

How to setup the improved registration algorithm

Version: 1.0

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1 Introduction

Nyquist has tested a new registration algorithm, which was possible to activate since SW version 7.2.13.

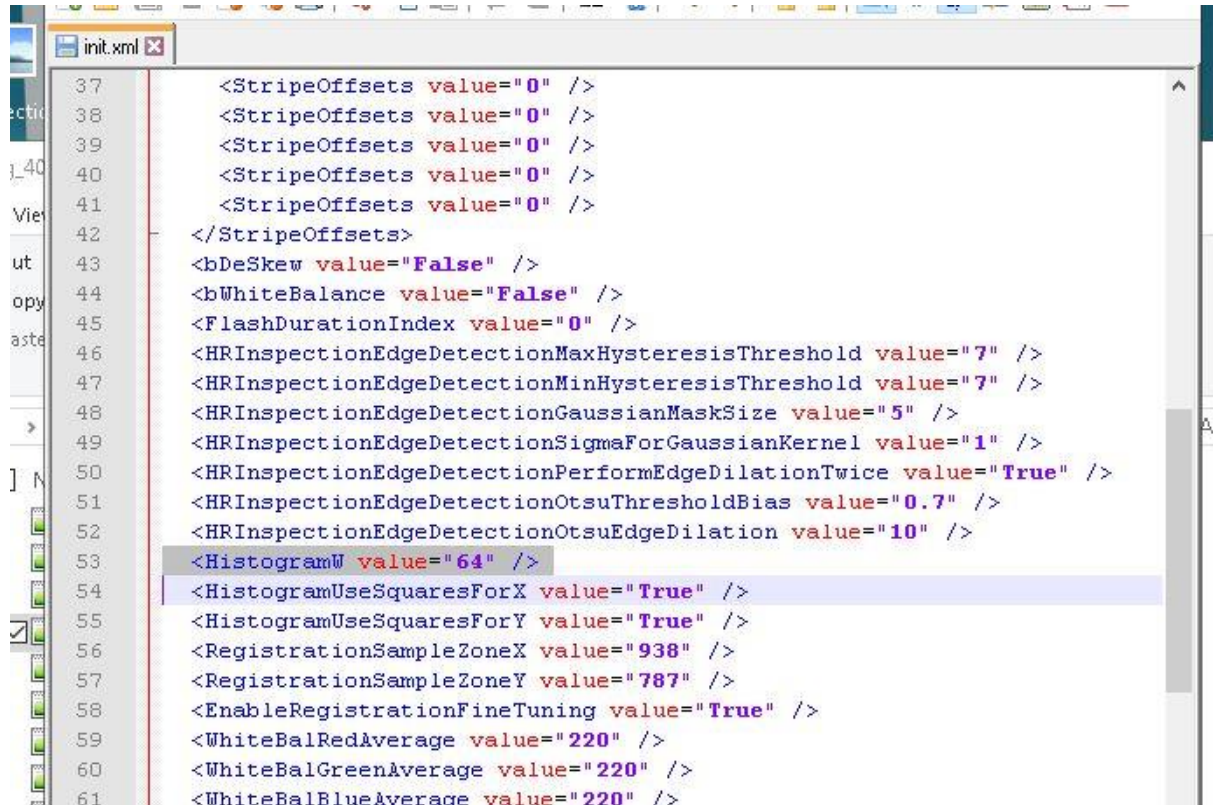
The new algorithm convinced with its higher stability in difficult applications and was already installed on devices that had a software version $\geq 7.2.20$ at delivery.

It has to be activated, when the SW is upgraded, as described in the following chapter.

2 Activation via Upgrade

2.1 Histogram settings for coarse registration

The new histogram algorithm works best with an increased width of 64 pixel. The setting has to be changed in the init.xml



2.2 Standard for fine registration

There are now three different algorithms for fine registration implemented:

1. Normalized cross correlation NCC (previous standard method)
2. Sum of squared differences SSD
3. Sum of absolute differences SAD

The SSD method has shown to be robust and fast, and is set as the new standard. It can be set in the settings window "Diagnosis" by selecting "Extended Settings"

Report	Rollmap	Snapshot recording	Distance Monitoring	Diagnosis
Customer intern System SN 0123456789 Project simpdf Firmware DS-V351-570ZT100-CP-HR2 Nyquist Systems Simulator Version 7.2.2 Connected cameras: 1		Number of available cores : 4 / 4 Number of parallel feeds : 2 Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz MMX, SSE, SSE2, SSE3, SSSE3, SSSE4.1, SSSE4.2, AVX, AVX2 AVX2, FMA3, BMI1, BMI2 ☐ Use AVX2 Number of Blob Filter Threads: 1 Measures Catch Live Average Image Show Live Average Sync LEDs State / Trigger Difference / Trigger line 0 n.a. 0 ☒ Missing Trigger Detection Traversing Camera Image Stabilization Traversing Camera Trigger Offset 0 0.0000000000 Set Trigger Offset 0 Extended Settings		
Registration 0 0 54 X: ☒ Y: ☒ Use Squares ☒ Registration Fine Tuning 0 0 0.000 Language English Inspection settings archive LOAD SAVE		Dump Queues [Checkmark Icon]		

Type "RegistrationFine" in the search field and you will get all parameters, which are necessary for the change:

Extended Settings	
registrationfine	
RegistrationZoneZoomToolSettings.EnableRegistrationFineTuningDownsampling_SSD_SAD	☐
RegistrationZoneZoomToolSettings.EnableRegistrationFineTuningNCCWeightedAveraging	☒
RegistrationZoneZoomToolSettings.RegistrationFineTuningMethod_0_NCC_1_SSD_2_SAD	1
RegistrationZoneZoomToolSettings.RegistrationFineTuningSearchRadiusHorizontal	8
RegistrationZoneZoomToolSettings.RegistrationFineTuningSearchRadiusVertical	8
RegistrationZoneZoomToolSettings.RegistrationFineTuningWindowSizeHeight	64
RegistrationZoneZoomToolSettings.RegistrationFineTuningWindowSizeWidth	64

Set all parameters as listed above, but let the first checkbox
 RegistrationZoneZoomToolSettings.EnableRegistrationFineTuningDownsampling_SSD_SAD
 as it is.

3 History

Version	Changes	Autor	Control	Approval
1.0	First revision	Christian Dotzler	Andreas Volz	Andreas Volz