

SAP Engineering Control Center

# Integrating Diverse Engineering Authoring Tools

Empower R&D with a Unified Repository of Multisource Product Data



The Best-Run Businesses Run SAP®

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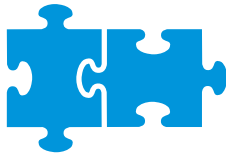


# Delivering Holistic Insight with SAP® Engineering Control Center

As product diversity and complexity grow, manufacturers are producing individual products that combine hardware, electronics, and software using data stored in multiple authoring tools. With the SAP® Engineering Control Center integration tool, design and engineering teams can combine these diverse data sources into [one holistic overview of product data](#) to do their jobs faster.

## FULFILLING YOUR PRODUCT MANAGEMENT VISION

Today's best-run manufacturers often coordinate diverse engineering teams and balance multiple sets of requirements for complex products. With the SAP Product Lifecycle Management (SAP PLM) application, they can optimize all product-related processes from ideation and design to manufacturing and service. Now they can also integrate leading authoring tools with SAP PLM and create a single source of unified and consistent product data using the SAP Engineering Control Center integration tool (Figure 1).



SAP Engineering Control Center helps you integrate data from leading authoring tools into a [single version of the truth](#).

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By providing deep integration with authoring tools, SAP Engineering Control Center empowers you to:

- Manage growing product complexity and diversity
- Reduce the total cost of ownership for your authoring landscape
- Create comprehensive product descriptions across disciplines
- Maintain data consistency everywhere in your ecosystem
- Administer version control throughout design and engineering

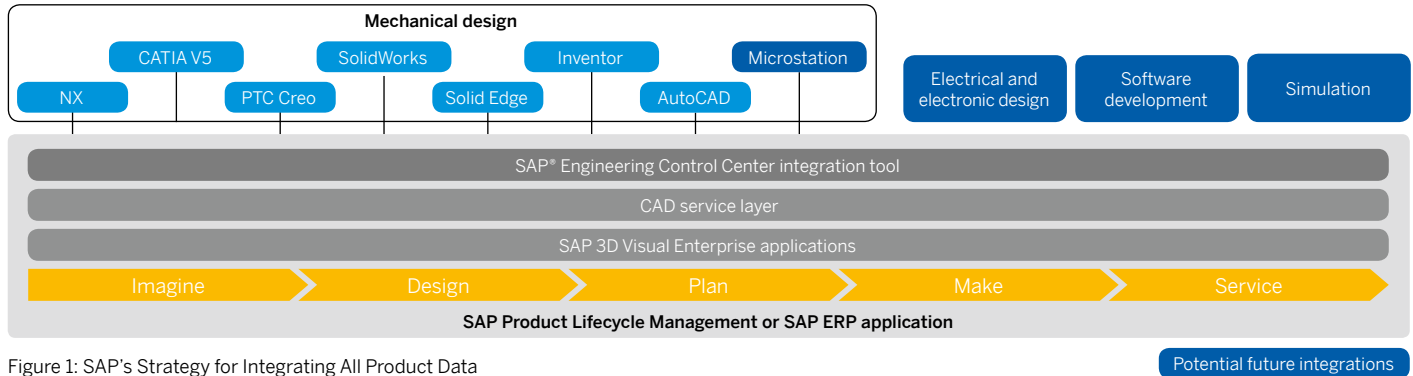


Figure 1: SAP's Strategy for Integrating All Product Data





By establishing a single consistent version of product data, the control center increases engineering and production efficiency. It also helps you integrate innovation processes across your enterprise to improve collaboration, shorten lead times, and enforce production standards. By highlighting potential manufacturing and compliance problems before they arise, this more collaborative design process yields substantial cost savings.

SAP Engineering Control Center offers interfaces to interconnect smoothly with the following computer-aided design (CAD) systems:

- AutoCAD and Inventor from Autodesk Inc.
- NX and Solid Edge from Siemens Product Lifecycle Management Software Inc.
- CATIA from Dassault Systèmes

- SolidWorks solutions from Dassault Systèmes SolidWorks Corp.
- PTC Creo from PTC Inc.

### **BRINGING NEW EFFICIENCIES TO R&D**

The pace of innovation in our global marketplace demands increased R&D efficiency to shorten time to market while reducing product cost. And producing a complex device like a mobile phone requires combining data for mechanical, electronic, and software elements – each traditionally created in a discipline-specific authoring tool – into a single holistic picture. But asking engineers to navigate heterogeneous authoring tools to paste together a complete view of product data can disrupt the creative process and introduce human error.



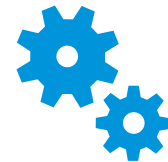
To hone competitive edge in a global economy, you must optimize the reuse of components, streamline product configurations, and maximize product traceability by interconnecting your design, manufacturing, and logistics teams. SAP Engineering Control Center helps you make this quantum leap in design integration by providing:

- Consistent integration of authoring tools across your value chain
- A 360-degree product view, including product data generated in several mechanical computer-aided design (mCAD) authoring tools

- Embedded quality and sustainability management across the authoring tool interfaces

SAP Engineering Control Center links programs, data, and processes consistently and transparently. All your valuable product information is available throughout the full lifecycle – and across the enterprise. With the insight to solve production and compliance problems collaboratively before they muddle downstream processes, your engineers can help your business tighten its whole value chain.

SAP Engineering Control Center helps you integrate innovation processes across your enterprise to [improve collaboration](#), shorten lead times, and enforce production standards.



# Making Life Easier for Engineers

Engineers frequently have to exchange information with others who prefer alternative software tools. SAP Engineering Control Center helps engineers avoid the inconvenience and risk of importing from and exporting to various applications.

## MAINTAINING AN INTUITIVE USER INTERFACE

SAP Engineering Control Center provides a single, intuitive user interface for all your CAD sources. The consolidated solution has a familiar look and feel and gives all stakeholders a comprehensive overview of all required product data stored in SAP PLM. An R&D cockpit provides easy

access to all transactions, whether standard to your industry or specific to your organization. You can customize the desktop and configure windows to suit your preferences. Context-sensitive pull-down menus and color symbols for release status give you quick visibility into your tasks (Figure 2). Cut-and-paste and drag-and-drop functionalities help you structure the way you handle product detail. You can display all relevant SAP software objects, including materials masters, bills of materials, change masters, and technical documentation components, in personal folders. And you can launch all linked programs with a single click.

By establishing [a single consistent version of product data](#), the control center increases engineering and production efficiency.



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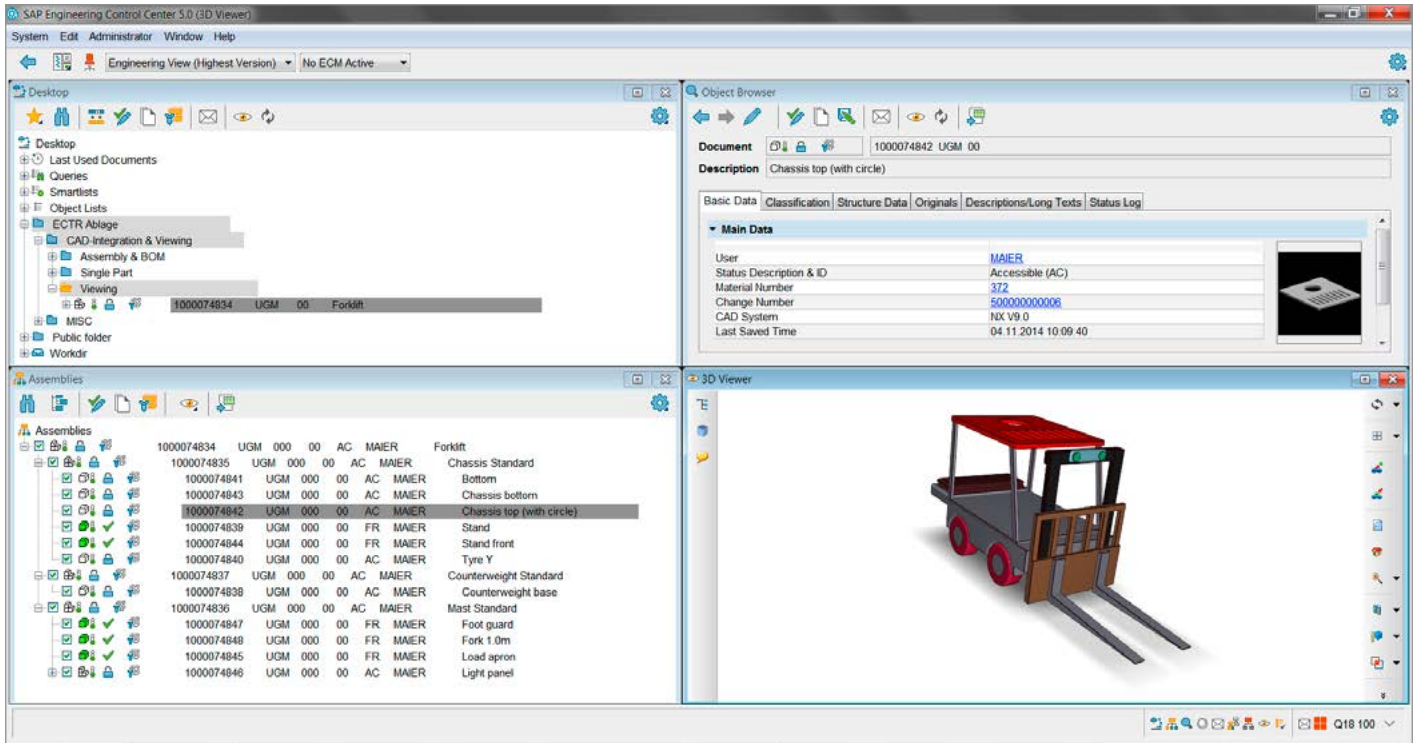


Figure 2: Assembly Structure with Visualization and Detailed Information of the Selected Component





## STREAMLINING DAILY OPERATIONS

SAP Engineering Control Center integrates a wide range of engineering systems and authoring tools – including viewing systems, office software, and multiple types of CAD solutions – into SAP PLM. You can manage locally generated data securely and link it logically. Up-to-date and consistent product data is available company-wide to help

ensure a smooth handoff from process to process. With the proper authorizations, users can access reliable enterprise data quickly and conveniently at any location. Managers always have a clear overview and can stay current with status reporting and issue resolution. Using the control center for direct access to the powerful functionality in SAP Business Suite software opens up new possibilities for innovation and development in your business.

Gain the insight to solve production and compliance problems collaboratively before they muddle downstream processes.



## FINDING MORE TIME FOR HIGH-VALUE WORK

SAP Engineering Control Center relieves you of most administrative chores associated with unifying multiple databases. You have more time for work that contributes directly to the bottom line. Useful behind-the-scenes functionality ranges from the automatic generation of bills of materials to the system-controlled dispatch of documents to suppliers. And you can set up automatic check-in of neutral-format files at the engineering workstation after engineers have viewed or edited them.

## TAKING ADVANTAGE OF TIME-SAVING CONVENIENCES

Technological progress has reduced the duration of basic processes from many days to a few hours. Now you can move things forward even more quickly thanks to functionality built on our decades of experience fine-tuning business software. Key features of the integration tool help you:

- Select data using differentiated search filters or full-text search
- Perform efficient mass operations for changing attributes, controlling versions, and managing releases
- Copy entire folder structures, including all associated references to SAP software objects, with a few keystrokes
- Launch additional software applications relevant to your context



# Expanding Your Perspective

With SAP Engineering Control Center, you have ready access to all the data you choose, in a clear structure and with high visibility. Viewing aids include not just folder trees, tabs, and tables, but also vivid standardized icons and traffic-light colors as information support. You always have a multilevel overview in which interrelationships are completely transparent and immediately intelligible.

## PROVIDING A FLEXIBLE WINDOWING STRUCTURE

The control center offers data in a variety of windowing frameworks. You can arrange windows and configure their content in the ways that best suit you, dragging SAP software objects directly between windows at will. Standard windows include:

- *Desktop* for housing personal folders with SAP software objects and individual search queries
- *Object Browser* for providing detailed structure or classification information on individual objects
- *Active List* for filtering, sorting, and storing tables of the objects you currently need for work
- *Assembly* window for showing assembly structures, including all components, for loading directly to the CAD system
- *Classification* window for summarizing classes and class hierarchies to help you navigate the class structure
- *Cloning* window to copy assemblies
- *BOM* window for viewing detail on bills of materials (BOMs)
- *Viewer* to display graphics in the SAP 3D Visual Enterprise Viewer application

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## ENHANCING CHANGE MANAGEMENT

In addition to helping you organize your work with the windows structure, the control center helps you tighten the safety net for capturing product changes. Its change management functionality tracks change history for all documents at all times. You can always view history and can trust the consistency and validity of your documentation. The control center also enriches status detail in the change master record. You gain transparency over all changes, continuously tracking them through all design and production processes for greater security.

## PROVIDING HANDY EDITING CAPABILITIES

SAP Engineering Control Center lets you edit the change master records and assign them quickly and accurately to SAP software objects. Functions include:

- Displaying master record properties in the control center's object browser
- Modifying materials documents and bills of materials using change master records
- Implementing changes automatically at specified dates and times
- Modifying the change master record
- Assigning change objects to the change record using drag-and-drop functionality for documents and material masters



- Reviewing all change objects controlled by the change master
- Creating new versions of master records directly from object management record items

From identifying the need for a change, through executing it in interim programs, to completing it in the final product, the control center helps you manage change every step along the way.

## **SIMPLIFYING CLASSIFICATION**

The classification features in SAP Engineering Control Center make it easier to navigate the class hierarchy and search for SAP software objects. You can find technical

documents faster, select them easily in the context menu, and open them directly in the appropriate editing program. You no longer need to import models manually into your CAD application.

You can structure and describe document and material classes in the ways you find most convenient. For example, you can simply drag and drop objects onto a class name in the classification window to categorize them. You can bundle your document classifications using a set function as well. In short, you can store your product information for easy retrieval according to your own preferences. This simplified approach to classification lets you reduce the total number of new designs you must manage by reusing existing designs whenever possible.



## LEVERAGING PARTNER CONTRIBUTIONS

SAP partners CENIT AG, CIDEON AG, DSC Software AG, and .riess engineering gmbh provide popular interfaces that link SAP Engineering Control Center to leading CAD software solutions. All interfaces provide functionality for:

- Managing CAD documents (such as parts, assemblies, and drawings), including their creation, display, and editing
- Managing material masters, including their creation (material definitions and assignment), display, and editing
- Managing bills of materials, including their creation, display, and editing
- Navigating conveniently using ribbons

- Integrating management of versions and status
- Integrating the viewing technology in SAP 3D Visual Enterprise applications

To help you manage the integration of product data to SAP PLM, our partners provide the following interfaces to CAD software solutions:

- SAP Engineering Control Center interface to AutoCAD
- SAP Engineering Control Center interface to PTC Creo
- SAP Engineering Control Center interface to CATIA V5
- SAP Engineering Control Center interface to NX
- SAP Engineering Control Center interface to SolidWorks
- SAP Engineering Control Center interface to Solid Edge
- SAP Engineering Control Center interface to Inventor



## USING SOLUTIONS FROM CENIT

CENIT primarily serves the discrete manufacturing industry, complementing the solutions of its strategic partners with its own solutions: the cenitCONNECT product suite. Its offerings include software that optimizes diverse processes related to SAP PLM. CENIT also provides integration solutions such as the SAP Engineering Control Center interface to CATIA V5 and the cenitCONNECT ECTR interface to DS V6.

## USING SOLUTIONS FROM CIDEON

CIDEON is a long-term SAP partner that provides integration solutions for SAP PLM. Besides standard CAD integration, CIDEON develops and supports tools for SAP PLM that boost process optimization across the enterprise. Supported CAD systems include AutoCAD, Inventor, Solid Edge, and SolidWorks.



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## USING SOLUTIONS FROM DSC

DSC Software codeveloped the basic technology behind SAP Engineering Control Center and serves customers in a wide variety of industries. The company can deploy SAP Engineering Control Center as a full solution or implement a single direct interface for NX. In order to seamlessly integrate engineering and manufacturing and to further speed up time to market, DSC also provides Factory Control Center with CAM-Integration, Tool Data Management, Tool Lifecycle Management and DNC.

## USING SOLUTIONS FROM .RIESS

.riess engineering is the SAP partner that provides the SAP Engineering Control Center interface to PTC Creo. The company specializes in consulting, implementation, and migration related to SAP software and has many years of experience mapping customer processes for smooth transition to SAP PLM.

## COLLABORATING DIRECTLY WITH SAP

If you have other requirements we haven't discussed here, just bring them up with your SAP representative, who can relay them to our product managers. We have already fulfilled hundreds of special requests for customers – some of which have led to the development of new standard solutions.





## LOOKING TOWARD THE FUTURE

The core vision behind SAP Engineering Control Center is sustainable optimization of the product creation process through:

- Consistent engineering data updated company-wide
- Reliable information flows
- Controlled release and change processes

The control center helps make this optimization future-proof by laying the foundation for Industry 4.0, the next major industrial revolution based on smart machines. With the unified solution in place to integrate authoring tools and business applications, you can build up to the ultimate smart factory step-by-step. As machines begin

to teach themselves through experience, you can reap attractive revenue growth through:

- Higher productivity
- Continuous improvement in process and result quality
- Shorter innovation times and quicker realization of profits
- Increased savings in operating costs



SAP Engineering Control Center provides a [single, intuitive user interface](#) for all your CAD sources.



# Realizing the Benefits

SAP Engineering Control Center is a modular, flexibly configurable software solution that integrates a wide range of third-party authoring tools with each other and with the SAP Product Lifecycle Management application. It merges all your valuable product information from design, engineering, and quality management sources into a single holistic view of the hardware, electronics, and software components in your most complex products. You can encourage collaboration, increase worker productivity, continuously improve processes, track engineering changes, shrink development cycles, and reduce operating costs with new ease. And you can shorten time to market for the innovations that sharpen your competitive edge and raise your profitability.

With SAP Engineering Control Center, you gain a low-maintenance, homogeneous IT landscape; consolidated, reliable data; and support for streamlined, smooth procedures across all development and design functions and locations. Using an enterprise-wide 360-degree view as the single source of truth lets you establish comprehensive version control, even for multilevel products and intricate change processes. Product quality improves, and the risk of noncompliance drops. Besides maximizing operational efficiencies, you cut management, communication, and rework costs. And SAP Engineering Control Center is a lean solution that adapts flexibly to changing requirements, so you always invest only in what you need, when you need it.

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## INCREASING INFORMATION SECURITY

The control center provides not only the latest and consistent data, it also makes data and interrelationships transparent to support fact-based, context-enhanced decisions. Standardization and automation, tighter control of release and change processes, and comprehensive monitoring all add to information security. And the general rule of system integration also applies: fewer island solutions and media breaks mean fewer sources of error.



An R&D cockpit provides [easy access to all transactions](#), whether standard to your industry or specific to your organization, and you can customize windows to suit your preferences.

## BOOSTING THE BOTTOM LINE

SAP Engineering Control Center represents the latest evolution of R&D integration technology that SAP has continuously extended and adapted to customer needs over a decade and a half. Based on DSC technology and SAP expertise, SAP Engineering Control Center helps you achieve more with less, particularly in organizations with massive concurrent engineering and systems engineering. You can get your products to the customer faster and



advance in the race to lead your market. A rise in productivity improves your ability to deliver new products and services before the window of market opportunity closes. But perhaps the most important benefit is that you can give your development engineers a lot more time to improve products – enhancing your quality image and customer satisfaction levels as your products diversify and your profits grow.

## LEARNING MORE

To learn how SAP Engineering Control Center can help you take design and production integration to the next level, visit us at [www.sap.com/r-and-d](http://www.sap.com/r-and-d).

SAP Engineering Control Center integrates a wide range of engineering systems and authoring tools – including viewing systems and multiple types of CAD solutions – into SAP PLM.



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