2016-08-11 - HPOxygen Server Beta 3.20.7

Release contains:

File	Version	Release date
InstallHPOxygenServerBeta3.20.7.exe	Server Beta 3.20.7	11.08.2016

Shadow Scan

Model Building Info

Introduction

Model Building Info panel displays the building info, which describes the precision of the built model based on calculated difference between the model and the scanned contours.
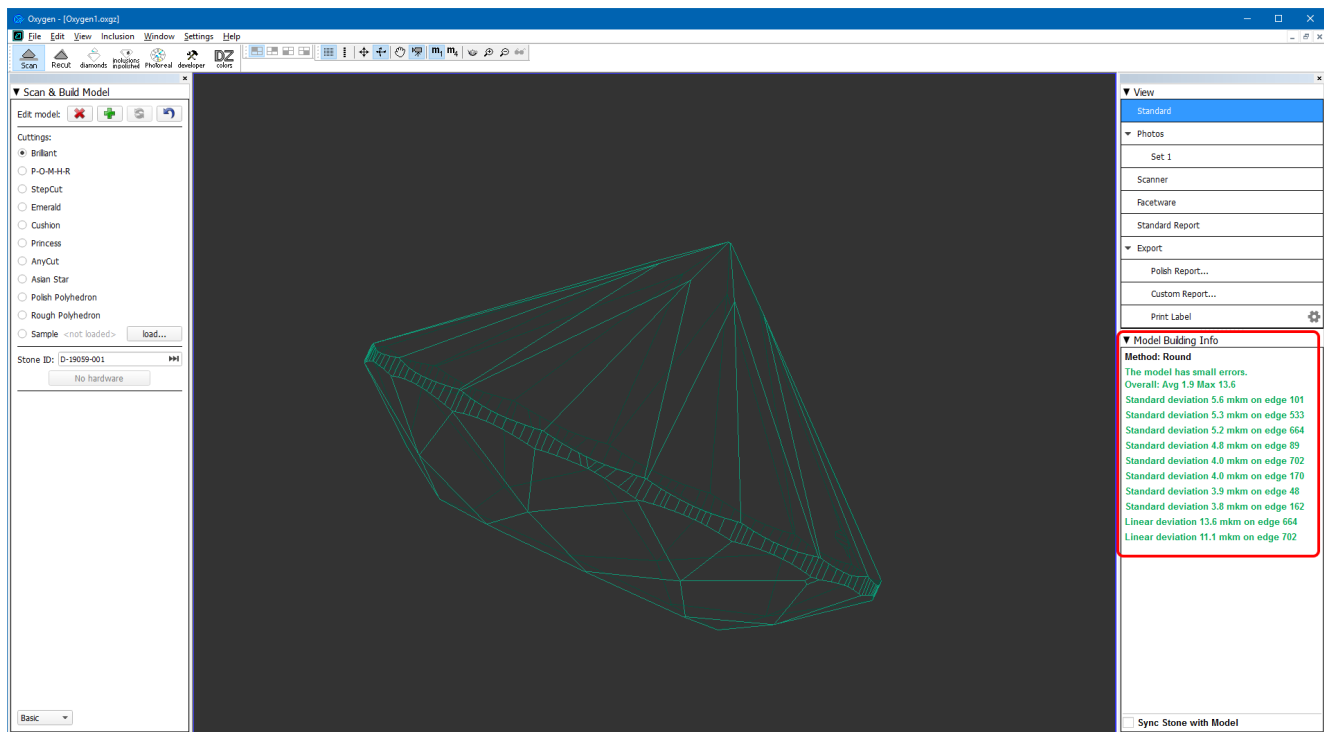
Normally, any scan would contain its own building info attached, and the information on the **Model Building Info** panel would update as soon as the scan in is selected in **Plans & Scans**.

⚠ Scanned models prepared in the older versions of HPOxygen may lack the building info.

Model building details

Model Building Info panel contains the header referring to the overall model quality, followed by the lines that describe individual problem spots. Lines are color-coded according to the severity of the errors they signify (red-yellow-green, from highest to lowest). Errors in the girdle area are listed separately and colored in gray.
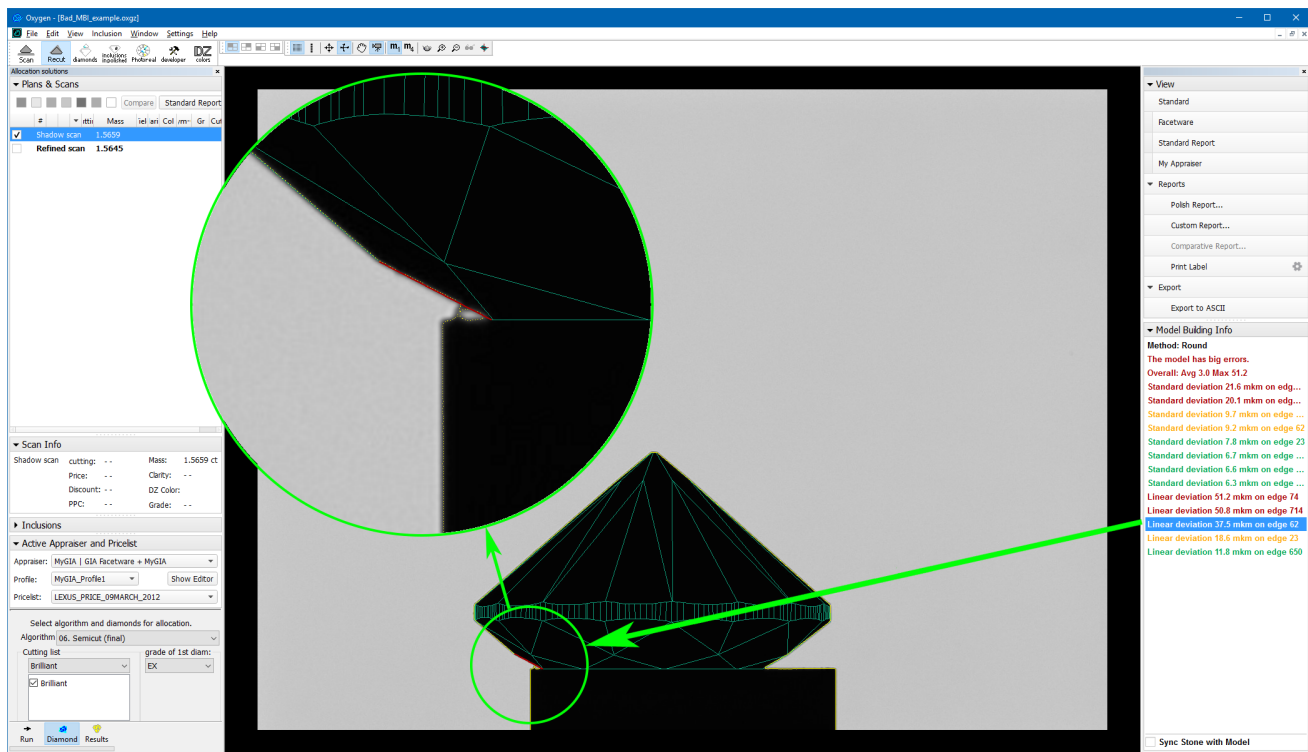
Model Building Info

Method: Round
The model has big errors.
Overall: Avg 3.0 Max 51.2
Standard deviation 21.6 mkm on edge 714
Standard deviation 20.1 mkm on edge 74
Standard deviation 9.7 mkm on edge 650
Standard deviation 9.2 mkm on edge 62
Standard deviation 7.8 mkm on edge 23
Standard deviation 6.7 mkm on edge 726
Standard deviation 6.6 mkm on edge 415
Standard deviation 6.3 mkm on edge 728
Linear deviation 51.2 mkm on edge 74
Linear deviation 50.8 mkm on edge 714
Linear deviation 37.5 mkm on edge 62
Linear deviation 18.6 mkm on edge 23
Linear deviation 11.8 mkm on edge 650

Overall quality — Method: Round, The model has big errors, Overall: Avg 3.0 Max 51.2

Individual spots — the standard deviation and linear deviation lines

Linear deviation is the maximum deviation of an edge from the corresponding contour.

Standard deviation is the averaged (root-mean-square) deviation of an edge from the corresponding contour.

Visualization features

Each of the lines related to the individual spots in the **Model Building Info** panel is a link. Pressing such a link while viewing the model in the photo mode would orient the model so as to display the corresponding contour. The matching photo is also shown. The problem edge is highlighted in the same color as the corresponding line in the **Model Building Info** panel.

ℹ️ Note that the shadow contours are now displayed as dotted yellow lines.

If the photo shows evident signs of dirt, the user is advised to clean the stone and run the scan again. To facilitate this, enable the **Sync Stone with Model** check box, which makes the stone on the scanner to be oriented simultaneously with the model.

Model Building Info

Method: Round
The model has big errors.
Overall: Avg 3.0 Max 51.2
Standard deviation 21.6 mkm on edge 714
Standard deviation 20.1 mkm on edge 74
Standard deviation 9.7 mkm on edge 650
Standard deviation 9.2 mkm on edge 62
Standard deviation 7.8 mkm on edge 23
Standard deviation 6.7 mkm on edge 726
Standard deviation 6.6 mkm on edge 415
Standard deviation 6.3 mkm on edge 728
Linear deviation 51.2 mkm on edge 74
Linear deviation 50.8 mkm on edge 714
Linear deviation 37.5 mkm on edge 62
Linear deviation 18.6 mkm on edge 23
Linear deviation 11.8 mkm on edge 650

✓ Sync Stone with Model

Color encoding

Color encoding of the errors implies the following recommendations:

Message color	Error rate	Description and recommendation
The model has small errors **Standard deviation** **Linear deviation**	Small error	Edge is most probably built properly and there is no need to re-check in a routine study. In case of a high-precision investigation, further analysis may be required.
The model has medium errors **Standard deviation** **Linear deviation**	Medium error	Edge may or may not be built properly. It is recommended to check for the error reason.
The model has big errors **Standard deviation** **Linear deviation**	Big error	Edge is probably built incorrectly because of dust or another reason. Must be checked.

Girdle deviation	-	Girdle edge could contain dust. It is strongly recommended to check. Dust on girdle can result in wrong diameter value.

Each error line is colored according the magnitude of the error it describes. The thresholds of various colors depend on the hardware model, as shown below.

Scanner\Status	Average model error (Avg)			Standard deviations of edges (Standard deviation)			Maximal deviations of edges (Linear deviation)		
	small, mkm	medium, mkm	big, mkm	small, mkm	medium, mkm	big, mkm	small, mkm	medium, mkm	big, mkm
HP4.4D(1:1) pixel ~ 3.2 mkm	< 3.3	3.3 - 6.6	> 6.6	< 4.95	4.95 - 9.9	> 9.9	< 9.9	9.9 - 19.8	> 19.8
HP8.5D(1:1) pixel ~ 6.4 mkm	< 4.1	4.1 - 8.2	> 8.2	< 6.15	6.15 - 12.3	> 12.3	< 12.3	12.3 -24.6	> 24.6
HP17D(1:2) pixel ~ 12.7 mkm	< 5.675	5.675 - 11.35	> 11.35	< 8.51	8.51 - 17.03	> 17.03	< 17.025	17.025 - 34.05	> 34.05
HP23ProD(1:2) pixel ~ 14.8 mkm	< 6.2	6.2 - 12.4	> 12.4	< 9.3	9.3 - 18.6	> 18.6	< 18.6	18.6 - 37.2	> 37.2
HP34D(1:4) pixel ~ 25.4 mkm	< 8.85	8.85 - 17.7	> 17.7	< 13.28	13.28 - 26.55	> 26.55	< 26.55	26.55 - 53.1	> 53.1
HP47ProD(1:4) pixel ~ 29.8 mkm	< 9.95	9.95 - 19.9	> 19.9	< 14.93	14.93 - 29.85	> 29.85	< 29.85	29.85 - 59.7	> 59.7

Models management

Management of models on the **Plans & Scans** panel has changed significantly. The concept of "Active Scan" is made obsolete.

It is possible to have multiple Shadow and Refined scans simultaneously. They stay in the list on equal terms with the other models.

Main Scan

One of the scans is considered the Main Scan. Its name in the list is emphasized with bold font and (only when selected together with another model) green background.

All manual edits scans take the current Main Scan model as the initial approximation and produce new Refined scans.

Recut solutions search uses the current Main Scan model as the original.

Any scan can be made the Main Scan by right-clicking it in the list and selecting **Set as Main Scan**:
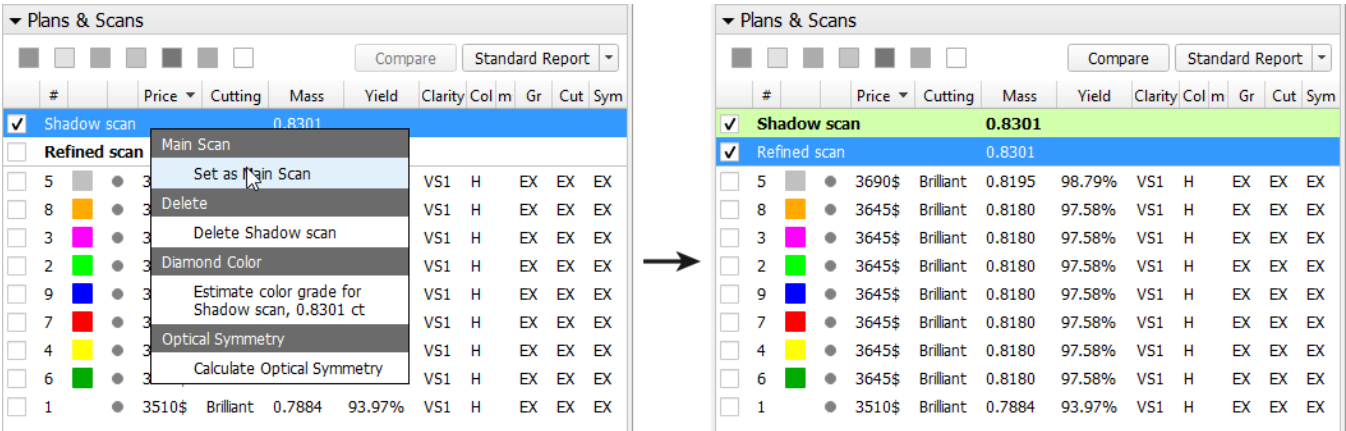
Selecting models

Any model can be selected for viewing. Moreover, any combination of models may be selected simultaneously and viewed together in different colors (assigned automatically). For more details on selection interface, see below.
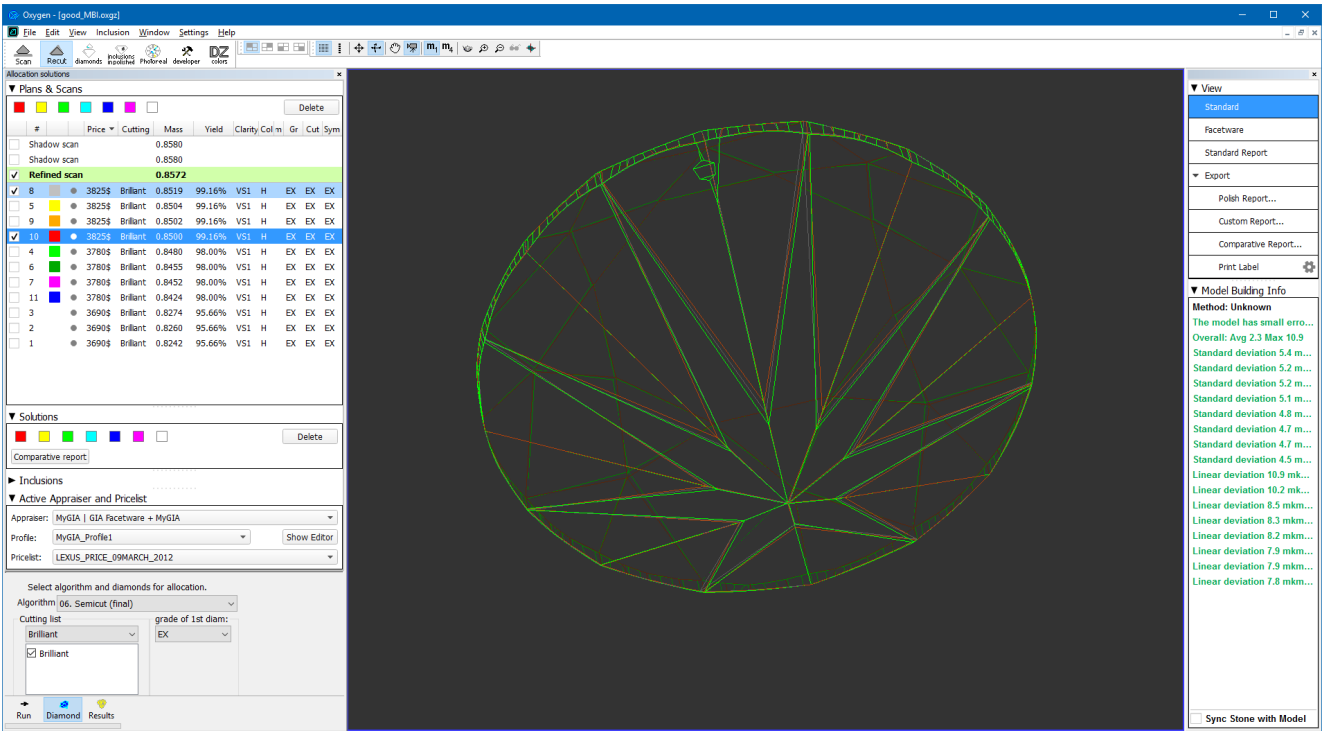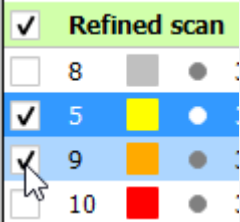

When a recut solution is selected, the Main Scan is selected too (unless the user deselects it explicitly by unchecking its check box).

The last selected model is designated *current* model and marked with dark blue background.

The selection behavior is summarized in the table below:

	Scan (including the Main Scan)	Solution
Click	If this is the current model: does nothing. Otherwise: selects it, makes it current, and deselects the rest.	If this is the current model: does nothing. Otherwise: selects it, makes it current, selects also the Main Scan, and deselects the rest.

Ctrl + Click or Click on the check box	If this is the current model: does nothing. Otherwise: toggles selection of this model, not resetting the current and not affecting the rest.	
Shift + Click	If this is the current model: does nothing. Otherwise: selects all models in the list between this and the current model (inclusive), and makes this model current.	
Arrow keys (Up / Down)	Selects the model one step up or down in the list from the current one, makes it current, and deselects the rest.	Selects the model one step up or down in the list from the current one, makes it current, selects also the Main Scan, and deselects the rest.

Any model except the Main Scan (see above) can be deleted from the list by pressing **Delete** on the keyboard or selecting **Delete model** in the context menu.

Default Precision

Now HPOxygen stores the most recent precision setting for each particular cutting type. The stored precision setting is applied automatically whenever the cutting type selection is changed. In a typical workflow it is recommended to scan round brilliants at 400 contours and Princess cuts with 800 contours, since the latter cutting contains more facets with nearly similar orientation which require higher precision to resolve.

Note that you may also enter custom number of contours. This requires switching the panel to **Advanced** mode with the dropdown switch down below:

Rotate first facet to the door

In the HPOxygen Shadow Scanner hardware configuration, the **Scan & Build** panel contains a button **Rotate First Facet to Door**. When pressed, it would orient the stone in the scanner so as to face the operator with the first facet, i.e. the one which is set to zero azimuth in the Polish report, thus facilitating further operations (marking the facet, etc).

> ⚠ Note that in HPOxygen Server Beta 3.20.7 this button is called **Rotate to Zero Azimuth**. This will be fixed in the next release.
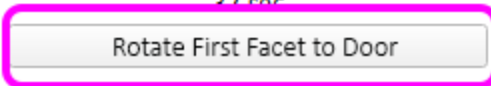
The button is initially inactive and becomes enabled after scanning.

ASCII export

To export a model in ASCII format, select the model in **Plans & Scans** and press the **Export to ASCII** button on the right panel.
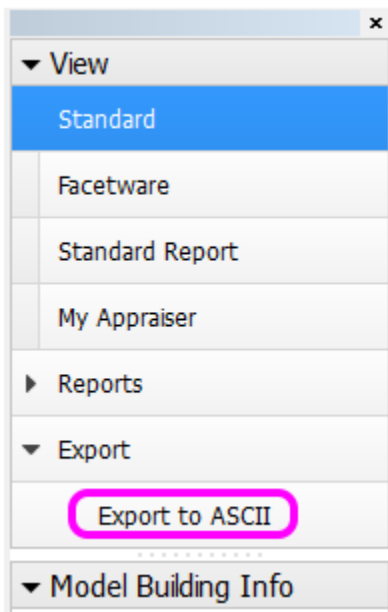
> ⚠ Note that the model is exported in the same orientation as in its own Polish report, which is generally different from the orientation in which it was scanned.

After you specify the location, a file with the model will be saved:

```
GemCad 5.00
g 360 0.0
y 1 n
I 2.42
H OEDF OctoNus Extension Data Format 1.0
H OEDF StoneId = D-19059-001
H OEDF BalanceWeight = 0.00
H OEDF CorrectedMass = 0.00000
H OEDF ShapeCategory = RBC
H OEDF Pavilion = 24
H OEDF Crown = 33
a 0.112384 2.48158691 295.41291896
a 40.648592 1.88942269 0.00000000 270.70744631
a 40.648592 1.88838615 315.89990908
a 40.681433 1.89073693 45.28088119
a 40.738046 1.89173639 90.85743133
a 40.861434 1.88578237 225.13089661
a 40.893296 1.88823411 135.74992406
a 40.948562 1.88543799 180.14998483
a 41.820363 1.90065749 304.82903463
a 41.838818 1.90192708 11.18952718
a 41.871350 1.90052199 281.77832076
a 41.912584 1.89998662 326.97078398
a 41.927758 1.90149046 34.21000676
a 41.952993 1.90248325 259.19090994
a 41.969787 1.90455277 79.76089980
a 41.974111 1.90443153 56.85020157
a 41.993555 1.90030802 348.43067965
a 42.044845 1.90003976 236.20177108
a 42.069167 1.90418260 102.42675170
a 42.172973 1.90199759 124.22924839
a 42.169921 1.89981490 146.82079849
a 42.174452 1.89864613 191.30757789
a 42.187292 1.89795012 214.06002212
a 42.228766 1.89797153 169.07911040
a 88.000203 2.99231823 59.73332999
a 88.000206 2.99155041 260.63368878
a 88.000224 2.99031322 237.96946555
```
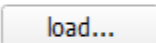
```
a  88.000222  2.98786964  217.10658340
a  88.000241  2.98746048  280.70518494
a  88.000221  2.98734340  145.78004146
a  88.000201  2.98711703  36.45277980
a  88.014191  2.99710978  54.90176692
a  88.082963  2.98504707  171.45932874
a  88.117151  2.99169555  11.16085502
a  88.198130  2.99227164  189.51511044
a  88.407721  2.99884253  81.75240298
a  88.824862  2.99647706  116.22015877
a  89.002808  2.98829670  156.04972081
a  89.088029  2.99997462  307.88286685
a  89.112462  2.98948000  158.39427684
a  89.136114  2.99980566  127.22870225
a  89.128003  2.99698130  109.39090322
a  89.710880  3.00266557  14.17544167
a  89.753319  2.99502080  150.84325669
a  89.812695  2.99855569  64.40404388
a  89.826128  3.00081535  351.87544171
a  89.831054  2.99591479  348.14334122
a  89.846314  2.99936904  339.29325601
a  89.872804  2.99797301  199.25976853
a  89.923746  3.00089815  336.99094412
a  89.930322  2.99742090  244.47035271
a  89.946647  2.99769888  296.30651580
a  89.965436  3.00203891  302.93595150
a  89.975047  3.00141025  71.44538497
a  89.978543  2.99978916  291.54554860
a  89.992405  3.00044066  285.31120146
a  89.989377  2.99628082  22.37561064
a  -89.997007  2.99618169  22.92905626
a  -89.915928  2.99804751  251.67176378
a  -89.832792  2.99534357  228.53036043
a  -89.794710  2.99229485  207.58597206
a  -89.632641  2.99503952  222.64591089
a  -89.475618  3.00718945  77.47221599
a  -89.453057  3.00453448  122.18160738
a  -89.419267  3.00241996  194.66263761
a  -89.132539  3.00268148  359.66692896
a  -89.015533  3.00121413  2.33467314
a  -88.879550  2.99532919  167.84652083
a  -88.837640  3.00933898  104.06628574
a  -88.738151  2.99852646  33.45042652
a  -88.579703  3.01015894  100.63454533
a  -88.538051  3.00323938  132.87109647
a  -88.432261  3.00478524  94.92210538
a  -88.366293  3.00148809  47.66107967
a  -88.334894  3.00187264  138.44657760
a  -88.228751  3.00056837  183.06458888
a  -88.181908  3.00159018  317.98100517
a  -88.183318  3.00117919  43.40852727
a  -88.133450  2.99660878  268.22592004
a  -88.112816  3.00705729  87.28508672
a  -88.037812  3.00889801  330.75739435
a  -88.000403  3.00715998  325.88120200
a  -88.000239  3.00696592  257.64067771
a  -88.000252  3.00572857  235.62132899
a  -88.000201  3.00245927  313.63329455
a  -88.000206  3.00093298  177.87398656
a  -88.000233  2.99993436  212.42348977
a  -88.000200  2.99864209  271.56131408
a  -43.750968  2.26584616  283.01903088
a  -43.741140  2.25517750  32.96929656
a  -43.422888  2.26704513  213.71774562
a  -43.411229  2.25630654  167.83840024
a  -43.391539  2.25611542  303.58832463
a  -43.363926  2.24671717  12.31158432
a  -43.349335  2.24953238  348.47167996
a  -43.296772  2.25433948  327.78646424
a  -43.273713  2.26627390  237.44248068
a  -43.252300  2.26095739  259.29429581
```

```
a -43.116265  2.25688263  78.57541310
a -43.051736  2.24669543  56.69403167
a -43.010760  2.25623173  191.56313538
a -42.982864  2.24575291  147.67370725
a -42.751068  2.25285202  102.27058181
a -42.751068  2.24945111  124.33677355
a -35.925140  2.02187595  45.08090114
a -35.865699  2.03046445  270.90742633
a -35.839509  2.01654493  0.19997978
a -35.666022  2.03034198  225.33087617
a -35.655268  2.02421973  179.95000479
a -35.653106  2.01973448  315.69992910
a -35.492555  2.01867481  135.94990409
a -35.475185  2.02415945  90.65745129
a -23.498385  1.78634820  337.95095812
a -23.066523  1.78479179  113.19309609
a -23.039530  1.78676892  202.44298322
a -22.990865  1.78296372  293.12262611
a -22.968454  1.78007145  157.58269420
a -22.973071  1.77601870  22.80731791
a -22.787051  1.78251492  247.73313032
a -22.791855  1.77962179  67.80359822
a 0.000000  -1.26873560  0.00000000
```

Green Frame

In **Scanner** mode a green frame is shown which denotes the viewing field limits of the scanner.
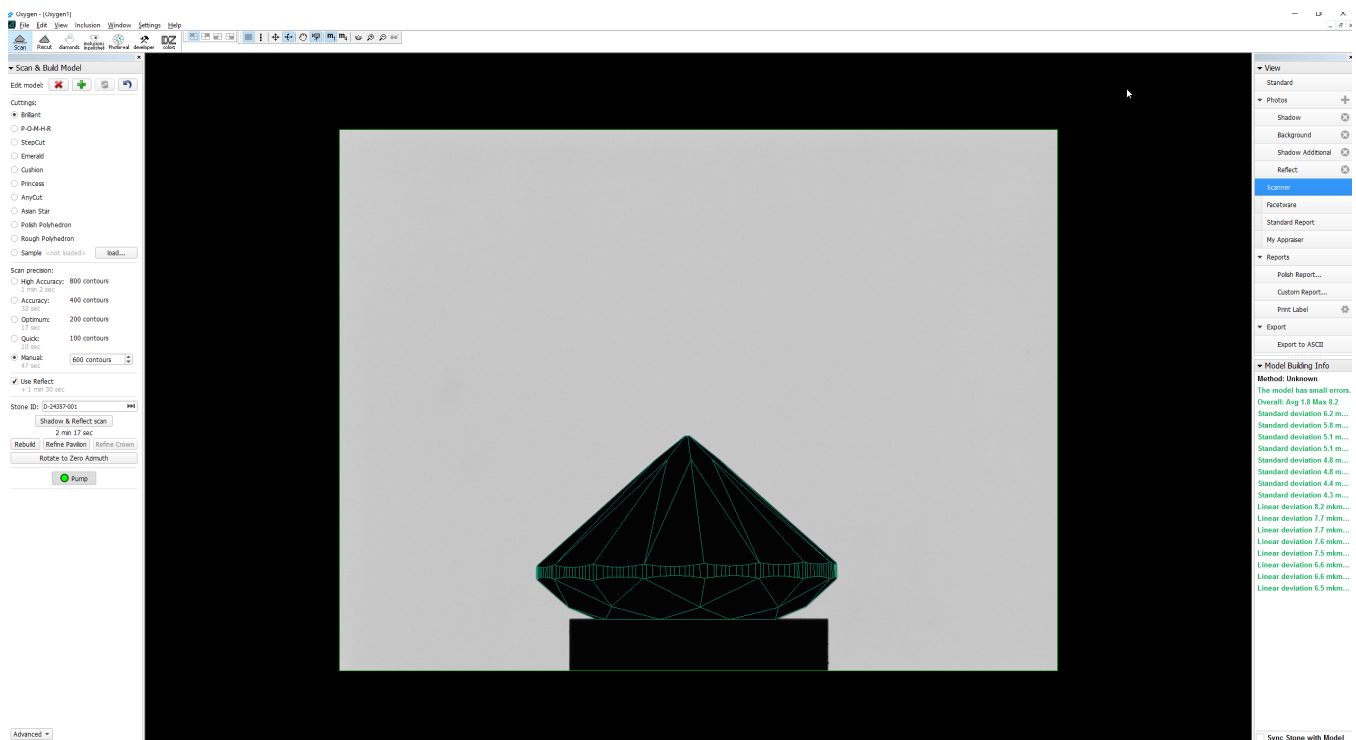
ⓘ The main purpose of **Scanner** mode is to show the camera view, that is, the image observed by the camera in real time.

Reports

Standard Report

Standard report is a new kind of report. Unlike other reports, it does not rely on external programs for viewing, and opens up in a special panel within HPOxygen.

To display the Standard report, press **Standard report** on the right pane.
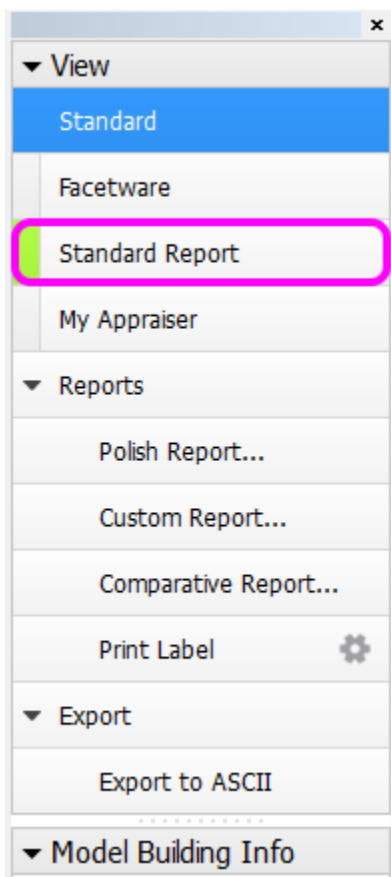
Standard report contains the GIA grades and parameter values rounded by common rules. The values rounded according to GIA rules will be added in the future versions.

Groups of parameters are color-coded for easier reading.

Standard Report   ✕

Cutting Type: Brilliant ▼

Template: Standard Report for brilliant ▼

Cutting type	Brilliant	Model	N/A
Spread	-0.03 ct, -3.73 %	Model mass, ct	0.82
Cut appraiser	GIA Facetware	Cut grade	EX
Symmetry appraiser	GIA Facetware	Sym grade	EX
Model building info	N/A	Final grade	–

| Parameter	Avg	GIA Rounded	Min	Max	Dev	Cut	Sym
Diameter, mm	5.992	To be done	5.967	6.004	0.63 %	–	EX
Table, %	56.46	To be done	56.27	56.55	0.28	EX	EX
Crown angle, °	35.35	To be done	35.30	35.44	0.13	EX	EX
Pavilion angle, °	40.56	To be done	40.40	40.73	0.33	EX	EX
Star length, %	59.34	To be done	59.34	59.34	0.00	EX	EX
Lower girdle length, %	67.51	To be done	67.50	67.52	0.02	EX	EX
Girdle bezel, %	3.65	To be done	3.64	3.66	0.03	EX	EX
Girdle valley minimum, %	1.74	To be done	–	–	–	EX	–
Girdle valley maximum, %	1.82	To be done	–	–	–	EX	–
Girdle bone, %	3.44	To be done	3.44	3.45	0.01	–	–
Culet, %	0.00	To be done	0.00	0.00	0.00	EX	–
Crown painting, °	0.28	To be done	–	0.53	0.53	–	EX
Pavilion painting, °	0.28	To be done	–	0.54	0.54	–	EX
Sum painting, °	0.56	To be done	–	–	–	–	EX
Crown height, %	15.46	To be done	15.45	15.47	0.01	–	EX
Pavilion depth, %	42.80	To be done	42.80	42.81	0.01	–	EX
Total height, %	61.91	To be done	–	–	–	–	–
Table offset, %	0.00	To be done	–	–	–	–	EX
Culet offset, %	0.19	To be done	–	–	–	–	EX
Table-culet offset, %	0.19	To be done	–	–	–	–	EX
Star angle, °	24.18	To be done	24.16	24.21	0.05	–	EX
Upper girdle angle, °	43.83	To be done	43.72	43.92	0.20	–	EX
Lower girdle angle, °	42.18	To be done	42.05	42.34	0.29	–	EX
Facet twist, °	0.00	To be done	0.00	0.00	0.00	–	–
Junction bezel twist, °	0.00	To be done	0.00	0.00	0.00	–	–
Junction bone twist, °	0.00	To be done	0.00	0.00	0.00	–	–
Misalignment (ALN), °	0.00	To be done	–	–	–	–	EX
2*radius roundness, %	–	–	–	–	–	–	EX
22.5°	0.30	To be done	–	–	–	–	EX
45°	0.49	To be done	–	–	–	–	EX
90°	0.52	To be done	–	–	–	–	EX
Model table edge, %	21.61	To be done	21.58	21.63	0.05	–	–
Table edge (TEV), %	21.61	To be done	21.58	21.63	0.05	–	EX
Table edge junction, %	0.00	To be done	0.00	0.00	0.00	–	–
Table angle, °	135.0	To be done	134.5	135.6	1.1	–	–
Bezel width, %	30.84	To be done	30.53	31.19	0.66	–	–

Cutting type and template for the report may be selected (press   near the top of page if the selectors are hidden). The templates are HTML files stored at `%Documents%\All Users\OctoNus Software\StandardReportTemplates\`. By copying and editing the existing files, you may create custom templates, containing the parameters of your choice, with any formatting and even interactive elements.

Export Report Data (INI Export)

It is possible to export report values and pictures by selecting the **INI Export** report type in the **Polish report** window and pressing **Make report**.
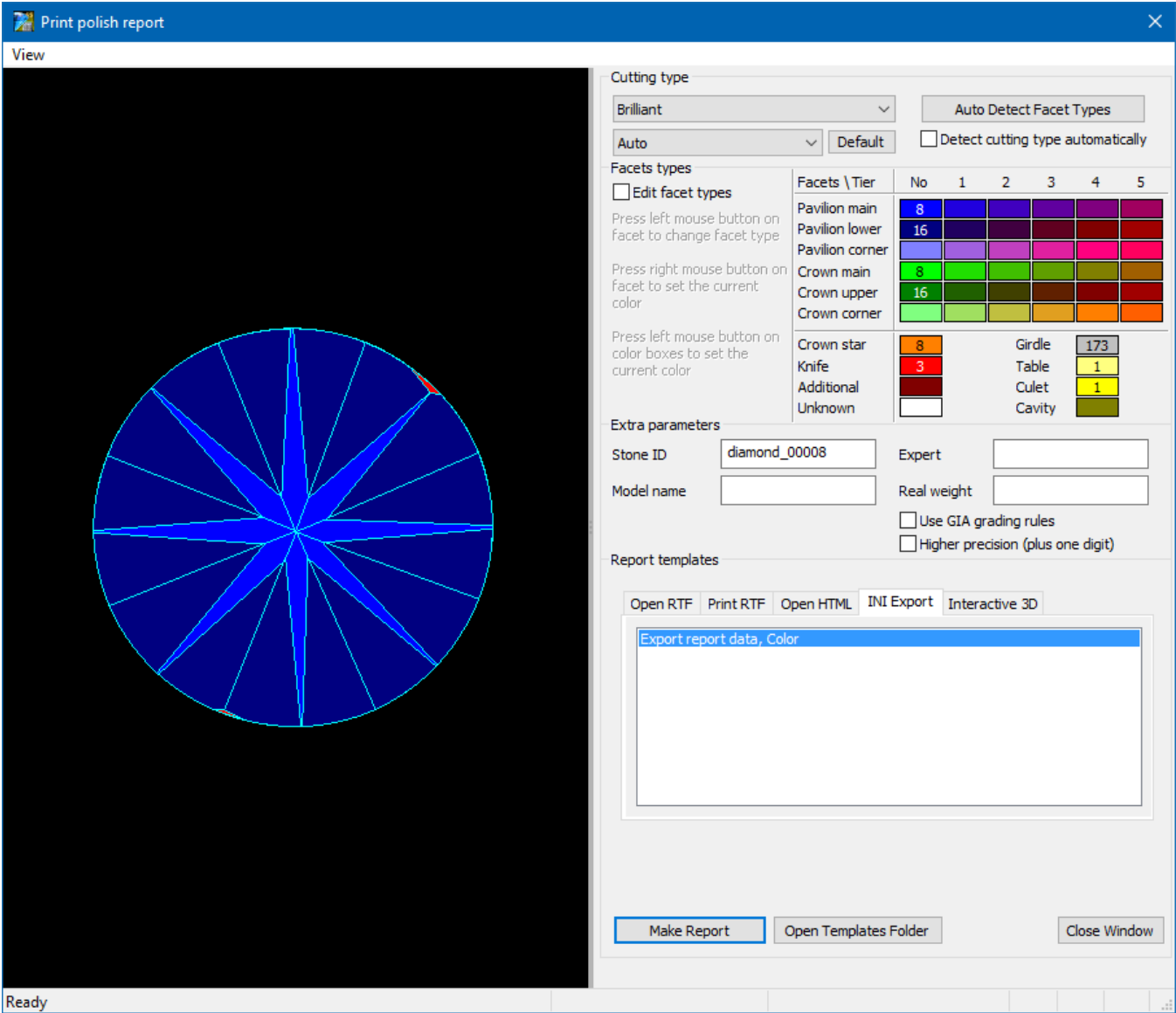
Details of the report are specified in a template. Initially, there is only one template. You may create more templates with custom versions of plain text reports by manually editing the *.ini files. For your convenience, the *.ini file that has been just used opens up in the editor after report creation:

```
[General]
ReportType=Export
VisibleName=Export report data, Color
CuttingType=ALL
ColorReport=1
[FileNames]
; Executable file that will be launched once the export process is complete.
; Full path to this INI file will be passed as a parameter to the specified executable.
; Format:
; 1. Full path, e.g.
;     C:\Program Files\MyApplication\MyApplication.exe
; 2. Relative path (relative to current program's exe file path), e.g.
;     .\..\MyApplication\MyApplication.exe
; 3. Path with system aliases (%alias%), e.g.
;     %WinDir%\Notepad.exe
Executable=%WinDir%\Notepad.exe
; Output text file where bookmarks and values will be written.
; Format:
; 1. Full path, e.g.
;     C:\ExportReportData\report.txt
; 2. Relative path (relative to path of this INI file), e.g.
;     Output\report.txt
; 3. Path with system aliases (%alias%), e.g.
;     %MyDocuments%\OctoNus Software\Export Reports\report.txt
ParameterValues=%MyDocuments%\OctoNus Software\Export Reports\report.txt
[Plot_Actual_Length_Axis_Asym]
FileNameEMF=Plot_Actual_Length_Axis_Asym.emf
FileNamePNG=Plot_Actual_Length_Axis_Asym.png
Width=1000
Height=500
...
```

The meaning of the most essential parameters in the *.ini file is explained below.

Parameter	Example value	Meaning
VisibleName	Export report data, Color	Name of the report template as it appears in the **Polish report** window
CuttingType	ALL	Cuts for which the report should be applicable
Executable	%WinDir%\Notepad.exe	Path to the editor used to open the *.ini file after report creation
ParameterValues	%MyDocuments%\OctoNus Software\Export Reports\report.txt	Path for saving the report

The remaining lines in the *.ini file refer mostly to pictures. Each picture comes in two formats, WMF and PNG. They are saved to the same location as the report itself.

The report is a plain text file and can be opened in any text editor:

```
[NumericalParameters]
VERSION_NUMBER=Oxygen HP Server 3.19.76
VERSION_DATE=Jul 13 2016
SHAPE=Brilliant
STONE_FILENAME=
GRADE_QUALITY=VG
APPRAISER_SYSTEM=GIA Facetware
MODEL_NAME=
EXPERT_NAME=
REPORT_DATE=27.07.2016
WEIGHT_REAL=
STONE_ID=D-19059-001
REPORT_DLL_DATE=Jul  7 2016
REPORT_DLL_NUMBER=2.9.2.3
PAVILION_HEIGHT_VALLEY_TYPE_2_MM_AVG=2.640
PAVILION_HEIGHT_VALLEY_TYPE_2_MM_MAX=2.658
PAVILION_HEIGHT_VALLEY_TYPE_2_MM_MIN=2.624
PAVILION_HEIGHT_VALLEY_TYPE_2_MM_DEV=0.033
...
```

Comparative reports

Facet matching algorithm in the Comparative reports has been significantly improved.

For the ease of comparison, the numbering of facets of the both reference and current models in the comparative report is retained the same as in their corresponding individual polish reports.
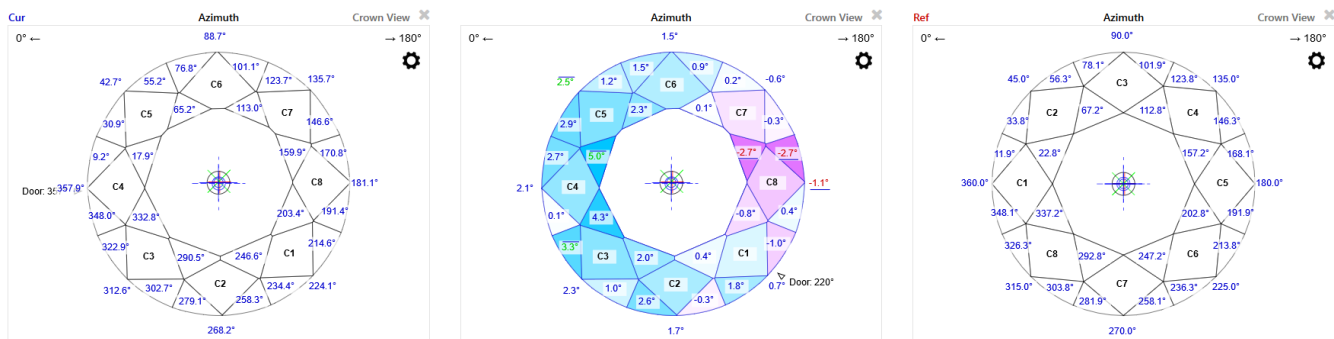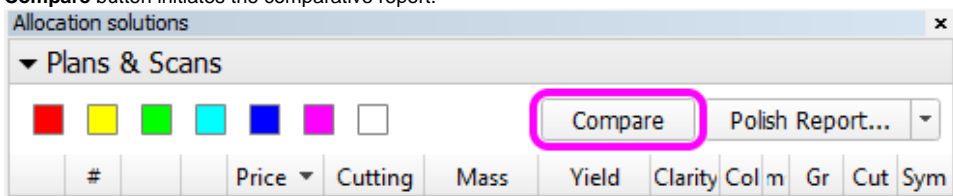

ⓘ Note that the current model in the comparative report typically would be oriented differently from its own polish report, that is, its C1 facet may not be facing the 0° azimuth.
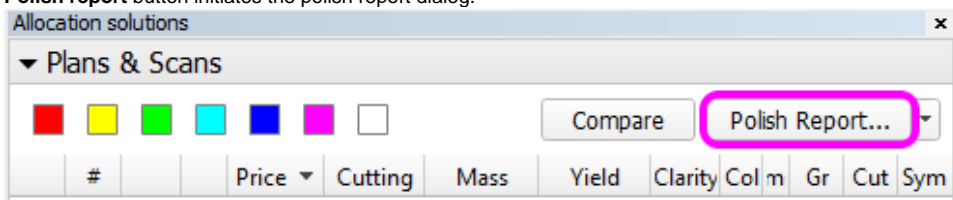
Compare and Report buttons

Plans & Scans panel is equipped with new functionality:

- **Compare** button initiates the comparative report.

- **Polish report** button initiates the polish report dialog.

Note that the latter button is multi-optional. The dropdown list to the right provides a selection of options: **Standard Report**, **Polish Report**, **Custom Report**, and **Print Label**. Once selected, the option persists until the program is closed or a new model is opened.
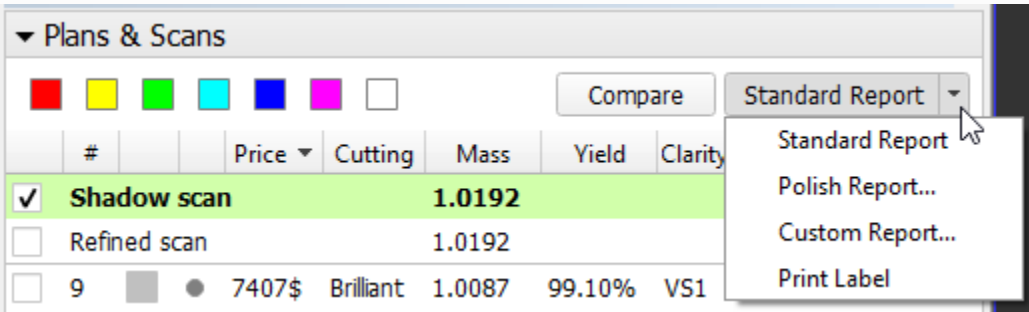
Brilliant 10x

A ten-fold analog of round brilliant is added as a sub-type of cutting. You may find it in the **Polish Report** window, once the cutting is set to **Brilliant**.
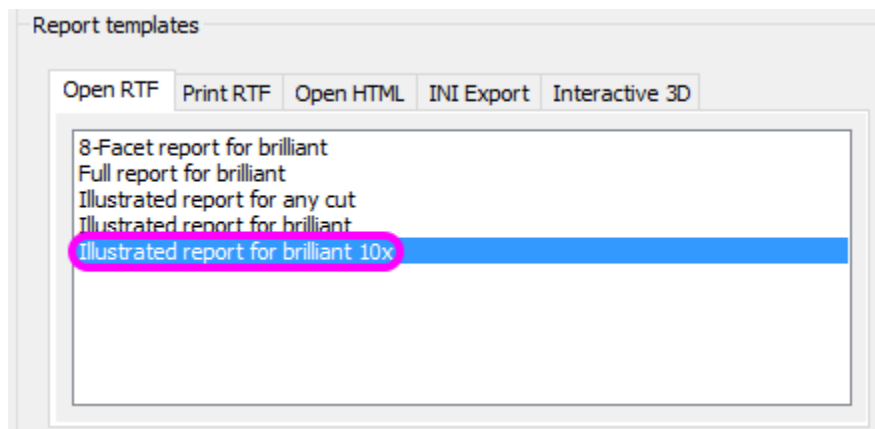
Culet center for step cuts

Culet center calculation algorithm for steps cuts was changed so as not to get affected by possible extra facets on the culet.

Girdle center for Cushions

Girdle center calculation for Cushions was changed to make it consistent with that for Oval.

Smart Recut

Presets

Smart Recut presets are now ordered by symmetry.

A preset is a collection of geometrical limitations which are imposed on the solution. Each recut solution seeks a balance between retaining the most mass of the stone and achieving the highest possible symmetry. The presets, in effect, assign different weights to the geometrical requirements, thus shifting that balance to a varying extent. Below is the list of all presets, ordered from the most relaxed to the strictest:
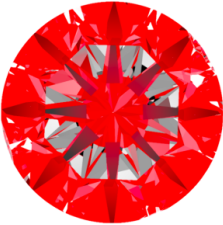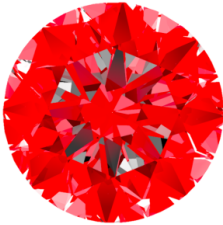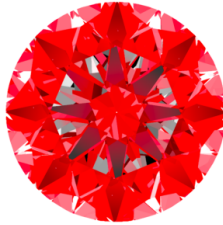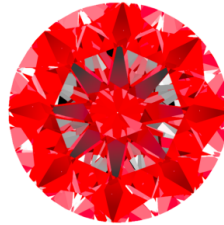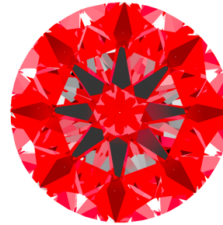
- ![MaxMass] MaxMass
- ![LowOpticalSymmetry] LowOpticalSymmetry
- ![ExtendedLimits] ExtendedLimits
- ![Standard] Standard
- ![NormalOpticalSymmetry] NormalOpticalSymmetry
- ![MediumOpticalSymmetry] MediumOpticalSymmetry
- ![HighOpticalSymmetry] HighOpticalSymmetry
- ![UltraSymmetry] UltraSymmetry

The preset with the most relaxed limitations is called MaxMass, for it should be expected to produce the solution of maximal mass (but probably lacking in symmetry and other qualities).

Consider these two sets of Smart Recut solutions together with their photorealistic images. Each set is obtained from one stone and ordered by decreasing mass.

First set (Smart_Recut_example_1.oxgz):

	#			Price	Cutting	Mass	Yield	Clarity	Col	Sym-O	Gr	Cut	Sym
✓	**Shadow scan**					**4.3900**							
	7		●	122688$	Brilliant	4.2596	97.04%	VS1	H	+2.47	EX	EX	EX
	6		●	122400$	Brilliant	4.2540	96.81%	VS1	H	+4.66	EX	EX	EX
	9		●	122400$	Brilliant	4.2493	96.81%	VS1	H	+5.29	EX	EX	EX
	8		●	121824$	Brilliant	4.2373	96.36%	VS1	H	+6.66	EX	EX	EX
	4		●	121824$	Brilliant	4.2339	96.36%	VS1	H	+7.76	EX	EX	EX
	5		●	121824$	Brilliant	4.2298	96.36%	VS1	H	+7.47	EX	EX	EX
	2		●	121536$	Brilliant	4.2274	96.13%	VS1	H	+6.67	EX	EX	EX
	3		●	121248$	Brilliant	4.2089	95.90%	VS1	H	+8.93	EX	EX	EX
✓	1		○	118080$	Brilliant	4.1069	93.39%	VS1	H	+8.22	EX	EX	EX

Solution #	-	7	6	9	8
Preset	- (Original stone)	MaxMass	LowOpticalSymmetry	ExtendedLimits	Standard
Mass	4.3900	4.2596	4.2540	4.2493	4.2373	4.2
Optical symmetry	-	2.47	4.66	5.29	6.66	7.7
Picture					

Second set (Smart_Recut_example_2.oxg):

Allocation solutions

▼ Plans & Scans

	#			Price ▼	Cutting	Mass	Yield	Clarity	Col	Sym-O	Gr	Cut	Sym
✓	**Shadow scan**					**1.1269**							
☐	4		●	8213$	Brilliant	1.1224	99.39%	VS1	H	+4.63	EX	EX	EX
☐	2		●	8213$	Brilliant	1.1221	99.39%	VS1	H	+5.63	EX	EX	EX
☐	3		●	8213$	Brilliant	1.1216	99.39%	VS1	H	+6.02	EX	EX	EX
☐	6		●	8213$	Brilliant	1.1206	99.39%	VS1	H	+5.95	EX	EX	EX
☐	5		●	8213$	Brilliant	1.1201	99.39%	VS1	H	+6.15	EX	EX	EX
☐	7		●	8213$	Brilliant	1.1187	99.39%	VS1	H	+7.32	EX	EX	EX
☐	8		●	8140$	Brilliant	1.1163	98.50%	VS1	H	+7.86	EX	EX	EX
☐	9		●	8140$	Brilliant	1.1126	98.50%	VS1	H	+9.05	EX	EX	EX
✓	1		○	7993$	Brilliant	1.0952	96.73%	VS1	H	+9.13	EX	EX	EX

Solution #	-	7	6	9	8	
Preset	- (Original stone)	MaxMass	LowOpticalSymmetry	ExtendedLimits	Standard	
Mass	1.1269	1.1224	1.1221	1.1216	1.1206	1.1
Optical symmetry	-	4.63	5.63	6.02	5.95	6.1
Picture						

ⓘ To obtain a photorealistic view of the stone, click **Photoreal** in the main menu. The main view field will be split in two, with the photorealistic view in the lower half. Note that in this mode you may still operate the **Plans & Scans** panel. As you select other models, the photorealistic image would change accordingly.

Fixed table

Smart Recut algorithm seeks to keep the table plane of the model unchanged, unless the solution found deviates from the original by a considerably wide margin.

Speed up

Smart Recut algorithm is reworked and its speed improved by a factor of 1.3 - 1.7.

Sample Base 1 (no cavities):

SmartRecut Version	Avg. Time, sec
1.10.1.10	49.36
1.10.3.2	37.96

Sample Base 2 (with cavities):

SmartRecut Version	Avg. Time, sec
1.10.1.10	106.69
1.10.3.2	61.71

Computer configuration:

Processor	Intel(R) Core(TM) i7-4770K CPU @ 3.50GHz, Frequency: ~3497 MHz.
Logical processors	8
Operating system	Microsoft Windows 10 Pro Version 10.0.10586 Build 10586
Total Visible Memory Size	32710 MB
Free Physical Memory	28698 MB

Interface

Panels management

Right panel is reorganized to contain the following groups of elements:

- View
  - **Standard** switches to the standard view.
  - **Photos** switches to the photo view, if there is a photoset loaded.
  - **Scanner** switches to the camera view mode.
  - **Facetware** toggles the additional panel **GIA Facetware**.
  - **Standard report** toggles the additional panel **Standard report**.
  - **My Appraiser** toggles the additional panel **MyGIA**.
- Reports
  - **Polish report** opens the interface window for generating and exporting one of the predefined reports.
  - **Custom report** opens the interface window for generating and exporting a custom report.
  - **Print label** opens the interface window for printing labels.
- Export
  - **Export to ASCII** opens the interface window for **exporting the model**.
- **Model Building Info**.
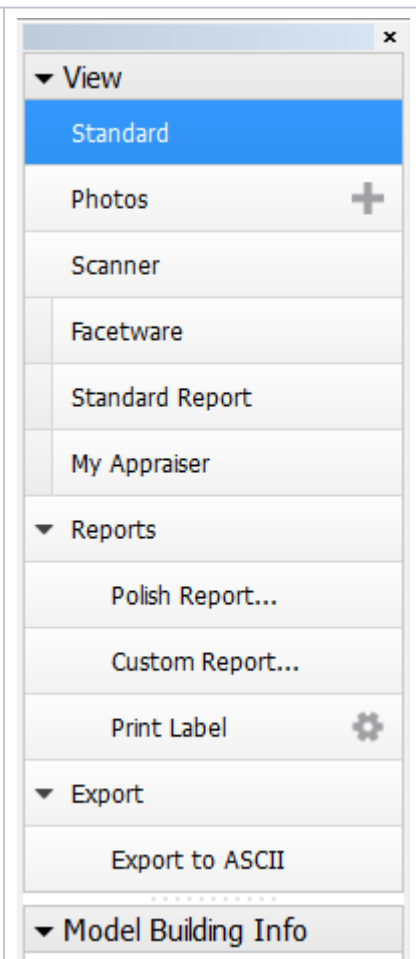
Buttons that control additional panels (**Facetware**, **Standard report**, **My Appraiser**) have an indicator to the left which turns green when the corresponding panel is shown.

> ⚠ Note that it impossible to show more than two additional panels at once. If two of them are already shown and the third is clicked, it will show up, but one of the other two will vanish.

General Settings

Settings GUI dialog is added. It is accessible by clicking **Settings** in the main menu and then selecting **General settings**.
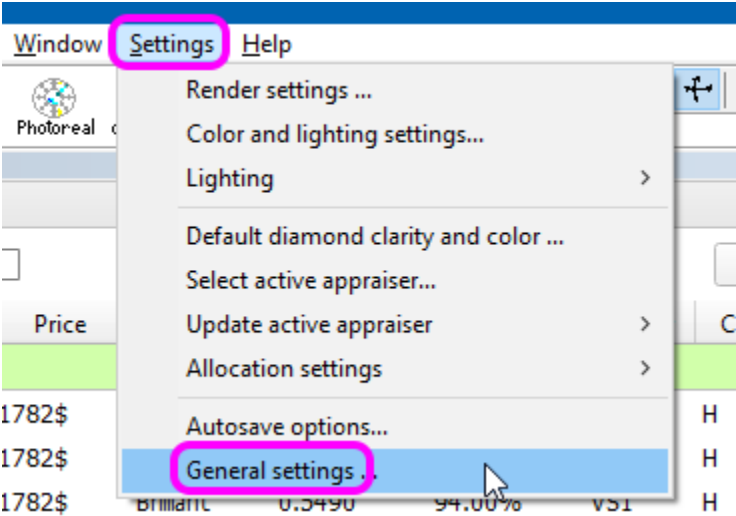
Currently the menu contains only one tab (Stone Properties). It affects the details of entering the auxiliary data when scanning stones.
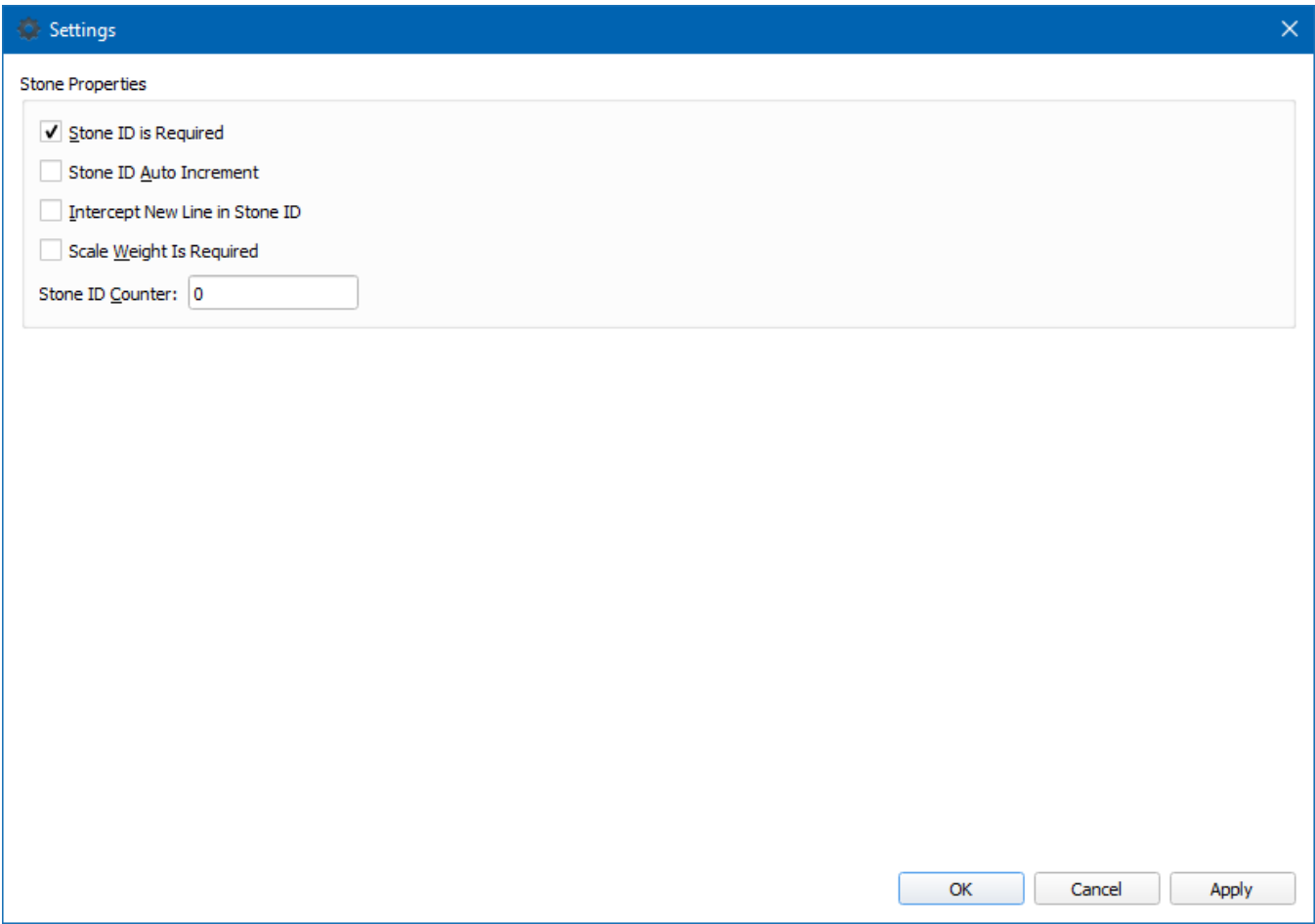
The following options are available:

Option	Meaning	Default state
Stone ID is required	Enables the **Stone ID** input field.	On

Stone ID Auto Increment	Makes the **Stone ID** field auto-increment upon scanning a new stone.	Off
Intercept New Line in Stone ID	Strips the new line characters from the **Stone ID** field (useful if it is filled in with the help of a bar code scanner).	Off
Scale Weight is Required	Enables the **Scale Weight** input field.	Off