



How to Improve Curing

Overview

FB225 UV ink curing or polymerization occurs after exposure to a strong UV radiation. Curing level may vary and depends on variable parameters such as ink age, UV lamp condition, machine setup, site environment, etc.

Sometimes combination of these factors may create an ink film that is not completely strong on the surface. In most cases it has no effect on customer's post print workflow, finishing processes and final application. However, in some marginal cases the upper layer wetness can create a problem.

This document explains how to eliminate an upper layer residual wetness and prevent problems at post print/finishing stages.

Background

- UV ink is a liquid plastic that is being cured/dried/hardened/polymerized under the strong UV light.
- During every media (printing table) backward or forward movement PHs array shoots *part of the image* (certain number of dots). This ink layer immediately or after short delay is exposed to UV light.
- Ink curing level depends on UV light emitted energy that could be calculated as UV lamp intensity multiplied by exposure time.
- In order to raise curing level of the last printed ink layer we have *to increase exposure time* by slowing down the last table backward movement. This adjustment is applicable only for print modes built on odd number of table movements. In such modes PH array is not shooting during last table backward movement.

How to increase exposure time

The simplest way to increase exposure time is to apply extra cycle/s after the print. Disadvantage of this workaround is decreasing machine throughput for more than 10% that might be unacceptable by certain customers.

As seen from the below table, most of print modes have odd number of table movements. It means that for these modes, when $\frac{3}{4}$ automatic loading is set, table has to return to loading position.

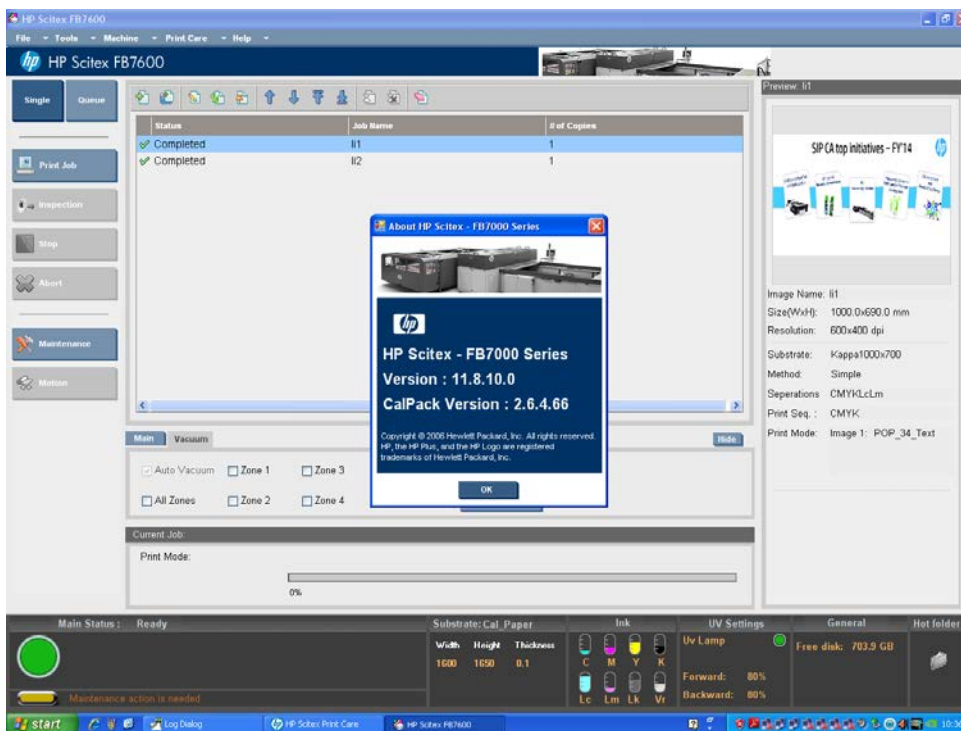
Print Mode Name	Printing Direction	No of table movements
POP_17	UniDir	25
POP_30	BiDir	25
POP_34_Text	UniDir	12
POP_40	UniDir	12

POP_48	BiDir	15
POP_52	BiDir	12
POP_55_solid	BiDir	15
Production_70	BiDir	9
Production_95	BiDir	6

We can reduce the speed of the last table backward movement without applying extra cycle and without significant effect on throughput. By slowing the last table movement we can significantly increase exposure time for the ink last layer and get completely dry image. To do this, you should create a new appearance as described in the following sections.

How to build a new appearance

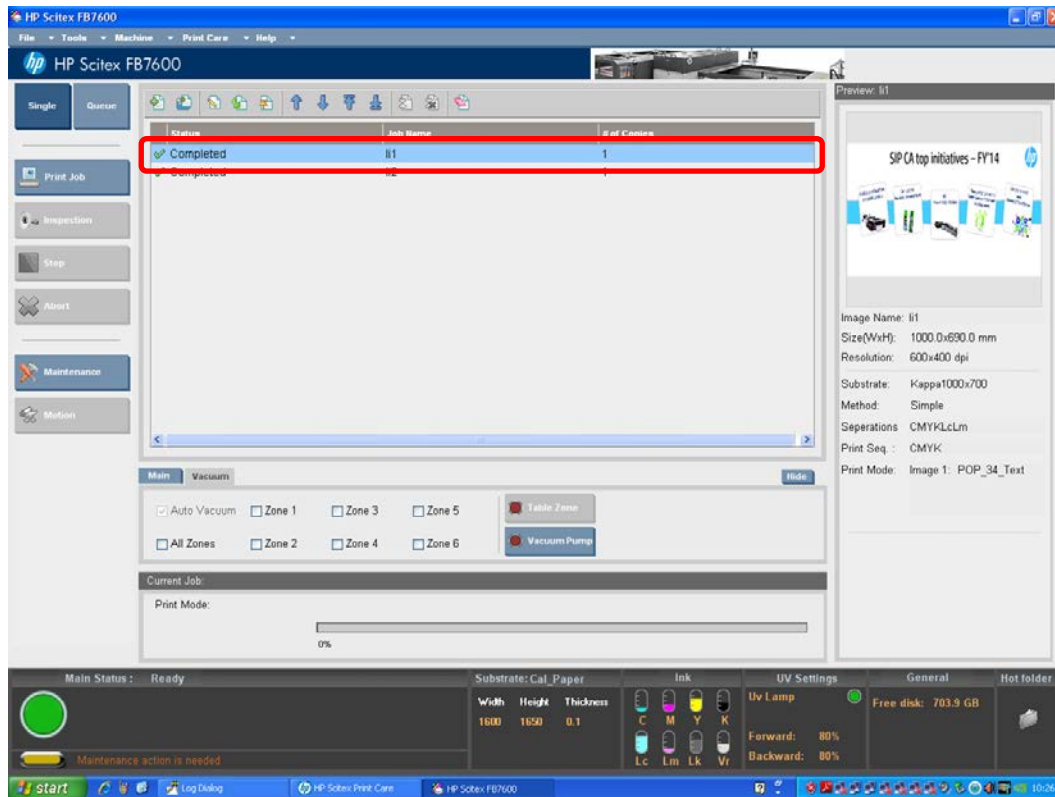
Verify SW version. Go to **Help -> About**.



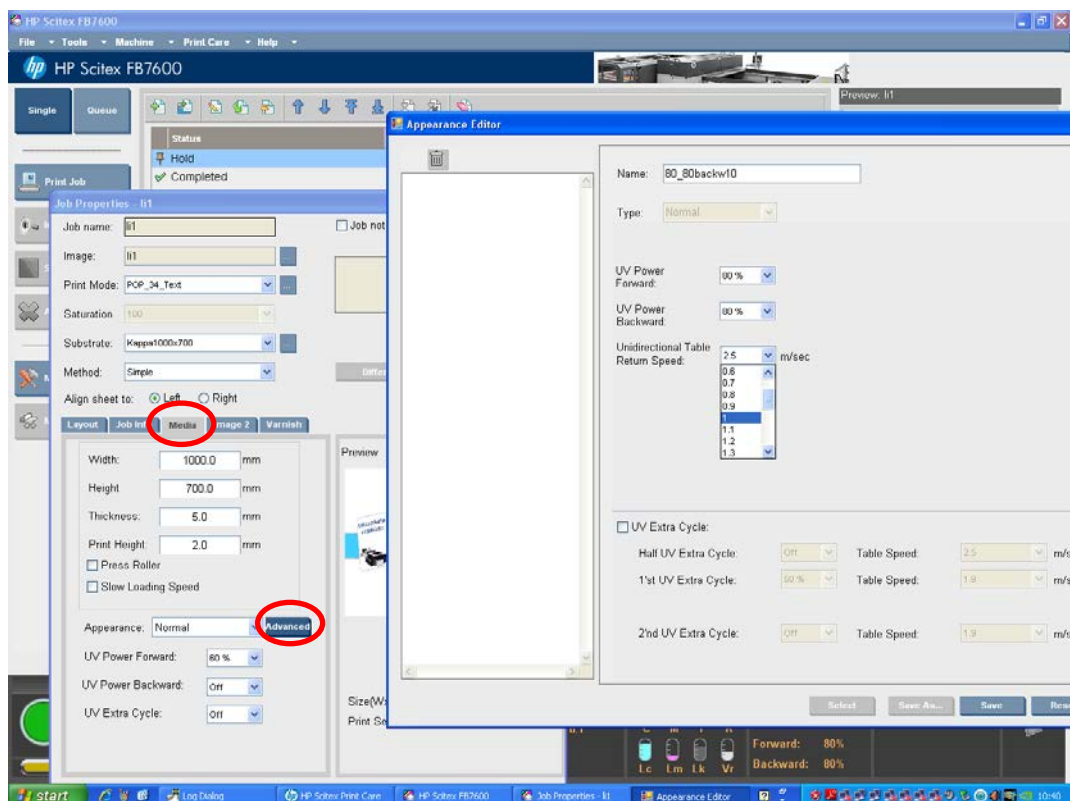
- If SW version is 11.8.10 or later, go to “How to build new appearance for SW 11.8.10” on page 6.
- For the earlier versions, proceed to “How to build new appearance for previous SW versions” on page 3.

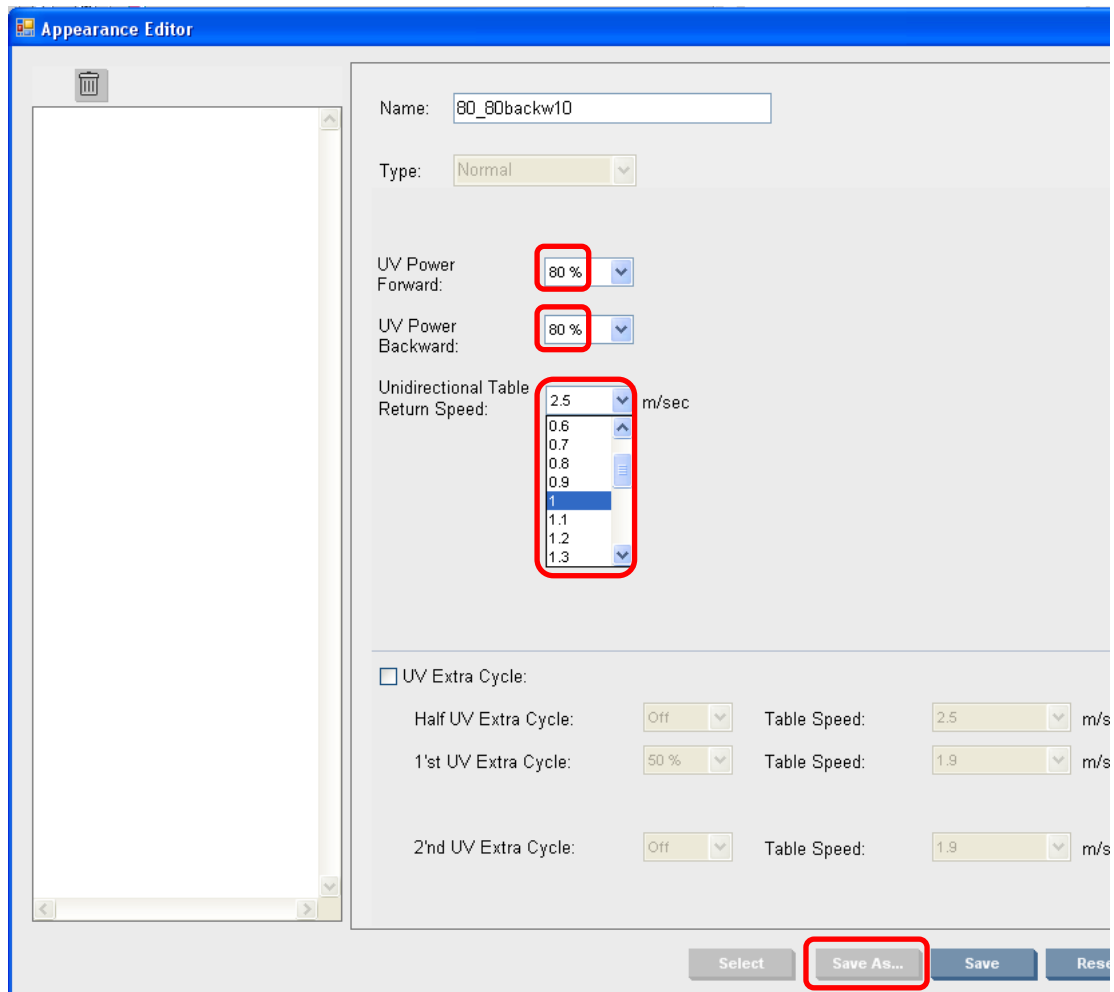
How to build new appearance for previous SW versions

1. Double click on the job line to open the Job Properties window.

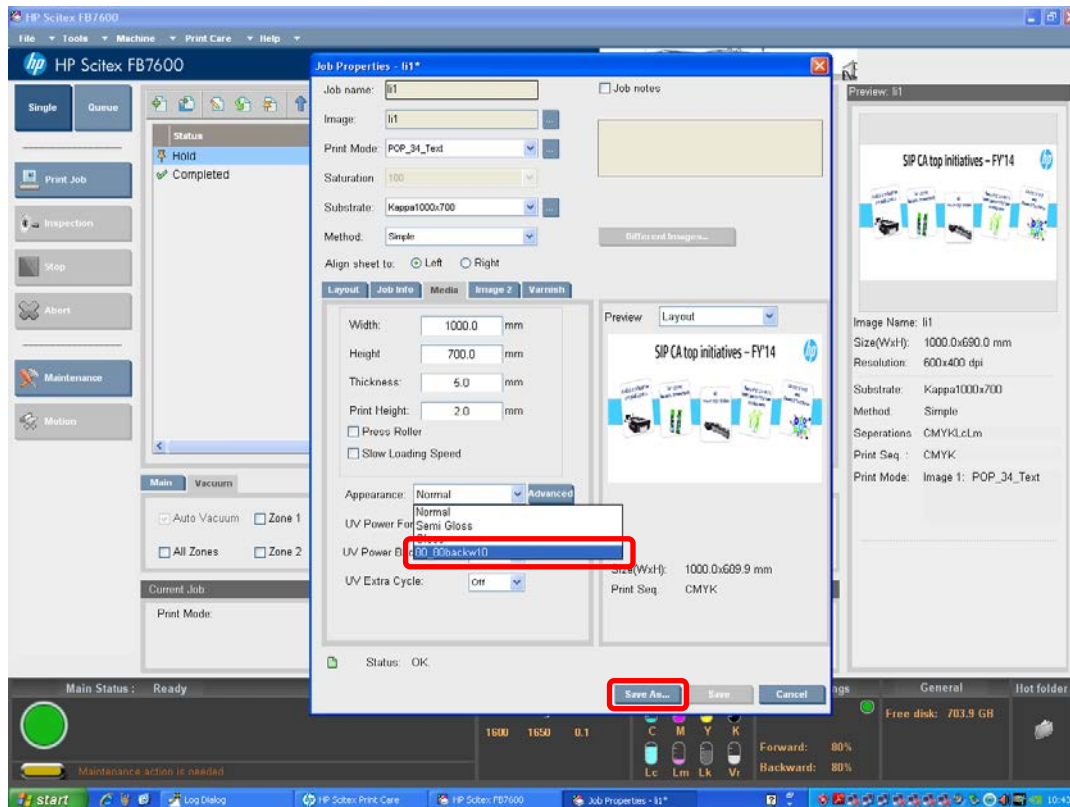


2. In Job Properties window, open the **Media** tab and click the **Advanced** button to open Appearance Editor.

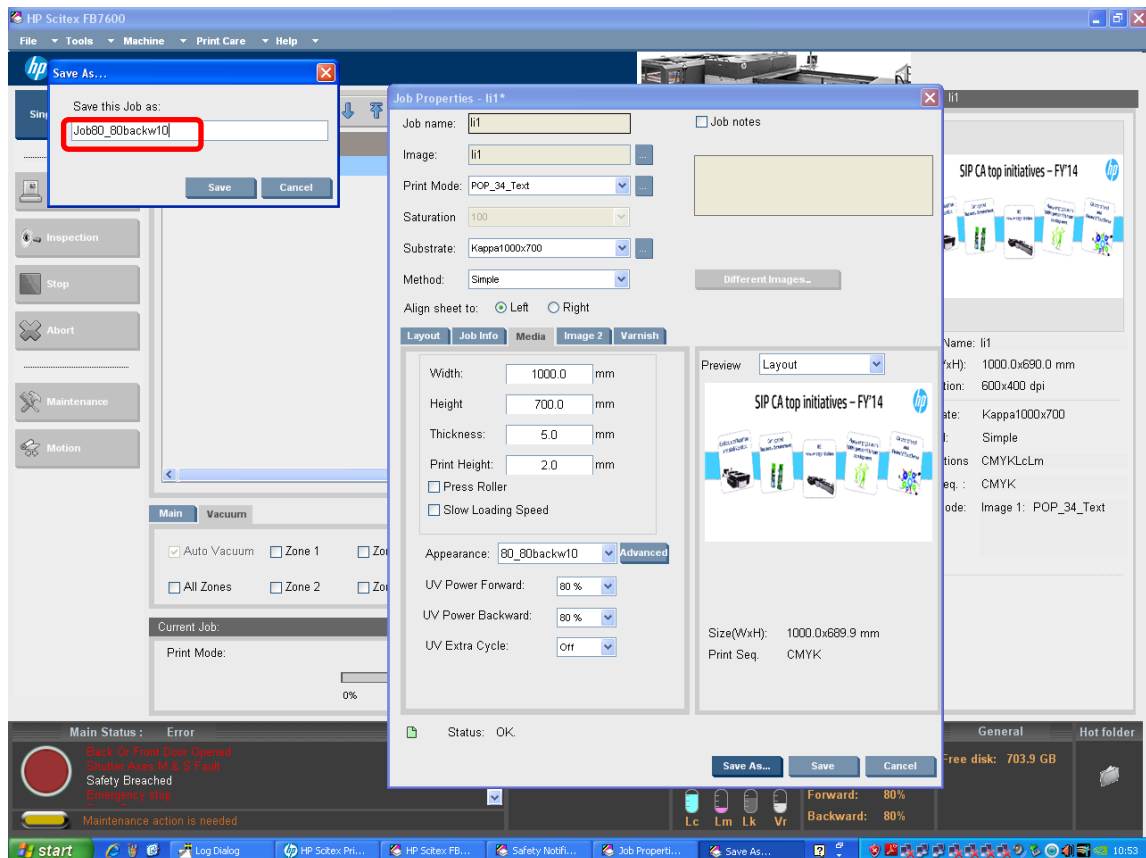




3. Set **UV Power Backward** and **Forward** in range from 60% to 90%.
4. Set **Unidirectional Table Return Speed** in a range from to 0.5 to 1.9m/c.
5. Click **Save As** button and give the appearance relevant name: e.g. **80_80backw10**, which means UV Power is **80%/80%** and return speed is **1.0 m/c**.
6. Close the Appearance Editor window and select new appearance from Appearance drop-down box in the Job Properties window.



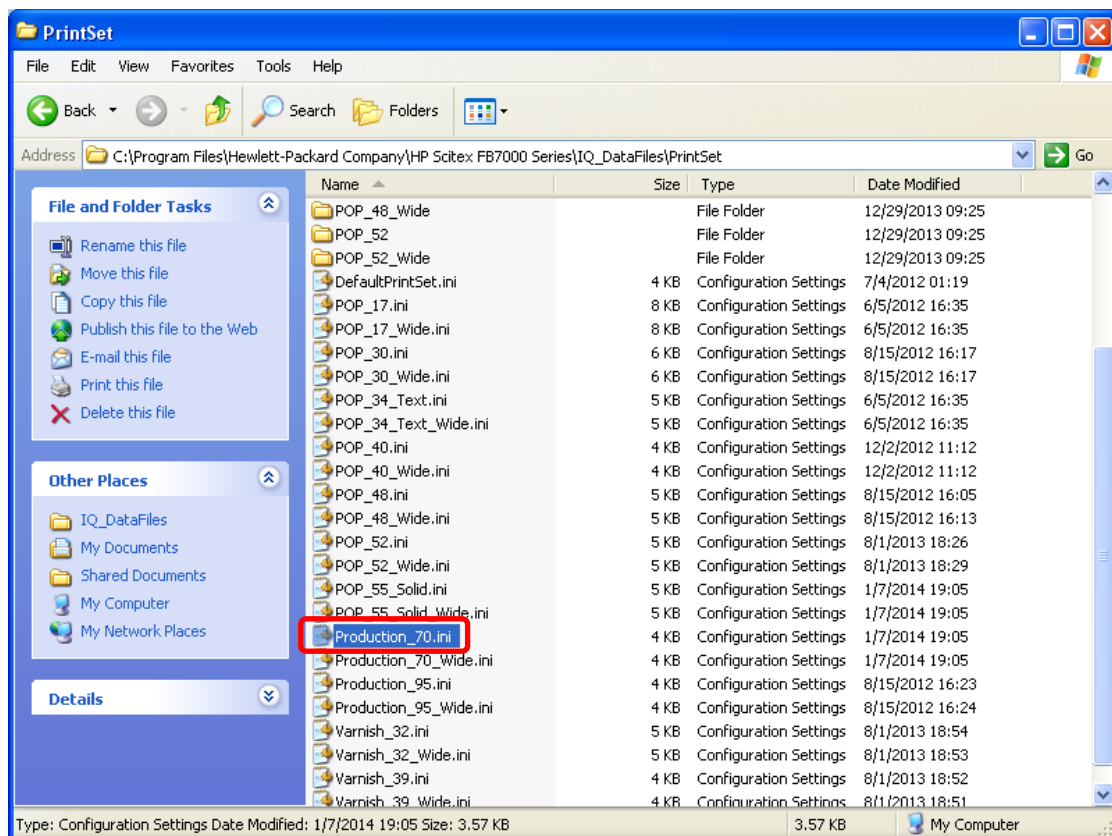
- Click **Save As** in the Job Properties window and save job under relevant name: e.g. **Job80_80backw10**. New job now appears in the main window job list.



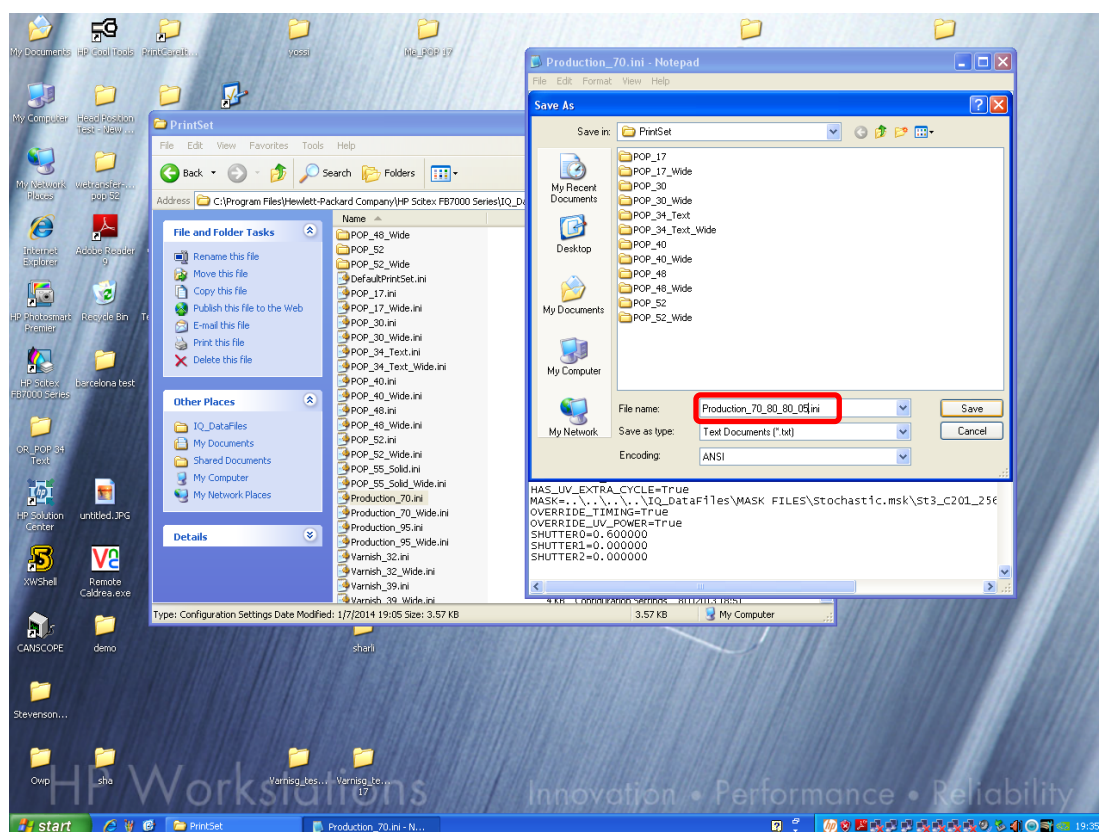
- Build a few appearances with different UV power and printing table speed values, print with them and find the best one according to the customer finishing requirements.

How to build new appearance for SW 11.8.10

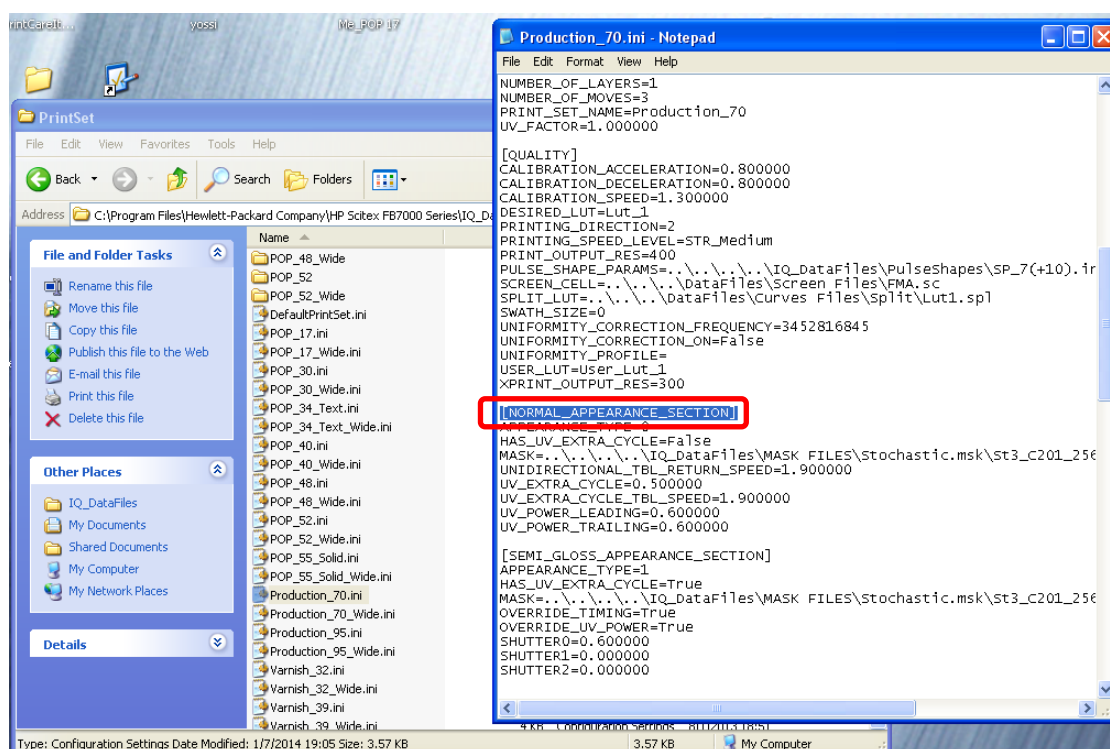
- Exit the machine application.
- Go to the folder: **C:\Program Files\Hewlett-Packard Company\HP Scitex FB1000 Series\IQ_DataFiles\PrintSet**.
- In the PrintSet folder, find *.ini file with the name relevant for the print mode to which you wish to apply a new appearance, for example **Production_70.ini**.



- Double click to open the file; after file is open, go to **File -> Save As** and give the file relevant for new appearance name. For example, **Production_70_80_80_05.ini** where **80%/80%** is backward and forward UV power and **0.5 m/c** is table speed.
- Click **Save**.



6. Now, when file has a new name, find in the text chapter called:
[NORMAL APPEARANCE SECTION]



7. **Only in this chapter of the file:** Edit three values according to the desirable setup:

For example:

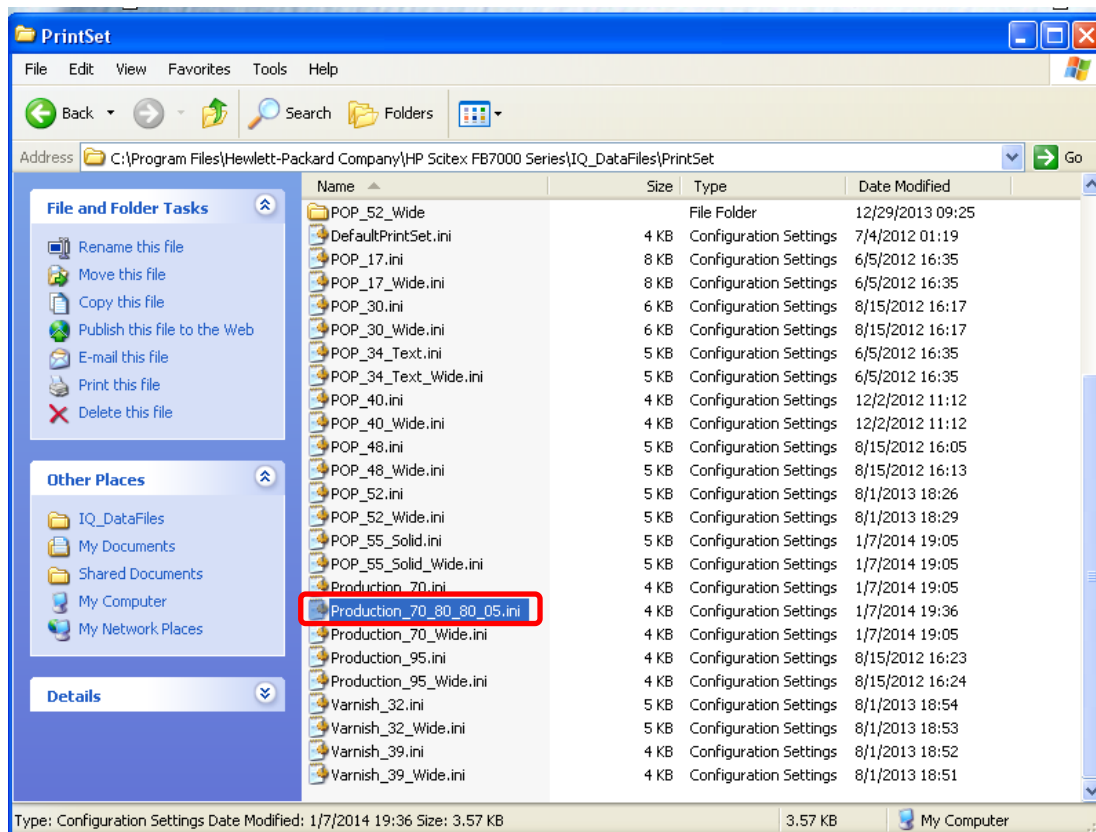
UNIDIRECTIONAL_TBL_RETURN_SPEED=0.500000 (to change speed to 0.5m/c)

UV_POWER_LEADING=0.800000 (to change forward UV power to 80%)

UV_POWER_TRAILING=0.800000 (to change backward UV power to 80%)

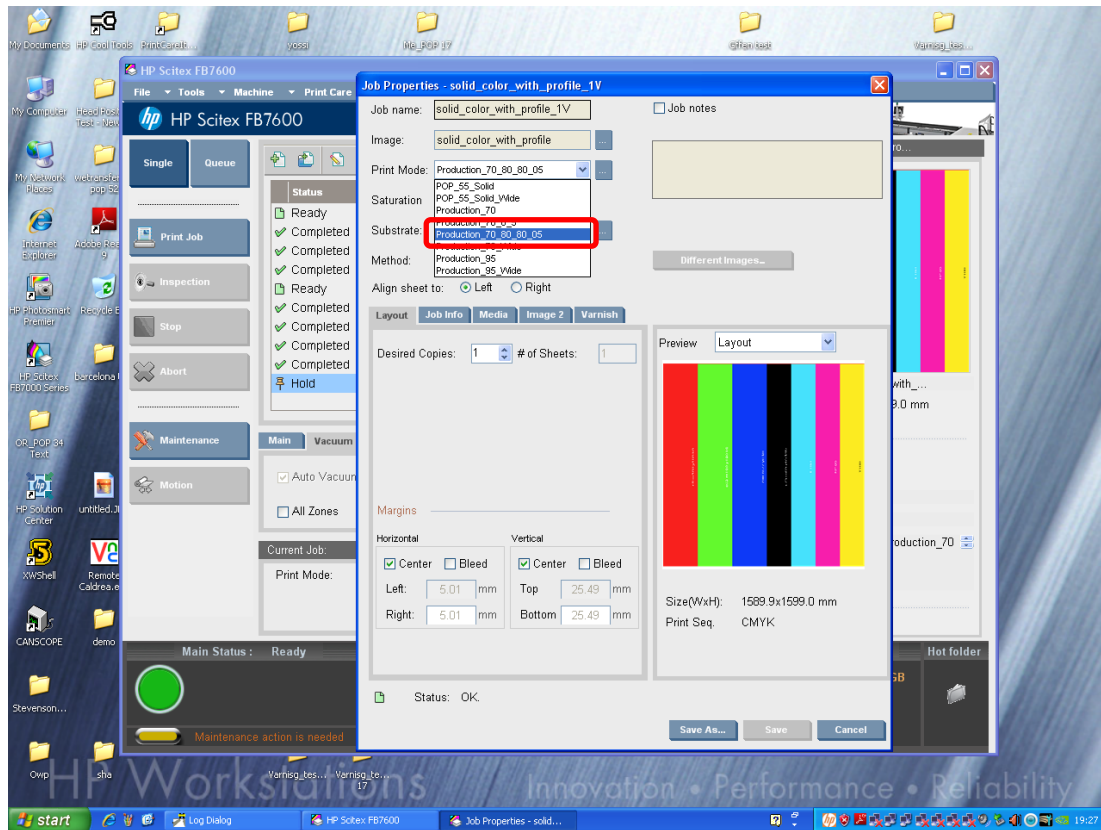
Note: Do not make any other changes. Avoid adding any comas, spaces, etc.!

8. Save the file and close it.
9. Ensure that the file with relevant name appears among other files in the PrintSet folder.

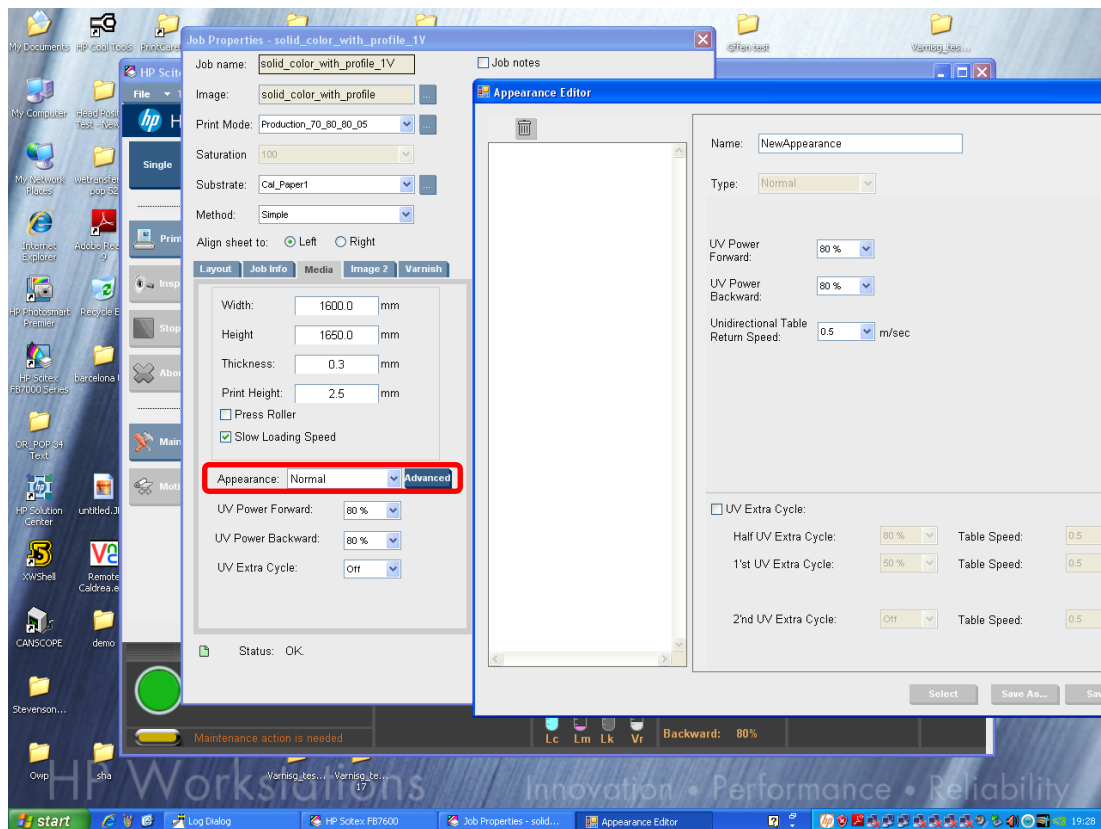


10. Start the machine application.

From now on, the new setup appears as a print mode in the Job Properties window.



11. Select the new print mode and ensure that **Normal** set in Appearance Editor changed accordingly. If not, restart the machine application.



12. Built a few appearances with different UV power and printing table speed values, print with them and find the best one according to the customer finishing requirements.

Workaround for guillotine cutting problem

If you have to cut a pile of printed samples on the guillotine cutter, due to high pressure applied while cutting, printed side might leave marks on the white back side.

In this case, ask the guillotine operator to set holding beam pressure on minimal or even shut it off completely if possible.

Holding beam presses against the pile before the knife movement in order to prevent pile shifting. It should be in use while cutting pile of paper and could be disabled for compressed/folding carton piles.

Both methods decrease the table return speed, disable the pressure against the holding beam, and provide the complete solution for image transfer problem.

