

4.11 Configuring Devices (part 1) [Online/Offline]



REQUIRED TIME:
Approx. 15 min




NOTE:

When configuring a network device (e.g. RIS/PACS), use the field *Host Name* (not IP address):

<input checked="" type="radio"/>	Host Name:	<input type="text" value="localhost"/>
<input type="radio"/>	IP Address:	<input type="text" value=" . . ."/>

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Additionally the windows `hosts` file has to be updated:

1. Go to `C:\WINDOWS\system32\drivers\etc`
2. Double-click the file `hosts`.
3. Choose the Editor  to edit the file.
4. Go to the very end of the displayed text and add the IP-addresses and hostnames of the network device.
5. Save and close the `hosts` file.

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**NOTE:**

Following steps need to be performed to configure most of the devices.

If you read this document on the computer, click the following links to read step by step instructions. If you read a print out, continue to next page:

Checkpoints for In-Room NX Workstation:	See section
1. Select Character Sets	4.11.1
2. Monitor	4.11.2
3. ID Tablet	4.11.3
4. Printer	4.11.4
5. Archive	4.11.5
6. Storage Commit	4.11.6
7. Same SOP UID for presentation and for processed image	4.11.7
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Checkpoints for Central Monitoring System:	See section
1. Monitor	4.11.2
2. Export Destination	4.11.9
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4. NX Rooms	4.11.12
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4.11.1 Select Character Sets

General Configuration → Workstation settings → General Settings

Select the character sets NX has to support.

This is the list of DICOM character sets to be used for querying the RIS (DICOM RIS only), MPPS and Archiving. The NX Station will only send out characters which are defined in the selected character sets.

4.11.2 Monitor

For further information read chapter Key User Help → Configuring Devices connected to NX → *Configuring Monitors* in the NX Online Help.

4.11.3 ID Tablet

For further information read chapter Key User Help → Configuring Devices connected to NX → *Configuring ID Tablets* in the NX Online Help.



NOTE:

The ID Tablet will not be operational before the PC has been rebooted!

4.11.4 Printer

NX is installed with a complete list of supported printer types. If the printer type is not available on the system, and a file describing the printer type is available, the printer type can be added to the system by the service engineer.

Refer to Chapter 05 Appendices, section “Printer Model Files”. Note that on NX for Mammography, different printer types are available than on NX for GenRad.

Go to Devices → Add a new printer and select the printer type. For further information read chapter Key User Help → Configuring Devices connected to NX → *Configuring Printers* in the NX Online Help.



NOTE:

True size printing on Drystar 3000 requires installation of an additional PMS-file on the printer!

Refer to the Service Documentation of Drystar 3000 for more information.

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**NOTE:**

All Drystar printer models (apart from DI3000) assume that the printer has A#sharp. There are no separate printer models for non-A#sharp Drystar printers anymore. If a Drystar printer has to be added that doesn't have A#sharp, refer to

AGFA HEALTHCARE Connectivity Release Document

NX (x.x.xxx) GENRAD applications to Drystar 4500, 5500, 5300 and 5302 (Document No. 001083 Revision 1.2)

for configuration instructions.

See 7.1 "How to find Connectivity Information on MedNet")

4.11.5 Archive

NX is installed with a list of preconfigured archive types and a set of generic archive types. If the archive type is not available on the system, a generic archive type can be selected. If a file is available describing the archive type, the archive type can be added to the system by the service engineer.

Refer to the chapter 05 Appendices, section "Install new device models"

Go to Devices → Archive and click <New> to add a new archive and select the archive type.

For further information read chapter Key User Help → Configuring Devices connected to NX → Introduction → *Configuring the list of Archives* in the NX Online Help.

**NOTE:**

When using Musica2 image processing (Musica2 license is active), the archive devices have to be configured for using P-values!

Sending Musica2-processed images as OD-rel data to the archive will cause

- background showing contouring and artifacts
- bones having too little contrast
- skin lines too strong and a Halo around the skin line.

Refer to section "How to configure P-Values" in *Chapter 5 Appendices* for more information on P-values.

4.11.6 Storage Commit

To activate DICOM Storage Commit on an existing archive, you have to

1. In *Device Configuration* → *Archive* → *Device Settings* → *Storage Commit* check the box and enter the Hostname, AE Title and Port Number of the Archive, where NX will send the Storage Commit Request to.
2. In *General Settings* → *Workstation Settings* → *Storage Commit*: check the box and enter the Port Number on which NX will be listening for Storage Commit messages.

The storage commit-port has to be different from 104, the storage port!. Choose another port number, e.g. 105.

The AE Title is always the same as the Performed Station AE Title.

3. On the Archive, configure the Performed Station AE Title and storage commit-port number to send Storage Commit messages to.



NOTE:

Some archives (e.g. IMPAX) do not offer an extra port number configuration for storage commit.

When configuring these archives (NX AE Title, NX hostname, NX port number...), use the port number you have chosen for storage commit on the NX (e.g. 105 in the example above).

4.11.7 Same SOP UID for presentation and for processed image

This is an advanced setting:

This flag is only applicable in case you send out both processed and unprocessed images.

According to the DICOM standard, different SOP instance UIDs should be used when sending out a DX image 'processed' and 'unprocessed'. However, not all DICOM systems support this, hence this setting.

4.11.8 RIS and MPPS

Adding a RIS connection:

1. Open the *Configuration Tool* → *Device Configuration*.
2. Select RIS from browser pane.
3. Click **<New>** (assuming no RIS is configured yet).
4. Enter a name for the RIS connection.

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5. Select a default Mapping.
6. Select if your RIS is DICOM or non-DICOM.
7. Click <OK>.

Configuring a DICOM RIS:

To configure the query filter to define which records are fetched from the RIS fill the following fields: "SPS Start Date", "Modality" and "Scheduled Station AE-Title".

The screenshot shows the 'Connection Type Settings' dialog box. It has two tabs: 'Host' (selected) and 'IP'. Under the 'Host' tab, there are several fields: 'Host Name' (localhost), 'IP Address' (empty), 'AE Title' (BROKER), 'MWL PortNumber' (3320), 'Enable SSL' (unchecked), 'Automatic Query' (15 Min), and 'Enable SPS Filtering' (unchecked). On the right side, there are three dropdown menus: 'SPS Start Date' (empty), 'Modality' (CR), and 'Default Scheduled Station AE-Title' (StationAETitles). Below these is a list box for 'Scheduled Station AE-Titles' which is currently empty. To the right of the list box are three buttons: 'Add', 'Set as Default', and 'Remove'.

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For further information also read chapter *Configuring the RIS* in the NX Online Help.

Configuring a non-DICOM RIS

1. Select the type of RIS query (Accession number, data file, delimited worklist, user program, xml worklist).
2. Depending on the type of RIS query, the Configuration Tool will ask for a set of configuration settings to be filled in.
3. To support a non-DICOM RIS, a network drive can be used to store the RIS data file to which NX requires READ ACCESS permissions.

To support the 'accession number' option or the 'remove data file' option in the NX Configuration tool this requires FULL ACCESS permissions.

See Section "Access to Network Drive for non-DICOM RIS" in Chapter 5 Appendices for the procedure to configure the access to a network drive.

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**NOTE:**

For a RIS using Delimited Worklist, make sure that the parameter file is limited to the fields that are sent out by the RIS. If more fields are listed in the parameter file than are sent out by the RIS, the worklist query results in an error.

SPS Filtering

When this flag is enabled, the NX checks - during receipt of new worklist items from the dicom RIS - whether a 'started' or 'completed' SPS exists already on NX:

- a 'started' SPS is one with the 'eye' icon in front (in the worklist)
- a 'completed' one can be found in the closed list

Checking on SPS equality is done by comparing 6 fields of two SPSs:

- patientname
- sex
- birthdate
- patientid
- spsid
- studyuid

If it already exists, then the received SPS is NOT added again to the NX worklist (filtered away).

When this flag is disabled (default behavior) then this checking is not done and possible double items are added to the worklist:

E.g. you could have two entries in the worklist with name 'John Doe', one with an 'eye' icon in front and one without this icon.

**NOTE:**

this filtering only works with a Dicom RIS which sends a value for studyuid, for a non-dicom RIS no SPS can be filtered away.

4.11.9 Export Destination

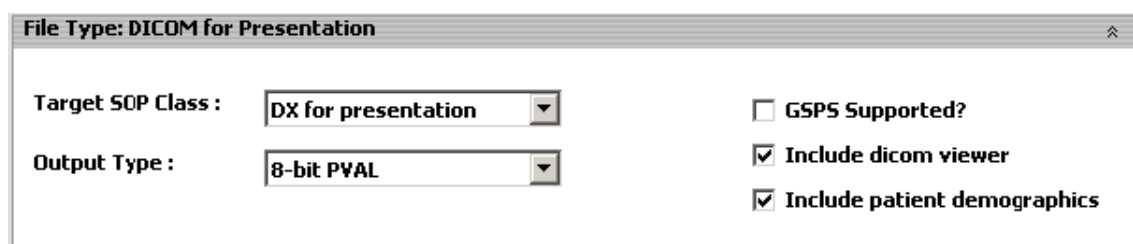
For further information read chapter *Configuring Export Destinations* in the NX Online Help.

Native NX Export:

This pane is used to configure the Native NX Export functionality, referred to as 'export images' in the NX Viewer's main menu:

DICOM export:

It is possible to configure the desired SOP class when exporting images in DICOM format.



The screenshot shows a dialog box titled "File Type: DICOM for Presentation". It contains two dropdown menus on the left: "Target SOP Class" with the value "DX for presentation" and "Output Type" with the value "8-bit PYAL". On the right side, there are three checkboxes: "GSPS Supported?" (unchecked), "Include dicom viewer" (checked), and "Include patient demographics" (checked).

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4.11.10 Priors Viewer



NOTE:

This functionality is only available under the Priors License.

This section describes what should be configured in the NX station to be able to access the Viewing Priors interface.

The precise configuration depends on the version of IMPAX (or WEB1000) that is installed (and which needs to be specified in the "Site Readiness Check" document.)

Use this dialog in the Configuration Tool environment "User Interface Configuration" to activate Priors:

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URL WEB1000 R4.1& R5.x:

http://<WEB1000server>/agfa/QueryForStudies.jhtml?propertiesfile=QueryForStudiesNX&whereclause=

URL IMPAX 6.2:

AgfaImpaxBridge://C:\Program Files\Agfa\AgfaImpaxBridge\BridgeRemote.exe/QueryForStudies?configfile=bridge_settingsNX.xml&domain=Agfa Healthcare

**NOTE:**

Following information is provided by HealthCare Services Europe:

- The name or IP address (<WEB1000 server>)
- User Name
- Password

**NOTE:**

The first time Viewing Priors is used, some dialogs will pop up to configure the communication to the WEB1000 (e.g. Java install, certificates,...). These dialogs can be confirmed.

This will happen for each different user!

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4.11.11 Secure Communication

Please refer to Chapter 5 Appendices “Secure Communication” for detailed configuration procedures.

4.11.12 NX Rooms (only applicable for CMS)

1. In the Device configuration section, select *Rooms* in the left-hand pane.
2. Make sure the different NX systems to which you want to connect from the CMS are up and running at this time.
3. Press the <scan...> button.

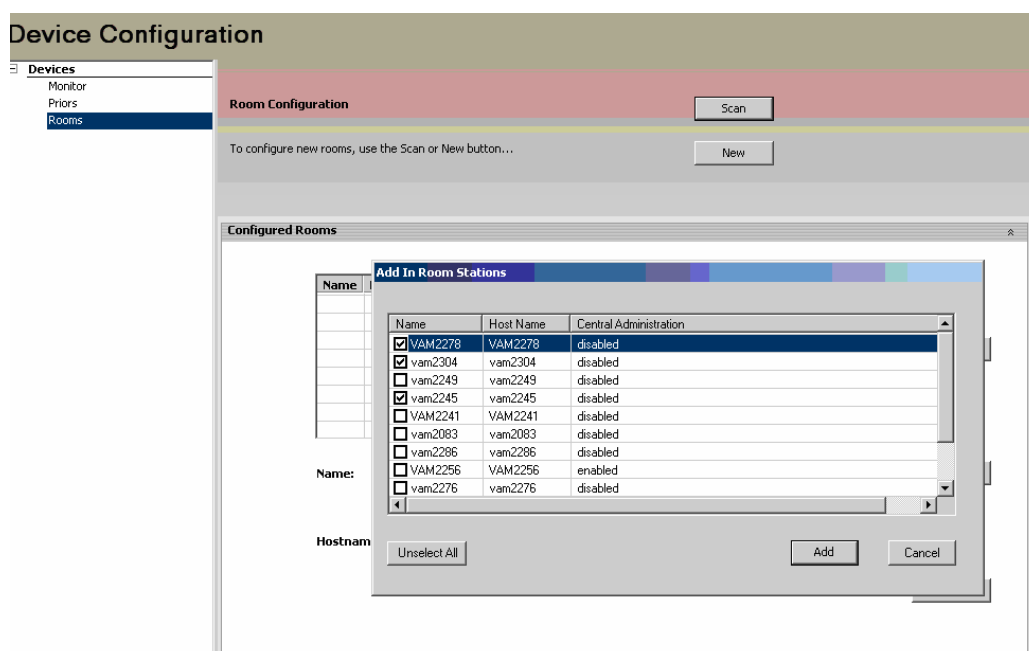


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4. Add the systems you want to monitor from the CMS.
5. Change the room names to meaningful names instead of the technical host name. These room names are the ones you will see in the CMS. The host names will not be visible.

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4.12 Configure Exam Tree [Online/Offline]



REQUIRED TIME:

Approx. 30 min (depending on complexity of exam tree)

4.12.1 Converting a QS Exam Tree into an NX Exam Tree

See Chapter 5 Installation and Configuration - Appendices, section "Import available configuration settings" for more information.

4.12.2 Configuring the Exam Tree

If you don't have an exam tree available or if you want to customize the imported exam tree, use the Configuration tool.

For further information read Key User Manual Chapter *Configuring the exam tree*.



NOTE:

Changes to the Modality Settings (X-Ray Device) only apply to examinations that are started after the change is activated. Already existing examinations are not affected!

4.13 Configuring Devices (part 2) [Online/Offline]



REQUIRED TIME:

Approx. 15 min



NOTE:

Following steps need to be performed to configure the digitizer(s).

If you read this document on the computer, click the links to read step by step instructions. If you read a print out, continue to next page:

Checkpoints:	See section
1. DICOM Digitizer	4.13.1
2. TWAIN Digitizer	4.13.2
Back to Flowchart	

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4.13.1 DICOM Digitizer



NOTE:

- This functionality is only available under the Digitizer License.
- DICOM digitizers: SOLO, COMPACT, COMPACT PLUS, CR-25, CR-75, CR 85-X, CR 35-X

To activate a system with a DICOM digitizer, configuration is needed both on NX and on the digitizer. The digitizer is configured via a cpf-file that is created using the CCM-tool. There is no direct export functionality of configuration data from NX that can be imported on the digitizer.

4.13.1.1 Configuring Digitizer on NX

Read the Key User Manual Chapter *Configuring Digitizers* to configure NX for receiving images from a DICOM digitizer.

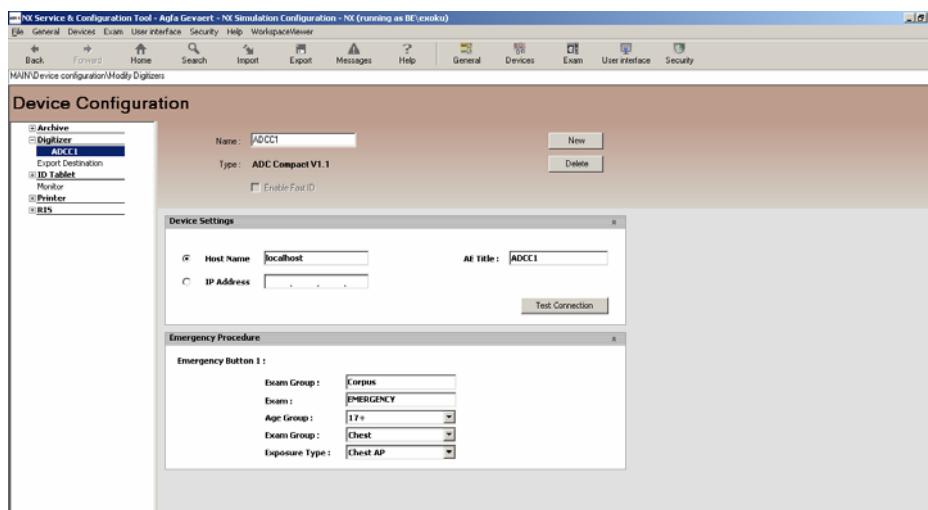


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IMPORTANT:

Configuring the Emergency Procedure is ALWAYS required, even for digitizers that do not have any emergency buttons. The reason for this is that these settings will be used in case an image comes in that was not identified on this NX station.

In case of **ADC SOLO** and **CR25.0**, two emergency buttons need to be configured which are used for sending emergency images to NX.

The Emergency Procedure for SOLO, CR25.0 configuration requires that the Exam Group and Exam entered in the NX Configuration Tool have to match the Exam and Subexam that are configured in the cpf-file and linked to the emergency button.

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**NOTE:**

- The NX software has a built-in emergency feature that allows more flexibility. The user has to trigger emergency using the Emergency Exam button in the Worklist environment. Refer to the Key User Manual Chapter *Workflow Management* for configuring the Emergency Procedure on NX.
- On any DICOM digitizer, the configured settings of the Emergency Procedure will be used as default processing for images that are sent to the NX workstation, but that were not identified on the NX workstation (e.g. in case of wrong routing).

Workstation settings pane:

The screenshot shows the 'General Settings' pane in the NX Service & Configuration Tool. The 'Workstation settings' section is expanded, showing various configuration options for the workstation. The 'Site settings' section is also visible, showing the 'Workstation settings' pane. The 'Predefined lists' section is at the bottom, showing 'Custom markers'.

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Description of the fields in the general Workstation settings screen and how they match with the CCM tool:

ID No.	Field name in the NX Configuration tool	Field name in the CCM tool
1	Processing station name: NX will write this onto the cassette. The dicom digitizer uses this to resolve to which station it needs to send (see cpf file). Fill in a dummy value when a twain digitizer is connected (as this field is then not used)	Processing station name.
2	Performed station AE title: The NX dicom AE title. Used for dicom communications to archive and RIS (NX as SCU). Further also used in dicom digitizer scenario (NX as SCP).	Processing station AE title
3	Port: The dicom-SCP port NX is listening on for dicom digitizer communication.	
4	ID Station name: Only used for Fast ID with dicom digitizers. ('Fast ID' means: digitizer does ID instead of ID tablet).	ID Station name
5	Fast preview AE title The NX AE title for fast preview (SCP)	Precheck AE title
6	Fast ID AE title	ID station AE title
7	Character set Not used when communicating with digitizers. (Used for communication with RIS and PACS systems.)	N/A
8	N/A	Precheck name

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**NOTE:**

Enable automatic cassette identification (auto ID):

Auto-ID means that the ID-ing is done immediately after inserting the cassette (without having to click the ID button on NX). It is supported for ID tablets. From NX2.0.68XX onwards it is also supported on digitizers (when the digitizer supports it, eg. DX-S). For this, the Fast ID flag must be enabled in the digitizer setup ('Fast ID' means: digitizer does ID-ing).

When the cassette is inserted and the user is not working in the examination screen of NX a dialog will come up telling the user to go to Examination screen to ID. He must manually press ID button in this case, otherwise the cassette remains blocked in the digitizer.

4.13.1.2 Configuring the Digitizer

To configure a DICOM digitizer for sending images to NX, we can identify three scenarios:

- Installation of NX at a new site, from scratch
 - There's no existing cpf-file; the CCM tool will automatically create an empty cpf-file (see the documentation of the CCM tool for more information).
- Adding a digitizer or NX workstation to an existing site
 - Start from the existing cpf-file that has been loaded on the digitizer(s)
- Mixed QS-NX environments
 - Start from the existing cpf-file that has been loaded on the digitizer(s), that may be generated by QS

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4.13.1.3 Adding the NX Station to the cpf-file Configuration

1. Start the CCM tool (*Start → AGFA → Service*).
2. If you start the CCM for the first time, click *Clear all tables* to be able to select *Read CPF*.
3. First, press the 'Read CPF' button and select the cpf-file you want to add an extra NX station to.

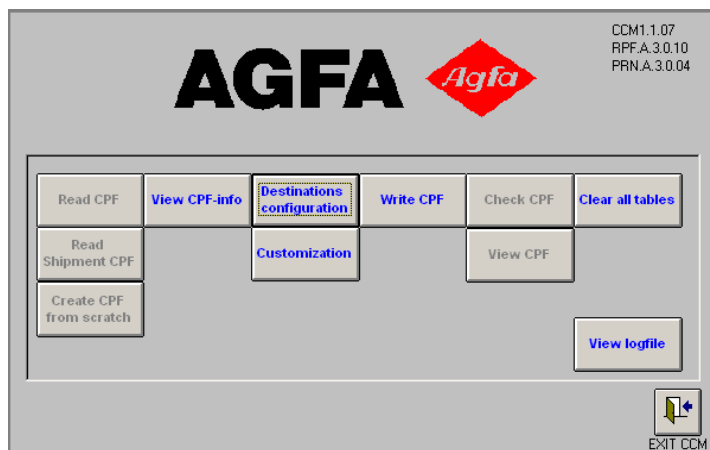


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Next, press the <Destination configuration> button.

4. Following screen appears.

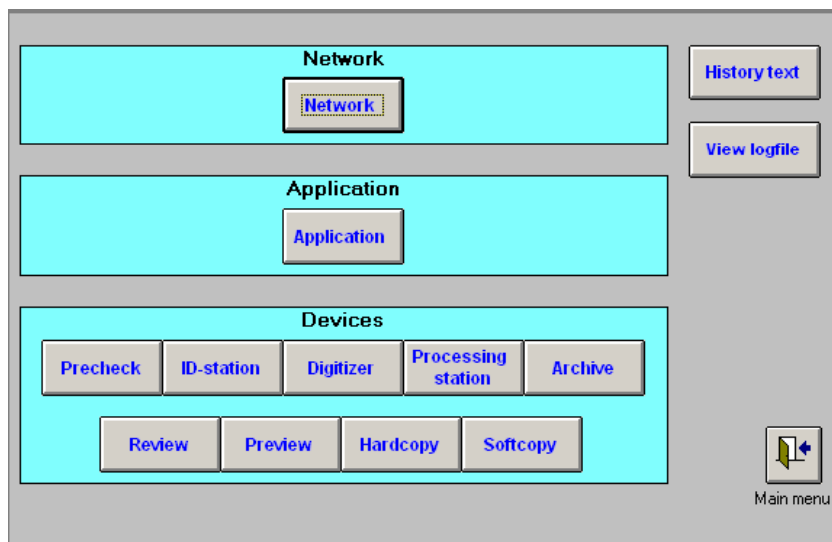


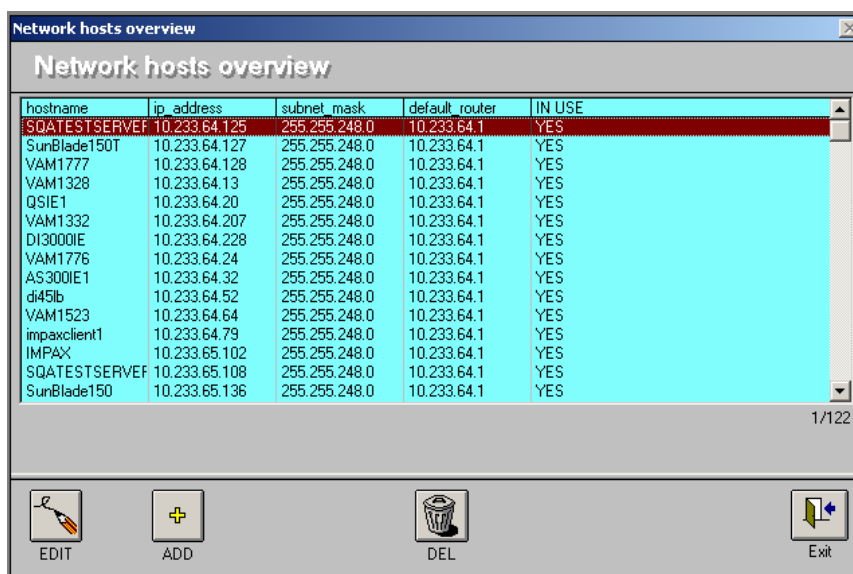
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Press the <Network> button.

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5. The network overview opens up.



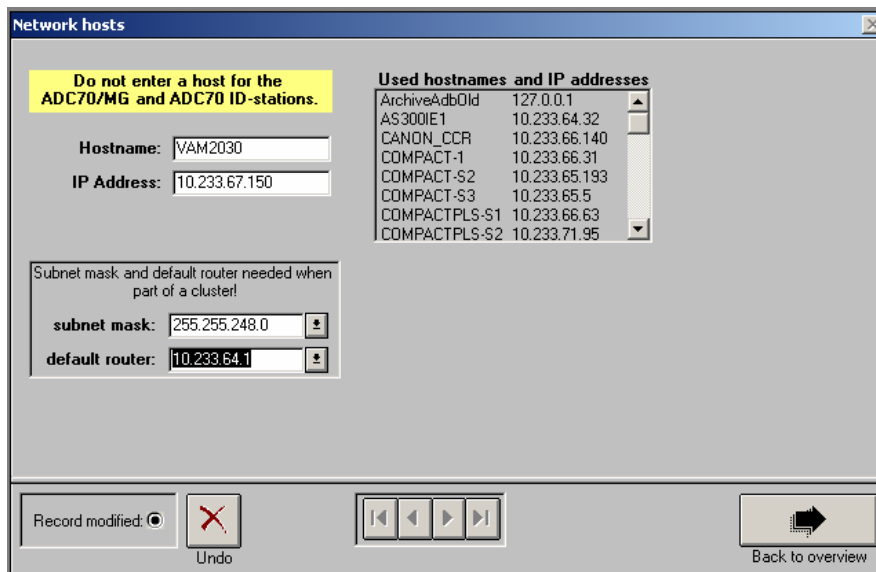
The screenshot shows a window titled "Network hosts overview" with a table of network hosts. The table has five columns: hostname, ip_address, subnet_mask, default_router, and IN USE. The first row is highlighted in red. Below the table are four buttons: EDIT, ADD, DEL, and Exit.

hostname	ip_address	subnet_mask	default_router	IN USE
SQATESTSERVEF	10.233.64.125	255.255.248.0	10.233.64.1	YES
SunBlade150T	10.233.64.127	255.255.248.0	10.233.64.1	YES
VAM1777	10.233.64.128	255.255.248.0	10.233.64.1	YES
VAM1328	10.233.64.13	255.255.248.0	10.233.64.1	YES
QSIE1	10.233.64.20	255.255.248.0	10.233.64.1	YES
VAM1332	10.233.64.207	255.255.248.0	10.233.64.1	YES
DI3000IE	10.233.64.228	255.255.248.0	10.233.64.1	YES
VAM1776	10.233.64.24	255.255.248.0	10.233.64.1	YES
AS300IE1	10.233.64.32	255.255.248.0	10.233.64.1	YES
di45lb	10.233.64.52	255.255.248.0	10.233.64.1	YES
VAM1523	10.233.64.64	255.255.248.0	10.233.64.1	YES
impacclient1	10.233.64.79	255.255.248.0	10.233.64.1	YES
IMPAX	10.233.65.102	255.255.248.0	10.233.64.1	YES
SQATESTSERVEF	10.233.65.108	255.255.248.0	10.233.64.1	YES
SunBlade150	10.233.65.136	255.255.248.0	10.233.64.1	YES

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Press the <ADD> button.

6. Enter the hostname and IP address of the NX workstation you want to add.



The screenshot shows a window titled "Network hosts" with a form for adding a new host. It includes fields for Hostname, IP Address, Subnet mask, and default router. A list of "Used hostnames and IP addresses" is shown on the right. At the bottom, there are buttons for "Record modified", "Undo", and "Back to overview".

Do not enter a host for the ADC70/MG and ADC70 ID-stations.

Hostname:

IP Address:

Subnet mask and default router needed when part of a cluster!

subnet mask:

default router:

Used hostnames and IP addresses

ArchiveAdbOld	127.0.0.1
AS300IE1	10.233.64.32
CANON_CCR	10.233.66.140
COMPACT-1	10.233.66.31
COMPACT-S2	10.233.65.193
COMPACT-S3	10.233.65.5
COMPACTPLS-S1	10.233.66.63
COMPACTPLS-S2	10.233.71.95

Record modified: ☒ Undo

Back to overview

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Click on <Back to overview>.

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7. Go back one menu –level.

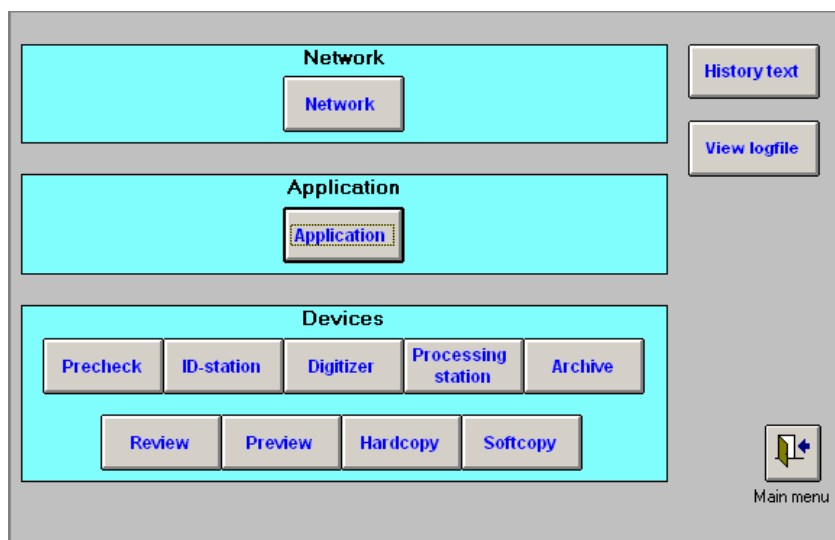


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Select <Application>.

8. The application info screen opens up.

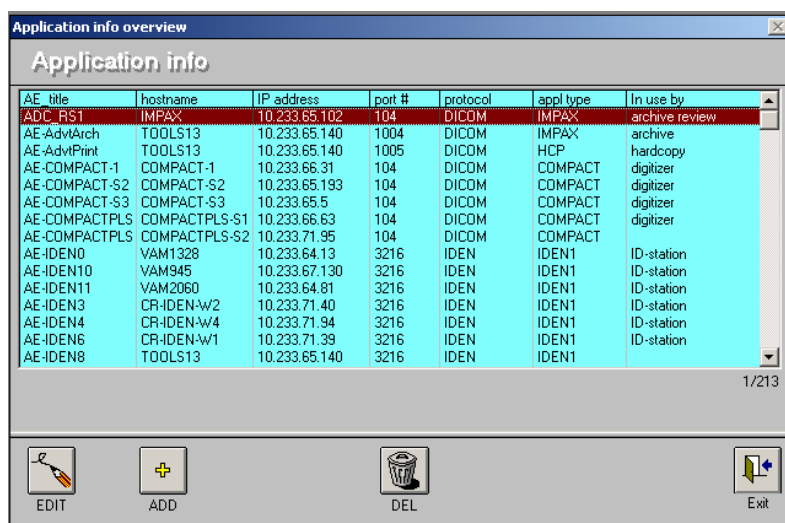


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Press the <ADD> button.

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9. Enter the AE title of the NX workstation : **Performed station AE title** (ID: 2).

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Make sure that the capitalisation is identical to the way that you have added it in NX.

- Select the IP address of the NX workstation.
- Select “ADC-QS” as application type.
- Select “DICOM” as protocol.

Finally, enter the port number on which NX is listening (This should match with the Storage port in the workstation settings pane of the NX Configuration tool).

Click on **<Back to overview>**.

10. The application info screen appears again.

AE title	hostname	IP address	port #	protocol	appl type	In use by
ADC_RS1	IMPAX	10.233.65.102	104	DICOM	IMPAX	archive review
AE-AdvArch	TOOLS13	10.233.65.140	1004	DICOM	IMPAX	archive
AE-AdvPrint	TOOLS13	10.233.65.140	1005	DICOM	HCP	hardcopy
AE-COMPACT-1	COMPACT-1	10.233.66.31	104	DICOM	COMPACT	digitizer
AE-COMPACT-S2	COMPACT-S2	10.233.65.193	104	DICOM	COMPACT	digitizer
AE-COMPACT-S3	COMPACT-S3	10.233.65.5	104	DICOM	COMPACT	digitizer
AE-COMPACTPLS	COMPACTPLS-S1	10.233.66.63	104	DICOM	COMPACT	digitizer
AE-COMPACTPLS	COMPACTPLS-S2	10.233.71.95	104	DICOM	COMPACT	
AE-IDEN0	VAM1328	10.233.64.13	3216	IDEN	IDEN1	ID-station
AE-IDEN10	VAM945	10.233.67.130	3216	IDEN	IDEN1	ID-station
AE-IDEN11	VAM2060	10.233.64.81	3216	IDEN	IDEN1	ID-station
AE-IDEN3	CR-IDEN-W2	10.233.71.40	3216	IDEN	IDEN1	ID-station
AE-IDEN4	CR-IDEN-W4	10.233.71.94	3216	IDEN	IDEN1	ID-station
AE-IDEN6	CR-IDEN-W1	10.233.71.39	3216	IDEN	IDEN1	ID-station
AE-IDEN8	TOOLS13	10.233.65.140	3216	IDEN	IDEN1	

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In case you have **NOT** configured fast preview on NX, you can directly jump to step 14. Note however that you always need to enter a fast preview AE title in NX Service and Configuration Tool environment "General Settings", whether you really use it or not.

Otherwise, press the **<ADD>** button.

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11. Enter the **Fast preview AE title** ^(ID:4) you have configured in the NX configuration tool / workstation settings pane.

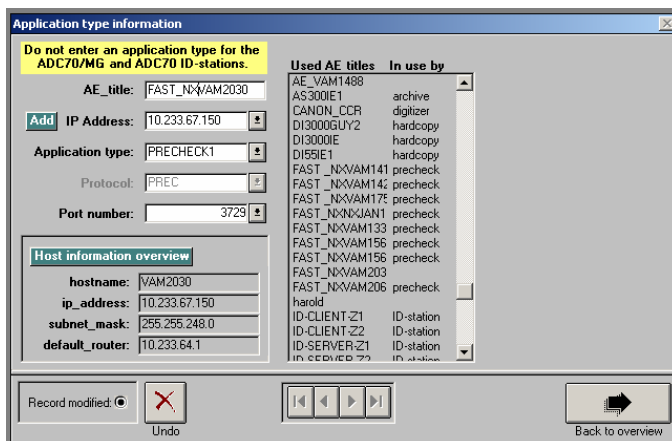


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- Select the IP address of the NX workstation.
- Select 'Precheck1' as application type.
- Fill in the Fast preview port number of NX (located next to the fast preview AE title), which you have configured in the NX configuration tool / workstation settings pane.

Finally, return to the main window.

12. Go to the main window.

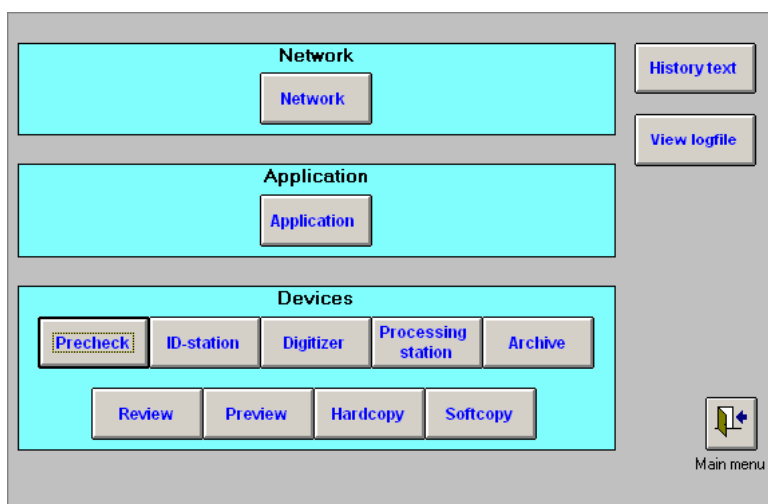


figure 45

- Press the <Precheck> button in order to configure fast preview .
- Press the <ADD> button to add an NX precheck station.

Clarification : Fast preview is called "precheck" in the CCM tool.

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13. Enter the **Fast Preview AE title** ^(ID:4) you have just added in the previous step.

figure 46

As destination, enter the **ID Station name** ^(ID:3) you have configured in the NX Configuration tool.

Click on **<Back to overview>**.

14. Go to the main window.

figure 47

In case you **don't want to configure the digitizer for Fast ID**, you can skip this section and go directly to step 18.

Press the 'Application' button to add a Fast ID AE title and press the **<ADD>** button in the AE title overview.

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15. Enter the **Fast ID AE title** ^(ID:5) that you have configured on NX in the Configuration tool / workstation settings pane.

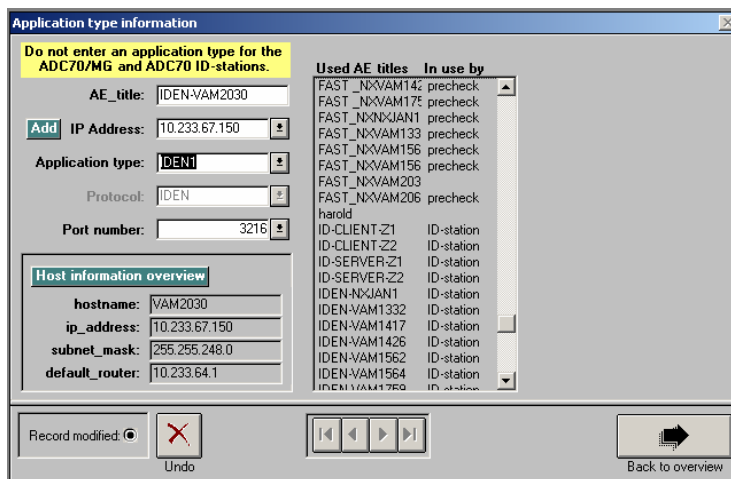


figure 48

- Select the ip address of the NX workstation
 - Select 'IDEN1' as application type.
 - Enter the Fast ID port number that you have configured on NX in the Configuration tool / workstation settings pane.
 - Return to the main menu.
 - Click on <Back to overview>.
16. Go to the main window.

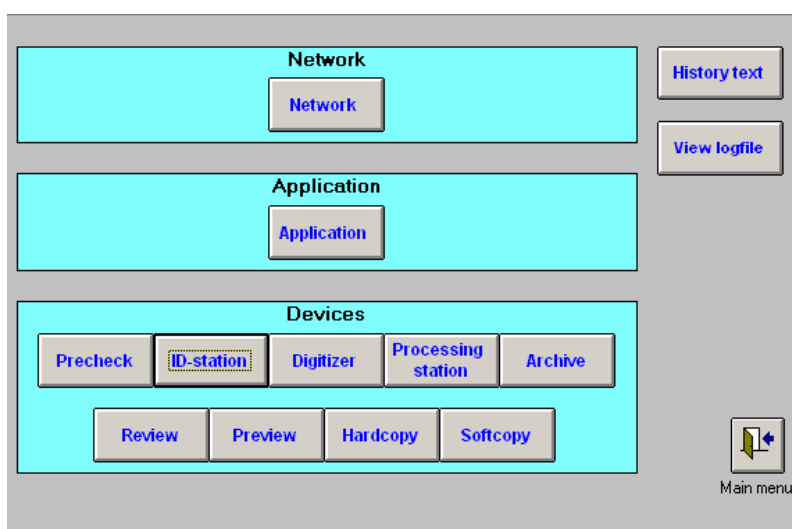


figure 49

Press the <ID-station> button and press the <ADD> button to add a new identification station.

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17. Following screen opens up.

figure 50

- Select the identification station AE title (**Fast ID AE title** ^(ID:5))
- Enter the name **ID Station name** ^(ID:3) as configured in the workstation settings pane in the NX Configuration tool.

In case you have also configured Fast Preview, select here the **Fast Preview AE title** ^(ID:4) you have created in earlier steps.

18. Go back to the main window.

figure 51

In the main window, press the <Processing station> button and press the <ADD> button.

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19. Following screens opens up.

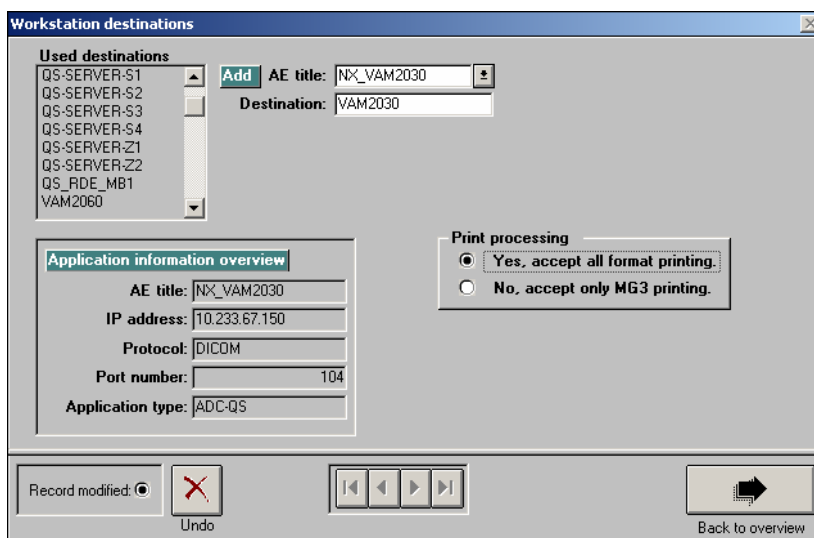


figure 52

- Select the **Performed Station AE title** ^(ID:2) from the list.
- Enter the correct **Processing station name** ^(ID:1) in the 'destination' field (make sure that the capitalization is IDENTICAL to the way that you have entered it in the NX configuration tool / workstation settings pane)
- Skip the print processing section, as it is not applicable.
- Go back to the main menu.

20.

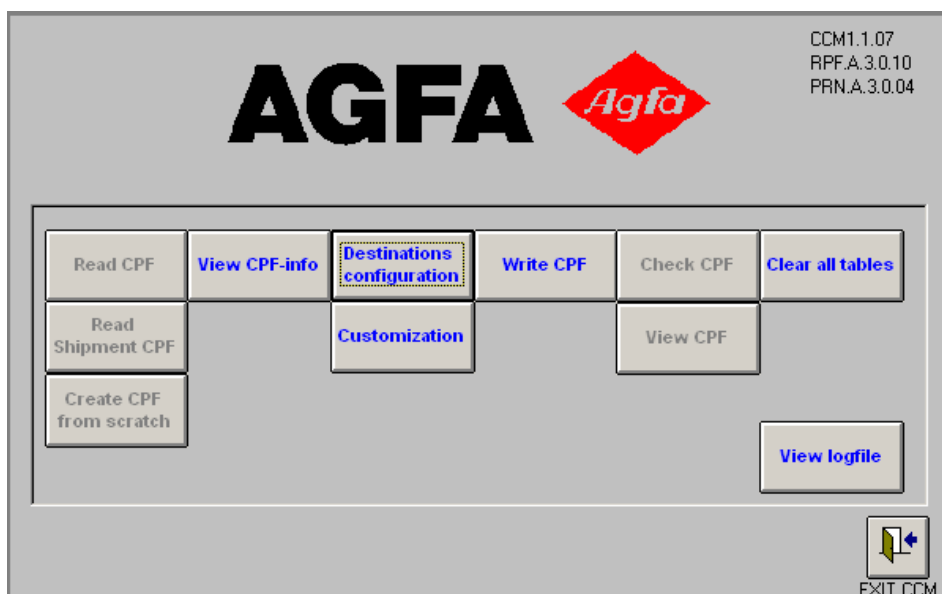


figure 53

Press the <Write CPF> button to finish the configuration.

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4.13.1.4 Load the cpf-file on the digitizer(s)

1. Upload the modified cpf-file onto the digitizer : Refer to service documentation of the digitizer.

4.13.1.5 Extra Configuration needed for fast preview functionality

1. Go to the service menu and enable the 'Precheck' feature.
2. Restart the digitizer in case you have not configured direct ID, otherwise perform the next step.

4.13.1.6 Extra Configuration needed for direct id functionality

1. Go to the service menu and enable the 'Direct ID' feature.
2. Restart the digitizer

4.13.2 TWAIN Digitizer



NOTE:

This functionality is only available under the Digitizer License.

TWAIN digitizers: DX-S, CR 30-X

4.13.2.1 Configuring TWAIN Digitizer on NX

For further information read the Key User Manual Chapter "Configuring Digitizers" to configure NX for receiving images from a TWAIN digitizer

A lot of settings in the general settings / workstation settings pane in the NX Configuration tool are not used when working with Twain-type of digitizers (e.g. DX-S).

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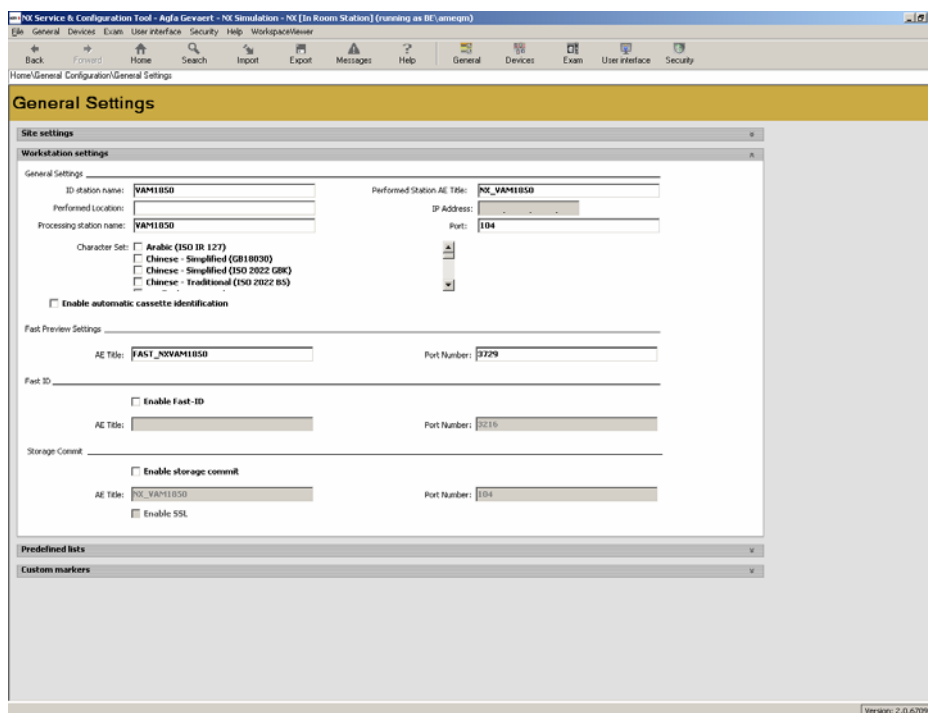


figure 54

Following fields are not used with Twain digitizers but nevertheless require a value to be filled in (fill in dummy value)

- ID Station name
- Processing station name
- Port
- Fast preview settings
- Fast ID



NOTE:

Enable automatic cassette identification (auto ID):

Auto-ID means that the ID-ing is done immediately after inserting the cassette (without having to click the ID button on NX). It is supported for ID tablets.

From NX2.0.68XX onwards it is also supported on digitizers (when the digitizer supports it, eg. DX-S). For this, the Fast ID flag must be enabled in the digitizer setup too ('Fast ID' means: digitizer does ID-ing).

Note that at operation time:

When the cassette is inserted and the user is not working in the examination screen of NX: a dialog will come up telling the user to go to Examination screen to ID. He must manually press ID button in this case, otherwise the cassette remains blocked in the digitizer.

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4.13.2.2 Configuring the Digitizer

Refer to the service documentation of the digitizer.

Configuring the Emergency Procedure is required if on DX-S the emergency button is used for sending emergency images to NX.

4.14 Emergency Configuration [Online/Offline]



REQUIRED TIME:

Approx. 5 min

For further information read chapter “General Configuration” in the NX Online Help.

4.15 General Security Configuration [Online/Offline]



REQUIRED TIME:

Approx. 5 min

For further information read chapter “Configure Security Issues” in the NX Online Help.

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4.16 Configure GUI [Online/Offline]



REQUIRED TIME:

Approx. 20 min



NOTE:

Following steps need to be performed to configure the GUI.

- Depending on the application type of the workstation, some functions may not be available.
- If you read this document on the computer, click the links to read step by step instructions. If you read a print out, continue to next page:

Click User Interface Configuration to open the window for configuring the NX GUI:

Checkpoints:	See section
1. General Settings	4.16.1
2. Manage Worklists Environment → General Settings	4.16.2
3. Manage Worklists Environment → Worklist	4.16.3
4. Manage Worklists Environment → Closed Exams	4.16.4
5. Manage Worklists Environment → Search list	4.16.5
6. Configure Examination Environment → General Settings	4.16.6
7. Configure Examination Environment → Configure XRG Parameters	4.16.7
8. Configure Examination Environment → View Patient	4.16.8
9. Configure Examination Environment → Edit Patient	4.16.9
10. Configure Examination Environment → View Image Details	4.16.10
11. Configure Examination Environment → Edit Image Details	4.16.11
12. Configure Examination Environment → Compose Exam	4.16.12
13. Configure Examination Environment → Tools & Annotations	4.16.13
14. Configure Editing Environment → General Settings	4.16.14
15. Configure Editing Environment → Softcopy & Print View	4.16.15
16. Configure Editing Environment → Tools & Annotations	4.16.16
17. About IME settings for input fields	4.16.17
Back to Flowchart	

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4.16.1 General Settings

1. Under General Settings, click General Settings in the User Interface Configuration main screen and go to the Image Overview Pane or the Current Patient List pane.
2. Select the Patient Name-elements which will be used in NX (for example Prefix, First name, Middle name, Last name, Suffix).



NOTE:

The Last Name has to be put before the First Name, since the order of the names determines how the NX sorts the patient names in the GUI.

For Western languages, keep the default value "Normal" for Person Name Representation. For Asian languages, choose ideographic or phonetic.

3. Click the labels to be displayed in the Exposure thumbnail (empty thumbnail) and the Image thumbnail (thumbnail with image) of NX.
4. Select the elements that should accompany the Patient name in the Patient exam switch bar.

4.16.2 Manage Worklists Environment → General Settings

1. Under Worklist, click General Settings in the User Interface Configuration main screen.
2. Select "Show Manual Worklist" checkbox to show the Patient List in the user interface.
3. Select the action buttons to be shown in the Worklist overview.

4.16.3 Manage Worklists Environment → Worklist

1. Under Worklist, click Configure Worklist in the User Interface Configuration main screen.
2. Click the column to be configured. The selected column will be displayed with a grey contour.
3. Select or deselect the Show in UI check box.
4. Enter a new number in the position box to reposition the column.
5. Add a new label if necessary.
6. The columns Patient ID, Accession number and Exam description are preconfigured in the sense that they have a number of fixed fields of which you can only change the contents. Fields themselves cannot be changed.

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4.16.4 Manage Worklists Environment → Closed Exams

1. Under Worklist, click Configure Closed Exams in the User Interface Configuration main screen.
2. Click on the column to be selected. The selected column be displayed with a grey contour.
3. Select or deselect the Show in UI check box.
4. Reposition the column by entering a new number in the position box.
5. Add a new label if necessary.
6. The columns Patient ID, Accession number and Exam description are preconfigured in the sense that they have a number of fixed fields of which you can only change the contents. Fields themselves cannot be changed.

4.16.5 Manage Worklists Environment → Search list



NOTE:

Only applicable to NX CMS.

1. Under Worklist settings, click Configure Search list in the User Interface Configuration main screen.
2. Click the column to be configured. The selected column will be displayed with a grey contour.
3. Select or deselect the Show in UI check box.
4. Enter a new number in the position box to reposition the column.
5. Add a new label if necessary.
6. The columns Patient ID, Accession number and Exam description are preconfigured in the sense that they have a number of fixed fields of which you can only change the contents. Fields themselves cannot be changed.

4.16.6 Configure Examination Environment → General Settings

1. Under Examination, click General Settings in the User Interface Configuration main screen.
2. Select the Action buttons to be shown in the Examination pane.
3. Enter the parameters for consulting Prior Images information.

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4.16.7 Configure Examination Environment → Configure XRG Parameters

1. Under Examination, click Configure XRG Parameters in the User Interface Configuration main screen.
2. Select a label you want to configure.
In the NX user interface, a maximum number of 8 labels can be displayed. The selected label will become green.
3. Reposition the label if needed by entering another number and modify the other fields.

4.16.8 Configure Examination Environment → View Patient

1. Under Examination, click Configure Patient Pane in the User Interface Configuration main screen.
2. Select a label are you want to configure.
In the NX user interface, a maximum number of 8 labels can be displayed. The selected label will become green.
3. Reposition the label if needed by entering another number and modify the other fields. The ID field cannot be edited.

4.16.9 Configure Examination Environment → Edit Patient

1. Under Examination, click Configure Patient Pane in the User Interface Configuration main screen.
2. The data items for patient details are configurable separately for view and edit mode.
3. In the Edit mode, you can configure 8 data items by defining their position, label and content.

4.16.10 Configure Examination Environment → View Image Details

1. Under Examination, click Configure Image Detail Pane in the User Interface Configuration main screen.
2. Select a label that you want to configure.
A maximum of 16 labels can be displayed. The selected label will become green.
3. Reposition the label if needed by entering another number and modify the other fields.

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4.16.11 Configure Examination Environment → Edit Image Details

1. Under Examination, click Configure Image Detail Pane in the User Interface Configuration main screen.
2. The data items for patient and image details are configurable separately for view and edit mode.
3. In the Edit mode, you can configure 16 data items by defining their position, label and content.

4.16.12 Configure Examination Environment → Compose Exam

1. Under Examination, click Configure Add Image Pane in the User Interface Configuration main screen.
2. Select an age group for which you want to add exams.
3. Select one of the available exam pane fields.
A maximum of 20 Exam pane fields can be displayed.
The active field will become green.
4. Enter exposures.

4.16.13 Configure Examination Environment → Tools & Annotations

1. Under Examination, click Configure Tools in Examination in the User Interface Configuration main screen.
2. Select and position the tools and annotations you want to display in the examination user interface.

4.16.14 Configure Editing Environment → General Settings

1. Under Editing, click General Settings in the User Interface Configuration main screen.
2. Select the default viewing mode for viewing images in the Editing environment (print mode or normal mode). Also select this option to see the toggle buttons to switch between print and normal mode in the editing user interface.
3. Select the action buttons to be shown in the Editing window.

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4.16.15 Configure Editing Environment → Softcopy & Print View

1. Under Editing, click Configure Normal Mode & Print Mode in the User Interface Configuration main screen.
2. Select the properties of the Status Box in the Editing window of NX.

4.16.16 Configure Editing Environment → Tools & Annotations

1. Under Editing, click Configure Tools and Annotations in the User Interface Configuration main screen.
2. Select the tools and annotations to be displayed in the Editing window.

4.16.17 About IME settings for input fields

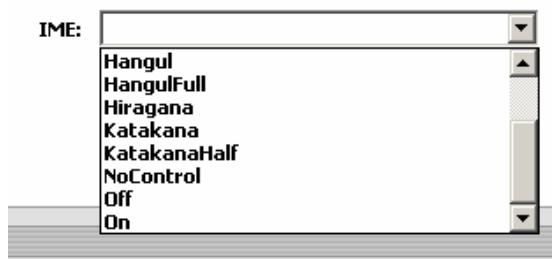


figure 55

The IME mode setting in the Config tool allows you to change the behaviour of the keyboard for East-Asian languages (e.g. hiragana/katakana/romaji in Japanese), without have to use the keyboard shortcut each time to perform the switch.



NOTE:

- <Blank> means "not specified", it does **not** mean "not active"! If IME is enabled on the system, it is active with the last setting.
- If IME is not required for a certain field, set 'Disable' rather than 'Off' or 'NoControl'.

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4.17 Exporting the Configuration [Offline]



REQUIRED TIME:

Approx. 5 min

If you have run through some of the configuration steps offline, your configuration data now have to be exported to portable medium.

1. Select "File/Save as..." in the configuration tool menu.
2. Browse to the location where you want to put the file and enter a name for the file.
3. In case the destination was not a portable medium, copy the file onto the portable medium.

For more information, read Chapter 06 "*Offline Config Tool Installation and Use*", section "*Using the NX Offline Config Tool*" (DD+DIS122.07E)

4.18 Activating the Configuration [Online Only]



REQUIRED TIME:

Approx. 2 min



NOTE:

After any change of the NX settings, an activation of the configuration is required to apply the changes.

1. Select "File/Activate settings" in the configuration tool menu.
2. In case of errors, you will first be prompted to correct them prior to continuing. After you have corrected the errors, just retrigger this procedure.
3. Finally, the data is stored in the NX data store.

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4.19 Dose Configuration [Online Only]

For further information read chapter “Working” in the Main Menu, Dose Monitoring in the NX Online Help.

4.20 Configure Queues [Online Only]

For further information read chapter Working in the Main Menu, Queue Management in the NX Online Help.

4.21 Recommendations for Anti-virus Software Settings

Please refer to Chapter 5 Appendices to find the procedures on how to configure the supported Anti-virus software.

4.22 Uploading Fingerprint

4.22.1 Generate the Fingerprint File



REQUIRED TIME:

Approx. 5 min

1. Go to *Start* → *AGFA* → *Service* → *License MANAGER*
2. Click on **<Generate Fingerprint>**
3. Adapt file name and location e. g. external Memory stick
4. Click **<OK>**
5. Check the status bar of the License manger until the remark *creating ...* disappears
6. Wait until the License manger is on status ready
7. Close the License Manager
8. Generating the Fingerprint File is complete

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4.22.2 Upload the Finger Print to the ELMS

Forward the fingerprint file to the person in your NSO who is dedicated to handle the topics regarding Licenses Management



INSTRUCTION:

Refer to the section "Licensing Flow for a Product Upgrade - Before the Product Upgrade", scenario "Upgrade of a product that is not yet licensed and not known on the ELMS" in the *Licensing Service Manual (DD+DIS012.06E)* for the procedure describing how to obtain a License File (ALF) for the NX Workstation.

5 Backup

After installation and after any change to the configuration of NX, it is important to make a backup. Several ways exist to make a backup:

- 'Backup configuration data' script
- 'Backup all data' script

See NX 2.0 Service Manual DD+DIS259.06E, 'Chapter 5 Installation and Configuration **Appendices**'

A restore of the system (e.g. after hardware replacement) is performed using the Clean Install Procedure. See NX 2.0 Service Manual DD+DIS129.07E, Chapter 6 "Clean Install".

The material for a clean install of the original software, comes together with the NX system as a set of two DVD's:

- NX Starterkit DVD1
- NX Starterkit DVD2.

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6 NX Acceptance Test



IMPORTANT:

Check, if all required fields of the Acceptance Test have been filled out and complete it.

The procedure is described in NX 2.0.68XX Service Manual DD+DIS259.06E

[Chapter 8 – Acceptance Test.](#)

7 System Integration

7.1 How to find Connectivity Information on MedNet

Find information and procedures on MedNet / Healthcare Library:

1. In "Views" sort "by document type"
2. Select "Connectivity Release Document" / "General Info" / "Connectivity and Application"
3. Select the needed Connectivity as shown in the figure below

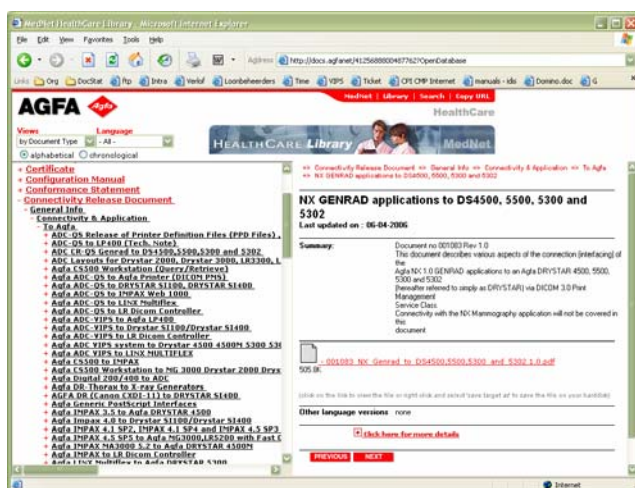


figure 56



NOTE:

These documents are also available on the Connectivity CD, updates announced via Service Bulletin.

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7.2 How to configure P-Values

When do you need P-values? - If you want to have consistent image look and feel on workstation, hardcopy and/ or softcopy

Please refer to *Chapter 5 Appendices* for detailed configuration procedures.

7.3 Managing Protocol Codes

Protocol codes are imported from the RIS, and can be linked to exposure groups, exposures and exams that are displayed in the user interface. This way, an incoming protocol code can be “resolved”, and the operator receives immediate feedback on the examination he needs to perform.

Configuration of Protocol codes involves (1) mapping the RIS attribute containing the protocol code to the right NX database field, (2) creating a list of known protocol codes and (3) linking the protocol codes to the exam tree.

Please refer to *Chapter 5 Appendices* for detailed procedures.

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► **Purpose of this document**

This document provides a step-by-step guide for sub-procedures of the NX 2.0.68XX installation and configuration that are **optional** or only needed in certain **less common** scenarios. (The sub-procedures are included in this manual in a random order, so no specific sequence is followed)

If you read this document on the computer, click the links to read a step by step instructions for the following tasks:



TIP:

If you view this document on a PC, arrows are displayed:  Use those for navigating within the document.

- Upgrading ID Tablet firmware
- Downloading TWAIN digitizer device software
- Creating Backup
- Installing an uninterruptible power supply (UPS)
- Turning off password complexity
- Changing the regional settings
- Creating an AD/AM replica
- Applying specific power settings for laptop PCs
- Importing available configuration settings
- Switching on secure communication (SSL)
- Configuring settings for Anti-virus software
- Monitor Calibration
- Configuring P-values
- Managing protocol codes
- Removing restore points
- Creating access to Network Drive for non-DICOM RIS
- Installing new Device Models
- Using a network drive for exporting images

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► Document History

Edition. Revision	Release Date	Changes compared to previous version 2.2
2.3	12-2007	<ul style="list-style-type: none">Introduced NX Starterkit DVDs 1 und 2New restore procedure "Clean Installation".Updated list of supported printers. See section 17.1.2

► Referenced Documents

Document	Title
n.a.	n.a.

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**WARNING:**

Improper operation or service activities may cause damage or injuries.

**INSTRUCTION:**

- (1) Read the "Generic Safety Directions" document (see MEDNET GSO => General Info => Agfa HealthCare => Publications => Service Manual) prior to attempting any operation, repair or maintenance task on the equipment.
- (2) Strictly observe all safety directions within the "Generic Safety Directions" and on the product.

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1 Upgrading ID tablet firmware



REQUIRED TIME:

Approx. 15 min



NOTE:

If the ID tablet firmware is **1.12.07** or later this step is not required.

1.1 Checking Firmware Version of the ID Tablet

1. Go to *Start* → *Agfa* → *NX* → *Service* → *Logging* → *Logging Viewer*.
2. In the main menu select *File* → *New* → *Log4Netfile Reader (XML Layout)*.
3. When asked to, select file
C:/Agfa/Healthcare/Log/NX/XML/NX.Application.NonVisual.NXWorkstation.exe.
4. In the Search window type e.g. *firm*.

The currently installed ID Tablet firmware version can then be read in the “Message Detail” window:

2006-09-21 16:09:34.281	main	Information	Agfa.H...	\$Re-launching Scheduled and Processing Jobs
2006-09-21 16:09:34.406	3052	Information	Agfa.H...	\$IDTablet firmware version: [1007 ID-TABLET 1.12.07 03/07/06 00010554 1.11.13]
2006-09-21 16:09:34.421	3052	Information	Agfa.H...	\$Recovery process has started. Waiting for handshake of the AcquisitionScenarioCo...
2006-09-21 16:09:34.484	main	Information	Agfa.H...	\$PinJobQueueManager started
2006-09-21 16:09:34.484	main	Information	Agfa.H...	\$Starting MPPSQueueManager...
2006-09-21 16:09:34.500	main	Information	Agfa.H...	\$Re-launching Scheduled and Processing Jobs
2006-09-21 16:09:34.593	main	Information	Agfa.H...	\$MPPSQueueManager started
2006-09-21 16:09:34.593	main	Information	Agfa.H...	\$Starting MPPSGateway...
2006-09-21 16:09:35.093	3204	Information	Agfa.H...	\$Recovery process has ended.
2006-09-21 16:09:35.093	main2	Information	com.a...	DICOM : DTFAssociationServer STARTED on port 104
2006-09-21 16:09:35.093	main2	Information	com.a...	DICOM : NX81 AssociationHandler constructed
2006-09-21 16:09:35.093	main2	Information	com.a...	Started NX81

Message Detail	
Timestamp :	2006-09-21 16:09:34.406
Originator :	Agfa.Healthcare.NX.Business.CompositeInstance.IDTabletGateway.IDTabletGateway
Log severity :	Information
Message :	\$IDTablet firmware version: [1007 ID-TABLET 1.12.07 03/07/06 00010554 1.11.13]
Domain :	NX.Application.NonVisual.NXWorkstation.exe
User :	NX81\NXWorkStationUser
Thread :	3052
Properties :	[type=developer, log4net.HostName=NX81]

figure 1

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1.2 Installing new Firmware Version (if necessary)

1. Switch OFF the ID tablet and connect it via serial port (COM port) to the NX PC. If all serial ports of the NX PC are already in use (e.g. by touch screen or UPS), connect the ID tablet to the serial port of your **service PC**.
2. Log in using the "crservice" account (if you use the NX PC).
3. Find the package `BF2Upgrade_V1.12.07.zip` on the NX Starterkit DVD 1 in folder "Service Software"
4. Unzip file and copy extracted files to hard disk (e.g. `C:\temp`)
5. Double-click the file "`BF2Upload1.12.exe`".
6. Following window appears:

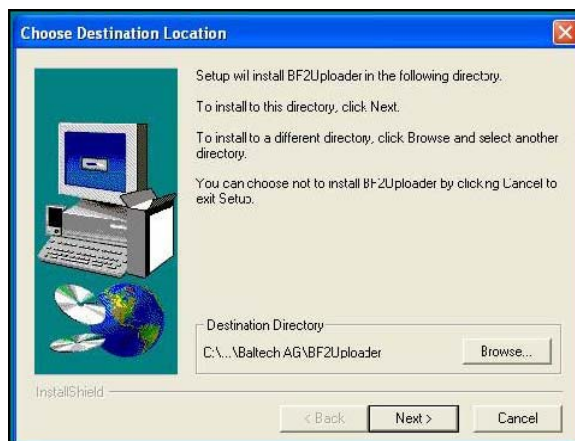


figure 2

Click **<Next>** to choose default destination directory

7. Following window appears:



figure 3

Click **<Next>** to start copying files.

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8. Following window appears:



figure 4

Check the box **<Yes, Launch the program file>** and click **<Finish>** to complete setup.

9. The window Uploader for Baltech Firmware 2 Files appears:

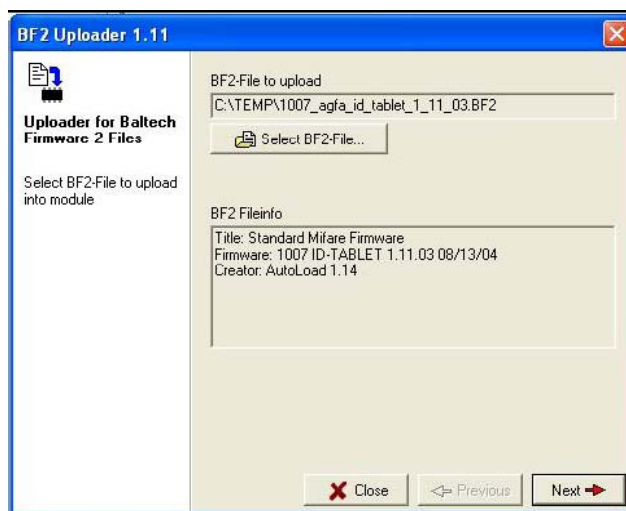


figure 5

Click the button **<select BF2-File...>**, select the software file saved on hard disk "1007_agfa_id_tablet_1_12_07.BF2" and then click **<Open>**.

Click **<Next>** to upload software.

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10. Following window appears:

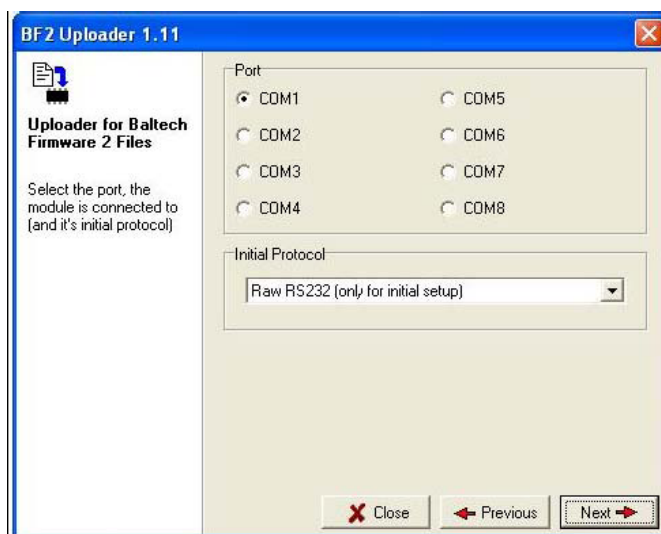


figure 6

Check that correct serial port, where ID-Tablet is connected to, is selected and click **<Next>**.

Remark : Initial Protocol should be "Raw RS232 (only for initial setup)"



NOTE:

If the PC you use has only one COM port, select COM1. If it has more COM ports and you don't know which one is connected to the ID tablet, you can check in the Device Manager:

Go to *Start → Settings → Control Panel*, choose *System* and there the register *Hardware*. Click the button **<Device Manager...>**. The COM ports are listed in *Ports (COM & LPT)*

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11. Following window appears:

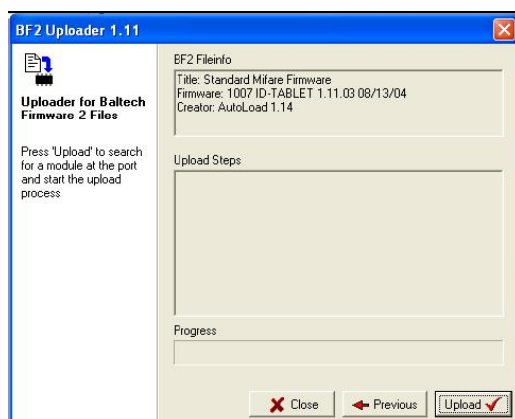


figure 7

First click **<Upload>** to start upload process **and then switch on ID-Tablet!**

Installation progress is shown in the status bar.

12. After the upload following window appears:

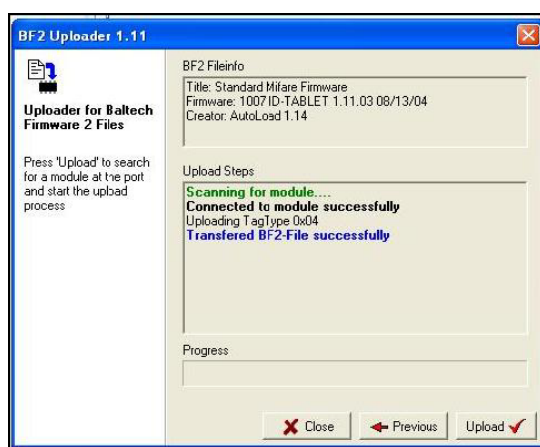


figure 8

After the message *“Transferred BF2- File successfully”* appears, click **<Close>** to finish upload.

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2 TWAIN Digitizer Device Software

If the NX Workstation is connected to a DX-S or CR 30-X digitizer, the compatible device software has to be downloaded from Mednet and installed on the Workstation.

Check chapter 04 – Compatibility Chart (DD+DIS344.07E) of the *NX 2.0 Service Manual* on [MedNet](#) to find the compatible version number(s).

Go to the *Mednet GSO Library* to download the device software package:

- [GSO Library → Computed Radiography → CR Digitizers → DX-S → Freeware](#)
- [GSO Library → Computed Radiography → CR Digitizers → CR 30-X → Freeware](#)

3 Backup



REQUIRED TIME:

Approx. 10 min

After installation and after any change to the configuration of NX, it is important to make a backup. Several ways exist to make a backup:

- 'Backup configuration data' script
- 'Backup all data' script

Restore Procedure:

A restore of the system (e.g. after hardware replacement) is performed using the Clean Install Procedure. See NX 2.0 Service Manual DD+DIS129.07E, 'Chapter 6 Clean Install'.

The material for a clean install of the original software, comes together with the NX system as a set of two DVD's: NX Starterkit DVD 1 and NX Starterkit DVD 2.

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3.1 'Backup configuration data' Script



IMPORTANT:

No image files nor examination data (exams) is backup-ed.

This script can be found in the start menu at: *Agfa* → *NX* → *Service* → *Backup Restore* → *Backup Configuration data*. It copies the following data to the backup location (by default D:\Agfa\Healthcare\NX\Backup):

- configuration data
- ADAM data (=authorization settings: users & roles)

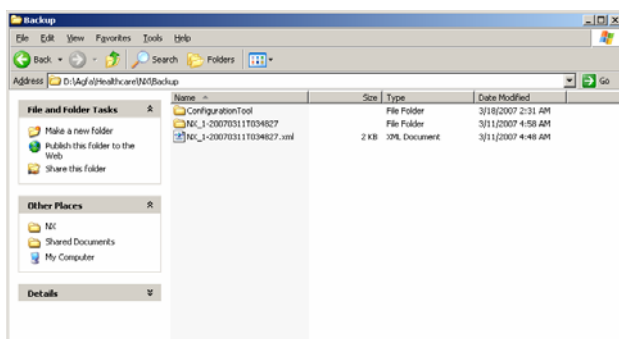


figure 9

Under the directory 'NX_X-YYYYMMDDTHHMMSS'
(Example: NX_2_20071130T013517) following files can be found:

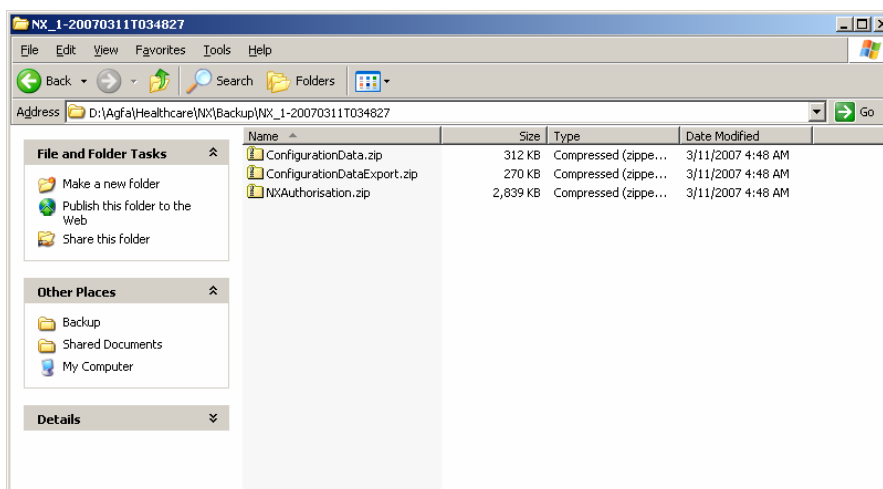


figure 10

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3.2 'Backup all data' Script



IMPORTANT:

No image files are backup-ed.

This script can be found in the start menu at: *Agfa* → *NX* → *Service* → *Backup Restore* → *Backup all data*. It copies the following data to the backup location (by default D:\Agfa\Healthcare\NX\Backup):

- configuration data
- ADAM data (= authorization settings: users & roles)
- The contents of the NX database so including examination data (exams)

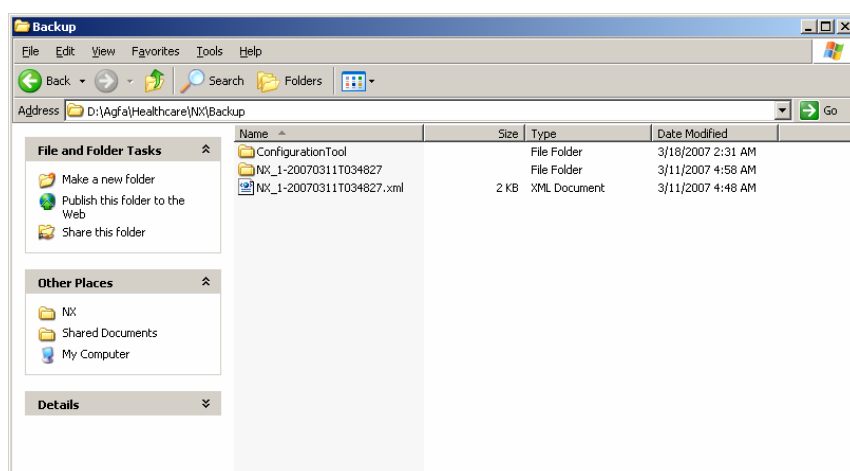


figure 11

Under the directory 'NX_X-YYYYMMDDTHHMMSS'
(Example: NX_2_20071130T013517) following files can be found:

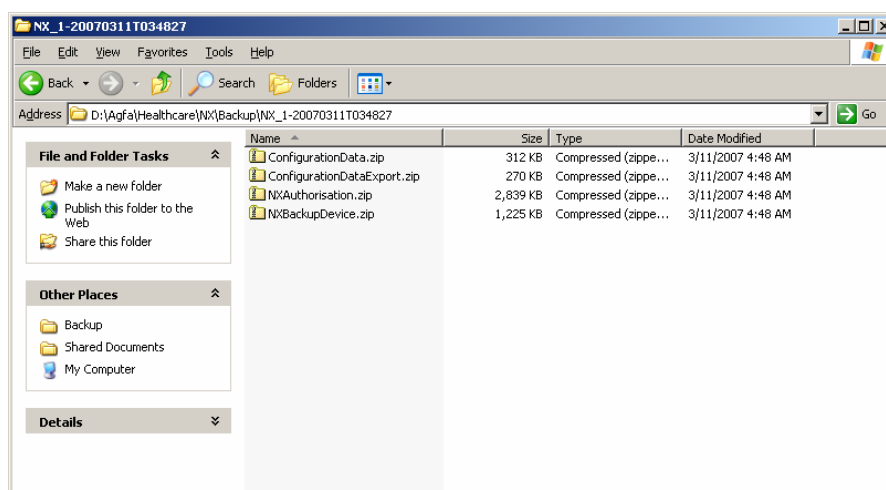


figure 12

NXBackupDevice.zip contains the DB backup.

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3.3 Changing the default location of the backup destination

By default, the NX backup script creates a backup locally on the Data & Backup partition. It is possible to backup to a network drive instead. To do this, you have to change the following registry settings:

```
<HKEY_LOCAL_MACHINE\Software\AGFA\Healthcare\NX\BackupDir>
```

Please make sure that the account under which you will perform the backup has sufficient rights to access & write in the folder on the remote location.

You can change the registry setting by launching:

Start menu: *AGFA → NX → Service → Backup/Restore → Re-Direct Backup Destination*

Note that these scripts (backup all data\backup configuration data) only keep the last five backups made using a FIFO mechanism.
So older ones are removed from the system!

3.4 Scheduling a standard NX Backup



REQUIRED TIME:

Approx. 10 min

Optionally, one can schedule a backup by scheduling one of the two existing backup scripts (backup all data or backup configuration data).

Therefore we use the Scheduling functionality available in Windows XP.

Note that only scheduling a 'configuration backup' doesn't make much sense as the configuration is typically not changed any more after the setup of the NX.

Scheduling a 'backup all data' only makes sense if the NX is equipped with two hard disks (not on Dell745). If the first disk crashes one can restore the backup and as the images still reside on the second disk most of the data can be recovered. On a single disk system, if the disk crashes, the image data is also gone. So here it doesn't make sense restoring the data (if not lost itself) as the backup contains no images.

1. Log on to the system using an administrator account (e.g. "CRService")

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2. Start up **scheduled tasks** from “*Start → Program files → Accessories → System Tools*”. This brings you to the following window:

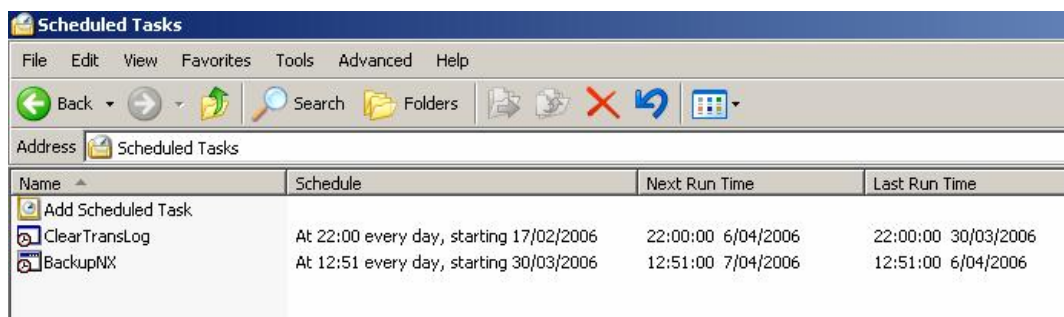


figure 13

3. Double-click on “Add scheduled task”.
4. The Scheduled Task Wizard opens up.



figure 14

Click **<Next>**.

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5.

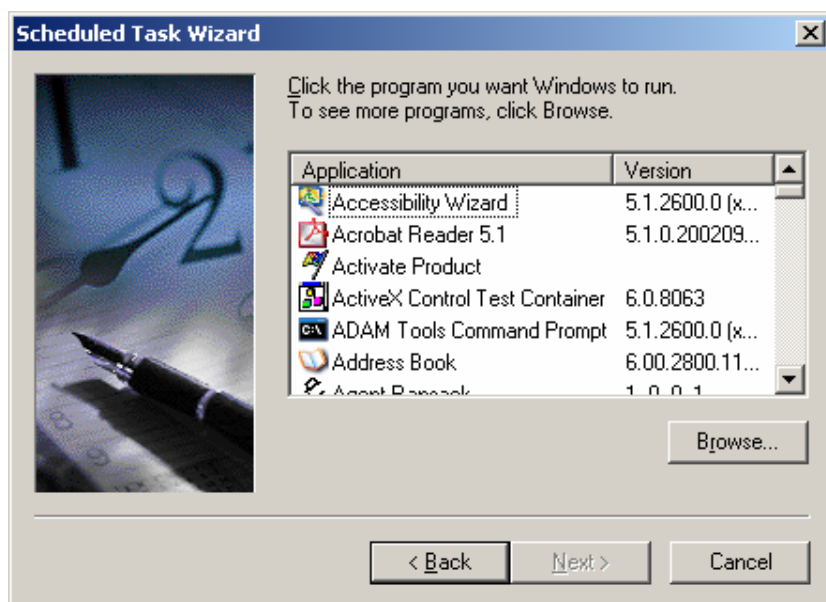


figure 15

Click the **<Browse...>** button. This gives up a file browser dialog. Browse to "C:\AGFA\Healthcare\WX\bin\ServiceWXBackup_Full.bat" for a full backup, or "C:\AGFA\Healthcare\WX\bin\ServiceWXBackup_ConfigData.bat" for backing up only the configuration data.

6.



figure 16

Select the frequency of the backup (normally daily/weekly).

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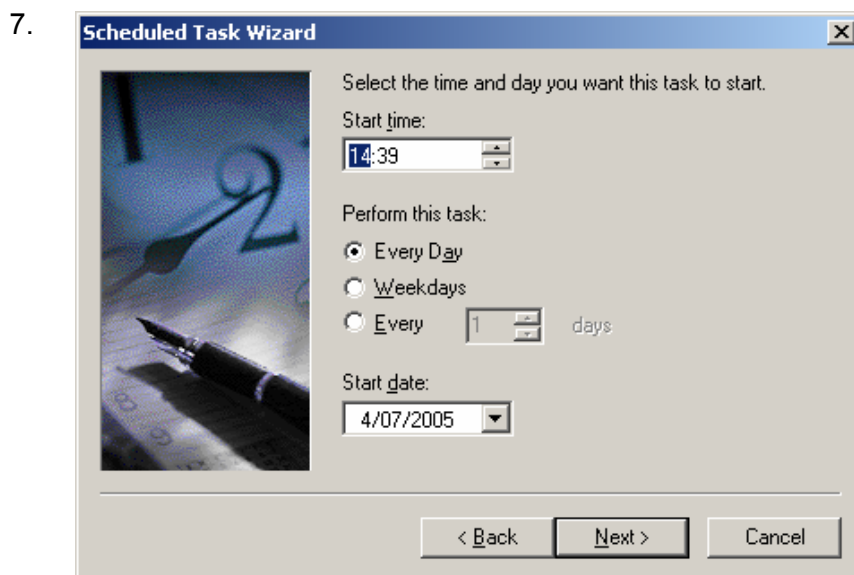


figure 17

Select the start time (= time when the system is preferably not used or rarely used). In case that office hours apply, the advice is to be scheduled to after-hours.



figure 18

Finally, enter the user account name & password under which this task may run. Please note that the task will run under this profile independent of the fact that somebody is logged in or not. Preferably, use an administrator account to run this task (e.g. CRService) or definitely an account that doesn't have very strong password expiration rules. Note that this does not need to be a local account. In a domain setup, you can also use a domain account.

In case of password expiration, the task will cease to run.

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**NOTE:**

There is no indication that a backup is taking place (meaning that you are not disturbed by this fact), only in case that you are logged in with the same user account as the one under which the backup task is running. You can check whether a task has run or not by navigating to 'Control panel / Scheduled tasks'. The 'status' column will indicate whether the last run was okay or not.

In general, it is advised to schedule the backup task in a period when less activity is expected on the NX station. When a backup is taking place, you can continue working although the system performance is impacted minimally.

4 Installing an Powerware Uninterruptible Power Supply (UPS)

**REQUIRED TIME:**

Approx. 45 min.

1. Shutdown the NX Workstation
2. Power down the UPS
3. Use the standard serial cable to connect the UPS.

NOTE:

- Connecting the UPS via USB cable is not supported.
- Powerware UPS in combination with CR QS 3.x requires a modified serial cable. This should not be used on NX!

4. Power on the UPS
5. Power on the NX Workstation

**NOTE:**

If NX had been ordered with an UPS, the next steps are already done in production and can be skipped!

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6. The Windows Hardware Wizard is started:



figure 19

7.
 - Insert the NX STARTERKIT DVD 2
 - In the Hardware Wizard, click <Next>
 - Now the UPS Drivers are installed
8. Start the installation of the LanSafe software by opening the LanSafe Setup Wizard from: *K:\Software\Lansafe\Windows\Setup.exe*

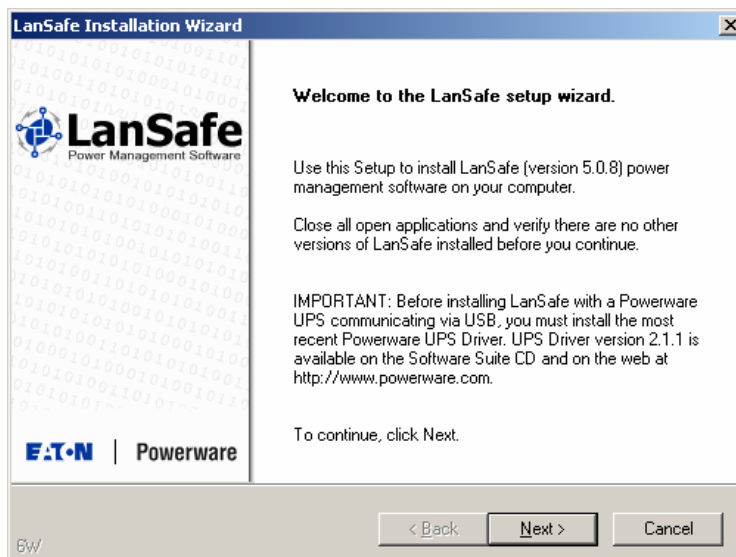


figure 20

Click the <Next> button.

9. Accept the terms of the license agreement and click the <Next> button.
10. Select LanSafe Controller to install it onto your system.

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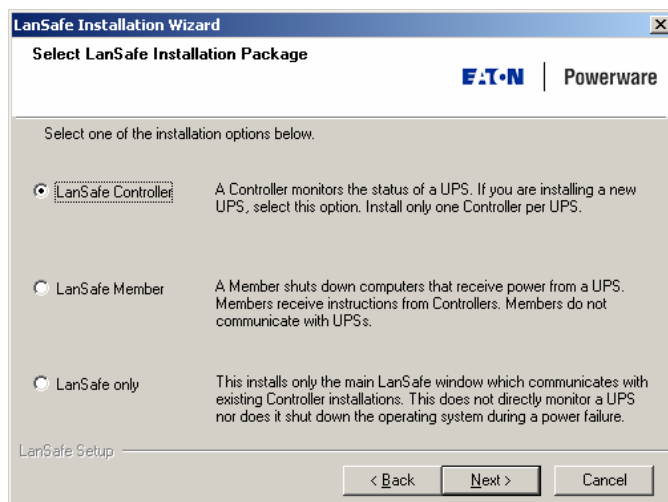


figure 21

Click the **<Next>** button.

11. Select Serial Connection.

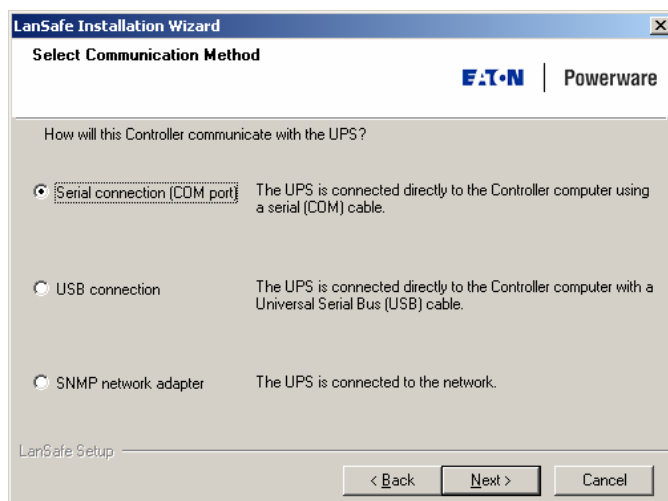


figure 22

Click the **<Next>** button.

12. The following dialog box pops up.

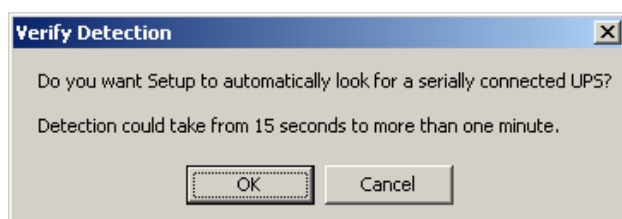


figure 23

Verify the serial connection by clicking the **<OK>** button.

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13. Select the serial port the UPS is connected to.

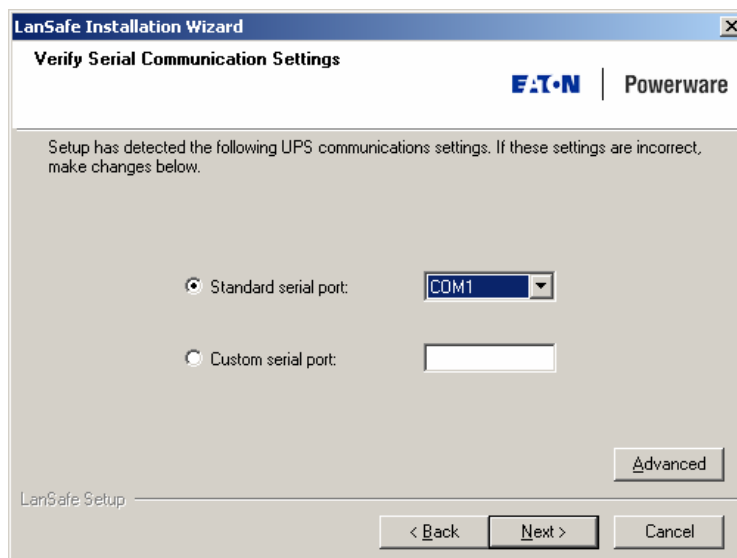


figure 24

Click the <Next> button.

14. Select manufacturer and model of the UPS.

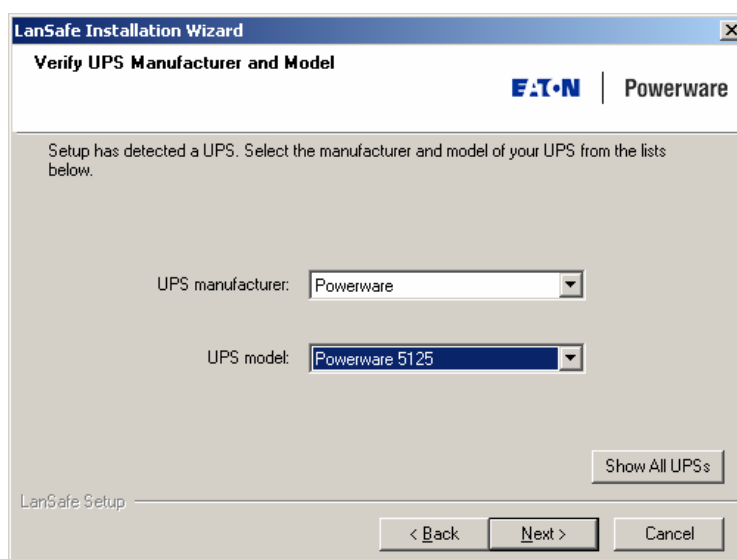


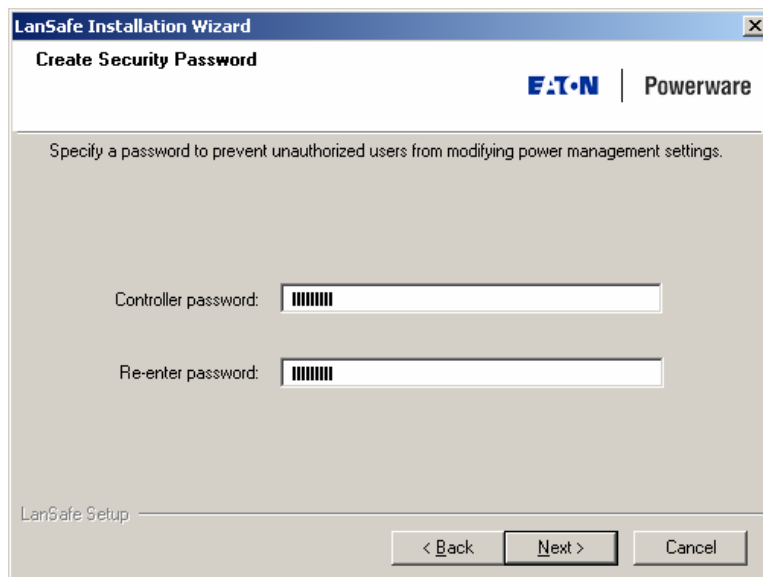
figure 25

Click the <Next> button.

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15. Set password to: **set2adminpassw**.

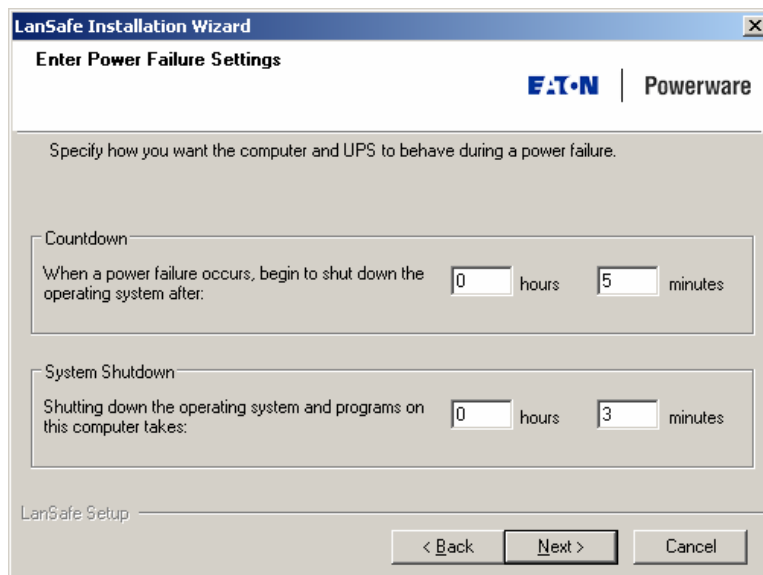


The screenshot shows the 'LanSafe Installation Wizard' window with the title 'Create Security Password'. It features the Eaton and Powerware logos in the top right. The instruction text reads: 'Specify a password to prevent unauthorized users from modifying power management settings.' Below this, there are two password input fields. The first is labeled 'Controller password:' and the second is labeled 'Re-enter password:'. Both fields contain masked characters (asterisks). At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted.

figure 26

Click the **<Next>** button.

16. Specify Countdown and Shutdown periods.



The screenshot shows the 'LanSafe Installation Wizard' window with the title 'Enter Power Failure Settings'. It features the Eaton and Powerware logos in the top right. The instruction text reads: 'Specify how you want the computer and UPS to behave during a power failure.' Below this, there are two sections for configuring power failure settings. The first section is 'Countdown' with the text 'When a power failure occurs, begin to shut down the operating system after:' followed by input fields for '0' hours and '5' minutes. The second section is 'System Shutdown' with the text 'Shutting down the operating system and programs on this computer takes:' followed by input fields for '0' hours and '3' minutes. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted.

figure 27

Click the **<Next>** button.

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17. Type in the group identifier (computer name).

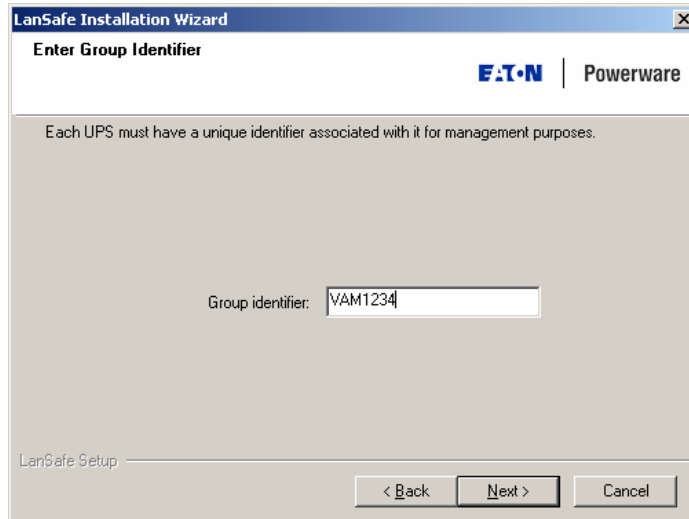


figure 28

Click the **<Next>** button.

18. Don't fill in any SMTP information
Click the **<Next>** button.
19. Accept the default installation destination, Click the **<Next>** button.
20. Accept the default program folder, Click the **<Install>** button.
21. Select Launch LanSafe.

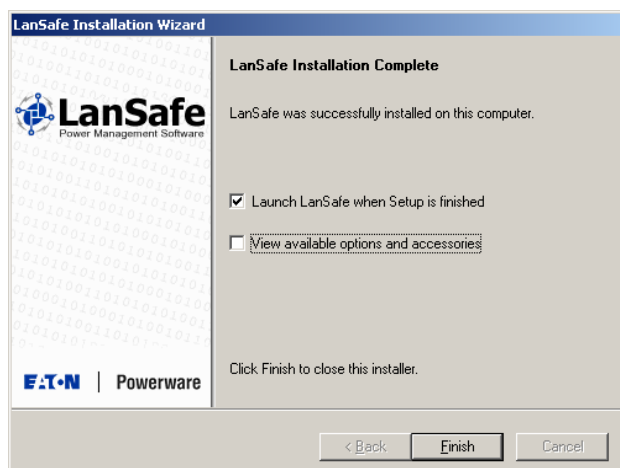


figure 29

Click the **<Finish>** button.

22. From the Configuration menu, select Management Settings.

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23. The Management Settings window opens up.

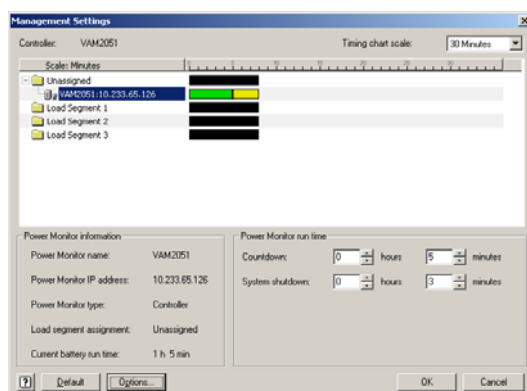


figure 30

Click the <Options> button.

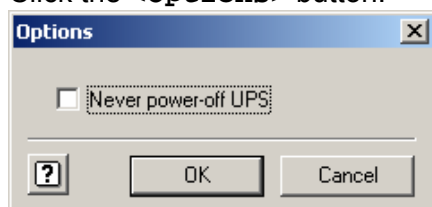


figure 31

Make sure the 'Never power-off UPS' check box is **unchecked**.
Click the <OK> button to close the Options dialog.
Click the <OK> button to close the 'Management Settings'.

24. From the Configuration menu, select Event Notification.
25. The Event Notification window opens up.

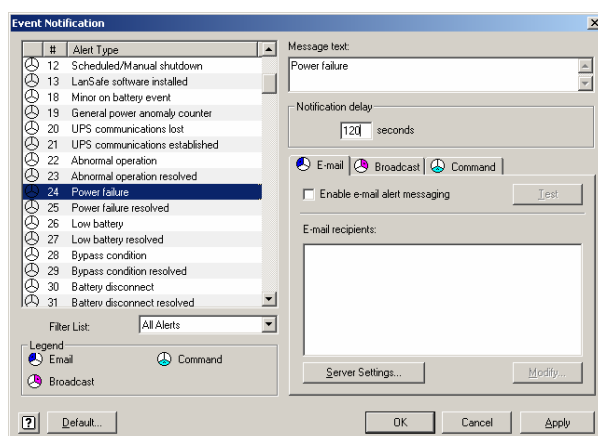


figure 32

Select the 'Power failure' Alert Type from the list.
Enter a 'Notification delay' of 120 seconds.

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26. Click the 'Command' tab.

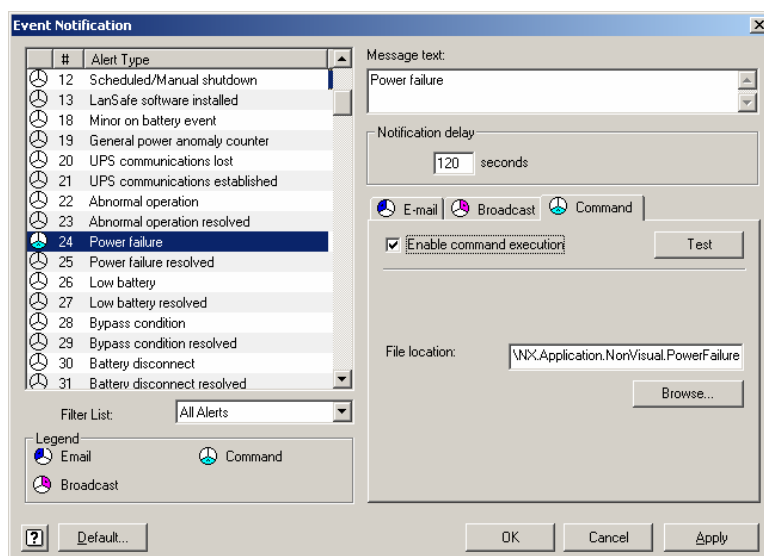


figure 33

Select 'Enable command execution'.

Browse the installation folder of NX for the file:

NX.Application.NonVisual.PowerFailureShutdown.exe.

Click the <OK> button to apply the Event Notification settings.

27. The UPS is now configured for a timeout period of 2 minutes.
If the power is restored within this period, the user won't notice a power failure.
Countdown period of 5 minutes maximum allowing the user to finish an ongoing acquisition with the DX-S.
Shutdown period of 3 minutes maximum
Finally the UPS will power off itself together with the attached DX-S.



NOTE:

When running the Lansafe software, a message box is shown which should be ignored by clicking <Register Later>:

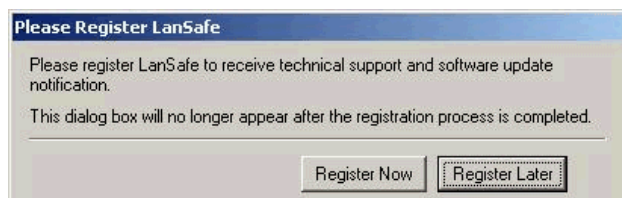


figure 34

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5 Turn off Password Complexity (optional)

On NX, the password complexity rule is enabled by default.

Password complexity adds constraints to the type of passwords and the characters that you can use as a user when setting up a Windows XP password.

Purpose To reduce the required complexity of the XP password, follow the described steps.

1. Log on to the system using the “CRService” account
Password: ‘Agsrv2ls’.
2. Select *Start → Settings → Control Panel*
Switch to Classic View → *Administrative tools → Local Security Policy*
3. Go to “Account policies”.

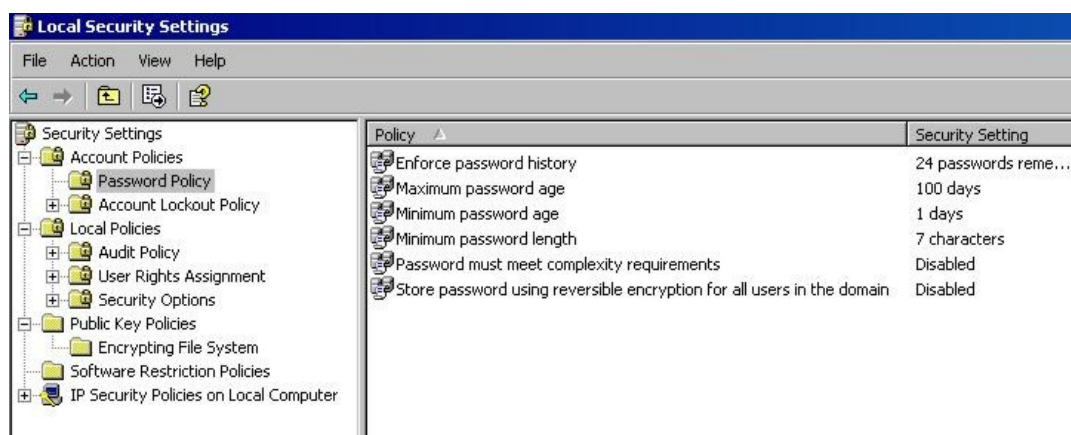


figure 35

Select the item “Password Policy”

Set the “Password must meet complexity requirements” to DISABLED.

4. To reduce the minimum password length go to:
“Account policies/Password Policy”.
Double click item “Minimum password” length (default setting: 7 characters).

Result From now on, the new accounts that are being created on this machine do not need to meet the password complexity rules anymore.

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6 Changing the regional Settings (language / date & time) of the NX



REQUIRED TIME:

Approx. 15 min

The regional settings for the user accounts need to be modified to match the customer's requirements. Most important regional settings are the date and time format and the language of the NX application.



NOTE:

All users on an NX Workstations, including administrator must share the same regional settings.

If an NX Workstation is connected to a Central Monitoring System, the users must have the same regional settings on CMS as on the In-Room Workstation.

Following table gives an overview on changing regional settings.

Checkpoints:	See section
Change regional settings of the NX GUI application	6.1
Change date & time format	6.2
<ul style="list-style-type: none">• for new users and• for printing on film	
Settings for printing East-Asian characters on film	6.3
Back to Overview	

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6.1 Change regional settings of the NX GUI application

1. Log in using the Administrator account
2. Go to *Start → Settings → Control Panel → Regional Settings*
3. Modify Language and Date & Time display formats to match the customer requirements.

6.2 Change date & time format for new users and for printing on film



NOTE:

- The regional settings of the NX backend service (NX.Application.NonVisual.NXWorkstation.exe) have to be changed, because the NX backend does the actual print job creation.
 - This procedure will also update the Windows' default account, so newly created users will get these settings right away.
1. Make sure that you have configured the **Administrator** account on the local system with the regional settings in the way that you want them to be used by the backend as well. (How to do: see section 6.1)
 2. In the Start menu, select *AGFA → NX → Service → Stop NX*. This will stop both the frontend and backend processes of NX.
 3. In the Start menu, select *AGFA → NX → Service → Install Tools → Change backend user locale*.

If you get this error message, reboot the PC and run the script again:

```

Change backend user locale
Setting the locale of the backend user to the default locale
Please make sure that you have already logged in at least once with the account
you want to modify or this procedure will fail
Please enter the name of the user account you want to use as template : <don't f
orget to press enter, or press 'exit' to cancel>. To take the currently logged i
n user, just press enter

User account that will be modified is <UAM2274LM\NXWorkStationUser>
User account from which the data will be copied : <UAM2274LM\Administrator>
Unload key code = The operation completed successfully.

Account <UAM2274LM\NXWorkStationUser> was updated successfully with the internat
ionalisation settings of account <UAM2274LM\Administrator>
An unhandled exception has occurred. Please reboot the system.
System.AccessViolationException: Attempted to read or write protected memory. Th
is is often an indication that other memory is corrupt.
   at log4net.Util.AppenderAttachedImpl.RemoveAllAppenders()
   at log4net.Repository.Hierarchy.Logger.RemoveAllAppenders()
   at log4net.Repository.Hierarchy.Hierarchy.Shutdown()
   at log4net.Core.LoggerManager.Shutdown()
   at log4net.Core.LoggerManager.OnProcessExit(Object sender, EventArgs e)
System.UnhandledExceptionEventArgs
Logging failure: Check log server operation and client remoting configuration.
Press any key to continue . . .
  
```

figure 36

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4. Normally, you will get a screen that looks like this. Acknowledge the warning:

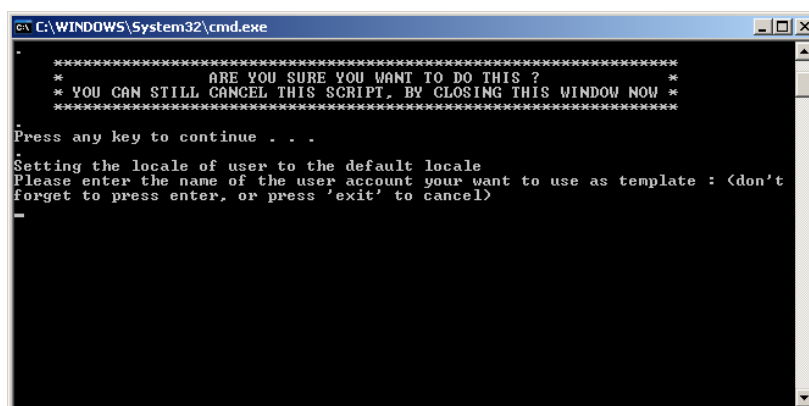


figure 37

5. Press <Enter>.
The regional settings of the backend user account will be updated with the regional settings of the Administrator account.
6. Restart NX using *Start → AGFA → NX → Service → Start NX*. You will see that all data that is coming from the backend is formatted in the expected way.

6.3 Settings for printing East-Asian characters on film



NOTE:

In this case, the account for the backend service to be used must be the administrator account:

1. Make sure that you have configured the **Administrator** account on the local system with the regional settings in the way that you want them to be used by the backend as well. (How to do: see section 6.1)
2. In the Start menu, select *AGFA → NX → Service → Stop NX*. This will stop both the frontend and backend processes of NX.
3. Log in using the crservice account
Password: Agsrv2ls
4. Go to *Start → Setting → Control Panel → Administrative tools → Services*
5. Select "NX Workstation" in the list of services
6. Right click and select 'Properties'
7. In the properties dialog, select the 'Log on' tab
8. Select 'This account'

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9. Enter the name and password (Set2adminpassw) of the administrator account and click <OK>
10. Restart the NX Workstation

7 Replication (AD/AM)

7.1 Basic replication



REQUIRED TIME:

Approx. 10 min.

For authorization purposes, NX uses AD/AM (Active Directory / Application Mode a.k.a. 'Active Directory light'), - an LDAP server - as a repository to store the roles, permissions and user-to-role assignments.

The main advantage of AD/AM is that - as opposed to a database or an own structure - AD/AM has built-in replication mechanisms. This means that it is not required to configure authorization on every NX system and there's also no single point of failure.

The default installation will always have a standalone setup without replication.



NOTE:

Replication is advised when multiple NX systems are used in the same environment, where the same users and/or role definitions exist and where each user is assigned to the same role.

By default – when all systems are up and running – the replication action will be performed automatically whenever the data is modified. Therefore, a special procedure needs to be followed at the site when you want to set up a replica.

The following description describes the steps to perform in order to install a AD/AM replica of another NX system's AD/AM.

Precondition: You must already have an NX system running which will act as master. Note that the default rollout from production will be a master setup.



NOTE:

When you change a system from master to replica, any users, roles and user-to-role assignments stored locally will be automatically removed.

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1. Log in to the system with the following account:
User: ADAMNXUSER
Password: Bind calls are not safe 1701
Do not give this account name and password to the customer.
It is required that you log in with this account, otherwise the setup will fail.
2. Stop NX (including the service)
Make sure that NX is no longer running prior to continuing.
3. Start the ADAM reconfiguration utility from the start menu
(AGFA → NX → Service → Install tools → ADAM reconfigurator utility)
4. The welcome window opens up.



figure 38

Click <Next>.

5. Choose the installation type "Replica".

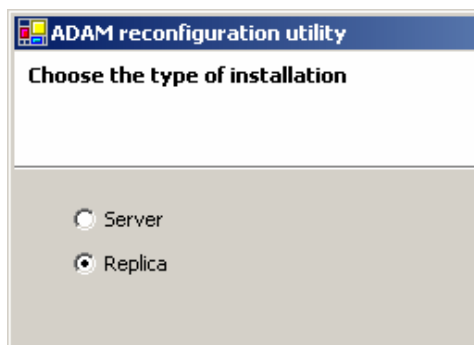


figure 39

Click <Next>.

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6. Provide the host name of the server that will serve as master of the replica.

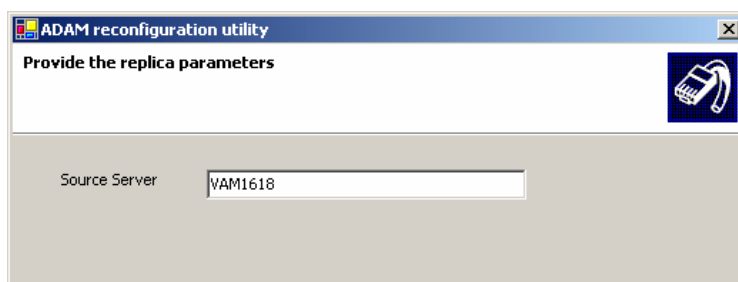


figure 40

Click **<Next>**.



NOTE:

Make sure that this system is up and running and can be reached from this station (you can check this using a ping-command).

7. Confirm the installation.

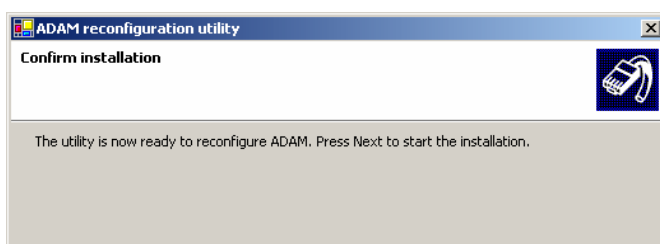


figure 41

Click **<Next>** and wait while the utility is reconfiguring AD/AM.

8. The completion window opens up.



figure 42

Click **<Finish>**.

You now have set up a replica.

The master NX station has been automatically assigned an extra replica (this station).

9. Log off and log on as a normal user (e.g. "CRService").

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7.2 Users on an AD/AM replica system

Domain environment

The Users and Roles of the AD/AM master system are replicated on the replica system. No extra configuration is required.

Workgroup environment

The Users and Roles for each AD/AM replica system are to be configured using the Configuration Tool on the AD/AM master system!

In the Add User dialog, check 'Remote' and enter the hostname of the AD/AM master system.

7.3 Switching from a AD/AM Replica to a Master



REQUIRED TIME:

Approx. 10 min.

Whenever you would want to switch back from a replica setup to a master setup, you need to take the following steps:

1. Log in to the system with the following account:
User : ADAMNXUSER
Password : Bind calls are not safe 1701
Do not give this account name and password to the customer.
It is required that you log in with this account, otherwise the setup will fail.
2. Stop NX (including the service)
Make sure that NX is no longer running prior to continuing.
3. Start the ADAM reconfiguration utility from the Configuration tool / service tools pane.

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4. The welcome window opens up.



figure 43

Click <Next>.

5. Choose the installation type "Server".

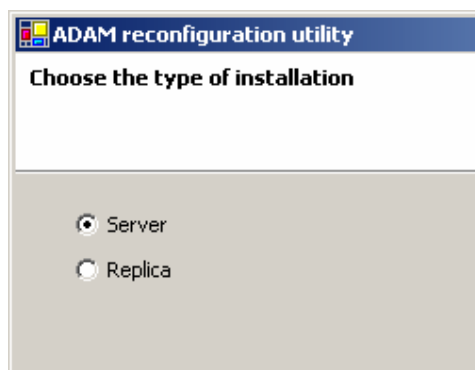


figure 44

Click <Next>.

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6. Confirm the installation.

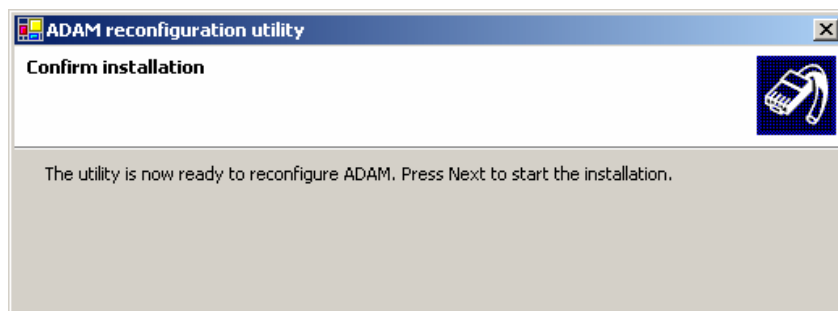


figure 45

Click **<Next>** and wait while the utility is reconfiguring AD/AM.

7. The completion window opens up.



figure 46

Click **<Finish>**.

You now have set up the station as a master.

8. Log off and log on as a normal user (e.g. "CRService").

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8 Laptop Power Settings

For the NX laptop, special power settings have to be applied to each individual user account.



IMPORTANT:

For newly added administrator users, those settings are applied automatically by the Operating System Installer (XOS). For all newly added non-administrator users these settings must be applied manually.

Follow the instructions on next pages:

1. Go to *Start* → *Settings* → *Control Panel* → *Power Options*
2. Click through the tabs *Power Scheme*, *Alarms*, *Advanced* and *Hibernate* and set all settings as shown in the screenshots (figure 47 – 50):

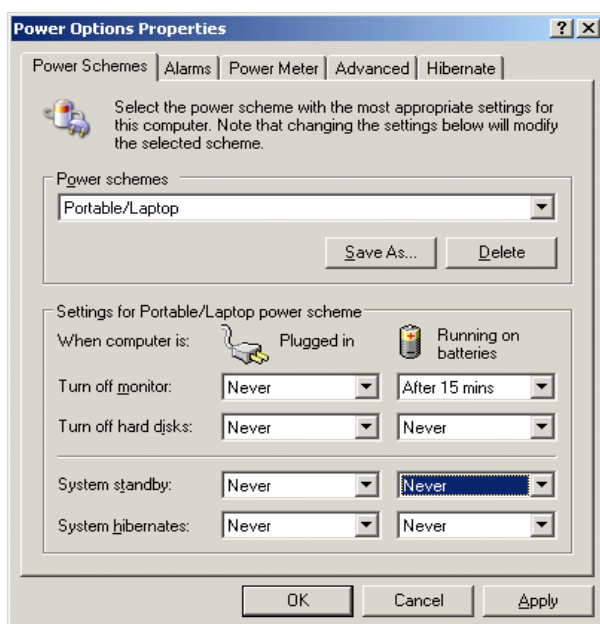


figure 47

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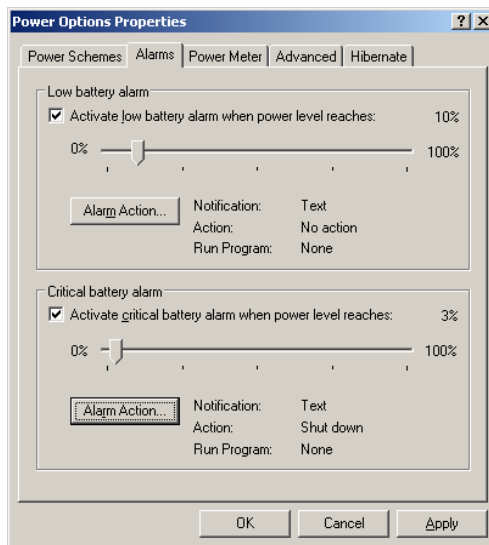


figure 48

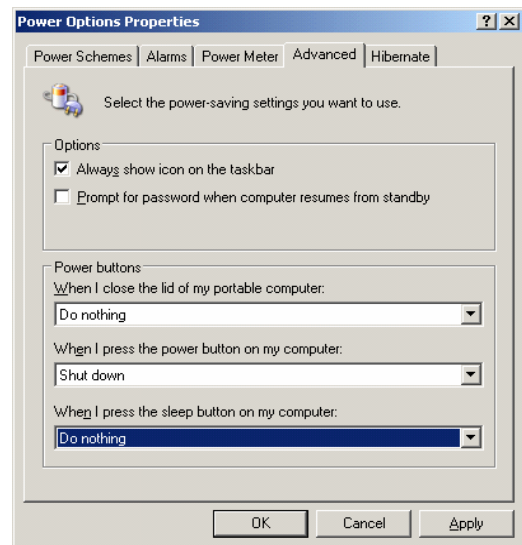


figure 49

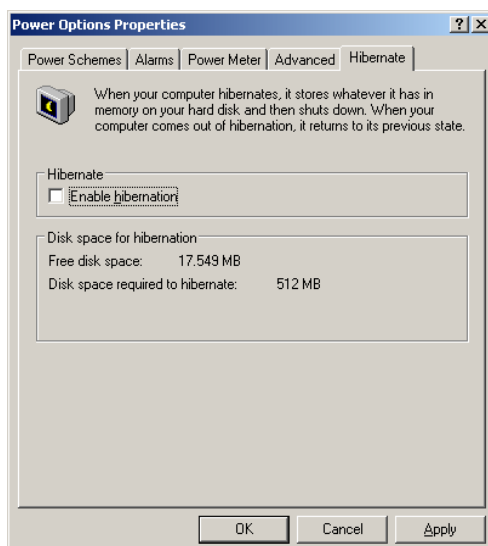


figure 50

3. Click <OK> to save the settings.

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9 Import Available Configuration Settings



REQUIRED TIME:

Approx. 30 min.

Checkpoints:	See section
1. Full Import	9.1
2. Import NX Exam Tree Configuration File	9.2
3. Import CPF-File or QS-XML-File Exam Tree	9.3
4. Converting Step by Step	9.4
5. Importing into NX Configuration Tool	9.5
6. Creating Exposure Groups	9.6
Back to Overview	

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9.1 Full Import - Partial Import



NOTE:

Use Full Import or Partial Import for importing configuration data that you prepared Offline.
(see “9.3 Import CPF-File or QS-XML-File Exam Tree”)

If you have configuration settings file available from another NX-system or standard configuration settings, or configuration settings prepared off-line, this can be imported in the Configuration Tool.



IMPORTANT:

Using Full Import will overwrite all configuration data in the workspace.
Apart from the configuration, data is to be edited **online only!**

9.1.1 Full Import and activation of an NX Configuration file



NOTE:

You cannot do a full import of an In-Room NX Workstation Configuration File into a Central Monitoring System Configuration File.

Use Partial Import to import configuration settings from an In-Room NX Workstation to a CMS.

1. Start up the configuration tool (start menu : *AGFA → NX → Start NX Configurator*)
2. Select the option ‘*Load a configuration from an external file*’
3. Browse to the location where the NX Configuration file resides and confirm the selection.
4. Verify the configuration to see that there are no errors.
5. Activate the configuration.
6. The imported configuration is now reflected into the database.
7. A screen pops up saying: "this will stop and restart NX. Any ongoing operations will be aborted"

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9.1.2 Partial Import an NX Configuration file into an active configuration

1. Start up the configuration tool (start menu : AGFA → NX → *Start NX Configurator*)
2. Select the option '*Load active configuration*'
3. Go to menu '*File*' and select '*Partial load from file*'
4. Click <OK> to the warning message
5. Browse to the location where the NX Configuration file resides and confirm the selection.
6. Check the configuration items that are to be imported and click <Import>

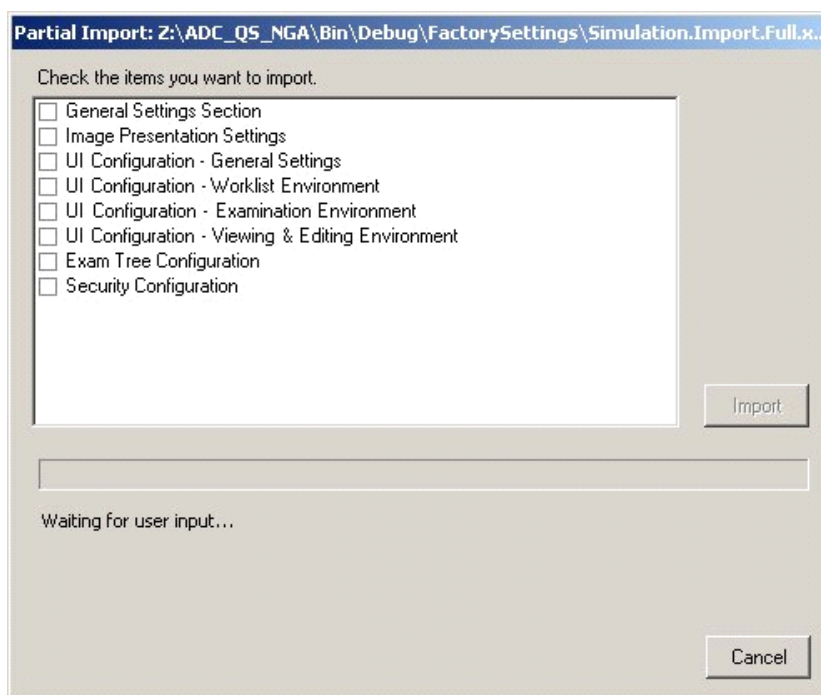


figure 51



NOTE:

When importing configuration settings from an In-Room NX Workstation to a CMS, the configuration settings that are not applicable to CMS will be ignored.

Some settings that may seem applicable to both platforms are not transferred, e.g. worklist settings of an In-Room NX Workstation are not applied to the search pane of a CMS.

7. After the import has ended, click <OK>

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8. Verify the configuration to see that there are no errors.
9. Activate the configuration.
10. The imported configuration is now reflected into the database.
11. A screen pops up saying: "this will stop and restart NX. Any ongoing operations will be aborted"

9.2 Import NX Exam Tree Configuration File

If you have exam tree configuration settings file available from another NX-system or standard exam tree configuration settings, this can be imported in the Configuration Tool.



NOTE:

The system diagnosis exam group is the only exam group to be loaded by default.

1. Start up the configuration tool (start menu : *AGFA* → *NX* → *Start NX Configurator*)
2. Select the option '*Load active configuration*'.
3. Select Exam/Add Exams from the menu.
4. Browse to the location where the exam tree export file resides and confirm the selection.
5. The system presents a list of exam groups that are available in the exam tree export file.
6. Select the exam groups you want to import.
7. After importing, the exam groups you have selected are available in the workspace and can be used after activating the configuration.



NOTE:

By importing an exam tree configuration file, the examination entries are added onto the current workspace. Therefore, don't use this functionality for offline editing of exam tree configuration data!

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9.3 Import CPF-File or QS-XML-File Exam Tree

NX comes with a tool that can convert exam trees in CPF-file format or in QS-XML-file format to a format that can be imported in the NX configuration tool.

The tool should only be used in two situations:

- The first time you install an NX site with no previous AGFA CR; you will want to convert your basic exam tree (the CPF or XML file you currently use for all installs) into the NX (XML) format. For all subsequent new installs you can re-use the NX .XML file.
- When you convert a site from QS/VIPS to NX you will want to re-use the exams and processing that was configured on that site, without having to type in everything manually.

This tool has only one goal; i.e. to avoid that you manually have to type in all exam names and the associated Image Processing parameters. It doesn't convert Device configuration data, print lay-outs, etc.



NOTE:

- If you don't have an exam tree available, a factory default exam tree file is available on the NX Workstation that can be further customized.
- Converting an exam tree from CR QS for Mammography to be used on NX for Mammography is not supported.
See the CR Mammography Solution Manual for the configuration procedure of NX for Mammography.
- The tool accepts only CPF files created by CCM1.1.07. If you have an older one, re-open it in CCM1.1.07, save it again and use this CPF file.

9.3.1 General configuration conversion rules

- Only diagnostic exposures are mapped into the new NX exam tree structure.
- Service or system diagnostic exposures are therefore NOT mapped. NX will be shipped with default service and diagnostic exposure types, which are automatically added at the creation of a new exam tree.
- Printers, archives, digitizers and other devices are also NOT imported from the old configuration. Print sheets templates and layouts are also discarded.
- RIS mappings are not imported either. NX has standard RIS mappings on board for the different types of RIS systems.
- All other configuration data is set to the default values.

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9.3.2 Structure of the NX Exam Tree:

- Exam group (e.g. Upper extremities, Abdomen, Shoulder,... max 21 can be used)
 - Exposures (e.g. Elbow AP, Knee LAT,... max 30 per Exam group can be used)



NOTE:

- Age groups are available but they are fixed, and can only be used with a PEDIATRICS license, no new age groups can be used to create a radiologist level.
- As you know both VIPS and QS did have more levels in the exam tree. Depending on the situation at the site; e.g. what was previously installed, RIS or No RIS, PACS or No PACS these levels were used in different ways to achieve certain functionality. We also see different approaches in different countries. This is due to the range of possibilities available, however this also resulted in a certain complexity.
- When you start converting your configuration file, you should try to forget the old structure and why it was there in that way. Just aim to achieve an EXAM TREE with the simple EXAM GROUP/ EXPOSURE structure.
- In our test sites we have seen that in some cases converting a file results in an enormous number of EXAM GROUP, this occurs in situations where the RIS Study Description was mapped directly to QS/PRID Study type for automatic selection in ID Software. Converting this kind of file results in many EXAM GROUPS containing just a few exposures.

The exposures under these multiple Exam Groups need to be reorganized into new broader Exam Groups (e.g. Upper extremities, Abdomen, Shoulder,... max 21 can be used). This needs to be done after you import the converted file into the NX Configuration tool.

- In some cases the conversion results in a large amount of exposures, this occurs when Left and Right exposures are included in the tree. This was also done to achieve automatic selection based on the direct mapping of RIS Series description to QS/PRID sub-study type. These Left /Right exposures need to be removed; e.g. change 'Elbow AP left' and 'Elbow AP right' to 'Elbow AP'. The functionality you were achieving in both of the above cases can now be achieved in a different way.

Basically you only need to create a new exposure type if it involves a different exposure technique, different view position or different image processing. Keep the exam tree as short as possible!

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NOTE:

- NX also provides the possibility to create Exposure groups; these should not be considered when converting the exam tree, refer to the separate section on Exposure groups for more information.
- Configuring full leg still requires additional configuration work: copy exposure and indicate full leg.

9.4 Converting Step by Step

1. Take your basic XML or CPF file (the one you now use for QS installs)
2. Start the exam tree conversion tool (start menu : *AGFA → NX → Service → Install Tools → ExamTree Conversion Tool*)
3. Indicate CPF or XML.
If XML check the conversion file box (will be auto-selected in future release)
4. Click **<Open File>**
5. Select the XML or cpf to be converted
6. A dialog box will display if DICOM body parts are not according to DICOM standard (e.g. translated or spelling error) and you need to select the correct Body parts.
7. A dialog box will display the Study groups types it deduced from the file and you need to indicate which ones you want to convert into which NX Age groups.

Special cases:

- Service Study type group: this does not need to be converted (these exams are fixed in NX)
- Official Paediatric Age Groups: map them to the corresponding NX paediatric groups (only if a Paediatrics license has been purchased.)

Home-made Paediatric Group:

- if the Paediatric exams are done on a dedicated workstation: split the tree into two; one for genrad NX + one for the paediatric-dedicated NX
- if the Paediatric exams are needed on all NX workstations: map both study groups to the 17+ Age Group (Adult); the Study Group name will be concatenated with the Study Type name to form the new Exam Group name; organize into 2x8 Exam Groups
- if the Paediatric license is activated on NX, but the user wants to use his home-made Paediatric Group: map the Study Group into NX Paediatric Age Group.

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8. In some cases you will see Study Groups per room; e.g. room 1, room 2, IVP room,... this was done either to provide a different tree to different rooms on a QS cluster (e.g. an IVP room and Small bone room on same cluster) or to be able to print to different printers from different rooms (e.g. room 1 always print to printer 1, room 2 always prints to printer 2). Also sometimes Paediatrics were included in QS examtree, but only used in one room or area.

As NX is a stand-alone system each NX room can have its own exam tree and printer, if needed. So these multiple trees are no longer needed on each system.

For each QS Study Group consider if it is still needed.

Depending on the situation you may need to do the conversion for each room separately.

9. Confirm to create the .XML file by choosing **<Convert to file>**.
Select a destination to store the converted exam tree file.

9.5 Importing into NX Configuration Tool

1. Start the configuration tool (start menu : AGFA → NX → Start → Configurator)
2. Select the option '*Load active configuration*'.
3. Select Exam/Add Exams from the menu.
4. Browse to the location where the converted exam tree file resides and confirm the selection.
5. The system presents a list of exam groups that are available in the exam tree export file.
6. Select the exam groups you want to import.



NOTE:

All exposures need to have "Show exposure in UI" checked in the tree to be able to see the exposures in the GUI.

After importing, the exam groups you have selected are available in the workspace and can be used after activating the configuration.

If needed you can start reorganizing it into the EXAM GROUP/EXPOSURE structure, and remove the Left/Right indications if present. e.g. change 'Elbow AP left' and 'Elbow AP right' to 'Elbow AP'.

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9.6 Creating Exposure Groups

NX also provides the possibility to create Exposure groups; they have three purposes only:

- To map procedure codes coming from the RIS to exposures from your exam tree, so they will be automatically displayed in the image overview pane when starting an exam
- In exceptional cases to create a lay-out that combines two or more exposures from separate cassettes onto one film lay-out. e.g. to put your Chest AP and LAT onto one 14" x 17" lay-out.
- To create a group of exposure used during emergency exam (with license).



NOTE:

We advise against using exposure groups to create a multitude of complex automatically selected lay-outs as this will make your configuration more complex. Multi-image lay-outs should be composed on the fly during the QC phase of the examination in the editing environment of the NX software.

Typically Exposure Groups should NOT be displayed in the Add Image pane of NX!

10 Secure Communication



NOTE:

Switching on SSL for communication to archives and printers has an important impact on the performance, implying that it will take longer until the printout/softcopy image is available at the destination.



REQUIRED TIME:

Approx. 60 min

Secure Dicom means that Dicom connections will be setup over SSL (Secure Sockets Layer). NX fully supports this.

However, setting up the system for secure Dicom is more than just using the configuration tool to flag on the 'secure dicom' or 'SSL' flag.

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NX uses the Windows XP certificate store to physically store all device certificates (= its own certificate + the certificates of all devices with which it should be able to communicate over SSL).

The procedure below describes the installation of the certificates in the Windows XP "Personal" and "Trusted Root Certification Authorities" certificate stores at the level of the SYSTEM store.

The "Personal" store holds very sensitive cryptographic key information, which is stored in a protected format to prevent unauthorized access. Typically, a key stored in this type of entry is a secret key, or a private key accompanied by the certificate chain for the corresponding public key.

The "Trusted Root Certification Authorities" certificate store holds public key certificates belonging to other parties. It is called a "trusted certificate" because the logged on user trusts that the public key in the certificate indeed belongs to the identity identified by the "subject" (owner) of the certificate. The issuer of the certificate vouches for this, by signing the certificate.

NX knows which certificate is its own certificate by specifying the "Common Name" in the NX Configuration tool / Security settings pane. This "Common Name" has to match exactly with the common name specified in the certificate (case-sensitive!).

Windows XP stores the keys and certificates in a so-called *System Stores*.

1. Log on using the service user account ("crservice")
2. Select Start AGFA → NX → Service → Install tools → Manage Certificates. The following window will be shown:

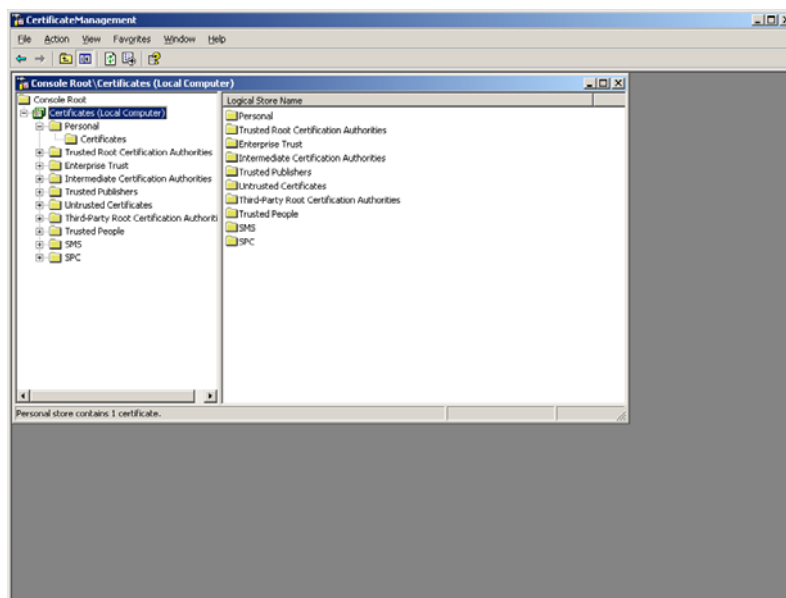


figure 52

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3. Now everything has been prepared to start installing the certificates. Select *NXWorkstation\Personal* and right-click to get the context-sensitive menu. From this menu, select '*All Tasks → Import...*'.
4. Install the NX certificate. This is a personal certificate (also known as the identity certificate) that holds both private and public keys. The certificate can be delivered by the manufacturer (Agfa), by the hospital itself (= own certification authority) or by a third-party (= external certification authority such as Verisign). Identity credentials are stored in a .p12 file, which is password protected. Make sure you have the p12 file available together with the password.



figure 53

Click <Next>

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5. Browse to the file containing the identity certificate.

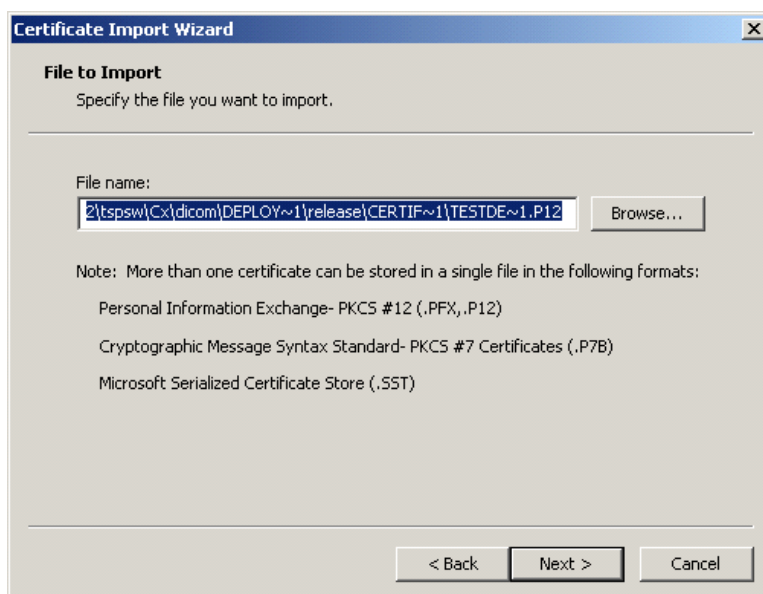


figure 54

Click **<Next>**

6. Check the 'Mark the private key as exportable' flag and enter the password for the private key.

This is very important:

Not checking this flag will cause the SSL communication from NX to FAIL!

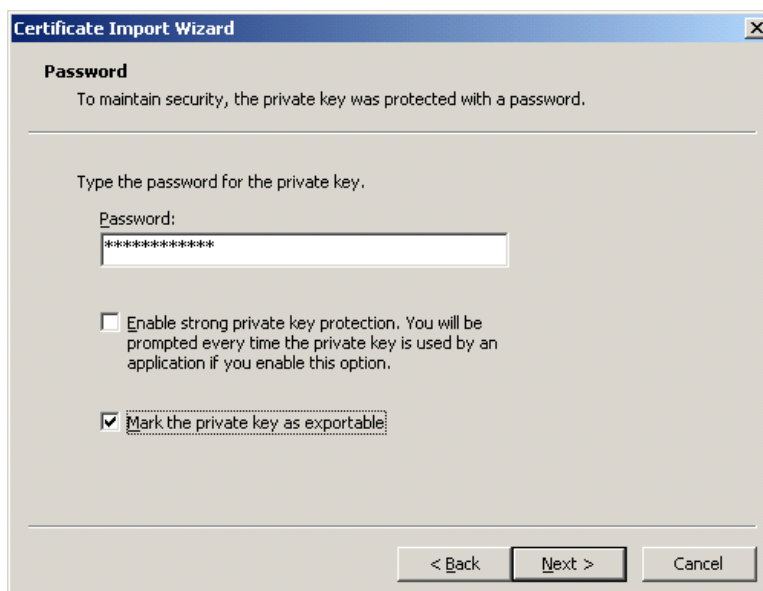


figure 55

Finally, click **<Next>**.

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7. Click **<Next>**

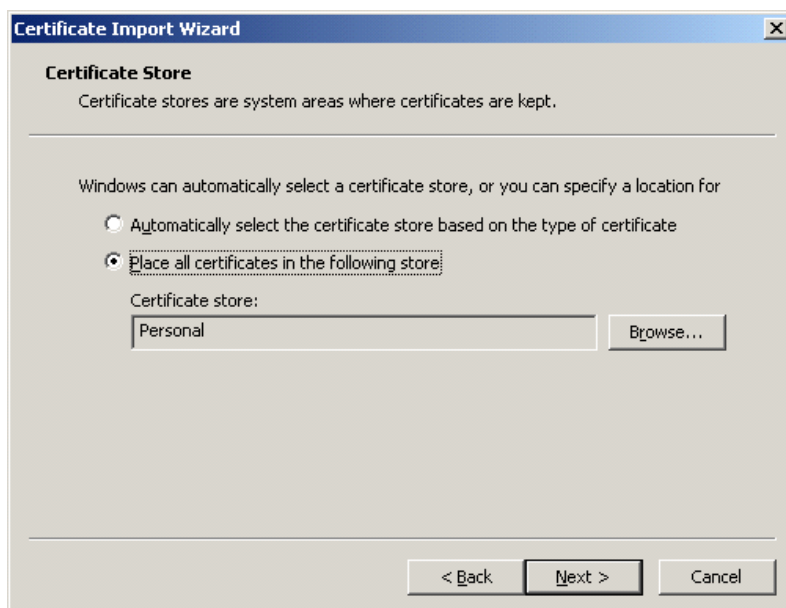


figure 56

8. Finally, click **<Finish>**.

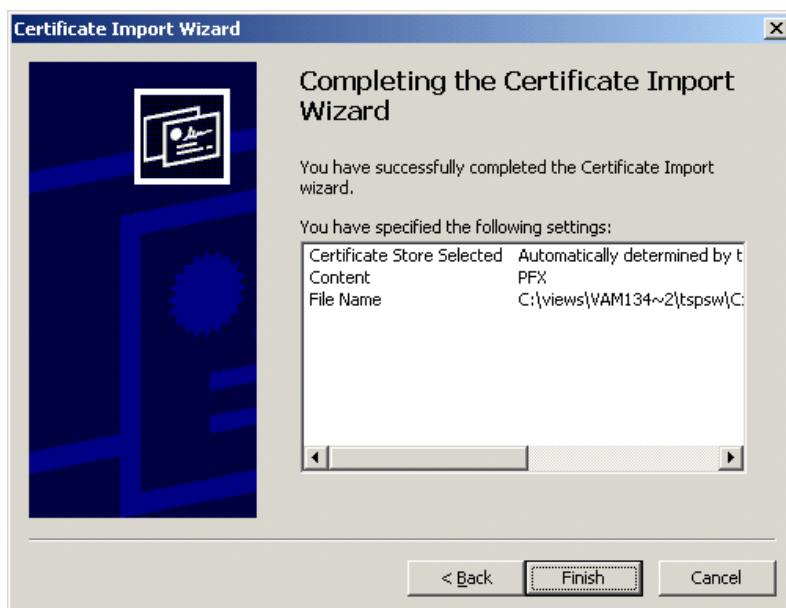


figure 57

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The NX identity certificate has now been installed properly. You can now add so-called trusted certificates of the different DICOM devices you want to communicate with over SSL. The following steps are required per certificate you want to install:

1. Select 'Trusted root certification authorities' and select *All tasks* → *Import*



figure 58

Click **<Next>**

2. Browse to the file containing the identity certificate.

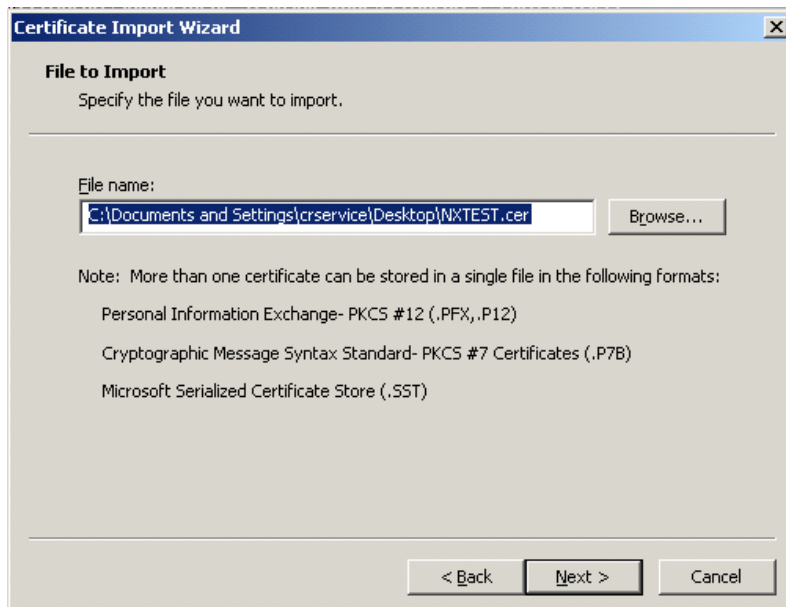


figure 59

Click **<Next>**

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3. Choose the Certificate store location NXWorkstation\Trusted Root Certification Authorities

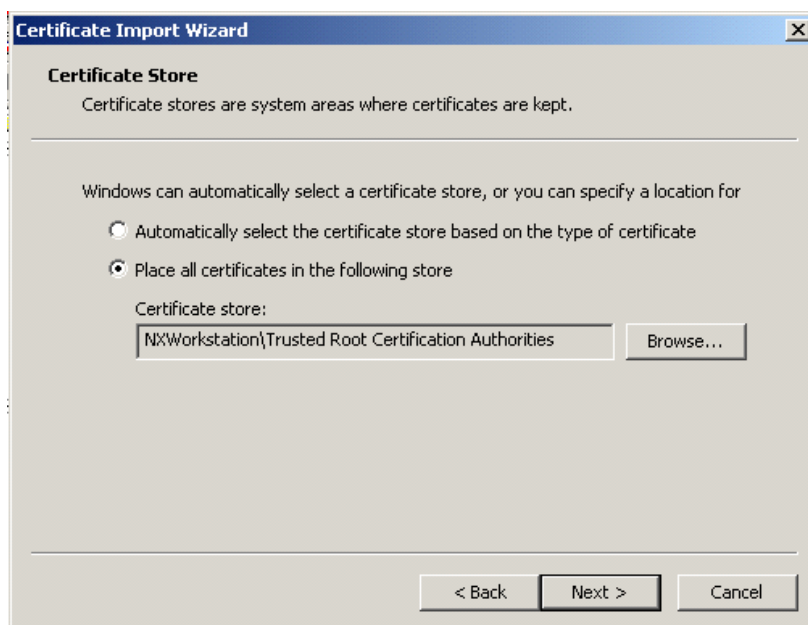


figure 60

Click **<Next>**

4. The certificate of the trusted device has now been imported.

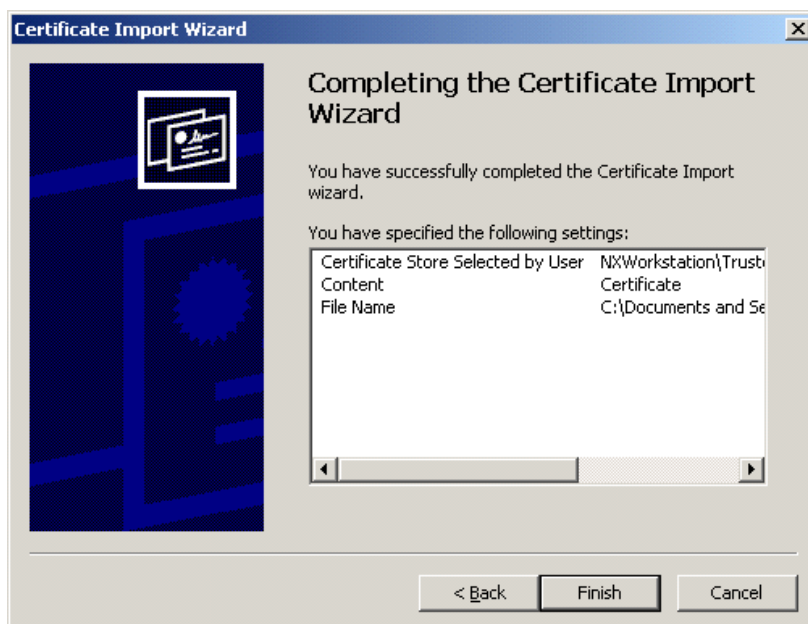


figure 61

Click **<Finish>**

5. Repeat steps 1 -3 until you have imported all trusted certificates.

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6. Start up the configuration tool using *Start → NX → NX Configurator*.
7. NX knows which certificate is its own certificate by specifying the “Common Name” in the NX Configuration tool / Security settings pane. This “Common Name” has to match exactly (mind capitalization!) with the common name specified in the certificate.
8. Enable the ‘SSL’ flag for those Dicom devices with which you want to communicate over SSL.
9. Install the public part of the NX certificate you used on EVERY Dicom device with which you want to communicate over SSL.
10. You can try out a secure communication using one of the ‘Test’ buttons foreseen on printers and archives (device configuration pane).

Attention : If it fails, check in the certificate management that indeed the proper certificates are available (and also check whether you have installed the NX public certificate on each device with which you want to communicate over SSL).

11. Activate the configuration.
12. Finally, we must ensure that the user under which the NXWorkstation Windows Service is running has access to the private key of the personal certificate (aka identity certificate). In order to do this, type the following in a DOS Window:

```
C:\Agfa\Healthcare\NX\Bin\winhttpcertcfg.exe -g -c  
LOCAL_MACHINE\My -s <Certificate common name> -a  
<User account>
```

Where ‘certificate common name’ is the common name of the identity certificate (the one you installed under the Personal folder in the certificate management tool (Note : It’s the name of the certificate, not the file name!). In case there are spaces in the certificate common name, you need to put it between double quotes : e.g. “my certificate”).

User account can be either a local computer account or a domain account (when you have configured your system to be able to access a network location for a non-Dicom RIS connection for example). Normally this is ‘NXWorkstationUser’.

To verify which account you should specify, go to the *Start → Control Panel → Administrative tools → Services*, select the NXWorkstation service and right click to get access to the properties. In the ‘Log on’ tab you will see the name of the account that is currently used. This is the account name you should use in the above statement.

The expected result is:

Granting private key access for account:

<PCName>\NXWorkstationUser

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11 Settings for Anti-virus Software



REQUIRED TIME:

Approx. 10 min. (without installation of the software).

Checkpoints:	See section
1. Setting NX: McAfee 8.0	11.1
2. NX: Norton Antivirus 10.0	11.2
Back to Overview	

11.1 Setting NX: McAfee 8.0

After install most of the settings we leave on default. Some of them need to be adjusted; you'll find them here below:

1. Leave these settings default:

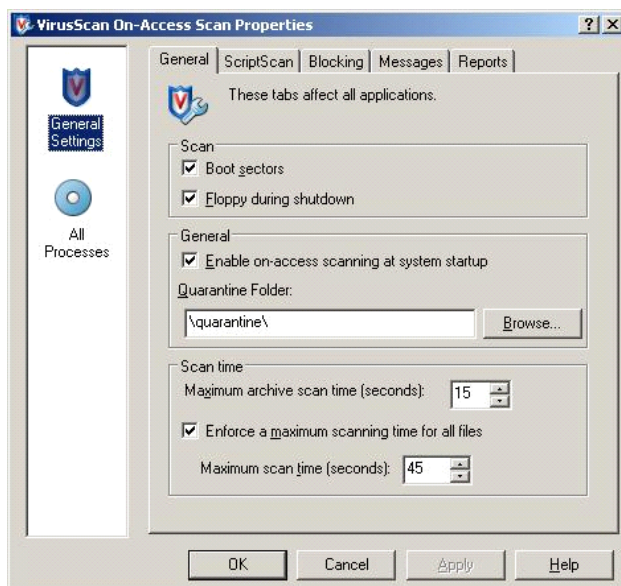


figure 62 - Scan properties, general settings.

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2. Leave these settings default:

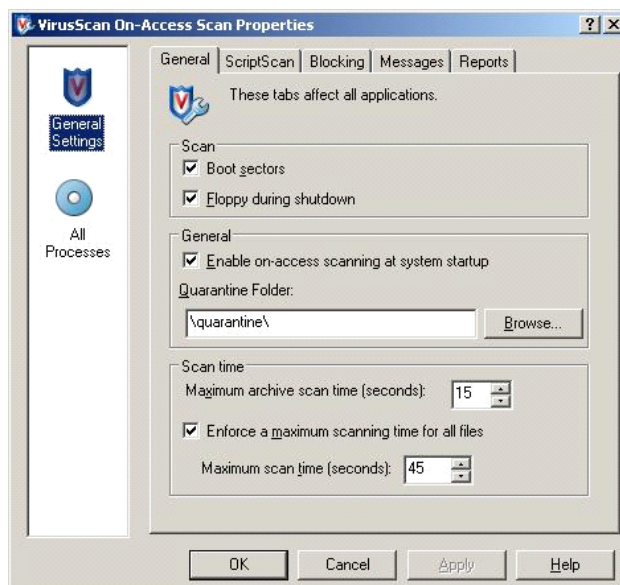


figure 63

3. Leave these settings default:

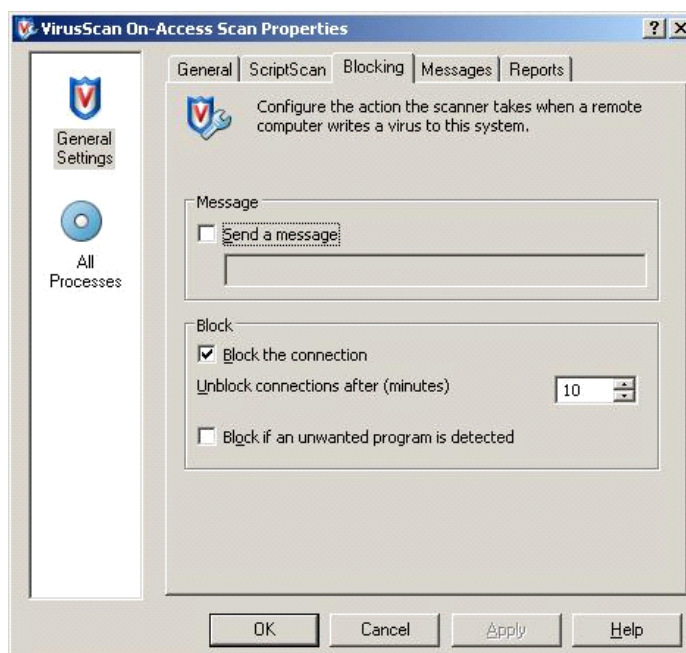


figure 64

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4. Leave these settings default:

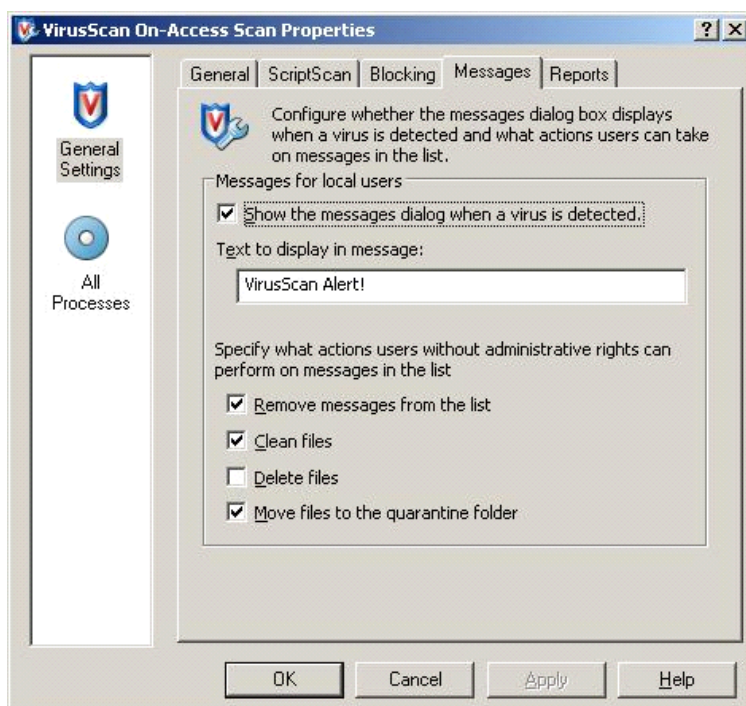


figure 65 Scan properties, messages

5. Leave these settings default:

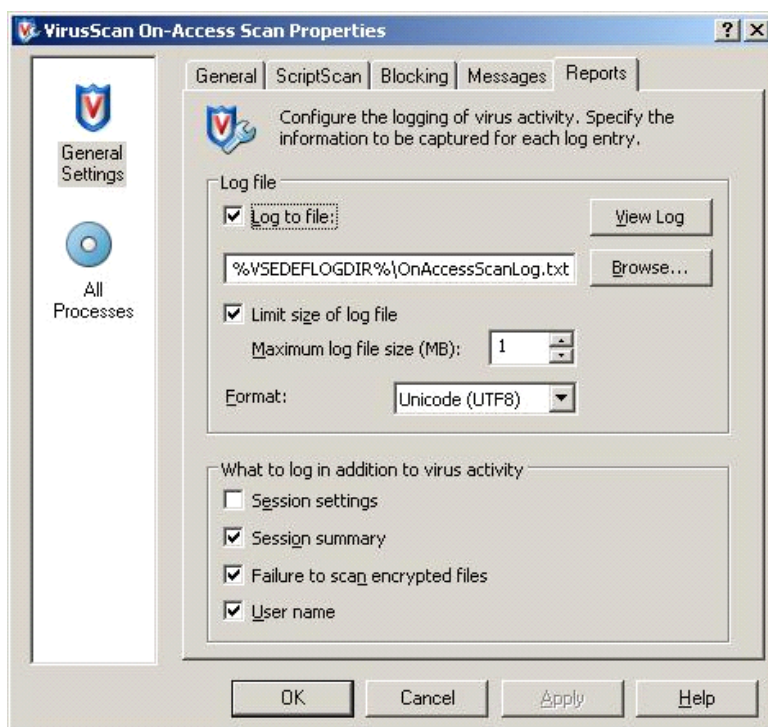


figure 66: Scan properties, reports.

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6. Leave these settings default:

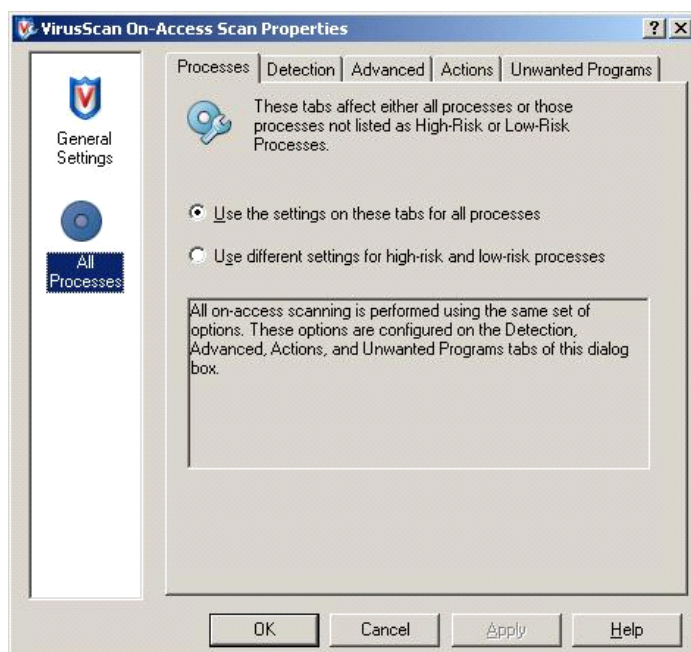


figure 67: All processes, processes.

7. Select “When writing to the disk” and uncheck “When reading from disk”:

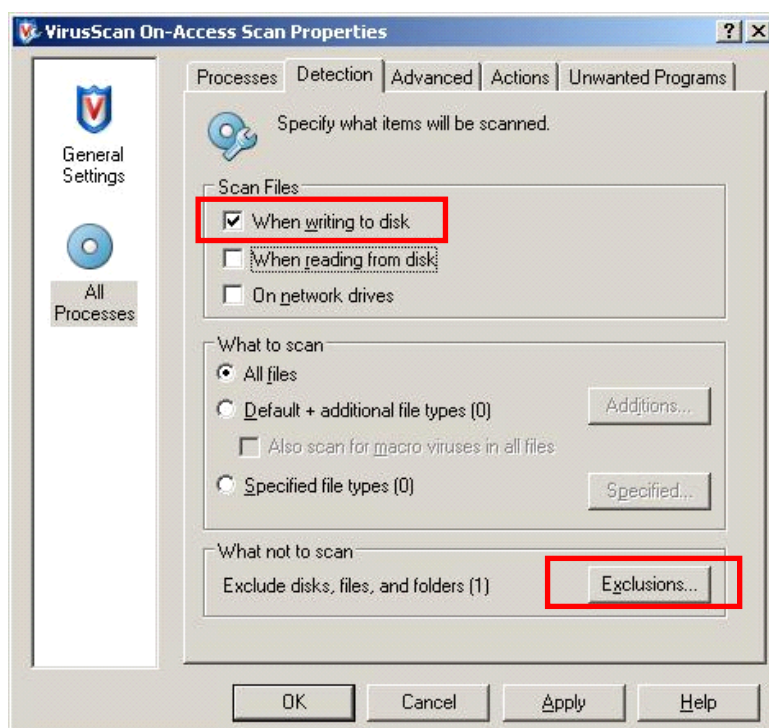


figure 68: All processes, detection.

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NOTE:

It is very **important to uncheck “When reading from disk”**. If it was checked, the NX software would run very slow. It's safe enough to check all the files that are written to the disk. Also select **“All files”**. It would work faster if only the virus sensitive files were scanned. Since the appearance of new viruses (extensions to exclude) cannot be predicted, it is safer to scan all the files.

You can mark a folder or disk that doesn't need to be scanned.

8. To select disks, files or folders that don't need to be scanned, click the button **<Exclusions>**.
9. Click the **<Add...>** button and select the folder where NX stores the image data:
D:\Agfa\Healthcare\NX\Datafiles



NOTE:

Exclude the data directory from scanning (the place where NX Images are stored). The performance of the software can be better by doing this. Another reason to exclude this folder is the possibility of “false positives”. A false positive can be an image file that contains a bit sequence that looks like a virus. The virus scanner recognizes this file as a virus. This possibility of a “false positive” is very small.

10. Leave these settings default.
Note: the Compressed files options may be unavailable

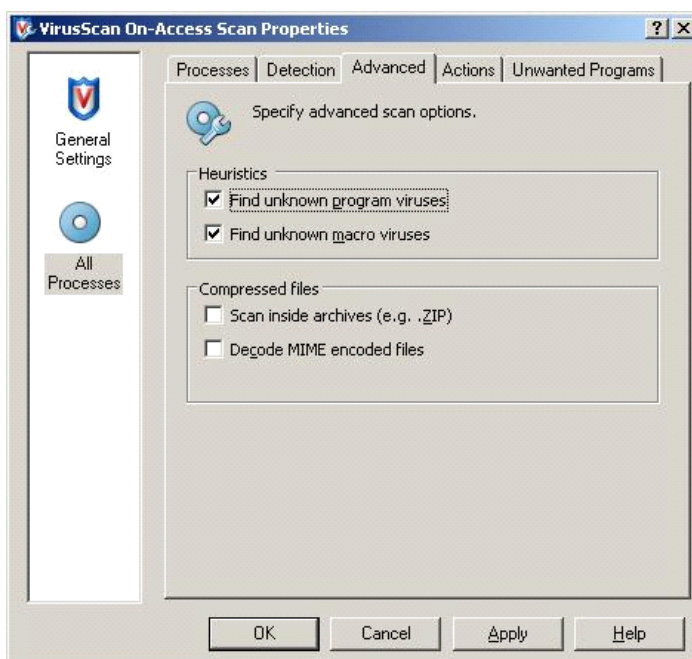


figure 69: All processes, Advanced

Click <Apply>.

11. Leave these settings default.

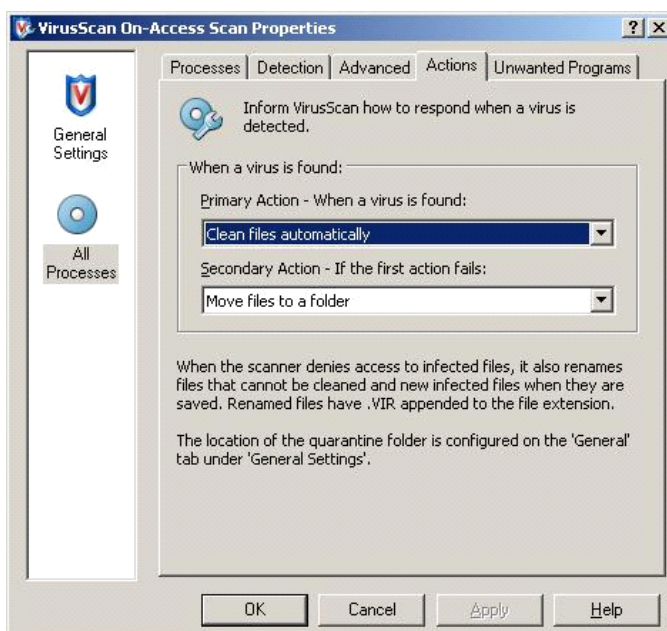


figure 70: All processes, Actions

Click <Apply>.

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12. Leave these settings default.

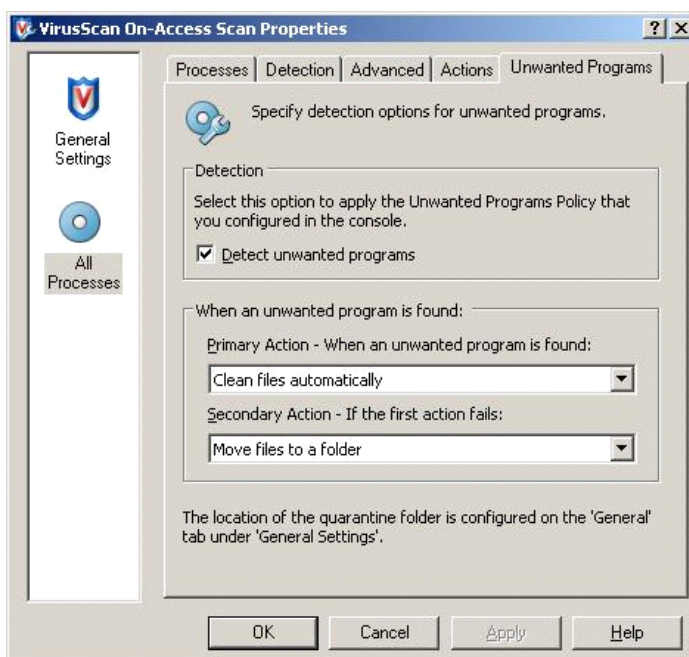


figure 71

Click <OK>.

13. Open the virusScan Console.

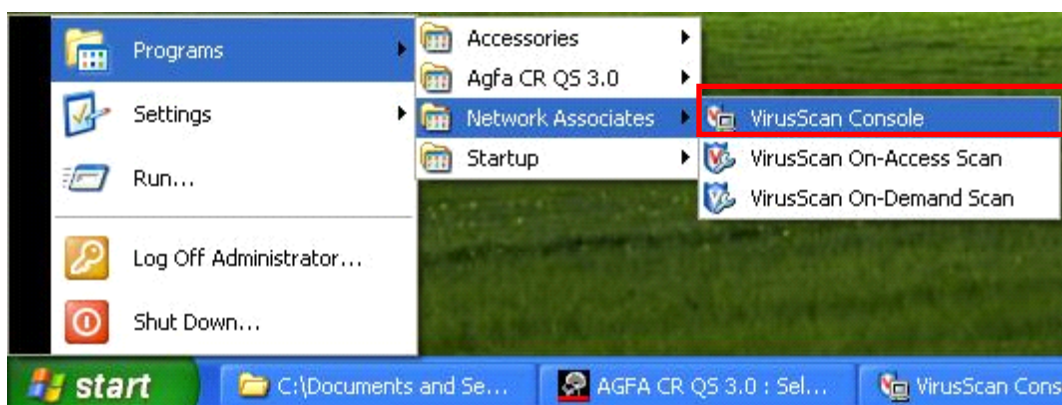


figure 72

14. Right-click on "Access Protection" and choose "Properties".
15. Select the tab "File, Share, and Folder Protection"
16. Disable the security rule "Prevent remote creation of autorun.inf files"
17. Click <OK>

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**NOTE:**

The reason to do that is that this rule prevents NX to perform successful DICOM export on CD.

18. Change the settings of auto-update:

Right-click on "AutoUpdate" and choose "Properties".

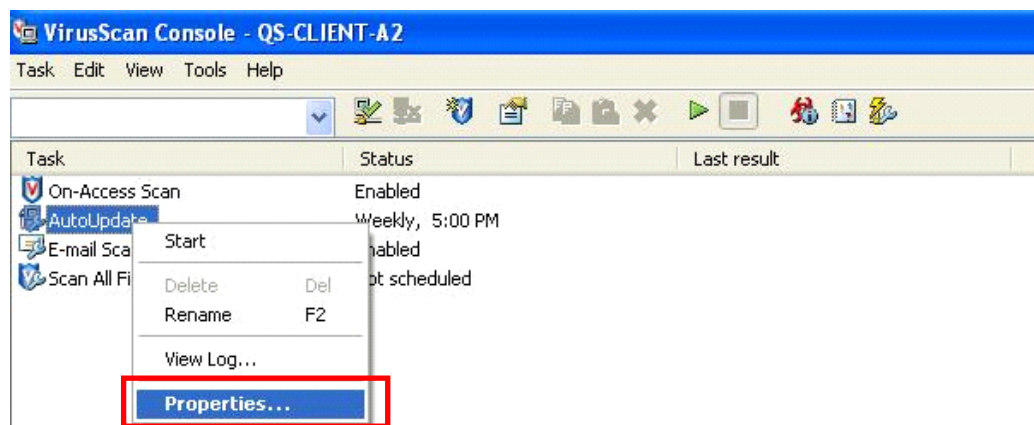


figure 73

19. Press the button <Schedule...>.

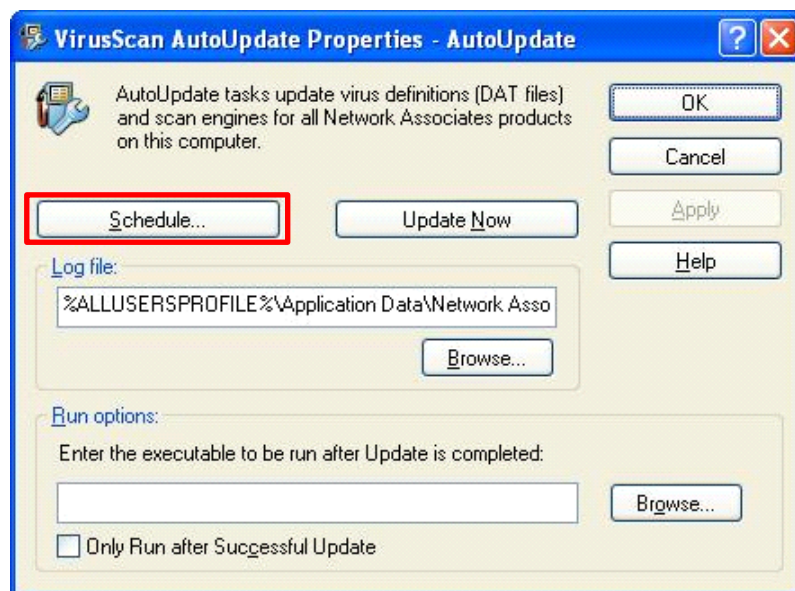


figure 74

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20. On the schedule tab, set the schedule task on weekly; start time 6:00 AM local time. The day of auto-update is Tuesday.

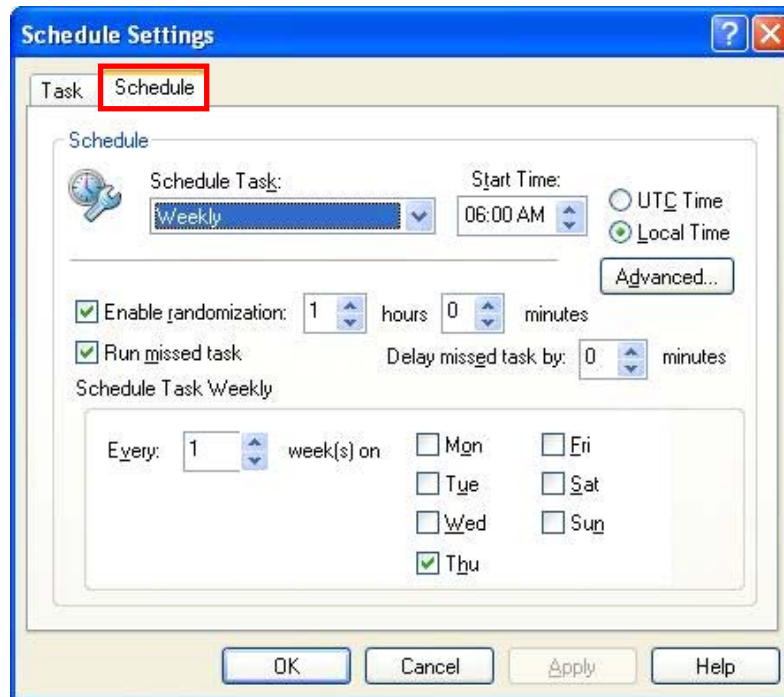


figure 75



NOTE:

The reason to do that is that most virus updates are released on Wednesday night.

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11.2 NX: Norton Antivirus 10.0

11.2.1 Difference between McAfee and Norton Antivirus

The Norton Antivirus Corporate 10.0 gives you the opportunity to use it as a “managed solution” (it also can be used as a “normal” virus scanner). “Managed solution” means that installations, updates, settings and scheduled scans can be done from a central server. The server can have other clients and servers in his group and coordinate the different security levels and settings across domains and groups.

11.2.2 Norton Antivirus Corporate 10.0 Settings: Server

After installation we leave most settings default.

But certain settings need to be adjusted:

1. Open Norton Antivirus by right clicking the Norton icon in the tray.



figure 76

2. Enter the password: Symantec

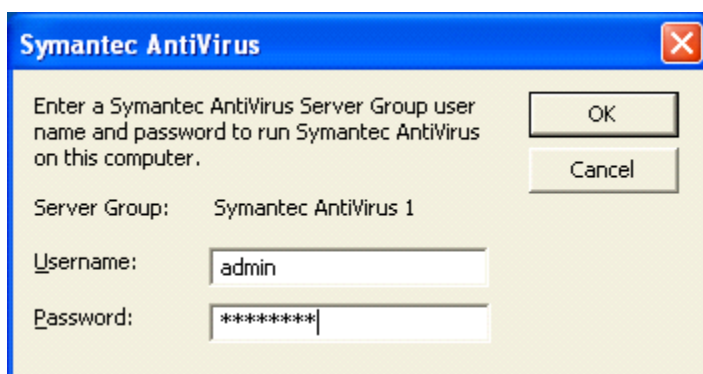


figure 77

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3. First adjust the virus definition update schedule

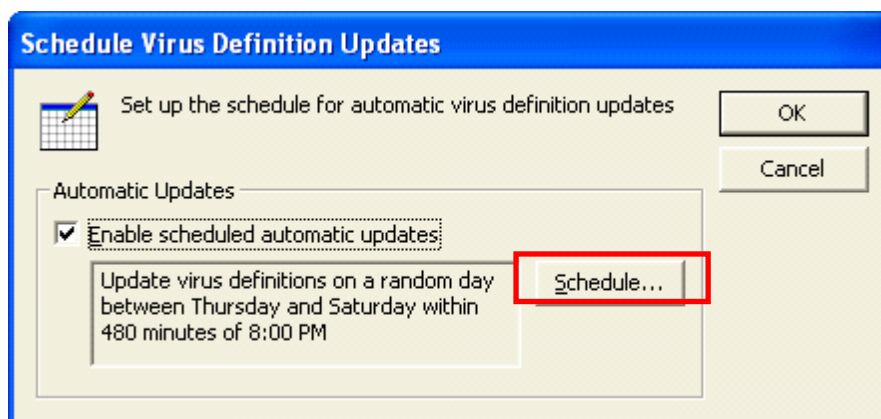


figure 78

- Check "Enable scheduled automatic updates".
 - Click <Schedule...>
4. Set the frequency on weekly, every Thursday at 6 AM.

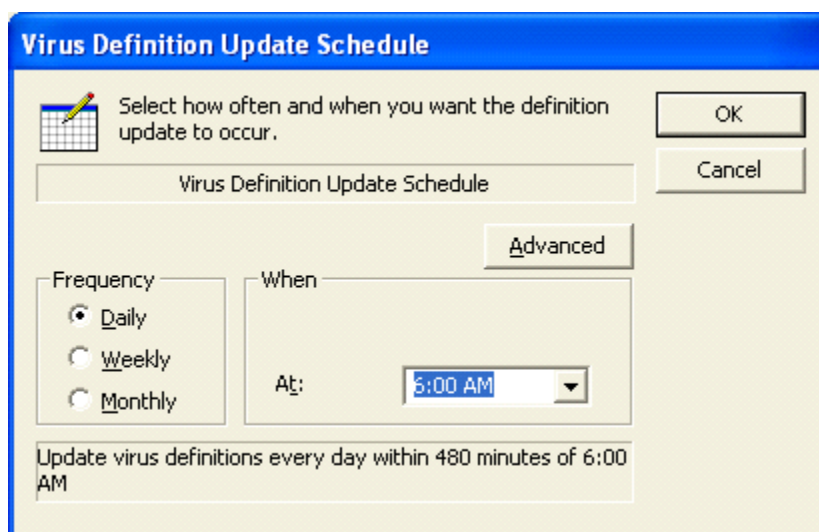


figure 79

**NOTE:**

The reason is that most virus updates are released on Wednesday night.

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5. Scan the floppy's on the computer, so mark them in the left pane: "scan a floppy disk"

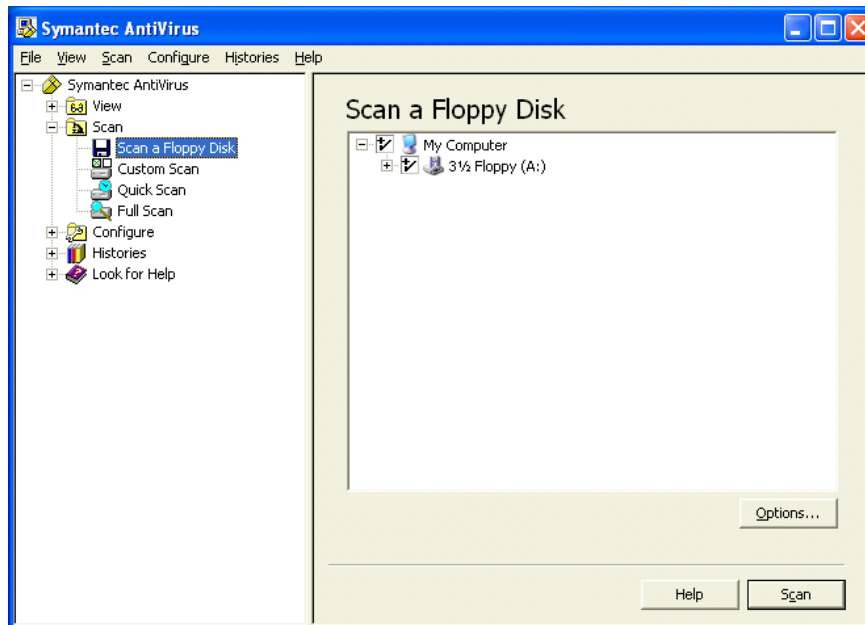


figure 80

6. The most important part is the "File System Realtime Protection". Leave the default settings so all file types will be scanned.

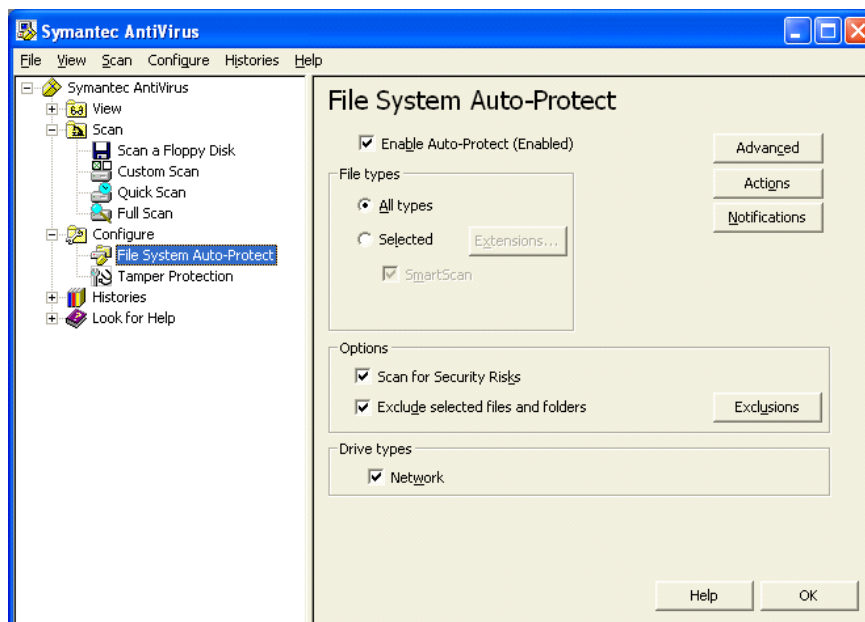


figure 81

Check "Exclude selected files and folder" and click the button **<Exclusions>**.

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7. Then click **<Files/Folders>**.

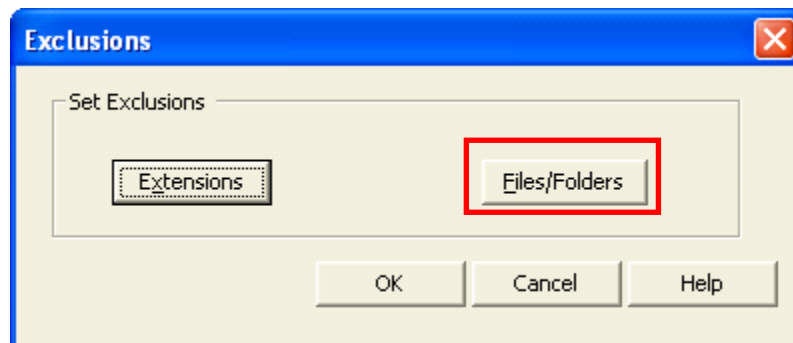


figure 82

8. Mark the DataFiles folder on the drive.

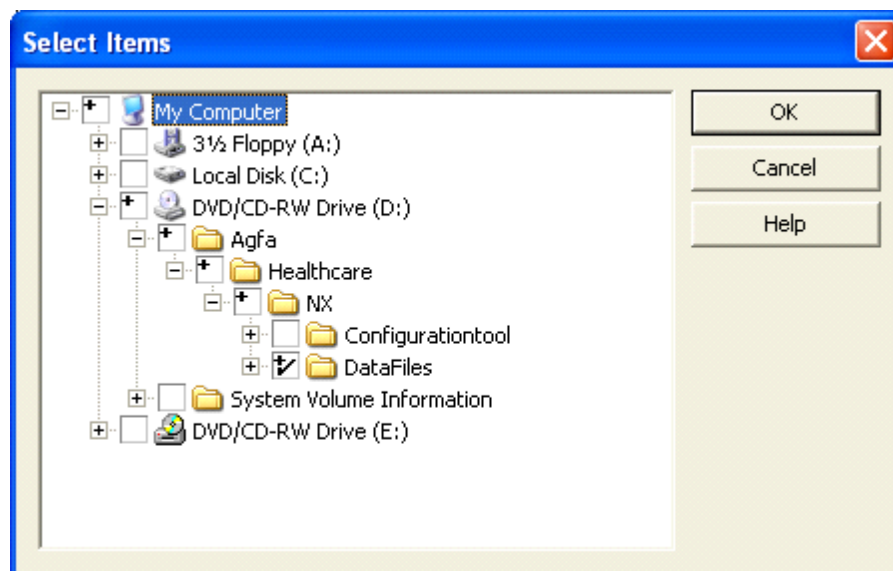


figure 83

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**NOTE:**

Same remark as with McAfee adjustments:

We exclude the directory “Data” from scanning (the place where QS Images are stored). The performance of the software can be higher by doing this. Another reason to exclude this directory is the possibility of “false positives”. A “false positive” can be an image file that contains a bit sequence that looks like a virus. The virus scanner identifies this file as a virus.

- The best thing to do is to generally add no exclusions. Only in situations when there are a lot of clients connected to the server and the performance is getting worse, exclude the data folder. This will improve performance.
- To exclude the directory “Data” only on the server. The client hasn’t got a directory with QS images!

11.2.3 Norton Antivirus Corporate 7.6 Settings: Client

On the client there are no settings to be changed. The changes are done on the central server and have influence on the client.

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12 Monitor Calibration

- Monitor calibration is a mandatory configuration step when
 - a new NX Workstation is installed
 - NX is installed on an existing QS hardware
 - upgrade or update of NX, if it cannot be confirmed that calibration was performed before, according to this procedure
 - before configuring image processing parameters, if it cannot be confirmed that calibration was performed before, according to this procedure
 - a new monitor is installed
 - the environmental viewing conditions are changed
- Monitor calibration is required, regardless whether P-values are
 - configured for display.
 - If a BARCO monitor is used, NX has to be configured to send P-values to the display.
 - If a DELL monitor is used, NX has to be configured to send gamma-values to the display.

Other combinations are not supported.

- Monitor calibration is recommended if the previous calibration was performed more than 12 months ago.

Checkpoints:	See section
1. Calibrate BARCO MFCD1219 (TS) monitor	12.1
2. Calibrate BARCO MFCD 1218 Monitor	12.2
3. Calibrating a standard DELL Monitor	12.3
Back to Overview	

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12.1 Calibrate BARCO MFCD1219 (TS) monitor

12.1.1 Reset factory default monitor settings

Use the monitor's on screen display (OSD) to configure Contrast and Brightness to 50. Refer to the BARCO MFCD 1219 User Manual for detailed instructions.

12.1.2 Installing Barco NioWatch Tool



NOTE:

- If NX had been ordered with Barco Monitor, this installation step was already done in production and can be skipped!
- If the monitor type is not detected by NioWatch, an old software version has been used. A newer software version is required.
The software is delivered with the Monitor. The software is also available on the driver NX Starterkit DVD 2 in the folder *DRIVERSNiowatch and Barco TS driver*.

To install this Software you must be System Engineer or System administrator.

1. Insert the NX Starterkit DVD 2, containing the Niowatch installer.
 - Browse to *DRIVERSNiowatch and Barco TS driver*
 - double click the file "setup.bat".
2. In the window section *NioWatch 2.02.XX* click **<Install Now>**.
3. Click **<Next>** on the welcome screen.
4. After reading the Software License Agreement, select "I accept the terms in the license agreement" and click **<Next>**.
5. Click **<Next>** (user name, organization, anyone who uses this computer).
6. Select "Complete" installation and click **<Next>**.
7. Click **<Install>** to begin the installation.
8. Click **<Finish>** to exit the wizard and restart the system.

After restarting the system, the Windows Firewall gives a security alert (Windows XP Service Pack 2 or later), saying that the program "NioWatch" is blocked and it is asking if you want to keep blocking this program.

This is because NioWatch is listening (and accepts connections) on a TCP/IP port (by default port 1160).

Since the "NioWatch Client" application only runs on the local host, you may keep the blocking, since in this case, the "Windows Firewall" does not block "local connections".

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12.1.3 Calibration



REQUIRED TIME:

Approx. 5 min

1. The NioWatch application is located in the Windows systray.



figure 84

2. Right-click on the NioWatch systray icon.
3. Select the "Display settings" option

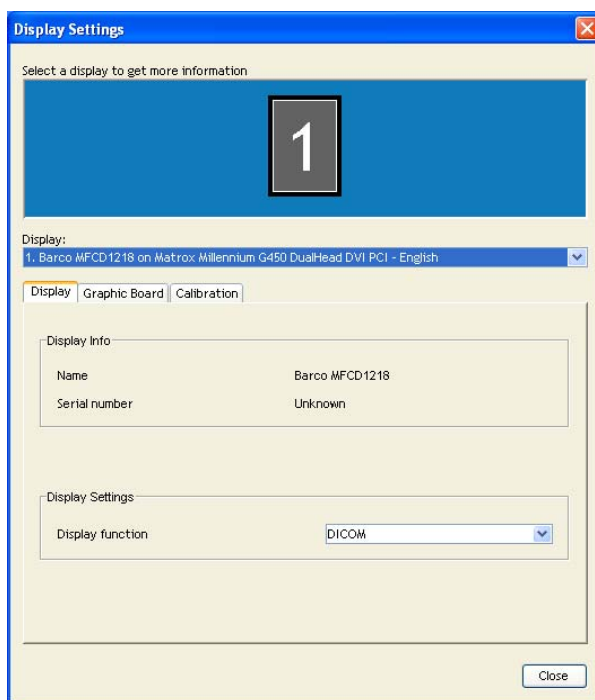


figure 85

4. Select 'DICOM' as Display function

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5. Select the tab "Calibration" and click <Calibrate>

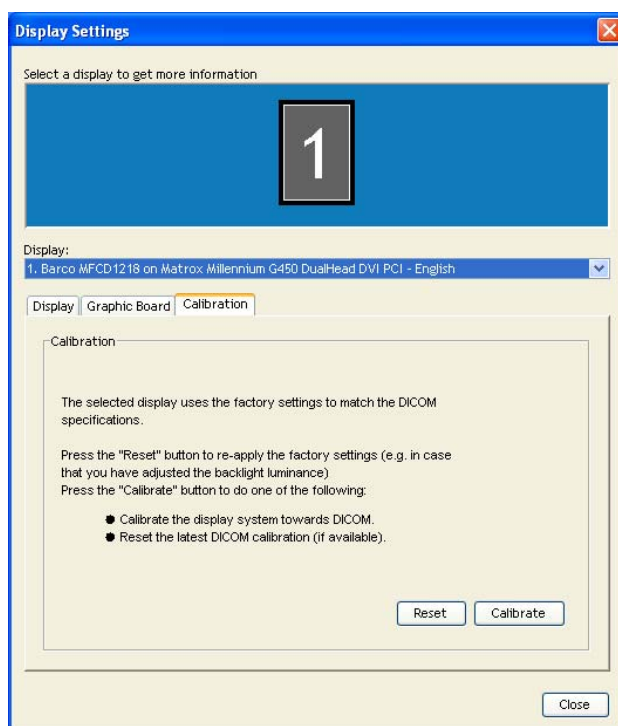


figure 86

6. Check Visually in "Start over the calibration"
7. Adjust the slider until there is almost no visible difference between the background of the image above the slider and the bitmap inside this image. Alternatively, you can use the keyboard arrows to adjust the box intensity and the return key to validate the adjustment.

Slightly closing your eyes to unsharpen your view can make the adjustment easier.
8. When done, click the Set Point button.
9. Repeat this procedure until the button is grayed.
This indicates the last point is set.
10. Click <OK> to finish
11. Click <Close>

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12.1.4 Configure NX Monitor for P-values

1. Go to the NX Configuration Tool
2. Go to "Device Configuration"
3. Select Monitor
4. In *Type* select 8 bit PVAL ☐

**NOTE:**

From NX 2.0.68XX on, P-Values is the default setting for the monitor.

12.2 Calibrate BARCO MFCD 1218 Monitor

12.2.1 Reset factory default monitor settings

Use the monitor's on screen display (OSD) to configure Contrast and Brightness to 50. Refer to the BARCO MFCD 1219 User Manual for detailed instructions.

12.2.2 Installation of Barco Optimizer

**REQUIRED TIME:**

Approx. 4 min. installation + 5 min for restart the system

1. Log in using the crservice account. Password: `Agsrc21s`
2. Insert the CD "DICOM Optimizer from BARCO"
3. Installation starts automatically. If not start the setup.exe from the CD
4. Follow the instruction to install the software

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12.2.3 Calibration



REQUIRED TIME:

Approx. 5 min.

1. Right click desktop and select "Display Properties"
Go to *Settings* → *Advanced* → *Barco Dicom Optimizer*

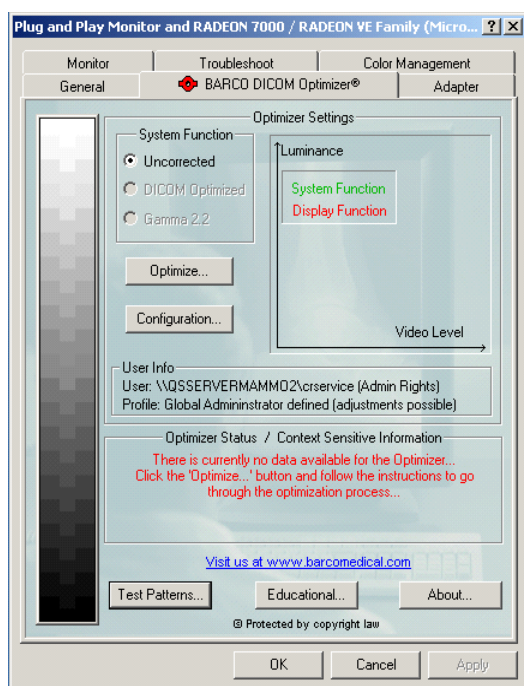


figure 87

Select <Optimize...>

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2. Following Window appears:

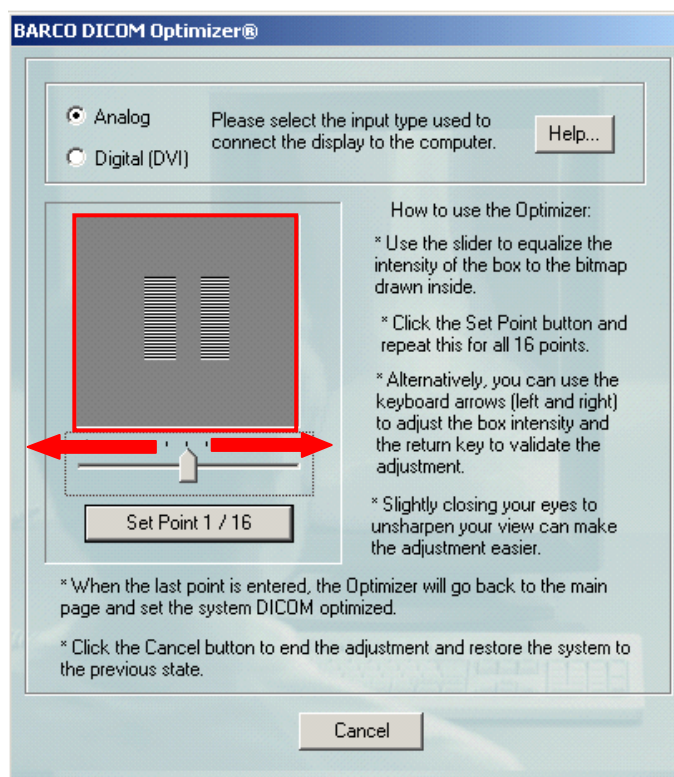


figure 88

3. Select the Input type.

- "ANALOG" when the display is connected to the standard DSUB15 output of the graphic board.
- "Digital" when the display is connected to the DVI output of the graphic board.

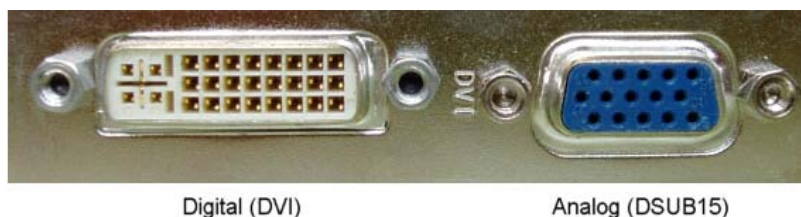


figure 89

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4. Make the alignment for each of the 16 steps. Look with a blurred view to the box and try to align until the grey value of the inner box is matching the background grey level of the box.

After alignment you will automatically go back to the main screen:

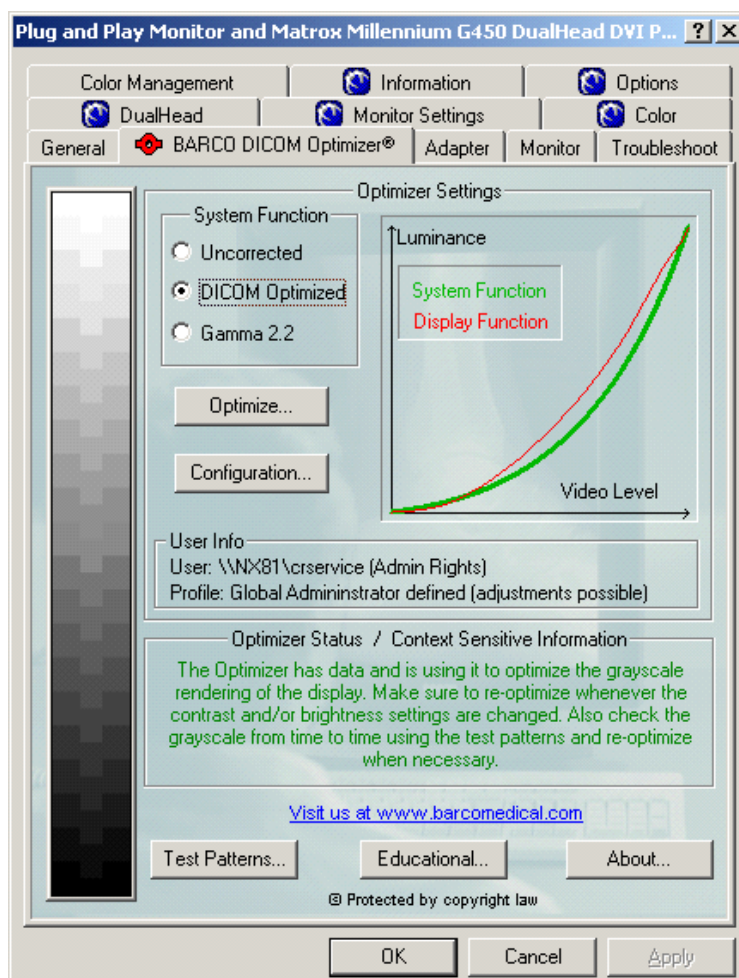


figure 90

5. Check if all 21 levels of the grayscale pattern on the left side are clearly visible
6. Click <Apply>
7. Click <OK>
8. Close the open windows

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12.2.4 Configure NX Monitor for P-values

1. Go to the NX Configuration Tool
2. Go to "Device Configuration"
3. Select Monitor
4. In *Type* select 8 bit PVAL



NOTE:

From NX 2.0.68XX on, P-Values is the default setting for the monitor.

12.3 Calibrating a standard DELL Monitor

Use the monitor's on screen display (OSD) to configure Contrast and Brightness based on the SMPTE Test Pattern.

The Contrast and Brightness is adjusted until the 5 % and 95 % fields on the SMPTE - Test Pattern are visible. This may result in not getting the maximum light output of the monitor, which is normal behavior.

1. Go to the NX Configuration Tool
2. Go to "Device Configuration"
3. Select Monitor
4. In *Type* select 8 Bit GAMMA
5. In *Test image* select SMPTE
6. Click View
7. The Contrast and Brightness is adjusted until the 5 % and 95 % fields on the SMPTE -Test Pattern are visible. This may result in not getting the maximum light output of the monitor, which is normal behavior.
8. If the result is not sufficient, click the image to return to the Configuration Tool and adjust Gamma value and repeat from step 6.

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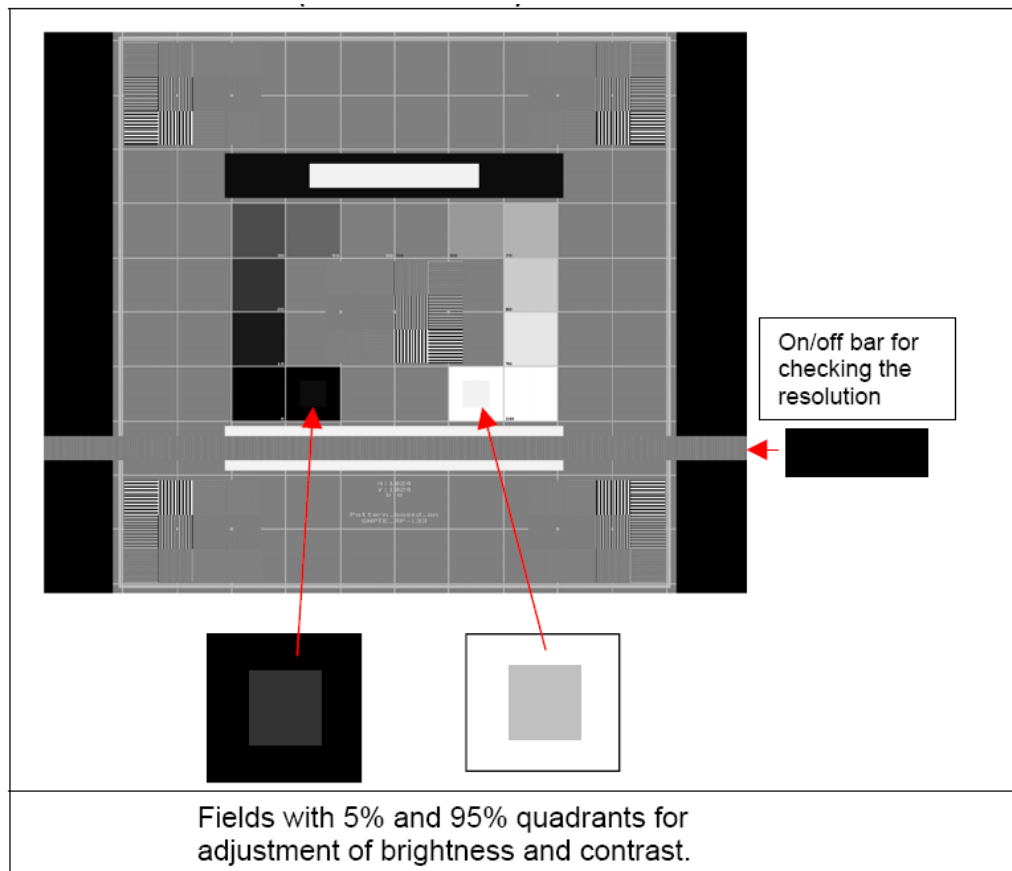


figure 91

Display SMPTE-Test Pattern and check test image for following criteria:

- No interference (Moiré-Effect) in the on/off bar (see graphic)
 - A visible 95% square in the full white square in the SMPTE pattern as well as a 5% square in the black square of the SMPTE pattern. (see graphic)
 - Adjust brightness and contrast by trying to reach the maximum contrast value without saturating the white box.
 - It may be necessary to switch a few times between brightness and contrast to get the optimal result.
- For detailed description how to adjust brightness and contrast refer to the Display User Manual.

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13 How to configure P-Values for Print or Archive

When do you need P-values? - If you want to have consistent presentation of image on workstation, hardcopy and/ or softcopy and this in different light conditions.

What do you need to activate P-values?

- for hardcopy:
Activate p-values output AND configure the environment conditions
- for archive:
activate p-values output

(for details on P-values, see also chapter 3, Functional description, of the NX Service Documentation)



NOTE:

Monitor P-value output is mandatory on BARCO 1218/1219 (TS) monitors and not supported on DELL monitors



REQUIRED TIME:

Approx. 60 min

Checkpoints:	See section
1. Hardcopy	13.1
2. Archive	13.2
Back to Overview	

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13.1 Hardcopy



NOTE:

The image presentation on workstation and on hardcopy will be consistent and optimized, which should not be interpreted as 'identical' presentation.

As this optimization is unique for each light box it can only be done if a printer is dedicated to a specific light box.

13.1.1 Determination of view box illuminance and ambient luminance



REQUIRED TIME:

10 min (waiting time not included)

1. Switch on the Light box and wait about 15 min
2. Measure the luminance in the center of this area and in each corner 10 cm from the edges
3. Calculate the average of the measured values
4. Enter this value as maximum luminance (cd/m^2) in the NX.
(see next section)
5. Switch off the viewing box
6. Measure the reflected ambient light in the center of the light box with a distance of about 60 cm (normal reporting distance)
7. Enter this value as ambient light (cd/m^2).
(see next section)
8. Ensure the printer has been properly calibrated
9. Validate the image quality with the radiologist



NOTE:

If the illuminance of the light box is changeable, adjust the illuminance between 2000 and 4000 cd/m^2 (consult the radiologist for that). Mark the position of the turn switch e.g. with a permanent marker or a label, so that the radiologist can change the luminance of the light box and easily find back to the defined status

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13.1.2 Configuring P-value output on NX and setup environment conditions for hardcopy viewing



NOTE:

- The use of P-values will only provide optimal results when using a light box with luminance within a range of 800 to 4000 cd/m².
- The implementation of P-values on the NX workstation is limited to 4000 as described in DICOM part 14, although in mammography higher output light boxes are used up to 6000cd/m².
- For a light box with luminance between 4000-6000cd/m², set the View box setting in NX to the maximum (4000cd/m²). This range is specific for reporting Mammograms because of the higher density.
- It is important to note that the effect of consistent perception will only be achieved if the image is viewed under the same circumstances as entered during the system configuration, based on the measured values for light box luminance and ambient light.
- P-values should not be used to tune the image quality to individual user taste.

1. Start the NX Configuration Tool
2. Go to Device Configuration
3. Select a printer from the tree view
4. Select Image sheet settings
5. In View Box settings fill in the measured value (cd/m²) for the view box illumination
6. Fill in the measured value (cd/m²) for the reflected ambient light ☐
7. Go to Advanced settings
8. Choose 12 bit P-value pixel format
9. Redo this for all printers

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13.1.3 Required Tool: Luminance Meter

**NOTE:**

This Luminance Meter is also part of the CR Mammography Toolbox!

Model	LxPlus from company Wellhöfer / Germany
Article-No	10+7 9820 0415 0
Vendor	AGFA
Details	Spot luminance meter Used to measure the luminance and illuminance of a viewing box and displays. The device has to be calibrated regularly (2 years). Accuracy: 10%Range : 0.05 -10.000 cd/m2 Measurement angle: 1° max 5° Light sensitivity: CIE spectral response
Remark	Other local products compliant can also be used.

13.1.3.1 Ordering of the Luminance Meter

The ordering of the Luminance Meter can be done through the local/regional AGFA logistic departments.

Place an order at least 8 weeks before you need the luminance meter.

The Luminance Meter has to be calibrated regularly every two years. These measurement devices only can be calibrated via the AGFA logistic. The process is defined as follows and should be started by the NSO 8 weeks before the calibration period will run out:

1. Place an order for a swap unit for the measurement device to be calibrated
2. Wait until you received the calibrated swap device
3. You will be invoiced for the swap unit
4. Fill in the form to return parts (attached to this document)
(enter the device description and serial number)
5. Return the device to be calibrated together with the "Return form" within 4 weeks otherwise you will lose your credit note
6. You will receive a credit note for the device to be calibrated
7. The costs for the calibration are covered by the difference of the invoice and the credit note

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Product	Order Number
LxPlus Luminance Meter from company Wellhöfer / Germany	10+7 9820 0415 0
Swap Unit for the Luminance meter (Wellhoefer Luminance meter LX Plus)	10+7 9820 0411 0

Address to return devices to be calibrated:


AGFA Gevaert HealthCare
Dept.: LOG-T/Retouren
Tegernseer Landstr. 161
81536 München
Germany

Ensure safe packaging when you return measurement devices.

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13.1.3.2 Return Form

		<h1>Retouren</h1> <h2>Returns</h2>		Datum: Date:	
Zentralbereich Logistik-Technik				Seite: von: Page: of:	
Empfänger/Receiver			Absender/Sender		Retoure Nr./Kunde/return no./customer:
Firma: company: AGFA AG Fototechnik München			Firma: company:		
Adresse: address: Tegernseer Landstr. 161, D-81536 München			Adresse: address:		
Name/Abt.: name/dept.: LOG-T/Retouren			Name/Abt.: name/dept.:		
Telefon: phone no.: 089/6207-3388		Fax-Nr.: fax-no.: 089/6207-7386		Telefon: phone no.:	
				Fax-Nr.: fax-no.:	
Kunde/Techniker/VO: Customer/technician/SO:		Partner-Nr.: / partner no.:		Symbol: / AAI-symbol:	
				EVS-Lager-Nr.: / EVS depo. no.:	
<input type="checkbox"/> Neuteile / new parts			<input type="checkbox"/> Defektteile / defective parts		
Genehmigungs-Nr.: permission no.:			RMA# 1)		
			Anlieferung zwischen/ delivery between: Datum / date und/ and Datum / date		
Pos. pos.	Sach-Nummer ref.-no.	Kurzbezeichnung short designation	Menge quantity	Rechnungs-/Lieferschein-Nr. invoice/delivery note no.	
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
<input type="checkbox"/> LAB	<input type="checkbox"/> HE	<input type="checkbox"/> NDT	<input type="checkbox"/> MDS	<input type="checkbox"/> COM	<input type="checkbox"/> CS
<input type="checkbox"/> BIS	<input type="checkbox"/> PPS	<input type="checkbox"/> EPS			


1) Bitte schreiben Sie die RMA# gut lesbar auf die Außenseite der Verpackung der Rücksendung und auf die beigefügten Papiere.
Please write the RMA# good visible on the outside of the packaging and on the attached paperwork (delivery note a.s.o.).

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13.1.3.3 Return Label

First page:

		R-No: <div style="border: 1px solid black; width: 100px; height: 20px; text-align: center; margin-top: 5px;">D</div>
RETURN LABEL		
COUNTRY BUSINESS GROUP <input type="checkbox"/> GS <input type="checkbox"/> HE <input type="checkbox"/> II <input type="checkbox"/> NDT <input type="checkbox"/> CI <input type="checkbox"/> Return Authorisation No Warranty Claim Confirmation No		
MACHINE INFORMATION Repair Job No Machine Description Machine Type No Serial No Installation Date Cycles		
PART INFORMATION Part No Part Order No <input type="checkbox"/> Warranty <input type="checkbox"/> Machine in Warranty <input type="checkbox"/> Part in Warranty <input type="checkbox"/> PDOAM Part <input type="checkbox"/> Defect <input type="checkbox"/> Repairable Part (MA-4) <input type="checkbox"/> DOA Part <input type="checkbox"/> Complaint-/Inspection Part Complaint No Forward Part to <input type="checkbox"/> Logistics Issues <input type="checkbox"/> Transport Damage } Together with LOG Complaint Form <input type="checkbox"/> Wrong Part/Delivery }		
FAULT Description → use reverse side for problem description!		
FIELD SERVICE INFORMATION Date of Repair Engineer/ID# Name Tech Signature		
↓ Remove Label here ↓ ↓		

Second page:

	
Fault description by symptom code and problem	
FAULT OCCURS <input type="checkbox"/> Permanently <input type="checkbox"/> Sporadically <input type="checkbox"/> Due to Temperature <input type="checkbox"/> Other Relation	
Symptom code Description of symptom	
Defect code Description of defect	
Label to be ordered as: DD+Return-Tag03	
F7.1123.8301.0	Date: 26/05/2004

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13.2 Archive

1. Go to the NX Configuration Tool
2. Go to “Device Configuration”
3. Select an Archive
4. Select in Device Settings (depending on the receiving station) the Output type
 - 15-bit PVAL VOI LUT (preferred setting)
 - 12-bit PVAL
 - 8-bit PVAL
5. Repeat this for all Archive devices

14 Managing Protocol Codes

Protocol codes are imported from the RIS, and can be linked to exposure groups, exposures and exams that are displayed in the user interface. This way, an incoming protocol code can be “resolved”, and the operator receives immediate feedback on the examination he needs to perform.

Configuration of Protocol codes involves (1) mapping the RIS attribute containing the protocol code to the right NX database field, (2) creating a list of known protocol codes and (3) linking the protocol codes to the exam tree.



REQUIRED TIME:

Approx. 30 min.

Checkpoints:	See section
1. Mapping RIS Protocol Code Attribute	14.1
2. Creating the Protocol Codes List	14.2
3. Configuring Protocol Codes	14.3
4. Linking Protocol Codes to the Exam Tree	14.4
Back to Overview	

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14.1 Mapping RIS Protocol Code Attribute

The standard way to do this according to DICOM is to make use of;

Scheduled Protocol Code Sequence (0040,0008)

It is important to note that this is a 'Sequence'. A sequence contains one or more 'items' each item contains a number of attributes, such as Protocolcodevalue, Protocolcode meaning, etc.. , organized in a particular structure.

There are 3 ways of mapping protocol codes into NX:

14.1.1 Following DICOM (this is the default Mapping)

RIS Dicom Tag	RIS Label	Value	NX Dicom Tag	NX Label
0040,0008	Scheduled Protocol Code Sequence		0040,0008	Scheduled Protocol Code Sequence

14.1.2 Using an other Sequence.

RIS Dicom Tag	RIS Label	Value	NX Dicom Tag	NX Label
0032,1064	Requested Procedure Code Sequence		0040,0008	Scheduled Protocol Code Sequence



NOTE:

This can be done because these two sequences have an identical structure. Trying to map any other sequences would not work.

A limitation of this sequence is that it can only contain one 'item', the (0040,0008) can contain one or more 'items'!

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14.1.3 Using a 'string Field'

Many RIS systems will provide the value we want to use as a protocol code in another DICOM attribute. E.g. Requested Procedure Description (0032,1060)

Because in this case we will be mapping an individual 'string' attribute we cannot map it directly into the sequence (this will not match the structure).

We need to map it to a specific attribute of the sequence namely:

Protocol value (0040,0008)

RIS Dicom Tag	RIS Label	Value	NX Dicom Tag	NX Label
(0032,1060	Requested Procedure Description		0040,0008	Protocol value



NOTE:

- When looking through the list of NX attributes, this attribute is referred to by the same number (0040,0008). Only the name is different!!
This is because it is part of a sequence, these parts do not have unique identifiers outside the sequence.
- As the Protocol code value can contain a maximum of 16 characters you need to take care that the input string is no longer than 16 characters. If by accident a string longer than 16 characters is received from the RIS, then NX will not show any thumbnails for the scheduled exam containing the longer string. A general parse error will be displayed, (the cause of parse errors can be found in the logging). The user will need to select exposures manually for this exam.
- The function "Add Unmapped Field" can also be used when you wish to map one RIS attribute to two different NX attributes. You do this by adding the attribute to the 'Unmapped Fields' list manually (use the correct number but give it a different name), then map it to an available field. E.g: UDField1 (= User defined field)

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14.2 Creating the Protocol Codes List

Click the "Edit Protocol Codes" task from the Exam Tree Configuration screen in the NX Configuration Tool.

Within the protocol code settings page, you can:

- Link protocol codes with exams, exposures and exposure groups.
- Preview settings of an exposure group or exposure that is linked with the code.
- Import protocol codes
- Edit Protocol Codes

The protocol codes that are imported are listed in a pane at the left hand side of the central viewing area, the list view pane. This list contains three columns:

- The Protocol Code itself.
- A description.
- The name of the assigned exposure group, exposure or exam.

Protocol Code	Description	Assigned to
7210 1103	sps ACTION ITEM	ExposureType : Abdomen AP
7210 1104	sps ACTION ITEM	ExposureType : Wrist AP
7210 1120	sps ACTION ITEM	ExposureType : Knee AP
7210 1201	sps ACTION ITEM	ExposureType : Chest AP
7210 1303	sps ACTION ITEM	ExposureType : Hand AP
7210 1305	sps ACTION ITEM	ExposureType : Chest PA
7210 1401	sps ACTION ITEM	ExposureType : Ribs Lower
7210 1402	sps ACTION ITEM	ExposureType : Chest on bed AP
7210 1404	sps ACTION ITEM	ExposureType : Full Leg AP
7210 1501	sps ACTION ITEM	ExposureType : Full Spine AP
7210 1503	sps ACTION ITEM	ExposureType : Full Spine Lat
7210 1601	sps ACTION ITEM	ExposureType : Cervical Spine AP
7210 1602	sps ACTION ITEM	ExposureType : Knee Patella AX
7210 1603	sps ACTION ITEM	ExposureType : Ankle AP
7210 1606	sps ACTION ITEM	ExposureType : Lumbar Spine Lat
7210 1607	sps ACTION ITEM	ExposureType : Hip AP
7210 1703	sps ACTION ITEM	ExposureType : Pelvis AP
7210 1705	sps ACTION ITEM	ExposureType : Clavicle AP
7210 1706	sps ACTION ITEM	ExposureType : Sacrum/Coccyx AP
7210 1707	sps ACTION ITEM	ExposureType : Sacrum/Coccyx Lat
7210 1804	sps ACTION ITEM	ExposureType : Skull AP
7210 2001	sps ACTION ITEM	ExposureType : Lumbar Spine AP
7210 2002	sps ACTION ITEM	ExposureType : Fingers AP
Emergency 2	Chest AP	ExposureType : Chest AP

figure 92 – Example of a protocol code list

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14.2.1 Editing Protocol Codes

Within the central viewing area, you can edit individual protocol codes. This functionality is included within the header of the central viewing area.

- Command buttons for editing individual protocol codes.



figure 93

14.2.2 Importing Protocol Codes

Protocol codes can be imported from an external file. The file must be of a specific XML-format, containing (code, description) pairs:

- Map to EXAM GROUP; this can be used when the RIS is only providing enough detail to select the exam group (e.g. Chest, Shoulder, Abdomen,...)
- Map to Exposure; this can be used when protocol code from RIS refers to a single exposure
- Map to Exposure Group: this can be used when the Protocol code from RIS refers to multiple Exposures from the exam tree.

See “14.3.1 ” on how to create this file using an auxiliary Excel-sheet.

The import protocol codes dialog is triggered by clicking the <Import> button. Indicate the file location and select the file to import.

If the import is successful, the list of codes is displayed in the list view pane.

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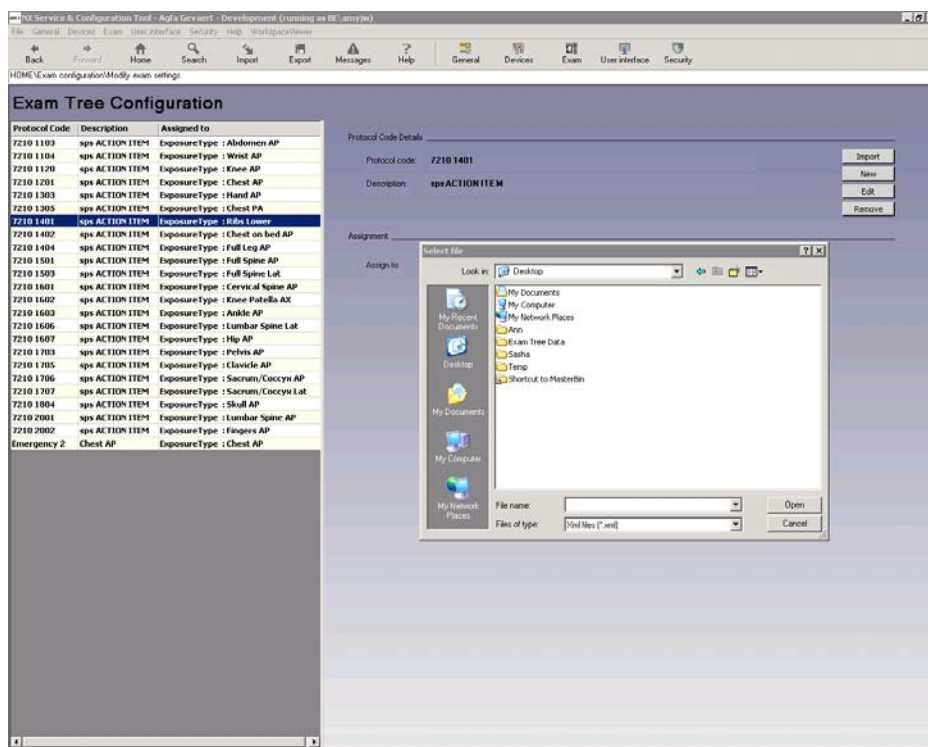


figure 94 – Example of importing a protocol code list

14.3 Configuring Protocol Codes

You can assign the protocol code to an exam, exposure or exposure group.

Protocol Code Details

Protocol code: **7210 1401** Import

Description: **spsACTION ITEM** New

Edit

Remove

Assignment

Assign to:

☐ Exam Select ExamGroup view New

☒ Exposure Select Age Group **17+** New

Select Exam **Chest**

Select Exposure Type **Ribs Lower**

☐ Exposure Group Select Exposure Group New

figure 95– Protocol Code Settings page, header

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- Map to EXAM GROUP; this can be used when the RIS is only providing enough detail to select the exam group (e.g. Chest, Shoulder, Abdomen,...)
- Map to Exposure; this can be used when protocol code from RIS refers to a single exposure
- Map to Exposure Group; this can be used when the Protocol code from RIS refers to multiple Exposures from the exam tree.

14.3.1 Converting Protocol Codes using the Excel Sheet (ready for Import)

NX Comes with an excel file 'Generate Protocolcodes.xls' that can generate this XML file. This excel sheet is located in the "C:\AGFA\Healthcare\NX\Bin\Service\ProtocolCodesTemplate" folder.

The advantage of the excel-sheet is that you can enter/import data (code/meaning-pairs) in many formats and save in the right XML-format for importing in the Configuration Tool.

It allows converting a list of protocol codes into the NX compliant protocol code list format.

The source values can be entered manually, copied pasted from an external source or imported through the excel application.

The excel sheet can be used to convert 'regular' protocol codes and Japanese protocol codes. Only the first case is described below.

1. Open the tab 'Regular Protocol Codes' on the excel sheet.
2. Enter a value for 'protocol code' and 'protocol meaning' by
 - Entering the values row by row manually, or
 - Copy & Pasting a whole range of protocol codes from an external source into the excel sheet, or
 - Importing the values through the excel import functionality.
3. Press the <Generate Codes> button on the Excel sheet; a 'File Save' dialog box is displayed.
4. Select the location and filename in order to save the XML file.
5. Press the <save> button.
6. The word 'Generated' is displayed after every row of protocol code value & meaning pairs.
7. Close the excel sheet without saving the changes.



NOTE:

- After clicking <save>, select XML-format or it won't work.
- The excel-sheet is not available to the Key User.
- The XML file is signed, so that it cannot be tampered with afterwards.

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14.4 Linking Protocol Codes to the Exam Tree

The user is able to assign the protocol code to an exam, exposure or exposure group.

Protocol Code Details

Protocol code: **7210 1401**

Description: **spsACTIONITEM**

Import

New

Edit

Remove

Assignment

Assign to:

☐ Exam

Select ExamGroup view

New

☒ Exposure

Select Age Group

17+

New

Select Exam

Chest

Select Exposure Type

Ribs Lower

☐ Exposure Group

Select Exposure Group

New

figure 96– Protocol Code Settings page, header

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15 Removing restore points

In order to reduce the size of the C: partition it might be necessary to remove all Windows restore points except for the latest one.

1. Double click on **<My Computer>**
2. Right-click on HD Drive C:
3. Select **<Properties>**

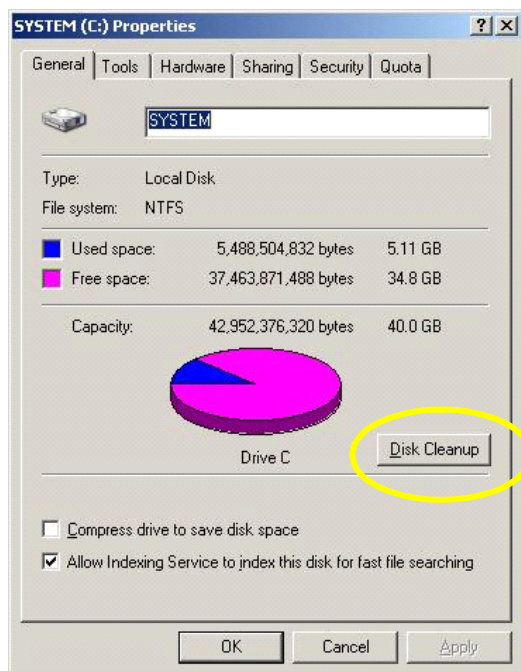


figure 97

4. Click **<Disk Cleanup>** and wait until the system has done some calculations.

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5. In the window *Disk Cleanup for System (C:)* Select the tab *More Options*.

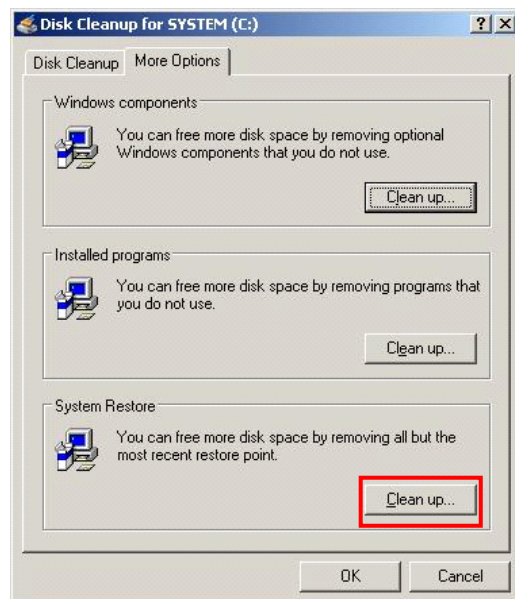


figure 98

6. In the section *System Restore* click the button **<Clean up. . .>**
7. Click **<Yes>** on following window:

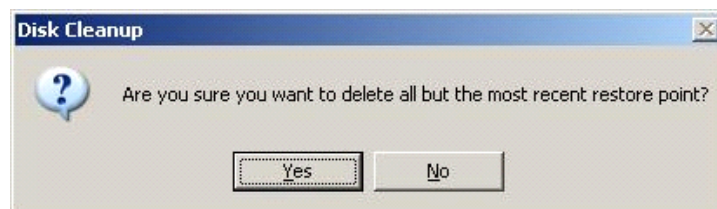


figure 99

8. Exit the window *Disk Cleanup for System (C:)* by clicking **<OK>**.
9. Click **<Yes>** on following window:

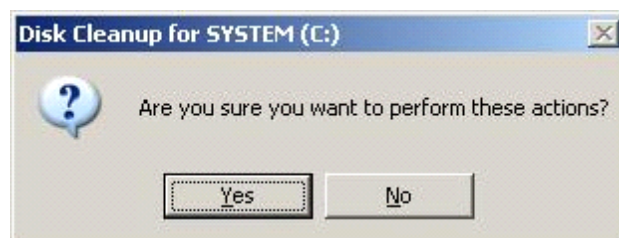


figure 100

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16 Access to Network Drive for non-DICOM RIS

To support a non-DICOM RIS, a network drive can be used to store the RIS data file to which NX requires READ ACCESS permissions.

To support the 'accession number' option or the 'remove data file' option in the NX Configuration tool this requires FULL ACCESS permissions.

Following solutions are possible:

Checkpoints:	See section
1. Share an NX drive	16.1
2. Access to Network Drive (Domain)	16.2
3. Access to Network Drive (Workgroup)	16.3
Back to Overview	

16.1 Share an NX drive

The easiest way is to let the RIS write the data file onto a share on the NX system rather than on a network drive. The only drawback of this solution is that this requires that the RIS should be capable of handling situations where the NX system is not running when it wants to write the file (e.g. the NX PC is switched off).

16.2 Access to Network Drive (Domain)

Configure the NXWorkstation service to use a domain account which has the appropriate access to the location.



NOTE:

Note that for this, the NX itself must be part of the domain (otherwise it cannot use a domain account).

For configuration of NX in a domain, refer to chapter 5 "Installation and Configuration", section "Network", of the NX Service Manual.

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16.2.1 On the domain

1. Ask the hospital administrator to create a domain account that has read access (and write access in case this is required – see above) to the network folder in which the RIS files are stored.



IMPORTANT:

It is important that the password of this account does NOT expire. Password rules are defined by the domain configuration, not by the NX Workstation configuration.

16.2.2 On NX

1. Log in using the crservice account
Password: `Agsrc21s`
2. Add the domain account to the local administrator group
3. Go to *Start* → *Control Panel* → *Administrative tools* → *Services*
4. Select “NX Workstation service” in the list of services
5. Right click and select 'Properties'
6. In the properties dialog, select the 'Log on' tab
7. Select 'This account'
8. Enter the name and password of the domain account and click <OK>
9. Logout and log in with the domain account (in order to configure and test the RIS in the configuration tool).
10. Start the NX Configuration tool
11. Go to *Security* → *User Management* → *Manage users*
Add the domain account and define it as a serviceEngineer (this is just needed for testing in configuration tool, later you can undo this again)
12. Load active configuration.
13. In the RIS configuration, set up the datafile by using the UNC name of the network drive or network location (e.g. `\\mynetworkdrive\RISfiles` or `\\hostname\sharename` or `\\ipaddress\sharename`).

Do NOT use any mapped drives (mapped drives do not work for the NX background service).

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14. In the RIS configuration, select the datafile by using the UNC name of the network drive or network location (e.g. \\mynetworkdrive\RISfiles or \\hostname\sharename or \\ipaddress\sharename\\mynetworkdrive\RISfiles).
Do NOT use any mapped drives. (mapped drives do not work for the NX background service).
15. Click the **<Query RIS>** button to try the connection in the NX configuration tool.
If this succeeds, activate the configuration. (At this moment the NX background service will be restarted using the account specified).
16. From then on, in the QCIDViewer the RIS can be queried even if you logged in with another account.
(You can eventually remove the serviceEngineer role for the account)

16.3 Access to Network Drive (Workgroup)

In case there's no domain server used, there's also a way to do this in a workgroup environment.



NOTE:

NX and remote system must be part of the same workgroup.

For configuration of NX in a workgroup, refer to chapter 5 "Installation and Configuration", section "Network", of the NX Service Manual

16.3.1 On the Workgroup remote system



NOTE:

Before you start with creating a share and an account, go to *Start → Settings → Control Panel → User Accounts* and make sure the account 'TestAccount' has already been created. If not, create it.

Create a share and an account on the PC hosting the RIS data file if these do not exist already:

1. Right-click the folder you want to share and select 'Properties'.
Go to tab 'Sharing'.

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2. Enter a share name

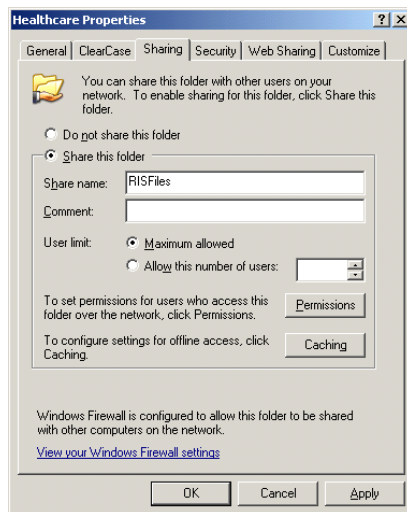


figure 101

3. Click <Permissions>.
4. In case the group or user name 'Everyone' appears, remove it. Click <Add...> and select the 'TestAccount'

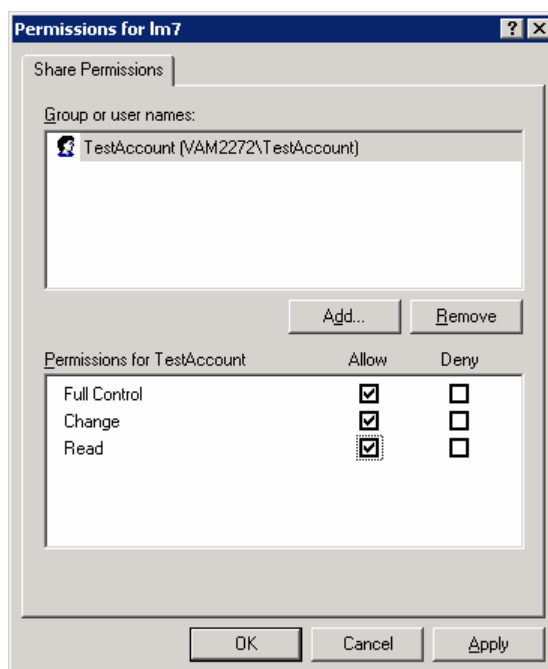


figure 102

5. Make sure the checkboxes 'Allow Full Control', 'Change' and 'Read' are checked.
6. Click <OK>.

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16.3.2 On NX

1. Log in using the crservice account
Password: Agsrv21s
 2. Create the local account 'TestAccount' (with same password as on the remote system) and add it to the administrators group.
It is important that the password of this account does NOT expire
 3. Go to Start → Control Panel → Administrative tools → Services
 4. Select "NX Workstation service" in the list of services
 5. Right click and select 'Properties'
 6. In the properties dialog, select the 'Log on' tab
 7. Select radio button 'This account' and browse to 'TestAccount'
- Enter the password of the account and click <OK>

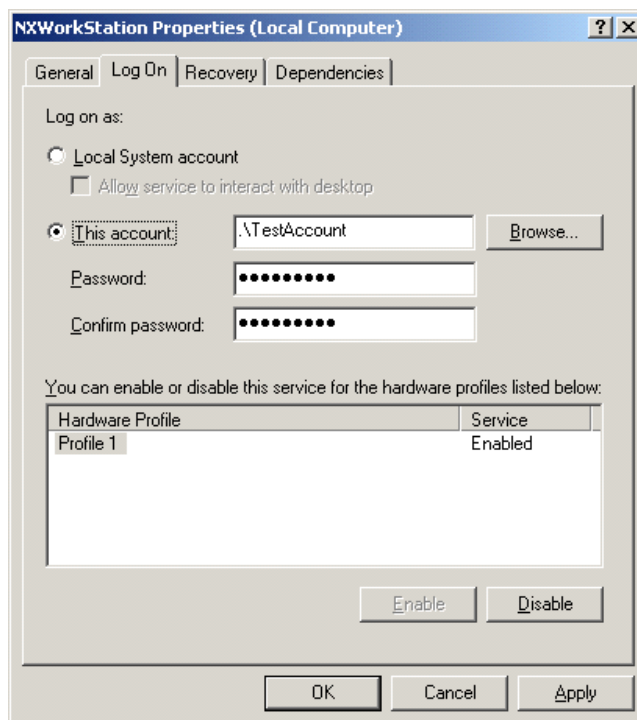


figure 103

8. Logout and log in with TestAccount (in order to configure and test the RIS in the configuration tool).
9. Start the NX Configuration Tool
10. Add User 'TestAccount' ('Manage Users') and define it as a serviceEngineer (this is just needed for testing in configuration tool, later you can undo this again)
11. Load active configuration.

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12. In the RIS configuration, select the datafile by using the UNC name of the network drive or network location (e.g. \\mynetworkdrive\RISfiles or \\hostname\sharename or \\ipaddress\sharename).

Do NOT use any mapped drives (mapped drives do not work for the NX background service).

13. Click the <Query RIS> button to try the test connection option in the NX configuration tool.

If this succeeds, activate the configuration.

(At this moment the NX background service will be restarted using TestAccount).

14. From then on, in the QCIDViewer the RIS can be queried even if you logged in with another account than TestAccount.

(You can eventually remove the serviceEngineer role for TestAccount)

17 Installing new Device Models

Device models are required in order to be able to work with a specific device. When compared with a device driver, the difference lies in the fact that a device model only contains metadata about the device and does not contain 'code'.

The lifeline of the device models is decoupled from the NX Software: New device models can be supplied after the release of NX, adding support for new digitizer types, printer types and archives.

New device models can be installed using the NX Configuration Tool. Depending on the type of device, models are either created and distributed by the development team or by the IME group.

Distributed by the IME team:		See section
1.	Printer Model Files	17.1
Distributed by the development team:		
2.	Installing a New Archive Type	17.2
3.	Installing a New ID Tablet Type	17.3
4.	Installing a New Digitizer Type	17.4



NOTE:

Additionally there are X-Ray device generator types available. For Installation Instructions refer to the respective Solution Manual.

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17.1 Printer Model Files

17.1.1 Installing Printer Model Files



REQUIRED TIME:

Approx. 5 min

1. Download DICOM Printermodel-Files from MedNet, GSO Library:
Computed Radiography → CR Workstations → NX 2.0 → Freeware
2. Download the related Service Bulletin from MedNet, GSO Library, announcing the release of the Printermodel-Files. The installation instructions are given there.

17.1.2 Released Printer Model Files

Following DICOM printer model files have been tested and are released for NX:

Manufacturer:	Printer Type:	Name DICOM Printermodel-File:
AGFA	DRYSTAR 2000	Agfa DI2000.XML
	DRYSTAR 3000	Agfa DI3000_11x14.XML
		Agfa DI3000_14x14.XML
		Agfa DI3000_14x17.XML
	DRYSTAR 4500	Agfa DI4500.XML
		Agfa DI4500M.XML
	DRYSTAR 5300	Agfa DI5300.XML
	DRYSTAR 5302	Agfa DI5302.XML
	DRYSTAR 5500	Agfa DI5500.XML
		Agfa DI5500M.XML
	DRYSTAR 5503	Agfa DI5503.XML
		Agfa DI5503M.XML
	DRYSTAR AXYS	Agfa DI AXYS.XML
		Agfa DI AXYS M.XML
	LR 3300	Agfa LR3300_LRDC.XML
		Agfa LR3300_MG3000.XML
	LR 5200	Agfa LR5200_LRDC_HIGH RES.XML
		Agfa LR5200_LRDC_LOW RES.XML
		Agfa LR5200_MG3000_HIGH RES.XML
		Agfa LR5200_MG3000_LOW RES.XML

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Manufacturer:	Printer Type:	Name DICOM Printermodel-File:
Codonics	HORIZON XL (as of NX 2.0.6805)	Codonics HORIZON XL.XML (as of NX 2.0.6805)
	HORIZON	Codonics HORIZON.XML
	NP 1600	Codonics NP1600.XML
	NP 1660	Codonics NP1660.XML
FUJI	CR-DP 3543T	FUJI CR-DP3543T.XML
	CR-DP L	FUJI CR-DP L.XML
	CR-DP T	FUJI CR-DP T.XML
	DRYPIX 1000	FUJI DRYPIX 1000.XML
	DRYPIX 3000	FUJI DRYPIX 3000.XML
	DRYPIX 4000	FUJI DRYPIX 4000_HIGH RES.XML FUJI DRYPIX 4000_LOW RES.XML
	DRYPIX 5000	FUJI DRYPIX 5000_HIGH RES.XML FUJI DRYPIX 5000_LOW RES.XML
FUJI	DRYPIX 7000	FUJI DRYPIX 7000_HIGH RES.XML FUJI DRYPIX 7000_LOW RES.XML FUJI DRYPIX 7000M.XML
	FL-IM 2636II	FUJI FL-IM2636II.XML
	FL-IM 3535II	FUJI FL-IM3535II.XML
	FL-IM 3543II	FUJI FL-IM3543II.XML
	FL-IM D	FUJI FL-IM D.XML
	FL-IM DM	FUJI FL-IM DM.XML
	FM-DP 2636	FUJI FM-DP2636.XML
	FM-DP 3543	FUJI FM-DP3543.XML
	FM-DP L	FUJI FM-DP L_HIGH RES.XML FUJI FM-DP L_LOW RES.XML
Kodak	DRYVIEW 969 HQ	Kodak DRYVIEW 969 HQ.XML
	DRYVIEW 969 HQT	Kodak DRYVIEW 969 HQT.XML
	DRYVIEW 8100	Kodak DRYVIEW 8100.XML
	DRYVIEW 8150	Kodak DRYVIEW 8150.XML
	DRYVIEW 8200	Kodak DRYVIEW 8200.XML
	DRYVIEW 8300	Kodak DRYVIEW 8300.XML
	DRYVIEW 8500	Kodak DRYVIEW 8500.XML
	DRYVIEW 8600	Kodak DRYVIEW 8600.XML
	DRYVIEW 8700	Kodak DRYVIEW 8700.XML
	DRYVIEW 8900	Kodak DRYVIEW 8900.XML Kodak DRYVIEW 8900M.XML

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Manufacturer:	Printer Type:	Name DICOM Printermodel-File:
	EKTASCAN 160	Kodak EKTASCAN 160.XML
	EKTASCAN 1120	Kodak EKTASCAN 1120.XML
	EKTASCAN 2180	Kodak EKTASCAN 2180.XML
Konica	DRYPRO 722	Konica DRYPRO 722.XML
	DRYPRO 751	Konica DRYPRO 751.XML
	DRYPRO 771	Konica DRYPRO 771.XML
	DRYPRO 793	Konica DRYPRO 793_HIGH RES.XML Konica DRYPRO 793_LOW RES.XML
	DRYPRO 832	Konica DRYPRO 832.XML
SONY	UP-DF500	SONY UP-DF500.XML
Sterling	LP400	Sterling LP400.XML
	SIJ100	Sterling SIJ100.XML
	SIJ400	Sterling SIJ400.XML

**NOTE:**

Connectivity Release Documents for the respective Printers can be found in MedNet, Healthcare Library (set “views” to document type) under:

[Connectivity Release Document → General Info → Connectivity & Application](#)

17.2 Installing a New Archive Type

**NOTE:**

The installation of a new archive type is only possible in the context of adding a new Archive device

1. Put the file containing the NX model of the archive type somewhere on the system (e.g. ‘my documents’ folder).
2. Start up the NX Configuration Tool
3. Press the **<Add archive>** button.
4. In the ‘Add archive’ dialogue, press the **<upload model>** button.
5. Browse to the location of the file containing the archive model.
6. The system will install the new archive type.

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17.3 Installing a New ID Tablet Type

1. Put the file containing the NX model of the ID Tablet somewhere on the system (e.g. 'my documents' folder).
2. Start up the NX Configuration Tool.
3. Press the 'Add ID Tablet' button.
4. In the 'Add ID Tablet' dialogue, press the 'upload model' button.
5. Browse to the location of the file containing the new model.
6. The system will install the new ID Tablet type.

17.4 Installing a New Digitizer Type

1. Put the file containing the NX model of the digitizer type somewhere on the system (e.g. 'my documents' folder).
2. Start up the NX Configuration Tool.
3. Press the 'Add digitizer' button.
4. In the 'Add digitizer' dialogue, press the 'upload model' button.
5. Browse to the location of the file containing the digitizer model.
6. The system will install the new digitizer type.

18 How to use a network drive for exporting images

The Upgrade Export / Import tool requires that the NX background process is running. In normal usage, the background process runs as a Windows Service (NXWorkStation). However, this imposes two problems:

- A Windows Service can't handle network drives properly
- The NXWorkStation Service runs under the credentials of the 'hidden' user NXWorkStationUser. This is a local user which probably has no privilege to read / write on the network drive.

To overcome these problems, you need to use the following additional procedure before starting the Upgrade Export or Import Tool:

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1. Contact the customer system administrator to give write permissions on the network drive for the CRService account
2. Log in using the CRService account
3. Stop the NXWorkStation service from within the Windows Services control panel.
Start → Settings → Control Panel → Administrative Tools → Services.
Right-click *NXWorkStation* and select *Stop*
4. Type Ctrl-Shift-Esc to open the *Task Manager Processes* Tab and wait until the process with image name "NX.Application.NonVisual.NXWorkstation.exe" disappears
(at that point in time the background process has really finished running).
5. Open a Command Tool window (*Start → Run → Cmd*)
6. Change directory to the NX bin folder:
`cd C:\Agfa\Healthcare\NX\Bin`
7. Start the NX background process:
`NX.Application.NonVisual.ConsoleHost.exe`
`C:\Agfa\Healthcare\NX\Bin\PlugIns\Hospital.xml`
(this is one command line)

Now the NX background process now runs as a normal process – instead of a Windows Service – under the credentials of the logged in user

Wait until the NX background process has started up completely. In the command tool window you will observe the message "Everything has been started up".

Don't close the Command Tool window!

You can now start and use the Upgrade Export or Import Tool as described in the rest of the procedures.



NOTE:

After finishing using the Upgrade Export or Import Tool,

- close the Upgrade Export/Import Tool
- close the Command Tool Window to stop the NX background process
- in the Windows Services control panel, right-click "*NXWorkStation*" and select "*Start*" to restart the NX Workstation service in it's normal user mode

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Document No: DD+DIS259.06E

NX 2.0

Type 4406/303

**Content of Chapter 6 'Software Options'**

This chapter contains the instructions for all options.
They are listed in chronological sequence:

Timeline	Document No.	Contents	Edition. Revision
2007			
April	DD+DIS038.07E	Options MUSICA ²	1.0
May	DD+DIS122.07E	Offline Config Tool Installation and Use	2.0
July	DD+DIS130.07E	Creating and Using a Ghost Recovery Disc Set for an NX System (Backup/Restore)	2.1
July	DD+DIS246.07E	Remote Servicing	2.0
Dec.	DD+DIS129.07E	Clean Install Procedure for NX 2.0.68XX	2.3

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Document No: DD+DIS038.07E

NX 2.0
Type 4406/303

► **Purpose of this document**

This document provides the information for Field Service Engineers and/or Clinical Application Specialists to set-up the optional Musica² packages for NX 2.0 Processing Stations.

► **Document History**

Edition. Revision	Release Date	
1.0	04 -2007	Initial Release

► **Referenced Documents**

Document	Title
n.a.	n.a.

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AGFA 

**WARNING:**

Improper operation or service activities may cause damage or injuries.

**INSTRUCTION:**

- (1) Read the "Generic Safety Directions" document
(see MEDNET GSO => General Info => Agfa HealthCare => Publications => Service Manual) prior to attempting any operation, repair or maintenance task on the equipment.
- (2) Strictly observe all safety directions within the "Generic Safety Directions" and on the product.

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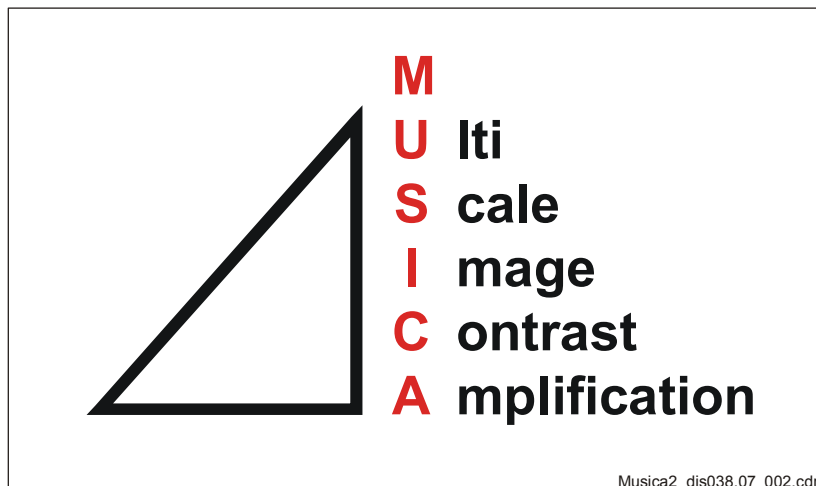
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1 Brief Introduction in Musica²

1.1 Musica² in a Nutshell



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1.2 Musica (1) compared to Musica²

This section points out the differences between Musica (1) and Musica². Both algorithms make use of the multi scale technology.

With regard to image quality, the Musica² images look different. Musica² images have a different look and feel than Musica (1). It is not possible to mimic the Musica (1) look and feel.

With Musica² it is possible to render simultaneously bone and soft tissue. Musica² gives improved visualization of wide latitude exams such as lumber spine, full leg and so on.

Musica (1) works with a parameter table to identify the body part, while Musica² is self adjusting; there is no longer need for an extensive parameter adjustment.

One of the benefits of Musica² is its robustness and its effect on the work flow. Work flow and productivity improvement are the result of the increased image quality, the body part independency, the control of contrast and brightness of bone and soft tissue independently and the self adjusting parameters.



IMPORTANT:

The generally accepted guidelines for producing x-ray exposures (best practice, ALARA principle for dose – As Low As Reasonably Achievable, etc.) have to be followed.

All components of the entire imaging chain have to be correctly adjusted. This is especially applicable for the configuration and calibration of all monitors.

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	Musica (1)	Musica ²
Technology	<ul style="list-style-type: none"> - Multiscale 	<ul style="list-style-type: none"> - Multiscale - Simultaneous bone and soft tissue rendering - Image processing is nearly independent of possible errors of the collimation/black border software
Image Quality	<ul style="list-style-type: none"> - Good 	<ul style="list-style-type: none"> - Different look and feel - Improved visualization of wide-latitude exams, e.g.(lumbar) spine, full leg ...
Configuration	<ul style="list-style-type: none"> - Parameter table for body part identification 	<ul style="list-style-type: none"> - Self-adjusting - Easy installation and maintenance: no need for extensive parameter adjustment, - Musica² Base license works body part independent - Musica² Platinum package adapted to optimize body parts abdomen, skeleton, chest
Workflow	<ul style="list-style-type: none"> - Manual re-processing in case of dose deviations 	<ul style="list-style-type: none"> - Less Window/Level corrections needed by both, radiographer and radiologist

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Wide latitude bone rendering



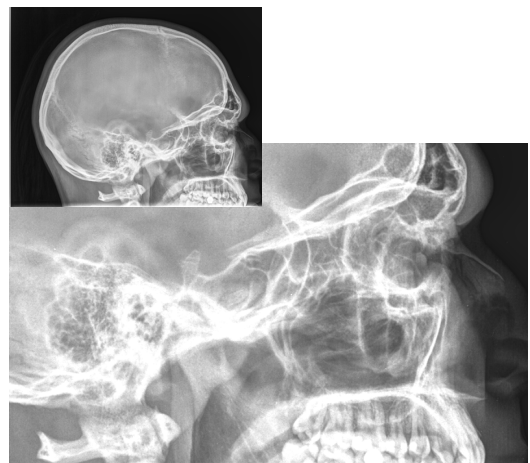
figure 1: Musica (1) Image Processing - Skeleton

figure 2: Musica² Image Processing - Skeleton

Wide latitude soft tissue rendering



figure 3: Musica (1) Image Processing - Skull

figure 4: Musica² Image Processing - Skull

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1.3 Musica² Inside – Key Functional Elements

The following chart figures out the different Musica² image processing steps, starting with the analysis of the raw image and ending up with the finally processed Musica² image.

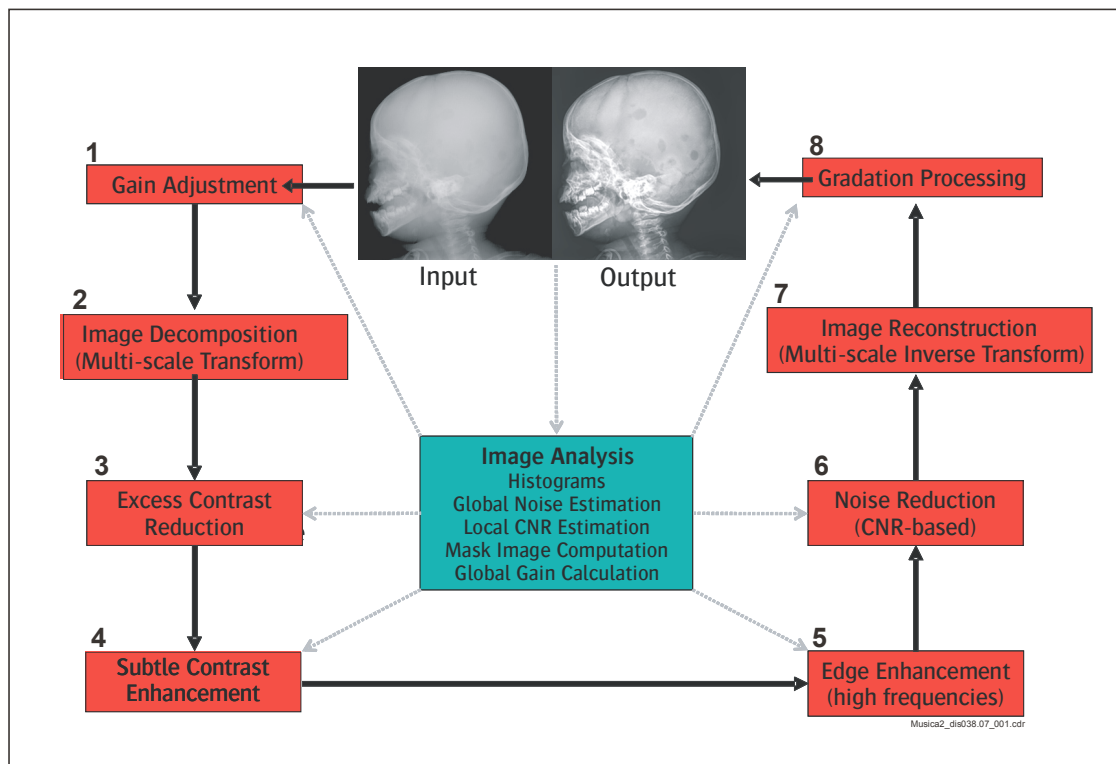


figure 5

1. Automatic image analysis to determine input image structure and set algorithm parameters (e.g., gain)
2. Decomposition of grayscale image into collection of contrast images containing different spatial-frequency sub-bands
3. Contrast equalization: reduce contrast of high-contrast objects
4. Contrast equalization: increase contrast of objects with subtle contrast
5. Enhance relevant edges to improve diagnostic conspicuity
6. Reduce noise in areas with poor signal contrast
7. Reconstruct an enhanced image by recombining contrast layers
8. Prepare enhanced image for output by adjusting gradation curve

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1.4 Musica² License Policy

Musica² functionality is an integral part of the NX 2.0 software. To be able to use Musica² functionality, the customer has to purchase one of the following optional license packages which will then be enabled by the field service engineer via installation of a new license file (*.alf) from the Electronic License Management System (ELMS). Musica (1) image processing is not available when Musica² license is enabled.

- **NX Musica²**

Base License for Musica² comprising following technical license:

NX_MUSICA2

With this license the user can select between two predefined default settings “General Radiology” or “General Radiology (Soft)”. These settings differ in the global taste adjustment for contrast, brightness and sharpness.

The “NX Musica²” license is available for all “NX Lite” and “NX Premium” GenRad packages.

It is not available for the NX Mammo package.

The NX Musica 2 pediatric license is additionally necessary if the customer wants to get access to the NX age groups.

The “General Radiology” settings can then be used for all patient ages, including pediatrics.

- **NX Musica² Platinum Package**

It comprises:

- Base License for Musica² as described above
- NX Musica 2 pediatric license
- Two specialized sub-sets of application for optimized processing:
Adults & Pediatrics, each group containing three specialized packages:

Adults:

NX_Musica2_CHEST_ADULTS
NX_Musica2_ABDOMEN_ADULTS
NX_Musica2_SKELETON_ADULTS

Pediatrics:

NX_Musica2_CHEST_PED
NX_Musica2_ABDOMEN_PED
NX_Musica2_SKELETON_PED

The “NX Musica² Platinum” license is available for all full feature GenRad packages (= “NX Premium”).

It is not available for the limited “NX Lite” and the “NX Mammo” package.

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**IMPORTANT:**

NX checks to which age group the selected exposure type belongs to, and assigns the adult or pediatric image processing accordingly.
(> 12 years = adult image processing; ≤ 12 years = pediatric image processing)

**NOTE:**

The Mammo image processing is only available for dedicated CR Mammography Solution Processing Stations.
A mixed use with GenRad applications is not released.
The Mammo taste is not editable.
(Details on CR Mammography Solution: see CR Mammography Solution Service Manual, DD+DIS227.04E)

Summary of Musica² license policy

The following table outlines the naming of Musica² licenses with respect to commercial usage, technical usage in the Electronic License Management System (ELMS), and in the configuration tool of the NX 2.0 software.

Commercial	ELMS / *.alf-file	NX 2.0 Security & License Management
NX Musica ²	NX_MUSICA2 NX_MUSICA2_GENRAD_SOFT	Musica ² Base Musica ² GenRad Soft
NX Musica ² Platinum Package	NX_MUSICA2_CHEST_ADULTS NX_MUSICA2 ABDOMEN_ADULTS NX_MUSICA2_SKELETON_ADULTS NX_MUSICA2_CHEST_PED NX_MUSICA2 ABDOMEN_PED NX_MUSICA2_SKELETON_PED NX_MUSICA2_PEDIATRIC	Musica ² Premium Adults – Chest Musica ² Premium Adults – Abdomen Musica ² Premium Adults – Skeleton Musica ² Premium Paediatrics – Chest Musica ² Premium Paediatrics – Abdomen Musica ² Premium Paediatrics – Skeleton Musica ² Paediatric
NX Precision Tools	NX_MUSICA2_ADVANCED	Musica ² Advanced

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1.5 Printers to be used with Musica²

It is advised to use P-values for printing when using Musica2 on the NX Processing Station.

All the Agfa printers support P-values, except LR3300 / LR5500 with LRDC controller, because "Presentation LUT shape" (2050,0020) is not supported.

Special remark for the Drystar 2000, Drystar 3000, LR 3300 with MG3000 and LR5500 with MG3000: P-values are supported when the latest dcm software = DCM 2.4.4 (dcm32957.zip) is installed on the printer.

No printer host profile has to be created, because NX sends the needed DICOM tags such as view box illumination and reflected ambient light to the printer.

1.6 Information Sources for Musica²

Beside this Service documentation further information on Musica² is available:

- as a [Web Based Training](#) on the Academy Learning Platform (ALP), (in preparation; access rights required via your local Service Organisation)
- on the [Musica² homepage](#)
- [White Paper](#) written by Ralph Schaetzing, Ph.D., Agfa HealthCare
- order the [MUSICA² brochure](#) with image library and in-depth image processing tutorial.

2 Required Time



REQUIRED TIME:

It takes between 45 to 60 min. to establish Musica² on an NX 2.0 Processing Station.

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3 Required Tools

The following tools are necessary to set-up and configure Musica² for the NX Processing Station.

- Barco Nio watch calibration software (part of the NX delivery)
- Advanced Archive Correction Tool (included in the NX configuration tool)

The following tools are optional:

- Barco Medical Pro calibration software to calibrate PACS monitors

Available as spare part: see NX 2.0 Spare Parts List

- Barco LCD sensor;
allows a more precise calibration than is possible via visual calibration
(compatible to Medical Pro and Nio Watch)

Available as spare part (planned May 2007): see NX 2.0 Spare Parts List



figure 6: Barco LCD sensor



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4 Musica² Preparations

4.1 Prerequisites

- Technical Training and Application NX 2.0 (IBT)
or
Upgrade Training to NX 2.0 - Web Based Training (WBT) on Agfa Learning Platform (ALP)
- Musica² - Web Based Training (WBT) on Agfa Learning Platform (ALP)
- CR Application Training (Instructor Based Training)
- Communication between Sales and FSE / CAS during Sales Phase:
 - which Musica² package has been sold to the customer?
 - which tastes does the customer prefer
(e.g. abdomen, chest, skeleton – adults/pediatrics)
 - agreed additional services
- If the customer wishes to have more adaptations than the ones defined in the sales contract, the additional work has to be considered and to be invoiced. This must be clarified beforehand.
- Task planning and scheduling between FSE and CAS
- Time scheduling with the customer:
 - time for installation and configuration (approx. 60 min.)
 - time for initial adaptation (approx. 30 min.)
 - time to instruct the customer (approx. 2 hours)
 - time for follow-up visit, incl. one final adaptation (approx. 2 hours, extra service visit → additional service)

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4.2 Preparations before On-Site Visit

The following tasks have to be performed by the Field Service Engineer / Clinical Application Specialist, before going on-site.

- Ask for calibration conditions of the PACS devices (additional service)
- Get the “alf” license file as described in the CR Licensing Service Manual, DD+DIS012.06E.
- Get the required tools as described in section 2
- Contact Sales with regard to sold licenses, desired taste settings based on the Musica² film book, agreed Professional Services, etc.
- optional: get native, anonymised NX studies of different body parts and store them on portable media (e.g. CD, USB-stick). This can be useful, if you have no images at the customer site to make taste adjustments

4.3 On-Site Pre Conditions

- It must be clarified to which PACS stations the NX Processing Station will send images,
- and which printers will be used

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5 Enabling Musica² on NX

The goal of this section is to have the Musica² functionality with basic settings running on NX 2.0.



REQUIRED TIME:

approximately 30 min.,
excluded optional monitor calibration of PACS monitor (2-3 hours)

5.1 Install new *.alf – file



NOTE:

This step applies only, if you want to enable Musica² on an NX 2.0 Processing Station that is already in use.

In case of a new installation, the ordered Musica² licenses are already activated in the *.alf file.

Before the Musica² license can be enabled, you have to install a licensing file (*.alf) containing the activated Musica² license(s).

The Agfa Licensing Policy via Electronic License Management System is described in detail in the CR Licensing Service Documentation, [DD+DIS012.06E](#)

5.2 Enable Musica² licenses on NX

- (1) Go to *Security & License Management* → *Manage Licenses*
- (2) Activate all Musica² licenses the customer has ordered.

▶	Musica ² Base
▶	Musica ² GenRad Soft
	Musica ² Mammo
▶	Musica ² Paediatric
▶	Musica ² Premium Adults - Abdomen
▶	Musica ² Premium Adults - Chest
▶	Musica ² Premium Adults - Skeleton
▶	Musica ² Premium Paediatrics - Abdomen
▶	Musica ² Premium Paediatrics - Chest
▶	Musica ² Premium Paediatrics - Skeleton

figure 7

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5.3 Configuring Archive on NX

- (1) Go to *Devices* → *Device Configuration* → *Archive*
- (2) Set Output Type to <15 bit PVAL VOI LUT> (IMPAX 4.5 SP5+)

Device Configuration

Devices

- Archive
 - IMPAX 6.0
 - ma3000a
 - XRDS3000
- Digitizer
 - Export Destination
- ID Tablet
 - Monitor
- Printer
 - Priors
 - RIS

Name : IMPAX 6.0 New

Type : IMPAX 6.0 - V1.2.0.0 Delete

Device Settings

Host Name :

IP Address : 192 . 168 . 5 . 89

AE Title : IMPAX 6.0

DICOM Port : 104

Enable SSL : ☐

Is Archive ? : ☒

SOP Class : ☒ CR for Presentation
☐ DX for Presentation
☐ MG for Presentation
☐ DX for Processing
☐ MG for Processing

GPS supported : ☐

Output Type : **15-bit PVAL VOI LUT**

Transfer Syntax : STANDARD

Photometric Interpretation : ☒ Monochrome 1 (Default)
☐ Monochrome 2

Advanced Settings

Test Connection

Storage Commit

Time Out : 24 hours

Storage Commit : ☐

Enable SSL : ☐

AE Title : IMPAX 6.0

Dicom Port : 104

Host Name :

IP Address :

Test Connection

figure 8

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5.4 Configuring the NX Monitor

5.4.1 Configuring a Barco Monitor *MFCD 1219*

- (1) Go to *Devices* → *Device Configuration* → *Monitor*

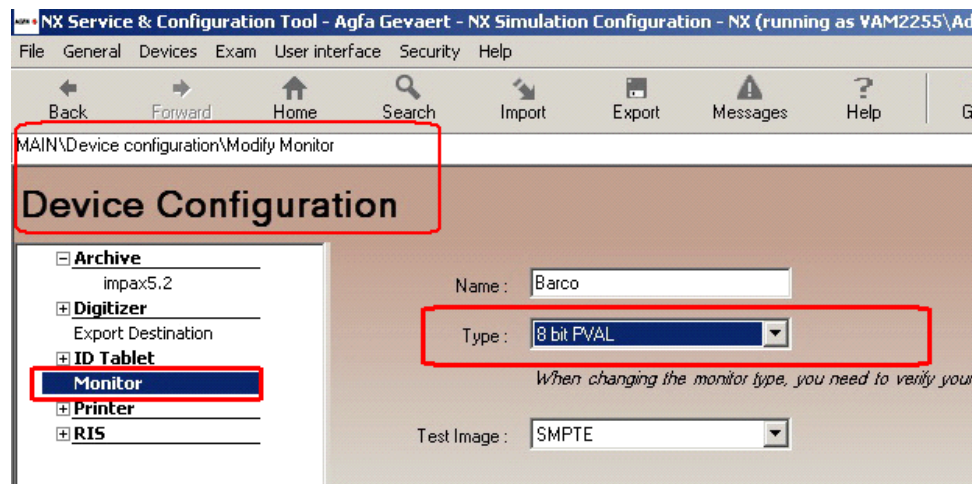


figure 9

- (2) Set Type to <8 bit PVal>
- (3) Calibrate the NX monitor with NIO Watch calibration software, as described in chapter 5, appendices, of the NX 2.0 Service Manual

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5.4.2 Configuring a Dell Monitor Office Type 19" LCD-TFT

- (1) Go to *Devices* → *Device Configuration* → *Monitor*

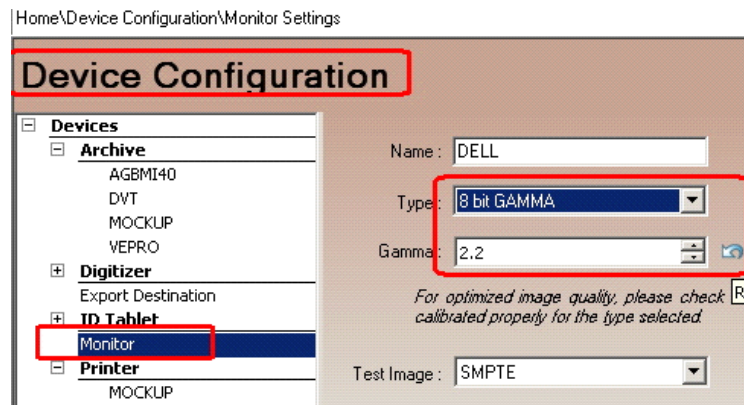


figure 10

- (2) Set Type to <8 bit GAMMA>
Set Gamma to <2.2> (= Windows "Industry Standard" for monitors)



NOTE:

Calibration tools for current office type LCD displays are available on the market, but currently not supported by Agfa.

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5.5 Configuring the Printer on NX

- (1) Go to *Devices* → *Device Configuration* → *Printer*

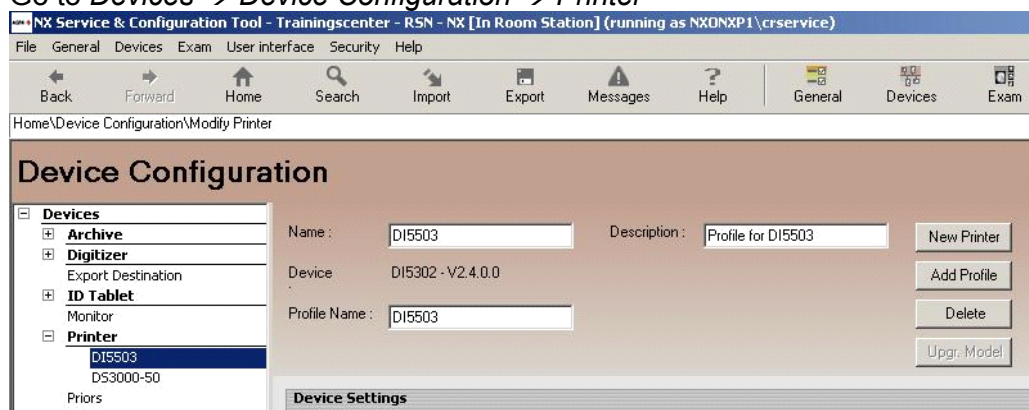


figure 11

- (2) If required, add a new printer.
- (3) Go to *Image Sheet Settings*
 Set value in *View Box Illumination* to <2000>, or use the exactly measured value
 Set value in *Reflected Ambient Light* to <1>, or use the exactly measured value

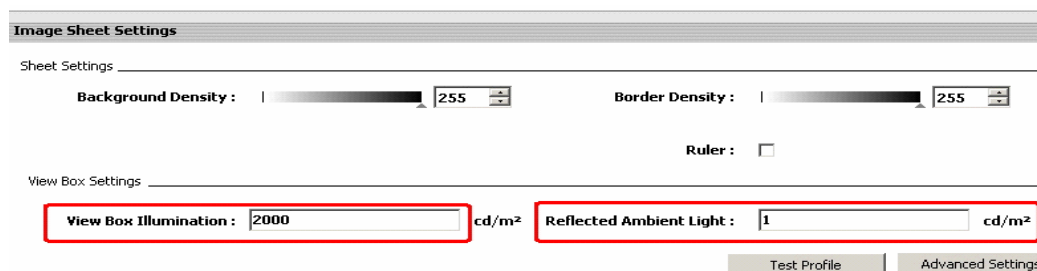


figure 12

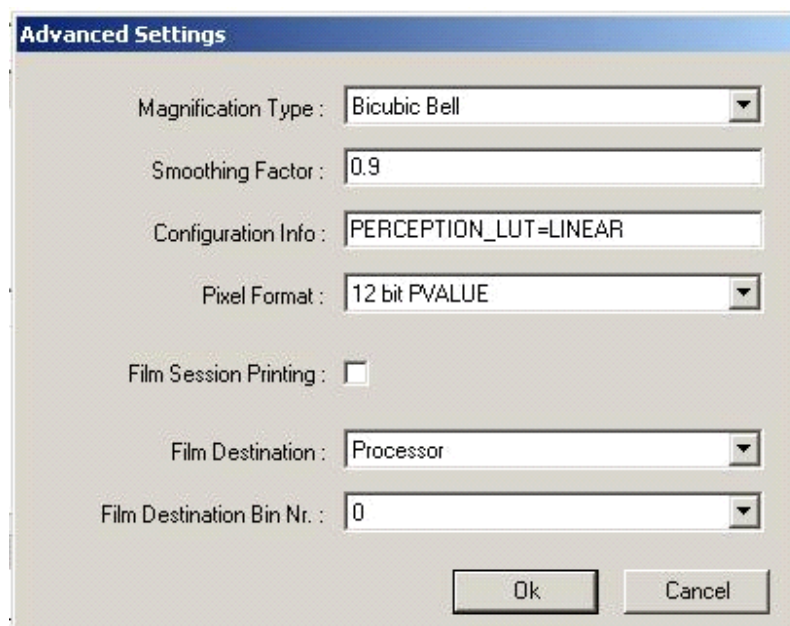
A detailed description of determining view box settings can be found in the NX2.0 Service Documentation, chapter 5 – Appendices.

- (4) In *Image Sheet Settings* click *Advanced Settings*

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- (5) Configure following settings:
- Magnification Type: Bicubic Bell
 - Smoothing Factor:
Normal: 0.9
Softer: 1.0 – 2.0
 - Configuration Info: PERCEPTION_LUT=LINEAR
 - Pixel Format: 12 bit PVALUE



The image shows a screenshot of the 'Advanced Settings' dialog box. It has a title bar with the text 'Advanced Settings'. Inside the dialog, there are several settings:

- Magnification Type :** A dropdown menu showing 'Bicubic Bell'.
- Smoothing Factor :** A text input field containing '0.9'.
- Configuration Info :** A text input field containing 'PERCEPTION_LUT=LINEAR'.
- Pixel Format :** A dropdown menu showing '12 bit PVALUE'.
- Film Session Printing :** A checkbox that is currently unchecked.
- Film Destination :** A dropdown menu showing 'Processor'.
- Film Destination Bin Nr. :** A dropdown menu showing '0'.

At the bottom right of the dialog, there are two buttons: 'Ok' and 'Cancel'.

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5.6 Configuring and Calibrating the PACS Monitor

- (1) Click *Start*, select *Settings*, select *Impax Configuration*
- (2) Click the tab *Monitor*
- (3) Set the PACS Monitor Calibration to 'NEMA'

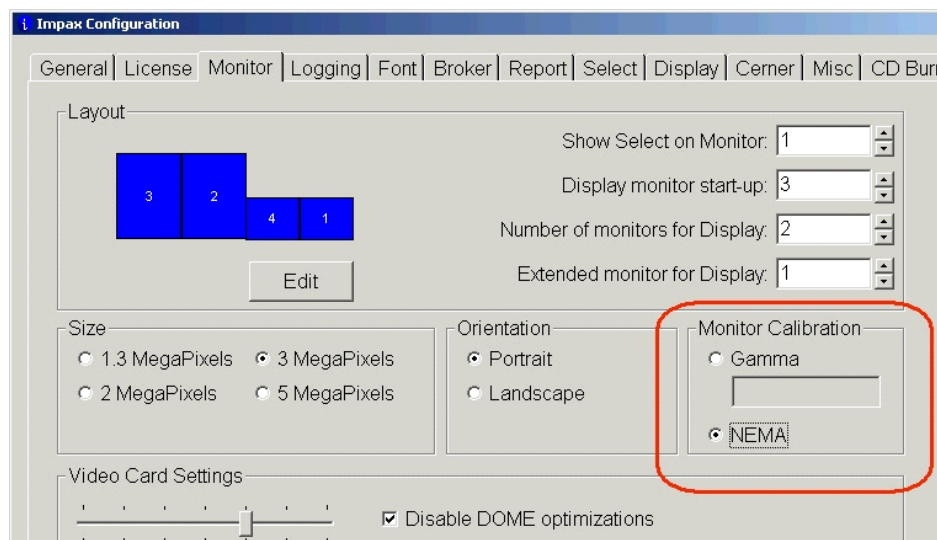


figure 13

- (4) Calibrate the PACS monitor with NIO Watch or MediCal Pro calibration software plus (optional) the USB sensor

5.7 Perform Verification of Configuration

- Monitors calibrated?
- Does image transfer to archive work?
- Do images look similar on NX, PACS and hardcopy/view box?

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6 Configuring the Musica² Packages

The goal of this section is to configure the Musica² packages according to customer tastes that have been defined during sales phase.



REQUIRED TIME:

10 min. – 30 min., depending on configured packages



NOTE:

There are two different possibilities of linking exposure types to the different packages:

- (a) by linking the package manually with the dedicated *Exposure type*
- (b) via button <Find> and <Replace> in Exam Tree Configuration



NOTE:

By default, all exposure types are automatically linked to the Musica² GeneralRadiology package.

Note that the exam *System Diagnosis* always uses Musica (1) image processing and cannot be modified. These images cannot be sent to PACS.

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6.1 Configuring the Package General Radiology (GenRad)

Technical licenses: Musica² Base

The default package *General Radiology* will be activated, not the optional *General Radiology (Soft)*. Independently of the exam type, one universal image processing for adults and children is applied.

- (1) Check if ordered licenses are enabled in:
Security → License management → Manage licenses

Security & License Manag	
Status	Licenses
▶	Base
▶	Basic Tools
▶	Black Border
▶	Breast Density
▶	DICOM Print
▶	DICOM Store
▶	Digitizer CR25 / Solo
▶	Digitizer CR30
▶	Digitizer CR35
▶	Digitizer CR75 / Compact
▶	Digitizer CR85
▶	Digitizer DX-S
▶	Dose Consistency Reporting
▶	Emergency
▶	Export
II	Full Leg - Full Spine
▶	Gridline Suppression
II	IDIS1 Connection
▶	MPPS
▶	Multi-patient export
▶	Musica1 Advanced
▶	Musica1 Base
II	Musica1 Dental
▶	Musica1 Paediatric
II	Musica1 Radio Therapy
II	Musica1 Uro-Tomo
▶	Musica ² Base
▶	Musica ² GenRad Soft
II	Musica ² Mammo
▶	Musica ² Paediatric
▶	Musica ² Premium Adults - Abdomen
▶	Musica ² Premium Adults - Chest
▶	Musica ² Premium Adults - Skeleton
▶	Musica ² Premium Paediatrics - Abdomen
▶	Musica ² Premium Paediatrics - Chest
▶	Musica ² Premium Paediatrics - Skeleton
▶	Priors
▶	QA Tools

figure 14

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- (2) Verify the configuration by checking 3 or 4 different examination groups

Go to *Exam* → *Exam Tree Configuration*

Select *Exposure type* → *Image processing* → *Package* and verify the selected Musica² package. It has to be General Radiology

Exam Tree Configuration

Abdomen

- Abdomen AP
- Abdomen Lat
- Abdomen Lat Dec
- Abdomen Procrubitus

Chest

- Chest AP
- Chest Lat
- Chest on bed AP
- Chest PA**
- Ribs Lower
- Ribs Upper
- Sterno Clav. Gewr.
- Sternum AP
- Sternum Lat
- Trachea AP
- Trachea Lat

FLFS

Lower Extremities

Pelvis

Shoulder

Skull

Spine

SYSTEM DIAGNOSIS

Upper Extremities

Name: Chest PA [New]

Age Group: 17+ [Delete]

Exam Group: Chest [General radiology]

Exposure Groups: None

Protocol Codes: None [Update]

☒ Show exposure in UI

Exposure Settings

Modality Settings

Image Processing

Collimation: Auto

☒ Display collimation border

Package: General radiology

Printer Settings

figure 15

- (3) Activate the configuration

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6.2 Configuring the Package General Radiology “Soft”

Technical licenses:: Musica² Base and Musica² GenRad Soft



NOTE:

By default, the exposure types are linked to the General Radiology package.

The goal of this configuration exercise is to link all exposure types to the taste “General Radiology Soft” (settings: C -7, S -1, D 0).

Procedure

- (1) Check in *Security* → *License management* → *Manage licenses* that the correct licenses are enabled: Musica² Base and Musica² GenRad Soft
- (2) Go to *Exam* → *Find & Replace Exposure Settings*.

HOME\Exam configuration\Modify exam settings

figure 16: Overview “Find...” and “Replace with...”

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- (3) In Find...: Select the Application: General radiology.

The screenshot shows the 'Find...' dialog box with the following settings:

- Age Group:** -- Select an age group --
- Exam Group:** -- Select an exam group --
- Application:** General radiology
- Body Part:** -- Select a body part --

General Settings

- View Position:**
 - ☐ AP
 - ☐ PA
 - ☐ LL
 - ☐ RL
- Cassette Orientation:**
 - ☐ Landscape
 - ☐ Portrait
- Image Laterality:**
 - ☐ R
 - ☐ L
 - ☐ U
 - ☐ B
- Speed Class:**
 - ☐ 12
 - ☐ 18
 - ☐ 25
 - ☐ 37
- Erasure Dose:**
 - ☐ 100
 - ☐ 300
 - ☐ 750
- Scale Mode:**
 - ☐ Scale to fit
 - ☐ True size

Processing Settings

- Collimation:** -- Select collimation --
- Collimation Border:**
 - ☐ On
 - ☐ Off

Destinations

- Printer:** -- Select a printer --
- Print Automation:**
 - ☐ On
 - ☐ Off
- Sheet Size:** -- Select a sheet size --
- Archive Automation:**
 - ☐ On
 - ☐ Off

The **Find** button is located at the bottom right of the dialog box.

figure 17

- (4) Click <Find>

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- (5) The Result List shows all existing exposure types.

Result List				
You have searched for: Application: General radiology;				
Age Group	Exam Group	Application	Body Part	Exposure
<input checked="" type="checkbox"/> 17+	FLFS	General radiology	L-spine	Full Spine Lat
<input checked="" type="checkbox"/> 17+	FLFS	General radiology	L-spine	Full Spine AP
<input checked="" type="checkbox"/> 17+	FLFS	General radiology	Knee	Full Leg AP
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine AP
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Lat
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Left 3/4
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Right 3/4
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Lat Flexie
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Lat Extension
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Dens AP
<input checked="" type="checkbox"/> 17+	Spine	General radiology	C-spine	Cervical Spine Swimmer

figure 18

- (6) To link all these exposure types to the “General Radiology Soft” taste package: go to Replace with....

Replace with...

General Settings

View Position: -- Select a position -- Speed Class: -- Select a speed class --

Cassette Orientation: -- Select an orientation -- Erasure Dose: -- Select an erasure dose --

Image Laterality: -- Select a laterality -- Scale Mode: -- Select a scale mode --

Processing Settings

Collimation: -- Select a collimation -- Collimation Border: -- Select a border --

Package: General Radiology (Soft)

Destinations

☐ Printer: ☐ Sheet Size:

Print Automation: -- Select print automation --

Archive Automation: -- Select archive automation --

Replace

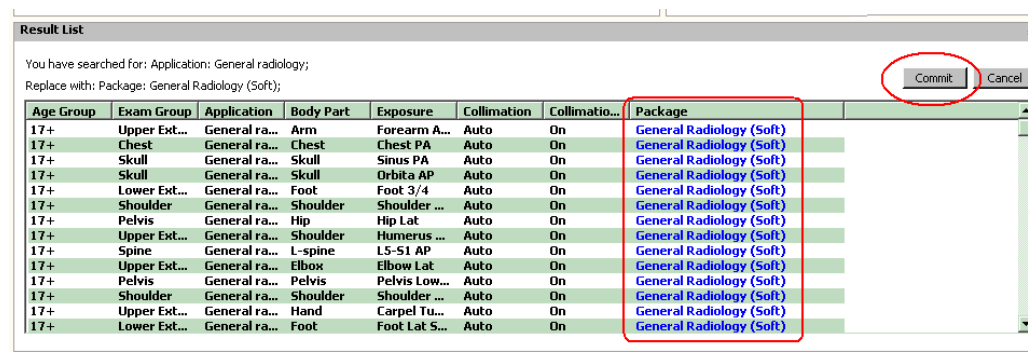
figure 19

Go to “Processing settings” and select in the pull down menu “Package” the option General Radiology (Soft).

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- (7) Click <Replace> and check the result in the result list, changes are in blue.



You have searched for: Application: General radiology;
Replace with: Package: General Radiology (Soft);

Age Group	Exam Group	Application	Body Part	Exposure	Collimation	Collimation...	Package
17+	Upper Ext...	General ra...	Arm	Forearm A...	Auto	On	General Radiology (Soft)
17+	Chest	General ra...	Chest	Chest PA	Auto	On	General Radiology (Soft)
17+	Skull	General ra...	Skull	Sinus PA	Auto	On	General Radiology (Soft)
17+	Skull	General ra...	Skull	Orbita AP	Auto	On	General Radiology (Soft)
17+	Lower Ext...	General ra...	Foot	Foot 3/4	Auto	On	General Radiology (Soft)
17+	Shoulder	General ra...	Shoulder	Shoulder ...	Auto	On	General Radiology (Soft)
17+	Pelvis	General ra...	Hip	Hip Lat	Auto	On	General Radiology (Soft)
17+	Upper Ext...	General ra...	Shoulder	Humerus ...	Auto	On	General Radiology (Soft)
17+	Spine	General ra...	L-spine	L5-S1 AP	Auto	On	General Radiology (Soft)
17+	Upper Ext...	General ra...	Elbow	Elbow Lat	Auto	On	General Radiology (Soft)
17+	Pelvis	General ra...	Pelvis	Pelvis Low...	Auto	On	General Radiology (Soft)
17+	Shoulder	General ra...	Shoulder	Shoulder ...	Auto	On	General Radiology (Soft)
17+	Upper Ext...	General ra...	Hand	Carpel Tu...	Auto	On	General Radiology (Soft)
17+	Lower Ext...	General ra...	Foot	Foot Lat S...	Auto	On	General Radiology (Soft)

figure 20

- (8) Click <Commit> to confirm and activate.
The color blue in the result list will change to black.
- (9) Verify the configuration by checking 3 or 4 different examination groups
Go to *Exam* → *Exam Tree Configuration*
Select *Exposure type* → *Image processing* → *Package* and verify the selected Musica² package. It has to be General Radiology (Soft).
- (10) Activate the configuration.

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6.3 Mixed settings of “General Radiology” and “General Radiology Soft”

Technical licenses: Musica² Base and Musica² GenRad Soft.



NOTE:

By default, the exposure types are linked to the General Radiology package.

The goal of this configuration exercise is to link all exposure types either to the taste “General Radiology” or to the taste “General Radiology Soft”.

Example: Customer wants to have all chest exposures in taste “General Radiology Soft”, all other exposures in taste “General Radiology”.

Procedure

- (1) Check in *Security* → *License management* → *Manage licenses* that the correct licenses are enabled: Musica² Base and Musica² GenRad Soft
- (2) Go to *Exam Tree Configuration*.
- (3) Go to *Exam* → *Find & Replace Exposure Settings*
- (4) In Application select “General Radiology” and click <Find>
- (5) Go to <Replace with> → *Processing Settings*
- (6) Go to “Processing settings” and select in the pull down menu “Package” the option *General Radiology*
- (7) Click <Replace> and check the result in the result list, changes are in blue.
- (8) Click <Commit> to confirm and activate.
The color blue in the result list will change to black.

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(9) Go back to Find: Select the “Application”: General radiology.

Select “Exam Group”: Chest.

figure 21:

(10) Click <Find>

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- (11) The Result List shows the examination group and all exposures which are linked to the package General Radiology.

Disable all exposure types which should not be changed.

Result List				
You have searched for: Exam group: Chest; Application: General radiology;				
Age Group	Exam Group	Application	Body Part	Exposure
<input checked="" type="checkbox"/> 17+	Chest	General radiology	Chest	Chest PA
<input checked="" type="checkbox"/> 17+	Chest	General radiology	Chest	Chest Lat
<input checked="" type="checkbox"/> 17+	Chest	General radiology	Chest	Chest AP
<input checked="" type="checkbox"/> 17+	Chest	General radiology	Chest	Chest on bed AP
<input checked="" type="checkbox"/> 17+	Chest	General radiology	Chest	Trachea AP
<input checked="" type="checkbox"/> 17+	Chest	General radiology	Chest	Trachea Lat
<input type="checkbox"/> 17+	Chest	General radiology	Chest	Ribs Upper
<input type="checkbox"/> 17+	Chest	General radiology	Chest	Ribs Lower
<input type="checkbox"/> 17+	Chest	General radiology	Clavicle	Sterno Clav. Gewr.
<input type="checkbox"/> 17+	Chest	General radiology	Chest	Sternum AP
<input type="checkbox"/> 17+	Chest	General radiology	Chest	Sternum Lat

figure 22:

- (12) Go to Replace with...

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- (13) Go to “Processing settings” and select in the pull down menu “Package” the option General Radiology (Soft)

Replace with...

General Settings

View Position: -- Select a position -- Speed Class: -- Select a speed class --

Cassette Orientation: -- Select an orientation -- Erasure Dose: -- Select an erasure dose --

Image Laterality: -- Select a laterality -- Scale Mode: -- Select a scale mode --

Processing Settings

Collimation: -- Select a collimation -- Collimation Border: -- Select a border --

Package: General Radiology (Soft)

Destinations

☐ Printer: [] []

☐ Sheet Size: []

Print Automation: -- Select print automation --

Archive Automation: -- Select archive automation --

Replace

figure 23:

- (14) Click <Replace> and check the result in the Result List, changes are in blue.

Result List

You have searched for: Exam group: Chest; Application: General radiology;
Replace with: Package: General Radiology (Soft);

Age Group	Exam Group	Application	Body Part	Exposure	Collimation	Collimatio...	Package
17+	Chest	General radiology	Chest	Trachea Lat	Auto	On	General Radiology (Soft)
17+	Chest	General radiology	Chest	Chest on bed AP	Auto	On	General Radiology (Soft)
17+	Chest	General radiology	Chest	Ribs Lower	Auto	On	General radiology
17+	Chest	General radiology	Clavicle	Sterno Clav. Gewr.	Auto	On	General radiology
17+	Chest	General radiology	Chest	Chest AP	Auto	On	General Radiology (Soft)
17+	Chest	General radiology	Chest	Chest PA	Auto	On	General Radiology (Soft)
17+	Chest	General radiology	Chest	Trachea AP	Auto	On	General Radiology (Soft)
17+	Chest	General radiology	Chest	Sternum Lat	Auto	On	General radiology
17+	Chest	General radiology	Chest	Sternum AP	Auto	On	General radiology
17+	Chest	General radiology	Chest	Chest Lat	Auto	On	General Radiology (Soft)
17+	Chest	General radiology	Chest	Ribs Upper	Auto	On	General radiology

figure 24:

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- (15) Click <Commit> to confirm.
The color blue in the result list will change to black.
- (16) Verify the configuration by checking 3 or 4 different examination groups (e.g. chest)
- Go to *Exam* → *Exam Tree Configuration*
- Select *Exposure type* → *Image processing* → *Package* and verify the selected Musica² package.
- (17) Activate the configuration.

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Alternatively, the linking can be done directly in the exam tree:

- (1) Go to the exam *Chest* and select one by one the exposure types you want to change:

Example:

Chest = General Radiology (Soft)

Ribs = remains General Radiology

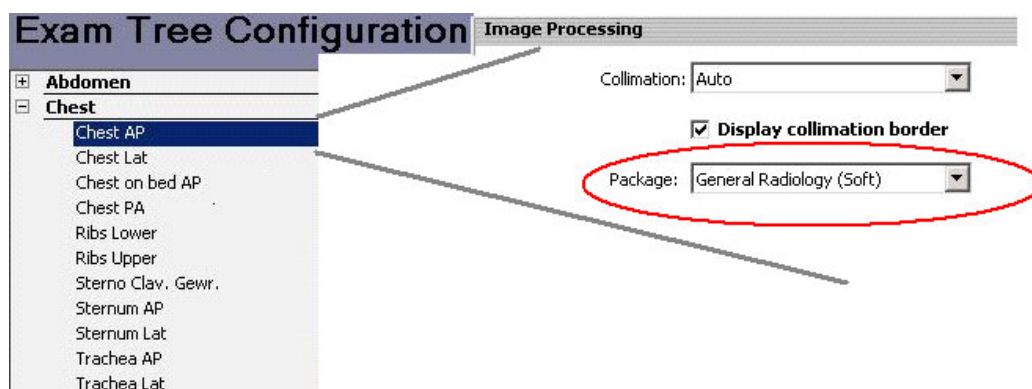


figure 25: exposure type "Chest"

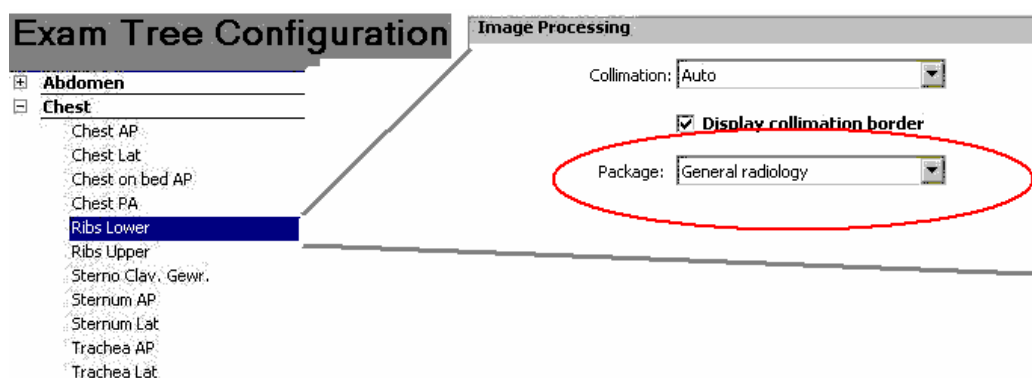


figure 26: exposure type "Ribs"

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6.4 Configuring the NX Musica² Platinum Package - Adults

Required Licenses:

Musica² Base,
Musica² Premium Adults – Abdomen,
Musica² Premium Adults – Chest,
Musica² Premium Adults – Skeleton



NOTE:

- By default, the exposure types are linked to the General Radiology package. The goal of this configuration exercise is to link all exposure types to one of the image processing packages abdomen, chest or skeleton.
- The procedure to configure the Platinum Package - Pediatrics is the same as for the Platinum Package – Adults. Check the necessary licenses in section 6.5.

Procedure

- Check in *Security* → *License management* → *Manage licenses* that the correct licenses are enabled (see above):
- Go to Find and replace exposure settings
- Go to <Find>

figure 27:

- Select the Application General radiology.

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- (5) Click <Find>
- (6) Check the result in the `Result List`.
All exposure types of the exam tree must be listed
- (7) Go to <Replace with ...>.
- (8) In “Processing Settings” select the package `Skeleton`.
- (9) Click <Replace> and view the results list.
All exposure types must be linked to `Skeleton` (in blue)
- (10) Click <Commit> to activate the package
- (11) Go to `Find...`
- (12) In “Processing Settings” select Examination Group `Abdomen` and click <Find>
- (13) In the `Result List` verify if all exposure types you want to link to `Abdomen` are activated in the check box.
- (14) Go to `Replace with...`
- (15) In `Processing Settings` select the package `Abdomen`.
- (16) Click <Replace> and view the `Results List`.
- (17) Click <Commit> to activate the package.
- (18) Go to `Find...`
- (19) In “Processing Settings” select Examination Group `Chest` and click <Find>
- (20) In the `Result List` verify if all exposure types you want to link to `Chest` are activated in the check box.

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- (21) In *Replace with...* → “Process Settings” select package *Chest*
- (22) Click <Replace> and view the “result list”
- (23) Click <Commit>
- (24) Verify the configuration by checking 3 or 4 different examination groups (e.g. chest)
Go to Exam → Exam Tree Configuration
Select Exposure type → Image processing → Package and verify the selected Musica² package.
- (25) Activate the configuration.

Alternatively, the linking can be done directly in the exam tree

6.5 Configuring the NX Musica² Platinum Package - Pediatrics

Required Licenses:

Musica² Base
Musica² Pediatric,
Musica² Premium Adults - Abdomen,
Musica² Premium Adults - Chest,
Musica² Premium Adults - Skeleton
Musica² Premium Pediatrics - Abdomen,
Musica² Premium Pediatrics - Chest,
Musica² Premium Pediatrics - Skeleton



NOTE:

By default, the exposure types are linked to the General Radiology package.

The goal of this configuration exercise is to link all exposure types to one of the image processing packages abdomen, chest or skeleton.

Procedure

- (1) Check in *Security* → *License management* → *Manage licenses* that the required licenses are enabled (see above):
- (2) To configure the pediatrics package perform exactly the same procedure steps as described in section 6.4.

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6.6 Taste Adjustment

Taste adjustment is possible on two levels:

a) Adjustments in NX Configuration Tool

Applied changes are always on package level. **All** exposures that are linked to this package will be changed;
for procedure see section 6.6.2

b) Adjustments in the *Editing Screen* of the NX user interface

“Modify Musica Settings” in the Editing screen (for service no license required)
Settings can be applied and stored only for the **selected** image.

Defining these changed parameters as default for other images is not possible on this level;
for procedure see section 6.6.3

6.6.1 Prerequisites for Taste Adjustments

Prior to any taste adjustments

- re-view existing images of different body parts to get a first impression of the customer’s specific taste
- adapt the Musica² configuration according to this taste as described in 6.6.2
concentrate first on brightness, in a second step on contrast and, if required, on sharpness
- do not try to mimic film screen or Musica (1) appearance of images

To adjust Musica² to customer tastes you need images.

You have different possibilities:

- in case of a new NX installation, wait for the first incoming images of patients
- or import existing images from portable media
- in case of an existing NX installation, use the images which are already present:
select an image, save it as new and re-process that image with Musica².

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Musica² allows following taste adjustments:

BRIGHTNESS	<p>adjusts the mid-gray level</p> <p>Possible Range: -20 to +20, step size: 1 Recommended Range: -10 to +10 Small, visible step size on diagnostic monitor: 3 units</p>
CONTRAST	<p>adjusts the overall contrast impression with no black or white clipping effects</p> <p>Possible Range: -20 to +20, step size: 1 Recommended Range: -15 to +15 Small, visible step size on diagnostic monitor: 4 units</p>
SHARPNESS	<p>increases the level of the finest details</p> <p>Possible Range: -5 to +5, step size: 0.5 Recommended Range: -2.5 to +2.5 Small, visible step size on diagnostic monitor: 1-2 units, depending on display resolution</p>

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6.6.2 Configuring Musica² Taste Settings in the Configuration Tool

Procedure

- (1) In NX Configuration Tool, go to *General / Workflow Management / Image Presentation*
- (2) Adapt the taste of the required package(s) by changing the values for Brightness, Contrast, Sharpness

Workflow Management

☐ Store dose and RRAP statistics centrally

Image Presentation

General Settings

☐ Enable burn

☒ Show square marker

☒ Transparent shutters

Free Text font size:

Collimation border density:

Dose Settings

☒ Show dose deviation

Max # of records:

Musica 2 Presentation Taste Settings

Name	Contrast	Sharpness	Brightness
GENRAD	0	0	0
GENRAD_SOFT	-7	-1	0
SKELET_PED	0	0	0
SKELET_ADULTS	0	0	0
ABDOM_ADULTS	0	0	0

Package:

Brightness:

Contrast:

Sharpness:

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- (3) Verify and activate the configuration

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6.6.3 Activating Musica² Advanced (Part of License “NX Premium Tools”)

Required License:

Musica² Base

Musica² Advanced



NOTE:

The Musica² Advanced functionality (“Modify Musica settings”) is always available for the CR Service account, even if the license is disabled.

Procedure

- (1) Check in *Security* → *License management* → *Manage licenses* that the correct license is enabled: Musica² advanced
- (2) The window *Modify Musica settings* is visible on the NX display in the Editing screen.

The modified settings (contrast, brightness and sharpness) can be saved for the current image only!

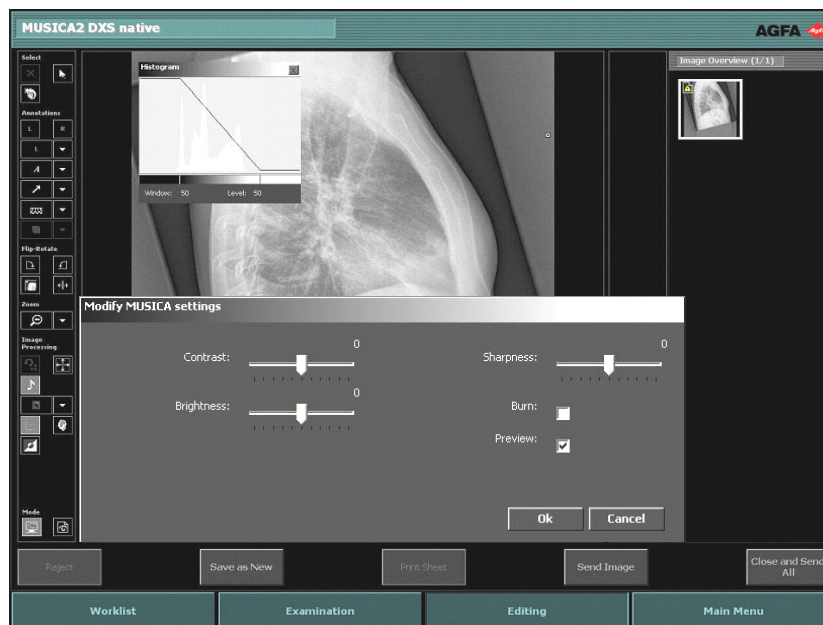


figure 29:

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7 Working with the “Advanced Archive Correction Tool”

The “Advanced Archive Correction Tool” can be used as an optional correction tool, in case a “p-value” calibration is not possible on the PACS.

This can have following reasons:

- adaptation would have an impact on images from other modalities:
e.g. Computer Tomography, Ultra Sound, Magnetic Resonance
- recalibrating all PACS stations can be very labor intensive and cannot be invoiced

Goal of the Correction is to reach a similar look of images on NX and PACS monitors, although the images are not sent according to the DICOM standard.

Procedure

- (1) Go to
Devices / Archive
- (2) Select the archive
- (3) In Archive / Device Settings select Advanced Settings



NOTE:

The grayscale correction and correction of resolution is only available with Musica² and in OD archive formats.

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(4) Select *Predefined*Select either *Correction1* or *Correction 2*

Advanced Settings

Greyscale Correction
Greyscale corrections will only be applied on musica 2 processed and on imported technical images.

☐ No correction

☒ **Predefined** Correction 1

☐ Custom Black: 0 Grey: 40 White: 100

Resolution

☒ Maximum

☐ Custom Height: 9999 Width: 9999

☒ Same SOP-UID for Presentation and for Processing Images

OK Cancel

figure 30

Currently, two predefined correction algorithms are available:

Correction 1:

IMPAX is set to "NEMA", IMPAX monitor is calibrated for gamma 2.20
 Grey = 40

Correction 2:

IMPAX is set to "Gamma 2.20", IMPAX monitor is calibrated for P-Values
 Grey = 60

**NOTE:**

If the grayscale correction for a PACS is configured, it is not possible to send Musica1 processed images to this PACS.

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8 Creating and Viewing NX Acceptance Test Procedure (ATP) Snapshot

- (1) Go to *Start* → *AGFA* → *NX* → *Service* → *Install Tools* → *NX ATP Snapshot*

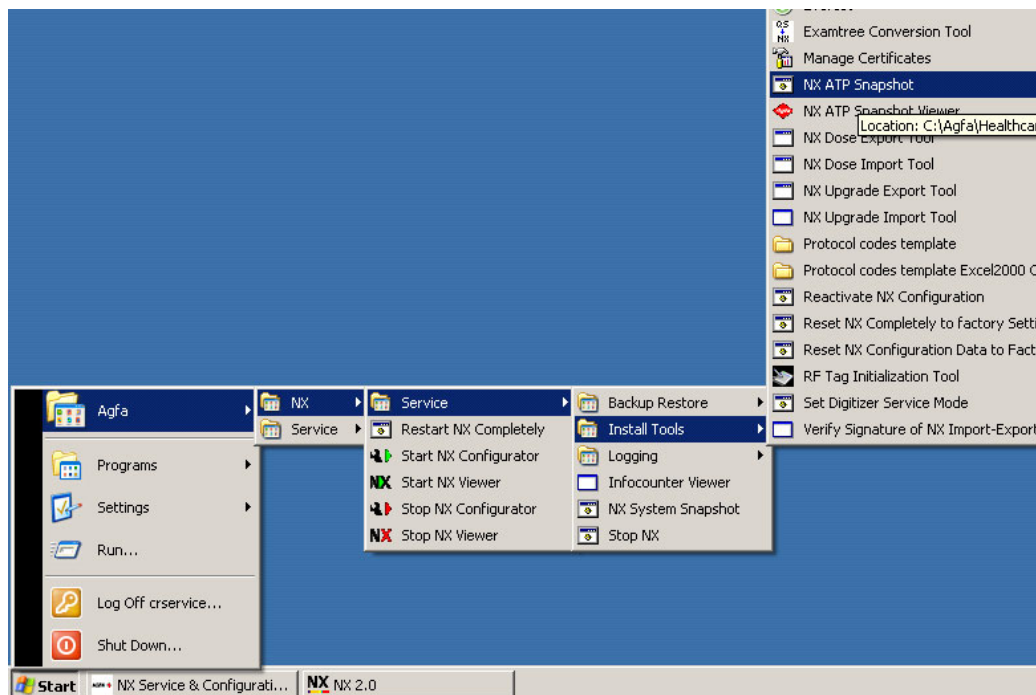


figure 31

- (2) A DOS box opens.

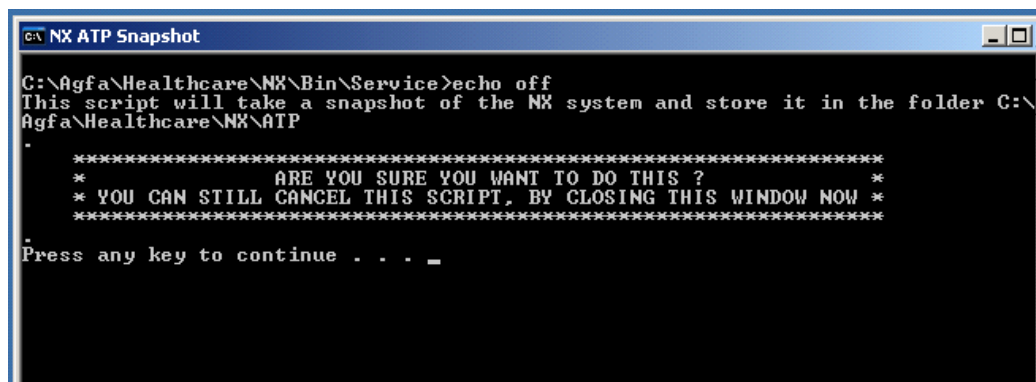


figure 32

Press any key to continue.

(Generating Snapshot takes a few minutes. You can find the snapshot file in:
C:\ Agfa \ Healthcare \ NX \ ATP)

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- (3) To view the contents of the snapshot go to *Start → AGFA → NX → Service → Install Tools → NX Snapshot Viewer*

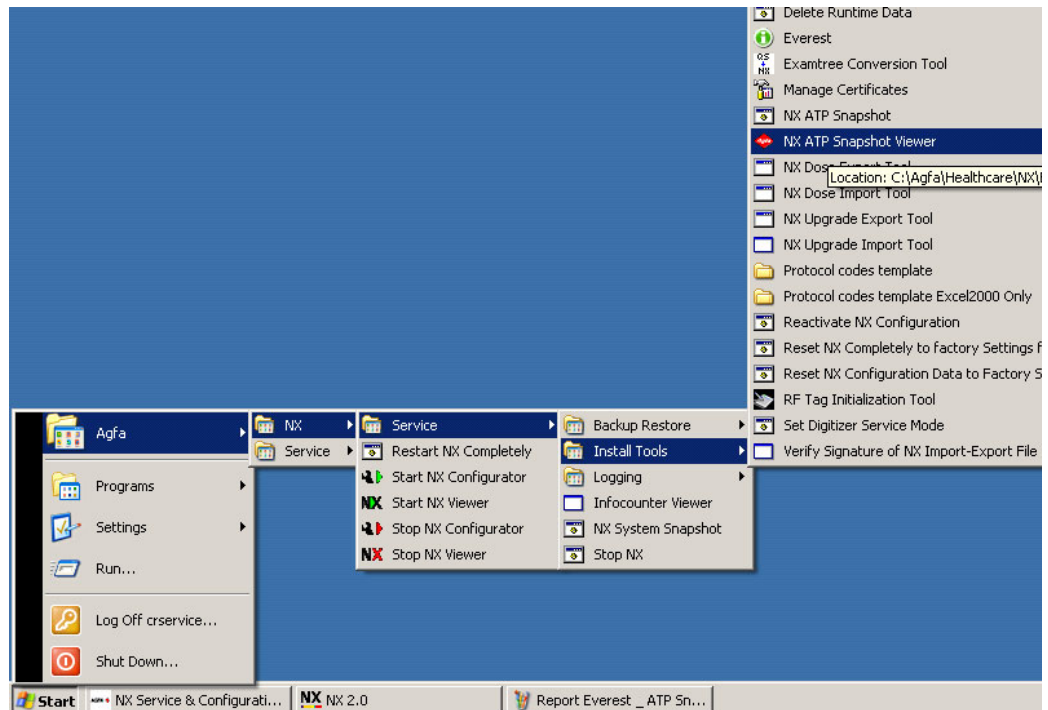


figure 33

- (4) Click <Create snapshot>

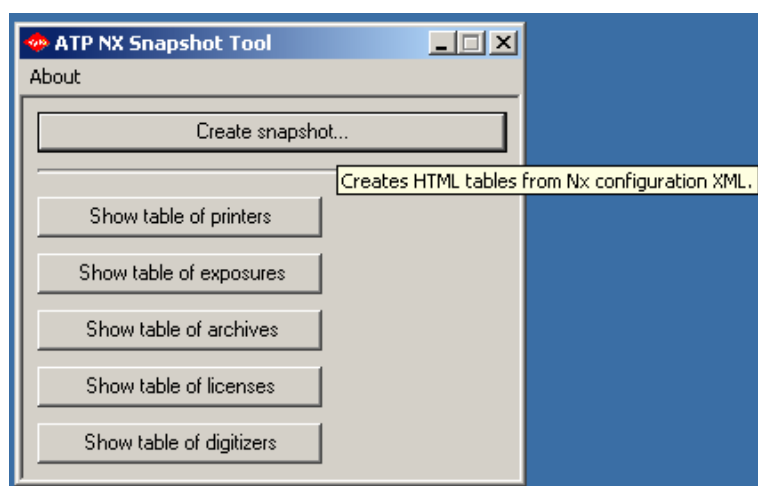


figure 34

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- (5) Select the file `NX Config.Snap.Shot.html`
The system generates html tables out of the snapshot xml-file.

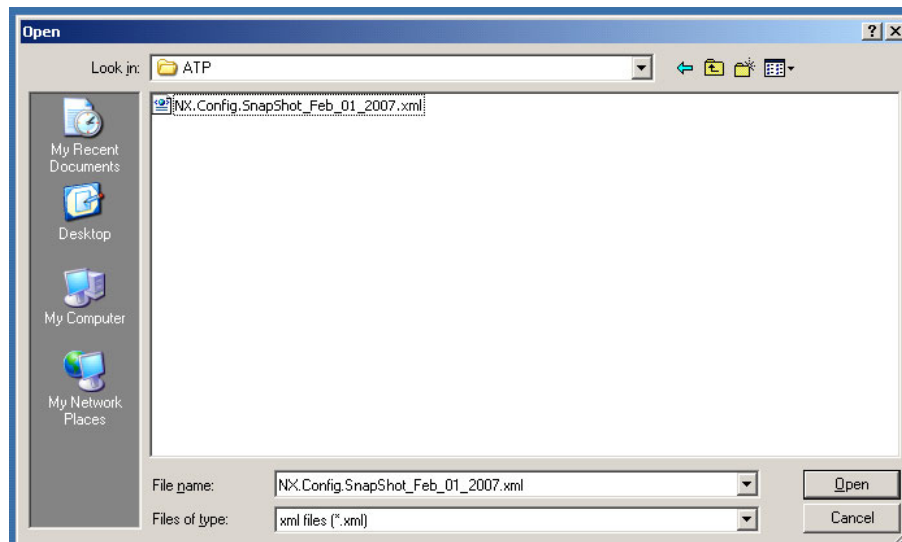


figure 35

Click **<Open>**



NOTE:

If you want to avoid overwriting of the snapshot, you should rename the file, e.g. by adding the date, see figure below.

- (6) A message appears: “Html tables have been created”
- (7) Parsing finished. Click **<OK>**.

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- (8) View the individual tables by clicking the <Show table ...> buttons. There, you can check which package is linked to which exposure type.

Table Of Exposures

Age Group	Exam Group	Exposure Type	MC	EC	ECNL	LR	NR	FA	FP	MD0	MD1	Package	Modal	
			Musica 1											
			Musica 2											
0-1.5	Abdomen	Abdomen AP	1.5	0	1	0	2	C	0.1	-0.4	0	GENRAD		
0-1.5	Chest	Chest AP	0	1	1	0	0	C	0.3	-0.2	0.1	GENRAD		
0-1.5	Lower Extremities	Ankle	1.5	3	1	0	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Lower Extremities	Ankle Cast	1.5	3	1	0	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Lower Extremities	Femur	2	2	1	0	0	C	0.1	-0.2	0	GENRAD		
0-1.5	Lower Extremities	Femur Cast	2	1.5	1	0	0	C	0.1	0	0.2	GENRAD		
0-1.5	Lower Extremities	Foot	2	3	1	0	0	C	0.1	-0.2	0.2	GENRAD		
0-1.5	Lower Extremities	Foot Cast	2	2	1	0	0	C	0.1	-0.2	0.1	GENRAD		
0-1.5	Lower Extremities	Knee	2	3	1	0	0	C	0.1	-0.3	0.4	GENRAD		
0-1.5	Lower Extremities	Knee Cast	2	3	1	0	0	C	0.1	-0.3	0.4	GENRAD		
0-1.5	Lower Extremities	Tibia	2	2	1	0	0	C	0.1	-0.2	0	GENRAD		
0-1.5	Lower Extremities	Tibia Cast	2	1.5	1	0	0	C	0.1	0	0.2	GENRAD		
0-1.5	Pelvis	Pelvis AP	1.5	2	1	0	0	C	0.1	-0.5	0.3	GENRAD		
0-1.5	Pelvis	Pelvis Lowenstein	1.5	2	1	0	0	C	0.1	-0.5	0.3	GENRAD		
0-1.5	Shoulder	Clavicle	1.5	2	1	2	0	C	0.1	-0.2	0.1	GENRAD		
0-1.5	Shoulder	Shoulder	1.5	2	1	2	0	C	0.1	-0.2	0.1	GENRAD		
0-1.5	Skull	Skull AP	1.5	2	1	0.5	0	C	0.05	-0.4	0	GENRAD		
0-1.5	Skull	Skull Lat	1.5	2	1	0.5	0	C	0.05	-0.4	0.1	GENRAD		
0-1.5	Spine	Cervical AP	1.5	2	1	0	0	C	0.1	-0.3	0.1	GENRAD		
0-1.5	Spine	Cervical Lat	1.5	2	1	0	0	C	0.1	-0.3	0.1	GENRAD		
0-1.5	Spine	Lumbar AP	2	0	1	2	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Spine	Lumbar Lat	2	0	1	2	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Spine	Thoracic AP	1.5	2	1	0	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Spine	Thoracic Lat	1.5	0	1	2	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Upper Extremities	Elbow	2	3	1	0	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Upper Extremities	Elbow Cast	2	3	1	0	0	C	0.1	-0.3	0.2	GENRAD		
0-1.5	Upper Extremities	Forearm	2	3	1	0	0	C	0.1	-0.3	0.1	GENRAD		
0-1.5	Upper Extremities	Forearm Cast	2	3	1	0	0	C	0.1	-0.3	0.1	GENRAD		
0-1.5	Upper Extremities	Hand	1	3	1	0	0	C	0.1	-0.2	0.1	GENRAD		
0-1.5	Upper Extremities	Hand Cast	1	3	1	0	0	C	0.1	-0.2	0.1	GENRAD		

figure 36

- (9) Store in a default folder and, if required, save the snapshot file on an external medium outside NX.

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9 Customer Information and Hand-over

The information on changed or new functionalities outlined in this section should be communicated to the customer by the FSE/CAS when handing-over the system.



REQUIRED TIME:

approximately 15 min. for radiographers
approximately 30 min. for radiologists



NOTE:

To acquire yourself an in-depth knowledge of Musica², you should be familiar with the additional information sources that are mentioned in section 1.6 of this documentation, especially with the Web Based Training “Musica²”.

- **Generic Information**

Basically, Musica² offers a reliable default image processing that – within a limited range – copes with under- and over exposure and poor exposure technique.

It is, however, crucial that the customer follows generally accepted guidelines for producing x-ray exposures with respect to best practice (exposure technique, positioning, collimation of x-ray beam) and the ALARA principle for dose (As Low As Reasonably Achievable).

- **Information on specific appearance of Musica² images**

Musica² images have a specific appearance with regard to extended bone and soft tissue rendering. That means, that some Musica² images look rather different from film/screen or Musica (1),

Radiologists need to get used to a different look and feel of images, since they may capture more information in one instance, than they have been used to so far

Example - Skull lateral:

Without losing the good contrast of the skull, Musica² image processing now also visualizes the nasal bone and tissue structure.

The contrast behavior within subtle structures of the face bone and the differences between air, tissue and bone in the region of the sinus has improved. Sometimes even ears (skull PA) and hair are visible.

Example – Thoracic spine AP:

This exposure focuses on bone structure, but with Musica² additionally offers an improved visualization of lungs tissue

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- **Improved visualization of wide-latitude exams**

This means that absorption differences resulting from wide differences in thickness and/or denseness of an exposed body part, can now be visualized by Musica².

e.g. (lumbar) spine, full leg/full spine.

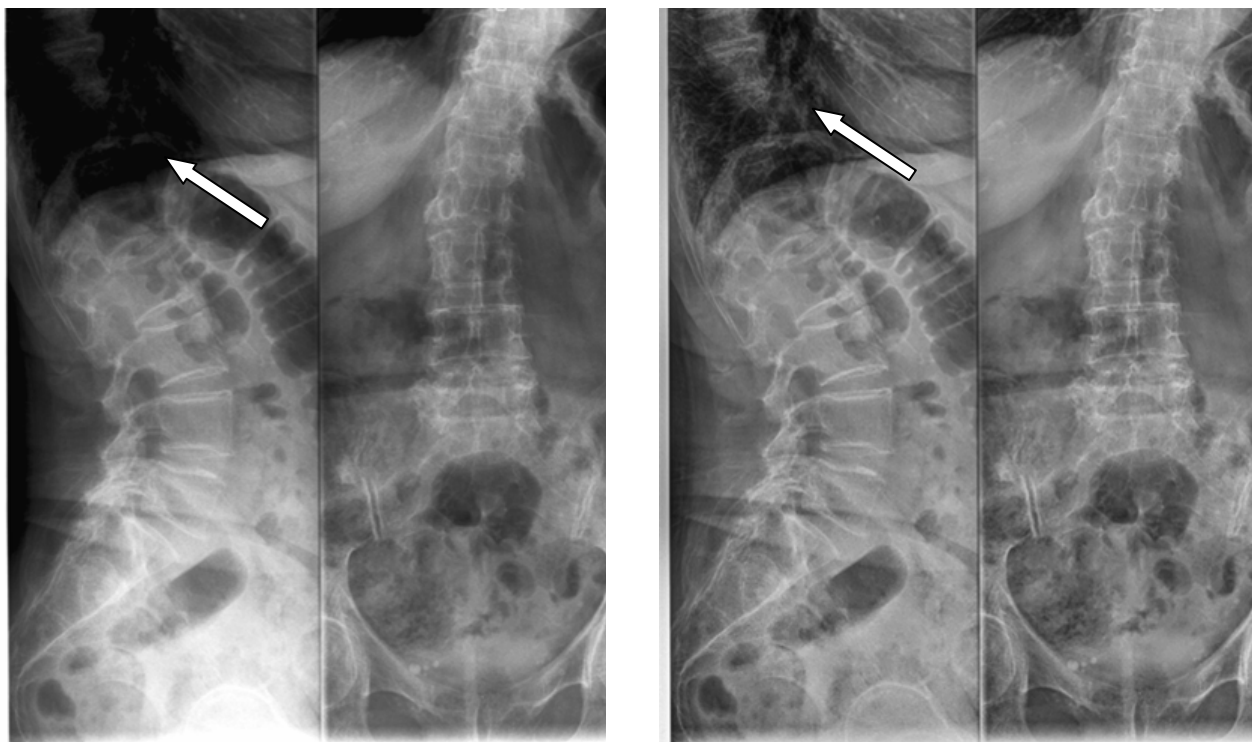


figure 37: lumbar spine-lat: improved visualization of wide latitude objects

- **Advice for use of window/level.**

inform the customer that necessity of window/level adjustments will be reduced with Musica²

- **Collimation and Black Border**

image processing is independent of possible errors of the collimation /black border software

Contrary to Musica (1) a wrongly applied automatic collimation does not result in a wrong window/leveling, but in a wrong positioning of black border (license).

Therefore, advise customers who use the black border license, that they should collimate manually, if the black border is not properly positioned.

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- **Impact of taste adjustments on images**

- explain the configured packages and the possible ways of influencing the Musica² settings (possible only if Musica2 Advanced license in License Package NX Precision Tools is enabled)
- changes in Advanced Settings in the User Interface have only impact on the current image. The modified settings (contrast, brightness and sharpness) can be saved for the current image only!
- a global change of settings will always influence all exposure types linked to the dedicated package (can only be done by Service Personnel)

- **Follow-up Contact**

Agree with the customer a contact after one or two weeks to check if there are any open questions or issues to be answered or solved.

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10 Checklist for Musica²

Checklist for the Configuration of Musica ²	
Site: Location:	Date: Pages: 1 of 2
Goal: The following checklist outlines the necessary tasks to implement Musica ² on an NX Processing Station	
Topics:	Done
Preparation	
Prerequisites fulfilled	<input type="checkbox"/>
Preparations before On-Site Visit done	<input type="checkbox"/>
On-Site Pre Conditions known	<input type="checkbox"/>
Enabling Musica² on NX	
New *.alf – file installed	<input type="checkbox"/>
Musica ² licenses on NX enabled	<input type="checkbox"/>
Archive, Monitor and Printer configured on NX	<input type="checkbox"/>
PACS Monitor configured and calibrated	<input type="checkbox"/>
Verification of Installation performed	<input type="checkbox"/>
Configuring the Musica² Packages	
Settings for “GenRad” or “GenRad Soft” done	<input type="checkbox"/>
Mixed settings of “General Radiology” and “General Radiology Soft” applied (if applicable)	<input type="checkbox"/>
NX Musica2 Platinum Package – Adults applied (if applicable)	<input type="checkbox"/>
NX Musica2 Platinum Package – Pediatrics applied (if applicable)	<input type="checkbox"/>
Taste Adjustments applied	<input type="checkbox"/>
Musica2 Advanced activated	<input type="checkbox"/>

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Checklist for the Configuration of Musica²	
Site: Location:	Date: Pages: 2 of 2
Creating an NX snapshot	
NX snapshot created	<input type="checkbox"/>
NX snapshot file stored on external medium	<input type="checkbox"/>
Customer training and hand-over done	
Customer is informed about: <ul style="list-style-type: none"> - Information on specific appearance of Musica2 images - Improved visualization of wide-latitude exams - Use of window/level with Musica² - Collimation and Black Border - Impact of taste adjustments on images - follow-up contact after one or two weeks 	<input type="checkbox"/>
End	

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Document No: DD+DIS122.07E

NX 2.0.68XX

Version 4406/303

Offline Config Tool Installation and Use

► Purpose of this document

This manual describes the installation and use of the NX offline config tool.

► Document History

Edition. Revision	Release Date	
2.0	05-2007	Initial Release. (Version 1.0 was only applied internally and not published)

► Referenced Documents

Document	Title
Service Bulletin	"Release of NX 2.0.68XX" (DD+DIS139.07E)

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AGFA 

**WARNING:**

Improper operation or service activities may cause damage or injuries.

**INSTRUCTION:**

- (1) Read the “Generic Safety Directions” document
(see MEDNET GSO => General Info => Agfa HealthCare => Publications => Service Manual) prior to attempting any operation, repair or maintenance task on the equipment.
- (2) Strictly observe all safety directions within the “Generic Safety Directions” and on the product.

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1 Introduction

The Offline Config Tool is an auxiliary tool for the Field Service Engineer. The Field Service Engineer can load and configure any NX configuration file on the offline config tool installed on his service PC. This enables him/her to prepare the configuration file before going to the site.

The offline config tool provides basically the same functionalities as the online config tool (= the one installed on a real NX system). There are some limitations though which are described in this document.

Formerly, the NX demo tool could also be used for this purpose but was less handy in use due to its large distribution (> 2GByte), the necessity to use VMWare and the memory requirements (> 256 Mbyte RAM).

Every NX version starting from NX2.0.68XX will have its own version of the offline config tool. The different versions can be installed next to one another (the version number is part of the name of the installation path:

C:\Agfa\Healthcare\NX\Offline Config Tool <Version>\Bin).

2 Prerequisites

System requirements:

- Windows 2000 or Windows XP.
- Minimum screen resolution: 1024 x 768

Prerequisite is to have local administrator rights on the PC where you are installing and running the NX offline config tool.

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3 Obtaining the Offline Config Tool

The offline config tool installer can

- be downloaded from MedNet FTP Server (<http://ftp.agfa.be/HE/software>):

Computed Radiography → *CR NX 2.0* → *Software* → *NX 2.0.68XX offline config tool*

Users who need to access the Global FTP Server via the http interface will have to sign on using the Username and Password listed in:

[MedNet Bulletin PACS 2004-11-23 Global FTP Server Password](#).

- or ordered as a spare part: **CM+3591050**

4 Installing the Offline Config Tool

1. Log in to an account that has administrator rights on the PC you want to perform offline configurations.
2. Double click the file `Offline Config Tool 2.0.68XX.exe`
3. The offline config tool and additional software is installed:

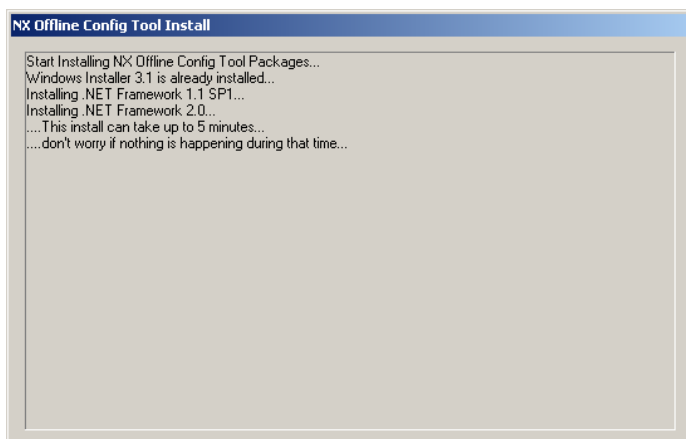


figure 1



NOTE:

- When not logged with administrator rights, the installer may indicate that the installation succeeded even when this is not the case.
- If the same version of the Offline Config Tool is already installed, the installation wizard will display a "Modify, Repair, Remove" dialog.

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5 Using the NX Offline Config Tool



NOTE:

The OffLine Config Tool can only be used from an account that has local administrator rights.

5.1 Importing and exporting Configuration Files

1. Start the offline config tool:
Start → Programs → Agfa → NX → Offline Config Tool 2.0.68XX → Start Offline Config Tool 2.0.68XX

The startup screen of the tool offers following possibilities:

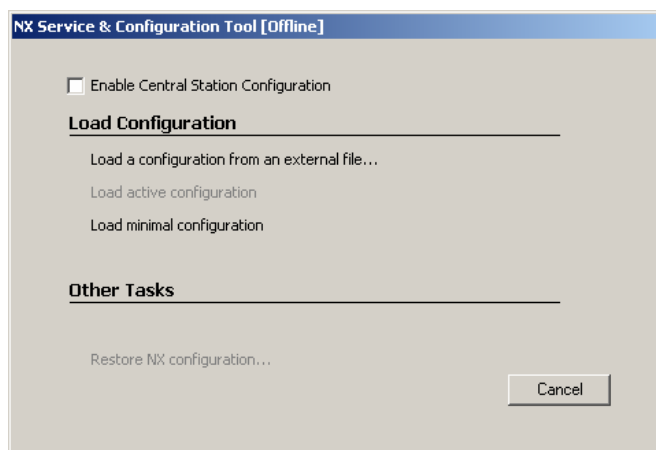


figure 2

- **Enable Central Station Configuration:**
You can make a distinction between configuring for a normal NX or a CMS NX. Check this box to configure a CMS. Only here this choice can be made!
- **Load configuration from an external file:**
You can load an already existing configuration file into the config tool. Note that this can also be an export file made by an online config tool or a previous version of NX config tool.
- **Start creating a configuration from scratch by loading a minimal configuration.**
The minimal configuration is different for non-CMS and CMS. Note that this functionality is not available in the online config tool. There, the NX database makes sure that a minimal configuration is always foreseen.



NOTE:

Loading an active configuration or restoring a NX configuration is never active in this screen of the offline config tool.

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2. Setup the configuration as much as possible (see limitations in section 6 “Limitations in use”)
3. Export the configuration to a file.
Before exporting, the configuration is automatically verified. When verification errors occur, one still has to option to save anyway (press <Continue>).

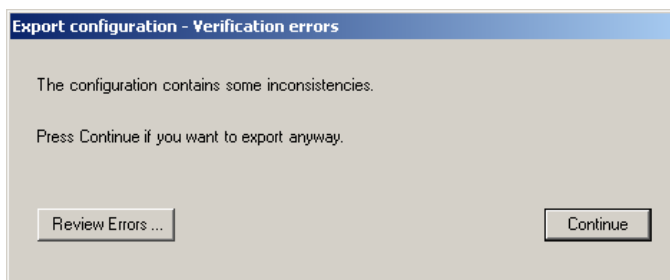


figure 3

4. Import this export file into an online NX config tool, finish the configuration and activate it.

5.2 Special: Configuring Bitmap Images to be printed on Film

When configuring bitmaps to be printed on film, you can upload a bitmap file in the config tool:

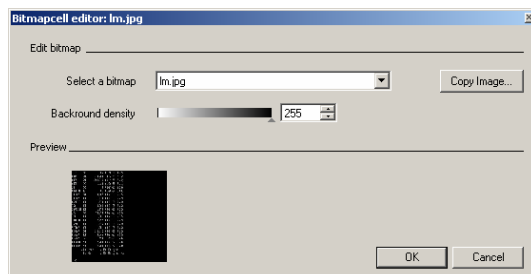


figure 4

Clicking the button <Copy Image> will copy the file to a specific folder on the PC:

- On an offline config tool system the bitmap file is copied to :
C:\Agfa\Healthcare\NX\Offline.Config.Tool.2.0.68XX\Bin\DataFiles\Configuration\BitmapFiles
- On an online config tool, this directory is:
C:\Agfa\Healthcare\NX\Configuration\BitmapFiles

When the configuration is activated on an online NX Workstation, you must manually copy the files from the offline BitmapFiles-folder to the BitmapFiles-folder on the NX Workstation.

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6 Limitations in use



IMPORTANT:

It is **not** possible to export the configuration to a previous version of NX! The config tool must always be used for the same NX version as its own version number indicates.

There is no access to the NX database. Input and output goes via export files (xml). These are the same type of files as used in the previous NX versions with the online config tool. Activating, loading or restoring of the configuration is not possible.

Further:

- No authentication configuration (users and roles): as there is no ADAM store offline
- No test connection functionalities
- No query RIS
- No test image for the monitor check
- No scan for in-room NXs (CMS functionality)
- No delete session (as there is no NX DB)
- No automatic backup is foreseen

7 Additional tools

Next to the offline NX config tool, also following tools are installed:

- Exam tree conversion tool
- Logging viewer (to view NX log files)
- Verify signature tool
 - Helps you verifying whether an export file is correctly signed or not (and can consequently be used to import into an NX online config tool)

For more info about this tools see the NX 2.0 Service Manual DD+DIS259.06.

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8 Online Help

When also having installed the online NX documentation (key user manual) you still have to browse manually to open the help files. Double-click the file `index.html` in following folder:

C:\Agfa\Heathcare\NX\Documentation\en\index.html
(‘en’ could also be other language).



NOTE:

It might be needed to ‘allow blocked content’ in the browser.

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Document No: DD+DIS130.07E

NX 1.0.3203 and NX 2.0.68XX

Version 4406/303

Agfa System Recovery Tool and Restore Procedures

Purpose of this document

- This document describes the creation and usage of a Ghost Recovery Disc Set for NX systems (backup\restore). This procedure is necessary in case a NX system has to be restored due to a hardware crash or other problem. The procedure applies to
 - NX 1.0.3203
 - NX 1.0.3203 SU1
 - NX 1.0.3203 SU2
 - NX 2.0.68XX
- This document also describes how to revert to a completely clean system as it is being delivered from production or to a previously working state of the system.

Document History

Edition. Revision	Release Date	Changes compared to previous version 2.0
2.1	07-2007	<ul style="list-style-type: none">• Changed document title• Added section procedure to revert to a clean system. See section 7• Added procedure to revert to a previously working system See section 8

Referenced Documents

Document	Title
NX 1.0 Service Bulletin	"Release of Agfa System Recovery Tool Version 1.2" (DD+DIS267.07E)
NX 2.0 Service Bulletin	"Release of Agfa System Recovery Tool Version 1.2" (DD+DIS296.07E)

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**WARNING:**

Improper operation or service activities may cause damage or injuries.

**INSTRUCTION:**

- (1) Read the "Generic Safety Directions" document
(see MEDNET GSO => General Info => Agfa HealthCare => Publications => Service Manual) prior to attempting any operation, repair or maintenance task on the equipment.
- (2) Strictly observe all safety directions within the "Generic Safety Directions" and on the product.

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1 Purpose of this manual

This manual describes the – ‘Ghost’ based - backup\restore procedure of the total configuration of an NX system. More specifically, the backup\restore procedure of the C partition of the NX PC is outlined.

All configuration data of an NX system resides on the C partition. The D partition contains image files and temp files (these are not backed up or restored with this procedure!).

The procedure can be used for all existing Dell models used for NX:

- Dell 670 (= upgraded QS)
- Dell 620
- Dell 745

2 Prerequisites



SCOPE OF DELIVERY

- DVD box
- Agfa System Recovery Tool CD version 1.2
- This enclosure



REQUIRED TOOLS

- 2 DVD disc(s) or several empty CDs (only for Dell 670)
- CD marker pen
- DVD write software (Roxio). (Not needed for Dell 670)
This software is not available in standard Windows XP. Normally the hospital should still have this software as it was shipped with the NX.
Since mid 2007, this software is also installed on the NX itself from production.



If you need to take the DVD write software (Roxio) with you on site, it can be downloaded from the MedNet FTP-Server (<http://ftp.agfa.be/HE/software>):

Computed Radiography → CR NX 2.0 → Software → Roxio Sonic CD-DVD writer software.

Users who need to access the Global FTP Server via the http interface will have to sign on using the Username and Password listed in:

[MedNet Bulletin PACS 2004-11-23 Global FTP Server Password](#).



REQUIRED TIME:

creating: approx. 45 minutes (DVD) and 1 h (CD-R)
restoring: approx. 30 minutes

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3 General Overview

The 'Agfa System Recovery Tool' software (version 1.2) is based on Symantec Ghost. Symantec Ghost is a backup/restore program used to create an image of the Operating System partition (on an NX is this the C partition). Ghost can store this image on external media (CDs or DVDs), or on another location. Afterwards, the image can be restored (also by using Ghost).

In this procedure, we will not let Ghost write or read immediately to/from DVD or CD due to known problems in the past. The included version of Ghost namely does not support all DVD writers (hardware).

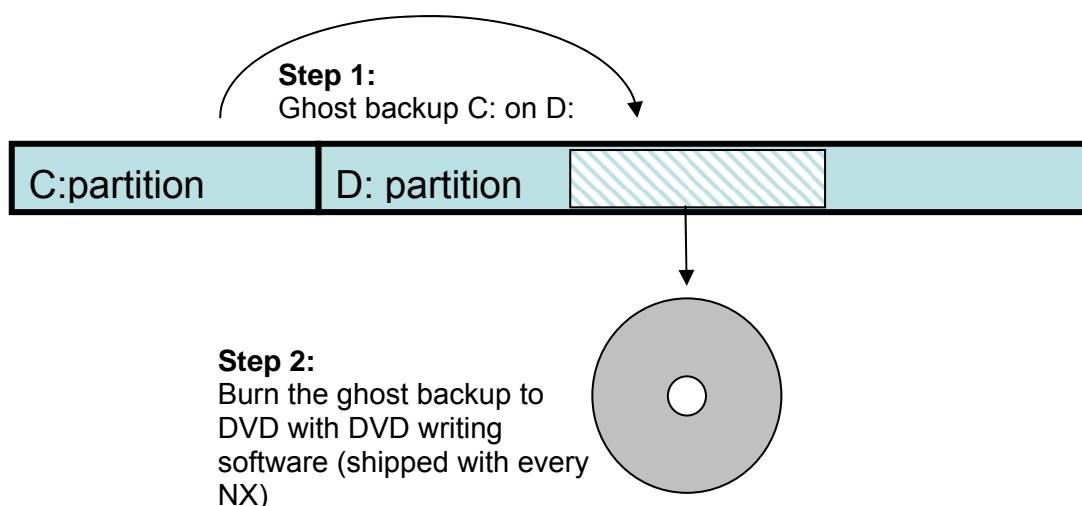
When booting from it, the 'Agfa System Recovery Tool' software does not run in the regular Windows graphical mode, but in DOS mode. The backup and restore procedures are controlled via the Ghost graphical interface. The mouse pointer is enabled while the Ghost program is running.

The 'Agfa System Recovery Tool' makes use of a RAM drive R: while running. If any errors occur, a detailed report is written to the file R:\GHOSTERR.TXT. This can be copied onto a floppy disc in drive B: for further investigation.

Following section outlines the procedure to follow.

3.1 Overview of the backup procedure

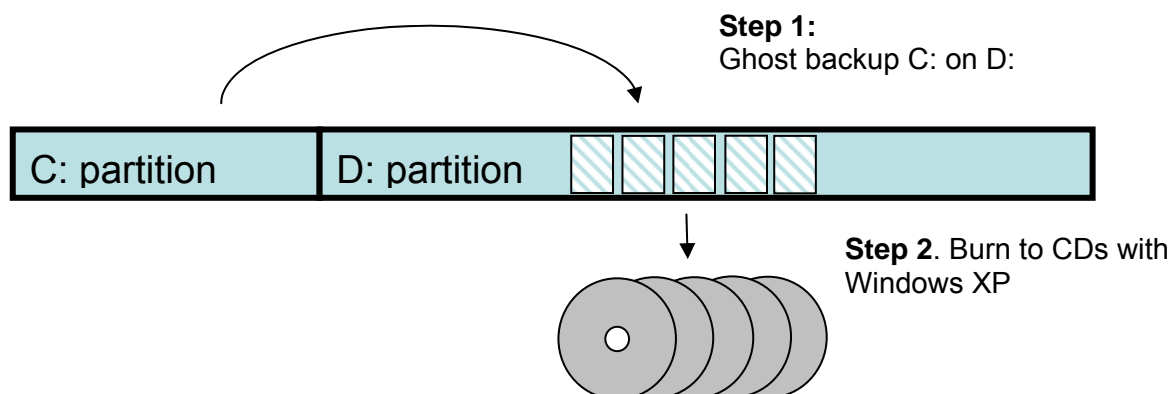
When using a DVD:



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Alternatively (when using CDs):



Step 1: make an image of the C partition and put it on the D partition

Using ghost, an image of the C partition is made and saved on the D partition (instead of directly on DVD\CD). In case of using CDs, Ghost must be instructed to produce several image files of limited size so that one file fits on a CD.



NOTE:

- The D partition can be found on another hard disk (Dell 620/670) or on the same hard disk (Dell 745). The procedure is basically the same in both cases, however the shown screenshots in the following procedure may differ!
- If there is not enough free disk space on the D partition (minimum 5 GB), free up space. Alternatively, in case of a Dell 745, you can use the unallocated disk space (+/- 40 Gbytes): refer to chapter 6 '*Clean install procedure*' on how to create a partition out of unallocated disk space. It is also possible to use an external hard disk.

Step 2: write the backup image to DVD

Write the image to DVD using the DVD writing software which is shipped with every NX (may even already be installed in production).

Alternatively, write the images to CDs using the CD writing software which is standard included in Windows XP. This procedure can be used when no DVD writer (hardware) is available, like on Dell 670.

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4 Preparation of the Ghost Recovery Procedure

4.1 Prepare D partition

Make sure a D partition exists and has some 5 GByte of free disk space (may be less if you succeed in cleaning up files, see further). If this is not the case, create it (see Chapter 6 '*Clean install procedure*') or free up some disk space on it.

➔ Create an empty folder on D already so that it can be used later to store the Ghost image files in.

4.2 Install DVD writer software on the PC

(not needed when using CDs)

When the PC is fully booted, check whether the DVD writing software is already installed on the PC:

Go to *Start* → *Programs* and check, if the folder Roxio with its content is available

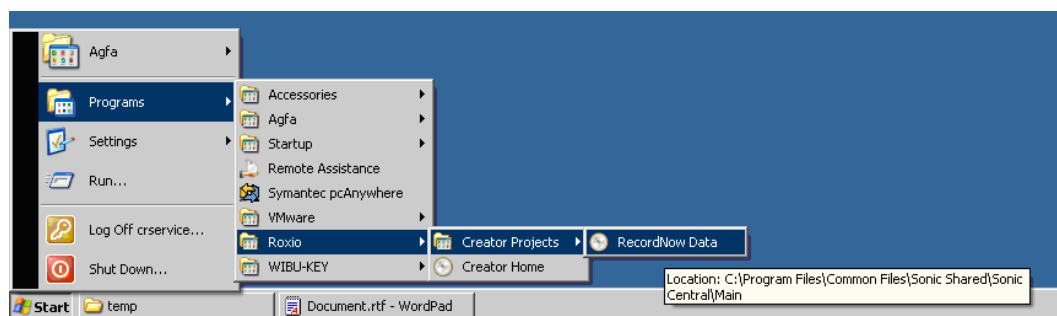


figure 1

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If the folder Roxio is not available, install it with the CD that is delivered with every NX.



NOTE:

The following screenshots may differ on your system.

1. Insert the CD containing the DVD writing software and start the installer if it does not run automatically

Click **<Next>**.

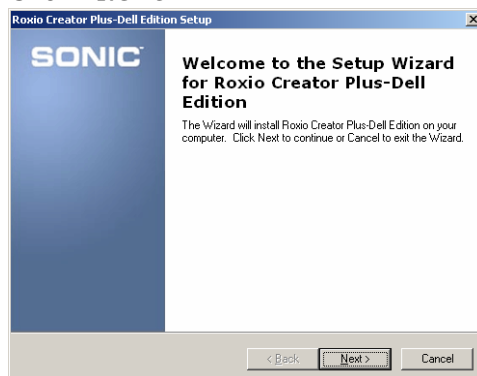


figure 2

2. Click **<Next>**

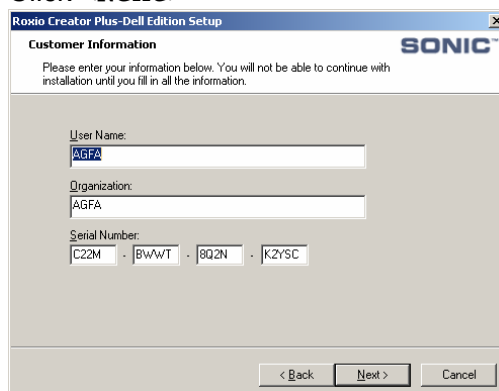


figure 3

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3. Choose <Custom>

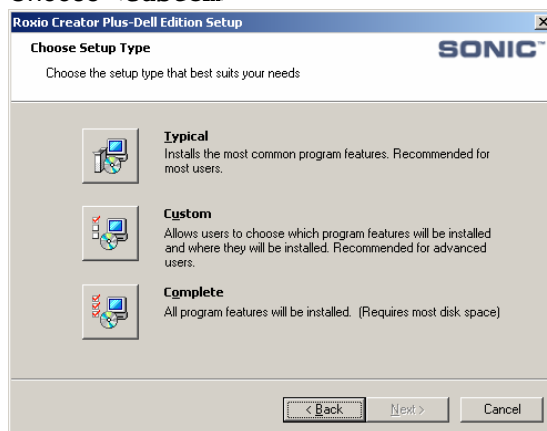


figure 4

4. Only check 'Roxio Recordnow Data'

**IMPORTANT:**Do **not** select Roxio DLA !

Click <Next>

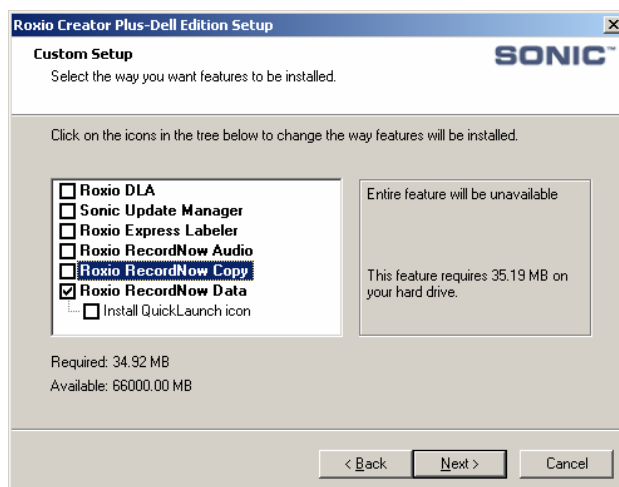


figure 5

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5. Click **<Finish>**

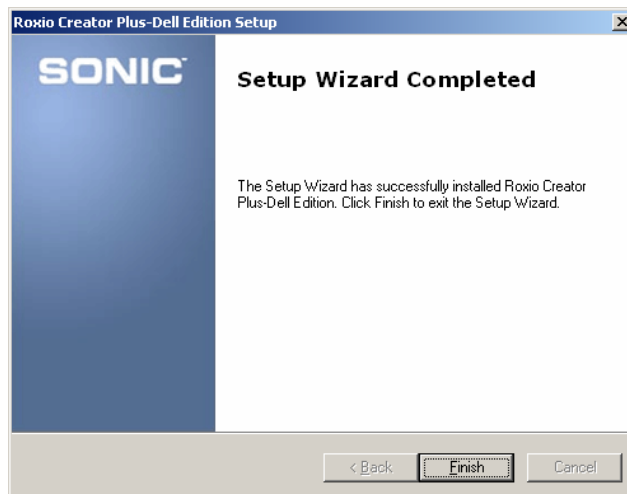


figure 6

6. The installation of the DVD writing software starts. After installation, the user is asked to reboot the system.

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4.3 Reduce disk size of C partition

Before creating the backup, it is **strongly advised** to cleanup unneeded data on the C partition first. Typically, it is possible to reduce the disk size of the C partition to about 10 Gbytes or less: Follow this procedure:

1. Stop NX: *Start → Agfa → NX → Service → Stop NX (or exit NX on a CMS-NX)*
2. Remove unnecessary log files from the folder *C:\Agfa\Healthcare\Log*



IMPORTANT:

ALL NX processes must be stopped now, including the *NXWorkStationMonitor.exe*! Go to the Windows task manager and check. You may kill manually the *NXWorkStationMonitor* process in the Windows task manager.

3. Remove old restore points on C:
 - (1) Double click on *My Computer* – and right-click on *HD Drive C:* and select *Properties*
 - (2) Click **<Disk Cleanup>**

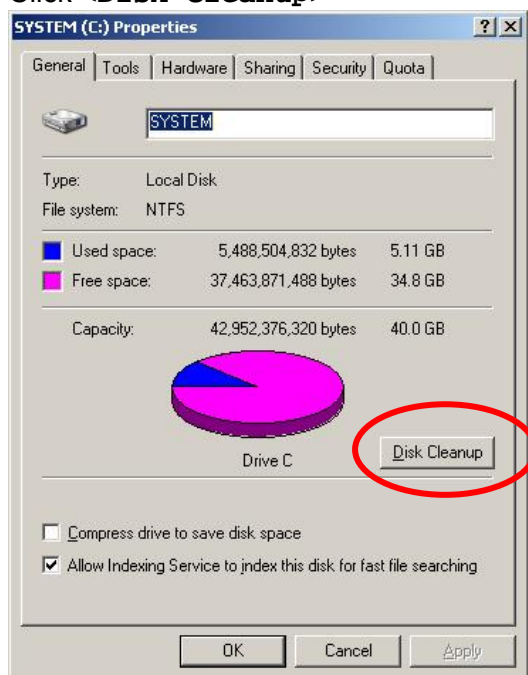


figure 7

- (3) Wait until the system has done some calculations. The Disk Cleanup dialog is displayed in the Disk Cleanup tab.

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(4) Check these items to be cleaned up:

- Recycle Bin
- Temporary Files



NOTE: Do **not** check Compress Old Files.

(5) Select tab *More Options*

(6) In the Section *System Restore* click <Clean up...>

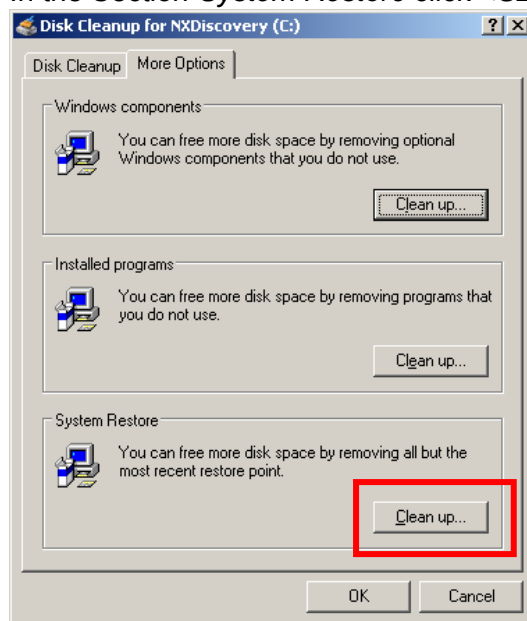


figure 8

(7) Click <Yes>:

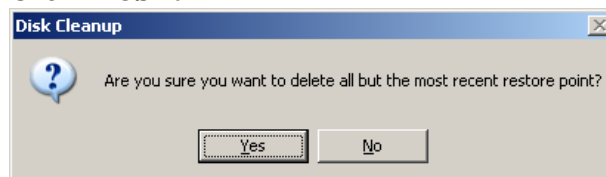


figure 9

(8) Click <OK> to exit Disk Cleanup

(9) Click <Yes>:

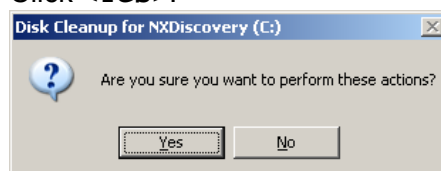


figure 10

(10) The clean up starts. This may take some time.

Result The preparation of the backup procedure is completed.

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5 Ghost Recovery Backup Procedure

This section describes how to create a recovery disk set.



NOTE:

The contents of the screenshots may be different on your system!

5.1 Step 1: make a copy of the C partition on another partition (eg. D).

1. Insert the 'Agfa System Recovery Tool' CD into the CD/DVD drive.
2. Restart the system
3. Depending on the BIOS version, <F12> has to be pressed when the Dell logo appears to enter the Boot Menu. Select "Onboard or USB CD-ROM drive" to start from CD.
4. The DOS boot sequence starts; eventually the system presents a DOS dialog box as a command window. You are asked to remove the CD from the tray. Do this and then close the tray.
5. At the command prompt type the following command:

Using a DVD	Using CDs
On Dell 620\670 type: ghost On Dell 745 type: ghost -noide Dell 745 has no IDE drives, without the – "noide" option Ghost will hang while looking for IDE drives (the Ghost startup screen will be blank).	On Dell 620\670 type: ghost -split=600 On Dell 745 type: ghost -noide -split=600 This instructs Ghost to split the image into several smaller files with a maximum size of 600 Mbytes (so that each fits on one CD).

6. Click <OK> on the welcome screen.

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7. Go to *Local* → *Partition* → *To Image*:

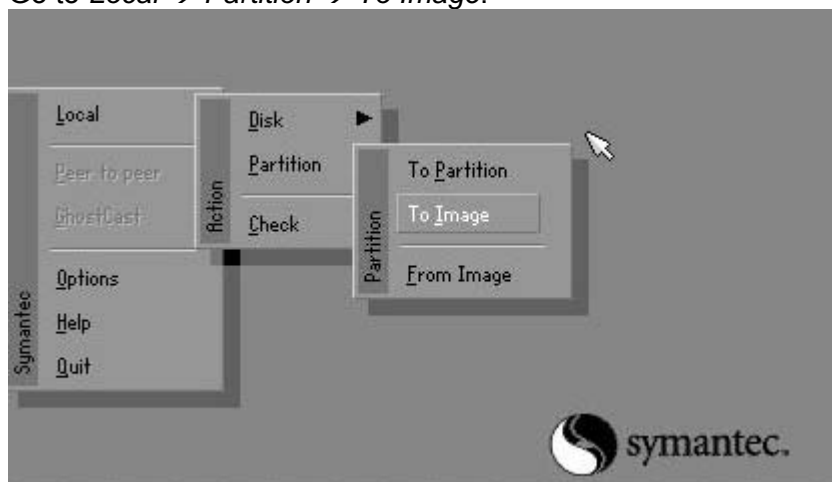


figure 11

8. Select the first hard drive (in case of Dell745 only one drive is listed):

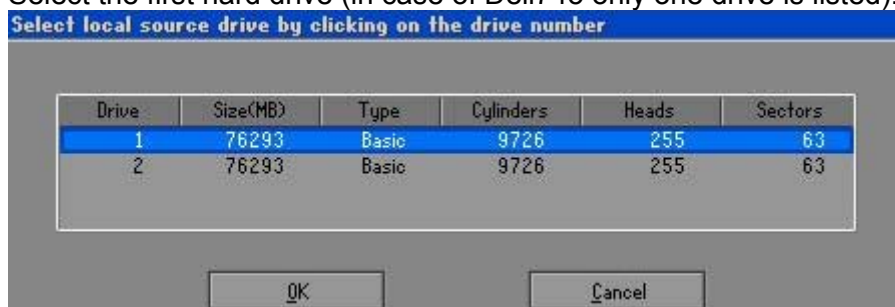


figure 12

9. Select the first partition:

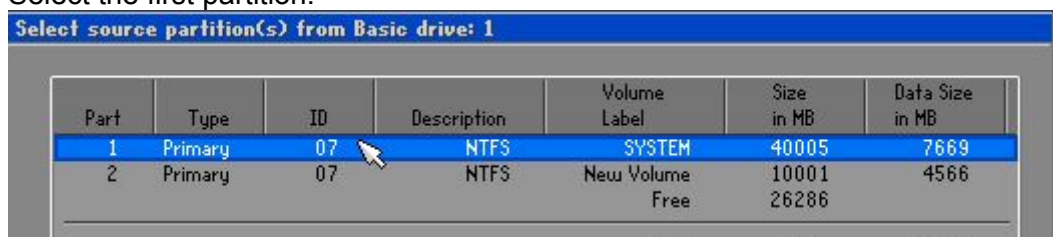


figure 13

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10. The dialog 'File name to copy image to' appears:

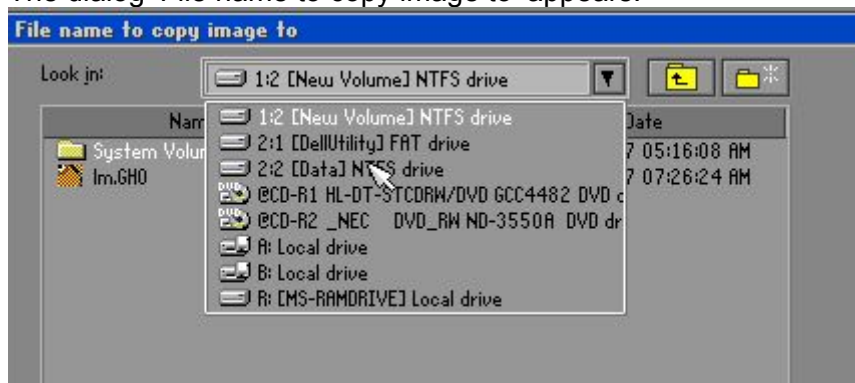


figure 14

In the drop down box, select the D partition. Drives and partitions are indicated in this window by numbers: Eg. '1:2' refers to the first hard disk, second partition

- On a Dell 745 the D partition is indicated by 1:2 (first HD, second partition).
- On a Dell 620/670 the D partition is indicated by 2:1 (second HD, first partition).

A CD/DVD drive is typically indicated by 'CD Rom Drive' or 'DVD Rom Drive'.

11. Open the folder where you want to copy the backup image to (your previously created folder as mentioned in section 4.1 Prepare D partition) and enter a file name eg. 'backup NX'. Click <save>.

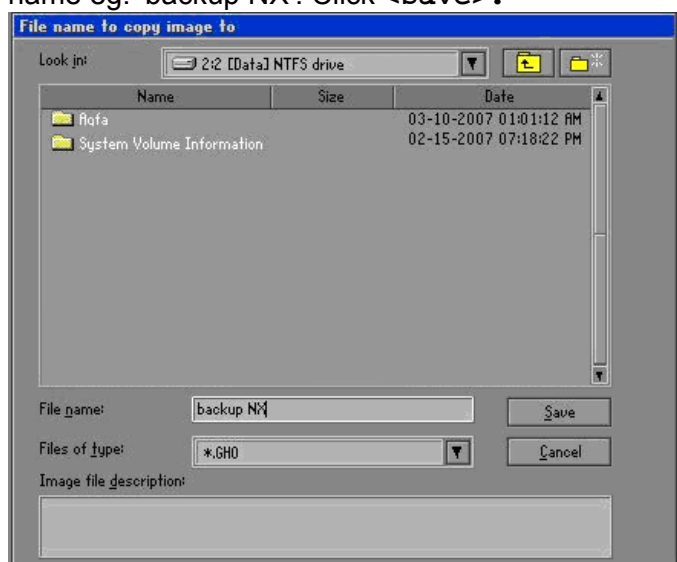


figure 15

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