

## CONFIGURATION MANAGEMENT



### OBJECTIVE

**Configuration Management** consistently defines and manages configured product data structures. With **Configuration Management**, companies can apply configuration effectivity to satisfy all possible product variations.

## Highlights:

- Helps companies with highly configurable products manage global product designs and bill-of-materials containing all possible variations
- Enables designers and engineers to create product configurations for analysis or to validate supported product options
- Applies multiple product unit or product option effectivity expressions directly to the BOM 3DEXPERIENCE design environment
- Synchronizes CATIA® configured 3D designs with configured BOMs providing both configured 3D geometry and configured BOM product views
- Enables design and BOM verification and impact analysis for configured products
- Applies effectivity for the definition, approval and implementation of a configured BOM structure's changes
- Provides configured BOM related reporting capabilities tailored to meet the needs of multiple functional areas such as configured BOM compare, where used and change management

## OVERVIEW

**Configuration Management** enables users to define all product variants in a single configured product structure. It allows users to retrieve parts from impacted variants in real-time through an "overloaded" design session to converge on the optimum design significantly faster.

The design in configured context capability enables users to simultaneously develop multiple products to address different markets with unique needs. It enables users to define effectivity ranges based on evolutions and/or variant values to define multiple variants while maximizing reuse and reducing costs.

**Configuration Management** includes the ENOVIA® 3D Configurator to visualize a product in 3D as it is configured. It is most useful for those companies building highly complex configure to order (CTO) and engineer to order (ETO) products.

## CAPABILITIES

**Configuration Management** key features and benefits include:

### Configured Product Structure

**Configuration Management** allows users to define a configured product structure containing 150% definition that can be used as a template to generate a family of product variants. It enables sharing of a single configured structure across multiple models and optimizes reuse. Maintaining all variations within a single configured structure enables on-time and accurate delivery of product variants to market.

Users can navigate the configured structure after specifying the configuration to be applied by selecting either a pre-defined or ad hoc configuration. Pre-defined configurations may either be saleable configurations defined by marketing or evaluation configurations defined by engineering for analysis purposes. For example, an engineering configuration could be defined to show a car with all possible engines to design or check potential hood alternatives.

### Defining Configuration Context

**Configuration Management** is used to apply a configuration context to a 3DEXPERIENCE® design structures. Models created through **Product Manager** or **Product Architect** are used as configuration contexts that drives the criteria available for defining effectivity values on the product structure. Ranges for effectivity values include variant criteria (i.e. a configuration feature and option dictionary defined for the selected model) and evolution criteria such as product state, unit, manufacturing plan, date, or milestones. Effectivity values are Boolean expressions that describe the validity of an instance based on configuration criteria.

### Design in Configured Context

**Configuration Management** enables users to select and filter a configured product structure based on specified criteria. Authoring of configured engineering IP data structures is performed through configured operations (add, replace, delete, evolve instances) that can be assigned an effectivity. By using effectivity values, users can specify which added or removed components correspond to specific variants or evolutions of the model. The users can define the authoring context to drive the way configured operations are assigned an effectivity range.

**Configuration Management** allows users to directly define effectivity expressions within each context (organized by tab). Further, users can also set effectivity through three approaches:

- Work with no configuration and define effectivity values later
- Define effectivity for each modification performed on the product
- Define effectivity once for a session so it is applied to all changes until ending the session

## Configured BOM Management

**Configuration Management** provides global development teams with a single, persistent definition of a configured BOM that is generated from configured product structure. A typical complex configured BOM has configured parts at high levels and non-configured parts at lower levels.

**Configuration Management** enables users to plan, manage and track changes to specific sets of customer product units and product configurations. These configurations are defined with effectivity values such as product unit, feature-option, product revision, milestone and context date, as defined on the product structure. Product unit effectivity (PUE) determines unit configurations and is used in conjunction with other BOM configuration management techniques such as “latest released revision” part effectivity to better reuse lower-level non-configured assemblies and equipment provided by external suppliers. Feature-option effectivity is used to define bills-of-material specific to product variants with specific feature options defined in the system. Product revision effectivity is used to define bills-of-material considering evolutions based on design changes. Milestone effectivity allows users to control availability based on project milestones.

## Configured BOM Reports

**Configuration Management** has reporting capabilities tailored to meet the needs of managing configured bills-of-material. The *Configured Bill-of-Material (BOM) Comparison* report improves part reuse and product quality by providing the ability to compare configured BOM differences. The report has many comparison options including basis of comparison, attributes to display when a difference occurs, BOM levels to compare, and effectivity filters. Results can be displayed in either a printer-friendly view or spreadsheet format for external view. The *Part Where Used* report provides a part’s single or multi-level parent usage. **Configuration Management** displays parent parts based on the effectivity filter applied. Where used reports are very useful in analyzing the scope and impact of engineering changes.

## Define Configurations with ENOVIA 3D Configurator

The **ENOVIA 3D Configurator** application provides an intuitive user experience to define configurations with real time 3D rendering. Its next generation configuration solver determines valid option combinations by applying rules instantaneously.

The **ENOVIA 3D Configurator** allows users to define configurations in either build mode or refine mode. Under build mode, users start the configuration from scratch and define the product step by step by selecting options from the available features. In refine mode, users start a configuration with all options “virtually selected” and refine the product by either selecting one or multiple options within each feature, or rejecting some of the “virtually selected” options. The **ENOVIA 3D Configurator** allows users to define overloaded configurations by disabling rules. Status of completeness of every configuration is visually indicated to the user through a gauge indicating if the current configuration is partial, complete or hybrid in its definition. While a partial configuration indicates that some of the mandatory features have not been evaluated by the user, a hybrid configuration indicates an overloaded configuration.

## Analyzing Configuration

**Configuration Management** provides easy and immersive access to advanced configuration analysis for finer understanding of structures, project tracking and decision making through the Business Intelligence (BI) Essentials. This advanced analysis tool enables users to quickly visualize components with the same effectivity or a compatible effectivity in the configured structure. It also allows users to visualize and analyze the type of effectivity used in the configured IP.

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