Release Notes GC-PowerPlace v10.4

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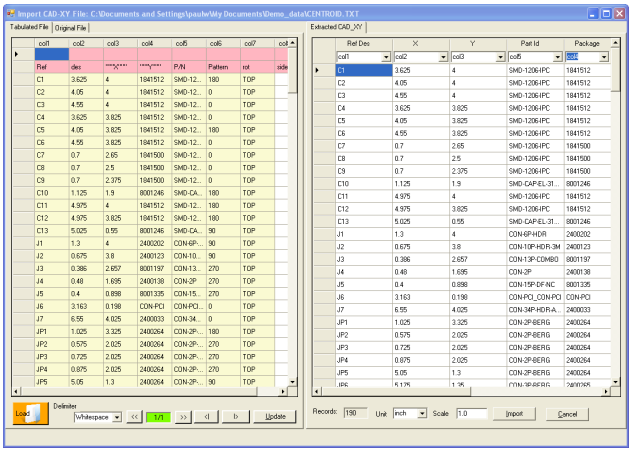
New Features

Overhauled CAD XY Import

The Load CAD-XY function has received a total overhaul with a re-design from the ground up. The function now has auto-field recognition and the ability to modify the Component Placement file without exiting the function.



The function is also significantly more flexible than the existing function; handling sections within the file that do not contain valid data, adding or deleting dummy fields, and not being restricted by file size.

New GCSendKeys replaces SendKeys in GC-Basic

In order to provide compatibility with Windows7 and its security settings, the old GC-Basic method of SendKeys has been replace with GCSendKeys that allows GC-Basic to send keystrokes to the application.

Items fixed since v10.3.2

This list is customer reported issues fixed for this release.

#4485 Fixed issue where the act of Querying an entity within the Query List changed the aperture or tool number. The new tool had all the attributes of the original and so did not affect images in any way.
#4484 Filter Selection of non-zero Fiducial group numbers did not work. This issue has been corrected.
#4481 Cleaned up the Import results to remove the reporting of a critical error that did not exist. Issue was caused by poor clearing of variables when importing the next layer.
#4480 Fixed an issue that caused a crash when running No Pad for Via on Power / Ground layers. Function was expecting both outer and inner layer variables.
#4479 Netlist Browsing shifted the net number reported when net zero was present by one so that the net number and netname from the ODB++ file were on incorrect lines in the list.
#4475 Updated the original GC-Basic SendKeys function to GCSendKeys to provide compatibility with Windows7.
#4474 Now drawing Octagon apertures that are used to draw a trace as a round aperture. The modification is then reported in the Import Results tab.
#4473 Fixed bug that triggered the conversion of a custom aperture to a rounded rectangle.
#4468 Overhaul of CAD XY import complete.
#4466 Updates to the AutoCAD® method of describing mirrored and rotated text caused interpretation problems upon import. This issue is now resolved.
#3861 Fixed load CAD centroids problem. File was previously unloadable due to file size.
#2016 Overhaul of Load CAD centroids removed this usability issue.

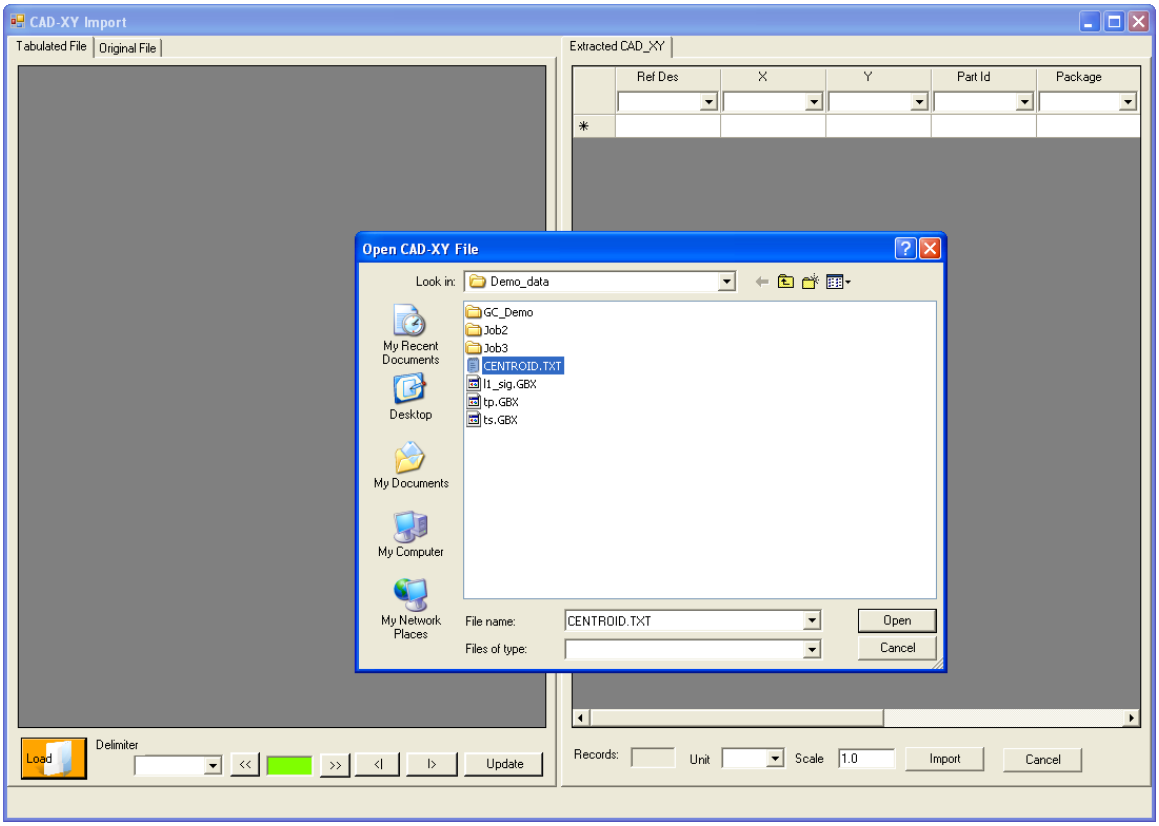
Load CAD Centroids overview

Load CAD Centroids allows the user to import ASCII formatted CAD XY data. CAD XY files typically contain component X and Y coordinates, reference designators, and rotations, but can also include other valuable bits of information such as: package types, part numbers, feeder numbers and board-side information.

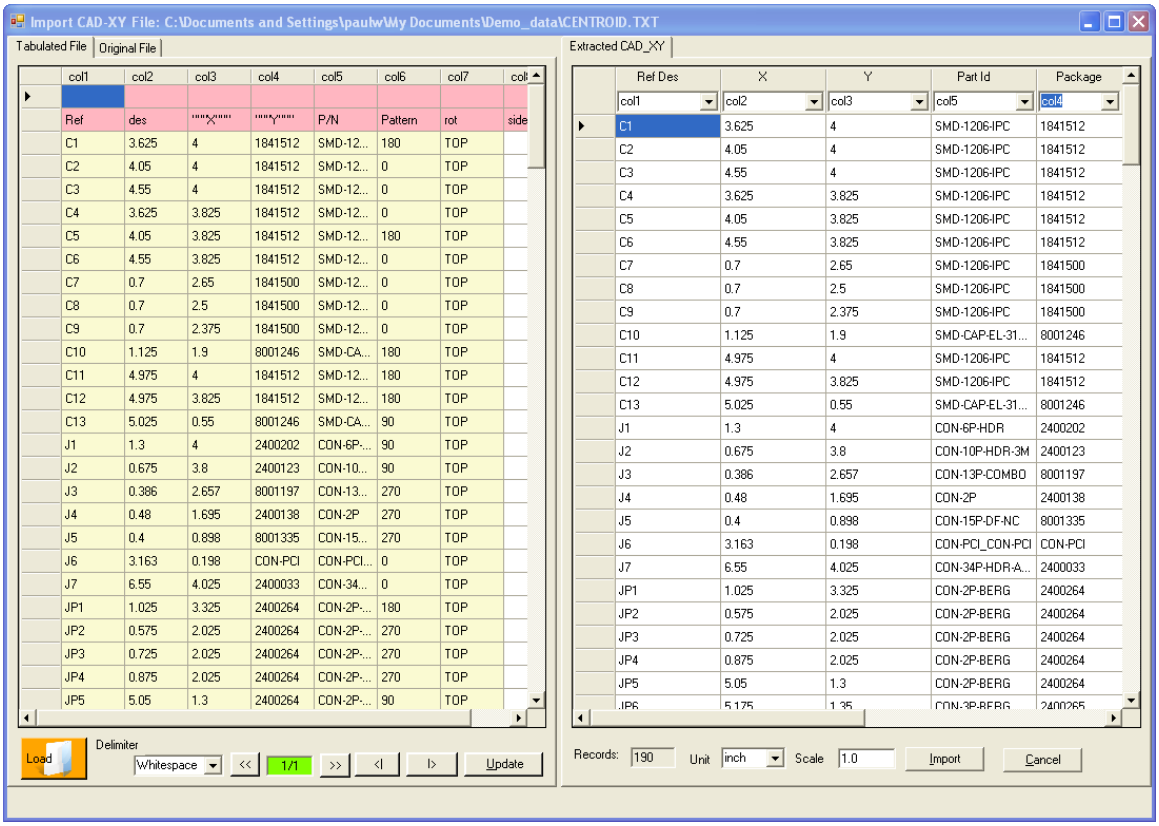
Once the CAD XY data is imported and recognized, information from the CAD XY file (Reference Designator and Part Number) can be incorporated during Automatic Centroid Extraction or can be compared against an already existing parts layer (Gerber to CAD accuracy checks). The user can select specific CAD XY items to be merged into the parts layer, which is the preferred method for assigning part centroids with reference designators.

To run Load CAD Centroids, follow these instructions:

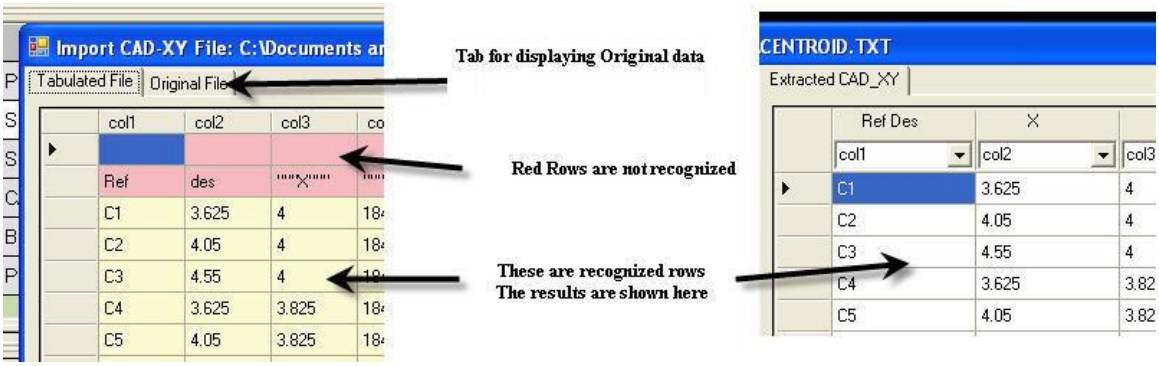
1. Run File > Load CAD Centroids. You will be prompted with a file picker to select the ASCII CAD XY file to be imported.



2. Once the file has been selected the ASCII data is analyzed and the results are reported. The result of the analysis is shown below



There are a number of point to note



User validation is required to ensure that the correct fields have been recognized by the software. In the Right Hand area the column being used is shown at the top of each column. These columns can be changed from the Drop-Down list. Fields that can be specified are Reference Designator, X, Y, Part Number, Package Style, Rotation and Side.

The number of recognized entries, the units used for the X and Y co-ordinates and any additional scale are displayed below the results

User validation is also required to verify that all required rows have been correctly recognized.

Each unrecognized row is displayed in Red. Each Red section can be checked by using the buttons to cycle through the Unrecognized sections

Click on the Right Arrow to go to Red Section number 2 (of 2 total).

3. If everything looks correct then the file can be imported into application.

Troubleshooting:

Some rows have additional fields

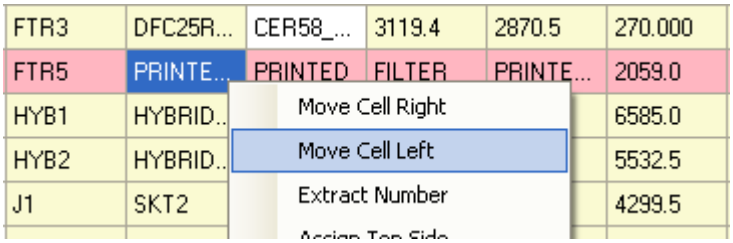
In the example below the FTR5 entry has the X co-ordinate in field 6 but the FTR3 entry has it in field 4.

```
FTR3    DFC25R80P150LHA          CER58_2P      3119.4   2870.5  270.000 N
FTR5    PRINTED_FILTER PRINTED FILTER  PRINTED_FILTER   2059.0   5472.5    0.000 N
```

The results is displayed as follows where the FTR3 entry gives better results throughout the file.

FTR3	DFC25R...	CER58_...	3119.4	2870.5	270.000
FTR5	PRINTE...	PRINTED	FILTER	PRINTE...	2059.0

In order to correctly handle the FTR5 entry, we can delete the two extra fields (without affecting the original file) by highlighting each field, right clicking and choosing Move Cell Left. This action Shifts deletes the highlighted cell shifts all remaining cells one cell to the left.



You can also add cells by highlighting a cell, right clicking and choosing Move Cell Right.

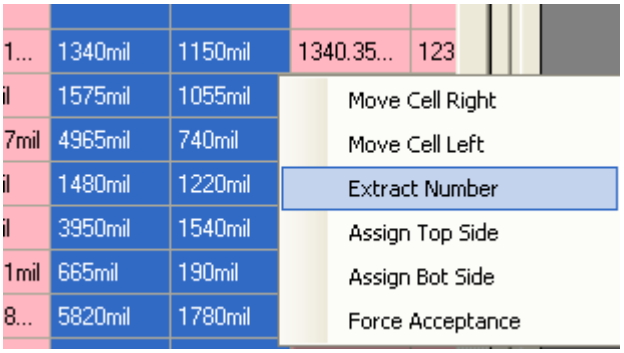
Once changes have been made, then the Update Button can be pressed to re-process the file accounting for the changes.

Some fields merged together

In the example below the X and Y co-ordinate fields include the units also

```
D17      SMB       1340.351mil  1149.713mil      1340mil      1150mil  1340.351mil  1239.713mil  T       270.00 SMAJ18A
```

Highlight the fields (or columns) that have this problem and then right click and choose Extract Number. This strips out and retains only the number portion of the field.



Once again, once the changes / edits have been completed select the Update button to re-process.

Side is not defined with a field

Some ASCII CAD XY files have the components separated by side of board but without the side being specified on each row.

A field can be added to each row by highlighting a cell in each row and then right clicking and choosing Assign Top Side (or Assign Bottom Side). The highlighted cell is then filled with either the word Top or Bottom and the data can be interpreted correctly

Top Components
D17 SMB 1340.351 1149.713
Bottom Components
D18 SMB 2840.305 1529.538

Becomes

Top Components
D17 SMB 1340.351 1149.713 Top
Bottom Components
D18 SMB 2840.305 1529.538 Bottom

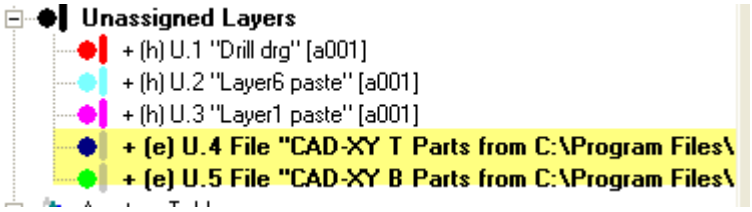
Unrecognized Reference Designators

Reference designators are considered to be Alpha – Numeric in form. There are some cases where a Reference Designator varies from this format. Below is an example

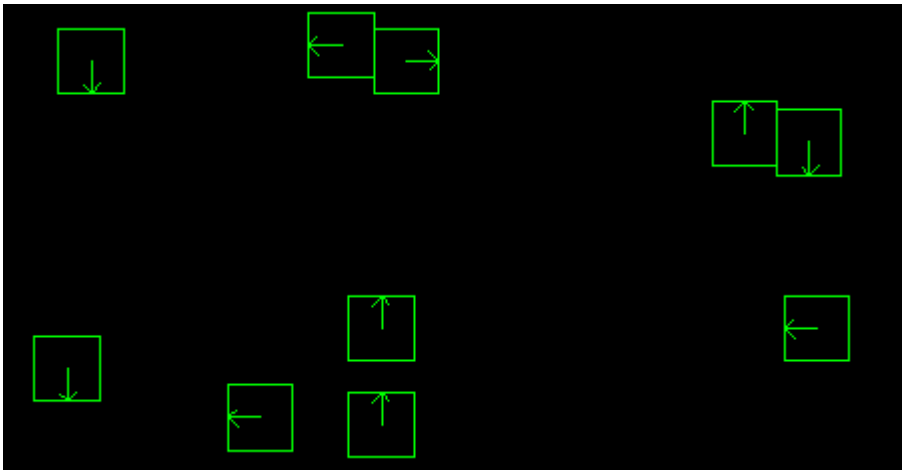
S11	2559	-27606	0	NOBYZ	ARCS12
S10	3189	-24771	0	NOBYZ	ARCS12
.02	10315	-20716	0	NOBYZ	ARCS12
S9	6889	-38118	0	NOBYZ	ARCS12
S8	6889	-34732	0	NOBYZ	ARCS12

The row with the Reference Designator field reading .02 is not recognized because it does not fit the form of the other Reference Designators in the file. If this entry is valid and is required to be included in the CAD XY layer then highlighting any cell in the row, right clicking and choosing Force Acceptance will add this entry to the data to be imported.

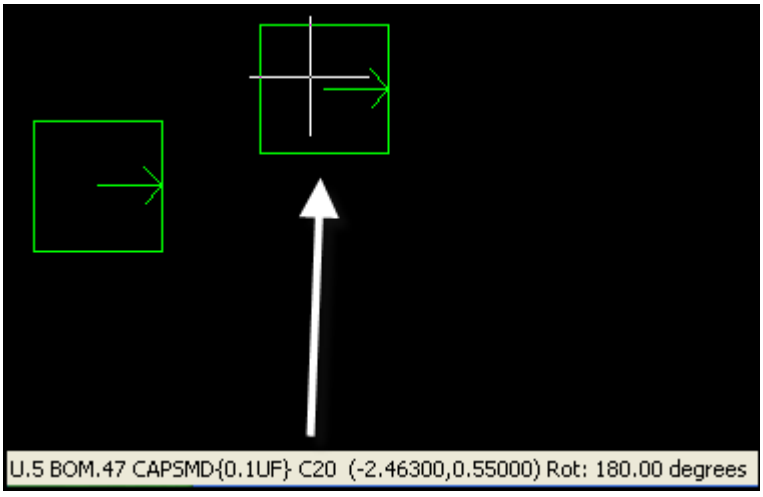
After import, the CAD XY layers will be loaded into the Unassigned Layers Category within the GC-Explorer as U.n:



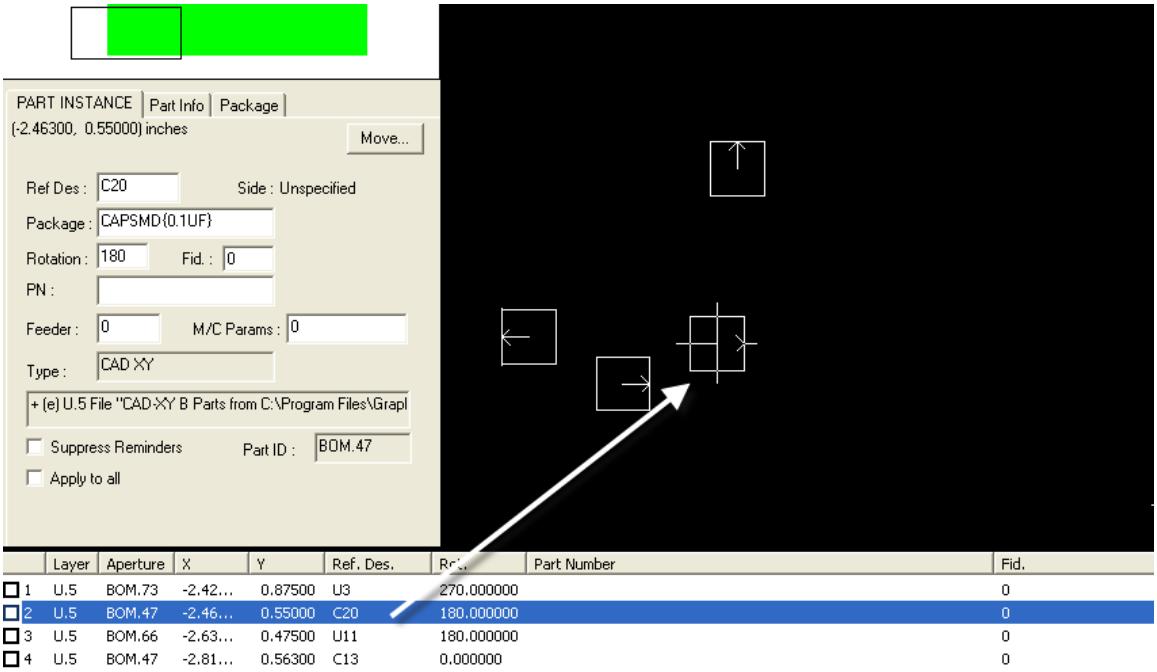
CAD XY Centroids are represented as squares that contain directional arrows. The arrows depict the part rotation:



Information can be gleaned from the CAD Centroids by hovering over one of the CAD Centroids and viewing the information displayed in the status bar:



It is also possible to select individual or multiple CAD Centroids and run Tools > Query on the selected items to glean more information:


PART INSTANCE
Part Info
Package
(-2.46300, 0.55000) inches
Move...
Ref Des : C20
Side : Unspecified
Package : CAPSMD(0.1UF)
Rotation : 180
Fid. : 0
PN :
Feeder : 0
M/C Params : 0
Type : CAD XY
+ (e) U.5 File "CAD-XY B Parts from C:\Program Files\Grapl
Suppress Reminders
Part ID : BOM.47
Apply to all
Layer
Aperture
X
Y
Ref. Des.
Part Number
Fid.
1 U.5 BOM.73 -2.42... 0.87500 U3 270.000000 0
2 U.5 BOM.47 -2.46... 0.55000 C20 180.000000 0
3 U.5 BOM.66 -2.63... 0.47500 U11 180.000000 0
4 U.5 BOM.47 -2.81... 0.56300 C13 0.000000 0