Altium Designer

Essentials Training with Altium 365

Module 27: Output Job File for Documentations and Fabrication and Assembly Outputs

Software, documentation and related materials:

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Module 27: Output Job File for Documentations and Fabrication and Assembly Outputs

1 Purpose

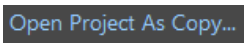
In this exercise, students will see multiple fabrication and assembly outputs, mostly through predefined the Output Job file. This file allows users to generate output files in an easy fashion.

2 Shortcuts

Shortcuts used when working with Module 27: Output Job File for Documentations and Fabrication and Assembly Outputs

F » N » U	New Output Job File
Ctrl+S	Save Document

3 Preparation

1. Close all existing projects and documents.
2. Next, create a Copy / Clone of the Training Project `Module 27 Output Job File`
3. Select **File » Open Project...** to open the *Open Project* dialog.
4. Enable the folder view button  .
5. Navigate to the predefined Training Project `Module 27 Output Job File (Top\Projects\Altium Designer Essentials Training Course\...)`.
6. Select **Open Project as Copy...** 

.
7. At the new dialog *Create Project Copy:*
   a) Add your name to the project name: `Module 27 Output Job File – [Your Name]`
   b) Add a description: `Altium Essential Training – [Your Name]`
   c) Open the *Advanced* section
   d) Select the Ellipsis Button  from the **Folder** configuration to open the *Choose Folder* Dialog
      i) Select the folder with your name: `Project\For Attendees\[Your Name]`
      ii) Select **OK**
   e) Change the **Local Storage** path if needed.
   f) Select **OK** to create the copy.
8. Wait until Altium Designer creates the copy of the project and opens the project in the *Projects* panel; this can take up to 1 minute.

Hint: For details how to Copy / Clone the predefined training project see Module 9 Making the Connection, Step 3 Preparation.

4 Output Job File

An Output Job file allows users to add, configure, and reuse a variety of output configurations. In this exercise the project you load has predefined Out Job files with configurations for Assembly and Fabrication. Having predefined Out Job Files, added to a Project Template, is best practice for the project flow.

Using predefined Out Job files:

- Reduces the time for creating the PCB Documentation and Fabrication files.
- Ensures that the documents have a uniform appearance.
- Ensures that all required information is part of the documentation / fabrication files.

The predefined outputs include, for example, Schematic and PCB printouts, Validation reports, Gerbers, and NC Drill file report and a Pick & Place output.

Hint: Altium also support managed Out Job File. At the Preferences, Section Data Management – Template – Default a Out Job File could be added as template for New Out Job Files.
Depending on your Altium Configuration the Out Job File we create next might look different.

5 Bill of Materials

In PCB assembly, a Bill of Materials (BOM) is a comprehensive list that details all the components, parts, and materials required to assemble a printed circuit board. It includes information such as component names, part numbers, quantities, and reference designators. The BOM is crucial for procurement, assembly, and quality control processes.

A BOM can be created as a standalone document or as part of the Output Job documentation.

9. Open any schematic document, such as `Digital_IO.SchDoc`.
10. To generate a Bill of Materials (BOM), we can go to **Reports » Bill of Materials** from the schematic environment. The BOM dialog will appear as shown in Figure 1.

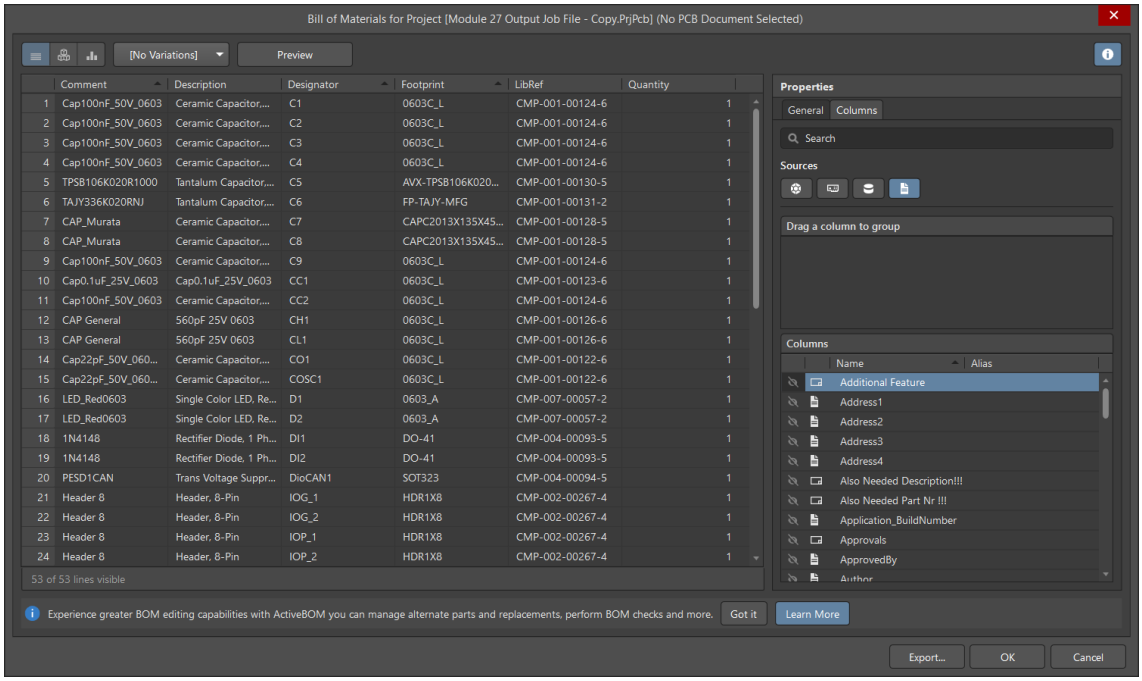


Figure 1. Bill of Materials dialog window

11. Components appear individually on a single row if they are not grouped by any parameters. If the grouping already exists, you can delete it using the **Trash** icon next to the group name, as seen below, Figure 2.

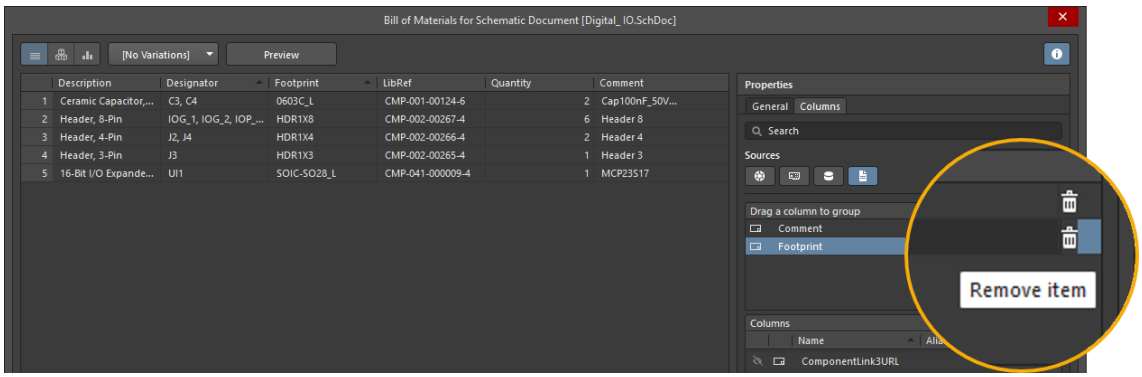


Figure 2. Deleting the existing grouping

12. To group components based on parameters, the *Columns* tab of the Properties section will allow you to drag parameters into the *Grouped Columns* pane as shown in Figure 3.

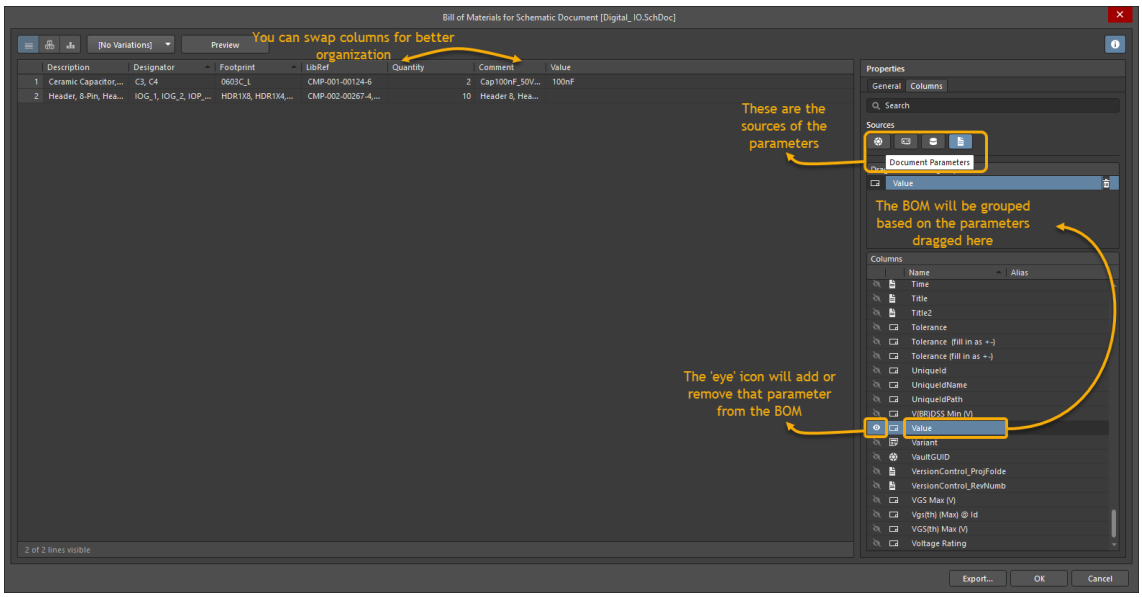


Figure 3. BOM Configuration

13. To control which parameters are available in the Bill of Materials, you can enable or disable the options under the *Sources* pane. If you hover over the icons under the *Sources* tab, it will show you where the parameters originate from as shown in Figure 3.
14. Component parameters can be added or removed from your Bill of Materials, by selecting the  eye icon in the Columns pane. Columns can also be re-arranged by dragging their headers to the intended locations. An example of this is shown in Figure 3.

15. Under the *Export Options* from the *General* tab, select **MS-Excel (*.xls)** as the file format, as shown in Figure 4. Select **Export** to generate the report.
    Note: If in the **File Format** drop down menu the MS-Excel option is in red type, it is an unavailable option, choose the Generic XLS option instead.
16. **Save** the file to a location of your choice and close the generated Excel file upon opening.

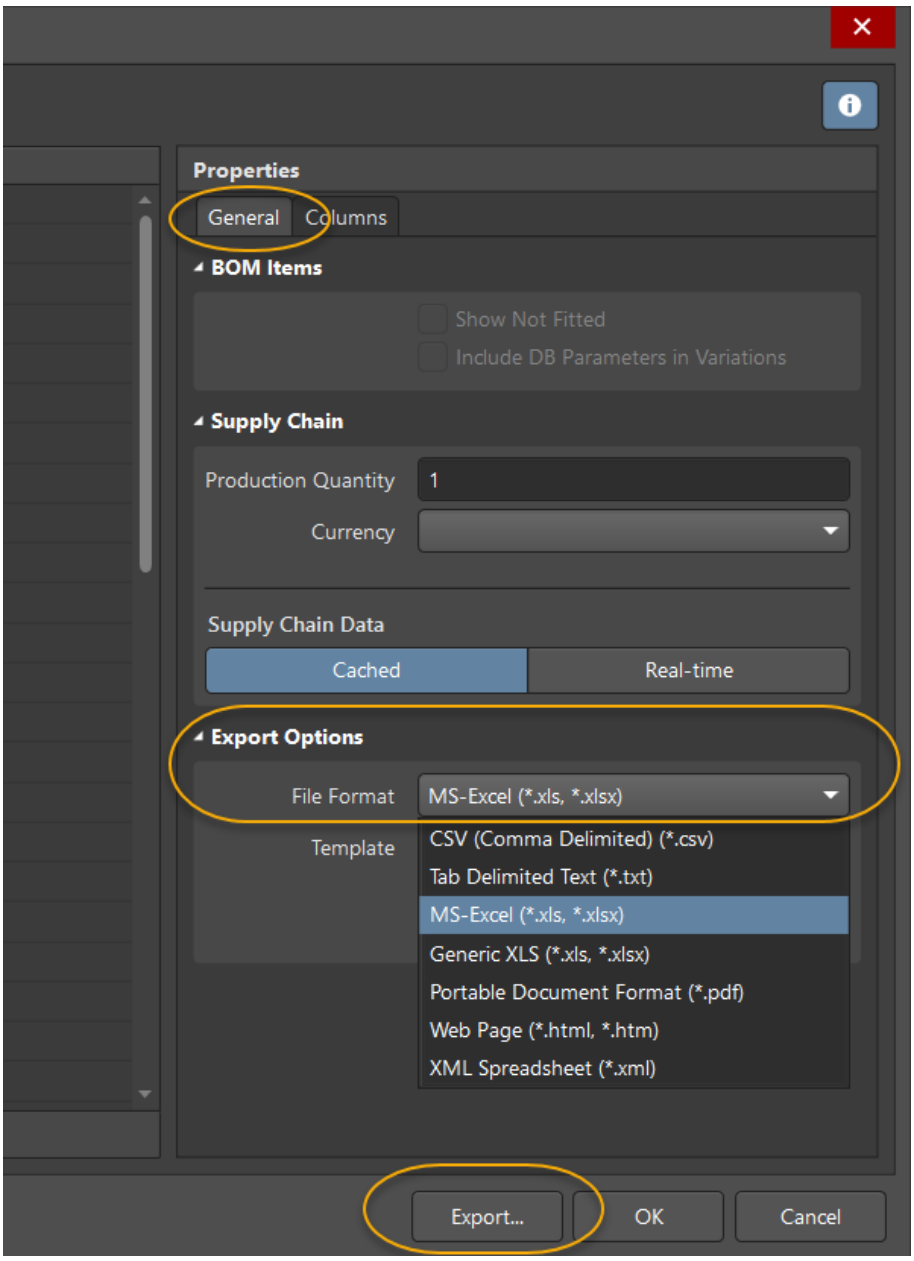


Figure 4. BOM export options

17. Select **OK** to save and close the BOM dialog.

6 Output Job File

6.1 Overview

In this project we have two predefined Output Job files, we will explore these to see how they were setup, and how the output files can be configured.

18. Open the two Output Job files. At the *Projects* Panel open the section Module 27 Out Job File » Settings » Out Job File.
    a) Assembly.OutJob
    b) Fabrication.OutJob

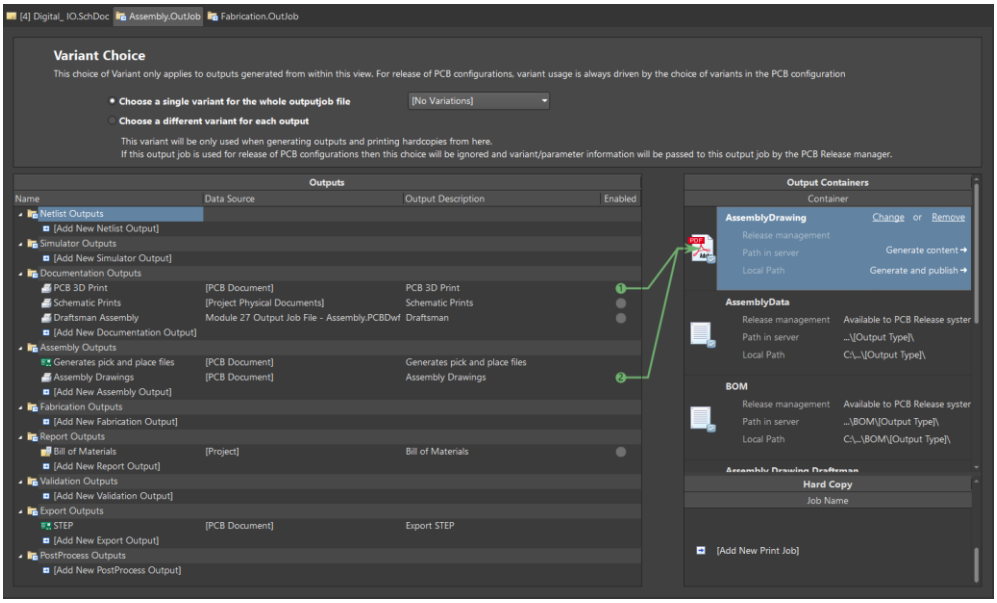


Figure 5. Assembly Output Job File

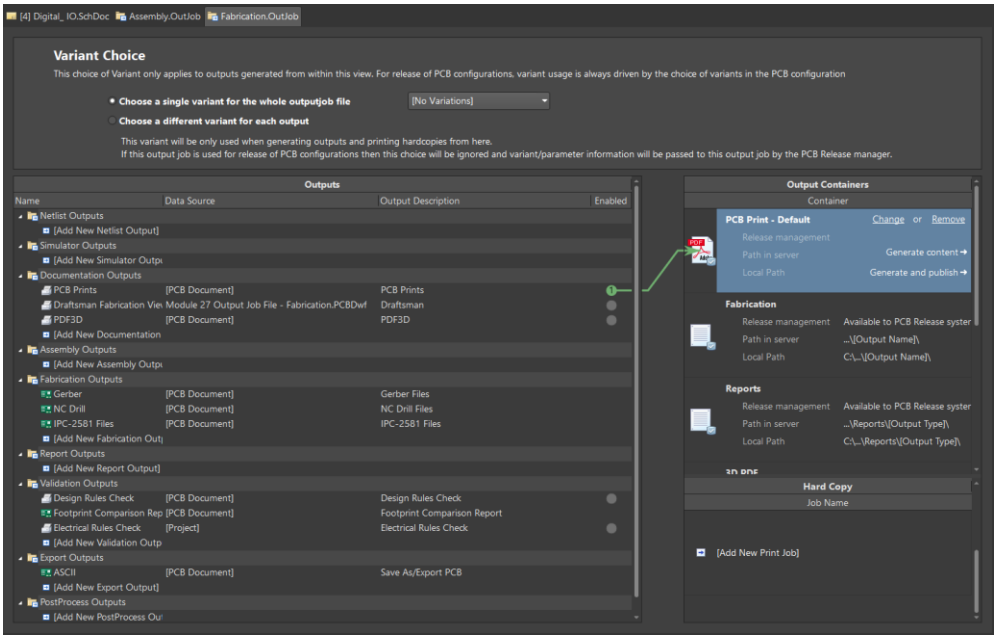
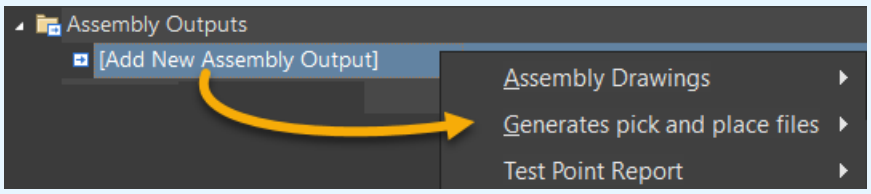


Figure 6. Fabrication Output Job File

6.2 Output Configuration

Hint: The training example has predefined Output Job files.
If you start from scratch or if you want to add additional Outputs to an existing Output Job file you select at the specific category, e.g., *Assembly Outputs*, select the last element in the list **Add New...** and select the Output you wanted to add.



19. Change the focus to the `Assembly.Outjob` file.
20. Next, we will configure one of the outputs.
21. Right mouse click on the `Schematic Prints` section, and select **Configure** to see the Preview pop-up window, as shown in Figure 7.
22. At the `Schematic Preview` window, select **Color** and then **Refresh** options to see the schematic documents.

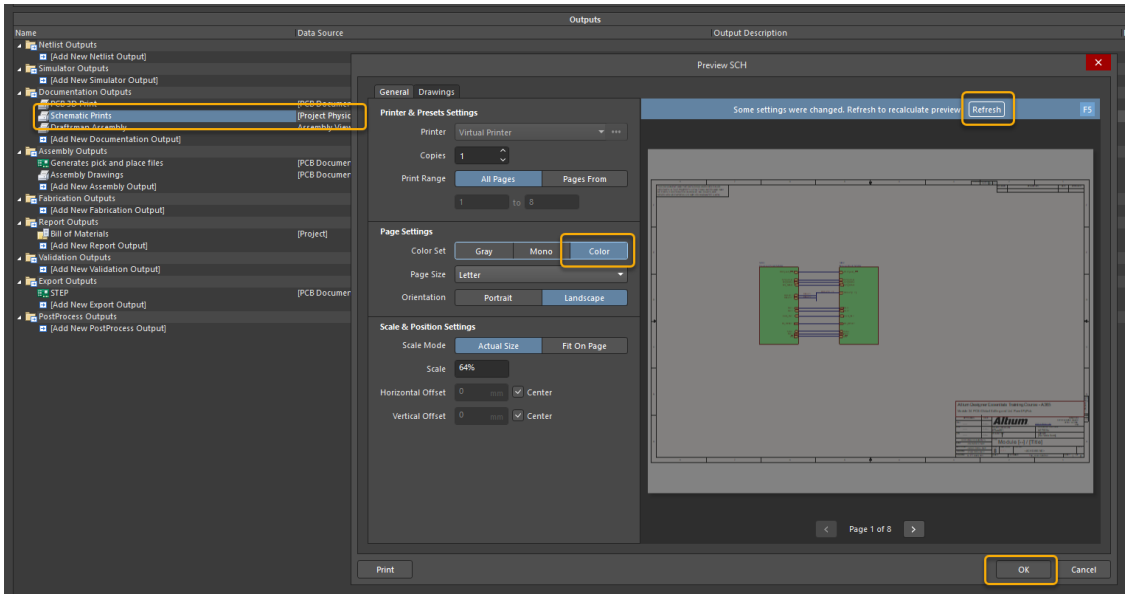


Figure 7. Schematic Prints

23. Same as above explore the other outputs in both the Assembly and Fabrication Output Job files, for example, the BOM Output you have seen as general output from the menu **Report** at section 5 Bill of Materials.

7 Creating Local Output

Next, we create some local outputs. The local outputs allow you to check the generated outputs, for example, Gerber, before you release the project to the workspace.

7.1 Output Containers

7.1.1 Folder Container

Output Container: Folder type allows you to generate native file formats, for example, Gerber, NC Drill, and so on.

24. Change the focus to the `Fabrication.Outjob` file.
25. In the *Output Containers* section on the right side of the Output Job file, click on **Fabrication** to select it, as shown in Figure 8.
26. Check the radio buttons in the *Enabled* column and the connections from the radio buttons to the Output Container. This is the configuration to map the outputs to a container in a specific order, shown in Figure 8.

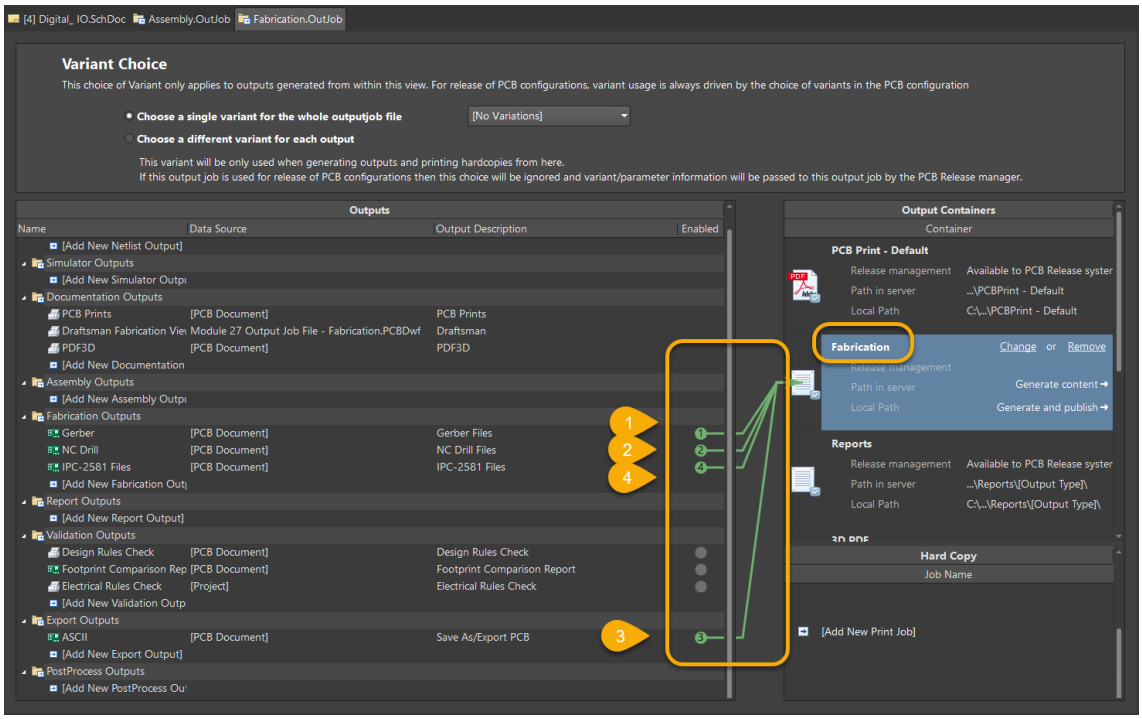


Figure 8. Output Job File with outputs linked to PDF container

7.1.2 PDF Container

Output Container: Folder type allows you to generate native file formats, for example, SCH, PCB, and so on.

27. In the *Output Containers* pane, select ***PCB Print Default .***
28. Similar to containers type *Folder*, you see the connection from the container to the linked outputs.
29. Change the focus back to the **Fabrication** container.

7.2 Generating the Outputs

7.2.1 Generating a PDF

Next, we will generate some example outputs to demonstrate the flow for Out Job files.

30. Change the focus to the `Assembly.Outjob` file.
31. To create the PDF for Schematic file, highlight the PDF container *Documentation* and click on the **Generate Content →** link as shown in Figure 9.
32. For the training example the PDF file will pop up after processing, if a PDF viewer is installed at your PC, and will be saved to the `Project Outputs for WCTopping` project sub-folder.

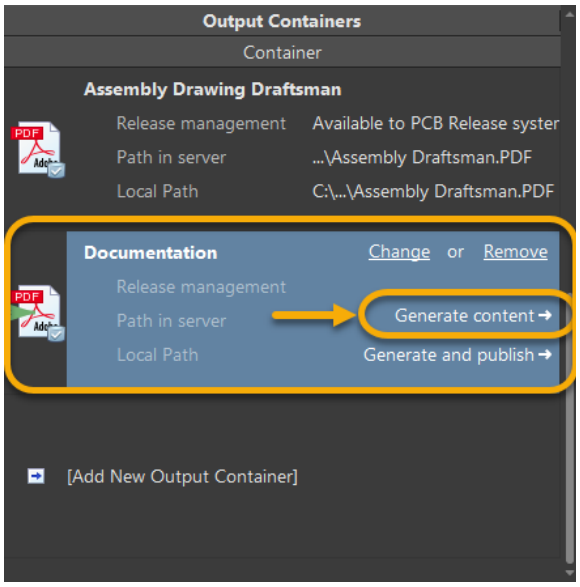


Figure 9. Generating the PDF outputs

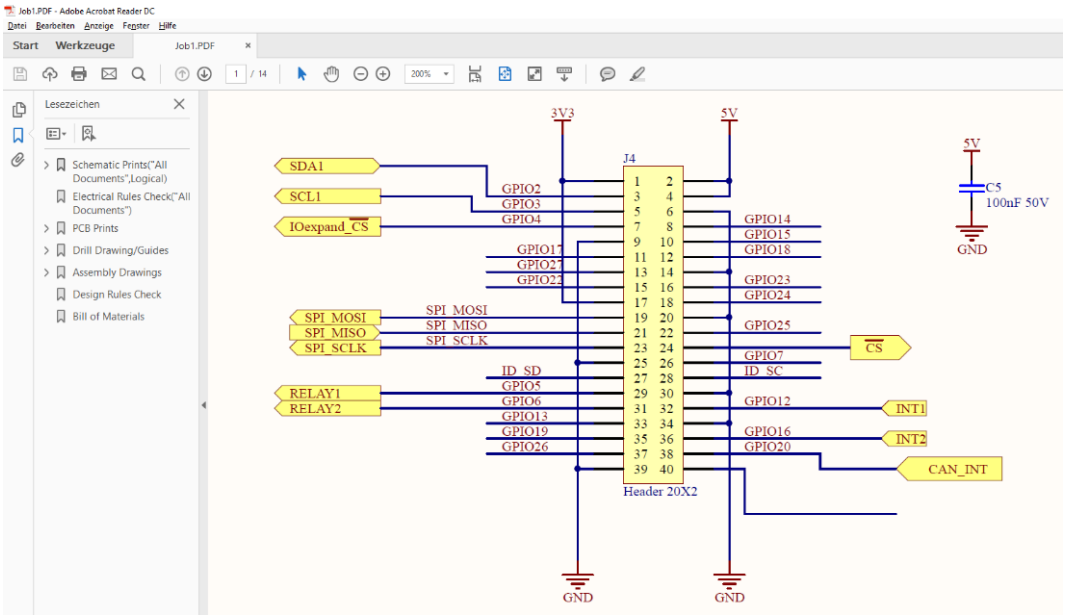


Figure 10. Generated PDF based on our outputs from the Output Job

7.2.2 Generating Files from Folder Structure

33. Change the focus to the *Fabrication.OutJob* file and the output container *Fabrication*. Click on the **Generate content** to generate a set of Fabrication files (Gerber, NC Drill, PCB ASCI, and IPC-2581) as shown at Figure 11.

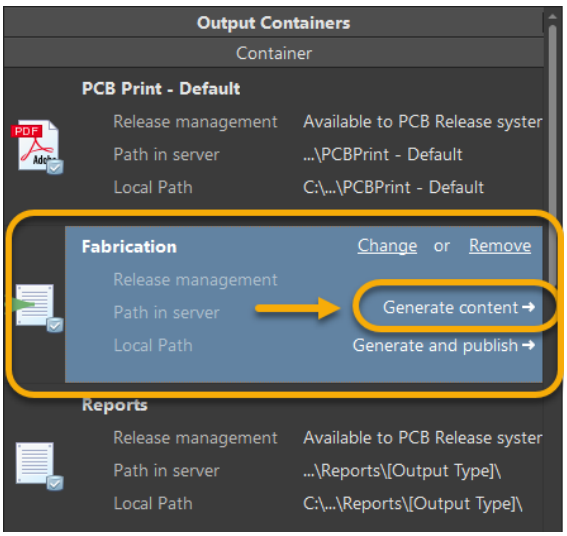


Figure 11. Generate Content - Fabrication Container

34. After the different Outputs are generated (this may take up to several minutes, depending on the Design size and PC performance) the individual outputs will appear at the *Projects* panel as shown in Figure 12.

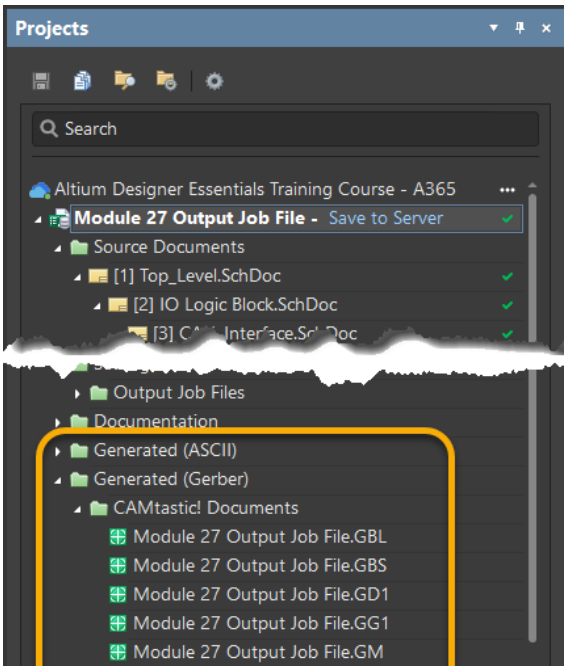
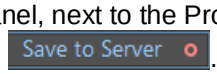


Figure 12. Folder Structure outputs generated from the Output Job

Hint: For our example these files will be saved to the `Project Outputs for…` project sub-folder on your Hard Drive.
If you wanted to save these generated files in another folder, choose the Output Container, select **Change** and specify a new path and structure for the Output Folder.
The configuration of the Output container also include additional options like **Open generated Outputs** or **CAMtastic Auto-Load Options.**

35. Select **File » Save All** to save all modifications.
36. Save the modifications to the server:
    a) At the *Project* panel, next to the Project name you find the command **Save to Server** 

    .
    b) Select **Save to Server.**
    c) At the dialog *Save [Project Name],*
        i) Add the comment `Module 27: Output Job File for Documentations and Fabrication and Assembly Outputs - [Add Your Name]- Finished`
        ii) Click on OK.
37. When ready, close the project and any open documents, **Window » Close All**.

Congratulations on completing the Module!

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