



STEPS TO IMPLEMENTING JDF

by Martin Bailey

Chief Technology Officer, Global Graphics Software

CEO, CIP4

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A lot has been written about the potential that JDF has for improving the efficiency of print workflows, leading to greater profit through reduced costs or greater throughput. These sources can be of great benefit in reaching a decision as to whether you might want to implement a JDF-based workflow in your company.

Assuming that you're at least considering making that decision, you'll probably have found that somewhat less information is available on the next steps to take. How do you get from where you are now to where you want to be? This document is intended to help fill that gap.

To address a scope this large it necessarily provides rather general suggestions that may or may not be appropriate for your own site. Everything here should be read in the context of the capabilities of your company, the suppliers that you have access to, and the legal framework within which you must work.

Much of this document also discusses automation in print, rather than explicitly talking about JDF. Right now the two are almost synonymous. The only real alternative to print automation besides JDF is to stay with proprietary interfaces, usually by buying all of your equipment from a single vendor. Unless you have a very simple business model, addressing only a short segment of the print production process, it's unlikely that a single vendor can supply all of the software and equipment that you need. Proprietary interfaces therefore tend to lead to "islands of automation" that are often difficult to link together effectively. Even if you could buy all products from a single vendor, a proprietary interface would probably not enable efficient connectivity to your customers and to supply chain management in the same way as JDF.

This document is aimed at companies providing services at all stages of a print production workflow, from dedicated prepress facilities to full service printers, and at organizations of all sizes all around the world.

Process control

A large part of defining the steps you need to take is in understanding exactly what your processes are now, and in being clear about what you want to achieve from the transition.



If you've invested time and effort into quality management over the last few years some of these first steps will be very familiar. Actually, you would have already done them, although you may have perhaps couched them in different terminology. That's because the bulk of work involved in quality management is in putting good process control into place. If you try to use automation without good process control you'll just make more waste, faster. It's one of the surest ways to go out of business, a truism for any form of information, in any industry.

Process control is often discussed in terms of "printing to the numbers", as if the pressroom were the only part of a printing plant where process control is important. Yes, implementing it there will allow you to print more consistent color and to hit color on press more quickly. But it's just as important throughout the rest of your workflow as well: from your customer supplying files to you, all the way to delivery of the printed pieces.

Where are you now?

Your first step should therefore be to analyse your current workflows. What exactly does every piece of equipment, and every staff member do during the production of a job? You'll probably find that



flow diagrams can help enormously as you map out current processes. Be sure that you record what actually happens, rather than what your standard operating practices say should happen. These quite commonly don't include all of the special cases that may be needed if quality control checks fail at various stages.

Start with the route taken by a job of a typical format, assuming that no errors occur and that no late changes are requested by the customer. Map the workflow out as a flowchart, then add in the error handling and rework processing routes. For instance, think of all the ways in which a job might go wrong; what happens if you don't get customer approval on a proof in time for a scheduled press run?

Once you have that diagram in place, try to fill in equivalents for any custom jobs that you've handled over the last year or two and that were significantly different from the norm. You may also wish to include any jobs that you had to decline, or to contract out because you couldn't quite handle their requirements.

In a large print company, you'll probably end up with what looks like a frighteningly complex diagram. And, the flowchart for even a small company is likely to be somewhat intimidating. Remember that all you've done is describe what you're already doing. It's worthwhile taking the time to be sure that you fully understand it all. You don't need to use formally correct symbols in the diagram, as long as you know what everything means. A good test is whether you think you could explain everything to somebody from outside your company.

Now mark the steps that you've noticed as being bottlenecks in the process. Could the bottlenecks be resolved with no, or minimal, investment? For example, would moving a proofing printer to a different location allow your people to realize when a proof is ready for checking and sending out to a customer?

Look at where quality control checks find errors most often. Would quality control at slightly different places in the workflow help you to solve problems more quickly and less expensively or avoid slow and expensive steps? Consider also what you're checking. Determine if your quality control steps look at the right issues. Are there other checks that should be added into those same steps that would be cost effective in reducing waste?

Are you receiving a large number of poorly constructed files from your customers without receiving adequate payments for correcting them? If so, you may want to consider one of a number of options: customer education programs, offering reduced prices for files submitted as PDF/X or supplying your customers with tools to create, preflight and submit jobs in simpler ways.

Where do the errors come from? Is it from manual re-entry of data, or manual translation from customer instructions to equipment settings? If so, they are definitely candidates for improvement with JDF.

If you have more than one of any type of software or equipment that's vital to a significant proportion of your work, how easy would it be to transfer work to a different machine if one is out of action for any reason, for instance a hard disk failure on a RIP, or a press breakdown?

Finally, look at where equipment has to wait for staff to perform simple operations that don't require a real human decision. While some of those operations are necessary because of safety or legal requirements, it might be possible to remove others to improve the duty time of expensive equipment and increase productivity.

One of the most frequent comments from people who went through the process of switching from producing page film to fully imposed CTP plates is that the preparation work, including a move to a fully digital workflow, saved them more money, for much less outlay, than the purchase of the CTP device itself. The same situation may well arise as you prepare for JDF.

Where do you want to get to?

So, now you know where you are. Next, what do you hope to achieve using JDF? If the answer is that you just want to use JDF, you should stop now and reconsider. JDF usage has no value in and of itself; it's a key enabling technology for an efficient workflow and for flexible selection of components from one or more vendors, but that's it.



A number of specific business benefits can result from that efficient workflow or component selection. You must make the decision about which of these are important to your business model as you move forward. It's often a good idea to select one or two key benefits and to concentrate on achieving those rather than trying to do everything at the same time. If you

are already planning a wholesale re-engineering of workflows, staffing, etc., then you will be able to think on a grander scale.

At the detail level, it may be possible to solve many of the issues identified during your study of the flowchart of your current processes by using automation based on JDF, but don't forget to also look at the wider picture.

The first business issue that most people mention is a need to change the relationship between throughput and staffing. Many want to increase the capacity of the plant at the same staff cost, while others want to retain the same capacity while reducing staff costs. Which of these two options is right for you depends on many factors including the overall capacity in your print sector; and the local labor laws.

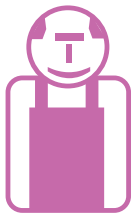
The previous paragraph very carefully talked about staff costs rather than head counts or retaining existing staff. In a large print company you may find that increasing automation increases the need for dedicated IT staff at the same time as a possible reduction of staff levels elsewhere, in order to ensure that you can gain the maximum benefit from investment in the necessary infrastructure.

In a small company, however, it's likely that increased automation will have rather little effect on the requirement for computer specialists, as long as you make the best of your skilled staff. If an expert operator is currently spending time performing rote processes because there's nobody else to do them then your investment in his salary is being wasted. Applying automation frees him up to do what he is best at, possibly making a large difference in overall productivity and profitability.

In a larger company it can take some time to obtain complete and up-to-date information about everything that's going on, and getting that data can sometimes be vital, especially when production schedules must be changed at short notice. A change in press times must often be fed back upstream into prepress, changing the order in which plates must be provided, for instance, so information about the change must be transmitted quite widely and quite quickly.

Don't forget to include the possibility of links between your production workflow and the rest of your company, and even your customer. If data about a job can be routed automatically into your central database, whether that's part of an MIS, or was written in-house in FileMaker, then it may be possible to transfer it onwards into inventory control and accounting. One company billing about \$200,000 per month estimated that they could free up \$30,000 more into their cash flow if they could get bills out three days earlier. Anecdotal evidence from elsewhere also shows that many invoices sent out are incorrect or incomplete. For some companies that appears to be the majority of them. Inaccurate billing in favor of the customer loses you money, while inaccurate billing in your own favor will often cost extra as you respond to complaints or demands for correction. Providing data electronically to the accounts department ought to allow invoices to be sent out more rapidly and with fewer errors.

Don't forget to look outside of your own production workflows as a less obvious benefit of automation can be in increasing customer satisfaction. Looking outside your production workflows can provide improved turnaround, faster reporting of problems requiring re-submission or re-estimating, or even ongoing feedback about job status through a web browser. All of this is, of course, in addition to the effects of the underlying process control, which should include more predictable and consistent color, and therefore a better match to an agreed pre-production proof.



Next steps

Having defined your starting point and where you're aiming for, the next thing to do is to figure how to get from one to the other.

It's definitely not necessary to try to make the whole journey in one jump. In anything but the smallest and simplest workflows, it is likely to be safer and more productive to take a step-by-step approach.

A good first step is to make one person within your organization responsible for a migration towards JDF. It should be somebody who understands the processes involved, both from the operator side and in relation to business procedures. They must also have the authority to make appropriate decisions and to ensure that they are acted upon. As in any major evolution of your processes, leaving decisions and actions to a committee is more likely to cause delay and confusion.

While one person should take the lead on developing a JDF strategy, it can also be very productive to ensure that your entire workforce is behind the idea. Many operators will be nervous about the idea of JDF, or of automation in general, because their natural reaction will be that you plan to cut staff. Uncooperative staff can often effectively sabotage the gains to be made from any improvements to your workflows. On the other hand, expert and involved technicians may make excellent suggestions as to process improvements.

Next, pick a part of your workflow where the impact will be greatest. In a larger company with multiple workflows, pick the one used for the customers or markets that are expected to show the greatest return on investment. Then talk to your preferred vendors about their JDF-based solutions. It may be possible for much of your target to be achieved in the selected workflow by simple upgrades or additions of existing options. If your normal vendors can't supply what you need, look around at what other suppliers can offer. One of the major advantages of JDF is in enabling open, multi-vendor workflows, so it's perfectly possible to use new products in the areas of a workflow where they can fill in the gaps left by your existing equipment.

If your systems include an MIS, talk to the supplier about what they can do to assist with links to customer-facing websites; inventory control and, to your accounts department. While JDF doesn't include specifications to perform those interfaces directly, the additional data and improved data flow that JDF enables in the production workflow can make it easier for MIS vendors to implement them.

If you're looking at a complex workflow you may need to be aware of a number of issues that could trip you up. These include JDF extensions; JMF levels; and, pipeline creation to transfer data directly between devices, etc. If you're not comfortable with the idea of reading the JDF specification, you might consider enrolling in the JDF Expert Certificate Program run by IPA in conjunction with CIP4 (<http://www.ipa.org/jdf/>), or even hiring a consultant to help with the fine detail of product integration.

Having selected products, be prepared to push your vendors on whether the specific combinations of products have been tested together. JDF-based products are relatively new technology, and there will be some collections of products where some options or ways of setting up jobs won't work together quite as you expect straight out of the box. Be prepared to test things yourself, in the same way that you'd test the options in any new product to find out what settings do the job you need.

If you can assess your current processes and requirements and understand what you need to do to move your business forward, you're already well on your way to a successful implementation. More to the point, you'll also be several steps ahead of your competition and have demonstrated that you're fit to survive the evolutionary struggle as print moves forward into the 21st century.



The Harlequin RIP Genesis Release (v.7.1) was the first product to be officially JDF certified by CIP4 following testing by the Printing Industries of America./Graphic Arts Technical Foundation, against the Layout Creator to Imposition ICS and Base ICS.



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www.globalgraphics.com

Global Graphics Software Inc.
31 Nagog Park, Suite 315, Acton
MA 01720, USA
Tel: +1-978-849-0011
Fax: +1-978-849-0012

Global Graphics Software Ltd
2nd Floor, Building 2030
Cambourne Business Park
Cambourne, Cambridge
CB23 6DW UK
Tel: +44 (0)1954 283100
Fax: +44 (0)1954 283101

Global Graphics KK
704 AIOS Toranomom Bldg.
1-6-12 Nishishimbashi, Minato-ku,
Tokyo 105-0003
Japan
Tel: +81-3-6273-3740
Fax: +81-3-6273-3741