QTR Printing
Windows
Matching the Monitor and Print

I use exclusively Windows computers.   With Windows, QTR acts as an independent printer utility.   Macs have different printing workflows.

Often people who are not familiar with QTR find that the prints do not have the shadow densities they are accustomed to. More generally, the prints might not match the monitor. Having the prints match the monitor is, in the mainstream Epson printer driver workflows, taken care of via "color management." This includes profiles, usually in the form of ICCs, for both the monitor and printer. In a well-calibrated system, the prints in a "color managed" workflow will match the monitor reasonably well.

QTR[1] is not, in and of itself, "color managed." That is, it does not automatically adjust the output (print) to match the working space or embedded profile of the image file such that the relative densities displayed on the monitor will be reflected in the print.[2] QTR prints with a straight-line response or characteristic curve. None of the common working color spaces use this density distribution.

There are a number of ways to improve the match between the monitor and print. I do it manually with a Photoshop image adjustment curve that converts my Gray Gamma 2.2 working space files into files that print through QTR in a manner such that they match how my monitor displays the Gray Gamma 2.2 working files.

In my workflow, after I have completed editing a file in Gray Gamma 2.2 workspace (the most common gray workspace and subset of Adobe RGB), I save that file. I then save a second copy of the (Tiff) file to the desktop. This second copy has the print size set and also has the Photoshop image adjustment curve applied to it that adjusts for the difference between Gray Gamma 2.2's and QTR's display and printing characteristics. The curve, which is in many of my Profile Zip files, is called, "GG22-to-QTR.acv."

The graph below shows the difference in relative densities (actually "lightness" expressed as Lab L)[3] between how a Gray Gamma 2.2 ("GG 2.2") file will look on the monitor and print with a color managed system, versus how it will print with QTR.

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[1] For QuadToneRip, see http://www.quadtonerip.com/html/QTRoverview.html
[2] Mac users can insert matte or glossy QTR ICCs in the PS Print Preview to get the advantages of color management with QTR. Windows does not support this type of printing.
[3] Many of us coming from the darkroom use the term "density" for how dark something looks. Technically, "density" was and is measured with a scale that is different and Lab L. However, in digital work we usually use the Lab coordinate system to describe lightness as well as color (Lab A and B). I still casually refer to the Lab L "lightness" as "density." My bad.
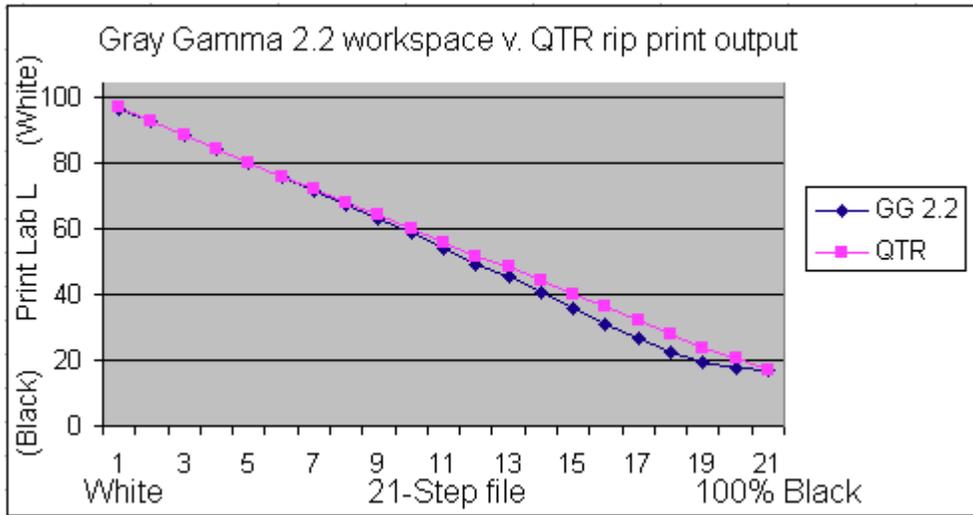
Because the GG2.2 shadows are compressed and QTR shadows are linear, a GG2.2 file that is printed without some conversion to account for these differences will appear lighter and perhaps lacking in good blacks when printed with QTR.

There are, of course, other ways to accomplish a match between the monitor and a QTR print. If QTR printing is the primary objective one has in editing a file, it may make sense to edit the file in a manner that it will print with QTR and look like it did on the monitor with no further conversions or modifications to the file. The QTR download includes ICCs that can be used for this purpose. These are located in the /QuadToneRip/ICC folder. There is also a Readme file in the /QTR/ICC folder that explains the use of the ICCs.[4]

When I was editing only for printing with a rip like QTR, I used the soft-proofing approach (View>Proof Setup>Custom). I now, however, prefer to work with files in the standard Gray Gamma 2.2 workspace and then apply a curve (which can also be on a layer).

The graph below compares the matte paper print relative densities (Lab L) resulting from, first, a color-managed workflow and, second, QTR when the adjustment curve is used. The file used the Gray Gamma 2.2 working space. In the color managed workflow a custom ICC was applied in the Photoshop print box and then the Epson driver was used to make the print. In the QTR workflow the "GG22-to-QTR.avc" curve was applied to the file before printing with QTR. They are virtually identical.

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[4] Use Perceptual and Black Point Compensation when converting a file. Note that the dmax might be slightly affected.

In short, the GG22-to-QTR.acv curve replicates the Gray Gamma 2.2 output characteristics for matte papers, allowing one to edit in that standard working space and match the output to the monitor when QTR is used to print the file.[5]
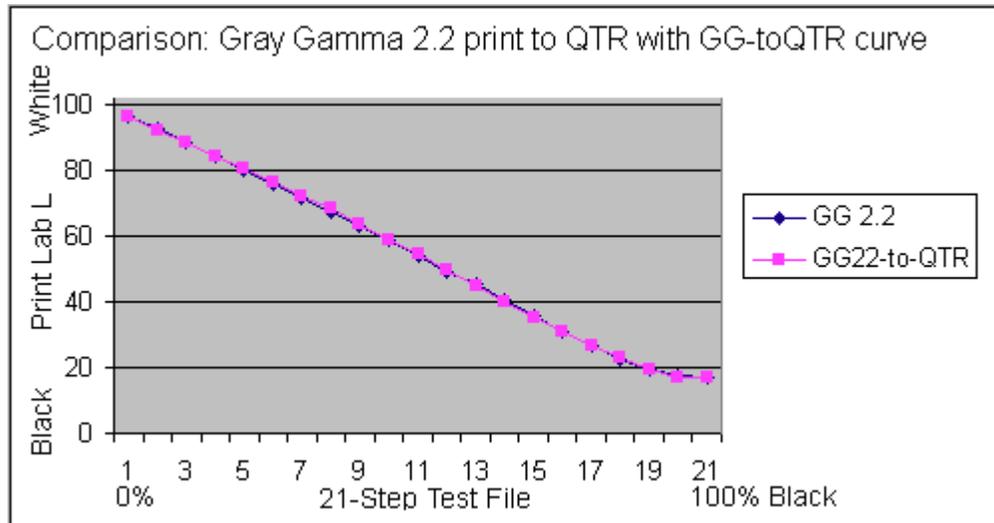
The GG22-to-QTR.avc curve can be downloaded along with various other relevant curves and profiles at http://www.paulroark.com/BW-Info/Eb-1400-Profiles.zip .

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www.PaulRoark.com

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[5] Note that as good as color management is, variations in display lighting cannot all be accounted for. One advantage to using a PS image adjustment curve is that the user can modify it to also account for individual variables. I find myself using different viewing profiles to be sure my prints will look good in at the 2 light levels I most often have to deal with.