

2019.10.29 - Galahad Compass 5.4.3

Here you can find information about what is new in Galahad Compass version 5.4.3.

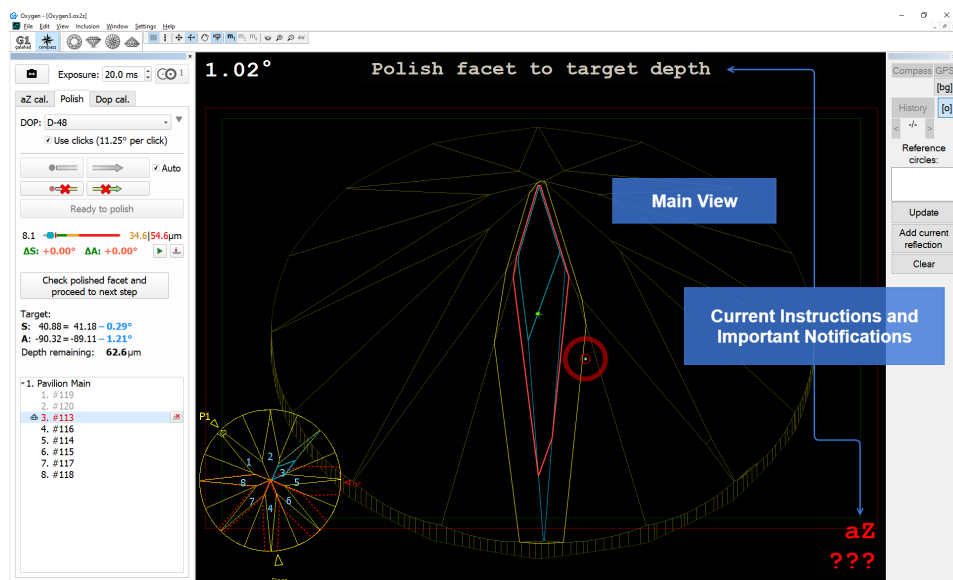
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On-Screen Information

Now the main view of the Scene rotates automatically to place the facet of the current step to the center and highlights it. The numbers of steps mapped to their facets are displayed in the thumbnail view - the number of the current step is displayed in the main view.

Additionally, current instructions and important notifications are also displayed at the top and bottom of the Scene.



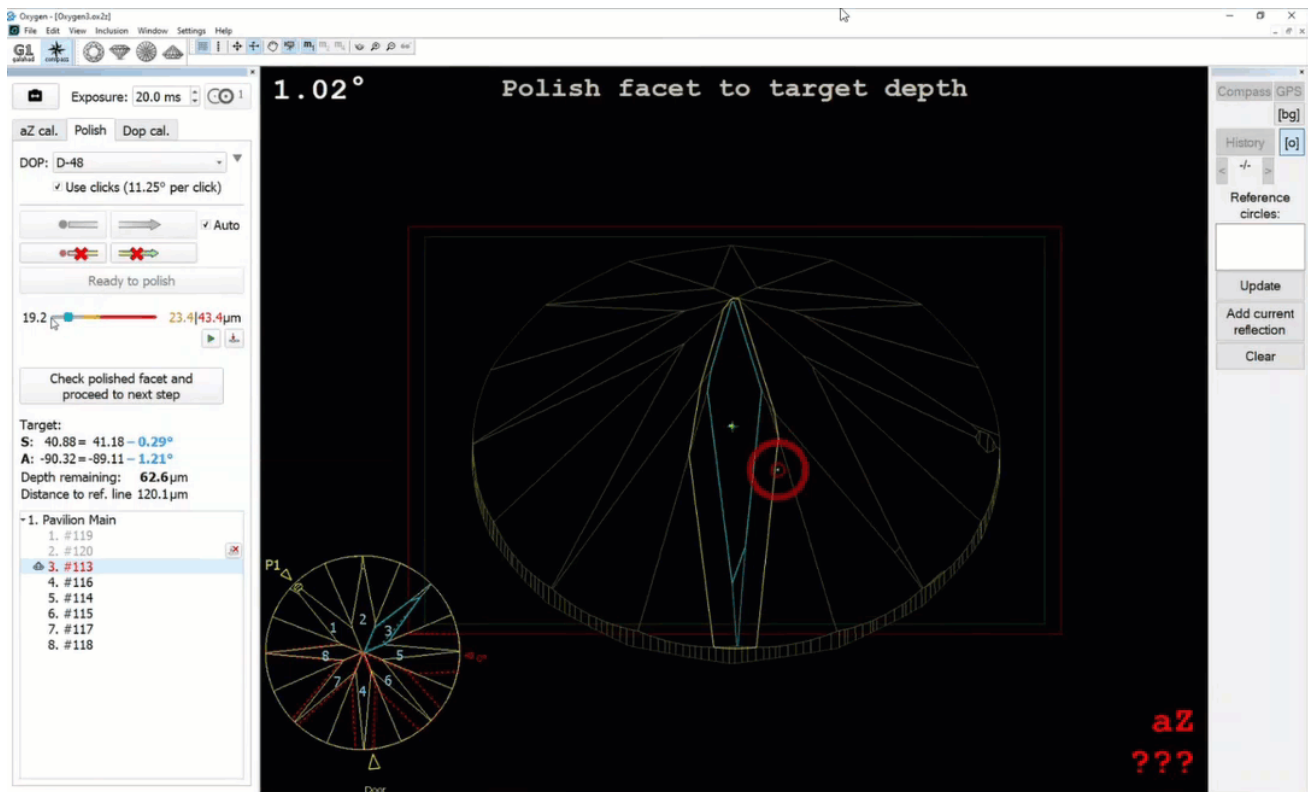
On the main and thumbnail views, the following information is visualized with the lines of different colors:

- Pale Yellow - general model contour
- Yellow - target facet
- Dark Blue - edges of the current reference facet
- Light Blue - current state of the facet being polished (changes on dragging the step slider)
- Dotted Blue - when the slider of the cutting depth goes further from "0", the blue line becomes dotted
- Red - actual cut
- Dotted Red - future contours of all facets

On the thumbnail view, there are some markers:

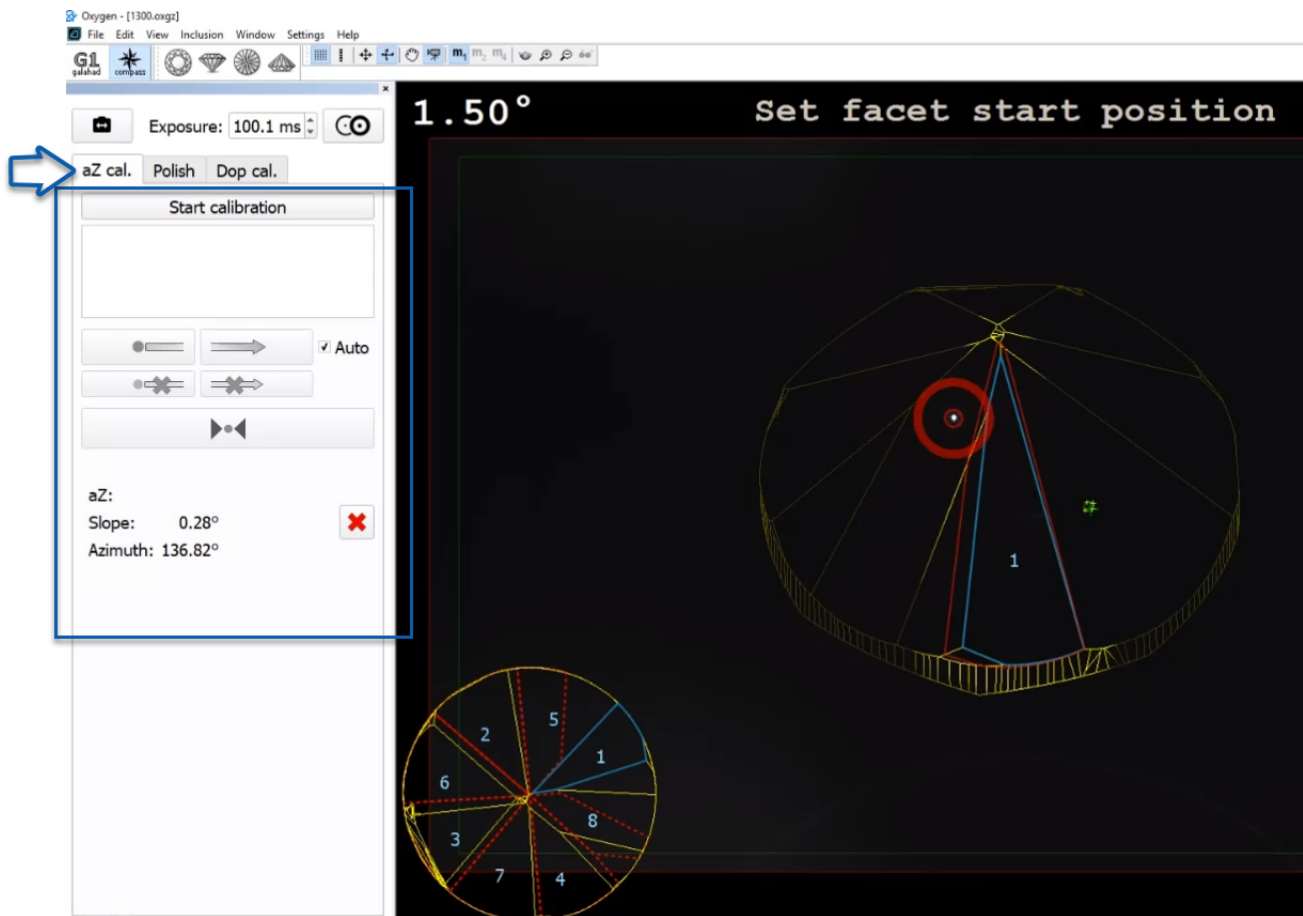
- **F1** is transformed to **P1** (for pavilion)/**C1** (for crown) - first facet marker
- **0°** - of the target stone
- **Door** - the "door" of the scanned model

As you drag the slider of current step progress, the thumbnail and the main view edge lines are updated dynamically.



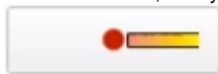
Axis Z Calibration Mode

Previously, the axis Z (axis of stone rotation) considered to be normal to the stone table. Testing in real life conditions demonstrated that it was not the right approach: the axis Z was not always normal to the stone table which is revealed on the large rotation azimuths. To eliminate this discrepancy, the *Axis Z Calibration Mode* has been added to the system. The mode refines the *DOP Click Correction* mode and therefore is only available when the **Use clicks** option is selected for the DOP. In that case, the additional **aZ cal** tab is displayed providing you with the controls for axis Z calibration.



To use the feature, click **Start calibration**, the system will form the list of facets to take part in a calibration: select a facet from the list, aim to this facet, set

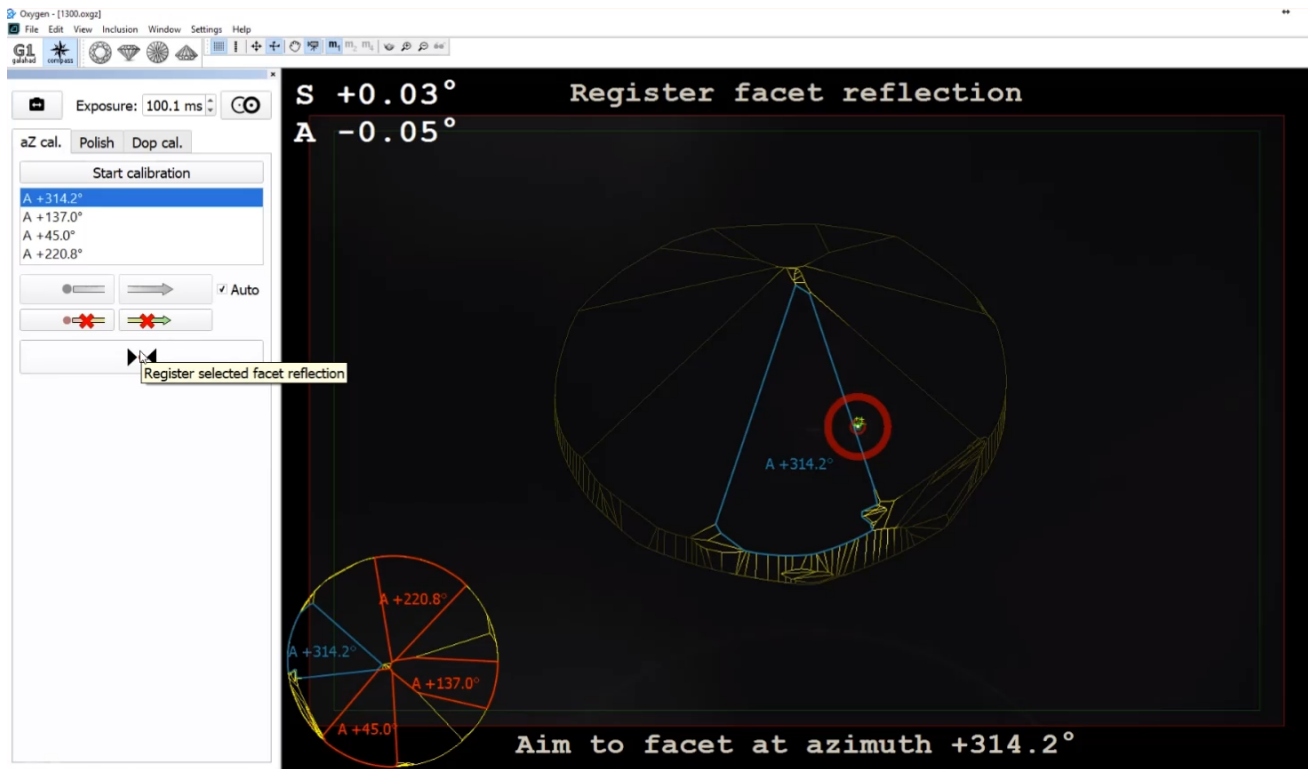
facet start position, then



show slope direction, set facet back to start position, show azimuth direction, and then click



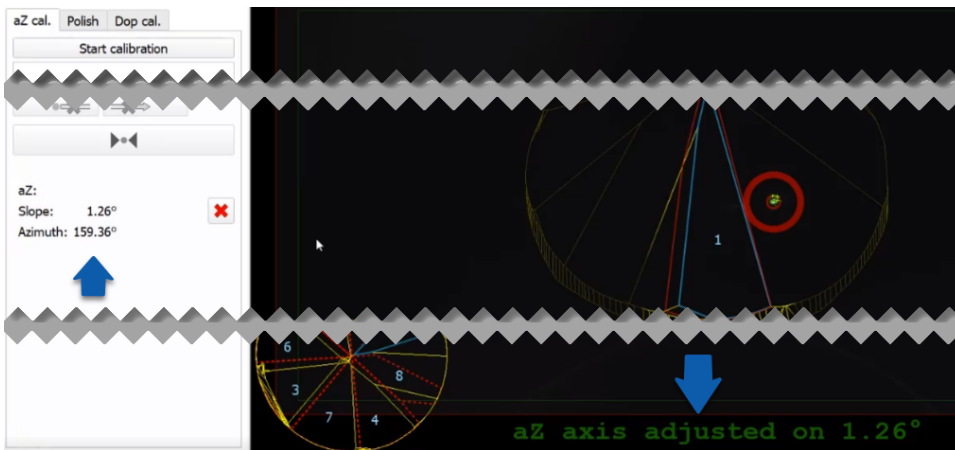
Register selected facet reflection. The system will automatically select next facet to use for calibration and give an instruction on how to switch to it, for example: "Rotate DOP on +8 clicks". You do not need to show slope and azimuth directions again - for the remaining calibration facets only register the reflections.



- The expected position of the reflection is displayed in the Scene with the blue ring

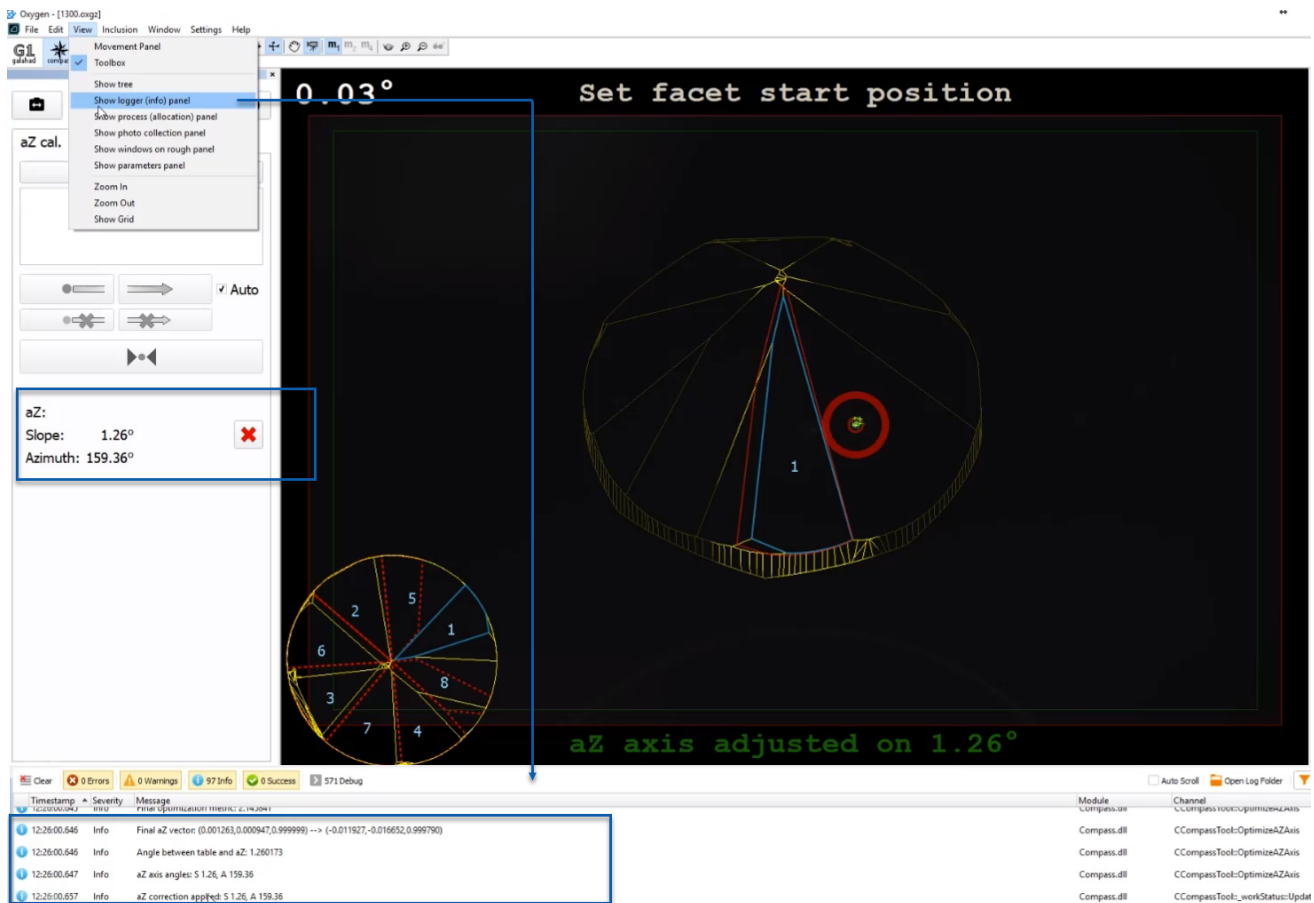
As soon as reflections are registered for all suggested facets, the calibration is finished and the Calibration Mode will be disabled. Calibration results are displayed in the bottom of the calibration tab and in the Scene, in the bottom notification area:


- On success - the green line notification will be displayed




- On error - the red line error notification will be displayed saying that the deviation angle exceeds the limit (by default, 5°)

Detailed information about calibration results can be accessed via main menu **View > Show logger (info) panel**.



You can erase the calibration results by clicking the  button, displayed after calibration is finished.

 You can leave the *Axis Z Calibration Mode* without finishing the calibration. In that case, the collected data will be lost and you will need to re-start calibration later. To leave the calibration mode without finishing the calibration, switch from the **aZ cal** tab to any other.

Configuration

 You can configure settings below only if specific [conditions](#) are met.

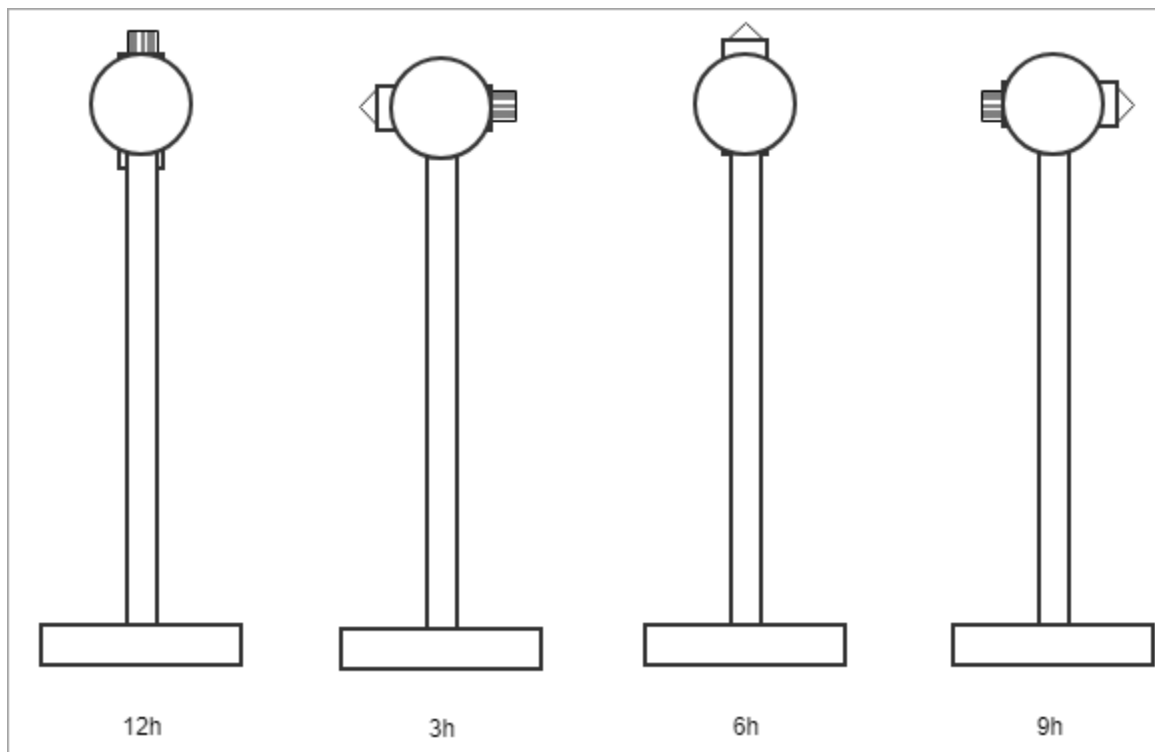
To configure thresholds required for detecting the facets which will take part in the calibration of the Z axis, under **Internal Configuration**, set aZ-related parameters in the **Compass** group.

section/parameter	value
Table magn. adj. crit. level, %	1.5
Table magn. adj. warning level, %	0.6
Adjust basis by table and crown (0/1)	1
Crown exposure table	<binary data>
Crown scan exposure, ms	400
▼ Photo analysis	
Pixel size, mm	0
Black threshold	160
Grey level	128
▼ Testing	
Use fake Reflect	0
Fake folder path	D:\test.exe\ReflectFake
Reflect debug buttons	0
Model edit tool debug	0
Old model edit tool	0
Edit Standard Report	0
▼ Crown reflect syntetic test	
Min pitch, deg	0
Max pitch, deg	2
Min shift, mm	0
Max shift, mm	0.2
Random seed	0
▼ Compass	
Auto-set slope dir	1
Slope auto-set minimum value, deg	1.5
Faceting step GUID	
Exposure, ms	100.1
Pixel size, um	5.86
Lens distance, mm	59.6958976
Work status (binary data)	<binary data>
DOP Calibration (binary data)	<binary data>
Reference circles, deg	
Minimum final step, deg	0.5
Auto-set substep direction, 0/1	1
Possible dop click count	8,16,24,32,48,96
Maximum aZ deviation, deg	5
Minimum aZ calibration facet area, mm ²	0.3
Maximum aZ facet slope difference, deg	2
Maximum aZ facet azimuth difference, deg	4
Lens transform (binary data)	<binary data>
▼ Galahad/Compass	
Steps exceeding this angle (deg) are split into parts	-1
Allowance from split step substeps to final step position, mkm	30
Desired area of the substep (as ratio from full step area), (0..1)	-1
Allowance from split step substeps to final step position, mkm	10
Desired area of the substep (as ratio from full step area), (0..1)	0.5

Ok Apply Cancel

Displaying Graining Direction

Now, within the selected step, after you show slope and azimuth direction, the graining direction is detected and automatically displayed in the thumbnail view.



The graining direction is saved together with the project file and remains available on re-opening.

Exporting Actual Cut Model

Now it is possible to obtain a model for the actual state of cut at any moment. This can be done via the context menu:

Step not started

4. #5

5. #4 69.2

6. #3

7. #2

8. #1

Export current model...

Show Report

Start work

300μm

Step InWork

3. Crown Star

1. #8 692

2. #7 239

3. #6

4. #5

5. #4

6. #3

7. #2

8. #1

Export Actual Cut model...

Export current model...

Show Report

Set slider position as actual cut

Clear actual cut

Completed Step

1. Pavilion Main

1. #113 324

2. #120 291

3. #119 361

Export Actual Cut model...

Show Report

2. Crown Main

-21.4μm

0.0μm

0.0μm

Auto-Registering Direction

Now the "Auto" checkbox allows registering not only slope but also **azimuth** direction automatically when the current angle value exceeds some threshold level.

Exposure: 12.0 ms

1

aZ cal.

Polish

Dop cal.

DOP: D-48

☒ Use clicks (11.25° per click)

☒ Auto

Ready to polish

Set zero to... Button - Behavior Change

The name of the **Set zero to center** button is changed to **Set 0 to reflection** and the action is changed correspondingly - now it sets dop zero to the current reflection:

Was

Exposure: 40.0 ms

1

Polish

Dop cal.

D-48

+

-

Click count:

32

12h	0.05°	134°	↔
3h	0.06°	151°	↔
6h	0.08°	148°	↔
9h	0.07°	126°	↔

0

Set zero to center

center: (0.03,-0.04)

Da: 0.03°, Db: 0.04°

max. error: 0.02°

zero points: 1 point collected

Add 0 check point

Remove last 0 check point

Clear all 0 check points

DOP leveling

Save to...

Load from...

☐ Add

Now

Exposure: 40.0 ms

1

Polish

Dop cal.

D-48

+

-

Click count:

32

12h	0.05°	134°	↔
3h	0.06°	151°	↔
6h	0.08°	148°	↔
9h	0.07°	126°	↔

0

Set 0 to reflection

center: (0.03,-0.04)

Da: 0.03°, Db: 0.04°

max. error: 0.02°

zero points: 1 point collected

Add 0 checkpoint

Remove last 0 checkpoint

Clear 0 checkpoints

DOP leveling

Save to...

Load from...

☐ Add

Replace all 0 checkpoints