

Version 1.3.4.0

# Administrator's Guide

Installation and Administration





## Table of contents

1 General7	7
2 Symbols7	7
3 Hardware	3
3.1 System requirements	3
3.1.1 Server	3
3.1.2 Workstation	3
3.1.3 Supported operating systems9	)
3.2 RAID system und backup	)
3.3 Safety	)
3.4 Noise level	)
3.5 Diagnostic display	)
3.6 Devices	)
3.7 Installation and connection instructions10	)
3.8 Uninterruptible power supply (UPS)10	)
3.9 Cleaning with disinfectants	)
3.10 Software	)
4 Installation guidelines	]
4.1 Server guidelines11	J
4.2 Workstation guidelines11	
4.3 Complation of overall system12	)
4.4 Installation and interconnection plan13	3
5 Program installations	ł
5.1 Xinstall	ł
5.2 digipaX14	ł
5.3 PACS server: Conquest + Xadmin14	ł
5.4 Worklist server: wlmscpfs15	5
5.5 Backup	5
5.6 DICOM editor	5
5.7 Nero	5
6 Commissioning / general configurations	5
6.1 digipaX15	
6.1.1 Configuration of informations about practice and physicians	5
6.1.2 Licensing	5
6.1.3 Activating modules	7
6.1.4 Error codes for license checking17	7
6.2 Conquest	3
6.2.1 MySQL	3
6.2.2 DBASE III	)
7 DICOM configuration25	5
8 Routing	3
8.1 General	3



	8.2 digipaX configuration	.28
	8.3 Conquest configuration	.28
	8.4 Test	.29
9	DICOM worklist	.29
	9.1 General	.29
	9.2 Configuration of worklist server	.29
	9.3 digipaX configuration	.30
	9.4 Procedure Codes	.31
	9.5 Additional information	.32
	9.6 DICOM tags	.32
	9.7 Troubleshooting indicators	.33
10	GDT Interface	.34
	10.1 General	.34
	10.2 TurboMed connection	.34
	10.2.1 General	.34
	10.2.2 Transferring constant data (record type 6301)	.35
	10.2.3 Requesting new study (record type 6302)	.36
	10.2.4 Requesting new study through the job worklist (record type 6302)	
	10.2.5 Displaying study data (record type 6311)	
	10.3 Connecting PDE-TOP	.40
	10.3.1 General	.40
	10.3.2 Transferring constant data (record type 6301)	.40
	10.3.3 Requesting new study (record type 6302)	
	10.3.4 Requesting new study through the job worklist (record type 6302)	
	10.3.5 Displaying study data (record type 6311)	
	10.4 Connecting MediStar	.43
	10.5 Connecting DOCConcept	
	10.6 Connecting Quincy	.45
	10.7 Connecting Albis	.47
	10.8 Connecting Duria	.49
	10.9 Connecting KiWi (KIND hearing aids)	.52
	10.10 Connecting MCS Isynet (configuration with Windows terminal servers)	
	10.10.1 Terminal server configuration:	
	10.10.2 Workstation configuration:	.54
	10.10.3 Image server configuration:	.56
	10.10.4 Templates:	
	10.11 digipaX configuration	.59
	10.11.1 Identification	
	10.11.2 Communication	.59
	10.11.3 Field assignment (mapping)	
	10.11.4 Response file	
	10.12 Activities control system digipaX	.63
	10.12.1 Program parameter	
	10.12.2 GDT 8402 or 8410 field	.63
	10.13 Patient data consistency	.64



10.14 Working without being connected to GDT	.64
11 Caches / IPS	.64
11.1 General	.64
11.2 DICOM Images	.65
11.3 Thumbnails	.65
11.4 Presentation States	.65
11.5 Intelligent Prefetch System (IPS)	.65
12 Image acquisition configuration and connecting devices	.66
12.1 General	.66
12.2 Image acquisition configuration	.66
12.3 Simulation	.67
13 X-ray journal	.68
13.1 Entry settings	.68
13.2 New entry	.68
13.3 Storage location	.68
13.4 Backup	.68
13.5 Automatic generating journal	.69
14 Visually choosing organs	.69
14.1 Configuration	.69
15 DICOM Print	.70
15.1 General configuration	. 70
15.2 Available DICOM printers	. 70
15.3 Additional printing parameters	. 70
15.3.1 Trim (border) options	.71
15.3.2 Print presentation LUT options	.71
15.3.3 Basic film session options	.71
15.3.4 Annotation options	.71
15.3.5 Overlay options	
15.3.6 Other print options	. 72
16 Veterinary version	
16.1 Adaptation to XScan	
16.2 Adaptation to Promis / Hipax	. 76
16.3 Own defined settings	.77
16.4 Using the Accession Number tag	.78
16.5 GDT Field assignment / mapping	
16.6 Viewer	
17 Other configurations	
17.1 System Tray Icon	
17.2 Automatic start	
17.3 Area of application settings	
18 Program parameters list	
19 Image archive with several disks	
20 Archiving	
20.1 General	
20.2 Conquest Configuration	. 84



20.3 Securing MySQL database	85
20.4 Software "Datensicherung"	86
20.5 Monitoring the capacity status of the archive	87
20.5.1 digipaX	87
20.5.2 Quick-Drive-Info	87
21 Tips for group medical practices (team practices)	87
21.1 General rules of conduct	87
21.2 Adding physician's identification tag to the patient's ID	88
21.2.1 Without GDT	88
21.2.2 With GDT	88
21.3 DICOM Router configuration	88
21.4 Tips for worklists	89
22 Transferring the image	90
22.1 Receiving the image	90
22.2 Image Acquisition	90
22.3 Customization of the worklist	90
23 System commissioning	91
23.1 Acceptance testing	91
23.2 Checklist	91
24 Image assignment correction	91
24.1 General procedure	91
24.2 Backing up data and removing invalid images	91
24.3 Change of patient data in DICOM tag editor	91
24.4 Sending changed files to the archive	92
25 Deleting images from the database	92
26 Others	93
26.1 Log	93
26.2 Saving settings	93
26.3 Transferring configurations	93
26.4 Internet addresses	94
27 Administrator password	94



# 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 overall-system comprising of numerous DICOM and GDT systems can only be made by competent persons – the administrators.

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

# 2 Symbols

Symbol	Meaning
<u>^</u>	Attention
	Тір



## 3 Hardware

#### 3.1 System requirements

#### 3.1.1 Server

Recommended system configuration:

Processor	Dual-core processor 2,5 GHz or higher	
Main memory	2 GB RAM	
Operating system	Windows XP Prof.	
Graphics card	Minimum 128 MB DVI (dual), 1280 x 1024	
Harddisk	System disk min. 80 GB + additional image store (RAID system)	
Network	1000BaseT (Gigabit Ethernet)	

Minimum system requirements:

Processor	Pentium 4 or similar min. 2,1 GHz	
Main memory	I GB RAM	
Operating system	Windows 2000 or higher	
Graphics card	On-board graphics, 1280 x 1024	
Harddisk	System disk min. 80 GB + additional image store (RAID system)	
Network	100BaseT	

#### 3.1.2 Workstation

Recommended system configuration:

Processor	Dual-core processor 2,5 GHz or higher
Main memory	2 GB RAM
Operating system	Windows XP Prof.
Graphics card	Minimum 128 MB DVI (dual), 1280 x 1024
Harddisk	320 GB or more
Network	1000BaseT (Gigabit Ethernet)

Minimum system requirements:

Processor	Pentium 4 or similar min. 2,1 GHz
Main memory	1 GB RAM
Operating system	Windows 2000 or higher
Graphics card	On-board graphics, 1280 x 1024
Harddisk	Min. 80 GB
Network	100BaseT



#### 3.1.3 Supported operating systems

Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7

#### 3.2 RAID system und 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 are recommended.

In addition, the data are to be be put on further harddisks by their mirroring or daily backup (see also 20 Archivi).

#### 3.3 Safety

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.

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

#### 3.4 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.

#### 3.5 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.

#### 3.6 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
Detector:	Teleoptic PRA, Ltd.	Alpha 4600
Generator:	JOSEF BETSCHART AG	GENESIS 50 RFT
	Provotec	ProVario
Dose-area-product meters:	Wellhöfer	KermaX IDP



While connecting the equipment the instructions of the manufacturers of devices must be followed.

In particular it is to ensure galvanic isolation if necessary.

#### 3.7 Installation and connection instructions

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

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. Displays should also stand safely so that they cannot be pulled down accidentally. Cables are to be so installed that loose hanging is avoided.

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

#### 3.8 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.

#### 3.9 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 specially if such cleaning of installed hardware is not acceptable.

#### 3.10 Software

The same vesrion of digipaX software is to be installed in all connected stations.



# 4 Installation guidelines

## 4.1 Server guidelines

Process	Page number for information
1. Installation of digipaX	
Installation of digipaX	14
2. Installation of image archive(s)	
Installation of MySQL + MySQL GUI tools	18
Installation of Conquest	14
Commissioning Conquest (AE-title, port, data base init.)	18
3. Installation of worklist server	
Installation of worklist server	15
Configuration of worklist server	29
4. Archiving tool + DICOM tool	
Installation and configuration of backup	86
Installation of DICOM editor	
5. Installation of other tools	
Installation of Nero	15
Installation of remote control	
Installation of tool or image for daily visual inspection	9
6. digipaX configuration	
Commissioning digipaX (fill physician`s data, enable modules)	15
Connecting image archives / DICOM configuration	22
Connecting worklist server	30
Adjusting caches	64
Adjusting X-Ray journal / storage location	67
Setting as veterinary version	70
GDT connection	
Configuration of TurboMed / PDE-TOP /	34 / 40 /
MediStar / DOCConcept / Quincy	43 / 44 / 45
digipaX configuration	59

## 4.2 Workstation guidelines

Process	Page number for information
1. Installation of digipaX	
Installation of digipaX	14
2. Installation of other tools	
Installation of Nero	15
Installation of software remote control	



Installation of tool or image for daily visual inspection	9
3. digipaX configuration	
Commissioning digipaX (fill physician`s data, enable modules)	15
Connecting image archives / DICOM configuration	22
Connecting worklist server	30
Adjusting caches	64
Setting as veterinary version	70
GDT connection	
Configuration of TurboMed / PDE-TOP /	34 / 40 /
MediStar / DOCConcept / Quincy	43 / 44 / 45
digipaX configuration	59

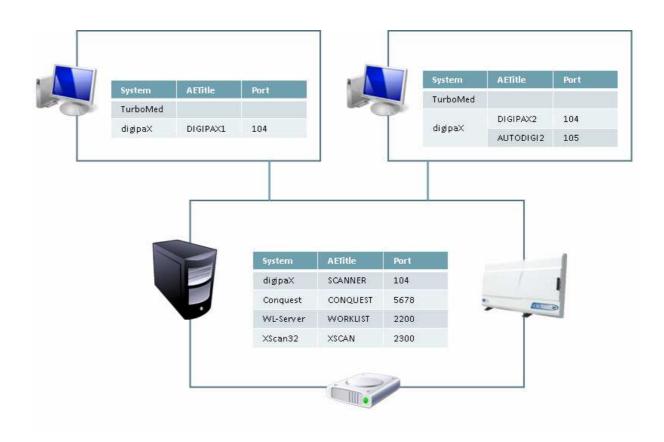
# 4.3 Complation of overall system

Process	Page number for information
1. Routing setup	
Enabling image receiving in digipaX	28
Adding ExportConverter in Conquest	28
2. Archiving	
Configuration of Conquest	84
Setting up a backup CD/DVD	86
Setting drive monitoring in digipaX	87
3. Acceptance of system	
Acceptance testing	91
Completing checklist	91



#### 4.4 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 it's 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:



## 5 Program installations

#### 5.1 Xinstall

All installation programs are started through the tool Xinstall.

-Anwendungen	Informationen
dgipaX	
Serversysteme	
MySQL GUI Tools	Klicken Sie auf das zu installierende
Bildarchiv (Conquest)	Klicken Sie auf das zu installierende Softwarepaket. Beim Überfahren der Einträge mit der Maus erhalten Sie hier Informationen zu den Systemen.
Archivierung Datensicherung	
Tools	
	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.

#### 5.2 digipaX

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

In the installation program, use of special Procedure Codes can be enabled. Then, a special organ table is installed, which already contains the Procedure Codes for desired device or devices.

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

#### 5.3 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 existenting data (DICOM images from previous system), modifications of tags in batch mode and creation of 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.

#### 5.4 Worklist server: wlmscpfs

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

#### 5.5 Backup

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

#### 5.6 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.

#### 5.7 Nero

If burning of patient CDs (DVDs) directly in digipaX is intended to be performed, the Nero software shall be installed on computer concerned.

## 6 Commissioning / general configurations

#### 6.1 digipaX

#### 6.1.1 Configuration of informations about practice and physicians

In the configuration on the page "Informations about practice and physicians" doctor's name and address are to be put in. If necessary, doctor's or company`s identification number can be added (for more see Chapter 21 Tips for group medical practices (team practices) Notes for joint practices).

#### 6.1.2 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.



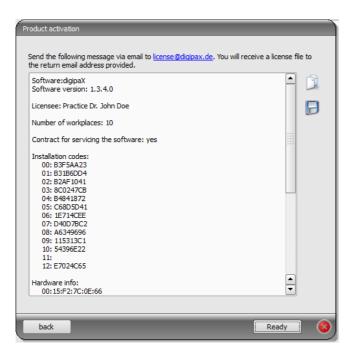
#### 6.1.2.1 Product activation flow

- 1. Launch the digipaX on the server and open the configuration page "License"
- 2. Click the button "Product activation ..." to start the application process
- 3. Enter all required informations on the page 1 of the assistant

Product activation	
software. The license file is attributer computers. Through the license file, however, ot	ong for a license file from the manufacturer of the d to <b>this</b> computer and cannot be transferred onto other ner computers in the network can also be activated, onto the license file of this computer.
Licensee:	Practice Dr. John Doe
Number of workplaces:	10
Contract for servicing the software:	X 1 year updates
Dealer's identification:	DI001
Email address for reply:	info@drjohndoeleu
	next 🔇

Then continue with "next".

4. Sending data



Either send data directly via link license@digipax.de as text with the Standard Email Client or copy the text with the right button to clipboard and send it yourself to the email



address. You can also save the text in a text file, e.g. on a flash drive, and send the file from any other PC.

-> Text must be sent in any case by email or, if possible, also per fax to the company digipaX.

- 5. The company digipaX sends back to the email address provided the license file which must be again copied onto the server.
- 6. 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.

#### 6.1.2.2 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").

#### 6.1.3 Activating modules

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

#### 6.1.4 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

#### 6.2 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 possible.

6.2.1 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:







As password, here "root" was used.



WySQL Server Instance Configuration Wizard	
MySQL Server Instance Configuration	
Configure the MySQL Server 5.0 server instance.	· ·····
Ready to execute	
Prepare configuration	
<ul> <li>Write configuration file</li> </ul>	
◯ Start service	
<ul> <li>Apply security settings</li> </ul>	
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 utomatic backup of the MySQL database is described under point 20.3.



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

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 schould have enough space for the expected volume of coming images and be stored on a RAID system.



iration   Installation   Maintenance   Known DIC	OM 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 (appli	cation entity, AE) :	CONQUESTSRV1		Make mysql database
TCP/IP port to use (other DICOM systems mus	t know this number) :	5678		Restore original configuration
Local disk directory to store DICOM images :	🖃 c: []		•	
Make directory	🕞 C:N			
Enable JPEG support using OFFIS tools  Images on disk are stored:	Programme Congipax Conquest			Install server as NT service
With loss JPEG compression     With loss JPEG compression     With loss JPEG compression     With loss JPEG compression     JPEG or fast NKI compression	Data	10097038		Uninstall server as NT service
Images on disk are named: V2 (allows NKI compression) CM (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:	·	ligipax\Conguest\[	lata	

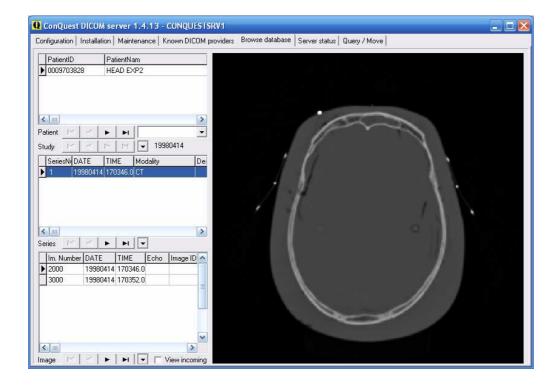
On the installation page, 5 top buttons on the right top-down can be used for proper creating and testing of the database.

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

ConQuest DICOM server 1.4.13 - CONQUESTSRV1	
Configuration Installation Maintenance Known DICOM providers Browse database Server status Query / Move	
The installation options on this page can be run at any time without losing data. However, active DICOM connections (image copy operations) may be terminated.	Verify TCP/IP installation
Follow the following steps for (re-)installing this program: In the 'Configuration' page, set the server name; port number and data directory.	Make mysql database
The defaults will do fine in most cases. Push the 'Save configuration' button.	Verify database installation
right) one by one from top to bottom. Verify TCP/IP installation: tests communication between the DICOM server and installation programs. This will fail if TCP/IP is not installed on this PC.	(Re)-initialize database
Make ODBC data source: defines the connection between a database on disk and the DICOM server. This fails if ODBC or the dBase driver is not installed. This option is not required when using the "DBASEIII without ODBC" driver	Clear worklist database
Verify database installation: Some 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 fails, 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 in the list on the page "Known DICDM providers".	
Output of the installation programs will go here:	Hide the server (as tray icon)
Start TCP/IP test	About this server
(CDNQUESTSRV1] This is a very long text output for testing This is a very long text output for testing This is a very (CDNQUESTSRV1]	Close the server



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



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

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

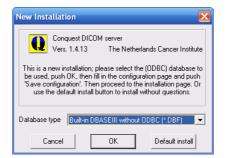


If using Windows 7, administrator rights must already be established and User Account Control (UAC) must be disabled before the installation as a Windows service ("Install server as NT service") will be done.

The installation is now completed.

#### 6.2.2 DBASE III

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





Then enter AE titel (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 an 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 is. 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.

onQuest DICOM server 1.4.13 - CONQU	JESTSRV1			
guration   Installation   Maintenance   Known DI	COM providers   Browse o	latabase   Server status	Query / Move	
This screen contains essential paramete	rs for operation of the Con	Quest DICOM server.		Save configuration
Local unique name of this DICOM server (app	olication entity, AE) :	CONQUESTSRV1		Update ODBC data source
TCP/IP port to use (other DICOM systems mu	ist know this number) :	5678		Restore original configuration
Local disk directory to store DICOM images :	🗐 c: []		•	
Make directory	C.V			
Images on disk are stored:         Images on disk are named:         Images on disk are named:         Images on disk net or disk are named:         Images on disk helow: (MB)         Images on disk below: (MB)	Programme digipax Conquest Data HEAD_EXP_0	0097038		Install server as NT service Uninstall server as NT service Hide the server (as tray icon) About this server
Below 0 MB, move to:	CiProgrammold	iqipax\Conquest\[	lota	
✓ Keep Server Alive	Free disk space: 1			Close the server

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".



DNQUESTSRV1       Creating test table         DNQUESTSRV1       Adding a record         DNQUESTSRV1       Dropping test table         DNQUESTSRV1       Comping test table         DNQUESTSRV1	nfiguration Installation Maintenance Known DICOM providers Browse database Server status Query / Move	
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ADDUL (TIS SERVER		1
Clearing worklist	and or a raw if the feature of the f	About this server
		Close the server

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

ConQuest DICOM server 1.4.13 -	CONQUESTSRV1		
Configuration   Installation   Maintenance   I	Known DICOM providers	Browse database   Server status   Query / Move	1
PATIENTID PATIENTNAM		1185 - 55W	
▶ 0009703828 HEAD EXP2			
Patient         F         Image: Study         Image: Study <td< td=""><td>80414 Y</td><td></td><td></td></td<>	80414 Y		
Im. Number DATE TIME Echo	Image ID	1	
▶ 2000 19980414 170346.0			
3000 19980414 170352.0			1
Mage I4 4 ► ►	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.



## 7 DICOM configuration

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

					Configuration
User 🖸 📥			Administrator :: DICOM / network		
Informations about clinic and physician Image preview	local settings for query images AE title: PC1		Port for query images: 104		Timeout: 60 seconds 🗘 Repetitions: 0 🗘
Baseboard Loupe	local settings for automatic image receiving	J ~			
Image informations Overlay / scout lines	X activate automatic image receiving	AE title: AUTOPC1		Port for automatic image receiv	ing: 105
Histogram Job management Image acquisition	local (temporary) data save local patient data File: C:\dg	paX\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	CONQSRV02	192.168.1.20	11112	yes
DICOM / network					
Job management GDT					
Caches / IPS					
Device links					
X-ray journal					
Image transfer					
Other					
Log					
General					
Cache					
DICOM					
Image processing					
File import					
Worklist					
GDT					
Print	L				1 1 1
burning CD / DVD				New	Modify Delete Test
(Theraree L_)	1				
Administrator login	Import	Export Info			Save
					0

Each archive is to be added to a list of image archives by clicking on "New..." and all required informations 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 connected, hence an increase of performance is achieved.

configure DIC	OM connection
Designation:	Image archive 1
AE title:	CONQSRV01
Host/IP:	192.168.1.10
Port:	5678
Disconnect:	O never disconnect
	after inactivity of     20 seconds
Access:	🕱 Reading
	X Writing
Colour:	
Use:	• yes O no
	OK 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 reson, 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 it's 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, colourful colours are assigned in sequence automatically, if this is not modified.

Archives can be disabled. Desabled 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, übliche 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 serve	r 1.4.13 - CONQUESTSR	V1			_ 🗆 🔀
Configuration   Installation   Ma	ntenance Known DICOM pro	viders Browse data	base   Server status   Query /	Move	
* DICOM AE (Appli * (This is file A * All DICOM syste * Conquest DICOM * AE name, (IP ad * The first entry * * The syntax for * AE <ip adre<br="">* For compression</ip>	ms that want to re server must be lis ress or hostname) a is the Conquest s each entry is : ss Host name> po: see manual. Value;	IP address / trieve images ted here with and port numb ystem as exam rt number c s are un=unco	* from the * correct * er. * ple. * mpression * mpressed; *		Save this list Restore this list
* **********	jpeg;j3j6=lossy ; ******	]peg;nln4=n	ki private * * ********** */		
CONQUESTSRV1	127.0.0.1	5678	un		
DIGIPAX DPCSTORESCP	$\begin{array}{c} 127.0.0.1\\ 127.0.0.1\end{array}$	104 105	un un		
					Hide the server (as tray icon)
					About this server
				~	Close the server

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

Depending on performance of existing network and size of 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 aborst too early. The number of retries tells how often the system should repeat retrieveing 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. Ist. 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.



## 8 Routing

#### 8.1 General

In routing the images, that 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.

#### 8.2 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.

#### 8.3 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 extentions in the file dicom.ini are necessary:

# Configuration of routing
ExportConverters = 1
ExportModality0 = \*
ExportConverter0 = forward to DPCSTORESCP



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 routing
ExportConverters = 2
ExportModality0 = \*
ExportConverter0 = forward to AUTODIGI1
ExportModality1 = \*
ExportConverter1 = forward to AUTODIGI2

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.

#### 8.4 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.

## 9 DICOM worklist

#### 9.1 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.

#### 9.2 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").

#### 9.3 digipaX configuration

The configuration of the worklist server is to be done on 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.

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

					Configuration	
User 🖾			Administrator :: Job managemen	t		
Informations about clinic and physician	Job management / worklist					
Image preview	X Automatically update job list		Update interval in seconds:		10	•
Baseboard	Delete jobs automatically		Delete jobs after:			hours 🖨
Loupe		received images and mark with the colour the lis			L	
Image informations	Deactivate check of the commun					
Overlay / scout lines						
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		O re	ceived images			
Administrator	(Only if X-ray journal module activat		source (all entries are empty)			
License						
Veterinary surgeon	Visual selection					
DICOM / network	Types:	Configuration:				
Job management	🗙 Human 🐌 🐚 🐨					
GDT	· Referrar	<u></u>	·u. ·u.	-a		
Caches / IPS		Part of the body / refinement / ray path	Procedure codes	PCodes left	PCodes right	<b>_</b>
Device links		🕀 Head				
X-ray journal		Cervical vertebrae     Skull				
Image transfer		III X Nasal bone				
Other		🕀 🗶 Paranasal sinuses				
Log		Pyramid (Schuller/Stenvers)     K Cheek bone (Handle pot)				
		Upperbody				
General		🖽 🕱 Thorax				÷.
Cache		B X Abdomen				
DICOM	Tags procedure codes: Requested F	(bisk	Scheduled Procedure Step Code Mean	000 10. 1042	duled Procedure Step Code Value	•
Image processing File import			Surequeu Procedure Step Code Mean	rig • sone	unen Procedure Step Code Value	
Workist	integrate procedure codes in ima	ges				
GDT	-additional informations					
Print	tag job number: Scheduled Proc	adura Stan ID	<ul> <li>save job number as Accession Number</li> </ul>	r in the overlighting		
burning CD / DVD	tag job description: Scheduled Proc		use job description as examination de			
Deváres	tag job description: Scheduled Proc	edure step pescription	use job description as examination de	scription		
Administrator login	Import	Export Info				Save
						0
C						



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 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". From which 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 tell 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.

#### 9.4 Procedure Codes

For each beam path, 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 path. 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.

#### 9.5 Additional information

If through the GDT 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. Initially the following tags are normally pre-set:

Job number	ScheduledProcedureStepID (0x0040, 0x0009)
Job description	ScheduledProtocolCodeSequence (0x0040, 0x0008)
tag job number: Scheduled Procedure Step ID	<ul> <li>save job number as Accession Number in the examination</li> </ul>

use job description as examination description

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 10 "GDT Interface" and 10.11.3 "Field assignment (mapping)".

#### 9.6 DICOM tags

tag job description: Scheduled Procedure Step Description

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)
ScheduledProcedureStepDescription	(0x0040, 0x0007)
ScheduledProcedureStepID	(0x0040, 0x0009)
PreMedication	(0x0040, 0x0012)
${\tt CommentsOnTheScheduledProcedureStep}$	(0x0040, 0x0400)
StudyInstanceUID	(0x0020, 0x000d)
RequestedProcedureID	(0x0040, 0x1001)

Other tags are saved withouth 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)

#### 9.7 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. The user should check in the explorer, if they 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.

## 10 GDT Interface

#### 10.1 General

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

#### 10.2 TurboMed connection

#### 10.2.1 General

The connection is done on the menu item "Devices / GDT iInterface 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 the import and export.

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

Because TurboMed performs the import only once at the end of the started GDT operations, in digipaX as an option, you can choose to receive from GDT "every job immediately." In this way, right after the request to digipaX system is made requesting a new study, 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.



## 10.2.2 Transferring constant data (record type 6301)

Über	sicht Export Import GDT 2.1	
Name	digipax - Stammdaten übermitteln digipax 6301	
Programm	C:\Programme\digipax\digipax\digipax.exe	•
Parameter	X         Programm aufrufen beim Export           Export         Import	
Pfad	C:\Programme\digipax\digipax\GDT  C:\Programme\digipax\digipax\GDT	•
Dateiname	DIGITURB.gdt TURBDIGI.gdt	
	Beim Export aus dem Menü Formular anzeigen Import nur manuell	
	X Automatischer Export beim Formularaufruf aus dem Menü X Beim Import Formular anzeigen	
	Beim Export aus der Karteikarte Formular anzeigen	
	X Automatischer Export beim Formularaufruf aus der Karteikarte	

Übersicht	Export	Import	GDT 2.1		
GDT-ID Empfan	er DIGIPAX1		Grösse/Gewicht		
GDT-Versi	on 02.10	•	Dezimalzeichen	Punkt 💌	[
Zeichens	tz IS08859-1 (ANSI) CP 1	252 🔹			
Satz	art 6301	¥			
84	02				
84	10				
Patientenkennu	ng Pat. Nr.	•			
Bei Rücksprur	ig nur Pat.Nr. senden				
	-				



## 10.2.3 Requesting new study (record type 6302)

Über	sicht   Export   Import	GDT 2.1	,
Name	digipax - neue Untersuchung anfordern	digipa× 6302 🔹	
	X GDT Anbindung 2.1 nutzen		
Programm	C:\Programme\digipax\digipax.exe		•
Parameter	X Programm aufrufen beim Export	Import	
Pfad	C:\Programme\digipax\digipax\GDT	C:\Programme\digipax\digipax\GDT	•
Dateiname	DIGITURB.gdt	TURBDIGI.gdt	
	X Beim Export aus dem Menü Formular anzeigen	Import nur manuell	
	X Automatischer Export beim Formularaufruf aus dem Menü	X Beim Import Formular anzeigen	
	Beim Export aus der Karteikarte Formular anzeigen		
	Automatischer Export beim Formularaufruf aus der Karteikarte		

Übersicht Export	Import	GDT 2.1	
GDT-ID Empfanger DIGIPAX1 GDT-Version 02.10 Zeichensatz IS08859-1[ANSI] CP 128 Satzart 6302 8402 8410 Patientenkennung Pat. Nr. Bei Rücksprung nur Pat. Nr. senden	- 	Grösse/Gewicht Dezimalzeichen Punkt	2
8410 Patientenkennung Pat. Nr.	<b>.</b>		

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

Über	sicht Export Import	1	GDT 2.1	
Name	digipax - neuer Worklistauftrag		digipa× 6302 /w	•
Programm	C:\Programme\digipax\digipax\digipax.exe			
Parameter	/w			
	X Programm aufrufen beim Export			
	Export		Import	
Pfad	C:\Programme\digipax\digipax\GDT	-	C:\Programme\digipax\digipax\GDT	
Dateiname	DIGITURB.gdt		TURBDIGI.gdt	
	X Beim Export aus dem Menü Formular anzeigen		Import nur manuell	
	X Automatischer Export beim Formularaufruf aus dem	Menü	X Beim Import Formular anzeigen	
	Beim Export aus der Karteikarte Formular anzeigen	arteikarte		

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

Übersicht Export Import	GDT 2.1
GDT-ID Empfanger DIGIPAX1	Grösse/Gewicht
GDT-Version 02.10	Dezimalzeichen Punkt 💌
Zeichensatz ISO8859-1(ANSI) CP 1252 💌	
Satzart 6302 -	
8402	
8410	
Patientenkennung Pat. Nr.	
Bei Rücksprung nur Pat.Nr. senden	



Übersicht Export Import	GDT 2.1
Zeichensatz	Artspalte Kartei
9206	Formulareintrag
X IBM/OEM	X Texteintrag bild
ANSI	X Rücksprung bild
Eintragsdatum	GDT 2.1 Hyperlinkeintrag
X Aktuelles Tagesdatum	
Untersuchungsdatum (Feldkennung 6200)	
Abnahmedatum (Feldkennung 8432)	
Arztkennung	
Arztkennung verwenden	
Meldung	Sonderfunktionen
X Bei Abweichungen vom Standard Meldung ausgeben	<b>T</b>

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

In addition, you may need to activate the automatic reception of images in digipaX and the PACS server must transfer the images (routing). If in digipaX the receiving type is set to "every job right away," this will not be necessary.

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.

# 10.2.5 Displaying study data (record type 6311)

Über	icht   Export   Import	(	GDT 2.1	
Name	digipax - Daten einer Untersuchung zeigen		digipax 6311	•
Programm Parameter	C:\Programme\digipax\digipax.exe			•
Faranieter	X Programm aufrufen beim Export Export		Import	
Pfad	C:\Programme\digipax\digipax\GDT ~		C:\Programme\digipax\digipax\GDT	
Dateiname	DIGITURB.gdt		TURBDIGI.gdt	
	X Beim Export aus dem Menü Formular anzeigen		Import nur manuell	
	X Automatischer Export beim Formularaufruf aus dem Mer	ıü	X Beim Import Formular anzeigen	
	Beim Export aus der Karteikarte Formular anzeigen			
	Automatischer Export beim Formularaufruf aus der Kartei	ikarte		

Übersicht	Export   Import	GDT 2.1	
GDT-ID Empfän	ger DIGIPAX1	Grösse/Gewicht	
GDT-Vers	ion 02.10 🔹	Dezimalzeichen Punkt -	
Zeichens	atz IS08859-1(ANSI) CP 1252 💌		
Satz	art 6311 🔹		
84	102		
84	110		
Patientenkennu	ing Pat. Nr. 🔹		
	ng nur Pat.Nr. senden		



# 10.3 Connecting PDE-TOP

### 10.3.1 General

In job to get to the GDT configuration interface, you must first go to the patient's dialogue, and then use the "Extern" (Strg + 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	X
🗸 OK 🗶 Abbrechen 🛛 F	Protokoll
Ansicht Installation Dienste Verschi	edenes Geräte / System AutoGDT
Automatischer BDT-Import	
GDT Verzeichnis:	active
Kartenkürzel:	Kennfeld: CODE
Automatischer GDT-Import	
GDT Verzeichnis: C:\Programme\digip	ax\digipax\GDT ✓ active
Kartenkürzel:	Kennfeld: CODE
Systemanbindung	xtern> PDE
Med+Org	
	,
🗖 MediDok	
🗖 Medosys	
✓ Protokollierung BDT/GDT -Import	
Diese Einstellungen beeinflussen Für weitere Hilfen zu diesem Therr	die Funktionalität von PDETOP. na betätigen Sie bitte die F1-Taste.

# 10.3.2 Transferring constant data (record type 6301)

🗐 Externe Programme 📃 🗆 🔀	🗐 Externe Programme 📃 🗆 🔀
Eigenschaften BDTout	GDT / BDT · Optionen BDTout
Speichern Abbruch Optionen (BDT/GDT)	
Bezeichnung	<ul> <li>Stammdaten zum externen Programm übermitteln Satzart '6301'</li> </ul>
digipax - Stammdaten übermitteln	C Neue Untersuchung starten Satzart '6302'
Anwendung C:\Programme\digipax\digipax\digipax.exe	C Daten einer Untersuchung anzeigen Satzart '6311'
C:\Programme\digipax\digipax\digipax exe	Kartenkürzel         GDT - Einstellungen         Typ (z.B. EKG01)         GDT-Empfänger
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 C:\Programme\digipax\digipax\GDT\DIGIPDE_gdt C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt	
4 GDT C:\Programme\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	1
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.

10.3.3 Requesting new study (record type 6302)

Externe Programme		🛃 Externe Programme	
Eigenschaften BDT out		GDT / BDT - Optionen BDT out	
Speichern Abbruch Optionen [BDT/GDT] Details Bezeichnung		DK Kommando Stammdaten zum externen Programm übermitteln	Satzart '6301'
digipax - neue Untersuchung anfordern		Neue Untersuchung starten	Satzart '6302'
Anwendung C:\Programme\digipax\digipax\digipax.exe	2	C Daten einer Untersuchung anzeigen	Satzart '6311'
Startparameter		Kartenkürzel	
<ul> <li>Menue-Eintrag</li> <li>✓ Hintergrund-Programm</li> <li>Bestätigung (nur bei Aufruf aus Menü: EXTRAS)</li> </ul>		GDT - Einstellungen Typ (z.B. EKG01) GDT-Empfänger DIGIPAX	]
V Menue-Beenden		Labordaten übermitteln [max. 90 Tage alt ]	
Datentransfer CAUS CBDT © GDT CTEXT C	XML	Erwarte Typ oder Kennfeld einer Objektdatei:	
Verzeichnisse 📃 Dateien für Te	est sichern		
C:\Programme\digipax\digipax\GDT\DIGIPDEgdt	6		
Import-Verzeichnis			
C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt	<u>é</u>		
GDT C:\Programme\digipax\digipax\digipax.exe		5 GDT C:\Programme\digipax\digipax\digipax.exe	



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

🛃 Externe Programme	🛛 🔀	🛃 Externe Programme	_ 🗆 🔀
Eigenschaften BDTout		GDT / BDT - Optionen BDT out	
Speichern       Abbruch       Optionen [BDT/GDT]         Details       Bezeichnung         Jdigipax - neuer Worklistauftrag         Anwendung       C. YFrogramme\digipax\digipax\digipax.exe         Startparameter         /w         Menue-Eintrag         ✓ Hintergrund-Programm         Bestätigung (nur bei Aufruf aus Menü: EXTRAS)	2	OK         Kommando         Stammdaten zum externen Programm übermitteln         Neue Untersuchung starten         Daten einer Untersuchung anzeigen         Kartenkürzel         GDT - Einstellungen         Typ (z.B. EKG01)         GDT-Empfänger         DT-Empfänger	Satzart '6301' Satzart '6302' Satzart '6311'
Menue-Beenden     Datentransfer     C AUS O BDT O GDT C TEXT O	×ML	Labordaten übermitteln [max. 90 Tage alt ]	
Verzeichnisse Dateien für Te-			
C:\Programme\digipax\digipax\GDT\DIGIPDEgdt Import-Verzeichnis C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt	<u>8</u> <u>8</u>		
3 GDT C:\Programme\digipax\digipax\digipax.exe		3 GDT C:\Programme\digipax\digipax\digipax.exe	

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

# 10.3.5 Displaying study data (record type 6311)

🛃 Externe Programme 📃 🗆 🔀	🛃 Externe Programme	
Eigenschaften BDTout	GDT / BDT · Optionen   BDT out	
Speichern Abbruch Optionen (BDT/GDT)	ок	
Bezeichnung	Kommando Stammdaten zum externen Programm übermitteln	Satzart '6301'
digipax - Untersuchung anzeigen	C Neue Untersuchung starten	Satzart '6302'
Anwendung C:\Programme\digipax\digipax.exe	<ul> <li>Daten einer Untersuchung anzeigen</li> </ul>	Satzart '6311'
Startparameter	Kartenkürzel	
Menue-Eintrag	GDT - Einstellungen	
✓ Hintergrund-Programm ■ Bestätigung (nur bei Aufruf aus Meniz EXTRAS) ✓ Menue-Beenden	Typ (z.B. EKG01) GDT-Empfänger DIGIPAX	
Datentransfer	🗖 Labordaten übermitteln [max. 90 Tage alt ]	
CAUS OBDT CODT OTEXT CXML	Erwarte Typ oder Kennfeld einer Objektdatei:	
Verzeichnisse Dateien für Test sichern		
C:\Programme\digipax\digipax\GDT\DIGIPDEgdt		
C:\Programme\digipax\digipax\GDT\PDE_DIGI.gdt		
2 GDT C:\Programme\digipax\digipax\digipax.exe	2 GDT C:\Programme\digipax\digipax\digipax.exe	



# 10.4 Connecting MediStar

User 🔄			Administrator :: GDT				
nformations about dinic and physician	Talentification						
mormations about unic and physician mage preview							
Baseboard	GDT-ID: DIGIPAX1		Abbreviation: DIGI				
Loupe	Communication						
Image informations							
Overlay / scout lines	Import directory:	C:\pd					
listogram	Export directory:	C:\digipaX\digipaX\GDT					6
Job management	Type of file:	<ul> <li>fixed GDT file extension (".gdt")</li> </ul>	<ul> <li>incremental file extension (".001" - ".999")</li> </ul>	<ul> <li>fixed file names</li> </ul>			
Image acquisition	Import file:	DIGIXXXx.gdt	e.g.: DIGIXXXX.003	import.gdt			
Other	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							
Job management	Adapt field allocation (mapping) —						
leterinary surgeon	X Create GDT answer						
DICOM / network	GDT answer files can be created for	Transver files can be created for automatic acquited images (via this digpax station) as well as for the images which have been received in the background.					
Job management		X Image acquisition and image receipt	a	ner events			
GDT		for each image (immediately)					
Caches / IPS		each series Waiting time: 3 minutes		immediately after job	Collect jobs		
Device links	Moment of creating:	each series Waiting time: 3 minutes      examination Waiting time: 10 minutes					
X-ray journal				after import of image			
Image transfer Other		<ul> <li>If the last job is ready</li> </ul>					
Joher		ask user before creating					
.og 🛛	Entry in comment field (6227):	<ul> <li>automatically (according to mode)</li> </ul>					
General	this comment text in answer file:		Fe	and neue Bilder vorhanden.			
Cache		add additional tags:	(1997)				1
DICOM		adu adultonal tags:					
Image processing	Characteristics field:	Type of examination carried out:	ALL	G00			
File import	Set of characters:	<ul> <li>IBM CP 437 (DOS)</li> </ul>	0	ISO 8859-1 (ANSI)			
Worklist		× require (despite whether a request has been					
JDT				a a state a state formation			
Print	CON .	Recipient ID: MEDISTAR	Red	pient abbreviation: MEDI			
	<b>v</b>	delete attached physician number					
Jurning Co / DVD							
	Import	Export Info				Sav	

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.



# 10.5 Connecting DOCConcept

er i i i i i i i i i i i i i i i i i i i			Administrator :: GDT		
mations about clinic and physician	Identification				
preview	1000000				
eboard	GDT-ID: DIGIPAX1		Abbreviation: DIGI		
pe	Commentation				
ige informations	Communication				
rlay / scout lines	Import directory:	C:\digipaX\digipaX\GDT			6
ogram	Export directory:	C:\digipaX\digipaX\GDT			6
management	Type of file:	fixed GDT file extension (".gdt")	<ul> <li>incremental file extension (".001" - ".999")</li> </ul>	fixed file names	
ge acquisition	Import file:	DIGIxxxx.gdt	e.g.: DIGIxxxx.003	[import.gdt	
8	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt	
ninistrator	Check interval in seconds:	10	÷	Frederickie.	
	Readout delay in miliseconds:	0	-		
inse		log content of files			
rinary surgeon OM / network	Log:	log content of nies			
management	Adapt field allocation (mapping) -				
nse					
erinary surgeon	K Create GDT answer				
OM / network	GDT answer files can be created fi	or automatic acquited images (via this digipax station	n) as well as for the images which have been receive	d in the background.	
management		X Image acquisition and image receipt		ther events	
	1.2	for each image (immediately)			
thes / IPS		for each image (immediately)		immediately after job	
thes / IPS rice links	Moment of creating:	🔿 each series Waiting time: 🛾 minutes 💌			
ches / IPS rice links ay journal	Moment of creating:	each series Waiting time: 3 minutes examination Waiting time: 10 minutes			
nes / IPS ce links y journal ge transfer	Moment of creating:	🔿 each series Waiting time: 🛾 minutes 💌		immediately after job	
nes / IPS ce links y journal ye transfer	Moment of creating:	each series Waiting time: 3 minutes examination Waiting time: 10 minutes		immediately after job	
hes / IPS ice links y journal ge transfer er		each series Waiting time: 3 minutes      examination Waiting time: 10 minutes      if the last job is ready     ask user before creating		immediately after job	
hes / IPS ice Inks y journal ge transfer er		each series Waiting time: Iminutes      examination Waiting time: Iminutes      if the last job is ready     ask user before creating     eutomatically (according to mode)		immediately after job Collect jobs	
hee / 195 kce links ge transfer er herel		each series Walting time: <u>Simitutes</u> examination Walting time: <u>To minutes</u> examination Walting time: <u>To minutes</u> if the last yob is ready     ask user before creating     exutematically (according to mode)     this comment text in answer file:		immediately after job	
hes / IPS rice Inks y journal ge transfer er In Reral he		each series Waiting time: Iminutes      examination Waiting time: Iminutes      if the last job is ready     ask user before creating     eutomatically (according to mode)		immediately after job Collect jobs	
here / MS rice Inka ge transfer er er er heren he CM		each series Walting time: <u>Simitutes</u> examination Walting time: <u>To minutes</u> examination Walting time: <u>To minutes</u> if the last yob is ready     ask user before creating     exutematically (according to mode)     this comment text in answer file:		immediately after job Collect jobs	
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here / MS ice Inka ge transfer ere And be de ge processing import	Entry in comment field (6227):     Oharacteristics field:     Set of characters:	each series Walting time: Immutes     examination Walting time: Immutes     examination Walting time: Immutes     examination Walting time: Immutes     examination time: Immutes     ack user before creating     ack		Immediately after job Collect jobs after import of image ere are new images available	
hee / IPS kcc links y pornal ge transfer er her CM ge processing mport Kist	Entry in comment field (6227):     Oharacteristics field:     Set of characters:	each series Walting time: 1 simulates      examatation Walting time: 1 lo minutes      examatation Walting time: 1 lo minutes      examatation time time time time time time time time		Immediately after job Collect jobs after import of image ere are new images available	
hes / IPS icc Ints y journal ge transfer er 1 1 CM CM ge processing	Entry in comment field (5227): Characteristics field: Set of characters: Require an answer in GDT standar	each series Walting time: Immutes     examination Walting time: Immutes     examination Walting time: Immutes     examination Walting time: Immutes     examination time: Immutes     ack user before creating     ack	At the system or not)	Immediately after job Collect jobs after import of image ere are new images available	
here (JIPS ice links by sourceal ge transfer er er transfer ge processing import ts t t t	Entry in comment field (6227): Characteristics field: Set of daracters: Require on answer in GDT standar	each series Walting time: I minutes     examination Walting time: I minutes     examination Walting time: I minutes     examination Walting time: I minutes     if the last job is ready     ak user before creating     eutomatically (according to mode)     this comment text in answer file:     add additional tags:     Type of examination carried out:     EIM (P 437 (DOS)     Si Tequire (despite whether a request has been	At the system or not)	immediately after job Collect jobs after import of image ere are new images available  G00 ISO 8859-1 (ANSI)	
here (JBS ince Inks yournal ge transfer er er for the COM ge processing import for f	Entry in comment field (5227): Characteristics field: Set of characters: Require an answer in GDT standar	each series Walting time: 1 simulates      each series	At the system or not)	immediately after job Collect jobs after import of image ere are new images available  G00 ISO 8859-1 (ANSI)	
here (JBS ice Inks pe transfer er seral he CM ge processing mport klet t t t	Entry in comment field (6227): Characteristics field: Set of daracters: Require on answer in GDT standar	each series Walting time: 1 simulates      each series	At the system or not)	immediately after job Collect jobs after import of image ere are new images available  G00 ISO 8859-1 (ANSI)	Save

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



# 10.6 Connecting Quincy

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

ne			Geburtsdatum Alter	Status				Scheine PG Straße	
	, Imer		<b>30.04.1960 48 J</b> tzeinstellungen	ahre   Mitgl	lied   AOK Bader	-Württemb R / AOI	К   ВМА́	Im Gaisg	
	ungen		czewscewongen						<u> </u>
harres	grammanso	hlüsse							
nü	V -	mmentar	Programm		nverzeichnis	Anschlußart	Kennwort	Arbeitsverzeichnis	Übergabedatei
-			GUSboyEingang			Anschlubalt	Kennwon	Arbeitsverzeichnis	Obelgabedatel
	Nachricht an a	Pin CDT-Apech	nluß definieren		11100				×
	Nachricht an a DIGIPAX1	Menü							
	AMIS Plus	Bezeichnung d	es angeschlossenen P	ogrammes/Gerätes		Kennung von QL	JINCY WIN (4 Buchsta	aben zur Bildung der Dateini	amen)
- 2	AMIS FIUS	Röntgen				QWIN			
-		GDT-ID des Fre	emdprogrammes			Kennung des Fre	emdprogramms (4 Bucl	hstaben zur Bildung der Dat	einamen)
4		DIGIPAX	obligatorisch, dient d	er Identifikation des Ar	ischlusses	DIGI			
		was kann die a	ngeschlossene Geräte	software?					
		Das angeschlo	ossene Programm kann	als Server und Client a	arbeiten.	Austauschda	iteien mit einer laufend	en Nummer versehen	
		Aufruf des Frem	ndprogramms mit kompl	etter Pfadangabe		Sonderoption	n: dieser Aufruf soll kein	nen Neubefund auslösen	
		c:\programme	\digipax\digipax\digipa	k.exe		Sonderoption	n: alle Dateien in den B	riefkastenverzeichnissen ak	zeptieren
		Pfad des Verze	ichnisses für den Date	nexport				naufruf für Aufruf aus der Ka	
		C:\GDT							
		Pfad des Verze	ichnisses für den Date	nimport		Sonderoption: ab	weichende GDT-Anfo	rderungsdatei bei Aufruf aus	s Kartei
		C:\GDT				_		-	
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			Diagnose		MEN FOR	Gos- Nana, Yamena Sar			Erika Musterfrau 1234567890 7/2007

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

In case of new installations: Select empty row "Connect" button Choose the other program with GDT connection In job to modify: 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			
mations about clinic and physician	Identification					
e preview	GDT-ID: DIGIPAX		Abbreviation: DIGI			
board						
e	Communication					
e informations	Import directory:	C:\GDT				
ay / scout lines	and the second second					-
gram Nanagement	Export directory:	C:\GDT				
anagement acquisition	Type of file:	fixed GDT file extension (".gdt")	<ul> <li>incremental file extension (".001" - ".999")</li> </ul>	O fixed file names		
	Import file:	DIGIxxxx.gdt	e.g.: DIGIxxxx.003	import.gdt		
	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt		
inistrator 🛛	Check interval in seconds:	10	\$			
ie.	Readout delay in milseconds:	0	-			
inary surgeon	Log:	log content of files				
M / network						
anagement	Adapt field allocation (mapping	0				
s / IPS	Create GDT answer					
		for automatic acquited images (via this digipax station	) as well as for the images which have been received	in the background.		
e links		for automatic acquited images (via this digipax station Image acquisition and image receipt		l in the background.		
Einks journal transfer		X Image acquisition and image receipt				
e inks journal e transfer	GDT answer files can be created	Image acquisition and image receipt     for each image (mmediately)	00		X Collect jobs	
e inks journal e transfer		Image acquisition and image receipt     for each image (immediately)     each series Waiting time: 3 minutes (*)	ot	ner events immediately after job	X Collect jobs	
e inks journal e transfer	GDT answer files can be created	Image acquisition and image receipt           for each image (immediately)           each series         Waiting time: 3 minutes \$\frac{1}{\sigma}\$,           examination         Waiting time: 10 minutes \$\frac{1}{\sigma}\$,	ot	ner events	🕷 Collectjobs	
e Inks journal transfer ral	GDT answer files can be created	Image acquisition and image receipt     for each image (immediately)     each series Waiting time: 3 minutes (*)	ot	ner events immediately after job	¥ Collect jobs	
e Inis journal te transfer al	GDT answer files can be created	Image acquisition and image receipt           for each image (immediately)           each series         Waiting time: 3 minutes \$\frac{1}{\sigma}\$,           examination         Waiting time: 10 minutes \$\frac{1}{\sigma}\$,	ot	ner events immediately after job	X Collect jobs	
e inks journal r r ral e M	GDT answer files can be created	X Image acquisition and image receipt       If for each image (immediately)       each series       Waiting time: 3 minutes       grant and series       if the last job is ready       ask user before creating	ot	ner events immediately after job	X Collect jobs	
es / IPS te Inha / journal r r ral e M M e processing	GDT answer files can be created	X Image acquisition and image receipt          for each image (mmediately)       each series           each series           examination       Wathing time: 3 minutes       with       series           if the last job is ready           ask user before creating           eautomaticaly (according to mode)		ner events immediately after job after import of mage	X Collect jobs	
e inks journal tensfer ral e M eprocessing opot	GDT answer files can be created	X Image acquisition and image receipt           If for each image (mmcdsately)           ends retries Wating time: [3mmutes]           exammation           Wating time: [3mmutes]           and user before creating           autuestication (according to mode)           this comments in any energies		ner events immediately after job	¥ Collect jobs	
e inks journal tensfer ral e M eprocessing opot	GDT answer files can be created	X Image acquisition and image receipt          for each image (mmediately)       each series           each series           examination       Wathing time: 3 minutes       with       series           if the last job is ready           ask user before creating           eautomaticaly (according to mode)		ner events immediately after job after import of mage	¥ Collectijobs	
e inks journal tennfer rel e M M popocessng port tet	GDT answer files can be created Moment of creating: Entry in comment field (6227):	X Image acquisition and image receipt       If for each image (immediately)       each areist Wating time: [3 immutes ]       examination       Wating time: [10 immutes ]       airkuser before creating       automatically (according to mode)       this comment text in answer file:       additional tage:		ner events immediately after job after import of image re are new images available	¥ Collect jobs	
ne Inka journal e rol e e processing upont lat	GDT answer files can be created Moment of creating: Entry in comment field (6227): Oraracteristics field:	X Image acquisition and image recebit           If for each image (immediately)           each series         Immutes [Immutes]           each series         Immutes [Immutes]           each series         Immutes [Immutes]           if the last job is ready         eak user before creating           eautometical (according to mode)         this comment text in answer file:           additional tage:         Type of examination carried out:		immediately after job after inport of mage ere are new images available 600	X Collect jobs	
e inks journal tensfer ral e M M popotsang popt lat ug CD / DVD	GDT answer files can be created Moment of creating: Entry in comment field (6227):	X Image acquisition and image receipt       If for each image (immediately)       each areist Wating time: [3 immutes ]       examination       Wating time: [10 immutes ]       airkuser before creating       automatically (according to mode)       this comment text in answer file:       additional tage:		ner events immediately after job after import of image re are new images available	X Collect jobs	
e hols journal te transfer al : : processing poot st	GDT answer files can be created Moment of creating: Entry in comment field (6227): Characteristics field:	X Image acquisition and image recebit           If for each image (immediately)           each series         Immutes [Immutes]           each series         Immutes [Immutes]           each series         Immutes [Immutes]           if the last job is ready         eak user before creating           eautometical (according to mode)         this comment text in answer file:           additional tage:         Type of examination carried out:		immediately after job after inport of mage ere are new images available		Save



# 10.7 Connecting Albis

Configuration in digipaX should be done as shown in the 2 illustrations below:

User	- C		Administrator :: GDT		
Informations about clinic and physician	Identification				
Image preview	GDT-ID: DIGIPAX1		Abbreviation: DIGI		
Baseboard Loupe					
Image informations	Communication				
Overlay / scout lines	Import directory:	C:\digipaX\digipaX\GDT			60
Histogram	Export directory:	C:\digipaX\digipaX\GDT			
lob management	Type of file:	<ul> <li>fixed GDT file extension (".gdt")</li> </ul>	<ul> <li>incremental file extension (".001" - ".999")</li> </ul>	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	
Administrator	Check interval in seconds:	10	\$		
License	Readout delay in miliseconds:	0	•		
Veterinary surgeon	Log:	log content of files			
DICOM / network					
lob management	Adapt field allocation (mapping)				
GDT Caches / IPS					
	K Create GDT answer				
	GDT answer files can be created t	for automatic acquited images (via this divinax station	a) as well as for the images which have been received	l in the background	
Device links		for automatic acquited images (via this digipax station			
Device links (-ray journal		Image acquisition and image receipt		d in the background. her events	
Device links K-ray journal mage transfer	GDT answer files can be created t	Image acquisition and image receipt for each image (immediately)	ot		¥ Collect jobs
Device links Kray journal mage transfer Dither	GDT answer files can be created to GDT answer files	Image acquisition and image receipt     for each image (immediately)     each series Waiting time: 3 minutes 4	) ot	her events i immediately after job	X Collect jobs
Device Inks X-ray Journal Image transfer Other Log	GDT answer files can be created t	Image acquisition and image receipt     for each image (immediately)     each series Waiting time: 3 minutes      examination Waiting time: 10 minutes	) ot	her events	X Collect jobs
Device Inks Kray journal Image transfer Other Gog General	GDT answer files can be created to GDT answer files	Image acquisition and image receipt     for each image (immediately)     each series Walting time: 3 minutes &     examination Walting time: 10 minutes &     if the last job is ready	) ot	her events i immediately after job	¥ Collect jobs
Denice Inis Kray Journal Image transfer Other Gog General Coche	GDT answer files can be created to GDT answer files	Image acquisition and image receipt     for each image (immediately)     each series Waiting time: 3 minutes      examination Waiting time: 10 minutes	) ot	her events i immediately after job	X Collectjøbs
Device Into Kray Journal Image transfer Other Code Code DCCM	GDT answer files can be created to GDT answer files	Image acquisition and image receipt     for each image (immediately)     each series Walting time: 3 minutes &     examination Walting time: 10 minutes &     if the last job is ready	) ot	her events i immediately after job	¥ Collect jobs
Device Inis Kray Journal Dater Other Code Cache DLCOM Image processing	GDT answer files can be created to the created to the creating:	Image acquisition and image receipt     for each mage (inneedately)     set series Waiting time: <u>I simulas</u> examination Waiting time: <u>I simulas</u> or the last job is ready     ask user before creating		her events immediately after job after import of image	X Collect jobs
Device Inke Kray Syumal Innige transfer Other Gog General Cicole Dicole Dicole Dicole processing Innige processing	GDT answer files can be created to the created to the creating:	Image acquisition and image receipt     for each image (immediately)     we and neiries Wattrop time: [3]     anstructs     of the bast job is ready     ask user before creating     automatically (according to mode)     this comment text in answer file:		her events i immediately after job	¥ Collectjøbs
Device Inis Kray journal Mange transfer Other Color Control Diccol Manage processing File import Workst	GDT answer files can be created to Moment of creating: Entry in comment field (6227):	Image acquisition and image receipt     for each image (immediately)     we ach arenese Wathing time: 3 minutes *     examination Wathing time: 3 minutes *     of if the last tybe is ready     aku user before creating     exutomatically (according to mode)     this comment teach in answer file:     add additional tags:		her events immediately after job j after import of image ere are new images available	
Device Inis Arx of yournal Uter transfer Other Cache Gerent Cache DICOM Image processing Frie myort Vorklast GOT Print	GOT answer files can be created	Image acquisition and image receipt     for each image (immediately)     we and neiries Wattrop time: [3] minutes examination Wattrop time: [10 minutes or if the bast job is ready     ask user before creating     extomatically (according to mode)     this comment text in answer file:		her events immediately after job after import of image	
Device Inis Kray Journal Image transfer Other Code General Codine	GDT answer files can be created to Moment of creating: Entry in comment field (6227):	Image acquisition and image receipt     for each image (immediately)     we ach arenese Wathing time: 3 minutes *     examination Wathing time: 3 minutes *     of if the last tybe is ready     aku user before creating     exutomatically (according to mode)     this comment teach in answer file:     add additional tags:		her events immediately after job j after import of image ere are new images available	
Device Inis Two yound Image transfer Other Code Gereal Cache Cach	GDT answer files can be created i GDT answer files can be created i Moment of creating: Entry in comment field (6227): Characteristics field: Set of characters:	Image acquisition and image receipt     for each image (immediately)     we can aeries Wathing there: 3 minutes 1     examination Wathing there: 3 minutes 1     examination Wathing there: 10 minutes 1     extramatically (according to mode)     this comment text in answer file:     add additional tags:     Type of examination carried out:     EM CP 437 (DOS)		her events i immediately after job after import of image ere are new images available	2
Device Inis Kray journal Image transfer Other Go General CoCM Exactly Exactly Tele mont Worklast SDT Hint SDT Hint SDT	GOT answer files can be created	Image acquisition and image receipt     for each image (immediately)     @ each aeries Waiting time: [3 minutes ]     define the set point is a set of the set o		her events i immediately after job after import of image ere are new images available	

					Configuration
User 🕥	1		Administrator :: GDT		
Informations about clinic and physician Image preview Baseboard Loupe Image Informations Overlay / sociulines Histogram Joh management Image acquisition Other	Import directory: Export directory: Type of file: Import file: Export file: Check interval in seconds: Readout delay in milaeconds: Log:	C:\dquax\dqu	incremental file extension (*.001* -*.999 e.g.: D/0Elxxxx.003 e.g.: xxxxx0EGL017 €	) _ fixed file names import_gdt export_gdt	
Administrator Uicense	Adapt field allocation (mapping)	or automatic acquited images (via this digipax station)           Image acquisition and image recept           O for each image (mmediately)           @ each series         Waiting time: [3:mitutes]           O or samination         Waiting time: [10:mitutes]           O if the last job is ready         as user before creating	]	id in the background. ther events K immediately after job after import of image	X Collect jobs
Log General Cache DICOM	Entry in comment field (6227):	automatically (according to mode)     this comment text in answer file:     add additional tags:	π	tere are new images available	
Image processing	Characteristics field:	Type of examination carried out:	A	LG00	
File import	Set of characters:	<ul> <li>IBM CP 437 (DOS)</li> </ul>	Ö	ISO 8859-1 (ANSI)	
Worklist . GDT Print		d: X require (despite whether a request has been n Recipient ID:		cipient abbreviation: ALBI	
burning CD / DVD		delete attached physician number			-
Devices L Administrator login	Import	If an answer in GDT standard has been req	is system, the physician number will be autom uired for enquieries not referred to this system, on through a worklist job, can be again explicit	the physician number, which	Save



Settings in Albis should be done as shown below:

Externe Programme					×
<u>M</u> enüeinträge: Röntgen	Ă	<u>E</u> infügen Löschen	H <u>ö</u> her Tie <u>f</u> er	<u>Q</u> K <u>A</u> bbruch Hilfe	
Befehl: Befehlszejle: Men <u>ü</u> text: Parameter: Arbeits⊻erz. (\$VERZ): K_arteikartenkürzel: Statuszeilente <u>x</u> t: Ausführung: 1 <u>6</u> Bit Windows- Programm	C:\digipaX\digipa Röntgen patient.bdt C:\digipaX\digipa digi immer • F	aX\ Patient a <u>k</u> tiv e ab <u>w</u> arten	O BDT (7/92) O O BDT (2/94) ⊙ O BDT (Mix) O	GDT 6301 Office-Dokument GDT 6302 Diabetes BDT 2.0 GDT 6301 + 6302 ALLE00 \$AUS): GDT \$EIN): Validierung:	

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

In the local directory C:\digipaX\digipaX\ create folder "Albis". -> C:\digipaX\digipaX\Albis In this folder create start.bat with following contents:

> del C:\digipaX\digipaX\GDT\albiDIGI.gdt /y C:\digipaX\digipaX\digipax.exe Exit



# 10.8 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
User 🖾			Administrator :: GDT		
Informations about clinic and physician Image preview Baseboard	Import directory: Export directory:	C:\digipaX\digipaX\GDT \\Server001\C\befund\GDT			
Loupe Image informations Overlay / scout lines Histogram Job management	Type of file: Import file: Export file: Check interval in seconds:	fixed GDT file extension (".gdt") DIGDooox.gdt xxxxxIIGI.gdt 10	<ul> <li>incremental file extension (".001" - ".999")</li> <li>e.g.: DIGDxxxx.003</li> <li>e.g.: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</li></ul>	fixed file names import.gdt export.gdt	
Image acquisition Other Administrator	Readout delay in miliseconds: Log:	0 log content of files	•		
License Veterinary surgeon	Adapt field allocation (mapping)				

GDT configuration on a digipaX workstation



Hilfe 7		F2	F3	3	F4		F5	F	6	F7		F8		F9	1	F10	[	F11	Г	ок√
			_										_							
					Dat	eie	n ers	stell	en									23.	n4 '	2010
					Dao	.010.												20.		2010
Expo	ort	Gerä	t/Ty	o <b></b>	:	DIG	I1													
					:		OCALH	HOST/	C:/I	DIGI										
8-b:	it (	Code.			:	Ja					2	Zeile	entr	enn	er	:	C	R+LF		
				_		DDM													_	
					:	BD.I.														
rer	akei	mung	r,Text	CYLI	uppe.															
Zeid	ther	n ers	et.zei	n	:															
dur	ch.				:															
			ort-Pi																	
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## Job configuration procedure from the worklist in the Duria system

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	r2 r3	F4	13 10 17	ro		.9	FTO		
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PR				PRE	М			Kein	Fall
		info§pe	ntling.com	•					
AB		qesundh	eitszentrum Pent	linq					
Zeile	Inhalt (fix)	ab Pos.	Inhalt (variabe	1)		Тех	ktqr.	BDT	L.ze
1	01380006302							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					Ja	Nein
13	xxx3110	8	Geschlecht 1/2					Ja	Nein
	Korre	ktur	Erfassun	q		Lösche	en		
			-						

# Row configuration for creating a job from the worklist (6302)



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1	01380006311						Ja	Nein
2	xxx8100§§§						Ja	Nein
3	xxx3000	8	Patienten Nr.				Ja	Nein
5	xxx3101	8	Nachname				Ja	Nein
6 7	xxx3102 xxx3103	8	Vorname Geburtsdatum				Ja Ja	Nein Nein
, 13	xxx3110	8	Geschlecht 1/2				Ja	Nein
10	ANAJ110	ľ	Gebeniteenie 1/2				Va	INGTH
	Korrek	tur	Erfassun	g		öschen		

### Row configuration to display images (6311)

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/erbin	dung Bearbeit	en Einstell	ungen Da		Hilfe		_												
	Hilfe 7	F2		F3		F4		F5	F6	F7		F8	F9		F10		F11	ок√	
						Dat	ei	en ein	lesen							1	23.0	4.2010	
	Impor Datei Datei	name	/ 1	Port.			. :	//SER	VER001	L/C/BE		D/GDT/I seriell				Ja			
			.ng,:	ſG.:					DPAX-6	5201,D	PAX	-6200,I	)PAX						
	Hinte	ergru	.nd ,	/ Bil	dsc	hirm	.:	Vorde	rgrund	1	1	Warte S	Sekund	en	:				
	Zeich	len e	rset	tzen.			.:					durch			:				
	Auswe vorhe			-															
	freite	ext o	der	Anfa	ngs	buch	st	aben V	orausv	vahlen	->	, (<	->)	#2 2	2/003	3 2:	3.04	. Куо 1	D
																		16:3	2:52 //

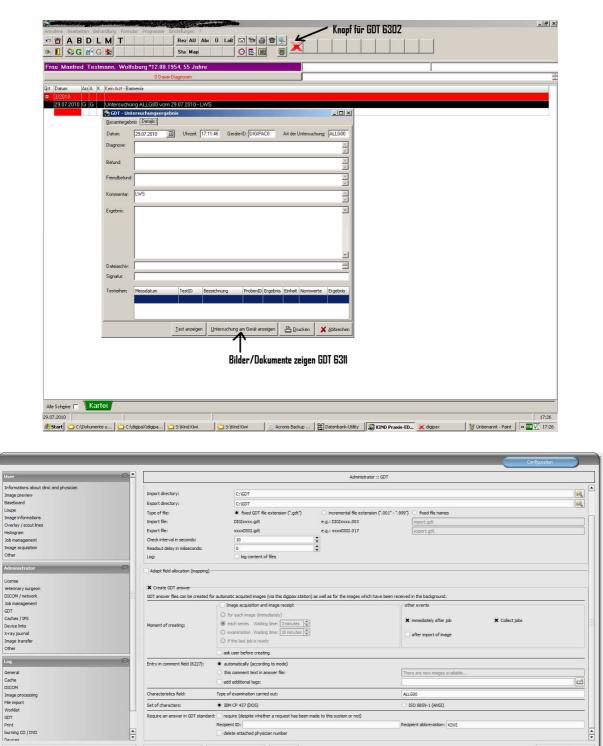
### Duria system configuration for importing GDT files



Save

# 10.9 Connecting KiWi (KIND hearing aids)

The illustrations below demonstrate connecting GDT to the KiWi system.



Import... Export... Info...



GDT-Konfiguration		
Schnittstellenbezeichnung:	DigiPacs	
Basiseinstellungen spezielle	e Einstellungen	
WSID:	0 🗲 (WSID = 0 -> Einstellung gilt für alle WS)	
Exportdatei (KiWi-> Gerät,	Beispiel: Satzart 6302)	
Zeichensatz:	Standard	
Verzeichnis:	C:\gdt	-
Dateiname:	digikiwi.gdt	
Importdatei (Gerät -> KiWi,	Beispiel: Satzart 6310)	
Zeichensatz:	Standard 💌	
Verzeichnis:	C:\gdt	-
Dateiname:	kiwidigi.gdt	
Kennfeld:	ALLG00	
🕀 Schnittstelle <u>e</u> infügen 🛛 🧝	🖋 Schnittstelle Jöschen 🛛 🔚 Speichern 🛛 🗶 g	Abbrecher

GDT-Konfiguration	
Schnittstellenbezeichnung:	DigiPacs
<u>B</u> asiseinstellungen s <u>p</u> ezielle	e Einstellungen
Schnittstelle:	<ul> <li>✓ Akti⊻</li> <li>Hochgählend</li> <li>Untersuchungsanforderung automatisch erstellen</li> <li>✓ Untersuchungsergebnisse automatisch einlesen</li> <li>✓ "Untersuchung vom" in Karteikarteneintrag einfügen</li> </ul>
GDT-ID Gerät:	DIGIPACO
Test-ID neue Untersuchung:	
Eintrag Karteikarte:	
Karteikarte ergänzen um:	Kommentar
Spezielle Anpassungen:	<b>_</b>
Anzeige am Gerät:	l'C:\digipaX\digipaX Demo\digipax.exe''
& Schnittstelle <u>e</u> infügen	🖉 Schnittstelle Jöschen 🛛 📮 Speichern 🛛 🗙 Abbrecher



# 10.10 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 in job 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.

### 10.10.1 Terminal server configuration:

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

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

...

 $I: \GDT \AP05$ 

# 10.10.2 Workstation configuration:

					Configuration
User			Administrator :: GDT		
Informations about clinic and physician	Identification				<b>.</b>
Image preview Bandhoard	GDT-ID: DIGIPAX1		Abbreviation: DIGI		
Baseboard Loupe Image Informations Overlay / southnes Histopram Johnnagerennt Image capation Other Administrator License Weterlany surgeon DICOM / network Job management GOT	Communication Import directory: Export directory: Type of file: Export file: Export file: Check interval in seconds: Readout delay in milseconds: Log: Adapt field allocation (mapping) P Create GOT answer	I:\GDT\APO1 I:\GDT Reset (DDT file extension (".gdt") DIGID000.gdt Sociol(El.gdt 5 0 0   log content of files	Invenential file extension (*.001*-*.999) e.g.: DiSticcox.003 e.g.: coxcollict.017	food file names (mport.git export.git	
Cadres /PS Device Inis X-ray journal Image transfer Other Log General		r automatic acquited images (via this dispox station) Image acquisition and image receipt O for each image (mmediately) @ each series Waiting time: 3 minutes may O examination Waiting time: 10 minutes may O for the last job is ready	ođ	ner events	Collect jobs
Cache		ask user before creating			
DICOM Image processing File import Worklat	Entry in comment field (6227):	automatically (according to mode)     this comment text in answer file:     add additional tags:	The	re are new images available	
GDT Print	Characteristics field:	Type of examination carried out:	ALL	G00	
burning CD / DVD	Set of characters:	IBM CP 437 (DOS)	01	ISO 8859-1 (ANSI)	
Administrator login	Import	Export Info			Save
					0

GTD-ID should be the same for all stations, because MCS is 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



😂 Pflege - Onlineverwaltu

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

10.10.2.2 MCS lsynet:

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

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

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

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

Direktsuche: Pat-CD	Direktsuche: Zeigen
Onlines	Onlines
Online	Online
OnlineNummer: Arbeitsplatz 1 Arbeitsplatz	OnlineNummer: 1 Arbeitsplatz 1 GAktiv 🔽 ASCII-Format
Suchwort Pat-CD	Suchwart Zeigen
Beschreibung	Beschreibung:
Export	Export
Dateiname: I:\GDT\AP01\digiisyp.001	Dateiname: I:\GDT\AP01\digiisyp.001
Vorlage: I:\WINACS\VORLAGE\patcd.tpl >> Bearbeiten	Vorlage: I:\WINACS\VORLAGE\zeigen.tpl >> Bearbeiten
Programmdatei: >>	Programmdatei: >>
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
Dateityp: Datei überschreiben 🔹 🔽 Scheinaktivierung	Datei überschreiben 🔻 🗖 Scheinaktivierung
Import Dateiname: testen	Import
	Dateiname:
Vorlage:Bearbeiten	Vorlage: Bearbeiten
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
🔽 immer löschen	🔽 immer löschen
Q + B D DK Abbrechen Ubernehmen Hille	Q + 🖬 🗑 🛛 🖉
PPlege - Onlineverwaltung     Imvorklist	PRege - Onlineverwaltung     K Diektsuche:
Onlines	Onlines
Online	Online
OnlineNummer: 1 Arbeitsplatz: 1 Aktiv 🔽 ASCII-Format	OnlineNummer: 5 Arbeitsplatz: 5 🔽 Aktiv 🗖 ASCII-Format
Suchwart Worklist	Suchwort: Rückantwort
Beschreibung	Beschreibung:
Export	Export
Dateiname: [I\GDT\AP01\digisyp.001	Dateiname
Vorlage: I:W/INACS/VORLAGE/worklist.tpl >>> Bearbeiten	Vorlage: Bearbeiten
Programmdatei:	Programmdatei: >>
Programmdatei Typ: Textdatei (ASCII)	Programmdatei >>> Typ: Textdatei (ASCII)
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)
Typ: Textdatei (ASCII) 💽 Dateityp: Datei überschreiben 💽 🔽 Scheinaktivierung	Typ: Textdatei (ASCII)  Datei überschreiben  Scheinaktivierung
Typ: Textdatei (ASCII)   Datei überschreiben   Scheinaktivierung Import	Typ: Textdatei (ASCII)  Dateityp: Datei überschreiben  Scheinaktivierung Import
Typ: Textdatei (ASCII)   Dateityp: Datei überschreiben   Scheinaktivierung  Import Dateiname: testen testen	Typ: Textdatei (ASCII)  Dateityp: Datei überschreiben  Scheinaktivierung Impot Dateiname: [I\GDTVisypdigi* testen
Typ: Textdatei (ASCII)   Dateityp: Datei überschreiben   Scheinaktivierung  Import Dateiname: Vorlage:  Seheinaktivierung  Import Scheinaktivierung  Import Import Scheinaktivierung  Import Scheinaktivierung  Import Impo	Typ: Textdatei (ASCII)  Dateityp: Datei überschreiben  Scheinaktivierung Import Dateiname: Il-KGDTVisypdigi* Vorlage: Il-WINACSWORLAGEVueck.tpl >>> Bearbeiten
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)  Dateityp: Datei überschreiben  Scheinaktivierung Impot Dateinane: [I\GDTVisypdigi* Vorlage: [I\WINACSWORLAGE vueck.tpl Typ: Textdatei (ASCII)
Typ: Textdatei (ASCII)   Dateityp: Datei überschreiben   Scheinaktivierung  Import Dateiname: Vorlage:  Seheinaktivierung  Import Scheinaktivierung  Import Import Scheinaktivierung  Import Scheinaktivierung  Import Impo	Typ: Textdatei (ASCII)  Dateityp: Datei überschreiben  Scheinaktivierung Import Dateiname: Il-KGDTVisypdigi* Vorlage: Il-WINACSWORLAGEVueck.tpl >>> Bearbeiten
Typ: Textdatei (ASCII)	Typ: Textdatei (ASCII)  Dateityp: Datei überschreiben  Scheinaktivierung Impot Dateinane: [I\GDTVisypdigi* Vorlage: [I\WINACSWORLAGE vueck.tpl Typ: Textdatei (ASCII)



# 10.10.3 Image server configuration:

					Configuration	$\supset$
User 🖸 📥			Administrator :: GDT			
Informations about chric and physician Image preview Baseboard Loupe Image Informations Overlay / scout ines	Import directory: Export directory: Type of file: Import file:	C:\plgpax\plgpax\GDT I:\GDT fixed GDT file extension (".gdt") DIGIxxxx.gdt	<ul> <li>incremental file extension (".001" - ".999")</li> <li>e.g.: DIGDxxxx.003</li> </ul>	[import.gdt		
Histogram Job management Image acquisition Other	Export file: Check interval in seconds: Readout delay in miliseconds: Log:		e.g.: xxxxxDiGL017 € €	export.gdt		
Administrator	Adapt field allocation (mapping)	matic acquited images (via this digipax station) a	s well as for the images which have been receive	d in the background.		
Job management GOT Coches / IP5 Device links X-rar journal Image transfer Other	Moment of creating:	Image acquisition and image receipt for each image (immediately) each series Waiting time: 3 minutes ( examination Waiting time: 10 minutes ( if the last job is ready		her events immediately after job after import of image	Collect jobs	
Log Gereral Codie	Entry in comment field (6227):	ask user before creating automatically (according to mode) this comment text in answer file: add additional tags:	Th	ere are new images available		2
DICOM Image processing File import		e of examination carried out:	AL	LG00		
Worklist	-	IBM CP 437 (DOS) require (despite whether a request has been mai		ISO 8859-1 (ANSI)		
GDT Print burning CD / DVD Dewines	Red	pient ID: delete attached physician number		ipient abbreviation: ISYP		
Administrator login	Import	Export Info				Save
						٥

The image server is not really 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 CD
on <u>AS</u> AS	manager Labor Auswertung Extras System 	em Fenster Hife	Syriste (LP)	
Ansisht Alle Eintäge - (11 Eintäg Sold bildege Datum Kategorie     Diektsch     Diektsch     Diektsch     Diektsch     Datum Kategorie     Online     Online     Online	nmer: 1 Arbeitspla work: Worklist	tz 1 – Aktiv	I⊄ ASCII-Format	
27.07.2001 PRLG VC Programm L PKS Impot Datei	Typ: Textdatei (ASCII)  v eityp: Datei überschreiben  Sch ame:	einaktivierung	Bearbeiten     bearbeiten	
<u></u>	Inger Typ: Textdate (ASCII) ♥ immer föschen	QK Abbrechen De	>>     Bearbeiten       ermetrimen     Hilfe	
		ng   1 磨 (134) Testmann, Otto 32J 4M 6T N/		echen Obernehmen Hilfe

### 10.10.4 Templates:

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

#### worklist.tpl

#### zeigen.tpl

#### patcd.tpl

*** GDT Worklist anlegen ***	'*** GDT Bilder Zeigen ***	'*** GDT Pat CD einlesen ***
[@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]8402	[@SL]8402PM
[@SL]92180100	[@SL]92180100	[@SL]92180100
[@SL]3000[3000]	[@SL]3000[3000]	[@SL]3000[3000]
[@SL]3100[3100]	[@SL]3100[3100]	[@SL]3100[3100]
[@SL]3101[3101]	[@SL]3101[3101]	[@SL]3101[3101]
[@SL]3102[3102]	[@SL]3102[3102]	[@SL]3102[3102]
[@SL]3103[3103]	[@SL]3103[3103]	[@SL]3103[3103]
[@SL]3104[3104]	[@SL]3104[3104]	[@SL]3104[3104]
[@SL]3105[3105]	[@SL]3105[3105]	[@SL]3105[3105]
[@SL]3106[3106]	[@SL]3106[3106]	[@SL]3106[3106]
[@SL]3107[3107]	[@SL]3107[3107]	[@SL]3107[3107]
[@SL]3108[3108]	[@SL]3108[3108]	[@SL]3108[3108]
[@SL]3110[3110]	[@SL]3110[3110]	[@SL]3110[3110]
[@SL]3622[3622]	[@SL]3622[3622]	[@SL]3622[3622]
[@SL]3623[3623:/ 1000 # 000]	[@SL]3623[3623:/ 1000 # 000]	[@SL]3623[3623:/ 1000 # 000]
[@SL]3628[3628]	[@SL]3628[3628]	[@SL]3628[3628]



#### rueck.tlp

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



# 10.11 digipaX configuration

					Configuration	
User 🖂			Administrator :: GDT			
Informations about clinic and physician	Identification					
Image preview	GDT-ID: DIGIPAX		Abbreviation: DIGI			[
Baseboard			( Dist			
Loupe	Communication					
Image informations	Import directory:	C:\digipaX\digipaX\GDT				
Overlay / scout lines	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -					
Histogram Job management	Export directory:	C:\digipaX\digipaX\GDT				<u>14</u>
Job management Image acquisition	Type of file:	<ul> <li>fixed GDT file extension (".gdt")</li> </ul>	<ul> <li>incremental file extension (".001" - ".999")</li> </ul>	fixed file names		
Other	Import file:	DIGIxxxx.gdt	e.g.: DIGDxxxx.003	import.gdt		
	Export file:	xxxxDIGI.gdt	e.g.: xxxxDIGI.017	export.gdt		
Administrator	Check interval in seconds:	5	•			
License	Readout delay in miliseconds:	0	•			
Veterinary surgeon	Log:	log content of files				
		-				
Administrator	Adapt field allocation (mapping) -					
License	Adapt field alocation (inapping)					
Veterinary surgeon	K Create GDT answer					
DICOM / network	a contract of the second	e sutomatic acquited images (via this distance station	) as well as for the images which have been received	d in the background		
Job management		Image acquisition and image receipt		her events		
GDT		and the second se		ale events		
Caches / IPS		O for each image (immediately)		immediately after job	Collect jobs	
Device links	Moment of creating:	each series Walting time: 3 minutes +		Intraductory arter job	Collect jobs	
X-ray journal		O examination Waiting time: 10 minutes		after import of image		
Image transfer	1	O if the last job is ready				
Other		ask user before creating				
Log	Entry in comment field (6227):	<ul> <li>automatically (according to mode)</li> </ul>				
General		O this comment text in answer file:	Th	ere are new images available		
Cache		add additional tags:	(Re	effering %1, Date %2, Time %3)		2
DICOM						
Image processing	Characteristics field:	Type of examination carried out:	X÷	RAY		
File import	Set of characters:	O IBM CP 437 (DOS)	•	ISO 8859-1 (ANSI)		
Worldst -	Require an answer in CDT standard	d: 🗙 require (despite whether a request has been	made to this sustem or not)			
GDT	Require all answer in doir atandard			ipient abbreviation: TEST		
Print burning CD / DVD		Recipient ID: TEST-ID	Rec	pent abbreviation: [IES]		
Devices	-	delete attached physician number				-
Administrator login	Import	Export Info				Save
						(

## 10.11.1 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).

## 10.11.2 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).

### 10.11.3 Field assignment (mapping)

#### 10.11.3.1 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.

#### 10.11.3.2 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 9 DICOM worklist section 9.5 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.

#### 10.11.3.3 Veterinary area:

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

#### 10.11.3.4 Standard fields

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

#### 10.11.4 Response file

For studys 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.

#### 10.11.4.1 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 order with a user-defined comment (after reading the GDT file of record type 6302). The clinic management systems, such as TurboMed, who 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 analysis and receiving an image" 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 newly 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 a series of images or studys after receiving the first image, as opposed to after you save a new image, a "countdown" begins. If until the moment the countdown ends no other images will be uploaded for this series, as opposed to an study, or no other image is received, 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 a station receives the images directly and also uses the job management system, then select "When last job is ready." If the final order will be deleted and for the given patient new images are received, then the response file is created. Information is also sent regarding the new study (StudyDescription).

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 (eg patient 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.

#### 10.11.4.2 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 job of the worklist (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	g: %1, Date: %2, Time: %3)			
slue 1: DICOM tag	(0008,0090) - ReferringPhysiciansName	Tag element:	completed	Position: 1
alue 2: DICOM tag	: (0008,0020) - StudyDate	Tag element:	completed	▼ Position: 1
lue 3: DICOM tag	: (0008,0030) - StudyTime	🐮 Tag element:	completed	Position: 1
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 paths are to be included in the description of the study.

#### 10.11.4.3 Characteristics map

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

#### 10.11.4.4 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.

#### 10.11.4.5 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 order, you can close the system, and at station B after the pictures 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's ID, removal of such an identifier may only be done by using the option "Remove the added physiscian's ID" (relates only to aperatures used by many physicians).

#### 10.11.4.6 Program exit

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

# 10.12 Activities control system digipaX

# 10.12.1 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  $_{\rm w},_{\rm i}$ ",  $_{\rm w}$ ". This parameter determines the losing of the worklist or import component.

GDT record type	Effect
6301:	<ul> <li>Patient management start</li> </ul>
Send constant data	<ul> <li>The patient passed in the GDT file is selected if the</li> </ul>
	patient exists in the archives, or on the contrary, the
	patent in this case will be created locally
6302:	<ul> <li>Here also the patient gets selected or created locally</li> </ul>
Request new study	<ul> <li>If the image acquisition module is active, at this</li> </ul>
	time the patient is updated and images can be read
	in (since gidipaX version 1.1.0).
	<ul> <li>If the image acquisition module is not available or</li> </ul>
	the "/w" parameter was passed, at this time the
	worklist component is loaded and a dialogue for
	creating new jobs is displayed.
	<ul> <li>If the "/i" parameter was passed, at this time the</li> </ul>
	import component is loaded.
	<ul> <li>If the "//pm " parameter was passed, at this time</li> </ul>
	the patient management module is loaded.
6311:	<ul> <li>Here as well the patient is selected or created</li> </ul>
Show study data	locally.
	<ul> <li>No component is loaded, but all the available</li> </ul>
	studies for this patient are displayed in a tree view
	format and can be immediately viewed in the
	browser.
	<ul> <li>The first study image is displayed (if a study date</li> </ul>
	has been passed and such study with this date has
	been found).

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

## 10.12.2 GDT 8402 or 8410 field

In the GDT file record type 6302 ("Request a new study"), 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	Meaning		
ACQ	ACQUIRE	Requests direct image acquisition. Avaliable only if the		
		image acquisition module is active.		
WL	WORKLIST	Loading the worklist component and opening the		
		dialogue to create the job.		
IMP	IMPORT	Loading the import component for importing image files		
		or scanning of documents.		
РМ	PATIENT MANAGEMENT	Loading patient management, e.g. for importing		
		patent's CD or other images DOCOM for this patient.		

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

## 10.13 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's ID." In this way, only IDs will be compared and not the names and dates of birth of patients.

## 10.14 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 patients 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.

# 11 Caches / IPS

## 11.1 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 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 (cache-log).

# 11.2 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.

# 11.3 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.

## 11.4 Presentation States

Information on the presentation of gray 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.

## 11.5 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 the remaining series images", after clicking 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, immediately and automatically images are 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 equipt it with sufficient capacity working memory.



# 12 Image acquisition configuration and connecting devices

## 12.1 General

For image acquisition functions, you can integrate with the system various types of devices: scanners, detectors, generators and equipment for measuring dose-area factors. 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 is described in the user manual.



Additional instructions are available for connecting specific devices!

In the tools set you can customize both text and the symbol for the "Scan" button. In the tools set the equipment model names are shown (if it's possible to set their settings).

## 12.2 Image acquisition configuration

Settings for image acquisition may be mostly defined by the user (automatic transformations of images, the number of backups, etc.) The administrator selects only the optional acquisition settings on the memory card (standard: lack of optional fields – kV, mAs, dose-area product, are of optional fields). Besides this, on the same configuration page ("Administrator / Others"), you can select the unit for the dose-area product (dGy\*cm<sup>2</sup> or  $\mu$ Gy\*m<sup>2</sup>), 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, the system automatically calculates the mAs product. In this case, the value of mA and ms are also copied 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 a decimal place. The "Text Mode" allows you to enter any text in 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 really necessary.

With the "Enter the mAs and ms separately" and "unit for the dose-area product in  $\mu$ Gy\*m<sup>2</sup>" options, the values for the tags are calculated from the input boxes. In such cases, the option "Free text" is not available.



# 12.3 Simulation

The program can be started with the help of the /ds (Device Simulation) parameter to activate the simulation mode. In the simulation mode, for each device type there is an additional simulation device, which can be used for demo or testing purposes. In addition, in the "Scanning" tools set, 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.

# 13 X-ray journal

digipaX

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

Entry definition		,
Designation:	Optional 1	
use:	🔿 yes	• no
DICOM tag image:	(0028,0010) - Rows	- The second sec
DICOM tag order:	(????,???) - Unknown T	lag & Data 🦉
optional entry:	• yes	O no
	ОК Са	ncel

### 13.2 New entry

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

To paste the entries from the image, the routing must be correctly set. If a user makes a new entry in the X-ray journal, they can choose from a list of previously received images and image for which they 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 job from the DICOM worklist 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 yes used entries which are optional for the X-ray journal. They can be freely configured to add additional fields to the journal.

### 13.3 Storage location

The X-ray journal file location in memory can be set freely in the configuration. The place can chosen so that, for example, the journal was always written by the backup system or there existed increased protection by the RAID system.

## 13.4 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 when saving the journal, you can use it as a backup



# 13.5 Automatic generating 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.

# 14 Visually choosing organs

# 14.1 Configuration

On the "Order Management" configuration page, you can specify settings for the selection of organs in the image when creating jobs from the worklist. In the standard system there is only type "Man". However, the list of types can be freely extended (eg, "dog", "cat", "Horse" – see separate user instructions). 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 paths. For further detailed instructions for this, refer to the user guide, as the user is also able to modify this list to your needs.

For each beam path 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 choosen from the "Procedure Code tags" dropdown lists. Both the definition of the Code, as well as the selection of tags questions must be pasted to the target device parameters, as opposed to the device must be aligned with 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 "Body.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 several 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: Image=Body.png Modality=US Station=STATION1 Symbol=Symbol.png Overlay=Overlay.png

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



# 15 DICOM Print

DICOM Print is available only when the 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, title AE, 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 printing 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 second	ls 🔶
Type of printer:	FUJI	-
additional printer parameters:		
Colour:		
Use:	• yes O no	
OK 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 out 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 printing parameters

For printing, you can be use a number of additional parameters. It should be noted that not all printers will have all the DICOM printing 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 a new patient dialogue.

lser		Administrator	: Veterinary surgeon		
nformations about clinic and physician	Veterinary version				
mage preview	X Activate veterinary version				
aseboard oupe	You can modify this entry with a doubled	lick on the verse in the table. Entries can be deactivated and will be then	ot used in the system.		
nage informations	Designation	DICOM tag	Tag element	Position	Level
verlay / scout lines	X Owner Name	(0010,0010) - PatientsName	Name	1	Patient
istogram	Owner Birthdate	(????,????) - Unknown Tag & Data			
b management nage acquisition		5			
ther	Owner Sex	(????,????) - Unknown Tag & Data	5- 201 (100) (100)		
	X Animal Name	(0010,0010) - PatientsName	Surname	1	Patient
dministrator	X Species	(0010,0010) - PatientsName	2. name	1	Patient
icense	Race of Animal	(0010,0010) - PatientsName	Name affix	1	Patient
leterinary surgeon DICOM / network			Title	1	Patient
ob management	Color	(0010,0010) - PatientsName			
DT	X Birthdate of Animal	(0010,0030) - PatientsBirthDate	completed	1	Patient
aches / IPS levice links	X Sex of Animal	(0010,0040) - PatientsSex	completed	1	Patient
i-ray journal	* Pedigree	(0008,1040) - InstitutionalDepartmentName	completed	1	Examination
mage transfer			completed	1	Examination
Other	X Tattoo / Chip	(0010,1030) - PatientsWeight	completed	<u>.</u>	Camination
og					
eneral					
ache					
ICOM					
hage processing					
le import					
/orklist					
π					
int					
rning CD / DVD	<ul> <li>Tag for accession number for the worklis</li> </ul>	t jobs: (0008,0050) - AccessionNumber	2		
nárec					
Administrator login	Import	Export Info			Save
Administration adjusts	amportan	Export.			June

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 you do not need to integrate with other system suppliers, 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 a 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 (multiples), 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 specified search 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, changes to the appropriate modality (modalities) settings which have already been entered, and enter new rows to display the requested information about the animals. Using 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 gender	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 gender	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 gender	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 Own defined settings

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

Description	Tag	Tag element	Position	Level
Owner`s name	0010,0010	First name	1	Patient
	(PatientsName)			
Oenwr`s date of birth	0010,0030	entirely	1	Patient
	(PatientsBirthDate)			
Owner`s gender	0010,0040	entirely	1	Patient
	(PatientsSex)			
Name of animal	0010,0010	Surname	1	Patient
	(PatientsName)			
Animal species	0010,0010	2. name	1	Patient
	(PatientsName)			

Features such as breed, coat, date of birth of the animal, animal gender, pedigree and tattoo / chip, should be used only when they are actually needed. First of all, in the 0010.0010 (name of patient) tag, "Title" and "Addition to the name" tag elements 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	ag Description Type		Multiplicity
0008,0020	StudyDate	Date	1
0008,0030	0030 StudyTime Time		1
0020,0010	StudyID	Short String	1
0008,1030	StudyDescription	Long String	1
0008,0050	AccessionNumber	Short String	1



0008,0090	ReferringPhysicianName	Person Name	1
0010,1010	PatientsAge	Age String	1
0010,1030	PatientsWeight	Decimal String	1
0008,0061	ModalitiesInStudy	Code String	1 – n
0008,1010	StationName	Short String	1
0008,1040	InstitutionalDepartmentName	Long String	1

#### Level Serie:

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 Bild:

Tag	Description	Туре	Multiplicity
0020,0013	InstanceNumber	Integer String	1
0008,0023	ImageDate	Date	1
0008,0033	ImageTime	Time	1
0018,0086	086 EchoNumbers Integer String		1 – n
0008,0022	AquisitionDate	Date	1
0008,0032	AquisitionTime	Time	1
0018,1250	ReceiveCoilName	Short String	1
0020,0012	0,0012 AquisitionNumber Integer String		1
0054,0400	ImageID	Short String	1

#### 16.4 Using the Accession Number tag

When using the worklist application component in digipaX, the tag 0008.0050 – Accession Number is used for assignment of jobs. If it is used differently in relation to the characteristics of the animal, then you must define another tag for job management in the configuration. This tag cannot be used for animal characteristics and it must be one of the following tags that are available on the server worklist:

```
(0008,0005) SpecificCharacterSet
```



(0008,0050) AccessionNumber (0008,0080) InstitutionName (0008,0081) InstitutionAddress (0008,0090) ReferringPhysiciansName (0008,1080) AdmittingDiagnosesDescription (0008,1110) ReferencedStudySequence (0008,1150) > ReferencedSOPClassUID (0008,1155) > ReferencedSOPInstanceUID (0008,1120) ReferencedPatientSequence (0008,1150) > ReferencedSOPClassUID (0008,1155) > ReferencedSOPInstanceUID (0010,0010) PatientsName (0010,0020) PatientID (0010,0030) PatientsBirthDate (0010,0040) PatientsSex (0010,1000) OtherPatientIDs (0010,1001) OtherPatientNames (0010,1020) PatientsSize (0010,1030) PatientsWeight (0010,1040) PatientsAddress (0010,1080) MilitaryRank (0010,2000) MedicalAlerts (0010,2110) ContrastAllergies (0010,2160) EthnicGroup (0010,21a0) SmokingStatus (0010,21b0) AdditionalPatientHistory (0010,21c0) PregnancyStatus (0010,21d0) LastMenstrualDate (0010,4000) PatientComments (0020,000d) StudyInstanceUID (0032,1032) RequestingPhysician (0032,1033) RequestingService (0032,1060) RequestedProcedureDescription (0032,1064) RequestedProcedureCodeSequence (0008,0100) > CodeValue (0008,0102) > CodingSchemeDesignator (0008,0103) > CodingSchemeVersion (0008,0104) > CodeMeaning (0038,0010) AdmissionID (0038,0011) IssuerOfAdmissionID (0038,0050) SpecialNeeds (0038,0300) CurrentPatientLocation (0038,0500) PatientState (0040,0100) ScheduledProcedureStepSequence (0008,0060) > Modality (0032,1070) > RequestedContrastAgent (0040,0001) > ScheduledStationAETitle (0040,0002) > ScheduledProcedureStepStartDate (0040,0003) > ScheduledProcedureStepStartTime (0040,0004) > ScheduledProcedureStepEndDate (0040,0005) > ScheduledProcedureStepEndTime (0040,0006) > ScheduledPerformingPhysiciansName (0040,0007) > ScheduledProcedureStepDescription (0040,0008) > ScheduledProtocolCodeSequence (0008,0100) > > CodeValue (0008,0102) > > CodingSchemeDesignator (0008,0103) > > CodingSchemeVersion (0008,0104) > > CodeMeaning (0040,0009) > ScheduledProcedureStepID (0040,0010) > ScheduledStationName (0040,0011) > ScheduledProcedureStepLocation



(0040,0012) > PreMedication	
(0040,0020) > ScheduledProcedureStepStatus	
(0040,0400) > CommentsOnTheScheduledProcedureStep	
(0040,1001) RequestedProcedureID	
(0040,1001) ReasonForTheRequestedProcedure	
(0040,1003) RequestedProcedurePriority	
(0040,1004) PatientTransportArrangements	
(0040,1005) RequestedProcedureLocation	
(0040,1008) ConfidentialityCode	
(0040,1009) ReportingPriority	
(0040,1010) NamesOfIntendedRecipientsOfResults	
(0040,1400) RequestedProcedureComments	
(0040,2001) ReasonForTheImagingServiceRequest	
(0040,2004) IssueDateOfImagingServiceRequest	
(0040,2005) IssueTimeOfImagingServiceRequest	
(0040,2008) OrderEnteredBy	
(0040,2009) OrderEnterersLocation	
(0040,2010) OrderCallbackPhoneNumber	
(0040,2016) PlacerOrderNumberImagingServiceRequest	
(0040,2017) FillerOrderNumberImagingServiceRequest	
(0040,2400) ImagingServiceRequestComments	
(0040,3001) ConfidentialityConstraintOnPatientDataDescription	
-	

The chosen tag cannot be any other tag being used. Some tags which may be suitable are shown in bold on the list.

## 16.5 GDT Field assignment / mapping

When connecting using GDT to the veterinary medicine clinic's management systems, the GDT connection fields should be adjusted. For example, on the 3110 field, patient's gender is transferred. In the veterinary version, this field often is the gender 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 10.11.3 "Field assignment (mapping)".



er					Administrator :: GDT				
formations about clinic and physician	Identification								
age preview	GDT-ID: DIGIPAX1				Abbreviation: DIGI				
seboard upe									
age informations	Communication								
verlay / scout lines	Import directory:		C:\digipaX\digipaX\GDT						6
togram	Export directory:		C:\digipaX\digipaX\GDT						6
management	Type of file:		fixed GDT file extension (".gdt")	<ul> <li>increment</li> </ul>	ntal file extension (".001" - ".999")	fixed file names			
ige acquisition ier	Import file:		DIGIxxxx.gdt	e.g.: DIGIxx	ox.003	import.gdt			
	Export file:		xxxxDIGI.gdt	e.g.: xxxxDl	IGI.017	export.gdt			
ministrator	Check interval in seconds:		60	\$					
ense	Readout delay in miliseconds		0	-					
erinary surgeon	Log:		log content of files						
OM / network management	X Adapt field allocation (ma	apping)							
	Patient data								
hes / IPS	Patient number:	3000	Name affix:	3100	Name:	3101	Name:	3102	
rice links	Date of birth:	3103	Title:	3104	Insurant number:	3105	Place of residence:	3106	=
ay journal	Street:	3107	Gender:	3110	Date of record:	6200			
ge transfer er	- Control system								
			127.1	2. <b>6</b> 2		-		1	
	Job number:	0	Job description:	0	Station name:	0	Modality:	0	
eral	Veterinary surgeon								
he	Owner's last name:	3201	Owner's first name:	3202	Owner's name affix:	3200	Owner's title:	3204	
OM	Owner's date of birth:	3203	Owner's gender:	3210	Animal name:	3101	Animal species:	3100	
ge processing import	Breed:	3102	Color of animal:	3104	Animal's date of birth:	3103	Animal's gender:	3110	
kist	Pedigree:	3106	Tattoo / chip:	3105					
								Set up GDT standard f	Fald
								act up up i attainua a	~~~~
ning CD / DVD	Create GDT answer								
Administrator login	Import	Fr	port Info					Save	
the second second second second	angen c		and an					Jure	

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. Changing the settings in the digipaX viewer is not possible.

# 17 Other configurations

#### 17.1 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, in the background images are still received, 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.

#### 17.2 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.

## 17.3 Area of application settings

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

## 18 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.
/a	Admin	Automatically login as an administrator. Manual logging in with providing a password is no longer necessary. Warning: Do not use 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 tools set 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- Modul	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 patient CDs on the receiving station.

# 19 Image archive with several disks

For larger data resources you can use several 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	$= F: \ Images 1 \ \ \\$
NightlyCleanThreshhold	= 0
NightlyMoveThreshhold	= 0
NightlyMoveTarget	= 0

When the E disk is full, new images are automatically archived to the F disk. With digipaX the difference is unnoticeable, from which disk the images are downloaded from.



Do not use values for MAGDeviceThreshhold and NightlyCleanThreshhold because they remove the pictures, 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.".

# 20 Archiving

#### 20.1 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 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 Conquest (MirrorDevice) 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.

## 20.2 Conquest Configuration

For the purposes of setting up the mirroring of data for the Conquest DICOM server, edit the file dicom.ini and enter the following lines:

# Configuration of mirror disk(s) to store images
MIRRORDevices = 1
MIRRORDevice0 = H:\mirror\_data\

It is important to modify the path (the disk which the mirrored data is to be saved to). Further information on this subject are also in the Conquest manual (windowsmanual.pdf). This disk must be properly shocked in diginal (factor bar, see 20 5 Manitoring the same site)

This disk must be properly checked in digipaX (footer bar – see 20.5 Monitoring the capacity status of the archive).

With this configuration, all incoming data is further protected on the chosen disk and eventually also deleted when data is deleted from Conquest. The folder structure is the same as in the original data.



## 20.3 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 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. Template for the batchfile.

MySQL\_Backup.bat:

@echo off setlocal
set hostname=localhost set username=root set password=root set port=3306 set backup_file=C:\digipaX\MySQL_Backup.spl
set database1=conquest1 set database2=conquest2 set database3=
mysqldumphost=%hostname%user=%username%password=%password%port=%port%databases "%database1%" "databse2" > %backup_file%
endlocal

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 Zeitplan Einstellungen Sicherheit	Task Zeitplan Einstellungen Sicherheit	Task Zeitplan Einstellungen Sicherheit
C:\WINDOWS\Tasks\MySQL_Backup.job	Um 12:00 wöchentlich jeden Fr, ab dem 06.05.2011	Ende von geplanten Tasks     Task jöschen, wenn er nicht emeut geplant wird     Task jöschen, wenn er nicht emeut geplant wird     Task bgenden nach:
Augühren: ErklappeXMMySQL_Backup bat	Iask ausführen:     Statzet:       wichentlich     ✓       12:00     ↓       Task wöchentlich ausführen	Leerlaufzeit
Kommerkar:	Jgde 1 te Woche am: Mo Sa Di So Mo	Falls der Computer nicht so lange im Leefauf ist, erneut versuchen Für maximal: Minge(n) Task beenden, wenn der Computer nicht mehr im Leefauf ist
Ausführen als: X3M\SVEN Kennwort festlegen		Energieverwaltung Task nicht bei Akkubetrieb starten Task beenden, sobald der Akkubetrieb einsetzt
<u>N</u> ur ausführen, wenn angemeldet Ø Åktiviert (geplanter Task wird zur angegebenen Zeit ausgeführt)	Mehrfache Zeitpläne anzeigen	Computer zum Ausführen des Tasks reaktivieren
OK Abbrechen Obernehmen	OK Abbrechen Obernehmen	OK Abbrechen Ubernehmen

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

## 20.4 Software "Datensicherung"

With the help of the software "Datensicherung", which is also available from digipaX, you can search and automatically burn files to CD / DVD based on specified dates. It is required that the software "Nero" is installed on the same computer.

čeitraum letzte Si von:		ng: 01	.07.20	07 - 31	.07.20	009		bis:								Dateisuche Verzeichnisiste: Fertig
0			Augus	200			•	•		Se	ptemt	oer 20	108		•	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	
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
36	3	4	5	6	7	8	9	40	29	ି 30 ି	1	2	3	4	5	
	nis: (	C:/Pro	gramme	e/Hipax	/Pic											Frei: 83.3.0 M Typ: DVD+R/RW; DVD-R/RW; Gesamt: 870.1 M
rennopl	tioner	1														
.aufwer	k:	SONY	DVD F	W DW	-G120A	•									•	
	В	rennge	schwin	digkeit:	4X (5	540 KE	3/s) 🔻		8	× Date	en nach	Brenn	vorgan	g über	prüfen	Disc 1 / 1 Checking
Disk-Nar	ne: [	15_09	2008													
													ichen u	- 10		Stop

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.

## 20.5 Monitoring the capacity status of the archive

## 20.5.1 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 is no longer has available space, a warning message is sent (once per session).

## 20.5.2 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.

# 21 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.

## 21.1 General rules of conduct

It is recommended to use as 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 medical company number), which is added to the patient's ID. At the receiving station, the DICOM router is given as the archive target.



## 21.2 Adding physician's identification tag to the patient's ID

#### 21.2.1 Without GDT

In the "Administrator / Others" configuration page, you can add any identification to each patient's ID. Neither the number nor the option activation can be subsequently changed.

#### 21.2.2 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's ID added to the patient's number.

Übersicht	xport   Import	GDT 2.1	
Satzart 6302		Grösse/Gewicht Dezimalzeichen Punkt	-
8402 8410 Patientenkennung <mark>Pat. N</mark> Bei Rücksprung nur Pat.			

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.

#### 21.3 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:



ExportModality2= *ExportFilter2= ImagePat NOT LIKE '%-1' AND ImagePat NOT LIKE '%-2'ExportConverter2= forward to CONQUEST3	ExportModality0 = ExportFilter0 = ExportConverter0 = ExportModality1 = ExportFilter1 = ExportConverter1 = ExportModality2 = ExportFilter2 =	= ImagePat NOT LIKE '%-1' AND ImagePat NOT LIKE '%-2'
--	--	---

Connections used for used 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's 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.

#### 21.4 Tips for worklists

If the receiving station system supports the downloading of jobs worklists from different worklists servers, you should also use separate working list servers as opposed to the same server with different titles AE (see Chapter 9 DICOM worklist) genutzt werden.

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,



"ARZT1" and for list 2, "ARZT2." If the system receives all jobs, they are displayed without filtering. In the case of physician 1's system, as a filter for jobs from the worklist, enter the station name "ARZT1", so that only his/her jobs are received. In the case of a physician 2, it should appropriately be entered, "ARZT2."

# 22 Transferring the image

This module is used to transmit to their own image archive, that for example, has been received from an external device. To use this, you must activate the "Image Transfer" license module.

## 22.1 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 receiving the image does not work 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.

#### 22.2 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 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 wait 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.

#### 22.3 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 jobs from the worklist. 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 jobs from the worklist."



# 23 System commissioning

## 23.1 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.

## 23.2 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.

## 24 Image assignment correction

If the image has been mistakenly assigned to the incorrect patient, the user is unable to correct this. This is the job of the administrator. For this purpose, it is necessary to change the appropriate tags in the DICOM image.

#### 24.1 General procedure

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.

#### 24.2 Backing up data and removing invalid images

Patient's ID can be determined in digipaX or possibly also in patient management. In Conquest, you can then use the ID on the "Browse database" page, select the patient who has improperly assigned images. Patient images can be scrolled here (you can use "Force display of (large) image" in the context menu.) Incorrectly assigned images you can then determine the file name – context menu "View or edit database", the "OBJECTFILE" filed in the table of images. **All** patient's files, including those assigned correctly, you should be copied to a separate folder (e.g. C:\Fehler), and then removed from Conquest using the "Delete this patient" in the context menu.

#### 24.3 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	Gender 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 (eg "1" or ".1")

Save the changed file.

This procedure must be repeated for all files assigned incorrectly.

## 24.4 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.

# 25 Deleting images from the database

Search the conquest for the image to be removed. It is best to use the patient's ID for this purpose. In the image context menu select "Remove image from database." If the file also has to be physically removed from the disc, you should find the specified in the dialogue file in the Conquest server data directory. After finding the file, in the dialogue confirm whether the image is actually to be removed by typing "Yes", and then delete the file on your hard disk as well.

Usually, you must also delete the file from the disc, because otherwise with the eventual rebuild of the image database, it will be downloaded back to the database.

# 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 registry under the following key:

HKEY\_CURRENT\_USER\Software\digipaX\digipaX

Furthermore, when working, the following path is used (e.g. saving presets, user-defined texts):

C:\Dokumente und Einstellungen\<Nutzername>\Anwendungsdaten\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, this path is: Users $\langle Nutzername \rangle AppData \rangle Roaming$ 

## 26.3 Transferring configurations

After logging into digipaX as an 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, provide the following password:

digi4admin

The system here distinguishes between uppercase and lowercase letters.

The software can be started with the program parameter /a, so that administrator rights are immediately given without having to log on.



**Product:** digipaX

Manufacturer: digipaX GmbH Bitterfelder Str. 12 04129 Leipzig

The product is CE marked: CE 0494

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