

# 2016-11-25 - HPOxygen Server Beta 3.20.78

- Overall usability
- Scanning
- Reporting
  - New pictures in reports for RBC
  - Octagon Brilliant cut and report
  - Triangle cut updates
  - "Area of projection" parameter
  - Min and max of Pavilion painting and Crown painting
  - Miscellaneous
- Smart Recut
- Interface
- Bugfixes

## Overall usability

Usability of HPO is improved to the point that it requires no more (and sometimes less) clicks per stone than HP Pacor.

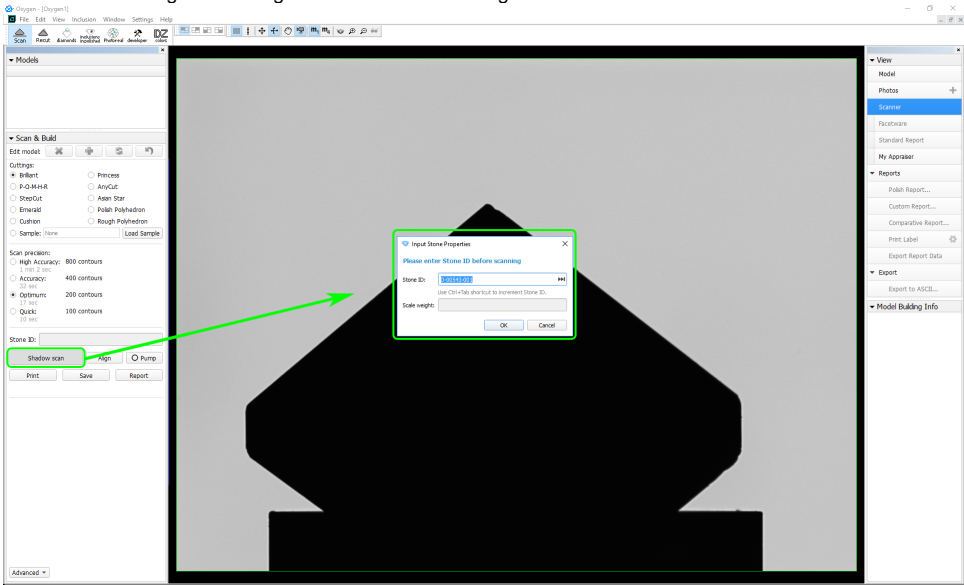
| Scenario   | Number of clicks |      |
|--|------------------|------|
|  | HPP              | HPO  |
| Scanning a polished stone, leaning before scanning, ID entered manually                | 7                | 6    |
| Scanning a polished stone, leaning after scanning, ID entered manually                 | 6-10             | 6-10 |
| Scanning a polished stone, cleaning before scanning, ID entered by the barcode scanner | 7                | 5    |
| Scanning a polished stone, ID auto-incremented   | 7                | 6    |
| Scanning a semicut stone, cleaning before scanning, ID entered manually                | 9                | 7    |
| Adjusting holder position  | 2-8              | 2-5  |
| Making initial settings  | 19               | 19   |

For step-by step comparison, see [Comparison to HPP](#).

For more details on the features that made this improvement possible, see **Scanning** below.

## Scanning

- A new modal dialog for entering Stone ID and Scale weight is introduced.



- The list of possible automatic report-related actions after scanning is extended.

Settings

Automatic Actions After Scanning

☐ Align first facet to door

Generate reports

Cutting: Brilliant

☒ Polish report

Illustrated report for brilliant (RTF)

Color

Open

☒ Polish report

Full report for brilliant (RTF)

Black and white

Print

☒ Export report

Export report data, Color (INI)

Save

☐ Label report

Label Report for brilliant Kristall

☒ Standard report

Export

Full project export

☐ OXGZ

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\OXGZ

Browse...

Active model export in basis

Basis:

☒ Report ☐ Scanner

Export formats:

OK

Cancel

Apply

- Export-related automatic actions are also extended. The possible formats now include \*.dmc, \*.gem, and \*.stl.

Settings

Export

Full project export

☐ OXGZ

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\OXGZ

Browse...

Active model export in basis

Basis:

☒ Report ☐ Scanner

Export formats:

☐ ASCII

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\ASCII

Browse...

☐ STL text

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\STL\_TEXT

Browse...

☐ STL binary

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\STL\_BINARY

Browse...

☐ DMC

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\DMC

Browse...

☐ GEM

Exported models location: C:\Users\neretin\Documents\OctoNus Software\Exported Models\GEM

Browse...

Configurable Report Buttons

Print Button

Cutting: Brilliant

☐ Polish report

Illustrated report for brilliant (RTF)

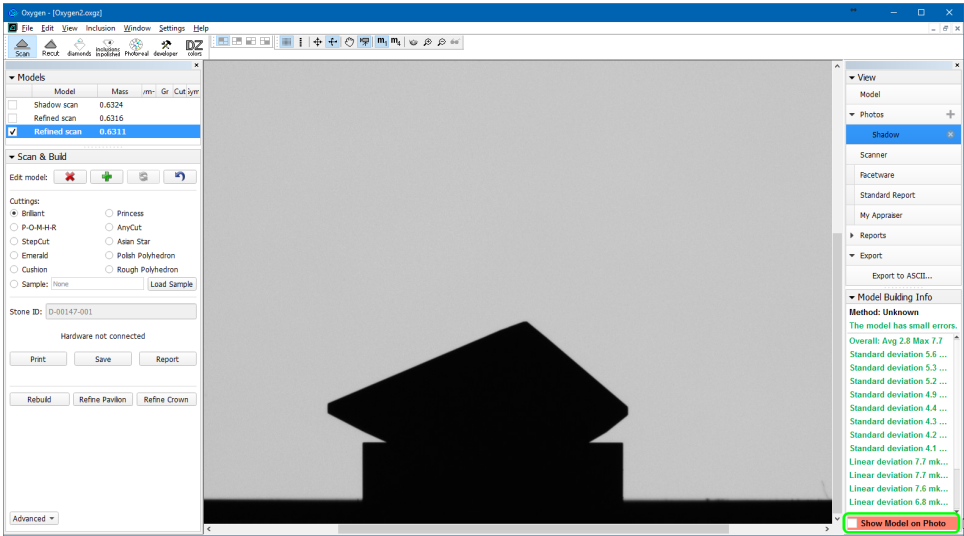
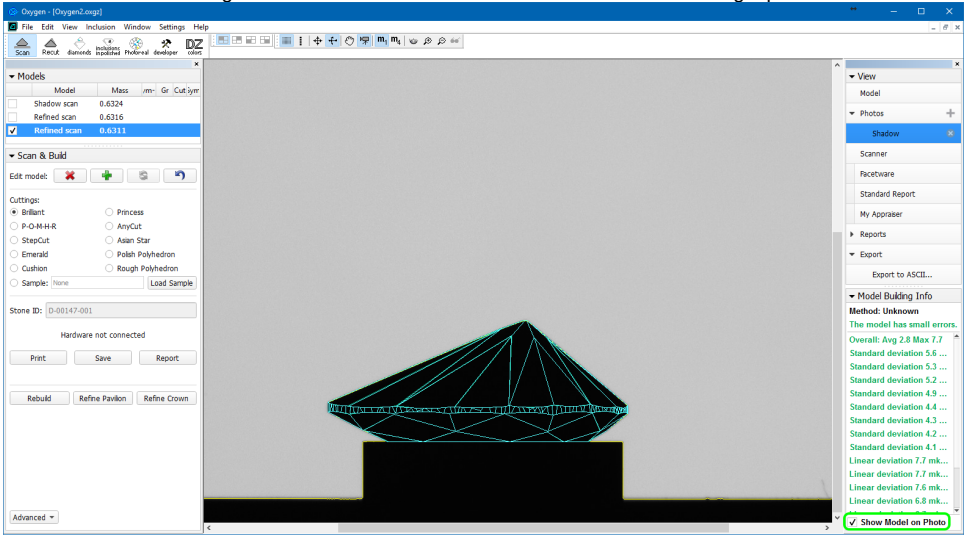
Color

OK

Cancel

Apply

- Quick control for disabling model in Scanner and Photo view is introduced on the right panel.



- Quick report buttons (Print, Save, Report) with configurable actions are added to the **Scan & Build** panel.

▼ Scan & Build

Edit model:

✕

+

↺

↻

Cuttings:

☒ Brilliant

☐ Princess

☐ P-O-M-H-R

☐ AnyCut

☐ StepCut

☐ Asian Star

☐ Emerald

☐ Polish Polyhedron

☐ Cushion

☐ Rough Polyhedron

Sample: None

Load Sample

Scan precision:

☐ High Accuracy: 800 contours  
1 min 2 sec

☐ Accuracy: 400 contours  
32 sec

☒ Optimum: 200 contours  
17 sec

☐ Quick: 100 contours  
10 sec

Stone ID:

Shadow scan

Align

☐ Pump

Print

Save

Report

The actions of these buttons can be configured in **Settings**:

Settings

Configurable Report Buttons

Print Button

Cutting: Brilliant

☒ Polish report

Illustrated report for brilliant (RTF)

Color

☐ Polish report

Full report for brilliant (RTF)

Color

☐ Label report

Label Report for brilliant Kristall

Save Button

Cutting: Brilliant

☒ Export report

Export report data, Color (INI)

☐ Export report

Export report data, Color (INI)

☐ Export report

Export report data, Color (INI)

Report Button

Cutting: Brilliant

☒ Standard report

☐ Export report

Export report data, Color (INI)

Save

☐ Label report

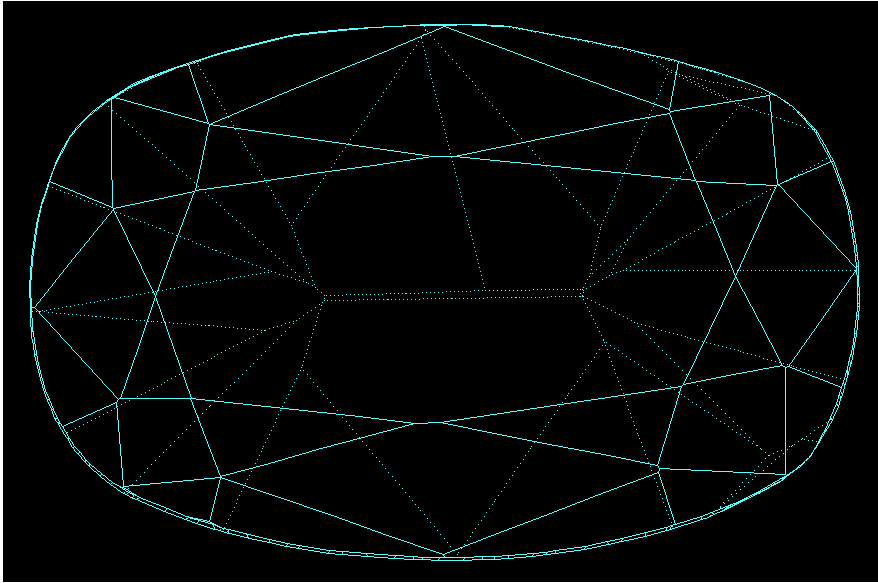
Label Report for brilliant Kristall

OK

Cancel

Apply

- List of recut solutions is emptied upon starting a new scan, together with the list of existing scans.
- Algorithm for distinguishing Round Brilliant from Cushion, Oval from Cushion and Oval from Marquise is improved.



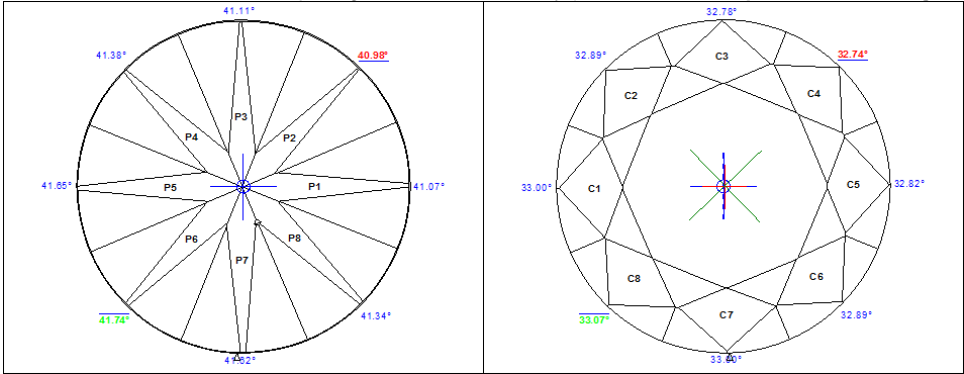
A sample Cushion stone which was previously incorrectly determined as Oval: [Cushion\\_quasi\\_Oval.Mmd](#).

## Reporting

### New pictures in reports for RBC

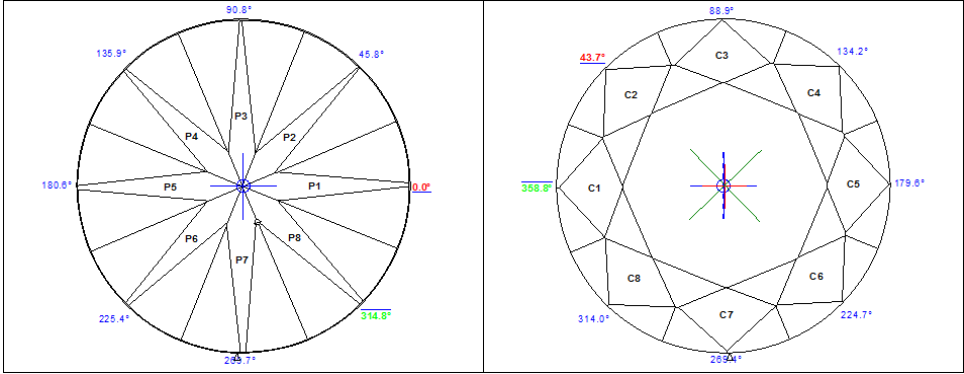
Full report for brilliant and the corresponding Export report data are enhanced with the following new pictures:

1. Pavilion and crown views with slope angles for main facets only (see the **Facets slope and azimuth angles** chapter of the report):



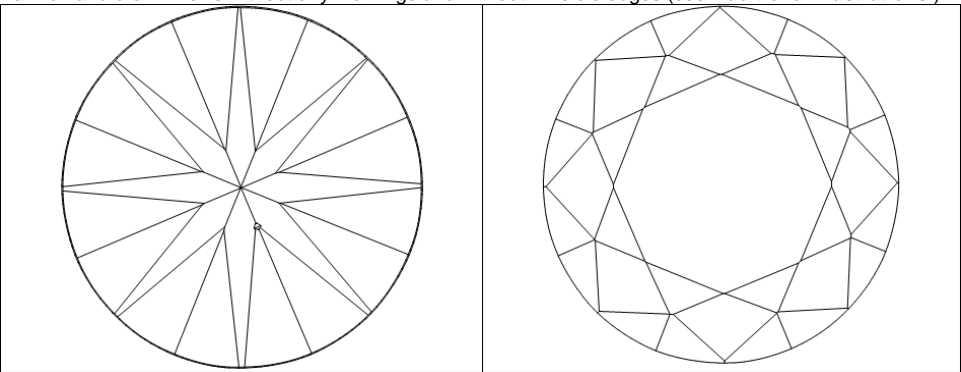
The bookmarks for the pictures are PAVILION\_MAIN\_FACET\_SLOPE\_ANGLES and CROWN\_MAIN\_FACET\_SLOPE\_ANGLES , correspondingly.

2. Pavilion and crown views with azimuth angles for main facets only (see **Facets slope and azimuth angles**):



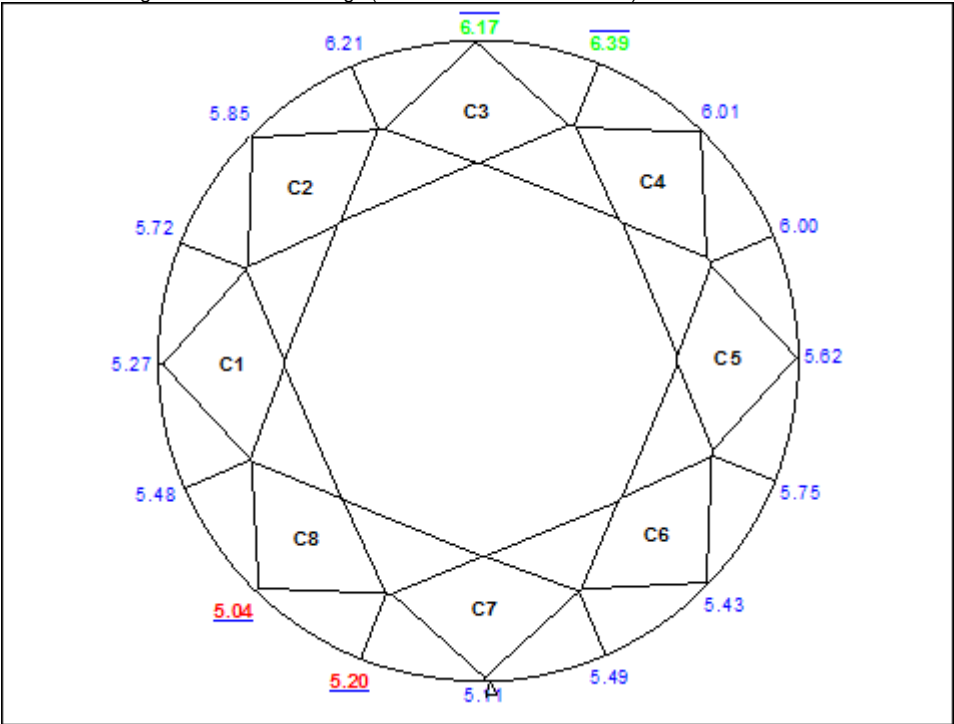
The bookmarks for the pictures are PAVILION\_MAIN\_FACET\_AZIMUTH\_ANGLES and CROWN\_MAIN\_FACET\_AZIMUTH\_ANGLES , correspondingly.

3. Pavilion and crown views without any markings and without invisible edges (see **Additional illustrations**):



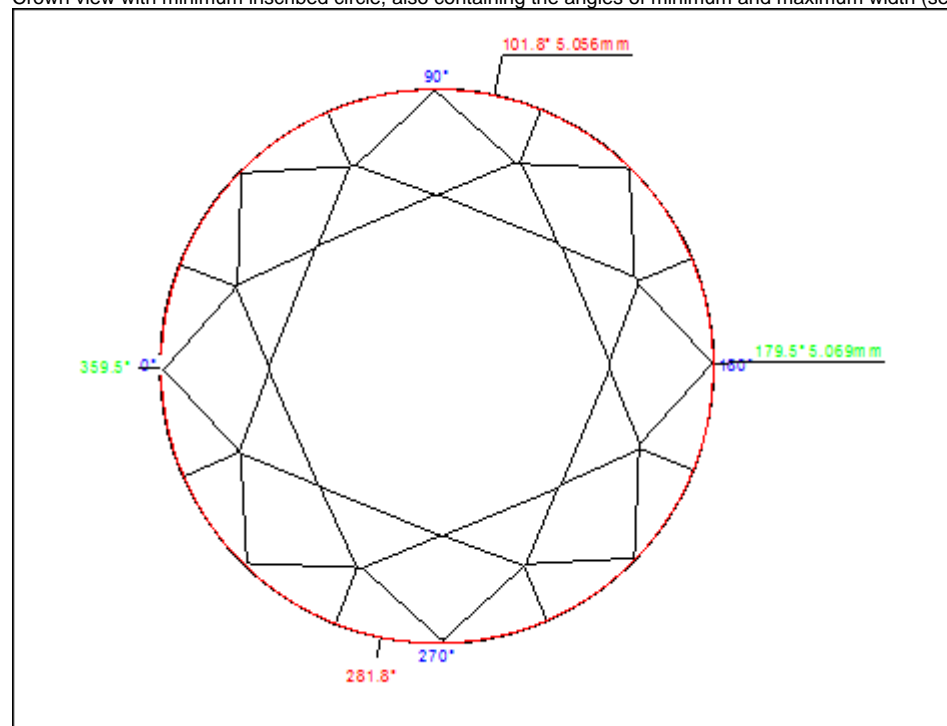
The bookmarks for the pictures are PAVILION\_VIEW and CROWN\_VIEW, correspondingly.

4. Crown view with girdle thickness markings (see **Additional illustrations**):



The bookmark for the picture is GIRDLE\_THICKNESS\_PC\_CRN\_VIEW.

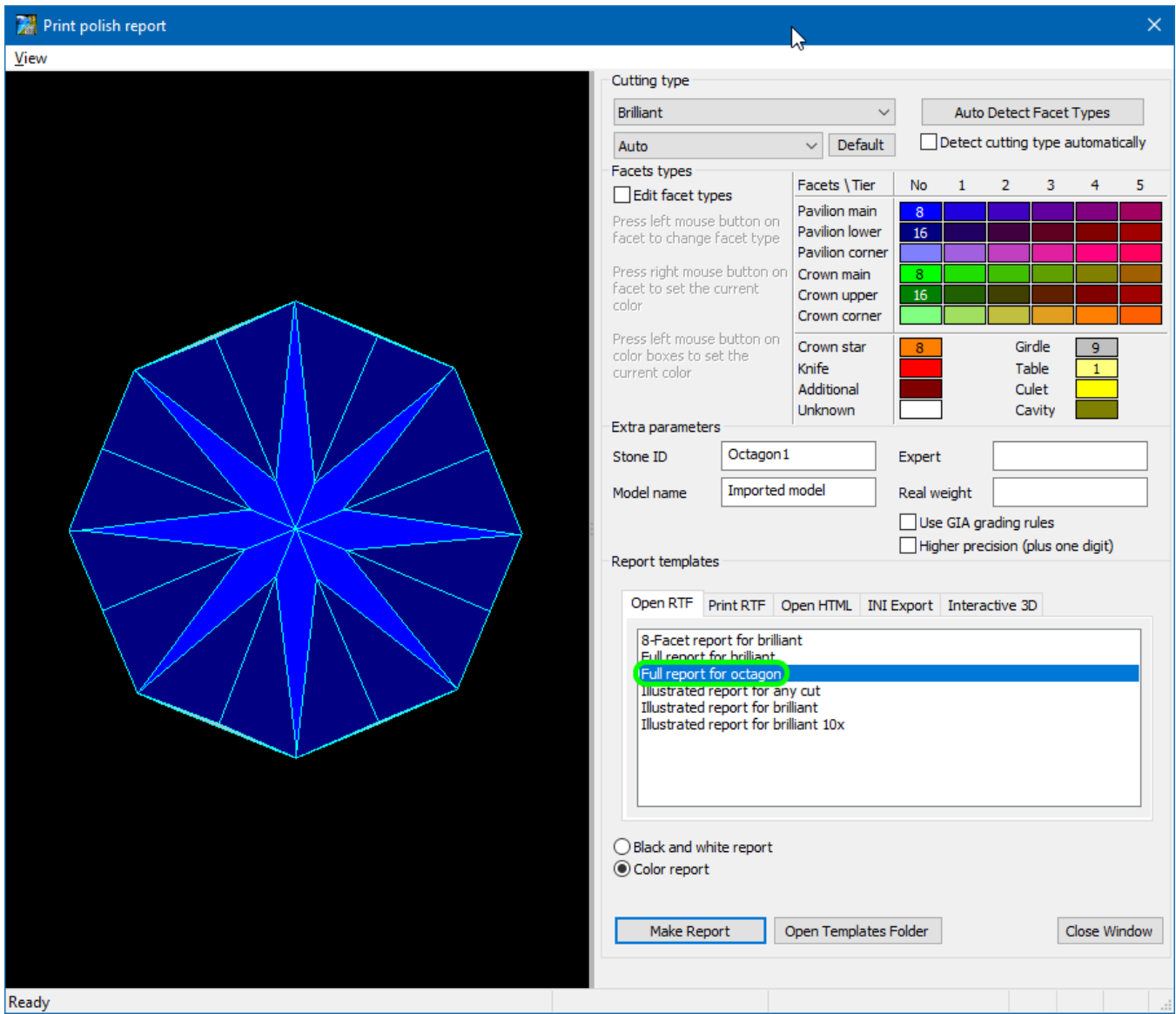
5. Crown view with minimum inscribed circle, also containing the angles of minimum and maximum width (see **Additional illustrations**):



The bookmark for the picture is CROWN\_AND\_INSCRIBED\_CIRCLE.

## Octagon Brilliant cut and report

Octagon Brilliant cut is added as a sub-option to Round Brilliant cut. It is distinct for reporting purposes only; to scan and build models of this cut, Brilliant or Any Cut method should be used.



Octagon Brilliant has the following unique features:

1. Instead of diameter and radius defined for Round brilliant, two specific parameters are calculated and reported: Base Diameter and Corner Diameter.  
[blocked URL](#)

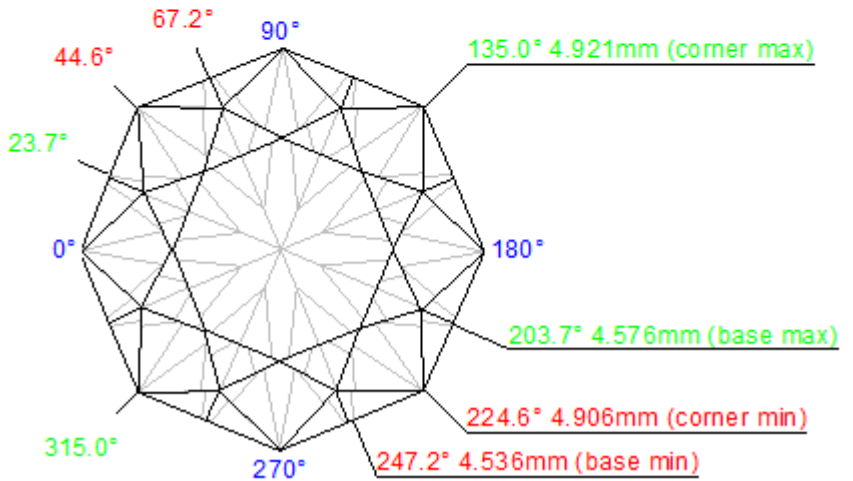
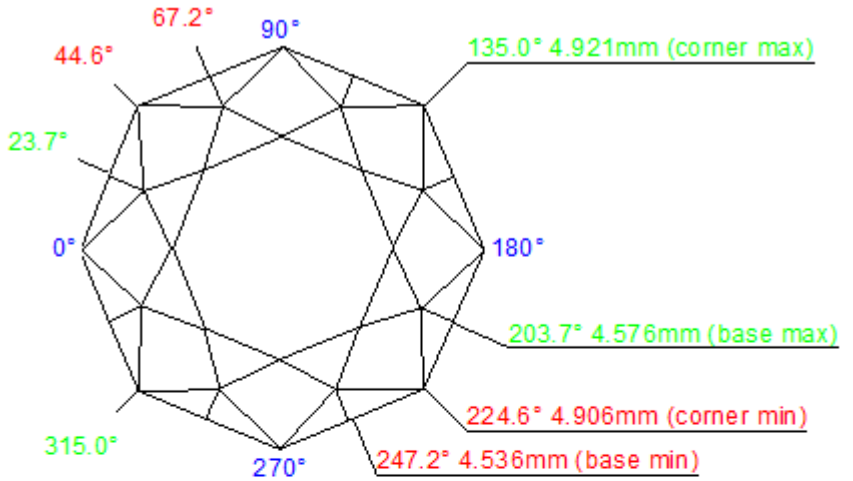
| Reported in               | Section             | Values                      | Units | Bookmarks  |
|---------------------------|---------------------|-----------------------------|-------|--|
| Full Report for Brilliant | Main Parameters     | Avg, Min, Max, Dev for both | mm    | DIAMETER_BASE_MM_AVG, DIAMETER_BASE_MM_MIN, DIAMETER_BASE_MM_MAX, DIAMETER_BASE_MM_DEV, DIAMETER_CORNER_MM_AVG, DIAMETER_CORNER_MM_MIN, DIAMETER_CORNER_MM_MAX, DIAMETER_CORNER_MM_DEV |
|                           | Detailed Parameters | All 4 values for both       | mm    | DIAMETER_BASE_MM_1 , . . . , DIAMETER_BASE_MM_4 , DIAMETER_CORNER_MM_1, . . . , DIAMETER_CORNER_MM_4   |

| Parameter       |    | Avg   | Min   | Max   | Dev   | Cut | Sym |
|-----------------|----|-------|-------|-------|-------|-----|-----|
| Diameter Base   | mm | 4.555 | 4.536 | 4.576 | 0.041 |     |     |
| Diameter Corner | mm | 4.916 | 4.906 | 4.921 | 0.015 |     |     |
| Crown angle     | °  | 34.55 | 34.27 | 34.78 | 0.52  | EX  | EX  |

2. Width is interpreted as the minimum value of Base Diameter. Length is interpreted as the maximum value of Corner Diameter.  
3. Average Corner Diameter serves as a measure for all relative values in the report (that is, all lengths expressed in % are measured relative to it).

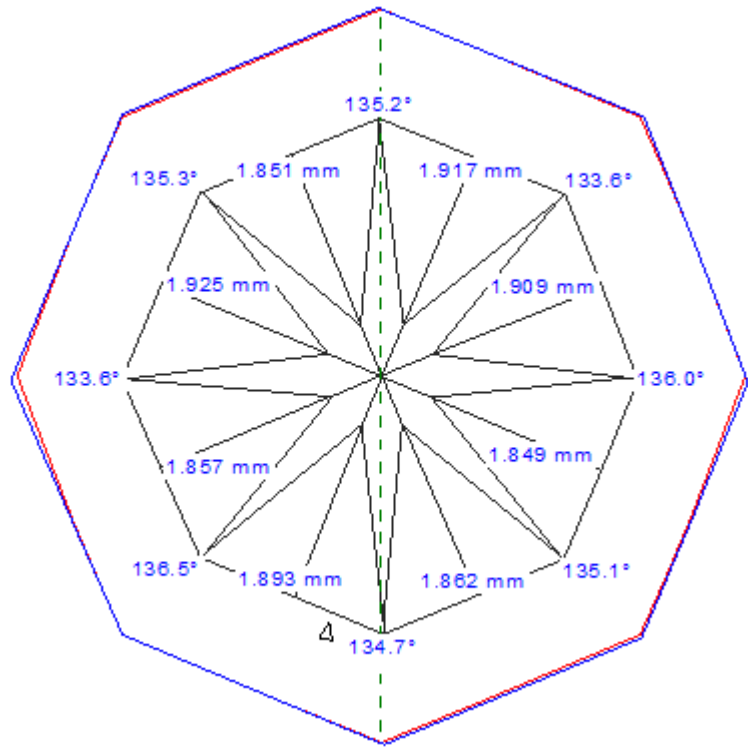


4. The crown views with indicated positions of minimum and maximum width contain separate marks for minimum and maximum of Base Diameter and for those of Corner Diameter:



5. Girdle internal angles at all eight corners are added to the list of parameters, and also to the girdle asymmetry plots.

| Reported in               | Section             | Values             | Units | Bookmarks  |
|---------------------------|---------------------|--------------------|-------|--|
| Full Report for Brilliant | Main Parameters     | Avg, Min, Max, Dev | °     | GIRDLE_INTERNAL_ANGLE_DEG_AVG, GIRDLE_INTERNAL_ANGLE_DEG_MIN, GIRDLE_INTERNAL_ANGLE_DEG_MAX, GIRDLE_INTERNAL_ANGLE_DEG_DEV |
|                           | Detailed Parameters | All 8 values       | °     | GIRDLE_INTERNAL_ANGLE_DEG_1 , ..., GIRDLE_INTERNAL_ANGLE_DEG_8   |



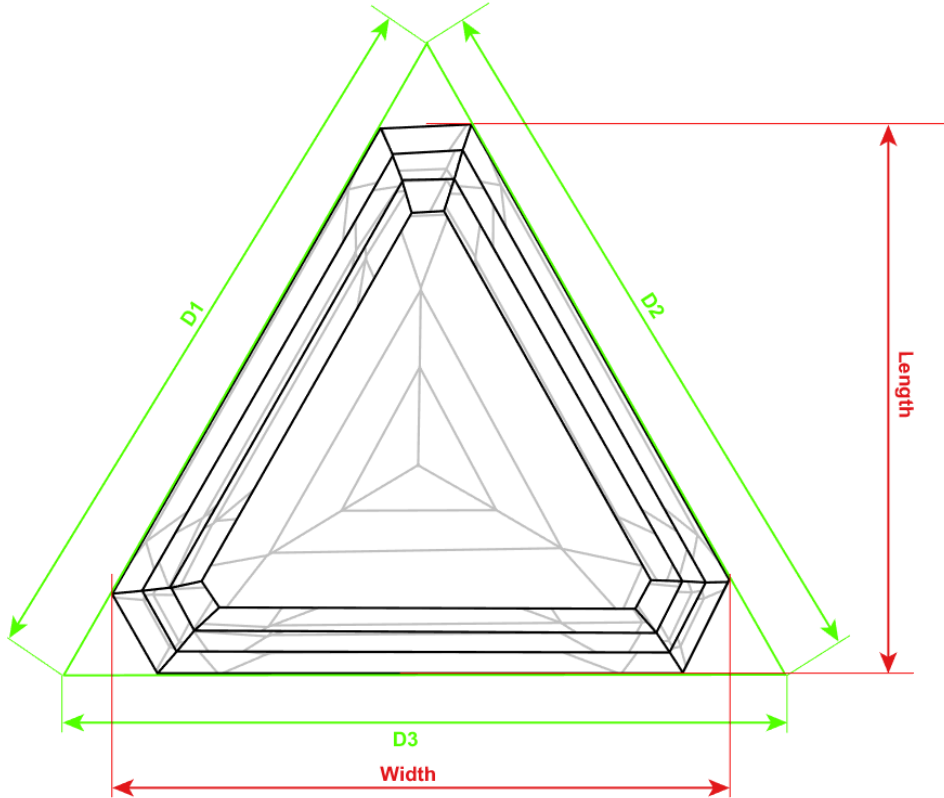
| Parameter                   |     | Avg   | Min   | Max   | Dev  | Cut | Sym |
|-----------------------------|-----|-------|-------|-------|------|-----|-----|
| Girdle Height (Crown Mains) | %   | 2.13  | 1.96  | 2.44  | 0.24 |     |     |
| Crown Pains                 |     | 0.42  | -2.16 | 0.120 |      |     |     |
| Projection Area             | mm² | 1.112 |       |       |      |     |     |
| Girdle Internal Angle       | °   | 135.0 | 133.6 | 136.5 | 2.9  |     |     |

| Parameter                              |   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     |
|--|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Girdle Height Bezel local Deviation    | % | 0.46  | 0.95  | 0.14  | 0.79  | 1.06  | 0.31  | 0.20  | 0.66  |
| Opposite Azimuth Bezel local Deviation | % | 0.32  | 0.49  | 0.22  | 0.42  | 0.42  | 0.42  | 0.42  | 0.42  |
| Opposite Azimuth Crown Pavilion        |   | 0.19  | 0.58  | 0.76  | 0.81  | 0.83  | 1.46  | 1.46  | 1.64  |
| Girdle Internal Angle                  | ° | 133.6 | 135.2 | 135.3 | 133.6 | 136.5 | 134.7 | 135.1 | 136.0 |

Triangle cut updates

Definitions of some Triangle cut parameters (Width, Length, Table Width, and Table Length) are updated in the following manner.

1. Width as measured along the base side of the triangle, Length is measured perpendicular to that direction. (Previously these were defined vice versa.)



- 2. Table width is defined as the maximum distance between table vertices in the direction of Width +/- 10°.
- 3. The table vertex farthest away from the Width line is found.
- 4. Table length is defined as the maximum distance from that vertex to another table vertex in the direction of Length +/- 10°.

"Area of projection" parameter

Area of projection of the stone to the table plane is added to the Full report for all cuts:

| Reported in            | Section         | Values               | Units | Bookmarks       |
|------------------------|-----------------|----------------------|-------|-----------------|
| Full Report (all cuts) | Main Parameters | Avg (the only value) | mm²   | PROJECTION_AREA |

|                 |     |        |  |  |  |  |  |
|-----------------|-----|--------|--|--|--|--|--|
| Projection Area | mm² | 20.117 |  |  |  |  |  |
|-----------------|-----|--------|--|--|--|--|--|

Min and max of Pavilion painting and Crown painting

Minimum and maximum Pavilion painting and Crown painting are added to the Full report for brilliant:

| Reported in               | Section         | Values   | Units | Bookmarks  |
|---------------------------|-----------------|----------|-------|--|
| Full Report for Brilliant | Main Parameters | Min, Max | °     | PAV_PAINTING_GIA_DEG_MIN, PAV_PAINTING_GIA_DEG_MAX, CRN_PAINTING_GIA_DEG_MIN, CRN_PAINTING_GIA_DEG_MAX |

| Paint / Dig       |         | Avg             | Type     | Cut | Max Dev | Dev  | Sym |
|-------------------|---------|-----------------|----------|-----|---------|------|-----|
| Crown painting    | °       | 2.36            | Painting | EX  | 4.92    | 4.94 | EX  |
| Crown painting    | notches | 0.6, Small      |          |     | 1.3     | 1.3  |     |
| Pavilion painting | °       | 0.06            |          | EX  | -2.49   | 4.70 | EX  |
| Pavilion painting | notches | 0.0, Negligible |          |     | 0.7     | 1.3  |     |

| Parameter         |   | Avg  | Min   | Max  | Dev  | Cut | Sym |
|-------------------|---|------|-------|------|------|-----|-----|
| Crown Painting    | ° | 2.36 | -0.02 | 4.92 | 4.94 | EX  | EX  |
| Pavilion Painting | ° | 0.06 | -2.49 | 2.21 | 4.70 | EX  | EX  |

Absolute maximum painting in the table above is renamed **Max Dev**, so as to avoid confusion. This is the signed measurement which has the maximum absolute value (i.e. either the overall maximum or minimum, depending on which is greater by the absolute value).

Miscellaneous

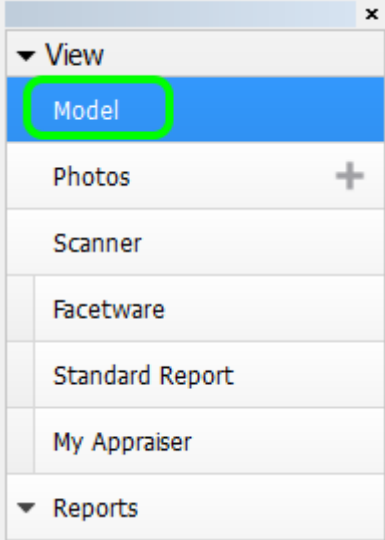
- Overall description of model building quality is now included in Polish reports.
- Final (Overall) Grade and center offsets for Round brilliant are now included in I3D reports.

# Smart Recut

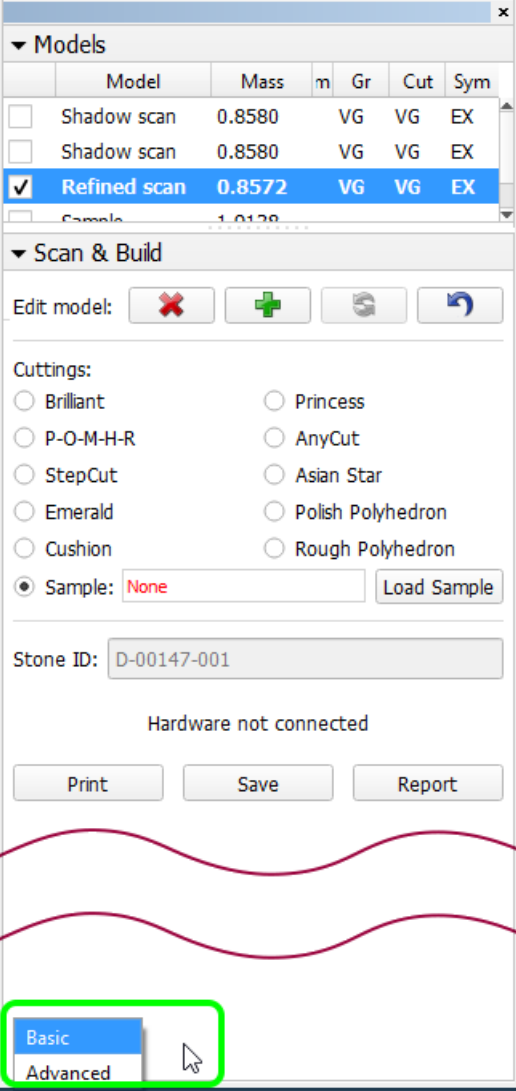
- Occasional failure to find solutions with Sweetline option turned on is fixed.
- Sweetline parameter is now defined as the deviation of Pavilion angle from the optimal line, that is, measured in absolute units rather than relative.

## Interface

- Standard** view mode is renamed **Model**, so as to avoid confusion with "Standard report", etc.



- Status of the **Basic/Advanced** setting of the **Scan & Build** panel is made persistent, that is, saved upon exit and restored upon the next launch of the program.



- **MyAppraiser** panel now contains the list of parameters of the current model.

Appraiser Editor

GIA Facetware + MyGIA

Profile: MyGIA\_Profile1

Show Presets

|                   |          |    |        |        |        |        |       |       |      |      |
|-------------------|----------|----|--------|--------|--------|--------|-------|-------|------|------|
| Cut               | Symmetry |    | [ FR ] | [ GD ] | [ VG ] | [ EX ] | EX ]  | VG ]  | GD ] | FR ] |
| Table             | 59.250   | 10 | 46.5   | 49.5   | 51.5   | 62.5   | 66.5  | 69.5  | 99   |      |
| CrownAngle        | 35.695   | 10 | 21.75  | 26.25  | 31.25  | 36.75  | 38.75 | 40.25 | 90   |      |
| PavilionAngle     | 41.259   | 10 | 38.7   | 39.7   | 40.5   | 41.9   | 42.5  | 43.1  | 90   |      |
| StarLength        | 61.815   | 10 | 32.5   | 37.5   | 42.5   | 67.5   | 72.5  | 77.5  | 90   |      |
| LowerGirdleLength | 72.600   | 50 | 57.5   | 62.5   | 67.5   | 87.5   | 92.5  | 97.5  | 99   |      |
| GirdleBezel       | 4.174    | 0  | 1.25   | 1.75   | 2.25   | 4.75   | 5.75  | 7.25  | 20   |      |
| GirdleValley      | 1.654    | 0  | 0      | 0      | 0.75   | 2.94   | 4.14  | 6.14  | 20   |      |
| CrownHeight       | 14.655   | 5  | 10.5   | 12     | 12.3   | 15.5   | 17.5  | 18.5  | 40   |      |
| TotalHeight       | 62.555   | 10 | 54     | 57     | 58     | 62.5   | 64    | 66    | 90   |      |
| Culet             | 0.521    | 0  | 0      | 0      | 0      | 1      | 1.5   | 2     | 20   |      |
| CrownPainting     | -2.415   | -9 | -6     | -3     | -2.5   | 2.5    | 5     | 7     | 20   |      |
| PavilionPainting  | 0.853    | -9 | -5     | -3     | -2.5   | 2.5    | 4     | 6     | 20   |      |
| SumPainting       | -1.562   | -9 | -6     | -5     | -3.5   | 5      | 8     | 10    | 20   |      |
| GirdleAngleMax    | 2.000    | 0  | 0      | 0      | 0      | 2      | 4     | 6     | 20   |      |

- **Rotate First Facet to Door** button on the **Scan & Build** panel is renamed **To door**. The same action can be performed automatically after scanning; the corresponding check box in the General settings is renamed from **Rotate first facet to door** to **Align first facet to door**.
- Selection of Sample cutting type on the **Scan & Build** panel disables the scanning controls until a sample is loaded.
- Switching from **Recut** to **Scan** mode when only a solution is selected (which previously lead to confusion, as the solutions are not shown in the **Scan** mode) causes the selection of the Main scan. This selection persists when switching back to **Recut** mode.
- \*.oxg(z) files are now opened in **Recut** mode. Files of other types are still opened in **Scan** mode, like before.

Bugfixes

- Removal of recut solutions upon loading a sample model is fixed.
- Automatically exported models with empty Stone ID are now named `NonameStone.asc`.
- Incorrect pixel size calculation upon rebuilding a model on a computer not connected to hardware is fixed.
- Checking of models convexity is fixed.
- Calculation of model parameters upon loading an \*.mmd file is fixed.
- Shortcuts (Ctrl-O, etc.) made to work from any panel (previously they were focus-dependent).