

PDF Generator release 4.64

This program generates a PDF file with either

- Selected artwork films inside Cadence™ OrCAD® / Allegro® PCB Editor.
- Variant drawing* from OrCAD Capture CIS variant list and if selected a description page per part number

Watch the movie at <http://www.youtube.com/watch?v=v6lPXTGoT4o> to see the program in action.

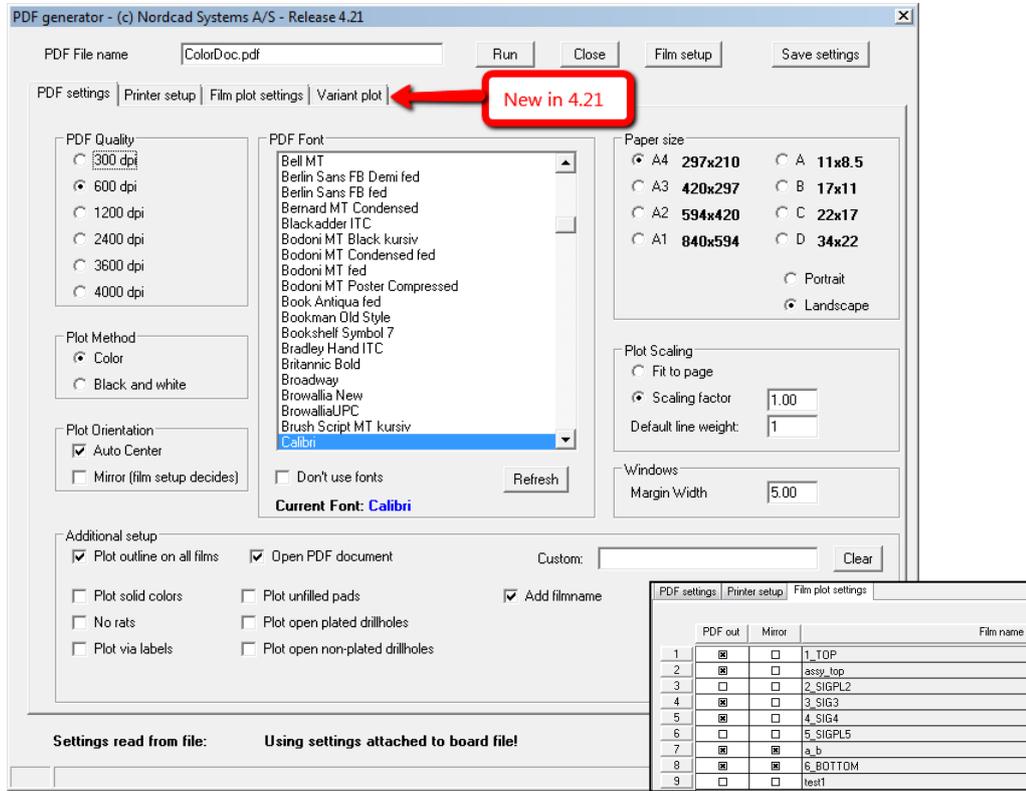


Figure 1 PDF Generator user interface

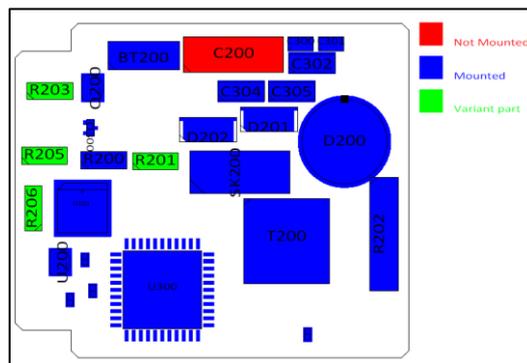


Figure 2 Variant drawing

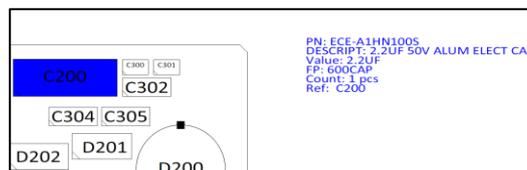


Figure 3 Description drawing for part number

*Only supported for Ghostview. Adobe Distiller support is currently being investigated.

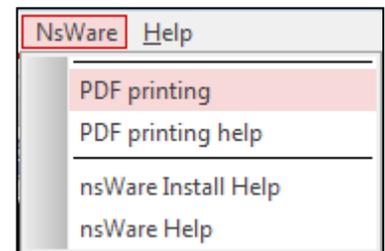
Content

PDF Generator release 4.64.....	1
Requisites for using the PDF Generator	2
PDF Generator within the nsWare framework.....	2
PDF Generator manual installation	2
Program usage	3
Requirements	3
Adobe Distiller user.....	3
Ghostview user	3
Program buttons and settings	3
General program usage	3
PDF settings	4
Printer setup	5
Film plot settings.....	6
Variant plot	7
Known problems and solutions	9
Revision history:.....	9

Requisites for using the PDF Generator

The PDF Generator can be installed and run in 2 different ways.

- Within the nsWare framework
- Manual installation



PDF Generator within the nsWare framework

Download and install the nsWare framework using the nsWare installation guide

http://nordcad.dk/download/nsware/nsware_install.pdf

After the installation, place the **ns_pdf.il** file inside the nsWare folder. The next time PCB Editor is started it will automatically detect the PDF generator and create the corresponding two menu items.

PDF Generator manual installation

1. Place the ns_pdf.il file inside a skill file directory
2. Add the following line to the allegro.ilinit file inside this directory
 - a. load("ns_pdf.il" "nsWare")
3. The next time PCB Editor is started the PDF generator can be started running the command **"ns_pdf"**
 - a. To run the help without starting the PDF Generator, type **"ns_pdf_help"**

Program usage

PDF file creation based on film setup inside Manufacturer -> Artwork dialog. You can generate a script or skill program that setup the films you want, see the explanation for **Custom** in the section **Additional setup**

PDF file is created in "ads_sdplot" directory set in Setup -> User Preferences. If no "ads_sdplot" directory is defined the pdf document is placed in a subfolder to the working directory named **output**.

New in 4.56: Ability to create Table of Contents on first page

Requirements

Based on the availability of Adobe Distiller or Ghostview and Ghostview based PDF printer like CutePDF, PDFCreator etc.

Adobe Distiller user

1. An "Adobe PDF" printer driver - should be part of Adobe installation
2. Go to printer settings in the control panel
3. Right click "Adobe PDF" printer driver and select properties/egenskaber
4. In the General tab click the button named Printsettings/Udskriftsindstillinger
 - a. Adobe Distiller Release 7 and earlier: Remove the checkmark in **Do not send fonts to "Adobe PDF"**
 - b. Adobe Distiller Release 8 and newer: Remove the checkmark in **"Rely on system fonts only; Do not use Document Fonts" "Adobe PDF"**
5. Setup **Adobe Distiller usage**
 - a. Adobe Distiller: Specify the path and filename (acrodist.exe) for Adobe Distiller.
 - b. Adobe Distiller Release: Specify the release of Adobe Distiller in use

Ghostview user

1. Download and install ghostscript, easy done through use of CutePDF
 - a. <http://www.cutepdf.com>
2. If not using CutePDF, manually type PS printer driver name. You have to install a PS printer driver
3. Setup **Ghostview usage**
 - a. Use Ghostview: Specify a valid PS printer driver name. Defaults to CutePDF Writer
 - b. Use Ghostview: Specify the path and filename (gswin32c) for ghostview.
 - c. Click the **Download and install CutePDF** to download and install CutePDF

Program buttons and settings

General program usage

- **PDF File name:** Specify the name of the resulting pdf file
- **Run:** Press to generate a pdf document for the printed circuit board
- **Film setup:** Goes into Manufacture→Artwork where film and film content can be defined. Remember to press **"Update film list"** under **"Film plot settings"** to update the list of available films. The **"Film plot settings"** list will automatically update the next time the PDF Generator is executed.



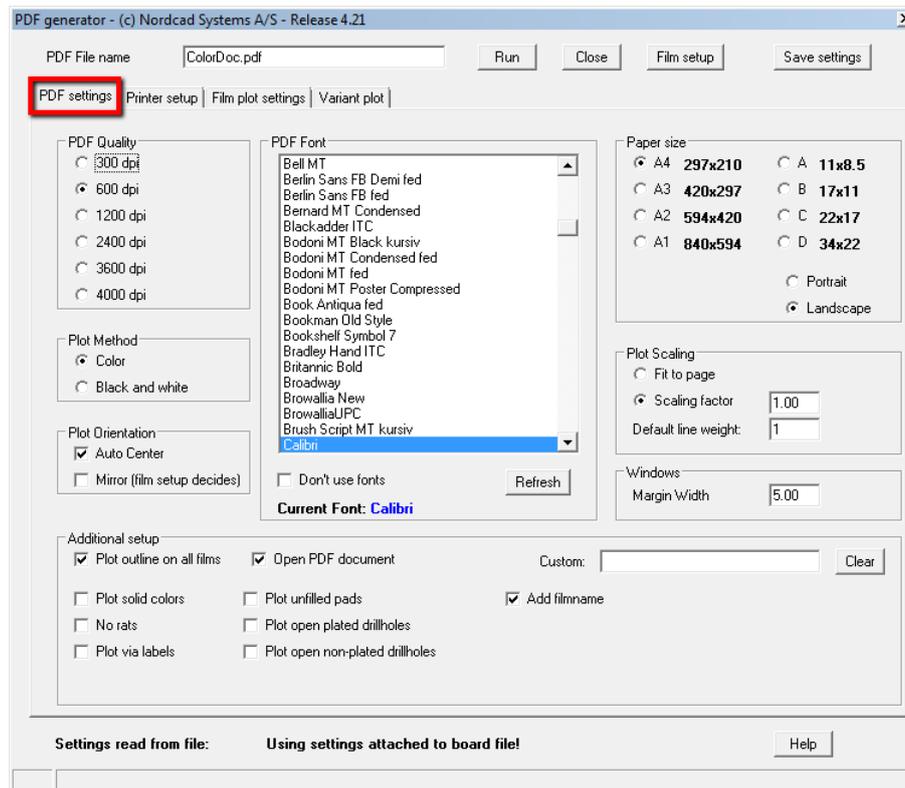
- **Save settings:** will save
 1. all the current settings **including "film plot settings"** inside the board file for later reuse

- all current settings **except "film plot settings" and "Part Highlight"** in a file named "ns_pdf_settings.txt". This file is automatically stored in the same folder as the nsWare PDF Generator program. If this is not found the SPB installation folder is used. Don't do manual edits with the saved settings file.

When the program is started it will look for settings inside the board file and use those. If no settings are found inside the board file, it will use the settings from **"ns_pdf_settings.txt"**

If no settings are found, default settings will be used.

PDF settings

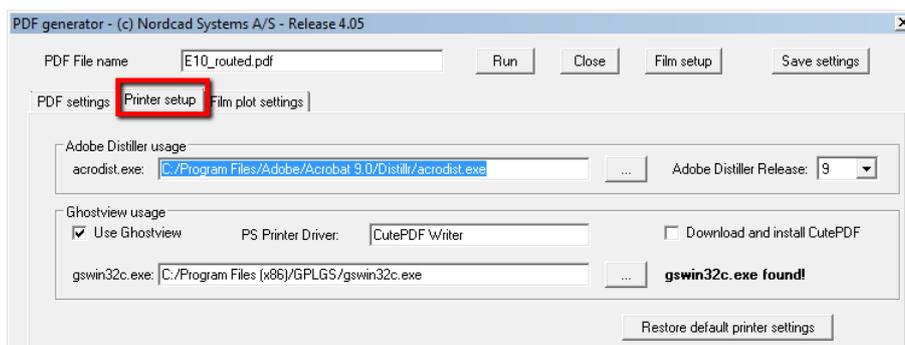


- **PDF Quality:** Set the PDF printing quality in dpi.
- **Plot Method:** Set to either color or black/white printing
- **Plot Orientation**
 - **Auto Center:** Set to center plot on paper.
 - **Mirror:** Set to mirror bottom layer (subclass) plots.
- **PDF Font:** Set the text font used. Default is "Arial"
 - **Don't use fonts:** will generate pdf document with non-searchable text like reference designators
 - **Refresh:** Will reload the font settings
- **Paper size:** Specify the paper size for the PDF file
- **Plot Scaling**
 - **Fit to page:** Set to fit the plot to paper size
 - **Scaling Factor:** Set and specify scaling factor (0->00)
 - **Default line weight:** Converts any zero width line to a width proportional to the setting.
- **Windows**
 - **Margin Width:** Specify the desired margin
- **Additional setup**
 - **Plot outline on all films:** Setting this will output the board outline on all pdf pages
 - **Open PDF Document:** Check this to open PDF document after creation.

- **Create Table of Contents** will make a table of content table on first page of pdf document
- **Plot solid colors** plots with all colors set to solid
- **No rats** will plot without rat lines if any unroutes are left
- **Plot via labels** plots with visible via labels
- **Plot unfilled pads** will plot the pads in unfilled mode
- **Plot open plated drillholes** to plot with open plated drill holes
- **Plot open non-plated drillholes** to plot with open non-plated drill holes
- **Add filename:** to add the film name to each page in the pdf document. It is placed at the bottom right side of the objects on the page. It uses a textblock named ns_pdf – if this is not found it is created with a width = 2.8mm and height = 4.0mm. Notice that the option requires 16.6 with at least update s022. If the film is mirrored the text is aligned to the left side of the pdf plot otherwise to the right side.
- **Part highlight**
 - The setup of this functionality has been moved to a separate TAB named "Part highlight" and is described on its own.
 - Notice the know problems and solutions section on this functionality.
- **Custom:** Specify the name of a command in the "Custom" field and press run.
 - The program will save the current manufacture->Artwork settings, then run the command and create a pdf document.
 - After it is finished it will reestablish the original **Manufacture -> artwork** settings.
 - An example command is using our open code program "Create Gerber settings" (ns_gerber) and adjust it to create the required films for printing purposes. Otherwise a script can be used. In this case write **replay load_myfilms.scr** in the custom field. This script could load a file with saved artwork film settings



Printer setup



The program either uses Adobe Distiller or a ghostview based program.

- Adobe Distiller usage: Adobe is used unless "use Ghostview" is set in the Ghostview usage section
 - **acrodist.exe:** Specify the location for Adobe Acrobat Distiller here
 - **Adobe Distiller Release:** Specify the version of distiller used

Remember to read the section on page 2 about settings up Adobe Distiller fonts.

- Ghostview usage
 - **Use Ghostview:** If this is set the PDF generator will generate PDF documentation using a ghostview based printer driver
 - **PS Printer Driver:** Specify a valid PS printer driver name. Defaults to "**CutePDF Writer**"

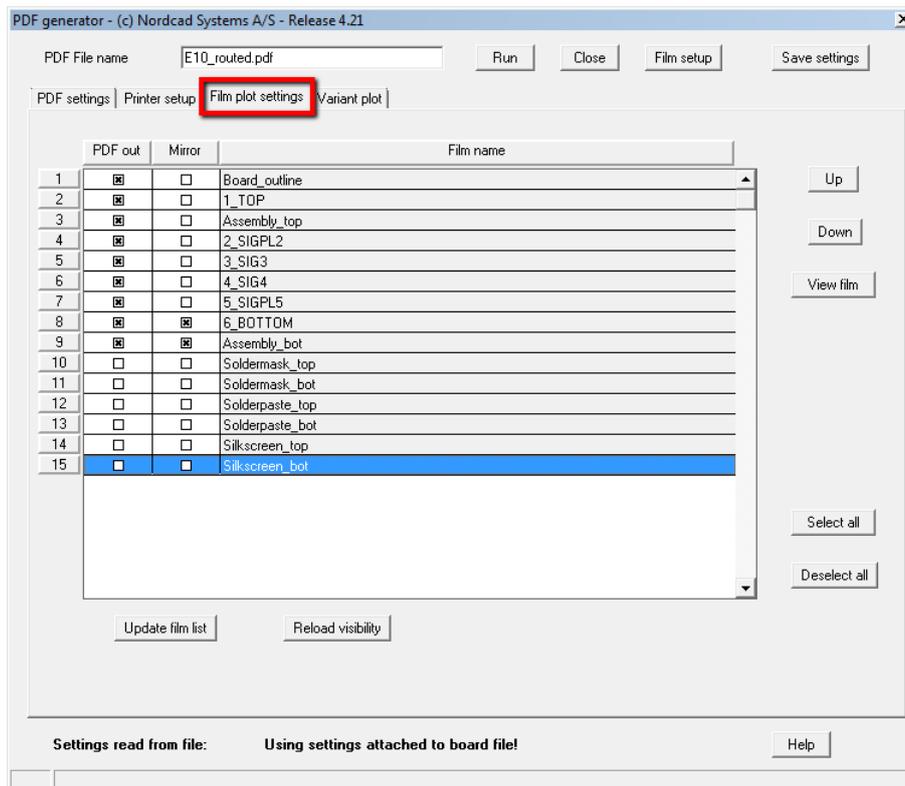
- **gswin32c.exe**: Specify the path and filename (gswin32c) for ghostview.
- **Download and install CutePDF**: Click to go to the download and install for CutePDF

Film plot settings

Notice that the settings in the "Film plot settings" are not used if **Variant plot** is enabled.

This is all new for release 4.02 of nsWare PDF Generator, some of the new capabilities includes

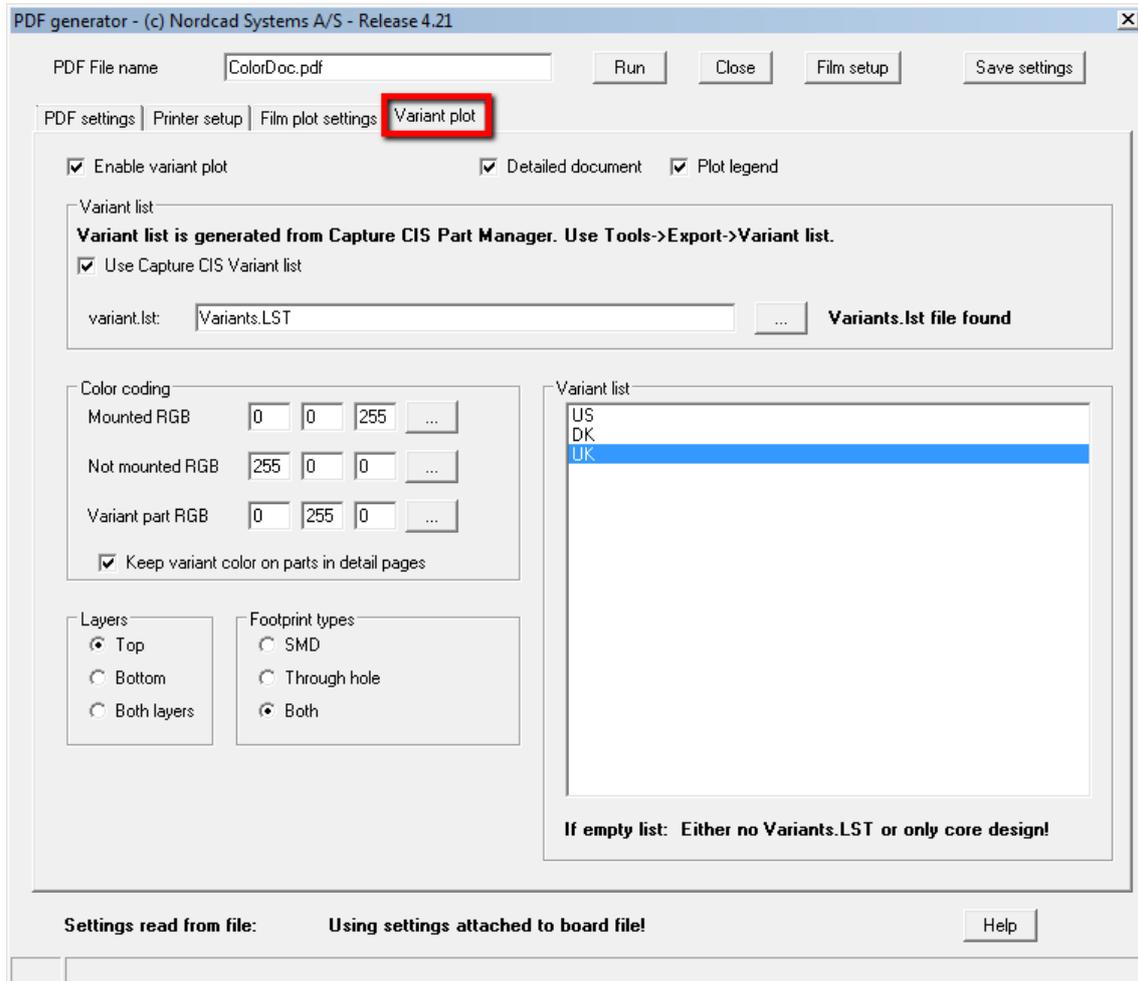
- Only plot selected films to PDF document
- Reorder plot order. Previously the films was plotted in the order listed inside Manufacture→Artwork
- Preview what is plotted in each film
- Restore original visibility settings
- Update the film list after changes in Manufacture→Artwork



- **Film name**: This list show all the film inside the Manufacture→Artwork dialog. If changes are made inside the Manufacture→Artwork dialog while the nsWare PDF Generator program is running then press "**Update film list**" to update this list. List is auto updated each time the program is started.
- **PDF out**: This is a toggle field. Click this to select/deselect if the film should be plotted
- **Mirror**: This is a toggle field. Click this to select/deselect if the film should be plotted as mirrored
- **Up/Down**: Select a film name and press Up or Down to move the film up or down the list. The final PDF document will contain the topmost selected film as page 1 and continue downward with page 2 etc.
- **View film**: Select a film name and press View film to get a preview inside PCB Editor of the content included in the film
- **Reload visibility**: Will reload the original visibility settings from before using the "**View film**" button. The program will also automatically go back to the original visibility settings when closed or after pdf generation.

Variant plot

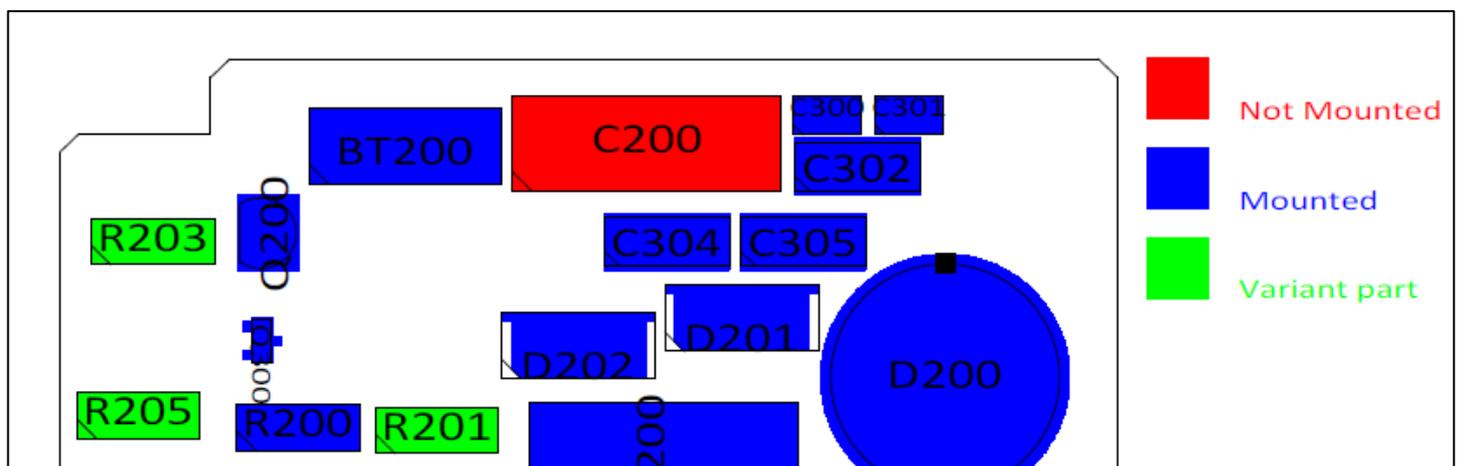
This new functionality was introduced in 4.16 and enhanced much further in 4.21. It is currently only supported when using Ghostview (look at **"Printer setup"**). Adobe support is currently being investigated.



The functionality has 2 core capabilities.

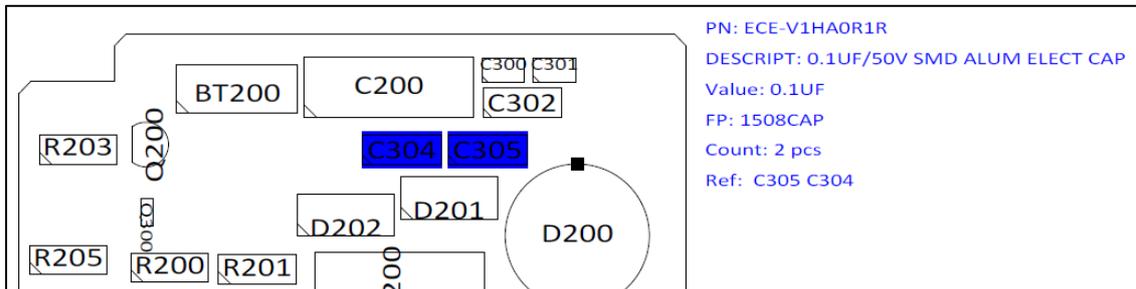
1. Create a variant overview drawing

The drawing created contain colored parts depending on their mounting status for the selected variant.



2. Create detailed assembly documentation

This creates a page per part number used. All parts with the same part number are highlighted and additional text information is added to the drawing.



Requirements to work properly

The creation of both of the above documentation pages rely on part numbers being present in the board.

Part number information must be transferred to PCB Editor through property PART_NUMBER for both regular netlist (allegro.cfg) and variant list (variant.cfg)

The drawing only really makes sense if a Variants.lst file is available. The drawing color parts depending on their mounting status. If no Variants.lst file is found all parts will be considered mounted and colored respectively.

Variants.lst: Create from OrCAD Capture CIS Part Manager using Tools → Export Variant List.

The text fields added to the detailed pages are (must be transferred through the above 2 files)

PN: Part Number - must be available as property "Part_Number"

Descript: Description – must be available as property "Description"

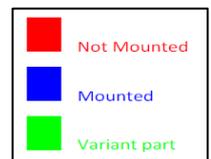
Value: Value – must be available as property "Value"

FP: PCB Footprint – must be available as property "JEDEC_TYPE" (default setup in variant.cfg)

Variant plot settings

The dialog contain a number of settings

- **Enable Variant plot:** Enable the capability to plot variant drawings. Any settings in "Film plot settings" are ignored.
- **Detailed document:** A page is plotted per part number – all parts using that part number is shown colored according to the "color coding" settings.
- **Plot legend:** If this is enabled a color legend is plotted on the variant drawing. A color legend is show to the right
- **Use Capture CIS Variant list:** If this setting is enabled the Variants.LST file is used
- **Variants.LST:** This is the place to point to the Variants.LST file created in OrCAD Capture CIS using Tools→Export Variant List from Capture CIS Part Manager
- **Variant list:** Select the variant that should be plotted
- **Color coding:** Select the color to use for parts that are mounted, not mounted or variants.
- **Keep variant color on part in detail pages:** Used in conjunction with the "Detailed document" to plot variants on the detail pages with the "variant part RGB" color otherwise it uses the "Mounted RGB" color.
- **Layers:** Select what layers to plot
- **Footprint types:** Select what footprint types to plot

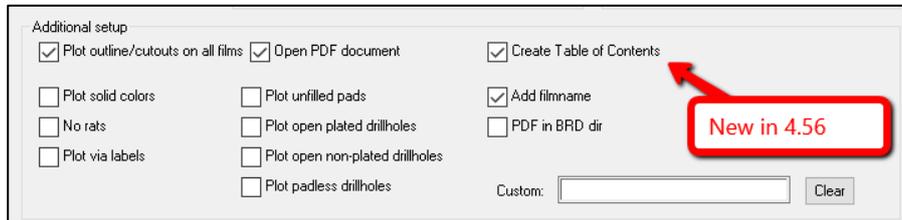


Known problems and solutions

PCB Editor is only able to generate 292 pdf pages per session. This limitation can come into play with the new part highlight capability introduced in 4.16.

Revision history:

4.56: Added option to plot table of contents on page 1



PAGE	CONTENT
2	Assembly_top
3	1_TOP
4	2_VCC
5	3_GND
6	4_BOTTOM
7	Assembly_bot

4.54: Plot outline on all films now also includes plotting cutout data

4.45: Fix for illegal characters in pdf file name. Replaced with underscore

4.34: Support for 17.2

4.28: Added option for pdf file to be placed in job directory

4.21: Enhanced page plot per partnumber per layer for assembly instructions to support variant assembly drawings.

Moved the Part Highlight functionality from PDF Settings page to a separate tab named "Variant plot"



4.16: Added the ability to plot 1 page per partnumber per layer for assembly instructions

4.14: Added the ability to add the film name as a text on each page of the pdf document. See documentation for "add filename" in the Additional setup section of this document.

4.05: Updated film plot settings with a select all and deselect all button

4.04: Updates to finding fonts. Ability to print with open drill holes, hide rats etc.

4.02: Major update including the ability to select and order films to plot and many other small fixes

3.30: Help preference for using PDF help document, better directory cleanup and added Film setup button

3.23: Fixed issues with reversed order of artwork films after using custom settings. Also directory fix for saved settings.

3.21: Fixed issues with gswin32c and check that a font is selected if using fonts. Defaults to Arial if no font is selected.

3.10: Added the ability to create non-searchable pdf documents by setting the option "Don't use fonts".