

# 2016-11-25 - HPOxygen Server Beta 3.20.78

- Overall usability
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  - Triangle cut updates
  - "Area of projection" parameter
  - Min and max of Pavilion painting and Crown painting
  - Miscellaneous
- Smart Recut
- Interface
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## Overall usability

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

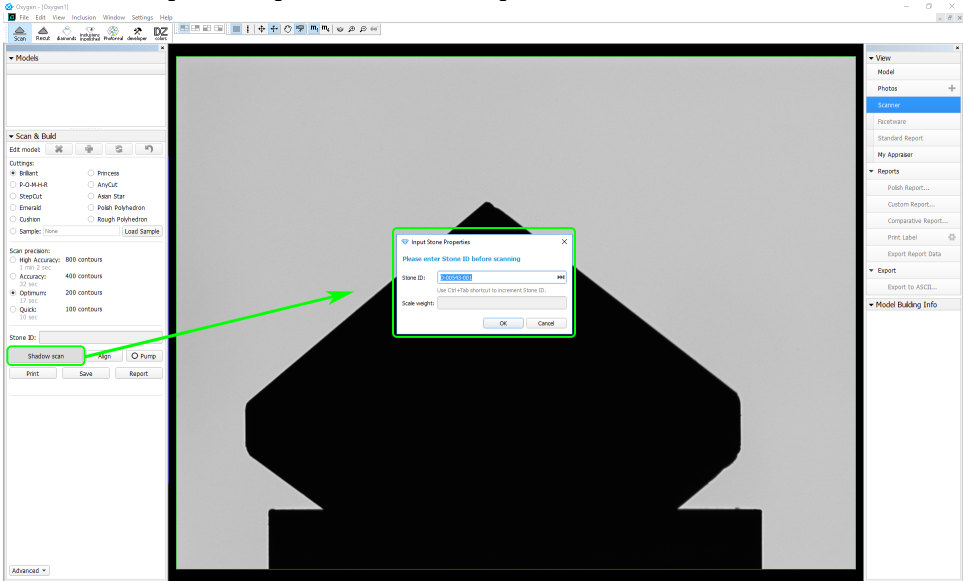
Scenario	Number of clicks	
	HPP	HPO
Scanning a polished stone, leaning before scanning, ID entered manually	7	6
Scanning a polished stone, leaning after scanning, ID entered manually	6-10	6-10
Scanning a polished stone, cleaning before scanning, ID entered by the barcode scanner	7	5
Scanning a polished 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](#).

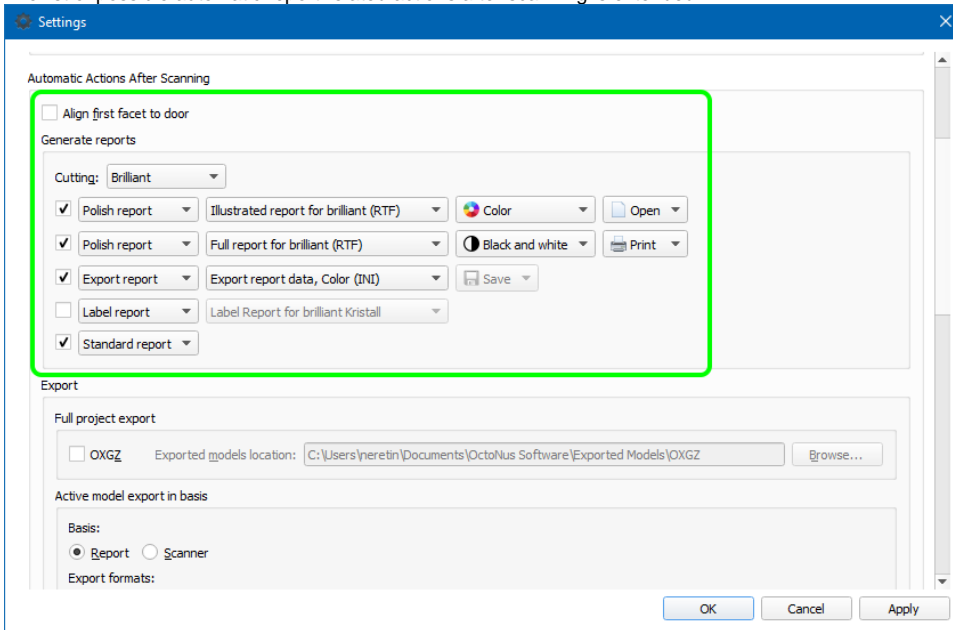
For more details on the features that made this improvement possible, see **Scanning** below.

## Scanning

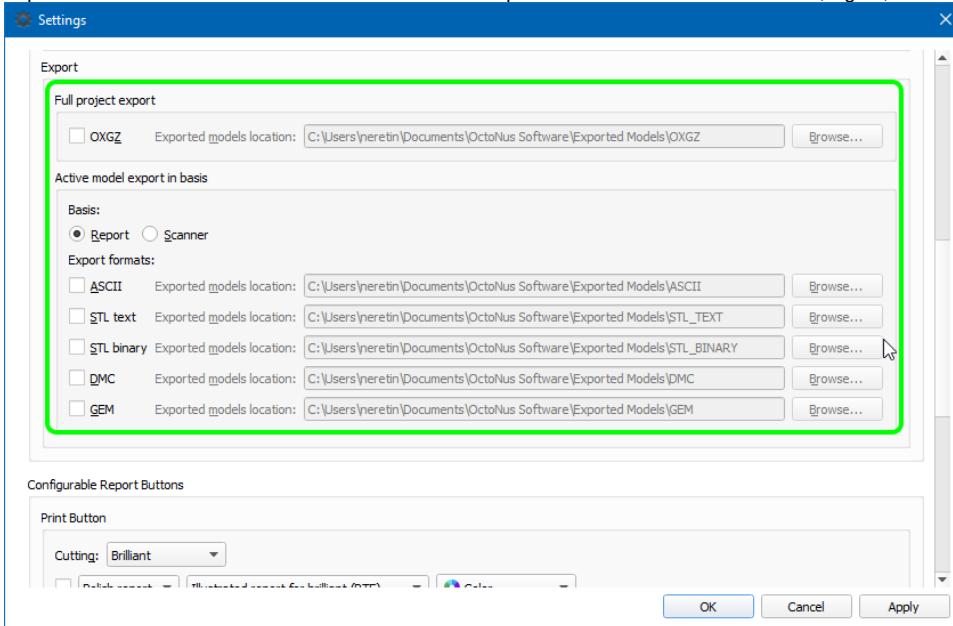
- A new modal dialog for entering Stone ID and Scale weight is introduced.



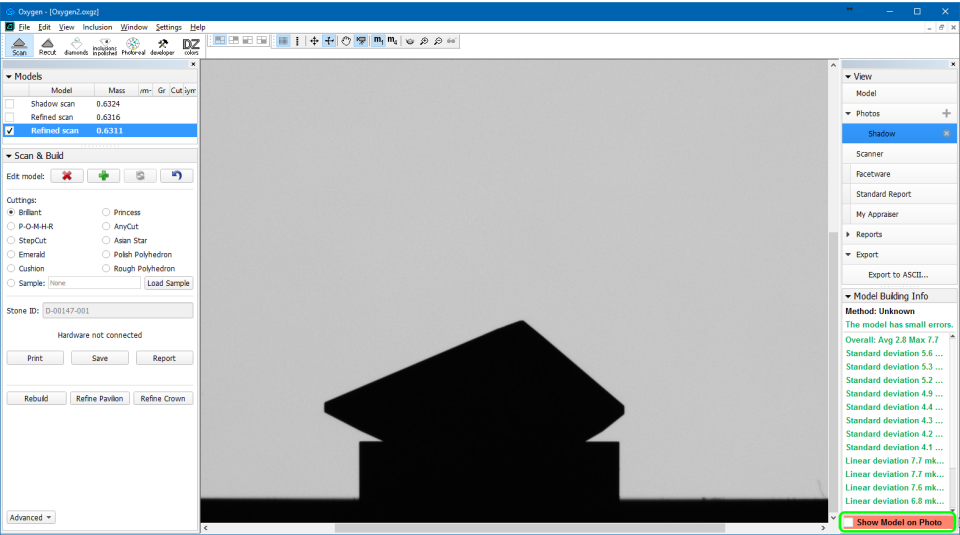
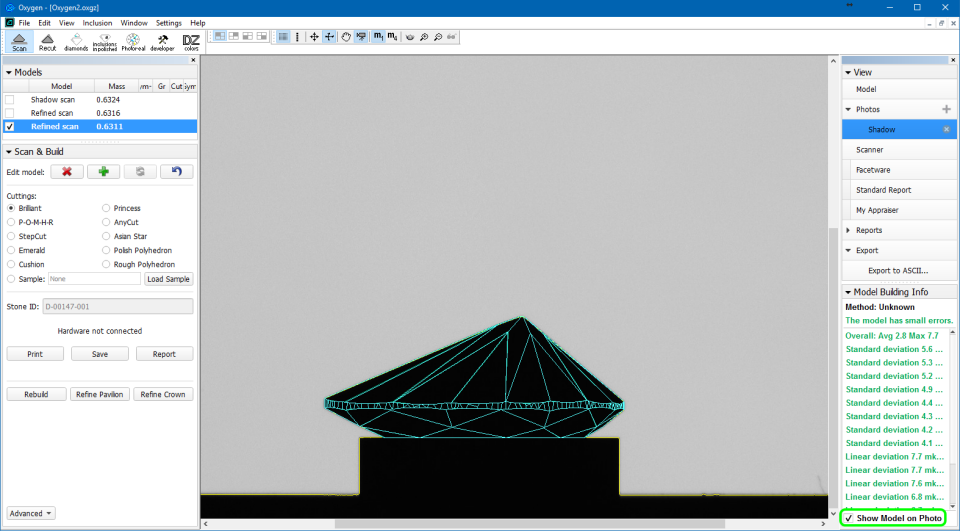
- The list of possible automatic report-related actions after scanning is extended.



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







- 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:

**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:

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

**Settings**

Configurable Report Buttons

**Print Button**

Cutting:

☒ Polish report    
☐ Polish report    
☐ Label report

**Save Button**

Cutting:

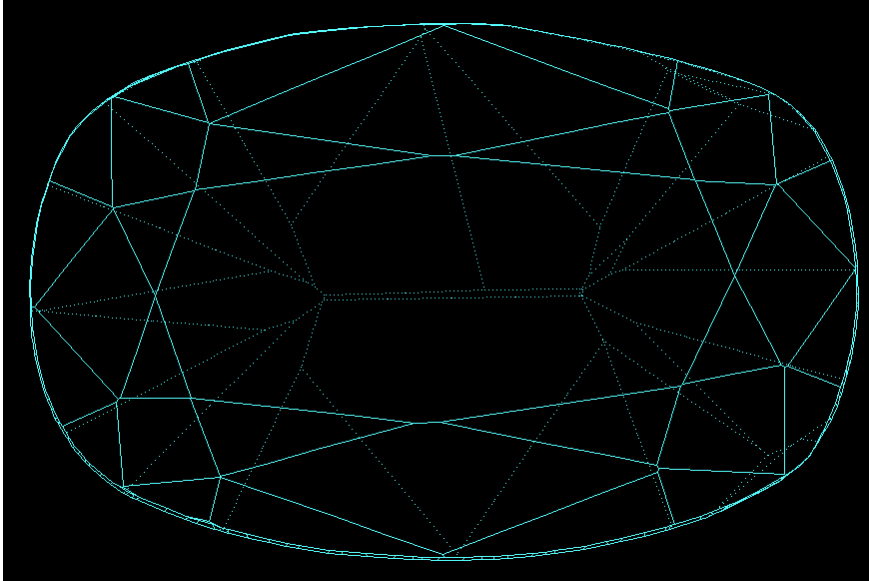
☒ Export report   
☐ Export report   
☐ Export report

**Report Button**

Cutting:

☒ Standard report    
☐ Export report   
☐ Label report

- 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.



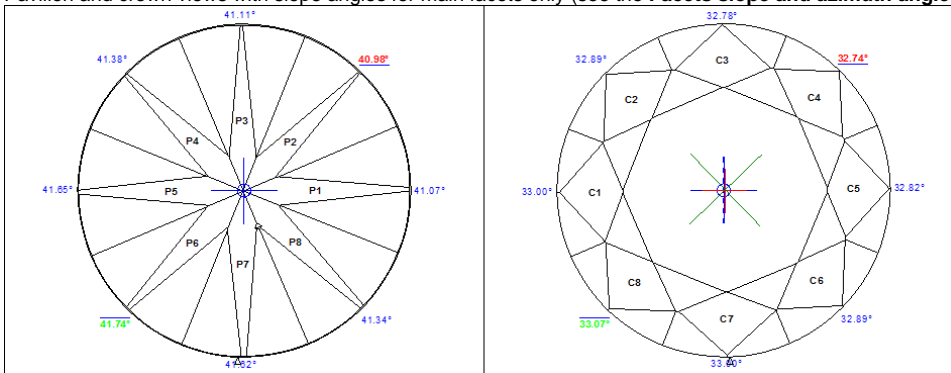
A sample Cushion stone which was previously incorrectly determined as Oval: [Cushion\\_quasi\\_Oval.Mmd](#).

## Reporting

### New pictures in reports for RBC

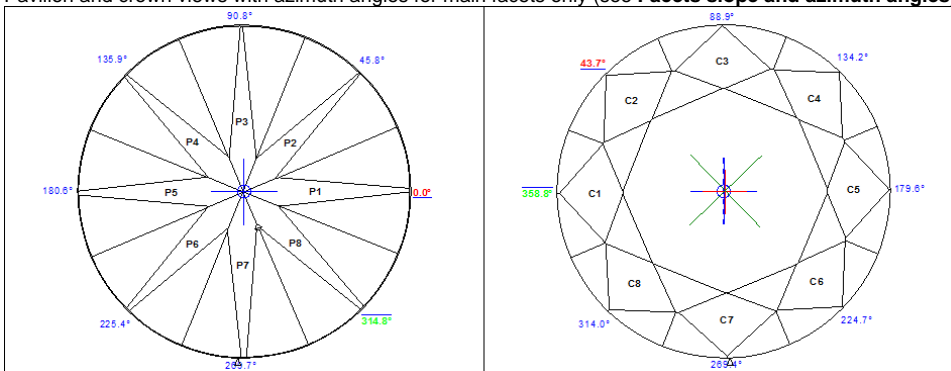
Full report for brilliant and the corresponding Export report data are enhanced with the following new pictures:

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.

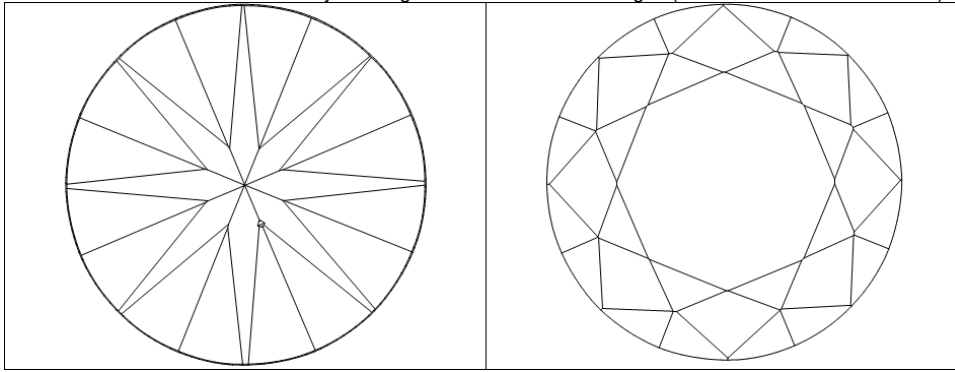
2. Pavilion and crown views with azimuth angles for main facets only (see **Facets slope and azimuth angles**):



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

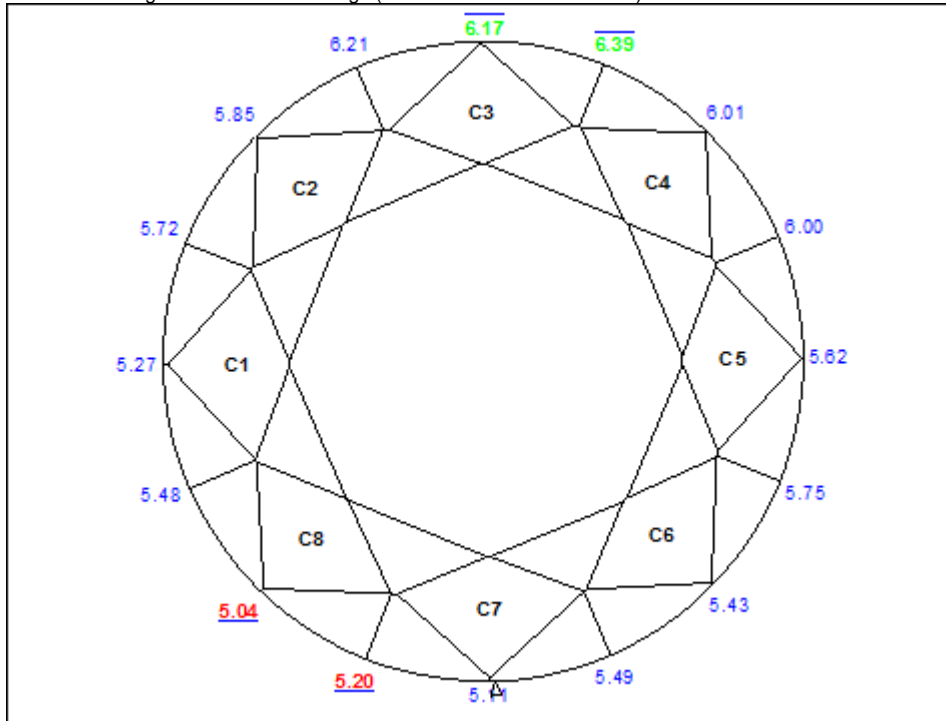
correspondingly.

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



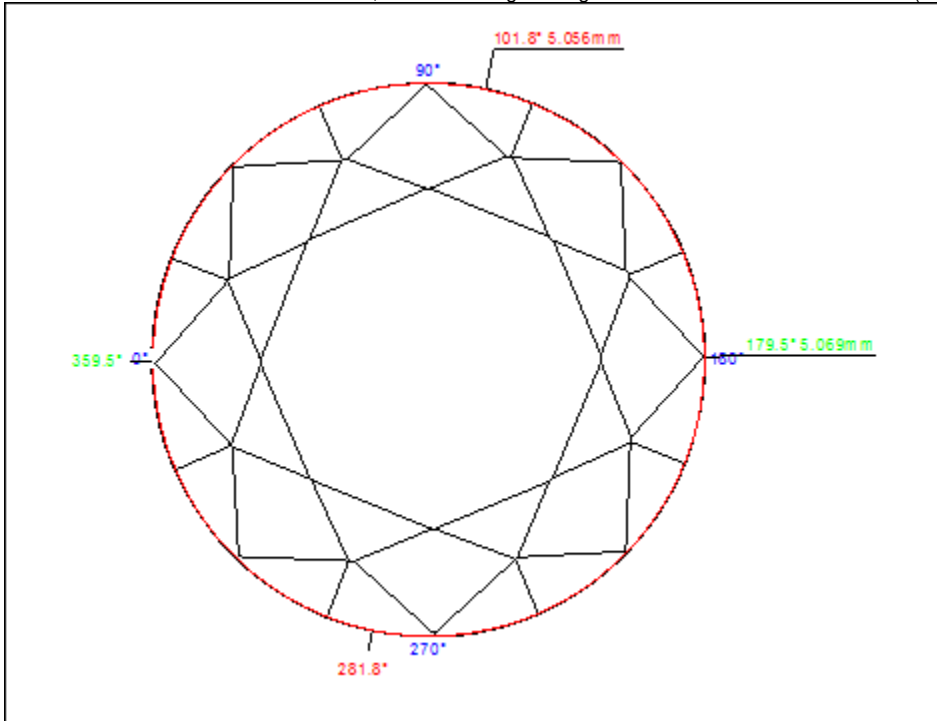
The bookmarks for the pictures are PAVILION\_VIEW and CROWN\_VIEW, correspondingly.

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



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

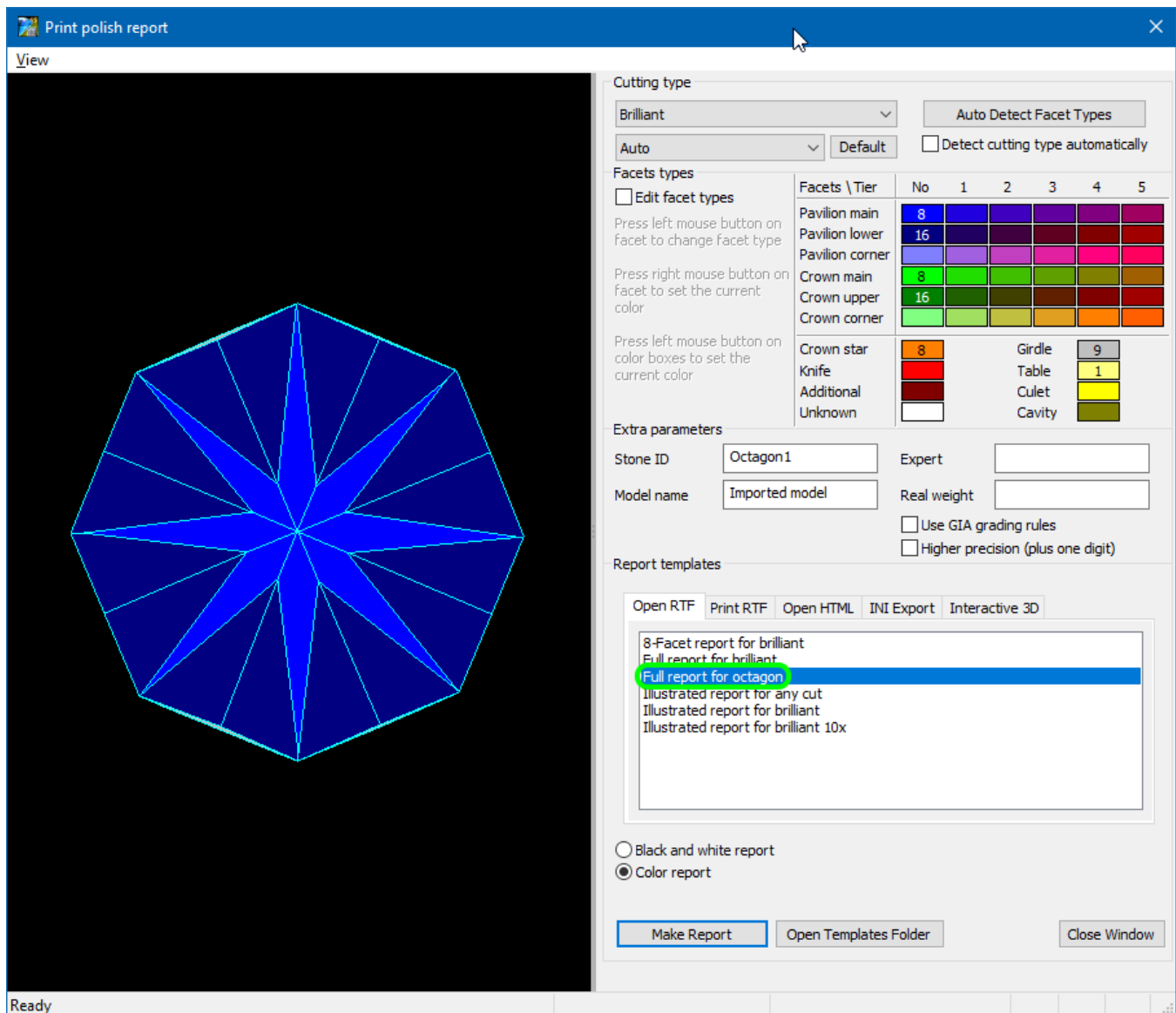
5. Crown view with minimum inscribed circle, also containing the angles of minimum and maximum width (see **Additional illustrations**):



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.

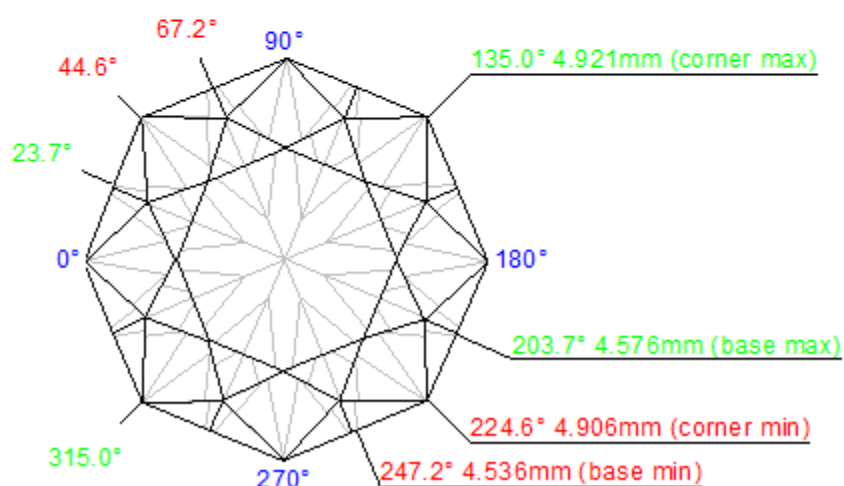
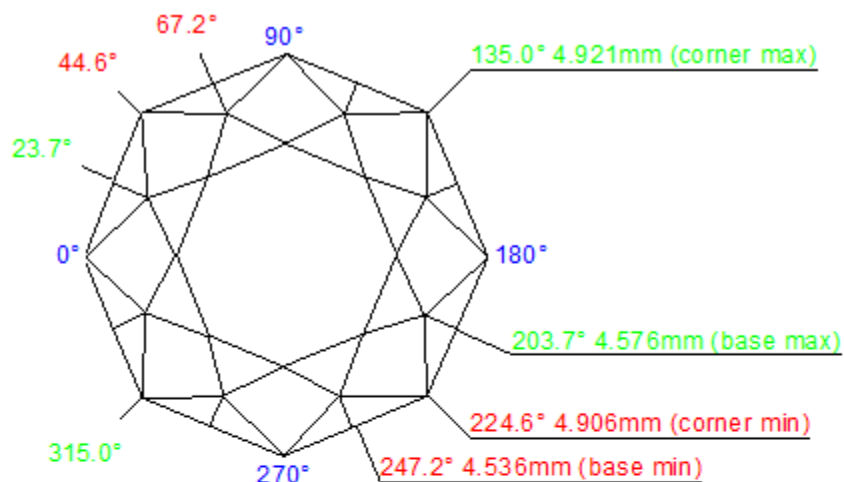
[blocked URL](#)

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

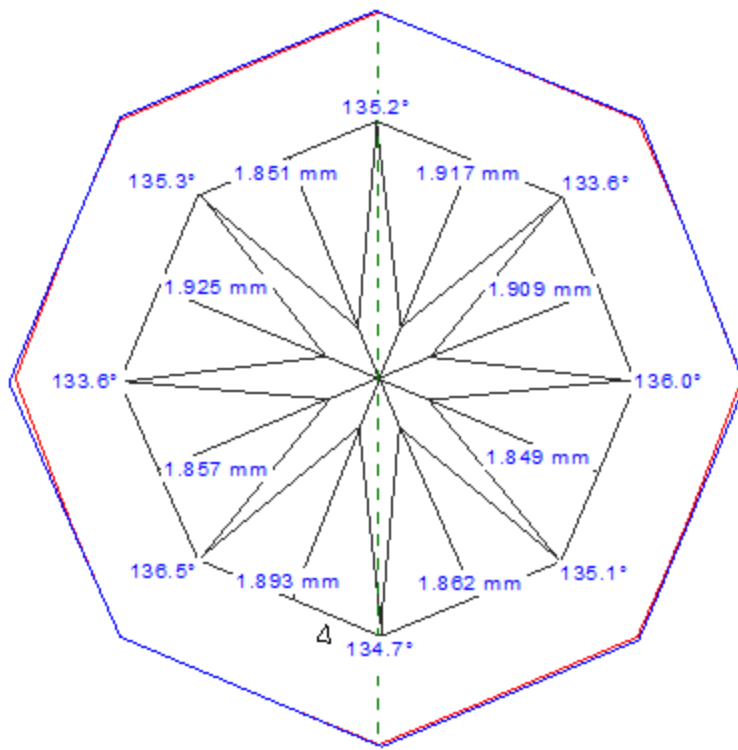
2. Width is interpreted as the minimum value of Base Diameter. Length is interpreted as the maximum value of Corner Diameter.
3. Average Corner Diameter serves as a measure for all relative values in the report (that is, all lengths expressed in % are measured relative to it).

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	1.95	2.44	0.25		
Crown Pairs (Crown Mains)		0.45	-2.16	0.120			
Projection Area	mm²	77.112					
Girdle Internal Angle	°	135.0	133.6	136.5	2.9		

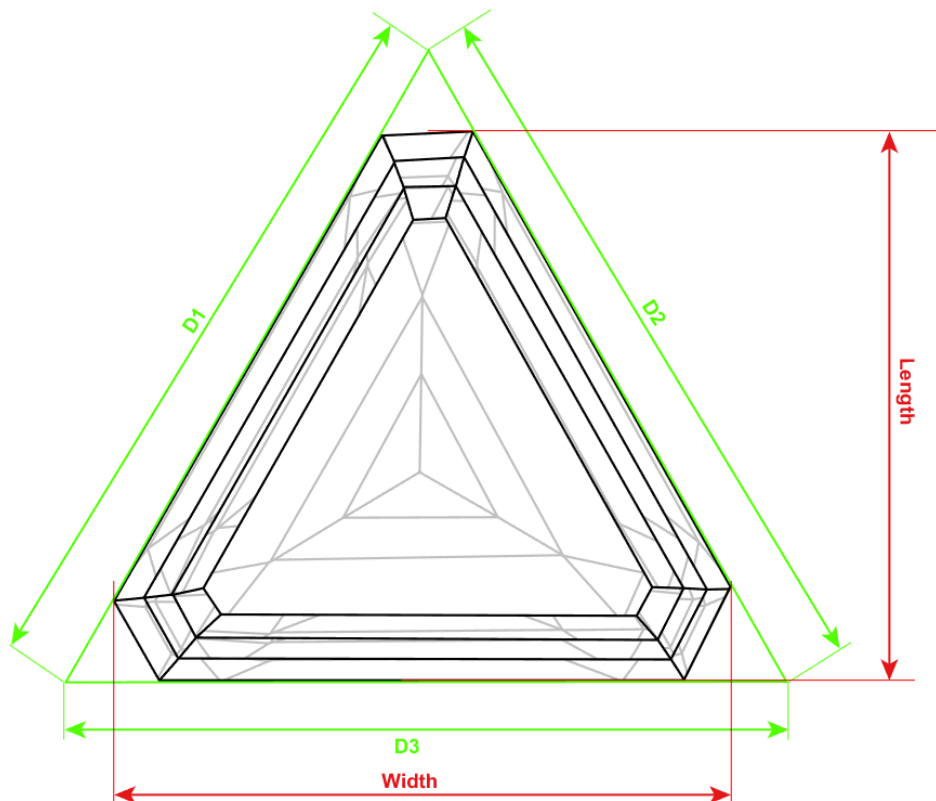
  

Parameter		1	2	3	4	5	6	7	8
Girdle Height Bezel local Deviation	%	0.46	0.95	0.14	0.79	1.00	0.31	0.20	0.00
Opposite Azimuth Bezel local Deviation	%	0.75	0.75	0.49	0.34	0.42	0.42	0.42	0.42
Opposite Azimuth Crown Pavilion	°	0.19	0.58	0.76	0.81	0.83	1.46	1.46	1.64
Girdle Internal Angle	°	133.6	135.2	135.3	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  $\pm 10^\circ$ .
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  $\pm 10^\circ$ .

## "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)	mm <sup>2</sup>	PROJECTION_AREA

Projection Area	mm <sup>2</sup>	20.117					
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## 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

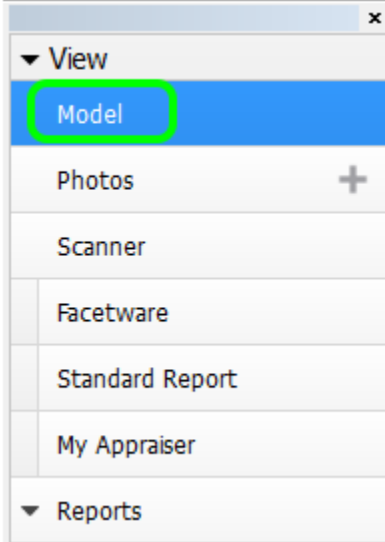
- Overall description of model building quality is now included in Polish reports.
- Final (Overall) Grade and center offsets for Round brilliant are now included in I3D reports.

## 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.

×

▼ Models

	Model	Mass	m	Gr	Cut	Sym
<input type="checkbox"/>	Shadow scan	0.8580		VG	VG	EX
<input type="checkbox"/>	Shadow scan	0.8580		VG	VG	EX
<input checked="" type="checkbox"/>	Refined scan	0.8572		VG	VG	EX
<input type="checkbox"/>	Sample	1.0128				

▼ 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

Stone ID: 

D-00147-001

Hardware not connected

Print

Save

Report

Basic

Advanced

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

Appraiser Editor

**GIA Facetware + MyGIA**

Profile: **MyGIA\_Profile1**

Show Presets

		[ 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).