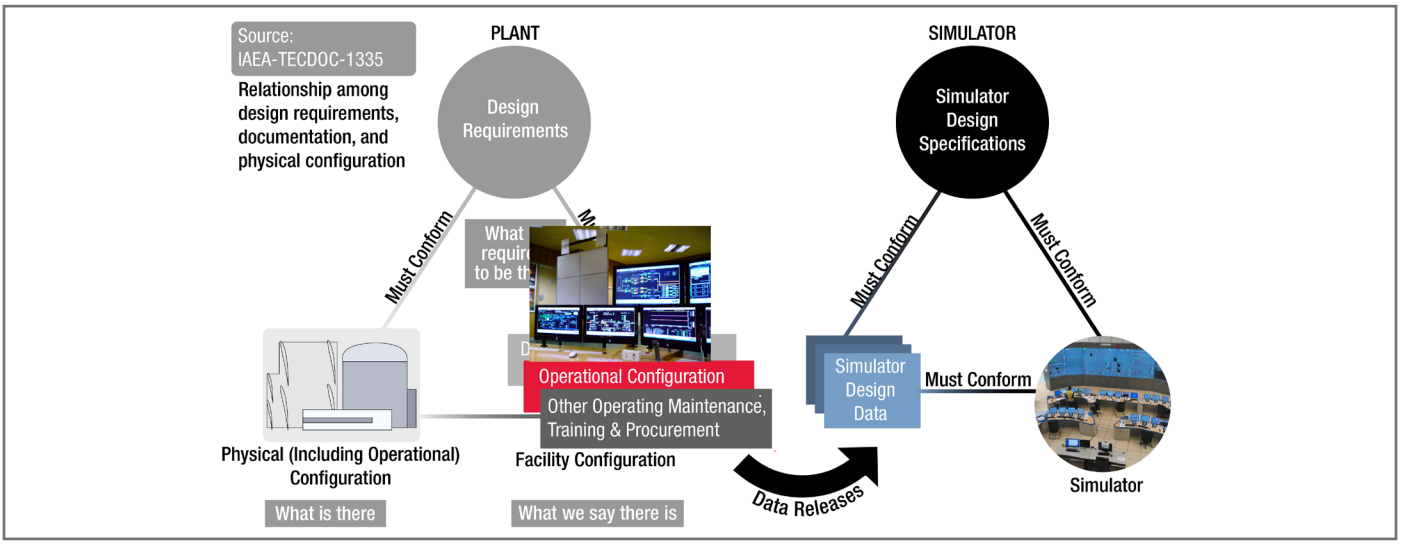
# 3KEYSAFE™

*Configuration Management System (CMS)*

CURTISS-WRIGHT

Nuclear Power Products and Services




## What is 3KEYSAFE™?

Plant design basis data are subject to continuous change during their design and engineering phases, as well as during their operational phase as a result of planned modifications, upgrades, and life-extensions.

In the context of simulator development, a plant's initial or as-built design, and subsequent design changes, as manifested in design and operational information, needs to be incorporated into the simulator in a planned manner. The goal is to be able to identify a specific version of the simulator with a specific baseline of the reference plant data at all times, which is critically important in training and licensing of plant operators using a simulator.

Additionally, there may be customer-specific requirements and information from other sources not specific to the plant that are used in the design, development, and testing of the simulator. This information also needs to be tracked and managed in developing and maintaining the simulator.

To facilitate the items listed above, Curtiss-Wright's Simulation Group* offers 3KEYSAFE™ to provide a comprehensive CMS that also can track code/model versions and simulator project-generated documents. It leverages powerful visual features of 3KEYMASTER™, together with the strengths of commercial Relational Database Management Systems (RDBMS) to provide efficient management of design data, configuration items, and for revision control in the development and maintenance of the simulator.

3KEYSAFE$\omega$™ is our web-enabled version of the local 3KEYSAFE™ product. It includes all of the features and strengths of the local version but adds the benefit of allowing development teams in separate locations (anywhere in the world) to access and update the CMS data via the web.

### *Key Components*

- GUI client for managing all functions
- Server-based repositories using commercial RDBMS products (SQL Server, Oracle)
- Multi-user environment implemented over the network
- Integration with:
  - 3KEYMASTER™ Simulation Platform
  - 3KEYCATALOG™ Equipment Catalog
  - Third-party Source Code Control System

## 3KEYSAFE™ Uses

3KEYSAFE™ provides simulator configuration management throughout the lifecycle of a simulator. It can be invoked at the beginning of simulator development during the data gathering phase, and continued through simulator test and delivery, and later during simulator maintenance. It can be used to support simulator development for new builds, in parallel with design and engineering, where continuous and frequent design data releases are common, as well as for managing simulator modifications for existing plants. Besides providing management of simulator configuration items, it also supports Quality Control functions.

### *Configuration for Simulator Development*

- Design Data Management
- Simulator Design & Change Management support
- Automated Specifications & Reports
- Source Code & Simulator Documentation Management
- Quality Control Process support
- Modeling Process support

*: WSC, a legacy brand of Curtiss-Wright's Simulation Group, headquartered in Frederick, MD, is a global simulation and services company. Acquired by Curtiss-Wright in 2024, WSC is recognized for the quality and efficiency of their products and flexible team-oriented approach to serving its customers.

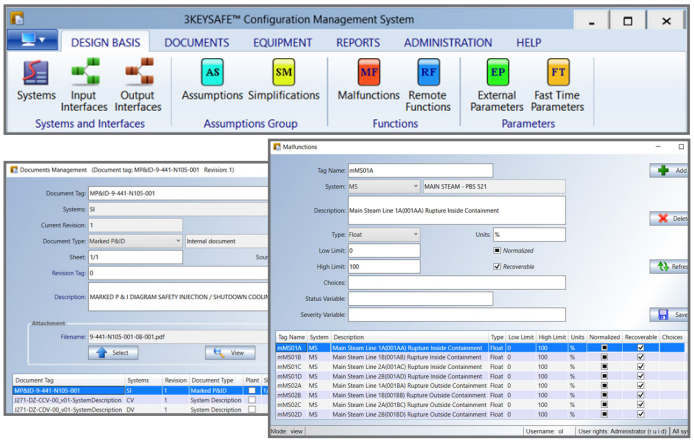
# 3KEYSAFE™

*Configuration Management System (CMS)*

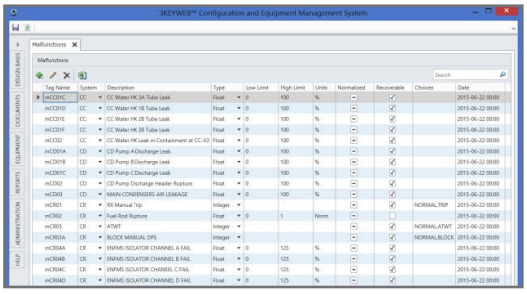
## 3KEYSAFE™ Features

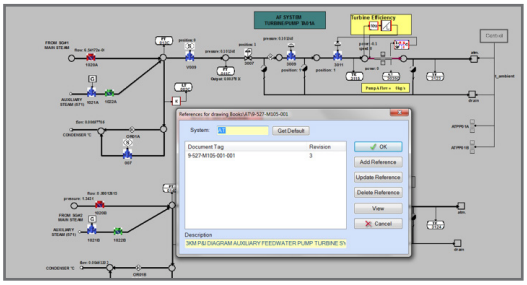
3KEYSAFE™ features are best described according to various processes that are used in the design, development, and maintenance of a simulator as listed below. Tables are provided for various types of information in support of these processes, which can be tailored to align with the needs of a specific plant at the beginning of the project.

- Role-Based Security Management
- Flexible Repository Design & Reference Data Handling
  - Customize database schema to align with plant information database structure
  - Automated import of design information from plant data repository using ETL tools
- Data & Design Management Processes
  - Data request and action tracking
  - Design change management
- Design Management Tables
  - Data references
  - System components
  - DCS I/O points and alarms
  - H/W panel, wiring, and I/O map
  - Assumptions and simplifications
  - Remote functions and malfunctions
  - External and fast-time parameters
- Source Code & Simulator Documentation Management
  - Tools, third-party software, and documentation
  - Simulator project generated documentation and reports
- QC Process Support
  - Acceptance test procedures tracking
  - Discrepancy reports
  - H/W inspection management
- Automated Design Specification & Reports Generation
  - Design specifications
  - Acceptance test procedures
  - Standard and ad-hoc Reports
- Modeling Process Support
  - Simulation load tracking
  - System models revision tracking
  - System models data referencing




3KEYSAFE™ Local CMS



3KEYSAFEω™ Web-Enabled CM

## Why Choose 3KEYSAFE™?

3KEYSAFE™ provides an industry-standards-compliant Configuration Management Solution. Rather than implementing a command-and-control type application that tends to be burdensome on the simulation development process, it distinguishes itself with its ease of use and efficiency, achieved by leveraging native features of various composite applications to provide the necessary CMS functions.

### *Advantages*

- Industry-standards-compliant solution (ANS, IAEA, IEEE)
- Efficient configuration management, without being cumbersome
- Ease of use—fully GUI-based
- Data reference tracking at point-of-use
- Single authoritative source of configuration information
- Powerful reporting capability using native RDBMS functions
- Visual review and management of model changes in 3KEYMASTER™
- Available over the Web for development teams located in different places, eliminating the need for maintaining multiple instances of the CMS database and periodically having to synchronize them

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