transfer					
u -		ask user before creating			
	Entry in comment field (6227):	 automatically (according to mode) 			
eral		O this comment text in answer file:	Nex	w images exist.	
the		add additional tags:			
ЮМ					
age processing	unaractenstics field:	type of study carried out:	ALL	.G00	
import	Set of characters:	 IBM CP 437 (DOS) 	01	ISO 8859-1 (ANSI)	
klist	Require an answer in GDT standar	rd: require (despite whether a request has been m	ade to this system or not)		
	-	Recipient ID:	Reci	inient abbreviation:	
			11000		-
		Frank to the second			Save

9.1.7.2 Settings in ALBIS

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

ale 🛃	15 - [20030 /	Test, Toni /	m / 01.01.2000 / AC	OK Niedersachsen]							
📣 Pat	ient Formular	Extern Ab	prechnung Privat IG	eL Statistik Stammdaten Optionen	Ansicht ?						
2			£ 🐟 📝	@ 😤 🔛 📲 🛽	Funktionsleiste ✓ Statuszelle	•	A 🗟	👱 · 💋 🖂	brief bi	ld bv	
	Karteikarte		alle	╶╻┛╹╩╏	Nur Stammdaten Geteilt Nur Dokumentation	Strg+Alt+X Strg+Alt+Y Strg+Alt+Z					
E	20030	01.01.200	00 (12)	Mitglied (BMÄ), West	Filterregister anwählen	Strg+Alt+Shift+C					
	Test, To	ni (m)		AOK Niedersachsen	Überlappend Nebeneinander						
				- Einle sedatum (Giultig)	Symbole anordnen Verankern	*					
	Tel. : Arbeitgeber			fehit (-) Entiernung	Alle schließen						
	- Hausarat			Zuständiget Atat	1 20030 / Test, Toni / m / 01.01.2000 / AOP	KNiedersachsen	1				
	-										
							r		_		
	alle Anar	nnese Befur	nd Bild Diagnose	Leistung Rezepte Therapie Rönt	gen Ascan						
13 a	28.10.2011	fau	1 Tag, 28.10.2011	(Erstbescheinigung)							
		fakür	Antrag auf Koster	nübernahme Muster 56							
RÖ	02.11.2011	fhv13	E-VO								
	20.12.2011	brief g	1								
	07.02.2012	b	AA-Schulter-	Befund re/li: Nackengriff	verzögert; Schürzengriff verz	zöge					
			HWS: LR/RR	50-0-50 , LN/RN : 25-0-2	5,Kinn-Jugulum-Abstand 5 cn	n, Reklin					
		brief [nicht definiert								

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



ALB.	S								_ @ ×
Patient	Formular Extern Abrechnung Privat IGeL Statistik Stammdaten	Optionen Ansicht ?							5
12	🗅 🚅 🕍 🕷 🚭 🕑 🧶 🖬	Abrechnung Antikoagulantien-Pass	i 物 2 电 🖻	n 🐴 😂 [à A 🗾 ·	I 🖸 🖸	nef bild	bv	
		Arbeitsplatz Arztbrief							
Ħ		Autgabeniste Augenarztmodul							
		Biometriedaten							
		Cordoba CSD Patienten Langzeitstudie							
		DALE-UV Diagnosen							
		DMP-Assist eGK							
		Formulare Geräte							
		Hausbesuchsmodul HZV							
8		ifap ifap impfCENTER							
		Impf-doc IQ - Premium							
		Karteikarte Kassenbuch							
RÖ		Kleine Listen Labor	Alle Indizes löschen Arbeitsplätze						
		Nachrichten / Kommunikation OPS	Datenbankeditor Datenbanken kopieren						
		Patientententer Praxisgebühr	Diagnosen FEBM 2009						
		Privatiguidation	Export Externe Programme						
		Regionale Feiertage Röntgenbuch	Freischaltungen Import						
8		Schein Schriftarten	INI-Editor Index löschen						
2		Scribor Statistik +	Installation Korrektur						
		Stempel Terminkalender	Patienten zusammenführen Scan-Software						
		Verordnungen Versorgungsprogramme	Update VÄndG						
		Zeitintervale	Verax Informationen Verzeichnisse						
Externe	Programme einbinden	Wartung +	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.

	Hundre Patrice Management Production Andreas Andre
1	Dent Formuser Extern Adrenniung Privat Loet Sotistik Stammastern Upporten Ansock /
10	# 🗋 🕞 😹 🕷 🛃 🖉 😫 📲 📳 🗄 🕒 💷 🕢 🎍 🦥 🐰 🎥 💼 🏘 🧐 🖓 🎑 🗛 👱 👘 👘 👘
Lineal	
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E	
E	
E	Abbruch
E	
R	

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



5	ALBIS	
Pat	ent Formular Extern Abrechnung Privat IGeL Statistik Stammdaten Optionen Ansicht ?	
1.4	2 🗅 🚅 🔛 🚓 🗗 🥘 😤 🔛 🚇	🛾 🕣 🎳 👗 🖻 🛱 🛤 🤮 🛃 A 🔽 · 💕 🔤 🗤
-	1	
Ξ	8	Externe Programme
E		Meridentiläge: Einflügen Höher OK
P	5.	Löpchen Tiefer Abbruch
E		Befeht
E		Beferk ALBIS
		Menuh Param Die Freischaltung für «Einfugen externer Programme genehmisten» für BS-tw. (XV-Wr.) 374446000 (auft in 3 Tagen aus)
		Avbets D. h. de freigeschaftete 72 Funktion steht Ihnen nach dem 05.08.2012 nicht mehr zur 72 V unag
		Stotus: Bitte nehmen Sie Kontakt zu Ihrem ALBIS Vertriebs- und Serviceparther auf.
R		
E		
L		Aktion bei eineuter Validerung: Nicht überreihmen
600		

Creating a job:

fenüeinträge:				
Digipax		Einfügen	Höher	OK
mport PatCD imp		Löschen	Tiefer	Abbruch
	×			Hilfe
Befehl:	CLT: MT:)bergabedateien Aufruf C Ohne C	GDT 6301
Betehiszeile:	U:\digipaX\digip	baX\albis\sta	C BDT (7/92) C	Office-Dokument
Menutext:	Digipax		C BDT (2/94) •	GDT 6302
Parameter:	1		C Convis	CDT E201 + E202
Arbeitsverz. (\$VERZ):	C:\digipaX\digip	aX\	· coms ·	444,500
Karteikartenkürzel:	digi		Untersuchungsart:	ALLEOU T
Statuszeilentext:			Allergologie, alige	mein
Ausführung:	C immer O	Patient aktiv	Dateibezeichnung I	\$AUS):
10 00	— n		C:\digipaX\digipa>	
Windows- Programm	Datenbanke	n schließen	Rückgabe	GDT
			Dateibezeichnung	(\$EIN):
			C:\digipaX\digipa>	
			Aktion bei erneuter	Validierung:
			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):

tenueinträge:		11 240	() (
Digipax	4	Einfügen	Höher	0K
PatCD imp		Löschen	Tiefer	Abbruch
Befeht Befehlszeile: Merütext: Parameter: Arbeitsverz. (\$VERZ): Karteikartenkürzet: Statuszeilentext: Ausführung:	C \digipa\\digip Import C \digipa\\digip Imp C imme C immer C F	aX\albis\ate aX\albis\ate aX\ abis\ate abis abis\ate abis abis abis abis abis abis abis abis	orraabedateien wiruf Ohne C BDT (7/92) C BDT (7/92) C BDT (7/92) C BDT (Mix) C Convis C Intersuchungsat: Allergologie, allge Nateibezeichnung (Vateibezeichnung)	GDT 6301 Office-Dokument GDT 6302 Diabetes BDT 2.0 GOT 6301 + 6302 IMP mein (\$AUS):
16 Bit Windows- Programm	Programmenc	le abwarten F o schließen C Z	Nickgabe Ohne O BDT,)ateibezeichnung C:\digipaX\digipa kktion bei erneuter Neuen Eintrag etz	/GDT (\$EIN): Validierung: eugen <u>*</u>

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:

tenüeinträge:				
Digipax moort	A	Einfügen	Höher	OK
PatCD imp		Löschen	Tiefer	Abbruch
	*			Hilfe
Befehlszeile: Menütext: Parameter: Arbeitsverz. (\$VERZ): Karteikartenkürzet: Statuszeilentext:	C:\digipaX\digip PatCD imp C:\digipaX\digip cc\digipaX\digip	aX\Albis\ste	Übergabedateien Aufruf C Ohne C C BDT (7/92) C C BDT (2/94) C C BDT (Mix) C C Convis C Untersuchungsart: Allergologie, allge Dateibezeichnung (GDT 6301 Office-Dokument GDT 6302 Diabetes BDT 2.0 GDT 6301 + 6302 PM 💌 mein \$AUS):
16 Bit Windows- Programm	Programmenc	allerit aktiv	C:\digipaX\digipa\ Rückgabe C Ohne © BDT/ Dateibezeichnung (C:\digipaX\digipa\ Aktion bei erneuter Neuen Eintrag erze	'GDT (\$EIN): Validierung: eugen <u>▼</u>

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 re-launching of digipaX. Therefore, digipaX is launched by ALBIS via a batch file.

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

@echo off
del C:\digipaX\digipaX\GDT\albiDIGI.gdt /q
start /d C:\digipaX\digipaX digipax.exe

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:

					Configuration	\supset
User 🕞 📥			Administrator :: GDT			
Informations about clinic and physician Image preview Baseboard	Import directory: Export directory:	C:\digipaX\digipaX\GDT				
Loupe Image informations Duerlay / scout lines	Type of file: Import file:	fixed GDT file extension (".gdt") DIGIxxxxx.gdt	 incremental file extension (".001" - ".999") e.g.: DIGIXXXX.003 	O fixed file names		
Histogram Job management	Export file: Check interval in seconds:	socoxDIGI.gdt	e.g.: xxxxxDIGI.017	export.gdt		
Image acquisition Other	Readout delay in milseconds: Log:	0 log content of files	•			
Administrator 💮	Adapt field allocation (mapping)					
Veterinary surgeon	X Create GDT answer					

GDT configuration on a digipaX workstation

Duri	ia Telnet (Client										**						,	
erbindu	ung Bearbe	iten Eins	stellungen	Duria Fens	ster Hilf	e	1						1	50		. 1			
	Hilfe 🍸		F2	F3		F4		F5	F6	F7		F8		F9	F10)	F11)к 🗸
Γ						Da	itei	en ers	steller	1							23.	04.20	10
	Expo:	rt G	Gerä	t/Typ		:	DI	GI1											
]	Date:	inan	ne /	Port		:	11	LOCALH	HOST/C:	/DIGIPA	AX/D	IGIP	AX/G	DT/D	IGID	URI	.GDT		
	8-bi	t Co	ode.		• • •	:	Ja				Ze.	ilen	tren	ner.	• • • •	: C	R+LF		
_	Data	i – FC	rma	+		-	BE	ι T											
1	Feld	kenn	nunq	, Text	.gru	ppe:	DL	1											
_																			
	Zeicl	hen L	erse	et.zen		· · · :													
_	aure		• • • •	• • • • •	• • •	••••													
	vorhe	er I	[mpo:	rt-Pr	ogr	amm:													
	exte:	rnes	s Pro	ogram	m	:	С	Ödigip	paxÖdiq	jipaxÖd:	lgip	ax.e	xe						
F	reit	ext	ode:	r Anf	ang	sbuc	hst	aben V	Jorausv	ahlen-	> , (<	->)	#2	2/0	03	23.0	4. Ky	οE
																			16:27:1

Configuration of the worklist job in Duria



ia Telnet Clie ung Bearbeiten	e nt n Einstellungen ()uria Fenster	Hilfe												
Hilfe ?	F2	F3	F4	1	F5	F6	F7		F8	1	F9	F10	1	F11	ок√
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AB			qe:	sundl	neitsz	entrum	Pentl	inq							
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1	013800	06302	aD	rus	• Inna.	re (val	.raber,	,				Text	j⊥ •	Ja	Nein
2	xxx810	0555												Ja	Nein
3	XXX300	0	8		Pati	enten N	Jr.							Ja	Nein
5	xxx310	1	8		Nachi	name								Ja	Nein
6	xxx310	2	8		Vorna	ame								Ja	Nein
7	xxx310	3	8		Gebu	rtsdatı	ım							Ja	Nein
13	xxx311	0	8		Gesc	nlecht	1/2							Ja	Nein
		Korre	ktur				assund				īös	chen			
		ROLLE	72Cul			T T C	issung				0 05	011011			

Row configuration for creating a worklist job (6302)

uria Telnet Clie	nt								
dung Bearbeiten	Einstellungen Duria Fenster Hilf	e				-	1 1		
Hilfe 7	F2 F3	F4	F5 F6	F7	F8	F9	F10	F11	ок√
MVZ, H	Hillebrand/Wei	nz		W 3	0.06.1	995 14	1/9 J P:1		103
Allene	erstr. 35, 594	57 Werl		C	DKM	02	2922-9792	.0	
PR	,			F	PRE	М		Kein	Fall
		info§pe	ntling.com	I		- · ·			
AB		gesundh	eitszentrum P	entlin	ıg				
					-				
Zeile	Inhalt (fix)	ab Pos.	Inhalt (vari	abel)			Textgr.	BDT	L.ze
1	01380006311							Ja	Nein
2	xxx8100§§§							Ja	Nein
3	xxx3000	8	Patienten Nr					Ja	Nein
5	xxx3101	8	Nachname					Ja	Nein
6	xxx3102	8	Vorname					Ja	Nein
7	xxx3103	8	Geburtsdatum	l I				Ja	Nein
13	xxx3110	8	Geschlecht 1	./2				Ja	Nein
	1		.				. ,		
Korrektur E <mark>r</mark> fassu			sung		LČ	schen			
									P
									16:31

Row configuration to display images (6311)



Duria Telnet Client							
Hilfe ? F2 F3 F4	F5 F6	i F7	F8	F9	F10	F11	ок✔
				·			
Datei	en einlese:	n				23.0	04.2010
Import Gerät/Typ Dateiname / Port Datei löschen	<mark>DIGI</mark> //SERVER0 Ja	01/C/BEFU	JND/GDT/I seriel]	DURIDIGI. L einlese	.* en:	Ja	
Datei-Format Feldkennung,TG.: 8402,DPAX (siehe F1).:	BDT -6227,DPAX	-6201,DP#	AX-6200,I	OPAX			
Hintergrund / Bildschirm.:	Vordergru	nd	Warte S	Sekunden	:		
Zeichen ersetzen:			durch.		:		
Auswerte-Programm vorher Export-Programm:							
Freitext oder Anfangsbuchst	aben Vorau	swahlen->	> ,(<	->) #2	2/00	3 23.04	l. Kvo E
							16:32:52

Configuration in Duria for importing GDT files



9.1.9 Connecting KiWi (KIND – Hearing Aids)

The illustrations below demonstrate connecting GDT to the KiWi system.

Annahme Bearbeiten Beh	andung Formidar Programme Engelalungen ?
Frau Manfred Testr	Mann, Wolfsburg *12.08.1954, 55 Jahre-
Qrt Datum Arz A K	Kein Argt - Barnenia
3/2010	
29.07.2010 G G	Untersuchung ALLG00 vom 29.07.2010 - LWS
	group vince standing angelinks
	Detum: 29.07.2010 🛐 Uhrzeit 17:11:46 Geräfe-ID: DIGIPACO Art der Untersuchung: ALLGOO
	Diagnose:
	Behnd
	Finadefind
	Kommerka: LWS
	Ergebrie:
	Signatur.
	Testminer Mesodatum Testili Beseichnung Probenti Ersehris Ersehris Proebris
	Tart annainen Unterwirkung am Geilt annainen 🕒 Doublege 💙 Abbaseben
	Bilder/Dokumente zeigen GDT 6311
Alle Scheine	tei
29.07.2010	
Start CiDolument	te u 🔁 C (doina)/doina 🔁 S/Kind Kiwi 🖉 S/Kind Kiwi 🖉 Arronic Backup 🔛 Daterback/J Bithy 🕼 KIND Drawie-ED 👻 doinay 🛛 💥 Unberautet - Paint 🖉 🐨 🗤

per	101-2		Administrator :: GDT		
nformations about clinic and physician nage preview aseboard	Import directory: Export directory:	C:VGDT C:VGDT			
oupe mage informations hettogram ob management mage acquisition other diministrator	Type of file: Import file: Export file: Check interval in seconds: Readout delay in miluseconds: Log: Adapt fiel allocation (mapping)	fixed GDT file extension (*.gdt*) DIGDooox.gdt xoooDIGL.gdt 10 0 log content of files	 incremental file extension (*.001*-*.999*) e.g.: D1Giboox.003 e.g.: b0x0D(G.017 € 	fved fle names Import.pdt export.pdt	
ense terinary surgeon COM / network	Create GDT answer GDT answer files can be created fi	or automatic acquited images (via this digipax station)) as well as for the images which have been received	I in the background.	
b management off for sches / IPS sches / IPS sches hins ray journal mage transfer	Moment of creating:	Image acquisition and image receipt for each image (mmediately) exact series Walting time: 3 minutes + examination Walting time: 10 minutes + if the last job is ready		er events immediately after job after import of image	🕱 Collectjobs
her		ask user before creating			
9 neral dhe	Entry in comment field (6227):	automatically (according to mode) this comment text in answer file: add additional tags:	The	re are new images available	
age processing	Characteristics field:	Type of examination carried out:	ALL	G00	
import	Set of characters:	IBM CP 437 (DOS)	01	ISO 8859-1 (ANSI)	
nnist T nt ming CD / DVD	Require an answer in GDT standar	d: require (despite whether a request has been n Recipient ID: delete attached physician number	nade to this system or not)	pient abbreviation: KIWI	
printes.	10				



GDT-Konfiguration		_ 🗆 🗵
Allgemein Schnittstellen		
Schnittstellenbezeichnung:	DigiPacs	
Basiseinstellungen spezielle	Einstellungen	
WSID:	0	
Exportdatei (KiWi-> Gerät, I	Beispiel: Satzart 6302)	
Zeichensatz:	Standard 💌	
Verzeichnis:	C:\gdt	9
Dateiname:	digikiwi.gdt	
-Importdatei (Gerät-≻KiWi, I	Beispiel: Satzart 6310)	
Zeichensatz:	Standard 💌	
Verzeichnis:	C:\gdt	
Dateiname:	kiwidigi.gdt	
Kennfeld:	ALLG00	
⊕ Schnittstelle <u>e</u> infügen å	🐓 Schnittstelle Jöschen 🛛 🔛 Speichem 🛛 🗶 I	Abbrechen

GDT-Konfiguration	
Allgemein Schnittstellen	
Schnittstellenbezeichnung:	DigiPacs
<u>B</u> asiseinstellungen spezielle	Einstellungen
Schnittstelle:	Aktiv Hochzählend 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
Spezielle Anpassungen:	
Anzeige am Gerät:	l"C:\digipaX\digipaX Demo\digipax.exe"
⊕ Schnittstelle <u>e</u> infügen	🖉 Schnittstelle Jöschen 🛛 🙀 Speichern 🛛 🗶 Abbrechen



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 ...

 $I: \backslash GDT \backslash AP05$

9.1.10.2 Workstation configuration

9.1.10.2.1	digipaX
------------	---------

					Configuration
iser			Administrator :: GDT		
Informations about clinic and physician	Identification				
mage preview	GDT-ID: DIGIPAX1		Abbreviation: DIGI		
laseboard					
oupe	Communication				
nage informations	Import directory:	I:\GDT\AP01			
stearce	Europet desetacus	LICOT			
h management	export directory.			0 A 10	
ane acquisition	Type of file:	 fixed GDT file extension (".gdt") 	 incremental file extension (".001" - ".999") 	fixed file names	
her	Import file:	DIGIxxxx.gdt	e.g.: DIGIXXXX.003	import.gdt	
	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt	
ministrator	Check interval in seconds:	5	-		
ense	Readout delay in miliseconds:	0	-		
terinary surgeon	Log:	log content of files			
COM / network					
management	Adapt field allocation (mapping)				
т					
iches / IPS	K Create GDT answer				
vice links	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.	
ay journal		Image acquisition and image receipt	oth	er events	
age transfer		O for each image (immediately)			
her	Manual Alexandre	each series Waiting time: 3 minutes		immediately after job	Collect jobs
7	Moment or creating:	O examination Waiting time: 10 minutes			
9			×	after import of image	
meral		U if the last job is ready			
sche		ask user before creating			
СОМ	Entry in commant field (6227):	automatically (according to mode)			
age processing	cho y in comment new (ozz/).	automatically (according to mode)			
e import		U this comment text in answer me:	The	re are new images available	
orkist	H I	add additional tags:			C
21	Characteristics field:	Type of examination carried out:	A110	300	
nt		10.00			
ning CD 7 DVD	Set of characters:	 IBM CP 437 (DOS) 	0 1	SO 8859-1 (ANSI)	
Administrator login	Import	Export Info			Save

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



20

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

9.1.10.2.2 MCS lsynet:

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.

Direktorcher Pat-CD	Direktsucher Zeinen
Onlines	Onlines
Content Dat CD	
Suchweit: Far-LD	Beschweiteung
Desk Reburg.	uescreebing.
- Exnet	- Export
Dateiname: I\GDT\AP01\digiisyp.001	Dateiname: I:\GDT\AP01\digiisyp.001
Vorlage: I:\WINACS\V0RLAGE\patcd.tpl >> Bearbeiten	Vorlage: I:\WINACS\VORLAGE\zeigen.tpl >> Bearbeiten
Programmdatei: >>	Programmdate: >>>
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
Dateitum Datei üherschreihen	Dateitur Datei überschreihen 🔽 🗖 Scheinaktivierung
Dateiname: testen	Dateiname: testen
Vorlage:	Vorlage: >>> Bearbeiten
Tuni Textdalei (ASCII)	Turr Teddatei (ASCII)
V immer löschen	W menocean
I a mine locater	
Direktsuche: Workfat Onlines Online Online Online OnlineNummer: 1 Aktiv V ASCII-Format Suchwort: Workfat Beschreibung:	Direktsuche: Rückantwort Onlines Online Online Onlinekummer: 5 Arbeitsplatz: 5 Fri Aktiv Fri ASDI-Format Suchwort: Rückantwort Beschreibung:
Export	Export
Dateiname: [I:\GDT\AP01\digitsyp.001	Dateiname:
Vorlage: I:\WINACS\VORLAGE\worklist.tpl	Vorlage: >>> Bearbeiten
Programmdatei: >>	Programmdatei: >>
Tup: Textdatei (ASCII)	Typ: Textdatei (ASCII)
	Datahar Datajiharahaihan 🗙 🗖 Schenakhviarang
Import	Import
Catemane.	
Vorlage: Bearbeiten	Vorlage: JI:\WINAUS\VORLAGE\rueck.tpl >>> Bearbeiten
Typ: Textdatei (ASCII)	Typ: Textdater (ASCII)
🔽 immer löschen	🔽 immer löschen
Q + 🖻 💼 Ut Abbrechen Ubernehmen Hilfe	Q + Ba a Ubernehmen Hille



To be able to re-call the images with a double click while re-entering 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".

a 🔢 Typ ändern • 🣍 🔫 🚛	阎。													
rer – a ×	W2	K3.WINACS - d	bo.KrablFeld Detai	ls zum Objekt-Exp	olorer							* X	Eigenschaften	
		Nummer	Suchwort	Satzart	Kategorie	SymbolNummer	KategorieLangt	ProgrammName	FixedFont	Format	Maske	ZielTabelle 📩	[Abf] Query	
街 🛄 dbo.iFappers 🔺		258	FREI REZ	100088	REZ	0	Repeat		False			-	41 m	
I dbo.IFFeld		23	Röntgen	8000	RŎ	0	Röntgen	@ap DigPAXzeigen	False			KRABLMEMO		
🛞 🛄 dbo.IFVorlage		260	EREL OPTAG	100102	OPTAG	0	Operations-Tag	1.415 - 101 - 101	False	10			(Mame)	Olivery
do.ImageListPictures		201	CDC1_000C7	100000	00007		Oracables		Palas				Datenbankname	WINACS
 a abo Images a do Images 			TREL_OFDE2	100033	OFDE2		operación		T dipo				Servername	w2k3
+ do.importKonfigSoalte		262	PREI_OPOPE	100101	OPOPE	0	Operateur		False				B Abfrage-Design	ier
dbo.ImportKonfigTab		263	FREI_OPASS	100098	OPASS	0	OP-Assistenz		False				Abfrageparameter	rli Für diese
🗄 🛄 dbo.ImportNDTDatei		264	FREI_OPNAR	100100	OPNAR	0	Anästhesie		False				Alle Spalten ausge	eb 3a
dbo.ImportProtokol		265	FREI_OPLAGE	100108	OPLAGE	0	Lagerung		False				DISTINCT-Werte	Nein
dbo.ISoftCCPBefehle		266	FREI OPAN	100097	OPAN	0	Anästhesist		False				GROUP BY-Erweitr	er «Keine»
doo.lsyDokuMandantModul doo.lsyDokuMandantNodul doo.lsyDokuMandantNodul doo.lsyDokuMandantNodu		267	ERET OPRILIT	100109	OPBLIT	0	Butcherre		Falce				E Oberste Angabe	Nein
doo.isybokumodue doo.isybokumodue doo.isybokumodue		2/0	DODWDTEDWDT	40200	DCDMD	0	in disclose of the set	@40.0CTM0	False			VD ADI MEMO	SQL-Kommenkar	
dbc.Kabukassenbuch dbc.Kabukassenbuch		268	DCDMPTEDMPT	48200	DCDWP	U	indikationsuberg	BHO DOMP	Faise			KRABUMENKJ	Zieltabelle	
E dbo.KaBuKassenbuecher		269	DCDMPEHKS	48220	DCDMP	0	Früherkennung	@AO DCDMP	False			KRABLMEMO	4	
🗉 🔝 dbo.KaBuKategorien		270	DCDMPZ01	48240	DCDMP	0	Früherkennung	@AO DCDMP	False			KRABLMEMO	4	
🗉 🛄 dbo.KaBuKategorienBuchungst		271	FREI_CHIRO	100110	CHIRO	0	Chirotherapie		Falce				4	
I dbo.KaBuKategorienMandante		272	ISYDOKUMA	71000	MAKRO	0	Workflow		False					
doo.Kartenieser		273	ABKLQ	70300	ABKLQ	0	Rechnung §116b		False				4	
do Kategorie Augush		274	ABKS	20400	ARK'S	n	Gatechrift (Storn		Falce					
dbo.KBVPrüfnummer		276	ADVEC	20500	ADVEC	0	Galataraa S116b		False				4	
🛞 🛄 dbo-Kennziffern		- 213	MONES	70300	HDKED	0	Faiscomo graco		Faise					
🛞 🛄 dbo.KennziffernDetail		276	LAN	9600	LAN	0	Laboraultrag		False				4	
I dbo.KISEventLog		277	HeilRezSSST	2090	R	0	Rezept für Stim		False				4	
dbo.KISFall		278	PIALQ	70600	PIALQ	0	Rechnung §118		False				4	
doo.KISFalBesuche		279	PIAS	70700	PIAS	0	Gutschrift/Storn		False				4	
do KISFalDiagnosen		260	PLAFS	70800	PIAFS	0	Fallstorno §118		False				41	
🗄 🛄 dbo.KISFalHistorie		281	SP71.0	71100	SP71.0	0	Rerbound S119		Falce				41	
🗄 🛄 dbo.KISFalinformation		202	6026	71200	5025		Constant State		False				41	
🗄 🛄 dbo.KISFallProzeduren		404	572.5	71200	3423		Guiscirin()storn		Faise				4	
do.KISImportListe		- 283	5P2F5	/1300	SPZFS	U	Halistorno §119		halse				Al	
doo.KissPalChangeLog		284	SMS	9700	SMS	0	SMS		False				1	
dos KUpistorenSert		285	DIKT	12100	DIKT	0	Diktat		False					
Fi doo.KKMedikamentenSort	0	286	FREI_PACS	100111	PACS	0	DigiPAX	@ao DigiPAXzeigen	False			KRABLMEMO		
dbo.KKWerkzeugToolbar	*	ARRE	ARRE	MAL	NULL	NEEL	18.81	MAL	NULL	18.81	NERL	MAL		
Image:	100	0.00000										-1007000	GROUP BY-Erweite	Pruna

9.1.10.3 Image server configuration

			Administrator :: GDT		
ormations about clinic and physician	Identification				
er interface	GDT-ID: DIGIPAX1		Abbreviation: DIGI		
ge preview					
eboard	Communication				
20 na informations	Import directory:	C:\digipaX\digipaX\GDT			
ge informations	Evourt directory:	INCOT.			
boram	The of floor		•	C ford flammer	
management	Type of the:	tixed GD1 hie extension (".gdt")	 Incremental file extension (1001 - 199) 	fixed file names	
ge acquisition	Import file:	DIGIxxxx.gdt	e.g.: DIGDOOK.003	[import.gdt	
er	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt	
	Check interval in seconds:	10	•		
ninistrator	Readout delay in miliseconds:	0	•		
nse	Log:	log content of files			
erinary surgeon	adart Coldallar Kan Garrela D				
OM / network	Adapt field allocation (mapping)				
management	Create GDT answer				
	GDT answer files can be created fi	w automatic acquited images (via this doinay station) as well as for the images which have been recei	and in the background	
hes / IPS		Image acquiete integes (via one appart second	y as not as to the mages internate secondeed	other events	
		a inage acquisitori and inage recept			
de acquisition					
ige acquisition rice links	Moment of creation:	o for each image (immediately)		immediately after job	Collect jobs
ige acquisition rice links ay journal	Moment of creating:	for each image (immediately) each series Waiting time: 3 minutes *		immediately after job	Collect jobs
ige acquistion Ace links ay journal ient CD	Moment of creating:	for each image (immediately) each series Waiting time: 3 minutes the study Waiting time: 0 minutes		immediately after job	Collect jobs
je acquision ice links y journal ent CD ge transfer	Moment of creating:	for each image (immediately) each series Waiting time: <u>3 minutes</u> the study Waiting time: <u>0 minutes</u> ask user before creating		immediately after job	Collect jobs
ge acquisition inge links sy journal lent CD ge transfer er	Moment of creating:	for each image (mmediately) each series Waiting time: 3 minutes + the study Waiting time: 0 minutes + ask user before creating		Immediately after job	Collect jobs
ge acquistion sy journal lent CD ge transfer er	Moment of creating:	for each image (immediately) each series Waiting time: 3minutes ⊕ the study Waiting time: 0 minutes ⊕ ask user before creating eautomatically (according to mode)		immediately after job	Collect jobs
ye adulation y journal lent CD ge transfer ler	Moment of creating:	for each image (mmedately) each series Waiting time: 3 mmutes the study Waiting time: 0 mmutes akuser before creating automatically (according to mode) this comment text in answer file:		immediately after job	Colect jobs
oge actuation sy journal lener CD oge transfer er reral	Entry in comment field (6227):	for each image (mmediately) each series Wahling time: [3 mmutes] • the study Waiting time: [3 mmutes] aak user before creating • automatically (according to mode) this comment test in answer file: • add additional tags:		immediately after job X after import of image New images exist.	Collect jobs
oge activation vy Journal etert CD age transfer her o de de	Entry in comment field (6227):	for each image (mmedately) each series. Waiting time: 3mmutes the study. Waiting time: 0 minutes ask user before creating automatically (according to mode) this comment text in answer file: add additional tags: Them of study carried out:		www.images.exist.	Collect jobs
oge acquisition ny journal lent CD ge transfer er neral be CDH	Entry in comment field (6227): Characteristics field:	for each image (mmediately) each energy Waiting time: [3muttes] the study Waiting time: [3muttes] ak user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out:		Immediately after job After import of image ew images exist.	Collect jobs
ge acquisition by journal ent CD ge transfer er f teral DM OM processing	Entry in comment field (6227): Characteristics field: Set of characters:	for each image (mmcdately) each series Waihing time: [3 mmutes 2 the study Waihing time: [3 mmutes 2 ads user before creating automatically (according to mode) this comment text in answer file: add additional tags: Type of study carried out: EM CP 437 (DOS)		Himmediately after job A after import of image ew images exist. HLG00 ISO 8859-1 (ANSI)	Collect jobs
ge acquisition y journal ent CD ge transfer er eral ne DM ge processing import	Entry in comment field (6227): Characteristics field: Set of characters: Regular an answer in GDT standor	for each image (mmediately) each sense Waining time: [amutes] et the study Waiting time: [amutes] automatically (according to mode) this comment text in answer file: add additional tags: Type of study: carried out: EIM C 9437 (DOS)	[[[[] [] [] [] [] [] [] [] [http://www.commediately.after job after import of image www.mages.exist. kLC000 J 500 8859-1 (AVES)	Collect jobs
ge acquation in yournal ent CD ge transfer eral eral de ge processing import klast	Entry in comment field (6227): Characteristics field: Set of characters: Require an answer in GDT standar	for each image (immediately) each senies Warking time: (3 minutes) each senies Warking time: (3 minutes) ads user before creating automatically (according to mode) this comment text in answer file: did additional tags: Type of study carried out: EIM (0-437 (DOS)) d: X require (despite whether a request has been in Recipient ID:	[[[] []]]]]]]]]]]]]]]	http://www.commediately.after job http://wwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwwww	Collect jobs
ge acquisition y journal ent CD ge transfer eral he OM OM ge processing import	Characteristics field: Set of characters: Require an answer in GOT standar	for each image (mmdately) each series Waihing time: () minutes) each series () minutes) ads 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) dt X require (despite whether a request has been in Recipient ID: debte attached nhistion in anther	[[[[[[[[[[[[[[[[[[[https://www.analysteps.com/analyste	Collect jobs
oge activition y journal ent CD ge transfer er reral the COM ege processing import rklat	Moment of creating: Entry in comment field (6227): Characteristics field: Set of characters: Require an answer in GOT standar Total Control Contr	for each image (immediately) each sense Warling time: [] minutes] with study Waiting time: [] minutes] aducar before creating aducantically (according to mode) this comment text in answer file: add additional tags: Type of study: carried out: Extra text in a request has been in Recipient ID: defendent in the index on a mether	[[[] [] [] [] [] [] [] [] []	http://www.analystation.org/analystatio	Collect jobs

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 a job	Show images) (Load patient's CD
NHCS-TSYNET 11.2v (6.80.17) - SQL Version 🤉 🧭	10.100.100.99 - 0 stem Fenster Hilfe	5 X 1979 Alt	ar: 32 Jahre; M] X X
on Tat Testmann, Otto	02.02.1979 AOKBadenBaden M	Swiste (LP)	
Cave:		• •)	Befehi:
Allnemein Selektiv 3 Dianneser + 14 n + 1 n + 1 n + 1			
Ansicht : Alle Einträge · (11 Einträg	- 100		
Datum: Kategorie: Direktsuche: Worklist			
Detum Ketogori			
Online			
C 29.03.2010 GKS Suchwart Working	platz: 1 Aktiv	IV ASUII-Format	
KBEM Beschreibung			
24.08.2004 AKTAM Export		41	
Dateiname: I:\GDT\AP01\digiisyp.001			
C 27.07.2001 GKS Vorlage: JI:\WINALS\VURLAGE\worklist.tpl		>> bearbeite	
	cheinak taiseu ma		
PKS Deletyp, Date uperscheiden 1 3	crieirokaviorang		
Dateiname:		testen	
Vorlage:		>> Bearbeite	•
Typ: Testdatei (ASCII)			
🔽 immer löschen			
		10	
	<u>DK</u> <u>Abbrechen</u>	nehmen <u>H</u> ilte	
💡 24 X4 🗊 🖨 🖬 😭 🔍 🛅 ↔		QK AI	brechen Übernehmen Hilfe
Direktsuche	dung 1 🕮 (134) Testmann, Otto 32, 4M 6T N/	V 150	
🔊 Start 🛛 🚠 😥 😥 👠			DE 客 💬 👘 👍 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:

work	list.tpl	
------	----------	--

show.tpl

patcd.tpl

*** 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

**** Read GDT format ***

'*** 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]
1444 Data in format DDMNVVVV
In Date in Final de Dumin Fri In Dat III - Stin Dia 6200) 8-81
'*** 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 SMAP 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]
"" 6/20 is result characteristic of GDT
[@DEF.3FIND+(4,0220),0,233]
**** 6221 is foreign result characteristics of GDT
[@FBEF:\$FIND+(4,6221);8;255]
*** Variable MEMO
[@MEMO:Datum(]
texe Attach date (8432) to Variable MEMO.
"*** Date can also be in another field characteristic, e.g. 6200
[@WIEWO+.3FIND(4,0200),0,233]
**** 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 nere
'*** 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 digipaX configuration

					Conf	guration
User 🔂 📥			Administrator :: GDT			
Informations about clinic and physician	Identification					
Image preview	GDT-ID: DIGIPAX Abbrevietion: DIGI					
Loupe	Commission					
Image informations	Communication					1201
Overlay / scout lines	Import directory:	C:\dgipaX\dgpaX\GDT				
Istogram Job management	Export directory:	C: (digipaX (digipaX (GDT	O second the second of cost 1 cost	0 6 mil 8 mm		194 J
Image acquisition	Type of the:	 Intel GD1 ine extension (got.) 	 Discretential melecterision (1001 - 1999) 	moet ett		
Other	Export file:	vvv0lGl oft	e.g.: 000000000	anpuragor		
Administrator	Check interval in seconds:	5		(evbo - dor		
lirense	Readout delay in miliseconds:	0	à			
Veterinary surgeon	Log:	log content of files				
Vederal program DOOM / network Job management GOT Codes J IPS Device links Xray journal Jinge transfer	GDT answer files can be created f	or automatic acquited images (via this digpex station) Image acquisition and image recept O for each image (nemediativi) @ each sense Waiting time: [<u>] minutes (</u> <u>]</u> O examination Waiting time: [<u>] minutes (</u>]) O examination Waiting time: [<u>] minutes (</u>]) O if the last job is ready	as well as for the images which have been receive	d in the background. ther events f: immediately after job after import of image	¥ Collect jobs	
Other		ask user before creating				
Log	Entry in comment field (6227):	 automatically (according to mode) 				
General		O this comment text in answer file:	Th	ere are new images available		
Cache		add additional tags:	(R	effering %1, Date %2, Time %3)		
Image processing	Characteristics field:	Type of examination carried out:	x-	RAY		
File import	Set of characters:	O IBM CP 437 (DOS)	٠	ISO 8859-1 (ANSI)		
GDT	Require an answer in GDT standar	d: 🕱 require (despite whether a request has been m	ade to this system or not)			
Print		Recipient ID: TEST-ID	Rec	ipient abbreviation: TEST		
burning CD / DVD		delete attached physician number				÷
Administrator login	Import	Export Info				Save
						6

9.1.11.1 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).

9.1.11.2 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	<receiver abbreviation=""><sender< td=""><td>DIGITURB.gdt</td><td>yes</td></sender<></receiver>	DIGITURB.gdt	yes
extension	abbreviation> . GDT	TURBDIGI.gdt	
(".gdt")			
Incremental file	< receiver abbreviation >< sender	DIGITURB.003	yes
extension	abbreviation > . <incremental no=""></incremental>	TURBDIGI.017	
(".001" – ".999")			
Constant file names	Any file name – this is often a simple	import.gdt	no
	alternative and allows you to adjust to	export.abc	
	most systems		

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.

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

9.1.11.3 Field assignment (mapping)

9.1.11.3.1 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.

9.1.11.3.2 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.

9.1.11.3.3 Veterinary area

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

9.1.11.3.4 Standard fields

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

9.1.11.4 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.

9.1.11.4.1 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 patient'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 (for example, is using the permanent GDT file extension option, 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 to series of images or a study for received images a "countdown" begins after receipt of the first image. If until the moment the countdown ends no other images will be uploaded for this series or study, the series / study will be deemed complete and a response file will be created. 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 station acquires images or image series directly, then after saving the study either for every series or complete study the response file is created. With this option, waiting time makes little sense and should be set on "0". Here, it is also recommended to use incremental file extensions for the option "Each series".

Therefor, information on the new study (StudyDescription) is also transferred if needed.

When creating a GDT response file after importing an image (option "After image import") a GDT file is created, which in an automatic mode 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.

9.1.11.4.2 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.



aption: (Reffering:	%1, Date: %2, Time: %3)			
alue 1: DICOM tag:	(0008,0090) - ReferringPhysiciansName	Tag element:	ompleted	Position:
alue 2: DICOM tag:	(0008,0020) - StudyDate	Tag element: 🛛	ompleted	Position:
alue 3: DICOM tag:	(0008,0030) - StudyTime	Tag element: 🛛	ompleted	Position:
emark:				

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 / Others" you can specify whether the beam projections are to be included in the description of the study.

9.1.11.4.3 Characteristic field

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

9.1.11.4.4 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.

9.1.11.4.5 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).

9.1.11.4.6 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.

9.1.12 Activities control system digipaX

9.1.12.1 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 $_{\rm w},_{\rm i}$ ", $_{\rm w}$ -i"). 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
Show study data	locally.
	 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.



9.1.12.2 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.
PM	PATIENT MANAGEMENT	6302	Loading patient management, e.g. for importing patent's CD or other DICOM images for this patient.
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.

9.1.13 Patient data consistency

If the names and birth dates of patients do not match fully with the data management system and clinic image data archive, accurate assignment of patients cannot be done. This can happen after receiving complete data image from previous image archives. Therefore, on the configuration page "Administrator / Others" in the "Patient ID" group, you can change this feature to compare to "Only patient ID." In this way, only IDs will be compared and not the names and dates of birth of patients.

9.1.14 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	Meaning
		message	
ACQ	ACQUIRE	ORM	Requires direct image acquisition. Only possible 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 import a patient CD or another DICOM images for that patient.



9.2.4 digipaX configuration

		Configuration
User 🙆 📤	Administrator :: HL7	
User Image interface Informations about chick and physician User interface Image proview Basebaard Loope Image informations Loope Image informations Overlay / scout hrees Histogram Job management Image activation Uterrise Vehring acquisition Other Image acquisition DICOM / network Job management Image acquisition Other DICOM / network Job management Image acquisition Other DICOM / network Job management Image acquisition Other Cache OCOM Image processing Fin mont Verket Other	General General Segment separator: H.7 Standard <0x00> < Windows <0x00> <0x0A> Una (branchascher: System Timexult for sending: 10 seconds ig output: Log messages Port: 2575 Response: Send recept Datago too: Show datago for creating a job	Test the connection
Administrator login	Import Export Info	Save
		8

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)

MSH	^~\& SendingApp Sender ReceivingApp Receiver 201201011200 ORM^001 123456 P 2.3.1 de
PID	1234567890 Mustermann^Max 200001010000 M Musterplatz 1^^Musterhausen^^99999^DE 0123 456789
PV1	^Physician^Performing^^^ ^Physician^Requesting^^^ ^1^2^^^34^Station 5
AL1	Allergien
ORC	NW 0123^^^ ^^^20120315112500^T ^Institution^
OBR	RIS-ID-01^C-Spine / AP Commends ^Physician^Reffering^^^
ZDS	1.2.276.0.7.3 WL X-RAY 75 Medical notes Contrast agent Premedication Patient history CR

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 $_{\parallel}|^{"}$. In the fields the components are contained that again are separated (e.g. with a symbol $_{\wedge}^{"}$).

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
PerformingPhysician = Performing physician
InstitutionName
                    = Institution
PatientLocation = Patient's place of residence
PatientHistory = Patient history/indication
Comments = Remarks
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 [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 ;eventually pregnant ;=2 ;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 radiological/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 are 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)
iResult 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 DICOM 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:

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

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

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

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 $(dGy^*cm^2, \mu Gy^*m^2 \text{ or } mGy^*cm^2)$, 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.

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 💿 r	סר
DICOM tag image:	(0028,0010) - Rows	
DICOM tag order:	(????,????) - Unknown Tag & D	ata 🦉
optional entry:	• yes Or	10
	OK Cancel	

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 FFFFxFFF.

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.

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.



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".

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.



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.

ange:	Human Medicine	▼ Sub-range:	Orthopedic s	urgery	▼ Target language:	German	
rocedure Code 1:	DROC / ProVario	Procedure Code 2:	iCRco Human	1	Procedure Code 3:	Teleoptic Alpha	
ody part / detail / ray beam	Target language	Procedure Codes	PCodes left	PCodes right	•		
Head	Kopf						
E Skull	Schädel				100		÷.
	AP	P5-000122:Skull AP-0			a a		
lateral	lateral	P5-000182:Skull AT-7	1				
ulataral left	Istoral links	1 5 000 102, 3Kull, ERI, 7	*				
lateral right	lateral rachte						
ateral right	DA DA	DE 000101/Slall DA-0					
p.a.	FA	P5-000101;5kull, PA;0					
axial	ISIND	P5-000119;5Kull, AP;1:	24				
ODI	schrag	pseul, cel					
obl 45° left	schräg 45° links	25Ruil, CEL					
obl 45° right	schrag 45° rechts	(SKull, CBL					
E Occipital bone	Kopfgelenk					A A A A	
a.p.	AP	;Kopfgelenk Dens, AP					
p.a.	PA	:Kopfgelenk Dens, PA					
obl	schräg	;Odontoid, OBL					
Cervical vertebrae	HWS						
2L a.p./lateral	2E AP/lateral	P5-000820					
3L.a.p./lateral/obl	3E AP/lateral/schräg	P5-000201				163 (69)	
4L a.p. /lateral/obl left/obl right	4E AP/lateral/schräg links/schräg	ig rechts P5-000201				1571 1571	
a.p.	AP	P6-S00100:C-Snine, AF	9:4			RIV10	
lateral	lateral	P6-S00101:C-Snine 1 4	T:75			DIAM	
lateral left	lateral links	a second and application	alasta -				
- lateral right	lateral rechts						
- D a	DA	HOUS DAVE					
ableft	ochräg linke	26,000,002					• — •
abl sight	aderlia sadata	D6 500103				X-ray 40 to V	
Ocean mouth	mit geöffneten Unterligfer	10 300 103					
Open mouth	nic geonneten onterkleter	and the second second					
Dens	Lines	TC-Spine, ODIV					
C-spine special a.p. (Dens)	mvvs spezial AP (Dens)	P0/300113				Add overlay Remove	e overlay
Indination	Inkination						
Recination	Rekination						
Indination/reclination	Inkination/Reklination	P6/500112				Name: Orthopädie	
toramina left	toramina links						
foramina right	toramina rechts					Modality:	
foramina both sides	foramina beidseitig						
foramina left p.a.	foramina links PA					Station:	
foramina right p.a.	foramina rechts PA						
foramina both sides p.a.	foramina beidseitig PA					Symboli	
Neck	Hals					Symbol.	
	AD						
	AD						_

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 Available 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	, ,
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 Available 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 PRESENTATION 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 l 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 (04095)
	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.

				(Configuration	
User 🖾	Administrator :: Veterinary surgeon					
Informations about clinic and physician User interface Image preview Banch and	Veterinary version Activate veterinary version You can modify this entry with a double	click on the verse in the table. Entries can be deactivated and will be th	ien not used in the system.			
Loupe	Designation	DICOM tag	Tag element	Position	Level	
Image informations	X Owner Name	(0010.0010) - PatientsName	Name	1	Patient	
Overlay / scout lines						
Histogram	Owner Birthdate	(????,????) - Unknown Tag & Data				
Job management	Owner Sex	(????,????) - Unknown Tag & Data				
Image acquisition Other	X Animal Name	(00 10,00 10) - PatientsName	Surname	1	Patient	
Administrator	X Species	(0010,0010) - PatientsName	2. name	1	Patient	
License	Race of Animal	(0010,0010) - PatientsName	Name affix	1	Patient	
Veterinary surgeon	X Color	(0010,0010) - PatientsName	Title	1	Patient	
Job management	X Birthdate of Animal	(0010,0030) - PatientsBirthDate	completed	1	Patient	
GDT U 7	* Sex of Animal	(0010,0010) PatientsSex	completed	1	Patient	
Caches / IPS	X Pedigree	(0008, 1040) - InstitutionalDepartmentName	completed	1	Study	
Image acquisition Device links	X Tattoo / Chip	(0010,1030) - PatientsWeight	completed	1	Study	_
X-ray journal	Breeding number	(????,????) - Unknown Tag & Data				
Patient CD Image transfer						_
Other						
Log						
General						
Cache						
DICOM						
Image processing						
File import						
Worklist						
GDT -						
Administrator login	Import	Export Info			5	Save
						-
						8

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 directly.

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	Position	Level
		element		
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]
0008,0050	AccessionNumber	Short String	1
0008,0090	ReferringPhysicianName	Person Name]



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 9.1.11.3 "Field assignment (mapping)".

r					Administrator :: GDT			
rmations about clinic and physician	Identification							
ge preview	OT-ID: DICIDAX1				Abbreviation: DICI			
eboard	GUTID. DIGIPART				Appreviation. DIGI			
xe	Communication							
pe informations	Import directory:		C:\digipaX\digipaX\GDT					
ray / scout mes	Export directory:		C:\diginaX\diginaX\GDT					
nanagement	Turns of files		fixed CDT file extension (" adt")	incremen	tal file extension (° 001" - * 000")	G fixed file namer		
e acquisition	Import file:		DIGIyyyy odt	e.o.: DIGIXX	vy 003	import oft		
r	Export file:		vvvvDIGI odt	e a : xxxxDI	CT 017	export adt		
inistrator	Cherk interval in seconds:		60			[exposignt		
	Readout delay in militarony	te -	0					
	100:		log content of files	1.00				
M / network								
anagement	Adapt field allocation (n	happing)						
	Patient data							
es / IPS	Patient number:	3000	Name affix:	3100	Name:	3101	Name:	3102
e Inks	Date of birth:	3103	Title:	3104	Insurant number:	3105	Place of residence:	3106
e transfer	Street:	3107	Gender:	3110	Date of record:	6200		
r	Control system							
	Job number:	0	Job description:	0	Station name:	0	Modality:	0
ral	Veterinary surgeon							
e	Owner's last name:	3201	Owner's first name:	3202	Owner's name affix:	3200	Owner's title:	3204
M	Owner's date of birth:	3203	Owner's gender:	3210	Animal name:	3101	Animal species:	3100
port	Breed:	3102	Color of animal:	3104	Animal's date of birth:	3103	Animal's gender:	3110
ist	Pedigree:	3106	Tattoo / chip:	3105				
								Set up GDT standard fie
								autop ou totalida a rea
ig CD / DVD	Create GDT answer							
A shortest share have be at a	Township		Provide the Table					

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 Vetinf connection

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.



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

DCOM network Software GOT answer files can be created for atomate acquited mage (with dagaes states) as well as for the mages which have been received in the badground. Dot management Other events Other events GOT for each image (mindtalety) other events AF7 Caches / JPS each serves. Waiting the: [smarker] other events Device link for each image (mindtalety) if the link bit is doin and mage receipt if the mage (mindtalety) Device link mage transfer other events if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt Other each serves if and link bit is doin and the go matcher if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and mage receipt if the link bit is doin and bit is doin and bit is doin and bit is doin and mage receipt if the link bit is doin and bit is doin and bit is doin and bit is doin and bit is do
bb mangement orr H2 K1 Carber (JPS Device his Device his Dev
GOT H Image framedately/image framedately/image framedately/image framedately/image framedately/image framedately/image framedately/image framedately/image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Protect Evids Patient's CD Image framedately after pob Image framedately after pob Image framedately after pob Patient's CD Image framedately after pob Image framedately after pob Image framedately after pob Patient's CD Image framedately is ready Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob Image framedately after pob
H-7 Cacker JPS Decide Inds Patients CD X-ray Journal Independent Decide Inds Patients CD X-ray Journal Independent Comment Generating: Cacker JPS Benerating: Comment Generating: Comment Generating: Cacker JPS Cacker Joss Comment Generating: Cacker JPS Cacker JPS Comment Generating: Cacker JPS Cacker JPS Ca
Caches (JPS Memetrial forcesting: we define that you in the full winds the
Device Inde Patent's CD Xray Journal Under transfer Other Concer Carber Carber Device Inde Device Indevice Indevice Indevice Indevice Indev
Patients CD If the lasts plu is ready Image transfer If the lasts plu is ready Other Image transfer Image transfer Image transfer Other Image transfer Image transfer Image transfer <
Xray jourdal Image transfer Other Image transfer Image transfer Other Image transfer Image tran
Image transfer Other Image transfer Other Image transfer Dery in comment field (6227):
Other Entry in comment field (6227): © unimatically (according to mode) Icog Entry in comment field (6227): © unimatically (according to mode) General Cadree Entry in comment field (6227): © unimatically (according to mode) Other are new images available Deres re new images available Deres re new images available Other activities field: Type of examination carried out: ALLGOD
Log This comment text in answer file: There are new images available General add additional tags: Cab Cab Characteristics field: Type of examination carried out: ALLGOD
Concell Image: Concell
General Observations (an index on the second s
DICOM Set of haracters: DIBM (P 437 (DOS) ISO 8839-1 (ANSI)
Image processing Image processing Require an answer in GDT standard:require (despite whether a request has been made to this system or not) Require an answer in GDT standard:require (despite whether a request has been made to this system or not)
Workist Recipient ID: VETINF Recipient abbreviation: VETX
GOT delete attached physician number
Administratir logi Import Export Info

or after downloading the image:


leterinary surgeon	Create GDT answer		
DICOM / network	GDT answer files can be crea	ted for automatic acquited images (via this digipax station) as well as for the in	nages which have been received in the background.
ob management DT Lactes / IPS Jevice Inks dent's CD	Moment of creating:	¥ Image acquisition and image receipt for exch image (immediately) each series Waiting time: [3minutes] ⊕ exchanismon Waiting time: [10minutes] ⊕ ● (if the last job is ready	other events immediately after job callect jobs after import of image
(-ray journal		ask user before creating	
Dther	Entry in comment field (6227	e automatically (according to mode)	
og		this comment text in answer file:	There are new images available
ieneral		add additional tags:	
Tache	Characteristics field:	Type of examination carried out:	ALLGOD
DICOM	Set of characters:	IBM CP 437 (DOS)	 ISO 8859-1 (ANSI)
mage processing file import	Require an answer in GDT sta	andard: require (despite whether a request has been made to this system	or not)
Vorklist		Recipient ID: VETINF	Recipient abbreviation: VETX
DT 11 7		delete attached physician number	
Administrator login	Import	Export Info	Save

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 managem	ient		
Informations about clinic and physician	Job management / workist					
Image preview	🕱 Automatically update job list Update interval in seconds: 30 🚖					
Baseboard	Delete tobs after:					
Loupe	Show the column with number of received images and mark with the colour the list entry when the image has come					
Image informations	Descrivate check of the communication onth (not recommended)					
Overlay / scout lines	Constraints a low on all constraints and fand fand fand fand fand fand fand					
Histogram	Source of entry in X-ray journal					-
Job management	Source for the pre-allocation of the	ields for a new entry in X-ray journal:				
Image acquisition		• se	lected worklist job			
Other		() re	ceived images			
Administration (7)		() no	source (all entries are empty)			
Administrator	(Only if X-ray journal module activat	ed.)				
License						
Veterinary surgeon	Visual selection					
DICOM / network	Types:	Configuration:				
Job management	X Cat		14 14	1 A 4		
GDT	X Swine	<u>></u>	·e.: ·ea			
HL7		Part of the body / refinement / ray path	Procedure codes	PCodes left	PCodes right	
Caches / IPS		🕀 Head				
Device links		B Skull				
Patient's CD		E X Frontal sinus				
X-ray journal		🐵 🕱 Nasal bone				
Image transfer		B Paranasal sinuses				
Other		H X Nasal cavity				
lon D		E X Cheek bone				
		Mandible				
General	Tags procedure codes: Requested R	rocedure ID	 Scheduled Procedure Step Code Mea 	ning	 Scheduled Procedure Step Code Value 	-
Cache	integrate procedure codes in ima	ges				
DICOM						
Image processing	additional informations					
File import	Tag accession Number: Accession Number:					
Workist	tag job number: Scheduled Procedure Step ID 🗸 🗙 save job number as Accession Number in the examination					
	tag job description: Scheduled P	ocedure Step Description	 X use job description as examination 	description		-
Administrator Ionin	Temport	Event				Sava
Administrator regim	priport	10000 L				Jave
	_			_		(

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.

(stabs/)(stabs Dius	VetCeen	(otoop) IME	VietCoop V/C2	Cnotabom	Deflevet	Kanal ab 20	Abaaya iyat2/ya
vetabc/vetabc Plus	vetscan/	vetscanHivio	vetScan vSZ	Spotchem	Renovet+	KoneLab 20	Abacus J.vet3/ve
pocH- <u>1</u> 00iV Diff	FI	DC <u>3</u> 500i/4000i	VetT	est <u>8</u> 008	VetLab-IDE <u>X</u> X	EKG	<u>G</u> DT
Dfaile and the						Auft	trag an das PAC
Prad: C:\di	gipaX	digipaX	\GDT T	1.51-	CDT Koppup	accetz:	<u> </u>
Datei.	• test:	DIGIVE	TX CI	a.inr.	GD1-Kennur	iyssaiz.	6302
Extension.	(fest:		(• IT	d.Nr.	Zuor	dnung GDT-Datensatze	
PACS: C: \	digipa	aX\digip	ax\digipa	ax.exe			
						Antwort	vom PACS an P
Pfad: C:\di	gipaX	VedigipaX	∖GDT				
Datei:	fest:	VETXDI	GI O If	d.Nr.	GDT-Kennur	igssatz:	6310
Extension:	fest:) If	d.Nr.	Zuor	dnung GDT-Datensätze	2
						Anforderung	PC an das PAC
Pfad: C:\di	dipaX	AigipaX	∖GDT				
Datei:	fest:	DIGIVE	TX O If	d.Nr.	GDT-Kennur	igssatz:	6311
Extension:	fest:		● If	d.Nr.	Zuor	dnung GDT-Datensätze	2
Viewer: C: \	digipa	aX\digip	ax\digipa	ax.exe			
				_			-
Polling in sec:		5 🗸	GDT aktiv	GDT bei Kunde	enaufruf		
(poceddt ovo)			allgen	eine GDT-Parameter	r	spe	ichern 💋 📢

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) Name (06) Rasse (04)		3100=Tierart 030000 3101=Name des Tieres 060000 3102=Rasse 040000 3103=Geburtsdatum 070000 3104=Farbe 220000 3104=Farbe 220000
Geburtstag (07)		3106=Halter Wohnort PZWO00
Geschlecht (05)		3107=Halter Strasse ST0000 3108=Stammbaum 320000
Ohrmarke/Täto (08)		3109=frei 000000
Farbe (22)		STID-Geschiecht 050000
EU-Pass (23)		Halter Wohnort. PZWOO
Chip-Nummer (24)		Übernehmen
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 🖌 Vorschau 🔽 zurück

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



Creating job:

- exercise and the second s	Pflichtsätze: 8000, 8100, 3000, 8480, 8402	
verfügbar:	ausgwählt	
4219-Uberweiser 4220-Untersucher 6200-U-Datum 6201-U-Datum 6201-U-Datum 6201-U-Datum 6205-Frei 00000 6221-Frendbefund 6227-Studie 6305-frei 00000 6305-frei 00000 6332-frei 00000 6333-frei 00000 6333-frei 00000 6335-frei 00000 6336-frei 00000 6335-frei 00000 6335-frei 00000 6341-frei 00000 6342-frei 00000 6343-frei 00000 6345-frei 000000 6345-frei 000000	 Bigger Statistics (Section 1997) Bigger Se	

Returned response:

-Datensätze >Antwort <	Pflichtsätze: 8000, 8100, 3000, 8480
Verfügbar: 4219=Uberweiser 4220=Uhersucher 6200=U-Datum 6201=U-Zeit 6205=frei 000000 6221=Fremdbefund 6227=Studie 6228=Testbezeichnung 6302=frei 000000 6335=frei 000000 6333=frei 000000 6333=frei 000000 6338=frei 000000 6338=frei 000000 6338=frei 000000 6338=frei 000000 6338=frei 000000 6338=frei 000000 6339=frei 000000 6339=frei 000000 6339=frei 000000 6340=frei 000000 6344=frei 000000 6344=frei 000000 6344=frei 000000 6344=frei 000000 6344=frei 000000 6344=frei 000000 6344=frei 000000 6345=frei 00	Phichtsatze: 8000, 8100, 3480 ausgwählt: 9208-verwendeter Zeichensatz 9218-Version GDT 8000-Satziange 8316-GOT ID des Empfagers 8316-GOT ID des Senders 8402-Modaliät 8410-AcTitle 8400 8410-Actitle 840-Auftagenummer 3000-TierHalter Tomoton 3104-Farbe 220000 3105-EU-Ausweis/Lebensnummer 230000 3107-Halter Strasse ST0000 3107-Halter Vename VN0000 3201-Halte
8000=Satzidentifikation	Eingaben speichern 🥢 🗐



Request for data:

	Filicitisaize. 6000, 6100,	5000, 6460	
verfügbar:	au	sgwählt:	
4219-Überweiser 4220-Uhrersucher 6200-U-Datum 6201-U-Zeit 6205-frei 000000 6221-Fremdbefund 6228-Strei 000000 6302-frei 000000 6330-frei 000000 6333-frei 000000 6333-frei 000000 6333-frei 000000 6334-frei 000000 6335-frei 000000 6335-frei 000000 6335-frei 000000 6335-frei 000000 6335-frei 000000 6335-frei 000000 6341-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000 6342-frei 000000	- 922 921 800 810 833 844 844 300 310 310 310 310 310 310 310 310 310	8-verwendeter Zeichensatz 8-Version GDT 9-Satzidentfikation 0-Satzidentfikation 0-Satzidentfikation 8-GDT ID des Sempfängers 8-GDT ID des Senders 2-Modaliat 0-Aufragsnummer 0-Ter/Halter ID 0-Ter/Halter ID 0-Ter/Halter ID 0-Terat 030000 2-Rasse 040000 3-Geburtsdatum 070000 4-Farber 220000 5-EU-Ausweis/Lebensnummer 230000 1-Halter Nachname NH0000 2-Halter Vorname VN0000 4-Halter Tiel TH0000 0-U-Datum 5=Bildkennung	
8000=Satzidentifikation	-		

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.



17 Other configurations

17.1 Automatic determination of the next patient ID

If this option on the "Admin / Others" configuration page is active, then when creating the patient manually, the patient's ID is given automatically. During this, the archive is searched and the nearest highest number is selected from the highest ID. When this option is disabled, you must manually assign a unique ID.

17.2 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.

17.3 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.

17.4 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.

17.5 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.



17.5.1 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".



17.5.2 Windows Vista/7

Through "Start", then "Execute" or through "Start", "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.

17.6 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 4.7 Nero.

17.7 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 17.6 has no impact on the use of the burning robot.

17.8 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.

17.9 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 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 module (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 image reception module (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 a /w.
/pm	Patient Management	Loading patient management when a new study is requested by the GDT. In this way, for example, patient's CD can be imported, and even follow up with filing the record card entry. 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 <password></password>	Admin	Automatically login as an administrator. Manual logging in with providing a password is no longer necessary. For "password" please use the set password. Warning: Do not use it with a client!
/ds	Device Simulation	Activation of the simulation module for receiving the image. Additional devices are then available only for simulation. Additional buttons in the toolbox for receiving 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– Module	Activation of the multi-patient module for this session. The image receiving module, alternatively is deactivated 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	Patient-ID	Patient with appropriate patient-ID is loaded after
<patientid></patientid>		program startup (example: /pid 12345)
/study	Study	Study with appropriate StudyInstanceUID is loaded after
<studyuid></studyuid>		program startup (example: /study 1.2.345.0.123)



19 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 the 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).

19.1 Scanner connections (CR-Reader)

19.1.1 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 DICOM Providers").

19.1.2 Orex connection

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

Scan program:	$C: \verb WINDOWS\verb 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.

19.1.3 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.exeProgram parameters:C:\Program Files\Kodak\KodakQC\Images\RTImagesName of manufacturer:KodakName 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".

19.1.4 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.exeProgram parameters:C:\Program Files\Carestream\CarestreamCR\Images\RTImagesName of manufacturer:CarestreamName 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".



19.1.5 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:\ImportImport filter (filename):*.dcm

19.2 Detector connections

19.2.1 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\AlphaPlusEUControl.SDK\Client\APGUI.exeImage 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.

19.2.2 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:\ \ \ C:\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
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".

19.3 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.

19.3.1 Connecting GENESIS 50 RFT / DT

The following devices are supported: GENESIS 50 RFT / GENESIS DT. Connection of the device with the computer via RS232 interface is a prerequisite.

Connection to the generator GENESIS 50 RFT is established by COM-Port (RS232). New connection must be created for setup.

- 19.3.1.1 Creating network connection via RS232 (Windows XP)
 - Assistant for new connections
 - Setup extended connection
 - o Establish connection directly with another computer
 - o Guest
 - Enter name of another computer (e.g. X-RAY)
 - Select the appropriate connection (e.g. COM1)
 - o Complete
 - Connection properties
 - o General: check COM1 (must be selected)
 - Configure
 - Baud rate: 38400
 - o Options:

Dialing options Display progress while connecting Prompt for name and password, certificate, etc. Include Windows logon domain Redialing options	
Display progress while connecting Prompt for name and password, certificate, etc. Include <u>Windows logon domain</u> Redialing options	
Prompt for name and password, certificate, etc. Include Windows logon domain Redialing options	
Redialing options	
Redialing options	
Redial attempts: 0	* *
Time between redial attempts: 1 second	~
Idle time before hanging up: never	~
Redial if line is dropped	



o 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-R	AY ? 🔀
0	
User name:	edv1
Password:	[To change the saved password, click here]
Save this u	user name and password for the following users: y a who uses this computer
Connect	Cancel Properties <u>H</u> elp

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



19.3.1.2 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)
 - o Communication cable between two computers
 - Select the appropriate connection (e.g. COM1)
 - o 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
 - o Activate Save this password
 - o Give the connection name X-RAY
 - o 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:

	Options	Security	Networking	Sharing	
Dialin	ig options				
)isplay prog	gress while	connecting		
<u>E</u>	<u>Prompt</u> for r	name and p	password, cer	tificate, etc	
	nclude <u>W</u> ir	ndows logo	on domain		
	TOTAL PLATE	alone <u>n</u> un			
Redia	aling option	IS			
Red	ial attempts	s:		0	À
Time	between	redial atter	npts:	1 second	· •
Idle	time before	hanging u		never	-
ldle i	threshold:				7
	Redial if line	ie dronna	d		
			u		
PPP	Settings				
		~			



o 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	
<u>U</u> ser name:	edv1
<u>P</u> assword:	[To change the saved password, click here]
<u> </u>	user name and password for the following users: / e who uses this computer Cancel

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



19.3.1.3 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).

19.3.1.4 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.

19.3.1.5 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).

19.3.2 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.

19.4 Dosimeter connections

19.4.1 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.



19.4.1.1 Default settings

Interface:	COM1
Update interval:	10 seconds
Threshold value:	0,00 µGy*m ²
Reset:	activated

19.4.1.2 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.

19.4.1.3 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 (standard: 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 ± 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.

19.4.1.4 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.

19.4.1.5 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.

19.5 Connecting acquisition of image series

19.5.1 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

- o DICOM:
 - DICOM images I graphics: JPEG, BMP or TIFF
- Standard pixel graphics: JPEG, BMP or TIFF
 RAW format: only 8-bit greyscale is sur
 - rmat: only 8-bit greyscale is supported
 - Image width: width in pixel of RAW data
 - Image height: height in pixel of RAW data

19.6 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. Generally, all devices can be connected that 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. A foot switch can be used for control. The foot switch must have two pedals for which the "F5" and "F9" keys can be programmed. An



example for device is DFG/USB2pro Video-to-USB converter of Imaging Source and as foot switch the USB Double Foot Switch II of Scythe.

19.7 Connecting burning robots

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

19.7.1 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.

19.7.1.1 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.

19.7.1.2 Configuration

19.7.1.2.1 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.



19.7.1.2.2 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.

ieneral	PP-100/PP-100N PP-100AP
Monit	oring Folder
C:	EPSON\TDBridge\Orders
TD Br	idge Startup Type
Aut	omatic (when starting PC/service)
Defau PP-	ult output device.
Defau PP-	Jit output device 100N 1
Defau PP- Defau Star	ult output device 100N 1 Jlt output stacker in standard mode cker4
Defau PP- Defau Star Print Labe	ult output device. 100N 1
Defau PP- Defau Star Print Labe	ar i todar use monitor inminitzed ult output device 100N 1
Defau PP- Star Print Labe CD/	al croan use monitor inmininzed Jit output device. 100N 1

19.7.1.2.3 digipaX

Burning robot		
Burning robot type:	EPSON Disc Proc	ucer PP-100 / PP-100N
	Monitoring Folder	: C:\EPSON\TDBridge\Orders
	Device name:	
Purning robot sottings:	Writing speed:	12 🔹
barning robot settings.	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 network.

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".



19.7.1.2.4 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.

	Utility		T
	Zufuhrstapler (<u>1</u>)	Stapler 1 CD-R 🗸	
0	Ausgabestapler (<u>0</u>)	Stapler 4 -	
4	Etikettentyp	CD/DVD-Etikett -	
tandard ußenseite:1160 inere :450	Farl Qualitä	e (C) Schwarz (B) t Schnell 1 2 ndigkeit Farbeinstellungen	
arbanpassung oto-realistisch	Etikettengröße (S) Exemplare	Standard Trock Trock Drue	ungszeit(<u>D)</u> 0 🚑 si ck <u>v</u> orschau



19.7.2 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.

19.7.2.1 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	lisher SE
Deutsch ·	Drucker einrichten
Willkommen	Vivideos Security
System prüfen	Windows can't verify the publisher of this driver software
Drucker einrichten	Cont install this driver software You should diek you manufacturer varbate for updated driver untraam
Installation SureThing	feryor device.
Installation PTPublisher	Drily ingtall driver software detailed from your manufacturer's website or disc. Discipated Jothane from other sources may have your computer or steal information.
Registration	(∞) See getabs
Fertig	
	Installieren Sie den Druckertreiber-Klicken Sie auf "Installieren Sie den Treiber" um den Druckertreiber auf dem Computer zu installieren Vikter der Trebenisations um dei ne Medingen erscheren, das Windows diesen Treiber nicht renfizieren kann. Klicken Sie auf "Software trotzdem installieren" um die Installation abzuschliesen.
Benutzerspezifische Inst	
	Treiberinstallation
PRIMERA	\$

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.



19.7.2.2 Configuration

19.7.2.2.1 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.

19.7.2.2.2 digipaX

Primera Disc Publisher / Bravo									
Monitoring Folder:	C:\PTBurnJobs								
Device name:									
Writing speed:	12								
Compare:	Compare summary (recommended)								
Job name:	Patient's name (ASCII characters only)								
	Computer name + time stamp								
	Primera Disc Publ Monitoring Folder: Device name: Writing speed: Compare: Job name:								

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, resulting job names are no more good readable and it is recommended to switch over to option "Computer name + timestamp.



20 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 illustrated in the following example:

# Configuration of disk(s) to	store images
MAGDeviceThreshhold	= 0
MAGDevices	= 2
MAGDevice0	$= E: \ E: $
MAGDevice1	= F: Images1
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.".



21 Archiving

21.1 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.

21.2 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:



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 C:\WINDOWS\Tasks\MySQL_Backup.job	Task Schedule Settings Security At 12:00 PM every Fri of every week, starting 5/7/2012	Task Schedule Settings Security Scheduled Task Completed
Bun: C:\digipaX:MySQL_Backup.bet Browse Start in: C:\digipaX Comments:	Schedule Task: S(at time: Weekly ✓ 12:00 PM	Ide Time Ime Only start the task if the computer has been idle for at least: Image: minute(s) If the computer has not been idle that long, retry for up to: Image: minute(s) Stop the task if the computer geases to be idle.
Run only if logged on Sinabled (scheduled task runs at specified time) OK Cancel <u>Apply</u>	Show multiple schedules.	Other team in the computer is furning on gatteries. Stop the task if battery mode begins. Wake the computer to run this task. OK Cancel

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

21.3 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 21.2 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 21.5 Monitoring 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.

21.4 Software "Securing data"

With the help of the software "Securing data", 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.

eitraun etzte Si von:	ı cheru	ng: 01	.07.20	07 - 31	.07.20	09		bis:								Datelsuche Verzeichnisiste Fertig
e			August	2007			•	•		Se	otemb	er 20	08		•	Dateisuche: Fertig
31	30	31	1	2	3	4	5	35	25	26	27	28	29	30	31	Anzahl gefundener Dateien: 127 Dateigröße gesamt: 37.1
32	6	7	8	9	10	11	12	36	1	2	з	4	5	6	7	
33	13	14	15	16	17	18	19	37	8	9	10	11	12	13	14	100-
34	20	21	22	23	24	25	26	38	15	16	17	18	19	20	21	
35	27	28	29	30	31	1	2	39	22	23	24	25	26	27	28	Brennvorgang
erzeich	nis:	C:/Pro	gramme	/Hipax/	Pic											Typ: DVD+R/RW; DVD-R/RW; Gesamt: 870.1 MB
ennop	tioner	i														
sufwer	k:	SONY	DVD R	W DW-	G120A										-	
	E	rennge	schwing	ligkeit:	4X (5	540 KE	(s) 🔻		1	K Date	n nach	Brenn	vorgani	g überj	orüfen	Disc 1 / 1 Checking
isk-Na	ne: [15_09	2008													
													a ang sa			

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 (without 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.

21.5 Monitoring the capacity status of the archive

21.5.1 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).

21.5.2 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.



22 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.

22.1 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.

22.2 Adding physician identification tag to the patient ID

22.2.1 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.

22.2.2 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	Recineckiges Agrich	Grösse/Gewicht		
GDT-Version	02.10	•	Dezimalzeichen	Punkt	•
Zeichensatz	IS08859-1 (ANSI) CP 12	52 -			
Satzart	6302	•			
8402	· · · · · · · · · · · · · · · · · · ·				
8410					
Patientenkennung	Pat. Nr Arzt Nr.	-			
Bei Rücksprung	nur Pat Nr. senden				
Der Rücksprüng	nui rat.ivi. 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.



22.3 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."

In the dicom.ini file, the following router settings should be made:

# Configuration of routing 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>
--	---

Connections used for AE Titles must be given in the "Known DICOM providers" card in Conquest.



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 the images sent through the router are also stored, including Router-DICOM archive. This has the advantage of automatically creating a copy of the image. However, a threshold must also be set so that the router archive does not overfill:

MAGDeviceThreshhold = 1024

This value is the amount of free memory space in MB that cannot be exceeded. The patients which are rarely used are always removed, when the memory free space exceeds this value.

22.4 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."

23 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.

23.1 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.

23.2 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.

23.3 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".



24 System commissioning

24.1 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.

24.2 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.

25 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. In digipaX, it is possible to turn on and configure the delete function. This function allows the user to export images 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.

25.1 Launching and configuration of the delete function for the users



Delete function for the users works only if Conquest DICOM server from Version 1.4.1.4 is used. Other image archives are not supported.

The delete function is to be activated at the configuration, in the Administrator/Other tab. It is recommended that this function is activated only on one station, preferably the one, which acquires images. It is necessary to enter the backup folder name. This folder will be used for storage of backups of all images 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. Images will remain 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 subfolder 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 removal of the image. The user must provide this information in order to activate data deletion.



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 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.

25.2 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".




25.2.1 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.

25.2.2 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 dropdown 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".

25.2.3 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.



Confirm	
0	Delete this image from database (not from disk) ? 0030\1.2.826.0.1.3680043.2.135.734437.43181328.7.1323779946.640.11_0004_000001_13237799460001.dcm

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.

25.2.4 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.

Surraine Name Tile Palent / Line					
Sumane Name Tole Patient LD Date of barts Address Houre number Sec Remarks Data source Image: Second					
0					
0					
Inogerative particular files (Patient CD (DUCOMDIR)					
Drestory: DA Add DUCOM Res					
orly these files:					
Indue subdirectories Scan Glean (empty the lat					
C Select patient C Add patient to selection					
A Patent nanogement					

Press in the dialogue a switch "Data current patient", to apply data of the already opened patient.





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.

25.3 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.

25.2.1 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	UID study of a patient to which you want to add this
		picture (or series)
		or
		create a new study number (UID) by adding



additional digits (e.g. "1" or ".1")

Save the changed file.

This procedure must be repeated for all files assigned incorrectly.

25.4 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:\Fehler) can be deleted.

Files are saved automatically the next time you save a backup.



26 Others

26.1 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.



The global.log file is never cleaned or removed. Over time it becomes very large. If necessary, you can save it in the backup, then delete it (or just rename it).

In case of problems, you can activate a detailed reading of the log (the log configuration page) for more log entries.

26.2 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\Software\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

26.3 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.

26.4 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/



27 Administrator password

To log into the configuration page and to choose another license file at the startup of the program, 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 Bitterfelder Str. 12 04129 Leipzig GERMANY

The product is CE marked: CE 0494

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