Managing engineering documents with IGC and BTM

AN IGC AND BTM SOFTWARE WHITE PAPER
Over the last decade engineering projects have grown in complexity and scope. For example, developing a new car or a chemical plant can cost hundreds of millions or even billions of dollars and can involve stakeholders in different countries. As projects grow larger and more complex it is a real challenge to deliver them on time and on budget.

As companies executing large-scale engineering projects struggle to manage this ever-growing complexity, we see them using 30-year-old technology to store and distribute vital information such as CAD drawings. As a result, engineering documentation is not always up-to-date and available across the organization, which can lead to miscommunications and problems at all stages of a project. Companies have a huge opportunity to streamline their documentation processes and make crucial information available to all stakeholders. Streamlining engineering workflows will reduce the time spent solving problems created by flaws at the early stages of the project, requiring fewer resources and leading to projects delivered on time and budget.

IGC™ and BTM Software provide complementary solutions for streamlining engineering documentation processes that are fully integrated into EMC Documentum Capital Projects and EMC Documentum Asset Operations. This white paper explains how companies involved in engineering projects can benefit by using BTM DRAWbridge and IGC Brava!® Enterprise.

CAD drawings can be very complex in their structure. The reasons for this are twofold: CAD drawings often contain cross-references to other engineering documents or drawings, and the drawings themselves—along with their reference files—can be very dynamic, changing frequently as designers and engineers work on their parts of the project.

Each master drawing can have dozens of reference files, or xRefs, depending on the complexity of the project. Reference files address a key issue in engineering project management: while team members in different disciplines (electrical, piping, structural and so on) need to work on the same drawing and to reference each other’s information, they should not be able to modify anyone’s data but their own.

For example, a team member from the equipment group placing a vessel on a platform created by the structural group should be able to reference up-to-date platform information in order to correctly position the vessel. Similarly, a writer working on SOP documents may need access to equipment lists and structural plans. However, neither person should be able to change specifications for structural components or other areas that they are not responsible for. Linking files to the master CAD drawing solves this problem nicely. Everyone working on a project can access the information they need without the risk of changing documents or drawings that they do not own.

What makes engineering drawings and documentation even more complex is the fact that they can be very dynamic: team members change drawings and reference files on the fly, thus creating many versions and revisions.

The main task of the DRAWbridge Suite is to manage the master drawing and its reference files as well as their versions and revisions. In addition, DRAWbridge handles the important task of automatically updating the title block in a drawing, which contains important metadata, as well as generating PDF renditions of CAD drawings and their linked files from the latest versions. DRAWbridge also automatically creates links between the master drawing and the reference files when bulk loading or exporting drawings.

Finally, the DRAWbridge Brava add-in hands the master drawing, with its reference files, over to IGC Brava Enterprise, ensuring that Brava users have the latest drawing information available for reviewing and annotating.
Seamless information exchange between internal and external stakeholders is crucial to the success of complex engineering projects. Information needs to flow smoothly among the different lines of business within the extended enterprise handling the project. Most of this information is in the form of CAD drawings, but it could include site photographs, field notes, parts lists, SOPs, scanned architectural sketches and more, in any number of formats. To work with a master drawing and its set of reference files, team members may need access to CAD software, Microsoft Word and Excel, digital image editors and other specialized applications. This can add up to a lot of expensive software for every desktop—unless universal viewing and collaboration software like IGC Brava Enterprise is incorporated into the engineering workflow.

Engineering projects often deal with time-consuming review and engineering processes that involve workers across the globe. Using an online, consistent collaboration tool streamlines collaboration workflows and makes it possible for engineers in different countries and time zones to work together on a project. Reviewers make markups and comments on renditions of drawings and documents, then their annotations can be merged into one master change document. That master change document offers a record of the collaboration, as well as providing a way to compare the final drawing or document against the requested changes to ensure all issues are addressed, ensuring better accuracy of the final revision.

Seamlessly integrated with EMC Documentum, Brava Enterprise offers one intuitive, browser-based interface to view and collaborate on all project files, including CAD drawings, xRefs and all documentation. There is no need to purchase expensive native software for every desktop to review and annotate engineering drawings and documentation. Accuracy and fidelity are key for complex drawings and Brava’s high-fidelity, vector-based viewing delivers crisp detail in CAD drawings and sharp text in documents at any zoom level. Brava also offers the ability to turn off layers, change the background color, select pen widths for printing and even view block attributes. Without switching tools, users can measure areas, count items and aggregate and export that data for meetings, reports or materials lists.

Brava ensures that the original CAD drawings and reference documents are not edited by unauthorized persons. Although everyone working on a project can access the information they need, no one can directly edit any of the project documents. Brava delivers renditions of the source files, and all annotations and markups are saved in separate XML files. The original CAD drawings and engineering documents remain secure and untouched in the Documentum repository.

With EMC’s configurable suite of solutions, owner/operators and EPCs can manage their engineering documentation and communication processes in a consistent and controlled way. EMC, IGC and BTM work together to deliver a comprehensive solution for engineering document management. In addition, IGC and BTM enjoy a unique collaboration: The companies coordinate development of Brava and DRAWbridge to ensure that each one contains features that complement each other, providing the ideal platform to handle complex and dynamic engineering drawings throughout the life cycle.

With DRAWbridge and Brava Enterprise organizations can tear down the walls between the lines of business to allow access to engineering information throughout the enterprise. All project stakeholders have easy and secure access to CAD drawings and engineering documents, knowing that they always have the latest versions. This unique combination can help organizations streamline their engineering process from its inception in the design and development department throughout the project life cycle.

EMC Documentum handles files in a secure and accessible way on an enterprise-wide scale. EMC Documentum Capital Projects and EMC Documentum Asset Operations are available on premise or as a cloud solution via OnDemand that allows for a flexible infrastructure and significantly reduces the total cost of ownership.

The combination of EMC Documentum solutions with Brava Enterprise and DRAWbridge provides the most comprehensive drawing management solution available today.