

BlueCielo SolidWorks Integration



Seamless SolidWorks Data Management

white paper

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1 Introduction

In comparison with 2D drafting techniques, 3D modeling technology has transformed the entire field of mechanical engineering. Offering a new level of design versatility and workday efficiency, 3D modeling has helped to bring new products to market with unprecedented speed – and with unprecedented levels of data management complexity.

The purpose of this whitepaper is to provide a snapshot overview of the significant benefits that BlueCielo ECM Solutions, the world leader in engineering data management solutions, offers to users of SolidWorks, a leading 3D modeling solution.

2 Managing Projects within 3D Modeling Environments

By now the mechanical engineering market has fully embraced the benefits of 3D modeling technology. And engineering projects have moved from the domain of the individual designer to an enterprise-wide endeavor. While the benefits of accessibility and timeliness are inherent in an enterprise approach, a number of critical issues arise:

- Collaboration and Ownership – diverse teams across the organization, such as design, manufacturing, procurement, marketing and sales, must collaborate in new and more efficient ways. Ownership of responsibilities and tasks must be clearly defined, for example, in establishing and finalizing customer wants, confirming deliverables and design ownership.
- Accuracy – with an enterprise system, the probability of multiple versions surges. Particularly with complex jobs, the likelihood of costly errors increases significantly.
- Transition Planning – the transition from the 2D to 3D environment can be extremely stressful and non-profitable. A smooth transition requires careful, efficient and easy data management within both environments.

These common challenges can be easily eliminated by deploying BlueCielo ECM Solutions specialized, flexible, best-of-breed 3D engineering content management solutions – BlueCielo Meridian Enterprise for enterprise collaboration and BlueCielo TeamWork for departmental operations.

3 Key Features and Benefits

Ensuring higher levels of day-to-day efficiency, shorter learning curves and smoother transitions, BlueCielo Meridian and BlueCielo TeamWork are the leading content management solutions for SolidWorks customers, as well as for many other major 2D and 3D design systems including AutoCAD, Autodesk Inventor and MicroStation.

The many features and benefits include:

3.1 Reference Management Resulting in Time Savings and Ease of Use

Moving documents between projects and folders often requires users to manually re-align the file references, involving painstaking and time-consuming effort. With BlueCielo ECM Solutions, all documents are managed in a vault. Parts and sub-assemblies can be moved from folder to folder, automatically retaining references to the parent/child documents.

3.2 Authorized Access and Editing for Enhanced Security

SolidWorks allows users to edit a part drawing from within the assembly that uses it. Design teams, however, need to ensure that only authorized users have edit access to that specific part drawing. The changed part may then ripple through and update any number of existing assemblies.

BlueCielo Meridian Enterprise and BlueCielo TeamWork will only allow users to edit documents that are checked out. With this security functionality, the system will confirm if a specific SolidWorks user has access to start a change on the part document. Users who are not authorized by the system will not be allowed to edit the part drawing and will be prompted to check out the document for change.

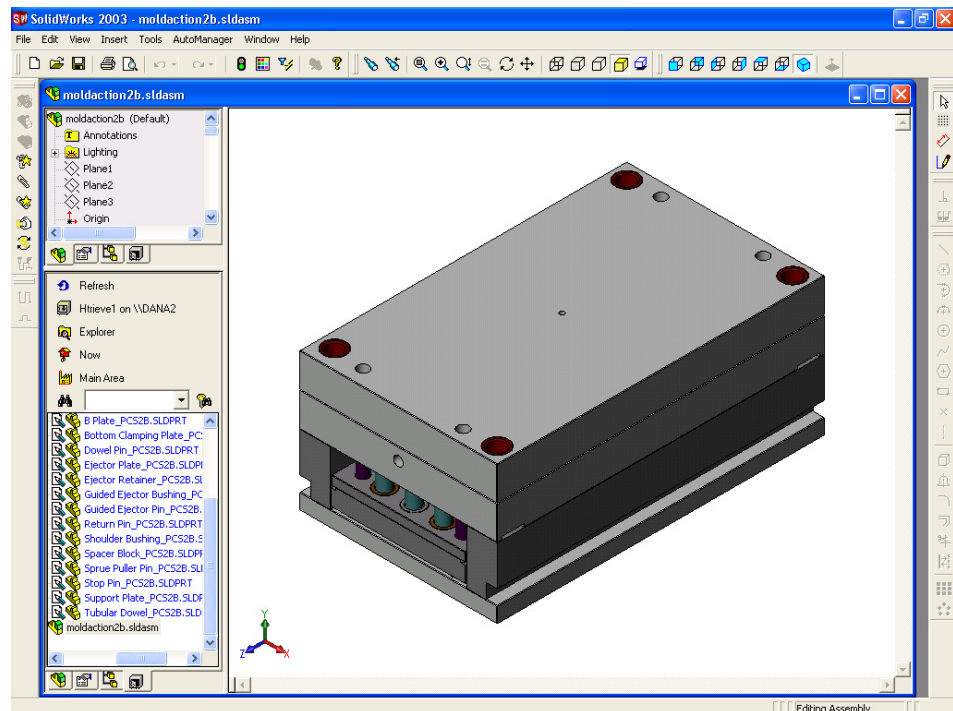


Figure 1 - All your document management data, directly available from within SolidWorks

3.3 Simplified Tracking and Revisions for Improved Accuracy

When modifying a part/assembly in SolidWorks, all documents that reference that document will automatically be updated to reflect the change. A single change within one document can, however, fundamentally affect many other documents that may have not gone through the approval cycle.

To address this gap, BlueCielo Meridian Enterprise and BlueCielo TeamWork offer two advanced features – 'Derive' and 'Replace':

- 'Derive' allows mechanical designers to create a copy of a document with a reference to the original document, enabling users to track similar assemblies/components that might share the same problem.
- 'Replace' allows users to create a new version of a document while keeping the previous revision online. All as-built assemblies can still reference the old design while new assemblies can use the new version.

3.4 Quick Property Exchanges for Optimal Data Synchronization

Quickly exchange BlueCielo properties to and from SolidWorks properties, from inside SolidWorks. These will automatically be updated when opening a SolidWorks assembly, part or drawing document (.slddrw) file that includes a titleblock.

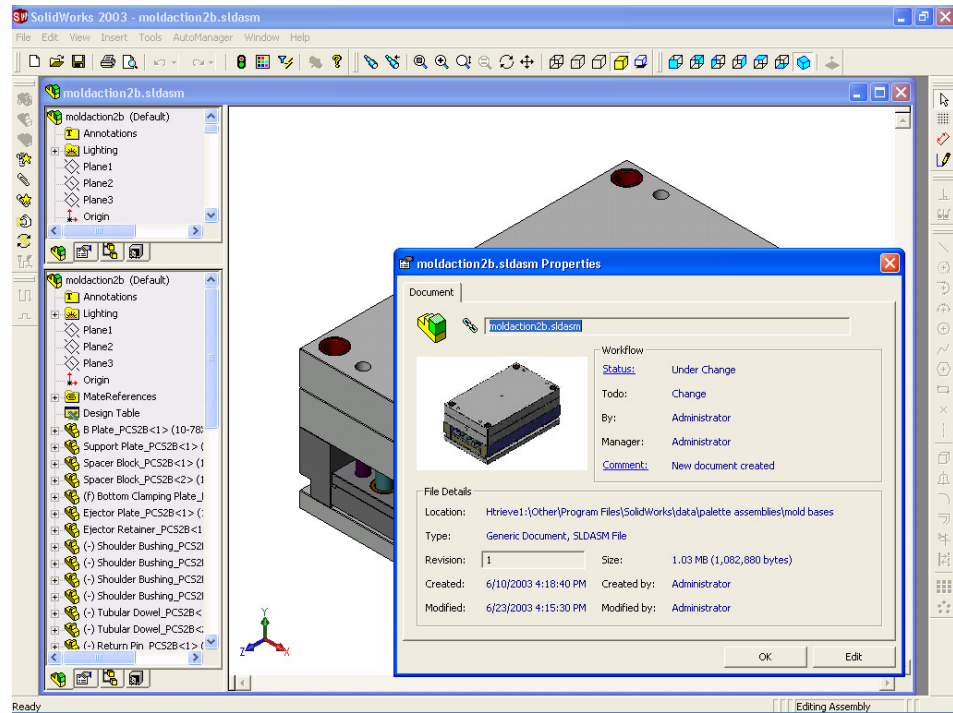


Figure 2 - BlueCielo allows you to view and edit document management properties directly from within SolidWorks

3.5 Information Sharing for Cost and Time Savings

Within SolidWorks, only SolidWorks users are able to access information on SolidWorks drawings and models. Team members who are not SolidWorks users but do make critical decisions regarding the manufacturing and modification process, such as Project Managers, Sales, QA and Stock-control, are locked out.

With BlueCielo Meridian Enterprise and BlueCielo TeamWork, all information including document properties, approval status, assembly breakdowns where used, and reference analysis for all SolidWorks documents is available to all employees in real-time.

This results in the right information at the right place at the right time – saving time and money and reducing manufacturing mistakes.

3.6 Convenient Display of Assembly Structures for Comprehensive Overviews

BlueCielo Meridian Enterprise and BlueCielo TeamWork for SolidWorks maintain and display the status of each part, including active, in progress, and retired parts. Plus, complete 'Assembly Structure' breakdowns and 'where-used' lists for components are also available for non-SolidWorks users.

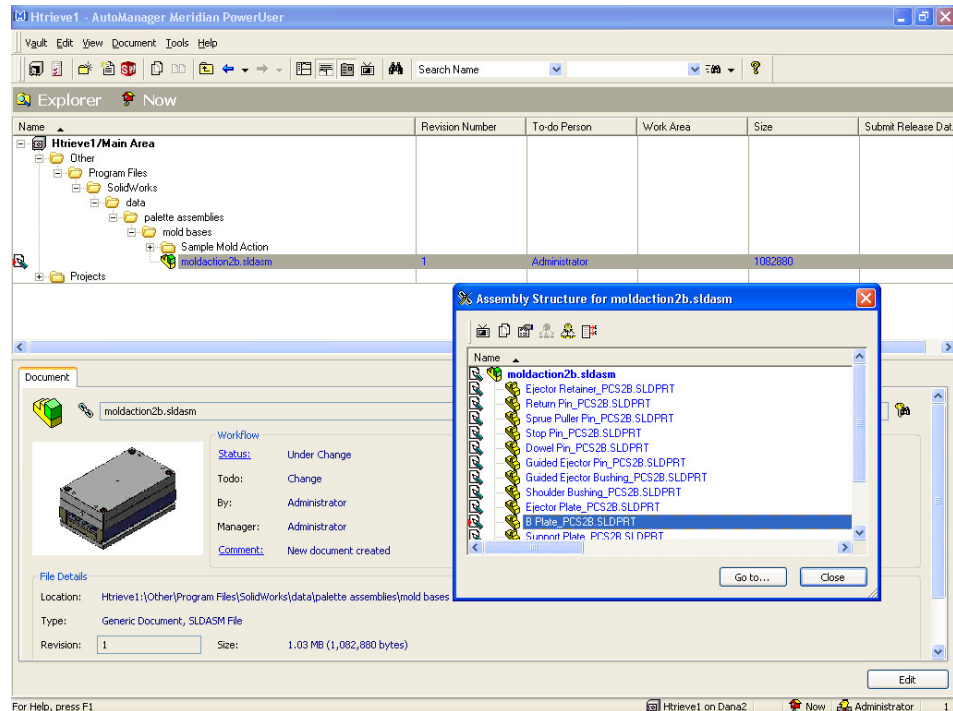


Figure 3 - BlueCielo software allows you to see full assembly structures directly

3.7 Quick Import for Easy Integration

BlueCielo Meridian Enterprise and BlueCielo TeamWork for SolidWorks have a special assembly import tool that imports current SolidWorks assemblies and parts into the BlueCielo ECM Solutions content management system. All links between parts and assemblies will be copied and maintained in the secure document vault.

3.8 SolidWorks Configuration Support

SolidWorks allows you to have multiple variants of a part or sub-assembly using the SolidWorks configuration feature. Both BlueCielo Meridian Enterprise and BlueCielo TeamWork can be configured to support different design scenarios like:

- working with Toolbox parts including both purchase components and structural members (length items)
- components with changing shape or positioned elements, and
- components with changing Bills of Material (BOMs).

At all times BlueCielo conveniently shows you exactly which configuration was used when browsing or displaying the assembly structure of a drawing.

For more information on the use of SolidWorks configurations consult the white paper titled *BlueCielo and SolidWorks Configurations*.

3.9 Seamless Prompts for Accurate Information Management

Every time a new component is created in SolidWorks with its 'Create Component' feature, a BlueCielo window will pop up, ensuring that the designer enters essential information about the new part. This new part is then automatically created within the content management system.

3.10 Enhanced Design Process Support for Engineer-to-Order (ETO) Document Lifecycles

BlueCielo Meridian Enterprise and BlueCielo TeamWork for SolidWorks track each document, maintaining full lifecycle information and management. Documents in the design phase can be modified according to a specific pre-configured workflow process.

3.11 Facilitated Design Audits for Improved Design and Troubleshooting

With BlueCielo Meridian Enterprise and BlueCielo TeamWork for SolidWorks, designers can see the hierarchy of derived components (intelligent copies), enabling easy design processes audits.

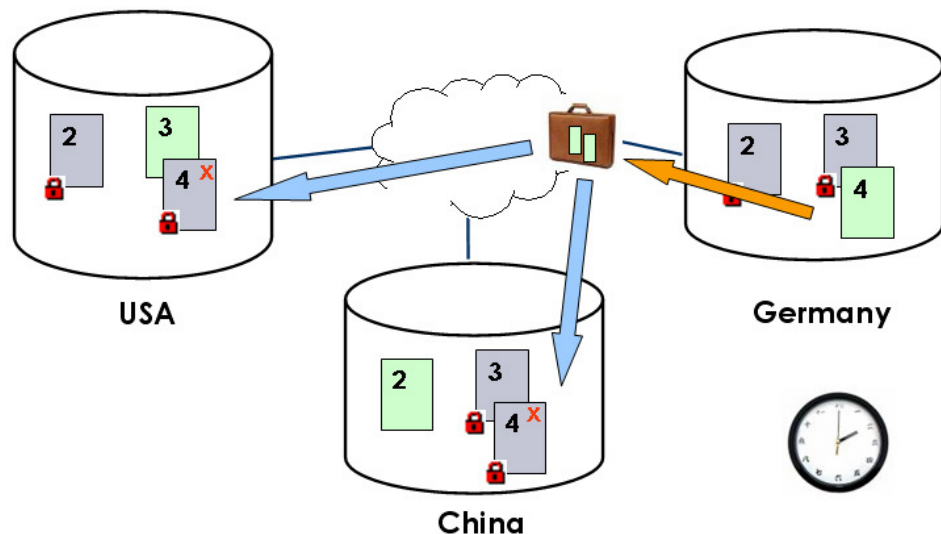
Designers can check the impact of future changes and track possible impacts, including errors in previously-manufactured machines. Designers also have the option to graphically track references, parts and derived documents.

4 Collaborate Regardless of Location

It is becoming more and more common that engineering companies have multiple offices with engineers and CAD draftsmen present at multiple locations. These offices can be abroad and even in other time zones.

For a company to fully utilize its workforce, the engineers and CAD draftsmen at different locations need to work together as if they were in the same office.

In order for engineers and CAD draftsmen from different locations to jointly work on 3D models a LAN quality network is required between the different locations. If such a high speed, high bandwidth, low latency network connection is not in place then the BlueCielo Meridian Global Collaboration Framework provides the best solution.



The BlueCielo Meridian Global Collaboration Framework connects multiple BlueCielo Meridian Enterprise¹ vaults, providing invisible replication of (selected) documents and data.

Replication of documents and data happens either on a scheduled basis or on demand. In addition, the Global Collaboration Framework also ensures at all times that only one location at a time has ownership of a document. In this way it can never happen that one document is updated at multiple locations at the same time.

So in all cases where SolidWorks is used at different locations and engineers and draftsmen need to work together on the same assemblies, BlueCielo Meridian in combination with the BlueCielo Meridian Global Collaboration Framework is the right choice.

See the white paper titled *BlueCielo Global Collaboration Framework* for more information on this subject.

5 Conclusion

BlueCielo ECM Solutions enables fast, simple and secure data management that adapts to work the way your teams and your company want to work.

Document modifications automatically ripple through the system, updating just the right linked documents, while preserving previous versions for reference. Design and manufacturing team members have ready access to the latest revisions. References, approvals and job progress can be easily tracked, even for lengthy, multi-level projects. Endless versatility is gained through solid modeling technology that reduces time-consuming remodeling.

Integrating smoothly with CAD systems such as SolidWorks, as well as with Windows and Office software, BlueCielo Meridian Enterprise and BlueCielo TeamWork support hundreds of file formats and handle 2D and 3D docs simultaneously for unprecedented content management control, efficiency and enterprise-wide communication.

¹ The BlueCielo Meridian Global Collaboration Framework is only available in combination with BlueCielo Meridian Enterprise.



Taking EDM to the Enterprise

BlueCielo ECM Solutions

BlueCielo ECM Solutions provides Engineering Data Management (EDM) solutions for multiple vertical industries, including utilities, oil & gas, petrochemical, pharmaceutical, government, transportation and process and discrete manufacturing. BlueCielo has over two decades of industry experience with more than 275,000 users in 50+ countries worldwide. The company has offices in the USA, UK, Russia, Finland, Germany, and The Netherlands and an extensive global network of established partners. BlueCielo ensures a high level of service and support on a truly worldwide scale for its leading software solutions BlueCielo Meridian Enterprise and BlueCielo Teamwork.

Questions?

For further information on this subject or about BlueCielo, please feel free to contact us by phone, email info@bluecieloecm.com or visit our websites.

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