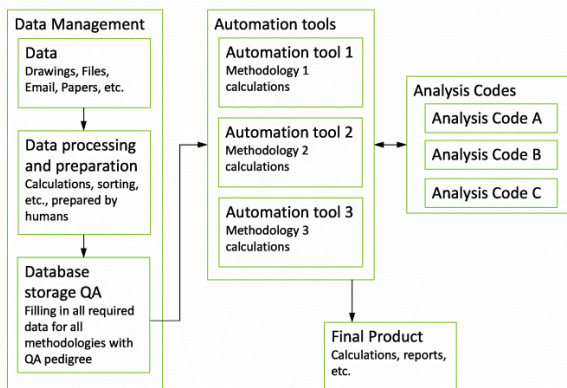


Background

Zachry (and its predecessor Numerical Applications) have been supporting automation and data interchange for computer software and calculations since the mid-1990's. We began with assisting a fuel vendor in accurate transfer of input and output data between numerous computer codes and have continued to full automation from the input phase to the final approved calculation. Our focus has always been on improving efficiency and quality of the calculation process through the use of computer software for data transfer and performance of common tasks.

Overview

In order to reduce preparation and review time, assure accurate transfer of input and output data between computer codes and calculations and provide a consistent calculation format, Zachry has created several customized computer software solutions for calculation automation. From data management to a final product, Zachry has automated the entire process.



Approach/Process

Zachry's approach is customizable depending upon the customer's needs. We have utilized the following methods to support calculation automation:

- Create a database that stores raw inputs and manipulates the inputs as required for computer code input. Computer code input files are automatically generated from the data base input and the computer codes are automatically run with appropriate links between the codes for input and output.
- Generate base calculations from a combination of sources including an input database, computer code output files, standardized text sections and a pre-defined format template.

- Create tools to execute numerous interacting computer codes and exchange data between the codes.
- Manage and store data, computer code input and output, calculations and reports in a quality assured environment under a 10 CFR 50 Appendix B process that allows for executing the computer codes within the QA environment.
- Process and format computer code results and automatically import selected results into a calculation.
- Utilize Visual Basic tools with Microsoft Office products to auto-generate technical reports.
- Use Python scripts to execute numerous analyses and parametric studies, then utilize LaTeX and document templates to produce technical reports and incorporate standard figures, tables and text.
- Automate technical report/calculation production utilizing XSLT for data extraction, XML for implementing format rules and XHTML to produce reports.
- Provide a common framework for data sharing and reuse across applications.

Summary

Automating the production of calculations:

- Eradicates repetitive administrative tasks, often performed by higher level technical personnel
- Safeguards against human errors in exchanging data between software packages and incorporating results from software, spreadsheets, etc. into calculations
- Assures the information is consistently presented in a logical and understandable manner
- Allows the reviewer to focus on results and other important aspects of the calculation versus data exchange and correct reproduction of input and output information from other sources
- Reduces the total duration to produce a calculation
- Provides a QA environment for the full calculation process
- Can perform the data management function for input and output

Zachry has the appropriate skill set, directly applicable experience and the appropriate tools to provide a customized automation solution.

Contact

Please contact Dr. Jeff Lane (919-903-6763, lanejw@zachrynuclear.com) for further information.