

# NX for Digital Radiography



## AN EXCEPTIONAL TOOL FOR IMPROVED RADIOGRAPHY WORKFLOW AND EFFICIENCY, MADE FOR AND WITH THE TECHNOLOGIST IN MIND

- Designed for intuitive use
- Convenient workflow at point-of-care
- Facilitates hospital integration

*NX is the technologist's image identification and quality control tool.*

*NX has an intuitive interface that offers complete ease of use at the point-of-care.*

### Extensive range of benefits

NX offers a broad array of benefits developed with the technologist in mind. With the **touch screen**, the technologist can complete all standard tasks quickly and effortlessly. Thanks to the **intuitive interface**, easy access to the system is assured, providing more **flexibility and efficiency** in the radiology department.

**Agfa HealthCare's image processing** allows the technologist to spend much less time adjusting, for faster image delivery to the radiologist. The in-room integration means a **more convenient workflow** for the technologist throughout the imaging process. Offering improved interoperability with other systems within the hospital, NX delivers a **higher level of integration**.

## Designed for intuitive use

### ***Increased flexibility thanks to minimal learning curve***

The screen windows have been purposely designed to answer the needs of the technologist: identifying patients, performing examinations, controlling image quality and transmitting the verified images. The touch screen makes the Worklist and Examination windows easy to use and quick to complete tasks.

With the intuitive GUI, only minimal training is needed to work effectively on NX: increasing the overall flexibility of the staff.

### ***The most frequent tasks are the easiest to do***

NX's Worklist and Examination windows cover the technologist's daily tasks. In the **Worklist** window, the technologist can enter patient data or select it from an RIS-based worklist (optional), while in the **Examination** window, he or she can identify a cassette, define the examinations to perform and take the necessary steps to prepare an image for diagnosis. The Examination window's Fast Preview allows correct positioning and exposure to be determined even while the final image is in the process of being completed.



*The Examination window touch screen is intuitive, comprehensive and easy to use.*

### ***The hybrid touch screen/mouse provides greater efficiency***

When precision work is needed, the mouse provides access to a broad array of special tools through the **Editing** window, such as manual collimation, window leveling, burn and edited image saved as New.

The Editing window is optimized for hardcopy and softcopy viewing environments, with additional print tools available when images are displayed in the WYSIWYG print preview.



*The Editing window is optimized for soft- and hardcopy viewing environments.*

## Image processing

### ***MUSICA<sup>R</sup> provides excellent image quality***

NX includes Agfa HealthCare's technologically-advanced image processing as part of the standard package. The Multi-scale Image Contrast Amplification algorithm, MUSICA, composes the digital image in a number of different frequency ranges (or detail sizes) and modulates the signal amplitudes (or contrast) within each of these ranges. This single-dimension image processing delivers perceptibility and enhanced detail.

The optional, next-generation MUSICA<sup>2</sup> takes image processing even further, with two-dimensional image processing, for both frequency and density (or grey levels). Both the technologist and the radiologist benefit from an improved workflow and higher productivity, while patients and healthcare facilities also gain from the substantial advantages (see 'Optional features').

## Convenient workflow at point-of-care

### **More efficient workflow reduces examination time**

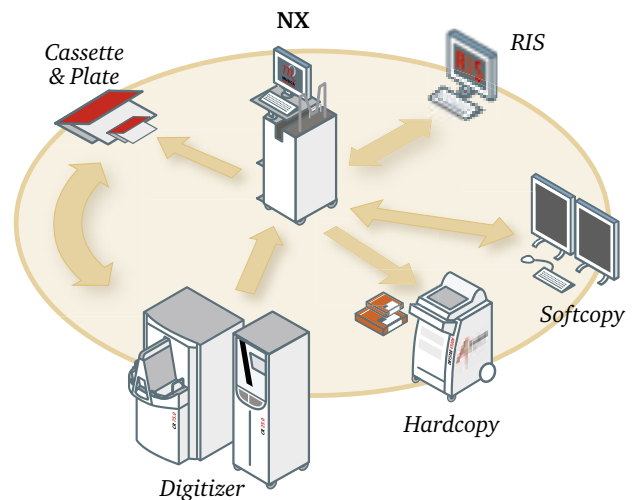
With NX, there is no longer a need for the technologist to leave the patient to perform any ID or image quality control activities. Plus, when NX is completely integrated with the X-ray system, there is no need to enter data into the X-ray console.

### **More comfort and less waiting increases patient satisfaction**

The improved patient proximity allows greater efficiency and workflow for the technologist, with more comfort and a shorter waiting time for the patient.



*An Agfa HealthCare digitizer placed in the same room as NX to achieve a perfect workflow at the point-of-care.*



## An essential part of hospital integration

### **Connectivity between hospital systems and networks means better patient care**

NX plays a significant role in the hospital's goal of providing patient comfort and care and improving communications throughout the facility via a total integration of systems. It supports the latest evolutions of hospital integration philosophy for improved interoperability.

NX is DICOM compliant and in accordance with IHE guidelines:

- DICOM images can be easily transmitted to a display station or imager for diagnosis. When sending to a PACS system, NX receives the message that images have been securely stored. Export of DICOM images to a CD-ROM for creating referral handouts is also included.
- An administrative tool is available to configure access rights for different users. With its password protection, NX provides security for patient information.

# Optional Features for NX

***NX COVERS THE TECHNOLOGIST'S DAILY NEEDS. WHEN A FACILITY HAS SPECIALIZED REQUIREMENTS, MULTIPLE AVAILABLE OPTIONS PROVIDE THE SPECIFIC TOOLS THE TECHNOLOGIST NEEDS.***

## IMAGING OPTIONS

### NX Precision Tools

***NX Precision Tools allows the technologist to fine-tune the image and deliver more specific information to the radiologist.***

- Annotations can be added to an image, such as: markers, predefined text, drawing lines or geometrical shapes, applying shutters to mask areas of the image, etc;
- The technologist can zoom in an image for a more detailed view or zoom directly to a specific Region of Interest;
- NX Precision Tools measures distances and angles and determines leg length differences and scoliosis.
- The technologist can show histograms for image analysis;
- Manual adjustment of the MUSICA image processing parameters allows fine-tuning for specific purposes.



*NX Precision Tools indicates scoliosis and other measurements.*

### NX Optiview

***NX Optiview features minimize artifacts and optimize viewing quality for improved reading by the radiologist.***

- The area outside the diagnostic area is automatically made black or grey, even when multiple exposures are made on one plate.
- Detected repetitive patterns, caused by anti-scatter grids, are removed.
- A square marker is automatically placed in the top left corner of all images. As the image is rotated and/or flipped, the marker also moves, indicating a manual change.



*With NX Optiview's top-left corner marker, image rotation or flipping is apparent.*

### NX Quality Assurance

***NX Quality Assurance helps the hospital maintain consistent image quality and minimize patient doses by monitoring dose variation on every exposure and analyzing rejected images.***

- With the dose indicator, the technologist easily sees how much the exposure dose deviates from the reference value for the examination. The indicator compares the median absorbed dose (LgM) in each digitized image with a stored reference dose value for that type of exam, to monitor the dose consistency.
- A report with details on rejected images (e.g. rejection reason, technologist's name and date) can be created for further analysis.

## MUSICA<sup>2</sup> Next Generation Image Processing

***MUSICA<sup>2</sup> provides two-dimensional image processing for digital X-ray images, offering higher image quality, autonomy and robustness, while enhancing the productivity of radiologists and technologists.***

- Two-dimensional (frequency and density) processing means bone and soft tissue are available in one image, but analyzed separately, eliminating the need to compromise on either contrast or density. The greater detail and improved image quality allow the radiologist to extract fast and secure diagnostic information, while decreasing time to view the image.



- The intelligent processing software automatically analyzes the characteristics of each image and optimizes the processing parameters, independent of user input (e.g. body part) and dose deviations, saving time and effort and increasing usability.
- The augmented robustness of the image quality reduces the need for window leveling and post processing for both radiologist and technologist.

Additional licenses are available for hospitals with specialty areas that need increased emphasis on soft tissue or bone structure depending on body parts such as the chest, abdomen and musculoskeletal, and/or on patient groups such as paediatrics.

## CONNECTIVITY OPTIONS

### NX RIS Connectivity

***By decreasing typographical errors and allowing easy access to patient data, NX RIS Connectivity provides more consistent patient data and reduces identification time, resulting in improved technologist workflow.***

- NX connects with existing information systems, such as Hospital Information Systems (HIS) and Radiology Information Systems (RIS).
- Direct access is available to patient data stored in the RIS, such as patient demographics, exam types and exposures. RIS Protocol codes can also be supported.

### NX Integrated Workflow

***NX Integrated Workflow maximizes the potential of RIS/PACS integration for dealing with emergencies, sending feedback on examinations status and of patient history consultations.***

- In emergency situations, the priority of emergency exams is increased. A customized emergency name can be automatically generated for the patient, whose name might not be known at the time of arrival, to speed up administrative procedures. A trauma protocol can be configured and activated.
- The MPPS (Modality Performed Procedure Step) sends the examination status – scheduled, in-process or completed – to the RIS. With this feedback, the RIS system can start certain status-related activities, such as changing the worklist, billing, etc.
- Consulting a patient's radiographic history is quick and easy. By checking the details on prior images, follow-up images can be exposed in the right position, for better comparison.

## SPECIAL EXAM OPTIONS

### NX Radiotherapy

***NX Radiotherapy provides easy-to-use, radiotherapy-specific support.***

- Dedicated radiotherapy study groups are pre-defined: Simulation, Low Dose portal imaging and High Dose portal imaging.
- Erase settings and exposure class settings, as well as a set of enhanced algorithms and MUSICA parameter settings, are preset.

### NX Full Leg/Full Spine Application

***With NX Full Leg/Full Spine, images are automatically assembled, and misalignments corrected, with minimum manual interaction. Images are created using MD4.1 Full Leg Full Spine plate and cassette sets in the CR Full Body Cassette Holder.***

- The sub-images are identified, rotated, repositioned and put in the right order.
- Misalignments such as overlap, shift or perspective foreshortening are recognized and corrected if necessary. Images can then be post processed, printed and transmitted like any other CR image.



***NX Full Leg Full Spine automatically stitches images for a seamless body view.***

### NX Paediatric

***NX Paediatric optimizes paediatric images with fewer manual adjustments, even for difficult exposures of premature newborns.***

- NX Paediatric automatically selects the paediatric age group, depending on the patient's birth date.
- Each age group contains enhanced algorithms and fine-tuned MUSICA settings specially adapted to that age group, for optimized visibility of fine details.



***Specially-adapted MUSICA settings provide detail visibility for even the youngest patients.***



# Optional Central Monitoring System (CMS) for NX

*THE CMS IS AN ADDITIONAL SYSTEM THAT GIVES THE CHIEF TECHNOLOGIST AND THE RADIOLOGIST THE FLEXIBILITY TO CENTRALLY CONTROL QUALITY AND OVERSEE THE ENTIRE RADIOLOGY DEPARTMENT BY VIEWING IMAGES FROM IN-ROOM NX WORKSTATIONS AT A DEDICATED, CENTRALIZED WORKSTATION, REGARDLESS OF WHERE THE CASSETTE IDENTIFICATION WAS DONE.*



## CENTRAL MONITORING SYSTEM (CMS)

Digital images from up to five in-room NX workstations can be easily retrieved centrally, without needing to know which workstation was used for the image acquisition, increasing the flexibility of the entire digital imaging system.

Acquisition of difficult images can be supported and supervised remotely, without the chief technologist being in the same room as the technologist and patient.

Management of image status, reject statistics and dose monitoring data of in-room NX workstations, as well as quality control of acquired images, can all be done outside the X-ray room and without the patient's presence, reducing patient waiting time and freeing up X-ray rooms.

# technical

## SPECIFICATIONS

### INSTALLATION

- Carried out by a qualified Agfa HealthCare application engineer
- NX software is only installed on PCs delivered by Agfa HealthCare

### SECURITY

- Secure profiles for key users to help facilitate your compliance with HIPAA (Health Insurance Portability and Accountability Act)

### COMPLIANCE

- NX 2.0 supports enhanced features such as RIS Protocol Codes, RIS Mapping, Modality Performed Procedure Step (MPPS), Storage Commit, Greyscale Softcopy Presentation State (GSPPS), Greyscale Standard Display Function (GSDF), CR, DX or MG SOP Class for storage, presentation or processing.
- For a complete list of the DICOM conformance statements, please visit [www.agfa.com/healthcare/dicom](http://www.agfa.com/healthcare/dicom)
- For a complete list of the IHE integration statements, please visit [www.agfa.com/healthcare/ihe](http://www.agfa.com/healthcare/ihe)



Agfa-Gevaert has been certified by Lloyd's Register Quality Assurance Limited to the following quality management system standard: ISO 9001:2000. The quality management system is applicable to: For Healthcare applications - Marketing, design, development and production of imaging and communication solutions (film, paper and plates, chemicals, components, equipment and software).



Agfa-Gevaert has been awarded the Approval of Conformity certificate by Lloyd's Register Quality Assurance. It certifies that the Quality Management System for our X-Ray films conforms to the requirements of Annex V of the EEC Directive 93/42. Agfa HealthCare has been certified by Lloyd's Register Quality Assurance Limited to the following quality management system standards: ISO 9001:2000 and EN ISO 13485-2003. The quality management system is applicable to: marketing, design, development and production of imaging and communication solutions (film, paper and plates, chemicals, components, equipment and software) for Healthcare applications. Agfa-Gevaert had been awarded the ISO 9001 certificate by TÜV Zertifizierungsgemeinschaft e.V. This is applicable to Agfa's Quality Management System for design, production and servicing of Agfa Medical Equipment. Products distributed in North America are manufactured by/for Agfa Corporation, 10 South Academy St., Greenville, South Carolina 29601. Agfa, the Agfa rhombus and MUSICA are trademarks of Agfa-Gevaert N.V., Belgium or its affiliates. All other trademarks are held by their respective owners and are used in an editorial fashion with no intention of infringement. The data in this publication are for illustration purposes only and do not necessarily represent standards or specifications which must be met by Agfa. All information contained herein is intended for guidance purposes only, and characteristics of the products described in this publication can be changed at any time without notice. Products may not be available for your local area. Please contact your local sales representative for availability information. Agfa diligently strives to provide as accurate information as possible, but shall not be responsible for any typographical error.

### Agfa Corporation

HealthCare Headquarters  
10 South Academy Street,  
Greenville, SC 29601

### Canada

Agfa, Inc.  
77 Belfield Road, Etobicoke, Ont.,  
M9W 1G6

### Mexico

Agfa de México, S.A. de C.V.  
Benjamin Franklin #98, Colonia  
Escandon, C.P. 11800, México, D.F.