STR software

IMPROVING ASSET MAINTENANCE PRODUCTIVITY, SAFETY, and RELIABILITY

with Automated Work Order Packet Printing from JD Edwards EnterpriseOne Capital Asset Management

Introduction

Enterprise Asset Management (EAM) systems and Computerized Maintenance Management Systems (CMMS) have created the ability for maintenance departments to manage and measure every aspect of their asset reliability program, supporting the goal of ascending the maintenance excellence pyramid. However, these applications, like most, have functionality gaps that limit your organization in realizing its full potential.

For maintenance organizations running JD Edwards EnterpriseOne Capital Asset Management (CAM), a functionality gap that users commonly recognize is the absence of the ability to print work orders with their associated media objects and attachments. In asset-intensive industries, maintenance departments bear the burden of ensuring the reliability of aging equipment. The key to keeping up with asset reliability is scheduling preventative and corrective maintenance, and providing maintenance crews with the documentation they need to be safe and successful at their jobs.

To assist with these processes, CAM includes a feature that allows users to associate media objects to work orders within JD Edwards, ensuring that all details relevant to the work order are available for reference. For example, a work order may have instructions on how to balance the tires (as a Microsoft Word document), a two-dimensional CAD drawing (as a .dwg file), and a picture of the actual equipment itself (as a .jpeg image).

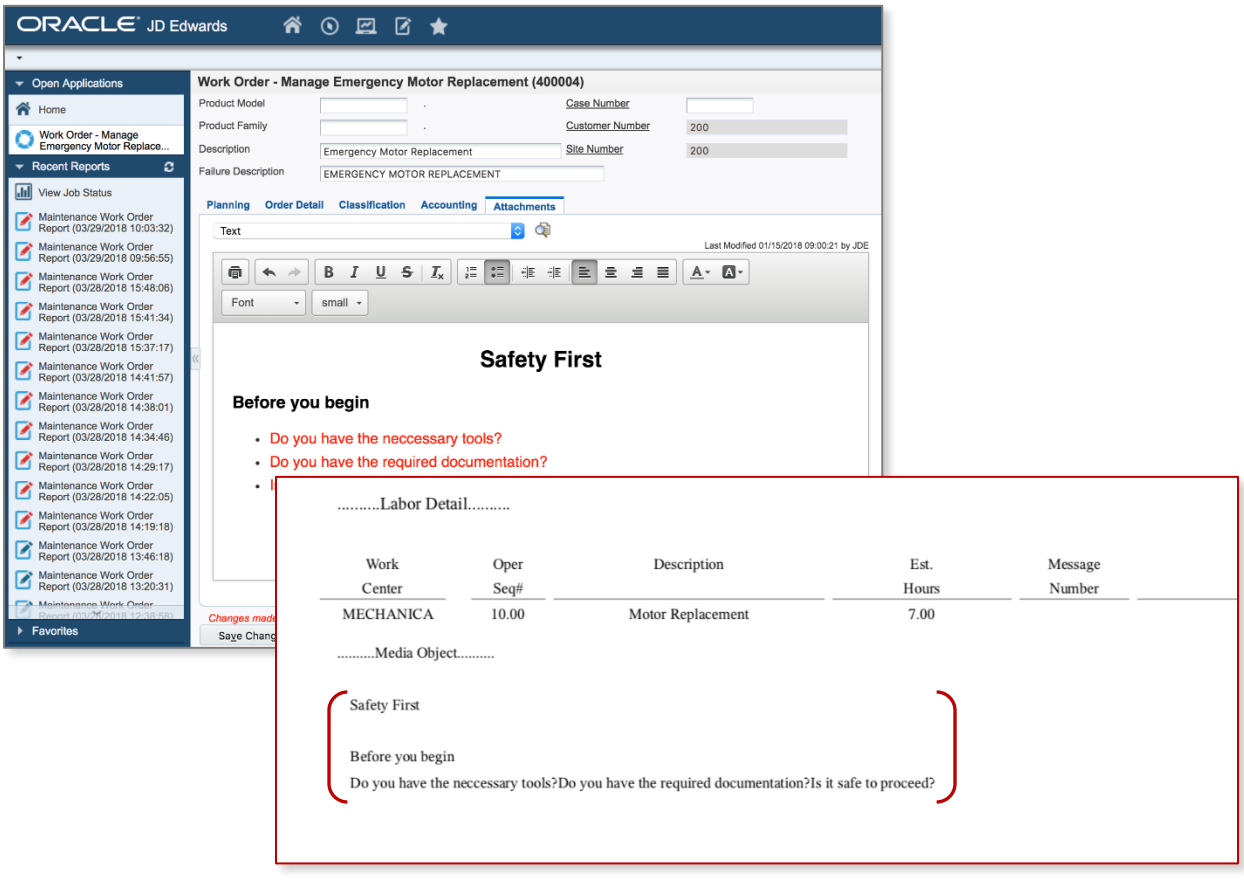
But, a significant shortcoming in this feature surfaces when a user tries to print a **complete work order packet** that is inclusive of the work order and its associated media objects and attachments. This white paper walks you through the challenges of native work order printing and how an automated work packet solution can **improve productivity, safety compliance, and overall asset reliability by eliminating incomplete and incorrect work packets from making their way into the field.**

Native Printing of Work Orders with Attachments in JDE E1 CAM

JD Edwards EnterpriseOne CAM provides the ability to attach supporting files to work orders. This includes files in the media object queue, files uploaded to JDE, web pages, and files in third-party content management systems. For example, a work order for routine maintenance may contain drawings or supporting files, such as Material Safety Data Sheets or parts diagrams.

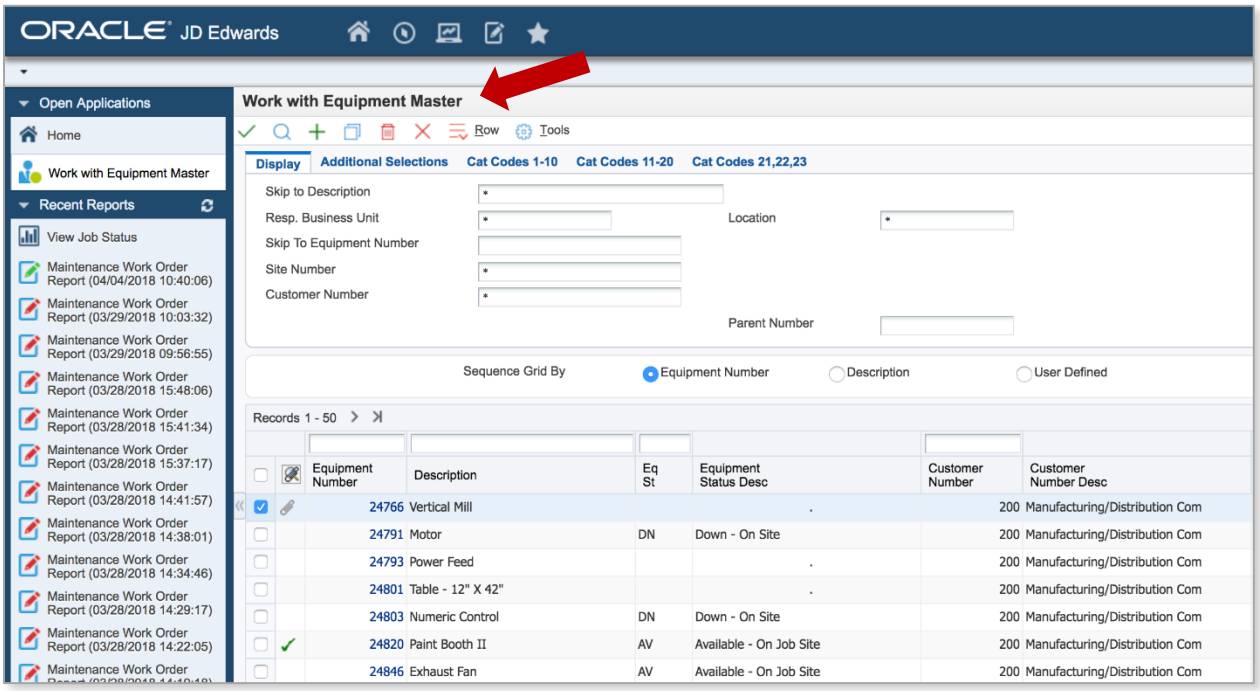
Once files are associated with a work order, the question becomes how to print them efficiently with the work order, creating a complete work order packet. As you may know, JDE natively only prints the first text attachment, but any formatting, such as color, alignment, or bullet points, is not preserved in the printed output **(Fig. 1)**. None of the additional media objects are included in the printed output. These additional files, such as diagrams and safety procedures, are vital documents, ensuring technicians can complete the work order promptly, accurately, and, more importantly, safely.

Figure 1: *Text attachment formatting in JDE (behind), formatting not preserved in printed WO output (overlay)*



Additionally, media objects and attachments may not be associated with a work order. In CAM, some attachments may be associated directly with a piece of equipment or routing operation **(Fig. 2)**, excluding them from printing as well.

Figure 2: *Other attachment locations, such as the asset, item, routing operation, or more*



JDE's native process of work order packet creation is a burdensome workflow for maintenance planners. Planners must open each attachment in its native application and then print it. For example, a planner first prints the work order, then opens Microsoft Word to print the lockout/tagout procedure, then opens Microsoft Excel to print a safety checklist, and finally opens Microsoft Visio to print a parts diagram.

This process is not only inefficient, it introduces many opportunities for unintentional mistakes and oversights to undermine important protocols in a maintenance operation.

A scenario that often arises is for a document to be printed in volume and stored away so it can be quickly pulled when it's needed. Doing so, however, creates the risk of an outdated lockout/tagout or materials safety data sheet making its way into the field.

Another common shortcut is to simply exclude critical documents altogether. When pressed for time, planners may choose to skip printing some attachments, leaving technicians without important information.

Finally, when printing work orders with many individual attachments, planners run the risk of one or more files not printing due to a printer or computer error. Or, someone else's print job may become interspersed among the planners critical attachments. These common occurrences create confusion, and can result in attachments being excluded from the final work order packet.

CAM's native attachment and print functionality results in:

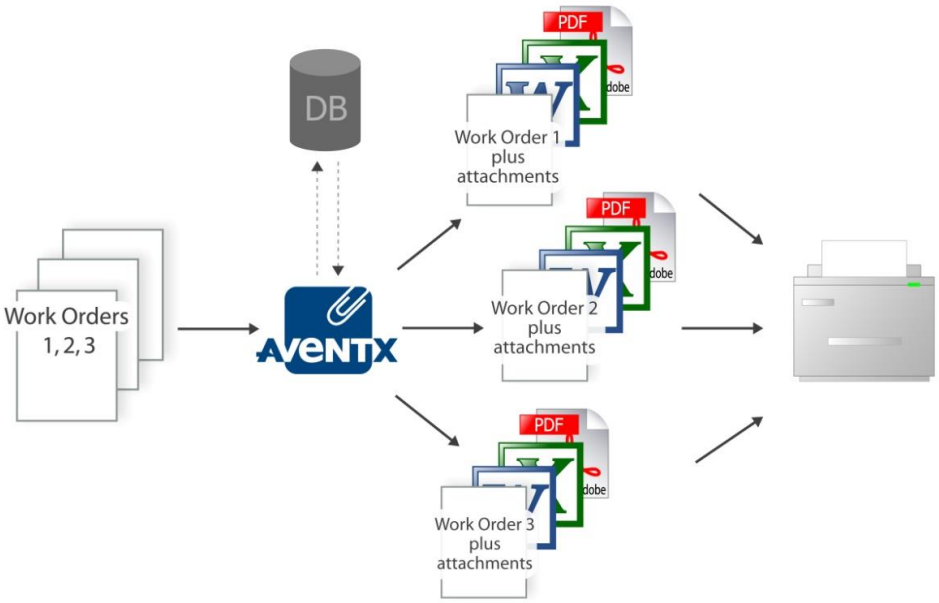
- **Reduced Productivity** for maintenance planners as a result of the manual, time-consuming printing and collating process
- **Broken Safety Protocols** due to incorrect file versioning or the exclusion of important documents caused by technology errors or human miscues; and
- **Decreased Asset Reliability** resulting from reduced wrench time caused by missing or incorrect safety documents and time lost going back for planners to obtain the correct documents

JDE's native process to produce work packets results in reduced productivity for maintenance planners that can be compounded due to manual errors, such as the assembly of incomplete or incorrect work order packets. This can, in turn, be detrimental to the department's safety and reliability goals. If a work order packet is missing an attachment, crew members must wait for the packet to be reprinted and reassembled before completing the work, limiting wrench time and detracting from administrator productivity. This manual process includes unnecessary risks and generates major disruptions, even when processing as few as ten work orders per day. Ultimately, it erodes time and resource availability, and can result in higher operating costs.

Overcoming Common Printing Challenges

To remedy the challenges associated with manual printing, maintenance teams are looking for a solution that is able to print and collate work orders along with any accompanying attachments, through a single request from within CAM. Ideally, this is accomplished by submitting a standard print job to a printer or print queue **(Fig. 3)**.

Figure 3: *Automated Work Order and Attachment Printing Solution Diagram*



As shown in the diagram, the user submits a single or batch of work orders as a print job. Then, a third-party application, such as AventX Attachment Xpress, processes each work order with its associated attachments and directs the complete packet to a designated, user-defined printer. Because attachments exist in virtually any format, it is important for any third-party application to be capable of quickly and accurately converting the attachments from their native formats into a "printable" format. For example, AventX supports the following native formats for attachments:

- Microsoft Office (2007, 2010, 2013, and 2016) Word, Excel, PowerPoint, Visio
- 2-Dimensional CAD (DWG)
- Image Files (TIFF, JPEG, GIF, PNG, and more)
- HTML
- TEXT and RTF
- PCL
- PDF

The solution should also help ensure that work order packets are complete with all necessary attachments; allow users to print scheduled batches, ad-hoc batches, or one-off documents; and let users pick and choose which attachments print and which do not. Finally, a good solution will make troubleshooting easy for users, keeping IT free to concentrate on other things.

The following example uses AventX Attachment Xpress (hereafter referred to as AventX) as the third-party software solution for printing work orders and attachments in a JD Edwards EnterpriseOne environment. There are two methods for printing work orders with attachments using AventX: batch/scheduled batch printing and ad-hoc, single work order printing.

Method 1: Scheduled or Submitted Batch Work Order Printing through AventX

When a print job is submitted, AventX automatically pulls the attachments associated with the work order or asset, translates them to a "printable" format, and forwards the work order and all of the related attachments to a printer and/or the print queue. With AventX, printing work orders with attachments is a simple, intuitive process. Users submit work orders to print as they always have, and AventX completes the locating, printing, and collating process on the backend. For example:

User starts the process:

1) User selects a work order or batch of work orders **(Fig. 4)**.

2) User selects which attachments to include with the work order(s).

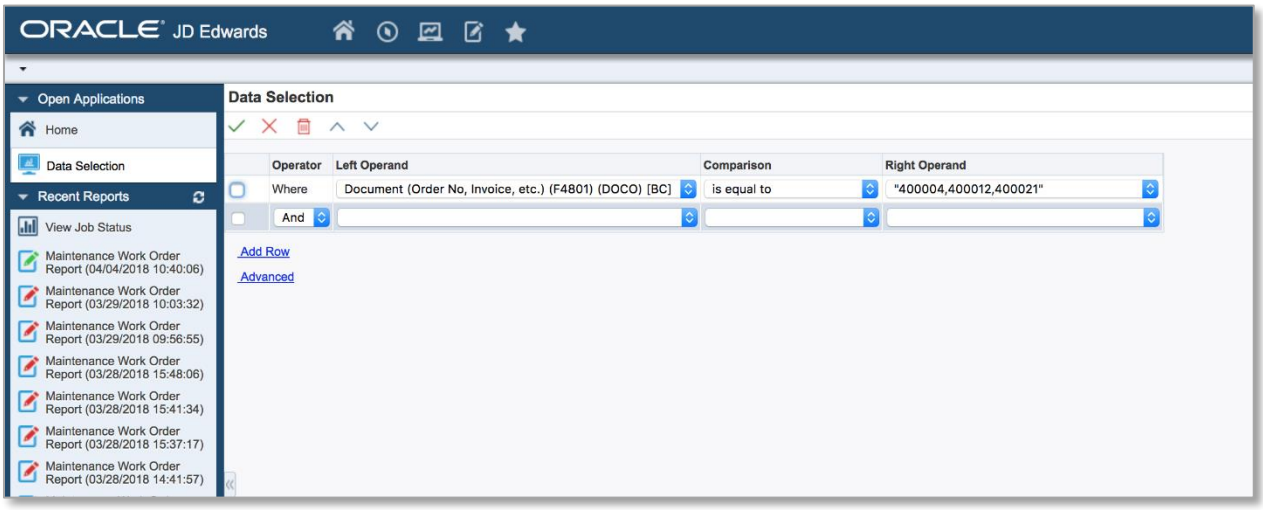
3) User selects a printer (or the print queue).

4) User submits the print job.

AventX does the rest:

5) AventX processes the request in the background and submits the collated output to a printer within seconds.

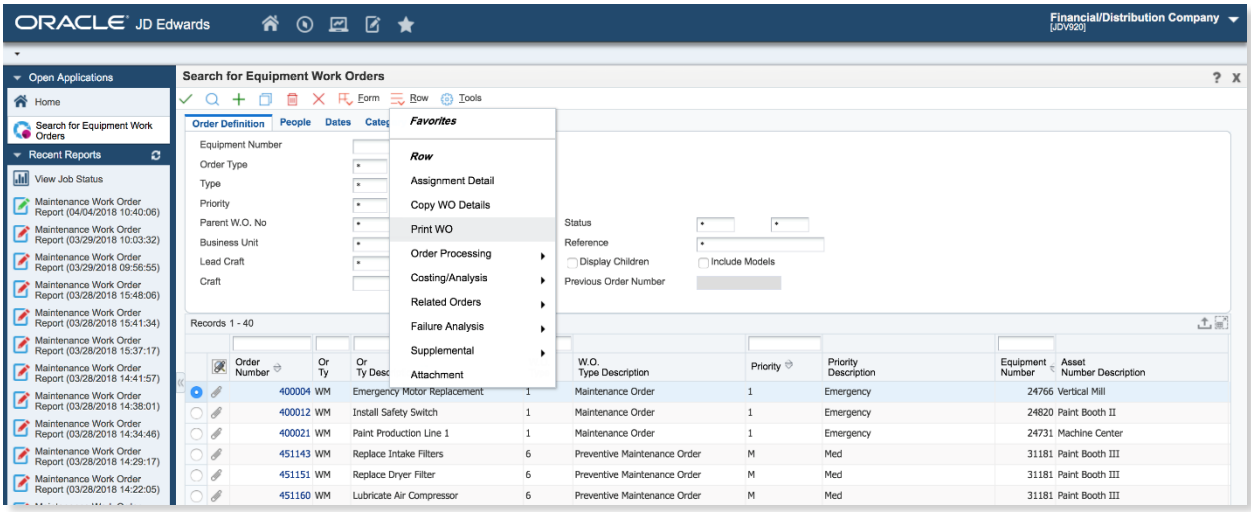
Figure 4: *Using data selection tools to select a batch of work orders*



Method 2: Ad-Hoc, Single Work Order Printing through AventX

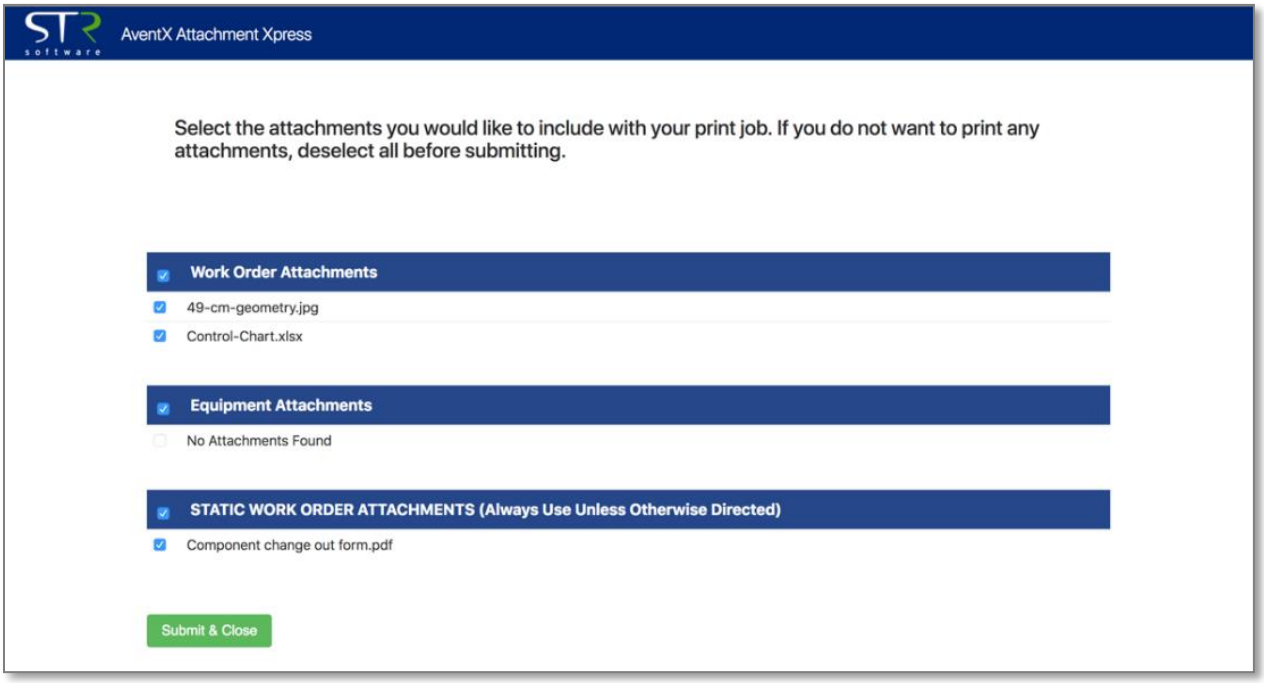
Users also have the option of printing single work orders ad-hoc. This functionality can be added anywhere in JDE. For example, a user can print an ad-hoc report at the Row → Print WO level **(Fig. 5)**.

Figure 5: *Printing ad-hoc work orders from Interactive mode*



Users are then presented with a web page that allows them to select the attachments (none, some, or all) they want to print using checkboxes **(Fig. 6)**.

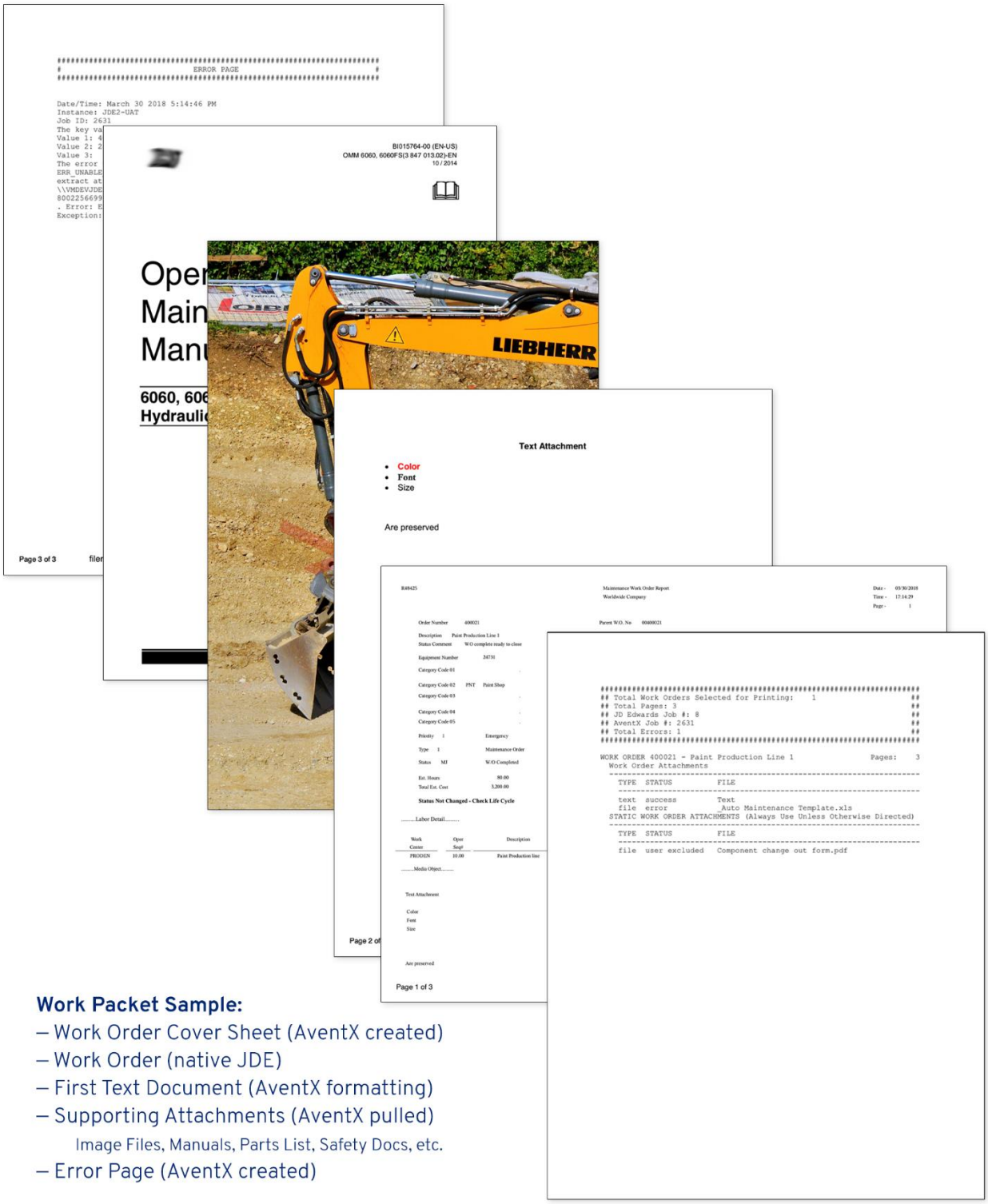
Figure 6: *Select which attachments to print*



Final Output

Once the work order(s), plus the attachments, have been submitted to the specified printer, the final output prints in a collated fashion with formatting intact. Unlike native CAM functionality, all the formatting in JDE's first text attachment is preserved with AventX, including color, font size, and alignment **(Fig. 7)**. Other attachment file types are also printed without loss of formatting **(Fig. 7)**. Additionally, users have the option to include a table of contents at the top of a submitted print job that contains information about available work order attachments (i.e., the work orders included in the, attachment status, attachment inclusion or exclusion, and number of pages). Finally, users can choose to view the compiled output within the JDE print queue as a PDF document.

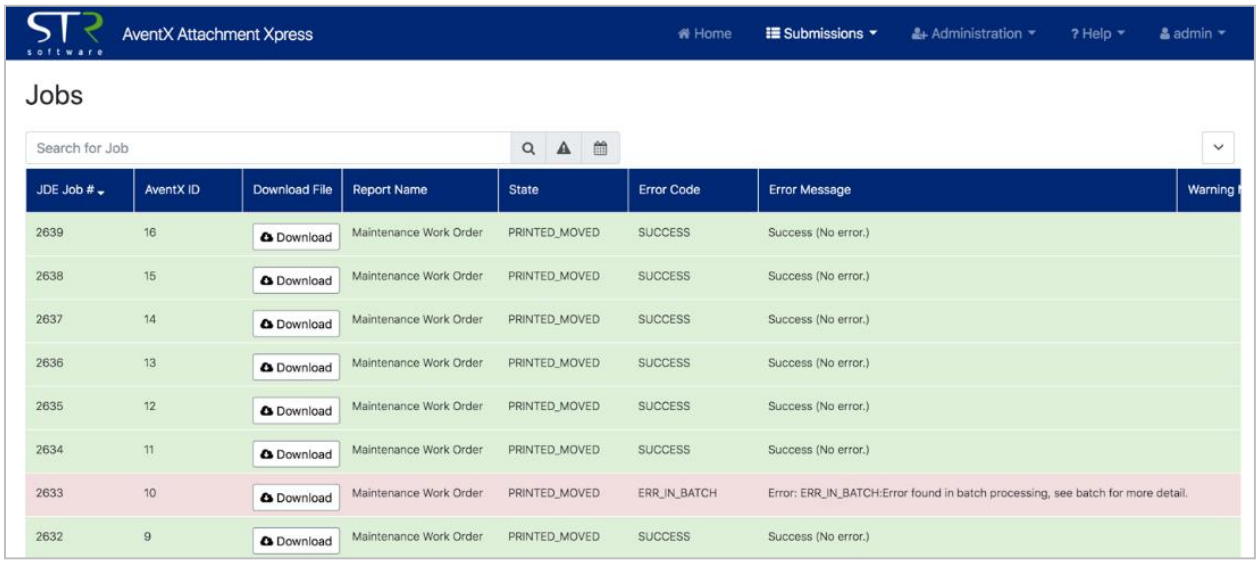
Figure 7: *Complete work order packet printed as a single document with formatted text preserved and selected attachments included.*



Status of Printed Documents

After generating a file or report from a Universal Batch Engine (UBE) or BI Publisher request, Administrators may also check the status of the printed documents with the AventX Client **(Fig. 8)**, where the status of each work order and its accompanying attachments is displayed. Users can view the print status of a work order packet (single or batch printed) along with its chosen attachments.

Figure 8: *View print status*



Value of Printing Work Orders with Attachments

The inability to automatically print work orders and accompanying attachments from CAM is a challenge for users to manage and a risk concern for management. The mistake-prone process of compiling work order packets using solely native functionality, puts safety and reliability standards at risk. The native process is detrimental to the maintenance team's preventative maintenance and wrench time initiatives.

By combining JDE's asset management tool with STR Software's AventX Attachment Xpress, you can eliminate this time-consuming, mistake-prone, manual process for maintenance planners, while enabling them to spend more time working towards achieving their preventative maintenance goals.

Summary

When considering how crucial asset reliability and uptime are to the overall success of your organization (revenue and profit), eliminating as much risk as possible is a primary corporate goal. Upon investigation you will find that native JDE print functionality opens your organization up to not only a loss of productivity, but also unnecessary risk. This assumed risk limits your maintenance department's ability to safely and successfully achieve its preventative maintenance goals.

JDE CAM + AventX

- **Increased Productivity** for maintenance planners by eliminating the manual, time-consuming printing and collating process
- **Improved Safety Standards** by ensuring each work order packet prints with critical, up-to-date safety documents, parts lists, and other associated attachments
- **Better Asset Reliability** as a result of increased wrench time due to a reduction in work order errors and more time for planners to focus on preventative maintenance

As outlined herein, CAM allows you to attach documents to a work order, but it does not provide the necessary technology for you to print a work order and accompanying attachments in one print request. This gaps results in lower maintenance planner productivity that, in turn, leads to safety and asset reliability shortcomings, which do not help advance preventative maintenance and increased wrench time initiatives.

By pairing CAM with a solution like AventX Attachment Xpress, your organization will enjoy substantial improvements in productivity, safety, and asset reliability.

What to Look for in a Vendor

When considering a document printing solution, try to obtain the following information from each vendor:

- Live demonstration of the vendor's product operating within JDE
- Installed customer references
- Annual support agreement – what is included?
- Source of Support – is it provided by the vendor or an outsourced company?
- Customizations – does the vendor document product customizations and support them?
- Implementation – ask for a detailed outline and list of tasks and resources required to implement the solution

STR Software Information and Product Demonstrations

To learn more about how the AventX product suite can help you achieve your maintenance safety, utilization, and reliability goals, please contact STR Software at (804) 897-1600 opt. 2 (toll free at (800) 897-7097) or info@strsoftware.com.

Explore additional resources available on the topic of automated work order package printing: http://www.strsoftware.com/jdecam

About STR Software

Founded in 1986, STR Software is headquartered in Richmond, Virginia. Providing a single point of contact for its AventX and DataVaya product suites, the company develops, markets, and supports automated document delivery solutions for email, fax, internet fax, and print as well as automated data file transfer solutions to enable sophisticated hybrid cloud, IoT, and ERP data transactions. These solutions integrate with host ERP applications, such as JD Edwards, Oracle E-Business Suite, PeopleSoft, and SAP; in Unix, Linux, MPE, and Windows environments. STR Software, an Oracle PartnerNetwork Gold Partner, has been recognized for engineering reliable "Solutions That Run."

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