

Teamcenter gateway for electronic design automation

Benefits

- Integrate custom or unsupported tools
- Reduce development time for tool integrations
- Provide a uniform “look and feel” across tool integrations
- Capture and manage ECAD data consistently across toolsets
- Ensure data model compatibility during data migrations

Business challenges

- Incorporating ECAD data and processes into the product structure
- Leveraging custom or unsupported tools
- Developing supportable ECAD interfaces
- Eliminating information loss during data migrations
- Facilitating consistent lifecycle support for ECAD processes and data

Features

- Predefined XML-driven configuration files
- User-configurable parameters and data types
- Editable default setting
- System callbacks
- EDA compatible mechatronics data model

Summary

Teamcenter® software’s mechatronics process management suite supports a set of electronics design automation (EDA) to manage the first step in the PLM-enabled ECAD lifecycle. When implementation of embedded menus is not possible or practical, Teamcenter offers the gateway for EDA integration to enable one or more ECAD applications to interface with your PLM environment. Supporting customizable configuration files, the gateway delivers the integration routines needed to generate the same level of file access and management functions supported by Teamcenter’s embedded ECAD integrations.

Application interface for menu-driven ECAD tool integration

Management of the electronics lifecycle in a product lifecycle management (PLM) environment begins with capturing electronics computer aided design (ECAD) data and placing it under the control of the PLM platform. To address this first step, Teamcenter provides a series of EDA application integrations. When development of an integration that uses embedded Teamcenter menus is not practical, Teamcenter provides the gateway for EDA integration with interface routines for integrating multiple ECAD design tools.

Employing configuration files and a mechatronics data model that supports EDA applications, the gateway enables both tool integrators and users to create and use supportable “plug and play” connectors using ECAD tool specific configuration files. The gateway also provides a predefined configuration file that supports integration to the Cadence OrCAD design tool.

Executed from the user’s desktop, the gateway for EDA’s menu-driven application enables ECAD tool users to save and check-in/-out native design files, access approved components, populate electrical component BOMs and share fabrication and assembly data – as well as create and manage other types of derived ECAD data files.

Menu-driven integration

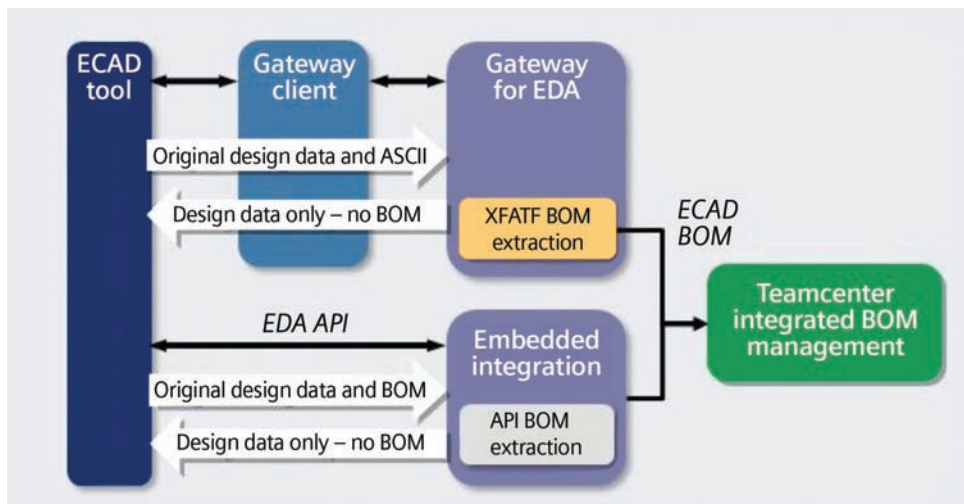
Use of the gateway for EDA does not require a detailed understanding of the internals of the ECAD tool or how to store data in Teamcenter. Instead, the gateway enables users to work with Teamcenter through easy-to-navigate menus and configuration files. By using application tabs and menu commands, users are able to identify or select the location of the ECAD design data they want to process.

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Teamcenter gateway for electronic design automation



This menu-driven approach enables users to simply specify the physical location of the data and select the specific action they want to execute. Similarly, they can import/export a library, access Teamcenter's gateway for EDA commands or exit the system. By leveraging the Teamcenter gateway menu, users can display properties of selected designs, save, check-in/-out, cancel check-out, refresh, purge, edit preferences or logout.

Using configuration files to automate processing

XML-based configuration files control the actions and procedures executed by the gateway. These configuration files define the characteristics, actions and information used by the interface including ECAD tool name, EDA data model being used (PCB only, schematic only or combined), data and dataset types, translators and preferences.

Configuration files also include calls to special code at certain points in the processing of selected actions. Callbacks for save, save-as, check-in/-out and functions are applied to dataset processing to facilitate the management of the schematic, PCB layout and BOM datasets.

For example, in the use of the OrCAD configuration file, the user determines what OrCAD schematic data to save and specifies its physical location. Information stored in the configuration file directs the EDA gateway to extract the bill of materials (BOM) from the schematic and execute the translator required to generate the schematic visualization files. At the completion of the callback, everything is correctly stored in the Teamcenter product structure.

Using the pre-defined configuration files as a template, the gateway facilitates third-party development and customization of ECAD integrations. Using standard text editing, tool integrators can quickly customize these configuration files by modifying the default settings that control actions for the PCB, schematic and the combined data models.

Compliance with the mechatronics data model

Teamcenter supports a common mechatronics data model that enables ECAD design data to be generated, managed and shared across development teams and suppliers. The gateway ensures that each piece of ECAD design data is stored, accessed and managed in compliance with the mechatronics data model.

Using either an embedded integration or the gateway, ECAD objects are extracted and accurately stored in the data model as:

- Circuit card assembly (CCA)
- Schematic
- Components on a CCA
- ECAD tool design data
- Assembly data (component placement)
- Fabrication data (photoplot, drill and other items.)
- Intermediate data file (IDF) for MCAD exchange
- CAD layout files in intermediate data format
- CAD schematic files in intermediate data format
- Derived visualization file of PCB layout
- Derived visualization file of schematic

Adherence to the mechatronics data model provides electronic design teams with three important benefits as these integrations:

- Ensure the same level of data management capability that is delivered through Teamcenter's supported embedded ECAD integrations
- Facilitate the associativity that links objects in the database (i.e., projects to requirements, requirements to parts, parts to other parts and parts to products)
- Ensure that data will not be lost or corrupted when migrating to newer versions of Teamcenter

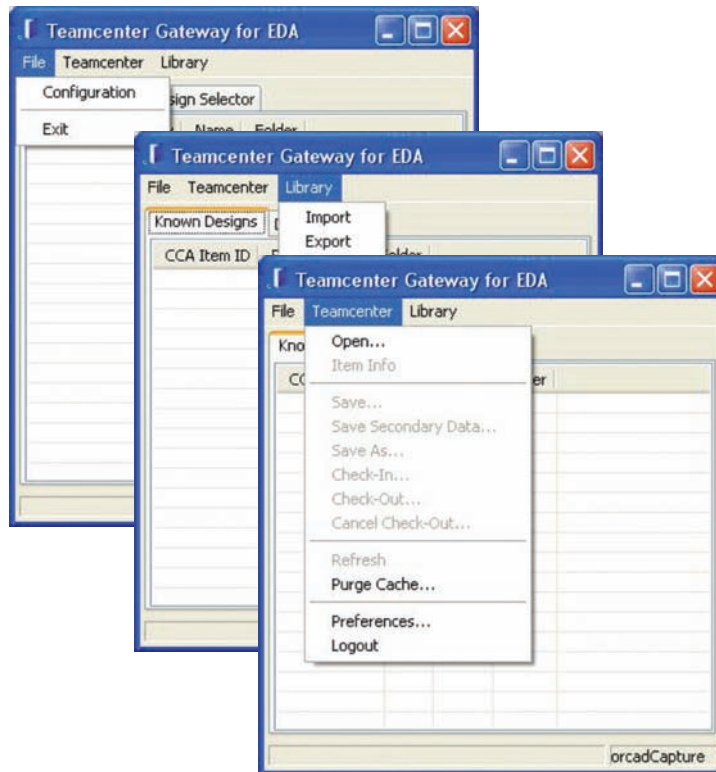
Enabling the power of Teamcenter

The use of electronics and embedded software is increasing in virtually every industry segment. To address the complexity of today's product development process and account for interdependencies between electronics, embedded software and the other parts of the product, companies need to manage the electronics lifecycle within the context of the entire product.

By leveraging Teamcenter as the single source of product and process knowledge, product teams can use the gateway for EDA to capture electronic design data, enable multiple disciplines to participate in workflows and change processes spread out across the globe and manage highly complex product configurations.

Configuration

Contact your Siemens PLM Software account representative for supported platforms and configurations.



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