

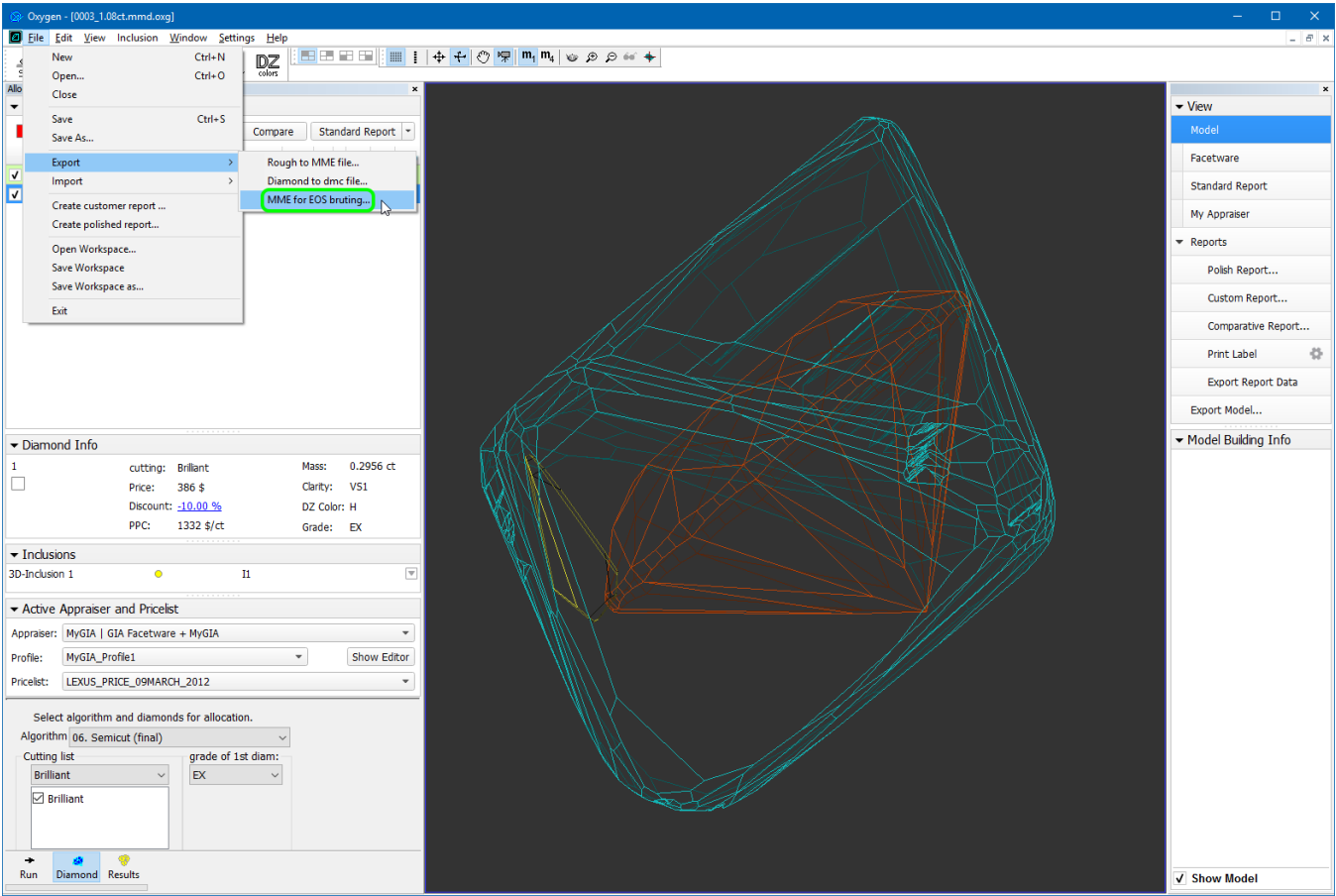
# 2017-04-10 - HPOxygen Server Beta 3.22.1

- Scanning
  - Export of \*.mme for EOS brutng machines
  - Additional contour disable option
  - Automatic contour clipping control
  - Acceleration control
  - Manual interruption of scanning
  - Optional automatic discarding of photos
- Interface
  - Clickable fields in Standard report
  - Rotating selected facet to door
  - Configurable shortcuts
  - Explanatory tooltips
  - Scanner mode made default
- Smart Recut
  - Smart Recut for Oval
  - Smart Recut with Extra Facets
  - Smart Recut in multi-diamond solutions
- Reports
  - Label reports
  - Precision controls
  - Lower Facet Length for Cushion
  - Crown Main Width and Crown Main Length facets for Cushion
- Miscellaneous
- Bugfixes

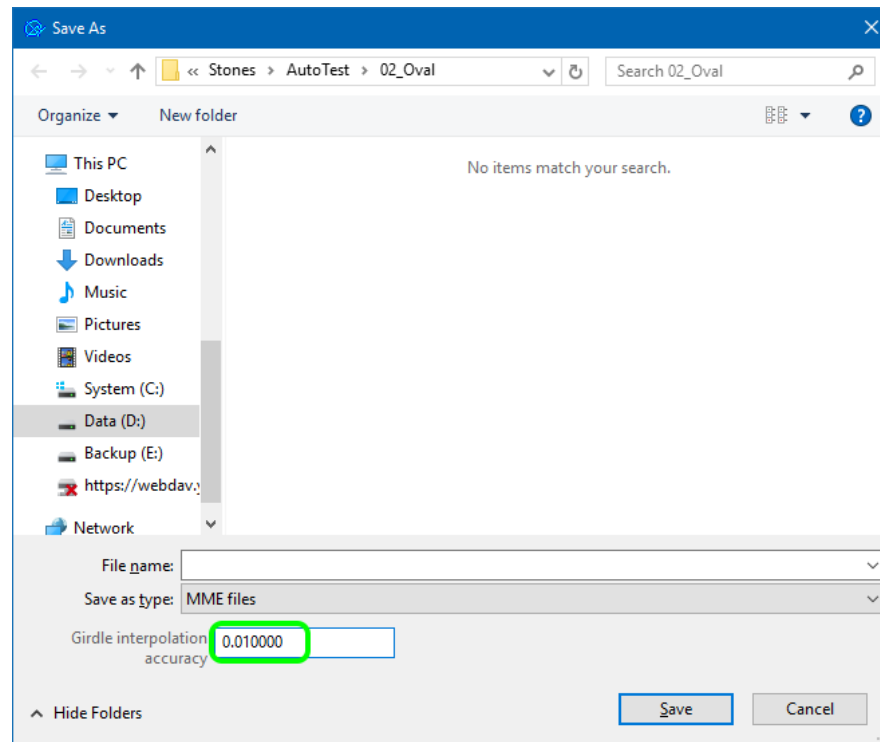
## Scanning

### Export of \*.mme for EOS brutng machines

Export of rough stones with recut solutions in \*.mme format for EOS brutng machines is enabled.

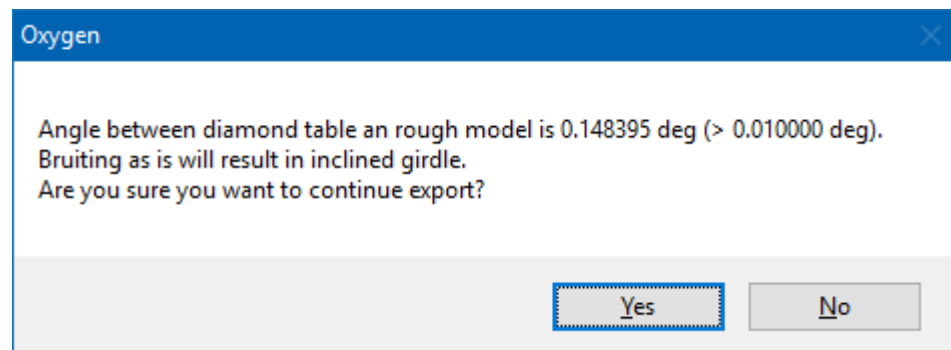


While exporting the \*.mme file, the user is prompted to specify the girdle interpolation accuracy in mm.



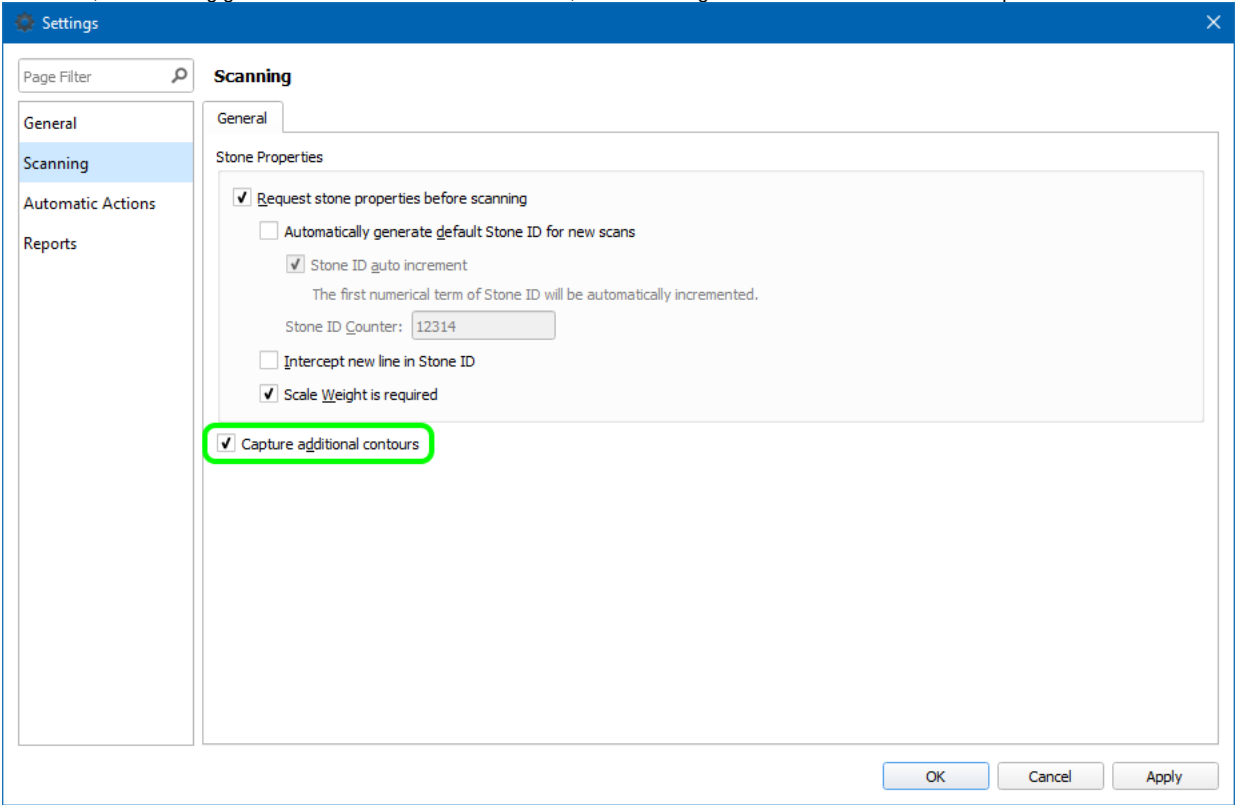
If the table of the rough stone can't be determined reliably, a warning message would pop up during export:

If the table of the rough stone is not parallel to that of the brilliant, another warning message would pop up:



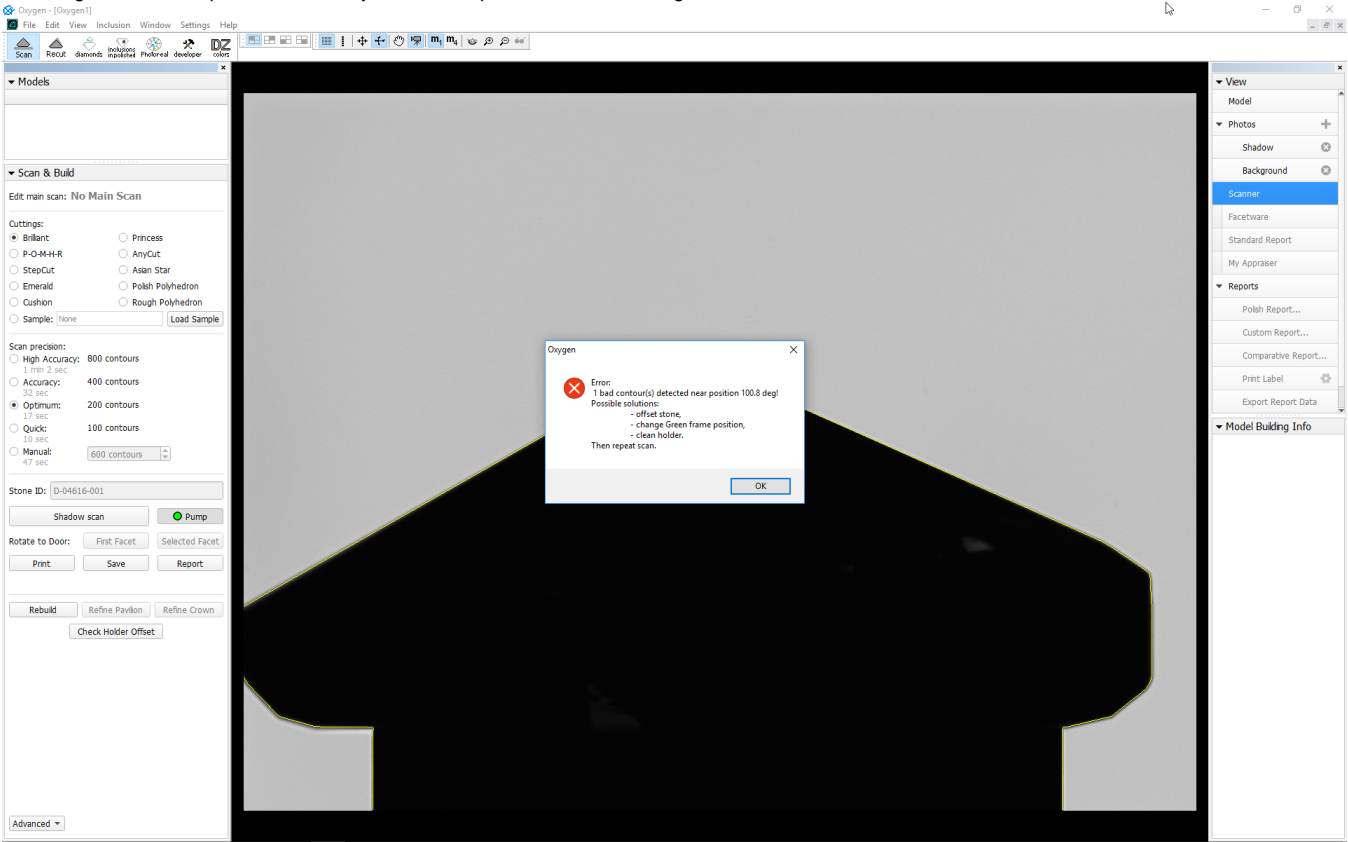
Additional contour disable option


Capturing of additional contours is made optional (enabled by default).  
If disabled, the scanning goes on without the additional contours, thus achieving acceleration at the cost of some precision.



Automatic contour clipping control

Scanning is now interrupted automatically if the stone protrudes outside the green frame.



 The same error occurs if any outside object enters the camera view field during scanning.

Acceleration control

Maximum acceleration is now controlled via the configuration file. This is essential for scanning large stones, which may shift if the holder rotates too fast. To obtain the necessary settings, contact your distributor.

Manual interruption of scanning

Shadow scanning can now be immediately interrupted by pressing the **Cancel** button.

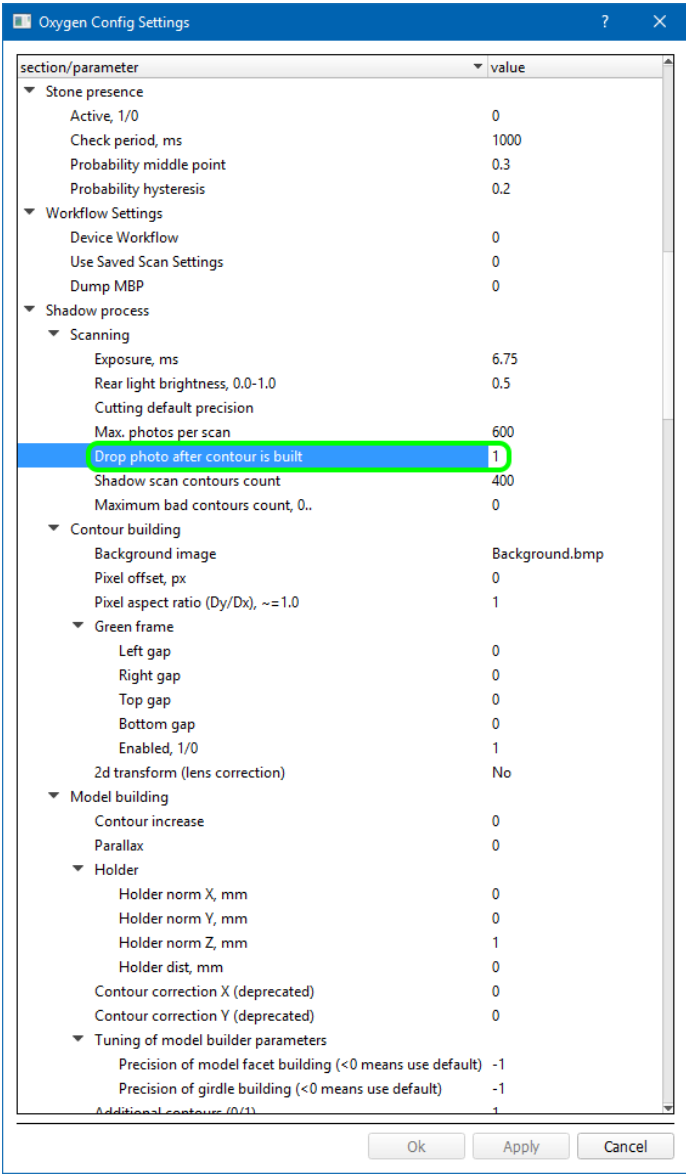
Previously the **Cancel** button only affected the additional contours, while the main contours were scanned regardless.

Optional automatic discarding of photos

An option to delete photos is introduced (enabled by default).

If activated, the photos are removed on-the-fly, so as to save the memory. The viewing of problem edges from Model Build Info remains available, but the model and the contours are shown against the black background.

To save the photos for later viewing, disable this option. To do so, start HPOxygen with `/AlignmentMenu` command line option, go to **Settings Internal Configuration**, unfold **Shadow process Scanning**, locate the parameter called **Drop photo after contour is built**, and change its value to 0.



Interface

Clickable fields in Standard report

Fields with maximum/minimum values of certain parameters in the Standard report are made clickable. Clicking on a field highlights the corresponding facet on the 3D model (either in Model or Photo view mode) so as to reveal the location where the selected value is reached.

Photo view mode

Standard Report

SettingsPrint...Quick Print

Cutting type	Brilliant		Model	Shadow scan
Spread	0.00 ct, -0.31 %		Scale weight, ct	
Extra Facet Grade / Hat	No		Corrected mass, ct	0.54, 0.5483
Cut appraiser	Lexus_Out_12FEB2011		Cut grade	
Symmetry appraiser	Symmetry		Sym grade	GD
Model building info	The model has small errors		Final grade	N/A

Parameter	Avg	GIA Rounded	Min	Max	Dev	Cut	Sym
Diameter, mm	5.290	To Do	5.280	5.299	0.37 %	GD	EX
Table, %	54.34	To Do	54.00	54.64	0.58	VG	EX
Crown angle, °	33.89	To Do	33.43	34.15	0.71	EX	VG
Pavilion angle, °	40.60	To Do	40.41	40.70	0.23	EX	EX
Star length, %	49.56	To Do	47.89	50.77	2.91	EX	VG
Lower girdle length, %	80.45	To Do	78.35	81.60	3.24	EX	EX
Girdle bevel, %	3.14	To Do	2.89	3.37	0.48	EX	EX
Girdle valley minimum, %	1.26	To Do	—	—	—	N/A	—
Girdle valley maximum, %	2.01	To Do	—	—	—	N/A	—
Girdle bone, %	3.35	To Do	3.01	3.75	0.74	—	VG
Culet, %	2.83	To Do	2.28	3.41	1.13	—	VG
Crown painting, °	1.07	To Do	—	3.36	4.96	N/A	EX
Pavilion painting, °	-0.48	To Do	-3.77	4.81	N/A	EX	EX
Sum painting, °	0.59	To Do	—	—	—	N/A	—
Crown height, %	15.38	To Do	15.07	15.71	0.65	VG	EX
Pavilion height, %	42.48	To Do	41.95	42.88	0.93	—	VG
Total height, %	61.00	To Do	—	—	—	EX	—
Total height, mm	3.227	To Do	—	—	—	—	—
Table offset, %	0.48	To Do	—	—	—	N/A	—
Culet offset, %	0.87	To Do	—	—	—	N/A	—
Table-culet offset, %	0.86	To Do	—	—	—	N/A	—
Star angle, °	21.90	To Do	21.28	22.20	0.92	—	EX
Upper girdle angle, °	39.54	To Do	38.18	40.79	2.60	—	GD
Lower girdle angle, °	41.70	To Do	41.50	42.34	0.84	—	EX
Facet twist, °	0.73	To Do	0.16	1.46	1.30	—	VG
Junction bevel twist, °	0.12	To Do	-0.96	0.85	1.81	—	—
Junction bone twist, °	-0.07	To Do	-0.40	0.22	0.62	—	—
Malalignment (ALA), °	0.96	To Do	—	—	—	N/A	—
2°radius roundness, %	—	To Do	—	—	—	—	EX
15°	0.38	To Do	—	—	—	—	EX
22.5°	0.43	To Do	—	—	—	—	EX
30°	0.44	To Do	—	—	—	—	EX
45°	0.49	To Do	—	—	—	—	EX
90°	0.58	To Do	—	—	—	—	EX
Model table edge, %	20.76	To Do	19.86	21.50	1.64	—	—
Table edge (TEV), %	20.80	To Do	20.02	21.50	1.47	—	N/A
Table edge junction, %	-0.21	To Do	-0.93	0.29	1.22	—	—
Table angle, °	135.0	To Do	133.9	136.1	2.2	—	—
Bezel width, %	28.57	To Do	27.89	29.25	1.36	—	—

Model view mode

Standard Report

SettingsPrint...Quick Print

Cutting type	Brilliant		Model	Imported model
Spread	-0.03 ct, -0.01 %		Scale weight, ct	
Extra Facet Grade / Hat	No		Corrected mass, ct	0.50, 0.5083
Cut appraiser	MyOval		Cut grade	Poor
Symmetry appraiser	MyOval		Sym grade	VG
Model building info			Final grade	Poor

Parameter	Avg	GIA Rounded	Min	Max	Dev	Cut	Sym
Diameter, mm	5.082	To Do	5.058	5.089	0.28 %	N/A	N/A
Table, %	61.58	To Do	61.55	61.62	0.07	N/A	N/A
Crown angle, °	32.93	To Do	32.82	33.09	0.27	EX	EX
Pavilion angle, °	41.39	To Do	41.00	41.76	0.76	EX	EX
Star length, %	49.80	To Do	48.81	51.12	2.31	N/A	N/A
Lower girdle length, %	77.75	To Do	74.69	79.98	5.29	EX	N/A
Girdle bevel, %	5.60	To Do	5.08	6.24	1.16	GD	EX
Girdle valley minimum, %	3.61	To Do	—	—	—	N/A	—
Girdle valley maximum, %	4.67	To Do	—	—	—	N/A	—
Girdle bone, %	5.82	To Do	5.27	6.43	1.16	—	N/A
Culet, %	0.56	To Do	0.51	0.59	0.08	EX	N/A
Crown painting, °	0.41	To Do	—	0.74	0.66	N/A	N/A
Pavilion painting, °	0.14	To Do	—	0.79	1.42	N/A	N/A
Sum painting, °	0.55	To Do	—	—	—	N/A	—
Crown height, %	12.52	To Do	12.17	12.96	0.78	EX	EX
Pavilion height, %	43.56	To Do	43.16	43.89	0.72	—	EX
Total height, %	61.68	To Do	—	—	—	EX	—
Total height, mm	3.122	To Do	—	—	—	—	—
Table offset, %	0.46	To Do	—	—	—	EX	—
Culet offset, %	0.35	To Do	—	—	—	N/A	—
Table-culet offset, %	0.32	To Do	—	—	—	N/A	—
Star angle, °	18.92	To Do	18.71	19.15	0.44	—	N/A
Upper girdle angle, °	39.75	To Do	39.56	39.96	0.40	—	N/A
Lower girdle angle, °	42.44	To Do	42.05	42.81	0.76	—	N/A
Facet twist, °	1.17	To Do	0.33	2.13	1.80	—	N/A
Junction bevel twist, °	1.22	To Do	0.95	1.53	0.58	—	—
Junction bone twist, °	1.32	To Do	0.99	1.83	0.84	—	N/A
Malalignment (ALA), °	1.63	To Do	—	—	—	N/A	—
2°radius roundness, %	—	To Do	—	—	—	—	EX
15°	0.28	To Do	—	—	—	—	EX
22.5°	0.29	To Do	—	—	—	—	EX
30°	0.29	To Do	—	—	—	—	EX
45°	0.32	To Do	—	—	—	—	EX
90°	0.37	To Do	—	—	—	—	EX
Mount table edge, %	22.75	To Do	22.22	23.40	1.18	—	—
Table edge (TEV), %	23.71	To Do	23.15	24.17	1.03	—	N/A
Table edge junction, %	0.68	To Do	0.60	1.26	0.66	—	—
Table angle, °	135.8	To Do	134.4	136.5	1.1	—	—
Bezel width, %	28.80	To Do	28.17	29.33	1.16	—	—

This feature is currently available only in the reports for Round brilliant and Any cut.

### Rotating selected facet to door

Selected facet may be rotated to the door. To select a facet, use the clickable fields in the Standard report (see above).

Stone ID: D-21474-001

Shadow scan

Pump

Rotate to Door:

First Facet

Selected Facet

Print

Save

Report

### Configurable shortcuts

Shortcuts are made configurable.  
[blocked URL](#)

### Explanatory tooltips

Parameters in MyAppraiser are now accompanied with illustrated definitions which are shown in a tooltip upon demand.

Models

	Model	Mass	m	Gr	Cut	Sym
✓	Imported model	0.5083		GD	GD	VG

Scan & Build

Edit main scan:

Cuttings:

Brilliant

P-O-M-H-R

StepCut

Emerald

Cushion

Sample: None

Princess

AnyCut

Asian Star

Polish Polyhedron

Rough Polyhedron

Load Sample

Stone ID:

Hardware not connected

Print

Save

Report

Rebuild

Refine Pavilion

Refine Crown

GIA Facetware + MyGIA

Profile: MyGIA\_Profile1

Show Presets

Cut

Symmetry

Parameter	Value	[ FR ]	[ GD ]	[ VG ]	[ EX ]	[ EX ]	VG ]	GD ]	FR ]
Table	61.575	10	46.5	49.5	51.5	62.5	66.5	69.5	99
CrownAngle	32.925	10	21.75	26.25	31.25	36.75	38.75	40.25	90
PavilionAngle	41.386	10	38.7	39.7	40.5	41.9	42.5	43.1	90
StarLength	49.797	10	32.5	37.5	42.5	67.5	72.5	77.5	90
LowerGirdleLength	77.748	50	57.5	62.5	67.5	87.5	92.5	97.5	99
GirdleBezel	5.598	0	1.25	1.75	2.25	4.75	5.75	7.25	20
GirdleValley	3.611	0	0	0	0.75	2.94	4.14	6.14	20
CrownHeight	12.523	5	10.5	12	12.3	15.5	17.5	18.5	40
TotalHeight	61.67	10	54	57	58	62.5	64	66	90
Culet	0.563	0	0	0	0	1	1.5	2	20
CrownPainting	0.407	-9	-6	-3	-2.5	2.5	5	7	20
PavilionPainting	0.143	-9	-5	-3	-2.5	2.5	4	6	20
SumPainting	0.55	-9	-6	-5	-3.5	5	8	10	20
GirdleAngleMax	4.181	0	0	0	0	2	4	6	20

Scanner mode made default

HPOxygen is set to switch to Scanner view mode automatically, if started on a project without model and with hardware available.

Smart Recut

# Smart Recut for Oval

Smart Recut can now perform optimization of two cutting types: Round brilliant and Oval.

Each cutting type must be used with the dedicated appraiser: MyRound (formerly MyGIA) and MyOval, correspondingly.

To use SmartRecut with Oval as a target, follow these steps:

1. Select the appraiser called **MyOvalOpt | MyOval**:

A screenshot of a software interface showing a dropdown menu for selecting an appraiser. The menu is open, displaying a list of options. The option 'MyOvalOpt | MyOval' is highlighted with a green box. Other visible options include 'HRD + Fancy | HRD + Fancy', 'HRD + Fancy(OctoNus) | HRD + Fancy(OctoNus)', 'HRD | HRD', 'HRD\_010109 | HRD\_010109', 'HRD\_H&A\_Boundaries | HRD\_H&A', 'IGI\_JAN09 | IGI\_JAN09', 'LEXUS\_All\_In\_One\_Boundaries | All\_In\_One', 'LEXUS\_SPEED\_03MAY07 | LEXUS\_SPEED\_03MAY07', and 'Lexus\_Opt\_12FEB2011 | Lexus\_Opt\_12FEB2011'. Below the dropdown, there are fields for 'Appraiser:', 'Profile:', and 'Pricelist:'. The 'Appraiser:' field also shows 'MyOvalOpt | MyOval'.

2. Run the ordinary Recut with cutting type set to Oval (specifically, Oval\_WBT\_C32\_G64\_P24):

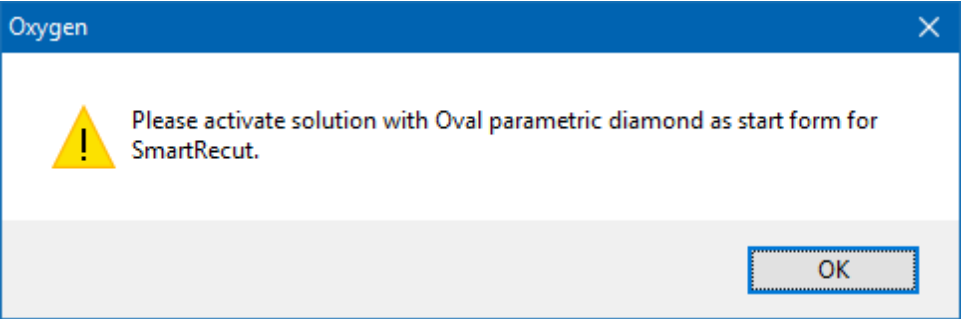
A screenshot of a dialog box titled 'Select algorithm and diamonds for allocation.' The 'Algorithm' dropdown is set to '13. Single-M'. The 'Cutting list' dropdown is open, showing 'Oval' selected. The 'grade of 1st diam:' dropdown is set to 'EX'. At the bottom, there are buttons for 'Run', 'Diamond', and 'Results'. Below the dialog box, there is a separate 'Cutting list' section showing 'Oval' and 'Oval\_WBT\_C32\_G64\_P24' with a checkmark.

3. Select the obtained solution and switch to the algorithm **13. SmartRecut (Brilliant, Oval)**:

A screenshot of the same dialog box, but the 'Algorithm' dropdown is now set to '13. SmartRecut (Brilliant, Oval)'. The 'Cutting list' dropdown is still open, showing 'Oval' and 'Oval\_WBT\_C32\_G64\_P24'. The 'grade of 1st diam:' dropdown is still set to 'EX'. The 'All presets' dropdown is also visible, set to 'All presets'. The 'symmetry:' dropdown is set to 'EX'.

If the appraiser doesn't match the cutting type of the starting solution, a warning message will pop up:





4. Click **Run**. A series of eight solutions will be produced, according to presets.

Smart Recut for Oval relies on its own presets, which have the same overall meaning as those for Brilliant, but use a different set of parameters.

Cut	Symmetry									
Parameter	Grade	Value	[ FR	[ GD	[ VG	[ EX	EX ]	VG ]	GD ]	FR ]
GirdleRatio	EX	1.396	1.1	1.25	1.28	1.3	1.4	1.45	1.5	2.25
SquareDeviation	EX	2.991	-10	-5	-3	-1.5	3	6	9	14
Table	EX	57.113	50	52	52	54	63.5	65	67	70
CrownAngle	EX	35.996	28	30	31	32	36	38	40	45
CrownHeight	EX	15.963	8	10	11	12	16	17	18	20
PavilionAngle	EX	41.995	35	39	40	40.5	42	43	44	48
PavilionHeight	EX	43.929	34	40.4	41.7	42.5	45	46.6	48.3	55.5
GirdleBezel	EX	4.422	1.6	1.8	2	2.2	4.5	5.5	6.5	9
LowerGirdleLength	EX	77.008	50	65	70	77	82	85	90	99
TotalHeight	EX	64.313	50	55	56.5	58	64.5	67	69.5	75
Culet	EX	1.056	0	0	0	0	1.2	2	2.5	3.5

Smart Recut for Oval is currently incompatible with the options of Extra Facet (see below) and Fixed Girdle.

Smart Recut with Extra Facets

SmartRecut with Extra Facets is now available.  
To allow the solutions having this feature, check **Allow Girdle Extra Facets** on the Recut panel before running Smart Recut:

Select algorithm and diamonds for allocation.

Algorithm13. SmartRecut (Brilliant, Oval)

All presets

☒ Allow Girdle Extra Facets

☐ Fix Girdle

☐ Fix Crown

☐ Fix Pavilion

grade of 1st diam:

EX

symmetry:

EX

 Note that extra facets are incompatible with the option of fixed parts (Fixed Girdle, etc.)



The number of extra facets and their maximum height are introduced as parameters in MyAppraiser.

GirdleAngleMax	EX	0	0	0	0	0	2	4	6	20
HeightGirdleExtraFacet	EX	0	0	0	0	0	5	6	7	20
GirdleCrownExtraFacets	EX	0	0	0	0	0	0	2	4	20
GirdlePavilionExtraFacets	EX	0	0	0	0	0	1	2	6	20
GirdleExtraFacets	EX	0	0	0	0	0	2	4	8	20

Smart Recut in multi-diamond solutions

Smart Recut in multi-diamond solutions is improved.

Reports

Label reports

Label report processing is updated. Custom label reports from previous versions of HPOxygen, if any, may be displayed incorrectly.

Correct

Print Label Settings

Printer:  
Send To OneNote 2013  
Online

Cutting:  
Brilliant

Template:  
CUSTOM\_LABEL\_REPORT.HTML  
LABEL\_REPORT\_FOR\_ANY\_CUT.HTML  
LABEL\_REPORT\_FOR\_BRILLIANT.HTML

Parameter	Avg	Min	Max	Dev
Diameter	5.062	5.056	5.069	0.013
Crm angle	32.93	32.82	33.09	0.27
Crm hgt	12.52	12.17	12.96	0.78
Star, %	49.80	48.81	51.12	2.31
Pav angle	41.39	41.00	41.76	0.76
Pav dpth	43.56	43.16	43.89	0.72
Pav halv, %	77.75	74.69	79.98	5.29
Girdle, %	5.60	5.08	6.24	1.16
Table, %	61.58	61.55	61.62	0.07
Star ang	18.92	18.71	19.15	0.44

Culet, %  
0.56

Tot. hgt, %  
61.68

Tot. hgt, mm  
3.122

Weight, ct  
0.50

G-C off, %  
0.35 ± 0.14

G-T off, %  
0.46 ± 0.11

T-C off, %  
0.32 ± 0.15

Brilliant  
diamond\_00005  
10.04.2017 18:22

Enhanced precision: 0 digits  
Hide Preview  
Print Report  
OK  
Cancel

Incorrect

Print Label Settings

Printer:  
HP 1600N (HP LaserJet Professional P1606dn)  
Online

Cutting:  
Brilliant

Template:  
CUSTOM\_LABEL\_REPORT.HTML  
LABEL\_REPORT\_FOR\_ANY\_CUT.HTML  
LABEL\_REPORT\_FOR\_BRILLIANT.HTML

Parameter

Av

Diameter,

mm

Table, %

0.56

61.68

3.122

0.50

0.35 ± 0.14

0.46 ± 0.11

0.32 ± 0.15

Enhanced precision: 0 digits  
Hide Preview  
Print Report  
OK  
Cancel

Precision controls

Standard report is enabled with a precision control that allows producing reports with enhanced precision of up to 3 extra decimal digits.

Standard Report

Settings

Print...

Quick Print

Cutting:  
Oval

Template:  
Standard Report for rounded fancies

Enhanced precision: 0 digits

Label report is also enhanced with a similar control.

Print Label Settings

Printer:

Send To OneNote 2013  
Online

Cutting:

Oval

Template:

LABEL\_REPORT\_FOR\_ROUNDED\_FANCIES.HTML

LABEL\_REPORT\_FOR\_ANY\_CUT.HTML

LABEL\_REPORT\_FOR\_OVAL\_MARQUISE.HTML

Enhanced precision: 0 digits

Hide Preview

Print Report

OK

Cancel

Lower Facet Length for Cushion

Lower Facet Length parameter is added for Cushion cuts.

It is defined as the projected distance from the junction of the main pavilion facets to the corresponding side of the girdle, and reported separately for all four sides.

Reported in	Section	Values	Units	Bookmarks
Full Report for Cushion	Main Parameters	Avg, Min, Max, Dev at each direction	Both %(diameter) and mm	LOWER_FACET_LENGTH_0_AVG, LOWER_FACET_LENGTH_0_MIN, LOWER_FACET_LENGTH_0_MAX, LOWER_FACET_LENGTH_0_DEV, LOWER_FACET_LENGTH_90_AVG, LOWER_FACET_LENGTH_90_MIN, LOWER_FACET_LENGTH_90_MAX, LOWER_FACET_LENGTH_90_DEV, LOWER_FACET_LENGTH_180_AVG, LOWER_FACET_LENGTH_180_MIN, LOWER_FACET_LENGTH_180_MAX, LOWER_FACET_LENGTH_180_DEV, LOWER_FACET_LENGTH_270_AVG, LOWER_FACET_LENGTH_270_MIN, LOWER_FACET_LENGTH_270_MAX, LOWER_FACET_LENGTH_270_DEV
	Detailed Parameters	Individual values (2 at each direction)	Both %(diameter) and mm	LOWER_FACET_LENGTH_0_1, LOWER_FACET_LENGTH_0_2, LOWER_FACET_LENGTH_90_1, LOWER_FACET_LENGTH_90_2, LOWER_FACET_LENGTH_180_1, LOWER_FACET_LENGTH_180_2, LOWER_FACET_LENGTH_270_1, LOWER_FACET_LENGTH_270_2

Crown Main Width and Crown Main Length facets for Cushion

For a non-standard Cushion cut having four Crown Main Width and four Crown Main Length facets, all four individual measurements for their slopes, azimuths, and heights are now reported.

Reported in	Section	Values	Units	Bookmarks
Full Report for Cushion	Detailed Parameters	Individual values #3, 4	°	CRN_MAIN_WIDTH_ANGLE_DEG_3, CRN_MAIN_WIDTH_ANGLE_DEG_4, CRN_MAIN_WIDTH_AZIMUTH_DEG_3, CRN_MAIN_WIDTH_AZIMUTH_DEG_4, CRN_MAIN_WIDTH_HEIGHT_PC_3, CRN_MAIN_WIDTH_HEIGHT_PC_4, CRN_MAIN_WIDTH_HEIGHT_MM_3, CRN_MAIN_WIDTH_HEIGHT_MM_4, CRN_MAIN_LENGTH_ANGLE_DEG_3, CRN_MAIN_LENGTH_ANGLE_DEG_4, CRN_MAIN_LENGTH_AZIMUTH_DEG_3, CRN_MAIN_LENGTH_AZIMUTH_DEG_4, CRN_MAIN_LENGTH_HEIGHT_PC_3, CRN_MAIN_LENGTH_HEIGHT_PC_4, CRN_MAIN_LENGTH_HEIGHT_MM_3, CRN_MAIN_LENGTH_HEIGHT_MM_4

*Note that the Avg, Min, Max, and Dev values for these parameters were already calculated correctly before this change. All four individual measurements were taken into account. Also, the missing measurements were correctly displayed on the pictures.*

Miscellaneous


1. Tolerance thresholds (modelEps, girdleEps) are now correctly interpreted during import of models from \*.mmd files.

Usage of non-default values of these thresholds in HP Pacor could lead to different model built from the same contours, as compared to HPOxygen.

2. Inclusion clarity can now be set in HPO.

Bugfixes

- 1. Memory leaks are fixed and memory consumption improved.
- 2. HASP messages after the Demo license ends are fixed.
- 3. Erroneous discount for fancy cuts is fixed.
- 4. Capture of focus upon hovering mouse cursor over a 3D scene is fixed.
- 5. Bug that prevented the usage of Smart Recut with fixed parts (Fixed Girdle, etc.) is resolved.

 Note that Smart Recut with fixed parts can't be used in multi-diamond solutions.

- 6. Bug that occasionally prevented SmartRecut from working in multi-diamond solutions is fixed.
- 7. Erroneous estimation of camera FPS is fixed.
- 8. Failure to refine models with acute angle between adjacent facets is fixed.
- 9. Bug that caused occasional false positives in stone shift check for large stones having facets with low slopes is fixed.