

Auto QC² Problem Solving Guide

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Legal Notice



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Input Side is not OK

In this chapter problems are listed that occur with and around the Auto QC² Software before generating the results. It includes the identification and transfer of the images from the NX Workstation as well as the checks the software performs with incoming images.

Topics:

- *Installation of the Auto QC² Software*
- *NX Workstation*
- *Image Transfer (Network)*
- *Worklist*

Installation of the Auto QC² Software

Problem	Cause
Auto QC ² Software cannot be installed	<p>The Auto QC² Software can only be installed on a PC that runs on Windows. The following versions are supported:</p> <p>Auto QC² version 1.00:</p> <ul style="list-style-type: none"> • Windows XP Home SP2. • Windows XP Professional SP2. • Windows Vista SP1 - 32 bit. • Windows 7 - 32 bit. <p>Auto QC² version 2.00:</p> <ul style="list-style-type: none"> • Windows 10 - 64 bit. • Older versions of Windows are not supported.
Hard disk runs out of space	<p>Check for unnecessary files on the listed hard disk and remove them. If this occurs during SW installation, it is possible to install the Auto QC² Software on another drive by changing the drive letter during the installation procedure.</p>
Auto QC ² Software is not starting	<ul style="list-style-type: none"> • Check if the monitor resolution is set to 1280x1024 or higher on your PC. [MESS6] • Check if license is still valid in the License manager or ask your service technician to do so. [MESS35, MESS41] • Check if dongle connection is ok. [MESS35, MESS41]
DICOM and/or ping test fails	<ul style="list-style-type: none"> • Check if the Auto QC² Software is running. <p>Check network connection.</p> <p>Check configuration of IP-address and port number. Use different port number than “104” (default for digitizers) and “3030” (default for Musica MCE).</p>

NX Workstation

Problem	Cause
Auto QC ² exam group is not available in NX for identification	<ul style="list-style-type: none"> • The exam group was not imported or activated in the NX configuration tool. Please call your service technician to import/create Auto QC² exam group. • Only users the Quality Assurance role was assigned to can see the Auto QC² exam group in NX. Please log-in with the name and the password for the quality assurance. If no such log-in was created please ask your service technician to do so or to add the quality assurance role to your account.
Image is not available on NX Workstation	Image was not sent from the Digitizer. Check the Digitizer/PC for error messages. Refer to the Digitizer manual.
Online Help cannot be started [MESS20]	Software can not find the path or the installation directory of the Online-Help. Run the Online-Help CD and use the Modify functionality to correct installation settings.
Dark Noise images (FFER) are black on NX workstation	Randomly the image processing does not work for such unexposed images. Use Window/Level functionality to change the image appearance on NX. When images are sent to the Auto QC ² Software they will be displayed with correct Window/Level settings in the View environment for visual evaluation.

Image Transfer (Network)

Problem	Cause
Wrong identification	Check if the image was identified as an image of the Auto QC ² exam group in the NX workstation. The Auto QC ² Software refuses all non-quality control images.
Wrong parameter	<p>The Auto QC² Software checks incoming images for the following parameters:</p> <ul style="list-style-type: none"> • Cassette size – refer to test description. • Plate type – refer to test description. • Rescale Type – only SQRT (square root) and LIN (linear) supported. • UID already existing – image was already sent and is available in Auto QC² Software. • Cassette and plate type is not supported – For PQC and ATP test only 43x35 format is supported; Extremity (MD4.2) and Mammo (MMx.x) plates / cassettes are not supported <p>If one of the parameters does not fit, a warning is generated by Auto QC² Software; the problem is also logged in Auto QC² Software.</p>
Network problems	Check network cable of the NX workstation and of the Auto QC ² PC. Send images again, if an error message is displayed ask your service technician to check configuration for the Auto QC ² PC in the NX workstation.
Sending images is a scheduled task	Check in the queue management in the Main Menu of the NX Workstation if sending images to a destination is a scheduled task and execute the Auto QC ² images to be sent now.
NX shows a red box, but in the queue management in the Main Menu the images still in progress	Check if the Auto QC ² Software is switched on. The image transfer is only be done when the Auto QC ² Software is running, until then the images are in a waiting queue.
Sent exposures are not displayed in the worklist although the	Check if the correct Digitizer is selected in the drop down list. Restart the Auto QC ² Software.

Problem	Cause
transfer was successful	Switch from one Test Group to another to refresh the window.
Windows message: Hard disk is running out of space	<ul style="list-style-type: none"> • Clean-up hard disk using the appropriate Windows System tools. • Delete old reports within the search environment of Auto QC² Software.
Sending images from different CR 30-X, DX-S, DX-G or DX-M digitizers is not accepted	<p>CR 30-X, DX-S, DX-G and DX-M digitizers are configured with the same default station name in NX workstation. Auto QC² software refuses images of a second digitizer with the same station name if another set of images is already waiting for analysis of a digitizer with the same name.</p> <p>Please check and rename the digitizers in the NX Service and Configuration Tool in such a way each digitizer has a unique identification (e.g. DX-S 1; DX-S 2, etc.).</p>
DICOM images cannot be imported in Auto QC ² software [MESS44]	Check configuration for DICOM export in NX workstation. The DICOM Export type should be “DX for processing” with options “No processing” and “Include Patient demographics”

Worklist

Problem	Cause
Duplicate Image	Two images with the same identification name were sent to the software. Remove one of the images in the worklist of the Auto QC ² Software. Check also if one image was identified incorrectly and change the name of the exposure to the correct one on the NX workstation and resend the image afterwards.
Data missing	Details about an exposure needed. Please enter the Edit window for the image and fill in the missing data, such as Detector Type or Measured dose.
Dose mentioned in image parameters does not comply with the entrance dose.	In the Auto QC ² Software the entrance dose is converted from mR into μGy (Conversion Factor: $1\text{mR} = 8.7 \mu\text{Gy}$). Refer to the conversion tables in the appendix of the Workflow sheets (document 2374).

Output Side is not OK

This section describes troubleshooting for problems that are not related to a separate test. It covers the problems that can occur in the workflow and in the usage of the software.

Topics:

- *Visual Test Fails*
- *Creating Results, Reports and Export Data*

Visual Test Fails

Problem	Cause
IP artefacts	Check IP for scratches and damages, clean IP with Agfa Screen Cleaner and erase them twice before exposure.
Calibration	Check image for stripe artefacts, re-calibrate Digitizer and redo exposure(s).

Creating Results, Reports and Export Data

Problem	Cause
Generate Results is not working	<p>Test is not finished. Please check and finish the necessary tasks before generating the results:</p> <ul style="list-style-type: none"> • The status of all images is OK. • No exposure is twice in the list. • Visual check of all exposures marked as “mandatory” is done.
HTML-Report is not opened	Internet Explorer is not found or version is not supported by Auto QC ² Software (has to be Version 5.0 or higher). Install or upgrade your Microsoft Internet Explorer.
Export Data is not available (action button greyed out)	Before exporting the data, the results need to be accepted. Publish the report, afterwards the data can also be exported.
CSV-report is not opened in MS Excel	MS Excel is not found on your computer or the version is not supported by Auto QC ² Software (has to be 2002 SP2 or higher) In such a case the csv-report is opened using Notepad. Please note: MS Excel is not part of the Auto QC ² Software.

Failed Test

Topics:

- *Monitor Check Fails*
- *SNR out of range*
- *Sensitivity out of range*
- *System Linearity and Dynamic Range Fails*
- *System Linearity Fails*
- *MTF fails using MD30 plates*
- *Radiation Quality Test Fails*
- *Dark Noise Test Fails*
- *Erasability Capability Test Fails*
- *Plate Inventory Test Fails for a Plate*
- *Visual check shows stripes, scratches, point artifacts or irregularities*
- *Light Field Indication Fails*
- *kV_HVL value for RQA5 is out of tolerance (70-74 kV)*

Monitor Check Fails

Problem	Cause
The visual check fails (95% square not visible in full white square? 5% square not visible in full black square?).	Refer to the manual of the monitor and adjust the settings or use calibration procedure. If not possible to calibrate or to use another monitor you have to take in account that visual inspection might be not reliable.

SNR out of range

Problem	Cause
Additional filtering	Check if the x-ray tube has an additional filter (except the RQA5), remove filter and redo the exposures.

Sensitivity out of range

Problem	Cause
Exposure settings not ok	If the sensitivity test fails please check your exposure conditions. Make sure your dosimeter is usable for the RQA5 Aluminium filter and is measuring absolute values.
Sensitivity factor of IP not ok	Please redo exposures with another IP and ask your Agfa service technician to check the failed one.

System Linearity and Dynamic Range Fails

Problem	Cause
Electronic offset not ok	Electronic offset is calculated during switch on procedure – switch Digitizer off and on again to recalculate offset again and repeat the exposure. Check also the housing of the Digitizer if attached properly. If problem persists please call your Agfa service technician.

System Linearity Fails

Problem	Cause
IP was not properly erased	Erase IP twice and redo exposure.

MTF fails using MD30 plates

Problem	Cause
MTF fails using MD30 plates	MTF tolerances were defined with MD 4.0 plates. The MD30 plates have a lower sharpness than MD4.0 plates. Please redo the test with a MD40/MD4.0 plate.

Radiation Quality Test Fails

Problem	Cause
Radiation Quality Test fails	The reference kV of the system differs significantly from the proposed 70 kV. Perform the kV_HVL test to determine the reference kV for your X-ray tube. Refer to Auto QC ² Key User Manual how to perform this test.

Dark Noise Test Fails

Problem	Cause
IP was possibly not properly erased	Erase cassette and redo the exposure FFER.
IP not OK	Check IP for artefacts and damages. Use another IP and redo the exposure FFER.
Light tightness not OK	Check the housing of the Digitizer if attached properly.
Wrong error message displayed when dark noise test fails.	Error message states problem with PHAP exposure instead with FFER exposure. Dark Noise images was scanned with wrong speed class. Please update the exam tree on NX.

Erase Capability Test Fails

Problem	Cause
Erasure lamp is not working correctly	Check erasure lamp (dust, transparency of filter glass) and ask your Agfa service technician to clean or replace if necessary.
Voltage for erasure unit out of range	Check if main voltage within specified range.
Dose was out of tolerance	Check test set-up and dose of the phantom exposure and redo exposure.

Plate Inventory Test Fails for a Plate

Problem	Cause
Wrong Exposure	Check if this plate was exposed in the same way as the others.
No dose values measured/ entered in the SW	The dose could vary from one exposure to another. This is why the dose could be entered in the SW with the Edit functionality. If not doing so, the system calculates the results with a default dose of 20uGy that does not factor in the varieties. Redo the exposure with this plate and measure the dose to enter them in the software.
Measured dose not OK	Check if the dose was measured correctly. The measurement position should be the same for all cassettes. Check also collimation – the dosimeter has to be in the beam area.
Code of the IP not correct	Check for the failed plates if the plate type code matches with the code on the cassette by read out the data with the functionality in the Main Menu of NX workstation.
Time between exposure and scanning differed	The time between exposure and read out of the cassettes should be similar for all cassettes.
Statistic not OK	The Plate Inventory test calculates relative results for sensitivity and uniformity based on the overall results of all plates. Extreme values can therefore influence the overall results if the statistical basis is not big enough. Use 15 or more plates (different formats possible) to create a usable statistic.

Visual check shows stripes, scratches, point artifacts or irregularities

Problem	Cause
Image plate not cleaned before – image plate contains dust particles	Clean the plates using Agfa Screen cleaner (refer also to the cassettes and plates manual) and erase them twice before redoing the exposure.
Image plate are damaged	Artefacts on individual plates are most likely related to the plate itself – check image plate for scratches and artefacts.
Stripes in slow scan direction	Calibration of the Digitizer is not ok. Recalibrate Digitizer. For DICOM Digitizers clean scan engine with build in brush if calibration detected dust. For DX-S clean the scanhead and recalibrate. Refer also to the user manual of the appropriate Digitizer.
Stripe in fast scan direction (DX-S)	Slight banding is normal for the DX-S and will not disturb the image quality. Heavy banding can be caused by mechanical problems of the Digitizer, please call your Agfa Service technician.
Visual Check fails while calculated results are OK.	The ROIs (Regions of Interest) used for the calculation are defined according to the Regulations (AAPM, IEC). It is possible that this selected part of the image does not meet the image artifacts (refer to the Auto QC ² Key User Manual about ROI-position). The Visual Check has therefore the highest priority, if this fails the whole test for this plate is indicated as failed regardless of the calculated values.



Note: Make sure your dosimeter is calibrated and fulfills the required specifications as described in the user manual.

Light Field Indication Fails

Problem	Cause
The edges of the collimation area and the tube centering target are not parallel to each other	The tube centering target was not plane or skewed on the cassette. Please repeat the exposure and check the test set-up.
The collimated area is smaller/larger than the size of the tube centering plate	The distance of the light source is longer/shorter than the distance for the x-rays – light source or x-ray tube is misaligned. Please refer to the manufacturer of the x-ray tube.
The collimated area is shifted	The mirror has not the correct angle. Please refer to the manufacturer of the x-ray tube.

kV_HVL value for RQA5 is out of tolerance (70-74 kV)

Problem	Cause
Test set-up not OK	<ul style="list-style-type: none"> • Check if behind detector/dosimeter/ionization chamber are at least 45 cm air. To reach this height use the optional available dosimeter support tool. • Check for the Pb-diaphragms, necessary to focus the X-ray beam.
Additional Filtration	Check for an additional filter in the x-ray tube and remove before doing the measurements.
Tube specific problems	<ul style="list-style-type: none"> • Tilt angle of the anode differs from the 12° standard - check the specification of your x-ray tube. • Anode material is not pure tungsten - check the specification of your x-ray tube.

Error Messages

Number	Text	Description
MESS1	Are you sure to remove exposure <exposure-type> ?	Crosscheck before exposure is deleted from worklist
MESS2	This exposure is used for different tests. Are you sure to remove exposure <exposure-type> ?	Crosscheck before exposure is deleted from worklist
MESS3	No Data Available	
MESS4	No exposure selected	An image to edit or view has to be selected first
MESS5	Do you want to save the modified data?	Crosscheck when data was modified but not saved
MESS6	Incorrect screen resolution. Please contact your system administrator	Auto QC2 requires a resolution of at least 1280 x 768
MESS7	[nr-of-exposures] exposures waiting for processing, maximum is 256.	Maximum capacity for open tests is nearly reached
MESS10	Are you sure to remove the selected report(s)?	Crosscheck before deletion of reports from database
MESS12	Not possible to save the data. One or more values are out of range - check the field(s) with exclamation mark(s)	Entered values in edit window are not valid
MESS13	No reports found	Search with the defined criteria was not successful
MESS14	No history data found	Search with the defined criteria was not successful
MESS16	Please check serial number or remove tube with number <tube nr> first	Tube is already available or another tube with the same number
MESS17	No tube selected. Please select a tube first.	Select the tube to perform the kV-HVL test with.
MESS18	Illegal Tube Serial Number	Entered value is not valid

Number	Text	Description
MESS19	Are you sure to remove X-ray Tube <Tubnr> ?	Crosscheck before deletion of a tube
MESS20	Online help is not installed on this system.	Path for the online help was not found
MESS24	Some of the images appear not to be flat fields. Please inspect and remove any non-flatfield images.	Analysis of flat fields in the Plate inventory test was not possible.
MESS25	<file name> not found. The file '<file name>': could not be created, contact service.	
MESS26	Image analysis failed	Analysis was not successful. Check images for correct identification, edited values, orientation etc.
MESS27	Report file (<filename>) creation failed. Please contact system administrator or service.	HTML-report could not be created. Check Browser functionality.
MESS28	Export data via file (<filename>) creation failed.	Data could not be exported to txt or csv-file.
MESS29	No Report Selected	Select a report in search results to view images or create an html-file.
MESS30	This Report contains no Exposures	No exposures found for a specific report.
MESS31	Sorry, no data available to export.	
MESS32	File (<file name>) could not be found.	
MESS33	Not possible to generate the results. Some of the images are invalid. Remove these images from the worklist, check the exposure conditions and redo the exposure(s). Please review FFPI images with following dates: <dates>	Plate inventory analysis was not successful. Check images for correct identification, edited values, orientation etc.

Number	Text	Description
MESS34	<p>License in Grace Period.</p> <p>Grace Period remaining time: <time></p> <p>Grace Period started first time: <time></p> <p>Grace Period started last time: <time></p> <p>In Grace Period because of: <reason></p>	License is out of date
MESS35	<p>No license available.</p> <p>Check logging, call service.</p>	<p>License is out of date</p> <p>License file is missing</p> <p>Dongle is missing</p>
MESS39	<p>Not possible to generate the results. Some of the images are invalid. Remove these images from the worklist, check the exposure conditions and redo the exposure(s).</p> <p>Please review following images: <image type> <date></p>	Analysis was not successful. Check images for correct identification, edited values, orientation etc.
MESS40	No tube available	The kV-HVL test can only be performed if a tube is created first.
MESS41	License Error	License does not fit for the Software version.
MESS42	Grace Period Expired	License grace period is expired. No further use of Auto QC ² possible without a new license.
MESS43	Not possible to save data, empty fields are not allowed	Enter missing values
MESS44	<p>Dicom Import Failed.</p> <p>Contact your Service Engineer</p>	DICOM images could not be imported. Check DICOM export format (“DX for processing”) and image data on NX workstation.