Optical RevEng 2.4 SR9

Release notes

Rev. date: 04/12/2017

Abstract

This guide is useful to all the users that need to update their own copy of Optical RevEng.

What do you need?

1. Optical RevEng from version 2.0 to 2.4 previously installed;
2. the serial number of the 3D scanner your company informations.

Index

Rev. date: 04/12/2017

Installation

1. Download *Optical RevEng 2.4 SR9* from the apposite link (if you don't have it please contact *support.ind@scanner3d.it*), unpack the ZIP archive, if needed, and execute the extraction of the EXE file;

2. double click on the installer to run the installation process;

3. confirm the User Account Control warning (administrative rights);

4. choose your language and OK;

5. press Next > in the Welcome panel;

6. choose Full installer and Next >;

7. choose Complete installation and Next >;

8. choose if create or not the Desktop icon and Next >;

9. check the installation summary and Install;

10. in the end of the installation process, Optical RevEng will show you a message regarding the video delay threshold and suggest to reboot;

11. this threshold should be set from the previous installations, press OK and skip the reboot;

12. check Start Optical RevEng e Finish;

13. the software could show you a licence request:

    13.1. copy the Registration ID;

    13.2. paste the Registration ID in an email with the end user company name and, when possible, the distributor who sold the machine along with the serial number of the 3D scanner (see underneath the scanner base);

    13.3. send an email to *support.ind@scanner3d.it*;

    13.4. as soon as possible we will check and generate the activation code of the software;

14. to grant the compatibility with new functions and improvements, enter in Tools → Options → Structured light scanner and check Keep right coloured image and Keep intensities;

15. right click on the Desktop and choose NVIDIA control panel;

16. select Manage 3D settings;

17. check in Program Settings if the application Optical RevEng 2.4 is included in the list. In case the application is missing, insert it in the list and select High-performance NVIDIA processor as default for this software.

Notes

1   The installation process may fail in case you update from version 1.8 or previous;

2   in case of Pylon 5 fails, contact the support service at *support.ind@scanner3d.it* or +39 030 3543106 ext. 2 during working time (CET/CEST);

3   the installation of Optical RevEng 2.4 SR1 and above makes invalid the working state of Optical RevEng 2.2 and 2.3. If the user wants to use these softwares, please, follow this tutorial:

   3.1   download *this package* of dll libraries;

   3.2   copy the extracted files in the folder C:\Program Files\OpticalRevEng 2.3\ and, if asked, overwrite the existing files;

   3.3   repeat the operation for the folder C:\Program Files\OpticalRevEng 2.2\;

   3.4   **WARNING!** This process invalidate the correct working of the scanner Insight 3D only with the previous versions of the software.

Bugs corrections and improvements

1.   The markers identification had been completely rewritten (see User guide integration);
2.   improved the markers elimination during mesh generation;
3.   added the GPU/CPU switch during mesh generation;
4.   added calibration/recalibration data dump;
5.   added the possibility to set the projector light intensity;
6.   shortcut fixed in various translations;
7.   improvements in translations;
8.   small bugs corrections and minor optimizations and improvements.

User guide integration

Markers identification in Optical RevEng 2.4 SR9 has been completely rewritten. Once Markers registration is selected, a new icon appears, it opens and enables the new panel of settings.
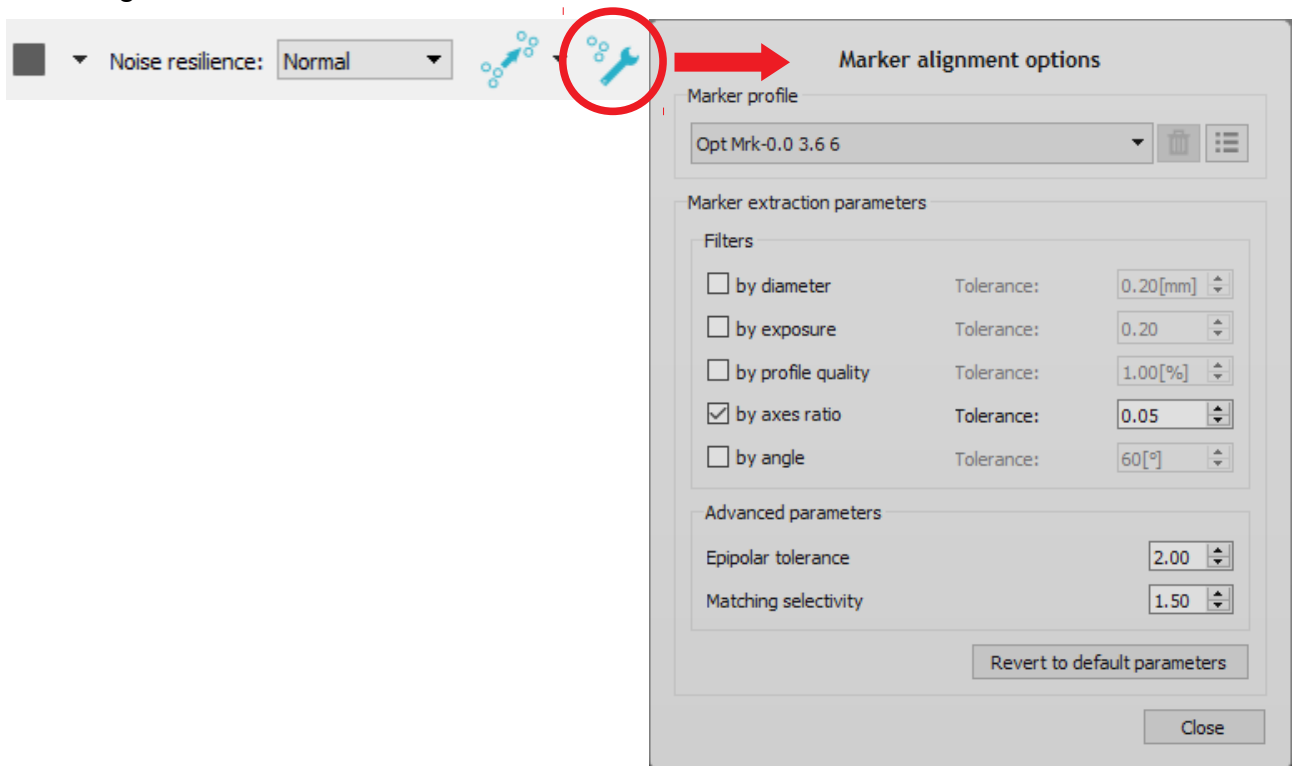
It is now possible to select preset identification profiles for the usage of our circular targets sold in ribbons or set customized targets (Open Technologies, suggest the usage of our targets in order to avoid accuracy problems).
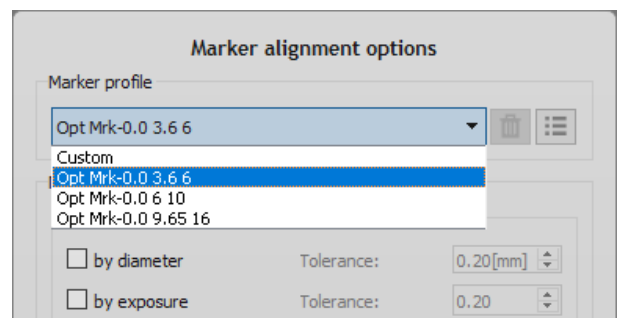
With custom profile it is possible to set the proper type of target choosing diameters, filling (white or black) and three levels of reflectivity. These parameters are customizable for circular inner area, circular crown and target support (the target support is supposed without a particular shape and without a diameter).
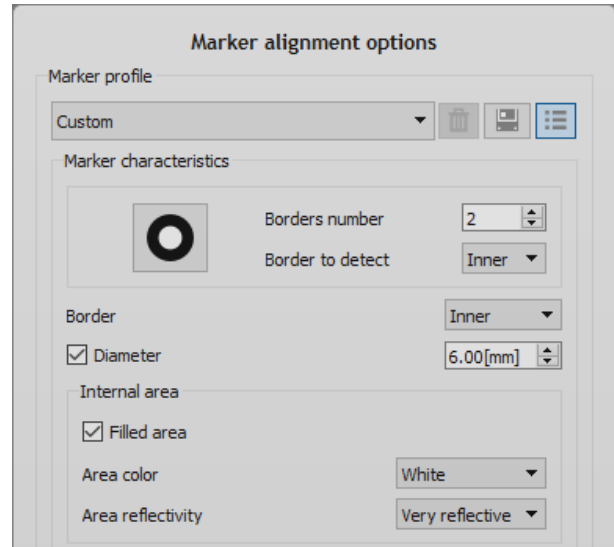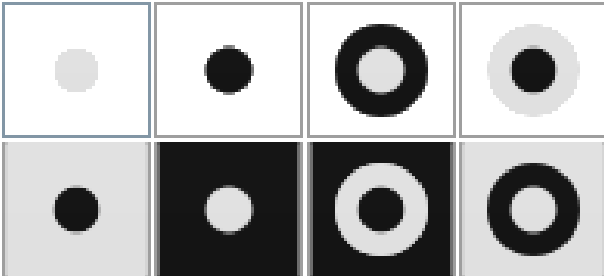
It is possible to set, save and delete customized profiles. Various combinations of regions help you to create a range of 24 different layouts.

The new section of filters lead you to exclude targets identified with low quality:

- by diameter;
- by exposure;
- by quality profile;
- by axes ratio;
- by angle;
- by epipolar tolerance;
- by selectivity.
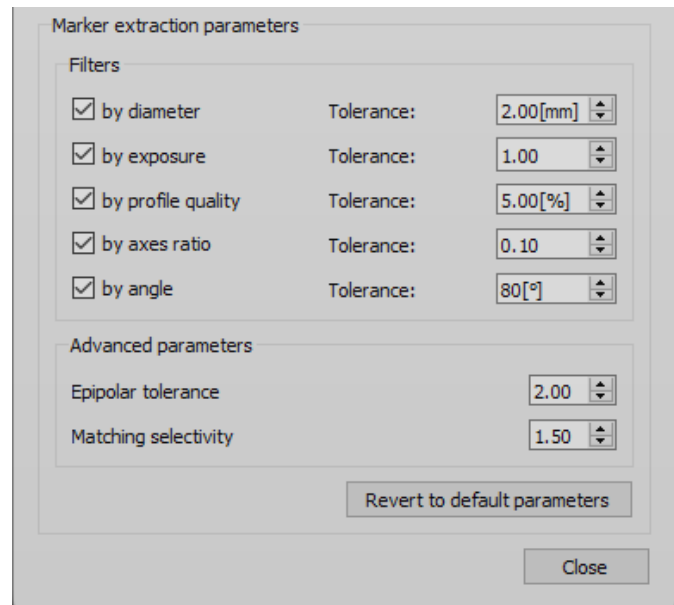
By diameter

It excludes markers with diameter that exceed the preset diameter plus the selected tolerance and the markers that falls behind the preset diameter plus the selected tolerance. Setting 0mm, the software will detect only the targets with the preset diameter. If the value increase, the software will become tolerant according to your own settings.

By exposure

The range starts from 0 (most restrictive value) to 1 (most tolerant value) and exclude markers with underexposure, overexposure or luminous defects on the areas (not constant).

By quality profile

It is the matching tolerance between the actual profile of the marker and the fitted ellipse. Setting 0%, the software will detect only markers with boundary that describes a perfect ellipse. If you relax this value you make the software tolerant to targets with boundaries scratched or not well defined, holes or logos.

By axes ratio

The range starts from 0 (the software discards all targets not perfectly circular) to 1 (the software detects also really flat ellipses).

By angle

This is the angle between scanning direction and the normal direction associated to the plane on which the marker is fitted. It discards targets detected with excessive angle. The range starts form 0° (the software considers only targets perpendicular to the point of view

of the sensor) to 90° (the software considers all targets including targets that are tangent to acquisition direction).

Advanced parameters

We suggest to change these parameters only in case of real necessity.

In stereo vision, there are three conditions that allows a correct markers identification:

- a marker must be detected in both the images of the two cameras;
- the two centres of the targets must be placed on the same epipolar line (it is the line parallel to the line that connects the two centres of the sensors of the cameras);
- the two centres must be coincident.

By epipolar tolerance

This is a tolerance in pixels and it is a distance between epipolar line and the centre of the marker in two different points of view.

By selectivity

It is a tolerance in pixels and it is the distance between the centre of the marker detected from two different points of view.

Setting low values on epipolar and selectivity the software considers only targets in a well stereo condition (better accuracy but high risk of RangeImages not aligned). With high values you increase false targets identified (reduced risk of RangeImages not aligned but low accuracy).

Concluding notes

1   For installation is suggested to follow *this video*;

2   for video card settings or cameras parameters is suggested to follow *this video*;

3   for instructions about usage instructions and new functions download *English manual*;

4   new markers can be downloaded from this *link*;

5   for problems or support contact *support.ind@scanner3d.it* or +39 030 3543106 ext. 2 during working time (CET/CEST).