



BENEFITS:

- Reduced time and cost of data handover from CAPEX projects and turnarounds.
- Improved range, quality, and consistency of validation performed.
- Fully configurable staging area.
- Extensive range of user-definable validation rule types.
- Simple form-assisted validation rule definition.
- Comprehensive management of user roles.
- Comparison of data in the staging area with data in the SmartPlant® Foundation target system.
- Fully auditable traceability of data submissions, validation performed, and results.
- Automated capture of test results.
- Microsoft® Windows® Workflow Foundation for managing work processes.
- Powerful export mechanism to load data into target systems.

VALIDATION, TRANSFORMATION, AND LOADING (VTL)

A SmartPlant® Enterprise and SmartPlant Enterprise for Owner Operators (SPO) Solution

STREAMLINE DATA HANDOVER FROM PROJECTS AND BROWNFIELD DATA TAKE-ON

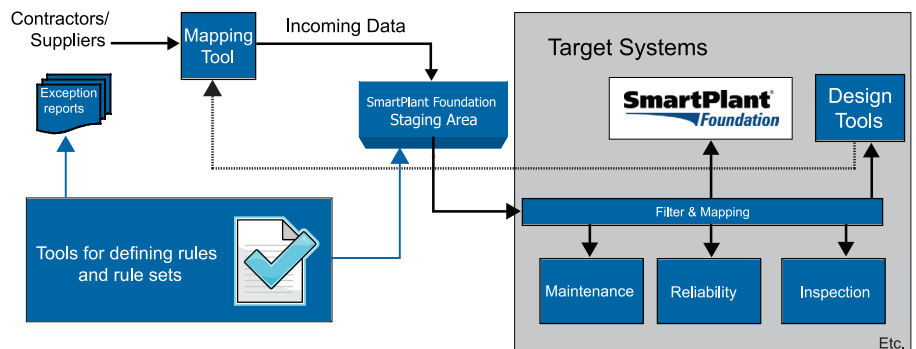
The handover of data from CAPEX projects and plant turnarounds is a formidable task. It can involve the transfer of thousands of documents and millions of individual data items from suppliers and contractors to the owner operator. The challenge is how to quickly and efficiently perform the following tasks:

- Check the quality of information being transferred
- Keep records of which checks have been performed and the results obtained
- Load approved information into target systems for operations

On large CAPEX projects, it is not unusual for this process to cost in excess of US\$15 million and take up to a year.

The take-on of data from brownfield plants and validation in preparation for plant revamps or for loading into data systems requires that data from multiple sources (systems, files, and hardcopy documentation) be gathered, transformed, loaded, consolidated, and validated.

The Intergraph® Validation, Transformation, and Loading (VTL) solution is designed to meet these needs and lower the cost of project handovers and data take-on.



THE SOLUTION

Intergraph VTL is a comprehensive solution capable of managing data import from multiple sources. VTL submits imported data to rigorous quality control before data extraction for loading into target systems. These systems can include Intergraph's SmartPlant Enterprise information management and engineering design tools or third-party applications.

ADVANCED IMPORT CAPABILITIES

VTL empowers you to choose your preferred mapping and transformation tool. You can use any mapping tool capable of generating XSLT, such as MapForce from Altova, to map incoming data or export data to be loaded into target systems.

The import module reads incoming files and transforms these using the XSLT generated from a mapping tool. The import module's advanced features can:

- Prompt you for input.
- Automatically calculate values based on incoming data where needed.
- Check .CSV files for defined valid and invalid characters and RFC 4180 compliance.

USER-DEFINABLE RULES

VTL allows you to quickly and easily define your own rules. It supports an extensive range of rule types, including:

- Syntax rules.
- Uniqueness validation.
- Relationship cardinality.
- Date and time validation.
- Integer/float validation.
- String and pick list validation.

- PL/SQL and DLL rule definitions for more complex rules.
- Unit of measure validation.
- Mandatory fields validation.
- Cascading errors – Errors on one object can create errors on associated objects.

You can add your pre-defined rules to rule sets that are run against future data submissions.

FLEXIBLE STAGING AREA

VTL provides a highly flexible staging area into which you can map and load incoming data submissions from contractors, suppliers, or a legacy data system. Once in the staging area, you can validate data against your pre-defined rule sets. The results from testing are retained in the staging area. Reports then list the results.

GENERIC EXPORT MODULE

The VTL export module facilitates data filtration and export. The module also supports the initiation of loading programs to load data into Intergraph SmartPlant Enterprise software or third-party applications.

BUILDING ON PROVEN EXPERIENCE AND TECHNOLOGY

Intergraph has extensive, in-depth experience in helping customers manage the handover of data from complex projects to operations, as well as helping successfully migrate data from legacy systems. We use this rich legacy of experience as the basis for the design of our comprehensive VTL tool set. VTL is based on Intergraph's industry-leading SmartPlant Foundation information management technology to ensure a highly robust and flexible platform for data staging and validation.

ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph's industry-specific software to organize vast amounts of data to make processes and infrastructure better, safer and smarter. The company's software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph PP&M provides enterprise engineering software for the design, construction, operation and data management of plants, ships and offshore facilities. Intergraph SG&I provides geospatially powered solutions, including

ERDAS technologies, to the public safety and security, defense and intelligence, government, transportation, photogrammetry, and utilities and communications industries. Intergraph Government Solutions (IGS) is a wholly owned subsidiary of Intergraph Corporation responsible for the SG&I U.S. federal business.

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