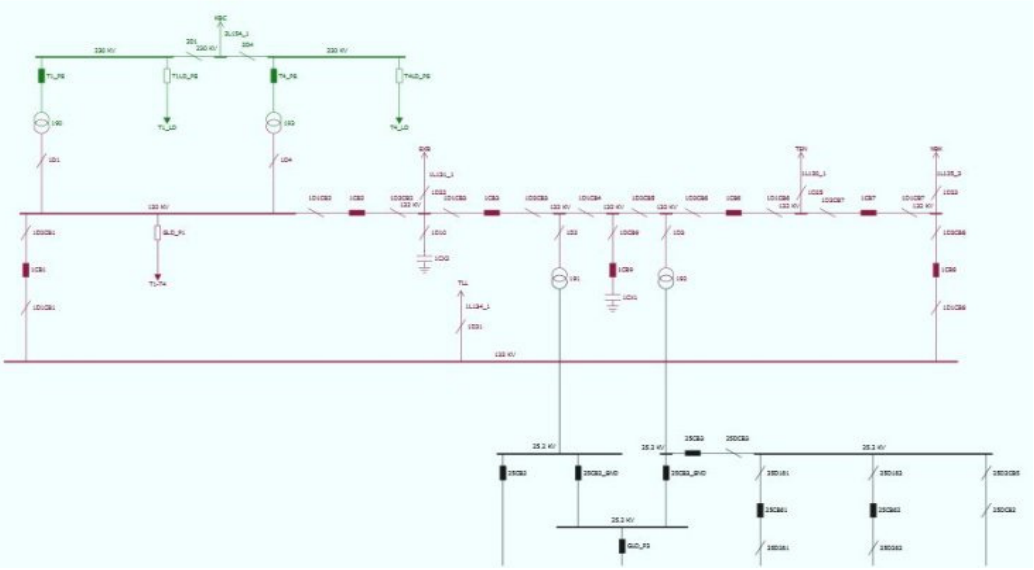
CIMSpy EE A CIM-Based Model Exploratory Tool



Background

CIMSpy started as an open-source project in 2005. The early version, i.e. CIMSpy Standard Edition (CIMSpy SE), was originally designed to support EPRI's CIM InterOP (IOP) tests. Since the introduction, it has been widely used in the CIM communities, including the past EPRI and ENTSO-E CIM IOPs.

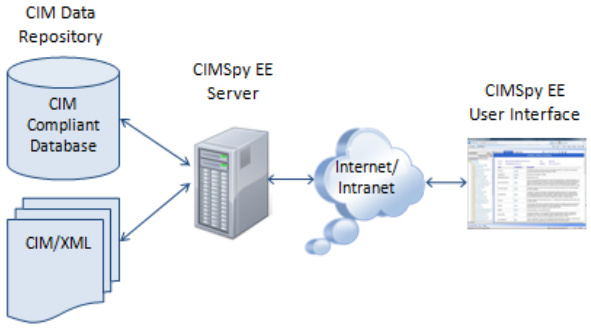
Funded by US Department of Energy under the awarded SBIR Phase II Grant, CIMSpy was rebuilt in support of multiple business practice in a utility organization. The enhanced version, CIMSpy Enterprise Edition (CIMSpy EE), leverages the greatest and latest information technologies and delivers the industry leading performance and comprehensive features addressing a variety of common requirements of CIM-related projects. Among these enhancements, the new feature of data-driven model visualization is a major breakthrough and a key differentiator.

Today, CIMSpy EE is being leveraged by more than 50 electric utilities, ISOs/RTOs, grid coordination organizations, energy trading companies, and EMS/MMS vendors in Europe and North America.

CIMSpy EE is a standard-based model exploratory tool designed to address the emerging model exchange and information integration requirements in the power industry. Built upon Common Information Model (CIM) and its related IEC standards, CIMSpy EE provides comprehensive data engineering functions and rich user experience to help you understand and analyze your CIM-based power system models.

More specifically, CIMSpy EE is designed to provide an integrated data engineering environment in support of CIM-based model exchange, application integration, and information sharing. Users can load reality-based CIM/XML files into the tool and perform a variety of data engineering functionalities, including model browsing, visualization, validation, editing, comparison, merging, partitioning, and incremental update. The engineered models can be further exported into various formats such as XML or CSV, ready to be consumed by other CIM-compliant information infrastructures.

Built as a distributed Web-based application, CIMSpy EE provides a set of infrastructure and application modules that can be readily assembled or configured to meet various project needs, ranging from standard-based model exchange to exploratory data analysis.



Case Studies

Since the introduction, CIMSpy EE and its derived tools have been widely adopted in the CIM communities, as demonstrated in the following use cases:

Case A: Supporting Standard-Based Model Exchanging

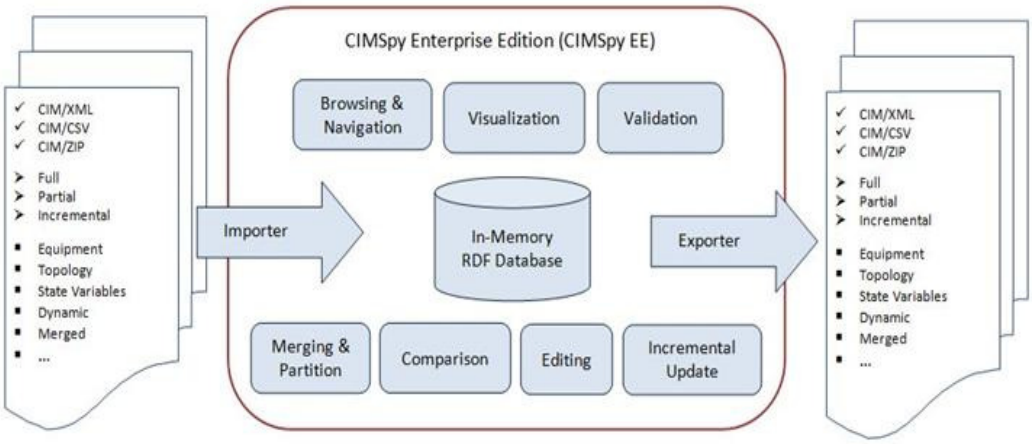
In support of CIM-based model exchanging, CIMdesk (a customized version of CIMSpy EE) was delivered to ENTSO-E and its 41 Transmission System Operators (TSOs) in 34 European countries. Today passing CIMdesk validation is mandatory for TSOs to submit their models to ENTSO-E.

Case B: Facilitating Region-Wide Model Sharing

Since 2011, some of the WECC Balancing Authorities (BAs) have started the projects aimed to update their external EMS models using WECC's West-wide System Model (WSM). CIMSpy EE provides comprehensive model exploration functions, helping project engineers understand WSM and test the merged models.

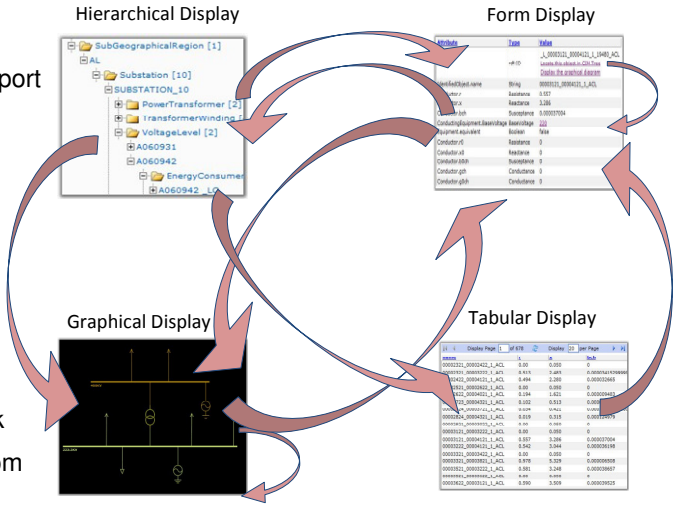
Case C: Assisting Delivering CIM-related Projects

CIMSpy EE is also licensed by EMS and MMS vendors to support delivery of CIM-related projects and debugging of network applications.

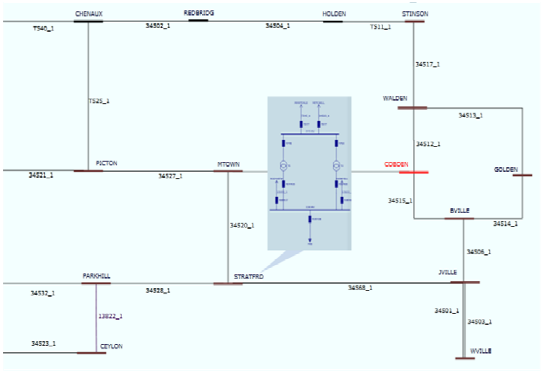


Key Features :

- ✓ Capability of importing and exporting reality-based large CIM-compliant models of GB size in various formats
- ✓ Comprehensive model browsing features in support of exploratory data analysis, including multi-view data-driven presentations, smart navigations, intelligent information searching, and visual data mining, aimed to help users seek the useful information from large volume of data



- ✓ Powerful model validators, schema-driven and rule-based, ensuring you receive the right data in the right format
- ✓ Standard-based model merging capabilities, including profile-based data group merging and Model Authority Set (MAS) based regional model assembling
- ✓ Ability to compare two models based on the Master Resource ID (MRID) concept



- ✓ State-of-the-art model visualization capability, enabling users to explore the model intuitively and interactively
- ✓ Rich look-and-feel user experience

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