

Property Generation in HTRI *Xchanger Suite* using CAPE-OPEN

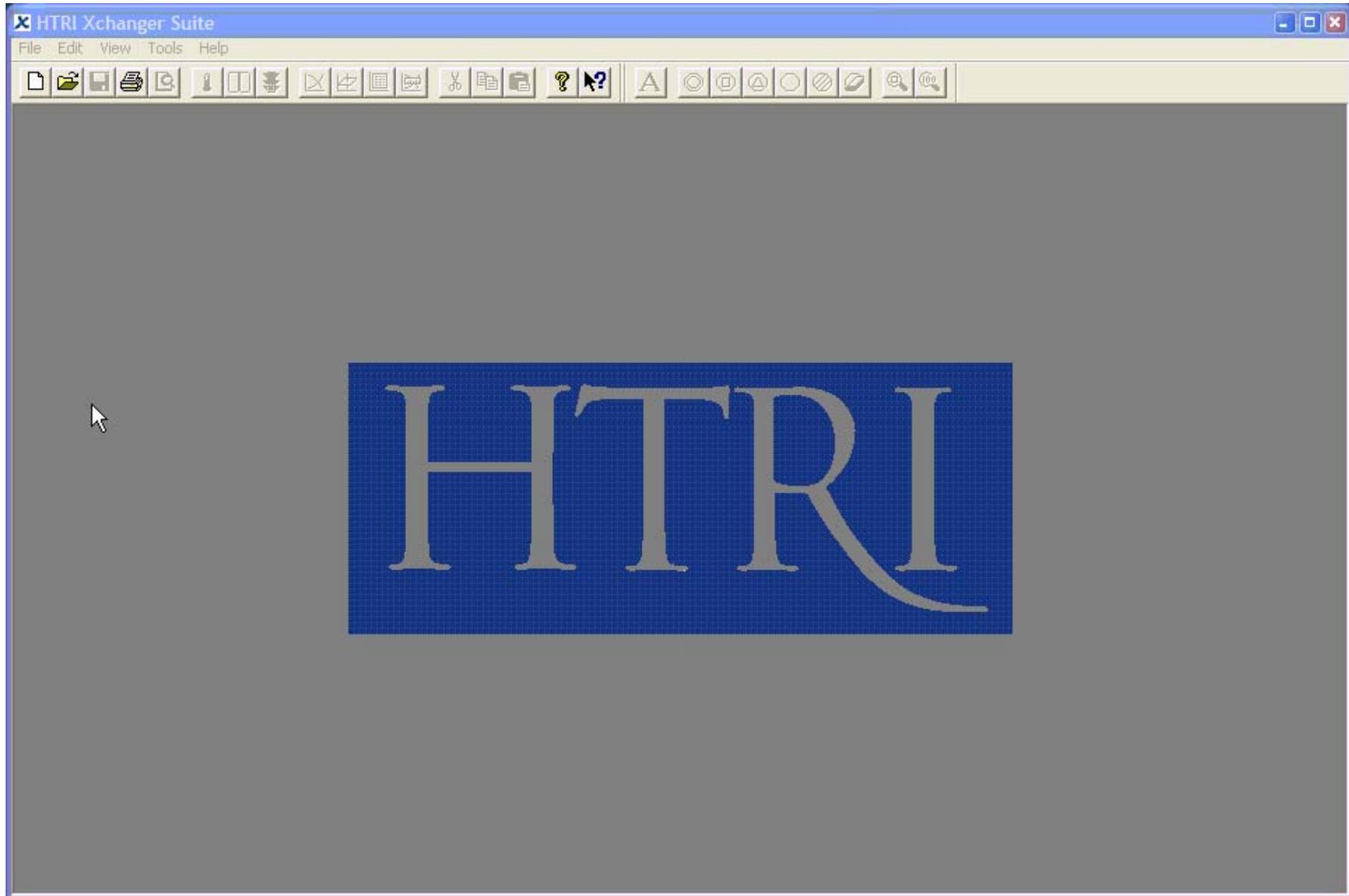
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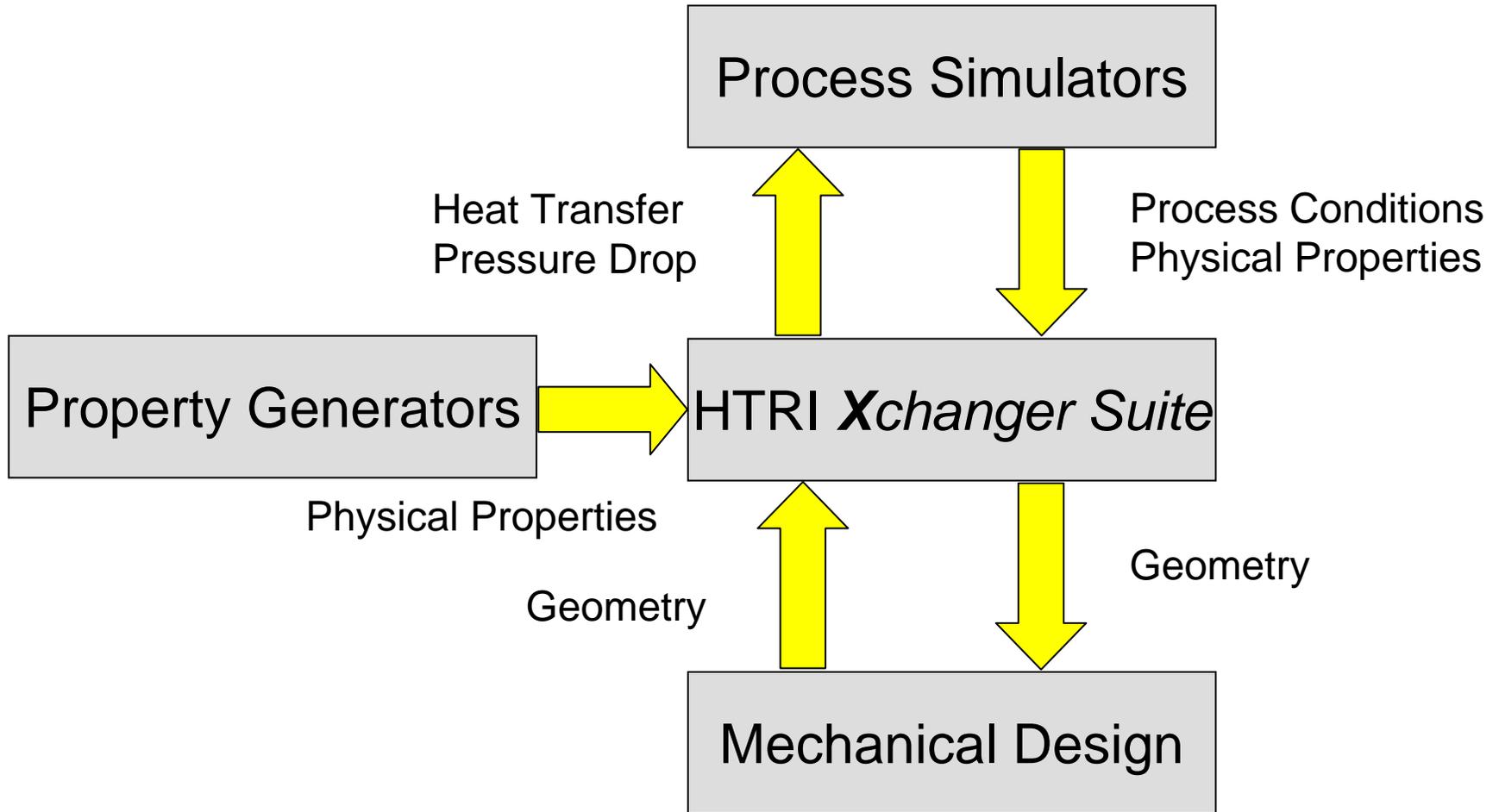
Topics

- HTRI Software
- Interface Needs
- CAPE-OPEN Interfaces
- Thermo Implementation
- Example Applications
- Future Development

Overview of HTRI *Xchanger Suite* software



Interface Needs



CAPE-OPEN Interfaces

- Thermodynamic and Physical Properties
- Unit Operations
- Numerical Solvers
- Sequential Modular Specific Tools

CAPE-OPEN Interfaces

- Thermodynamic and Physical Properties
 - Standard interfaces for Material Objects as well as thermodynamic property packages, calculation routines and equilibrium servers
- Unit Operations
 - Set of standard interfaces for unit operation modules being used within Process Modeling Environment (PME)

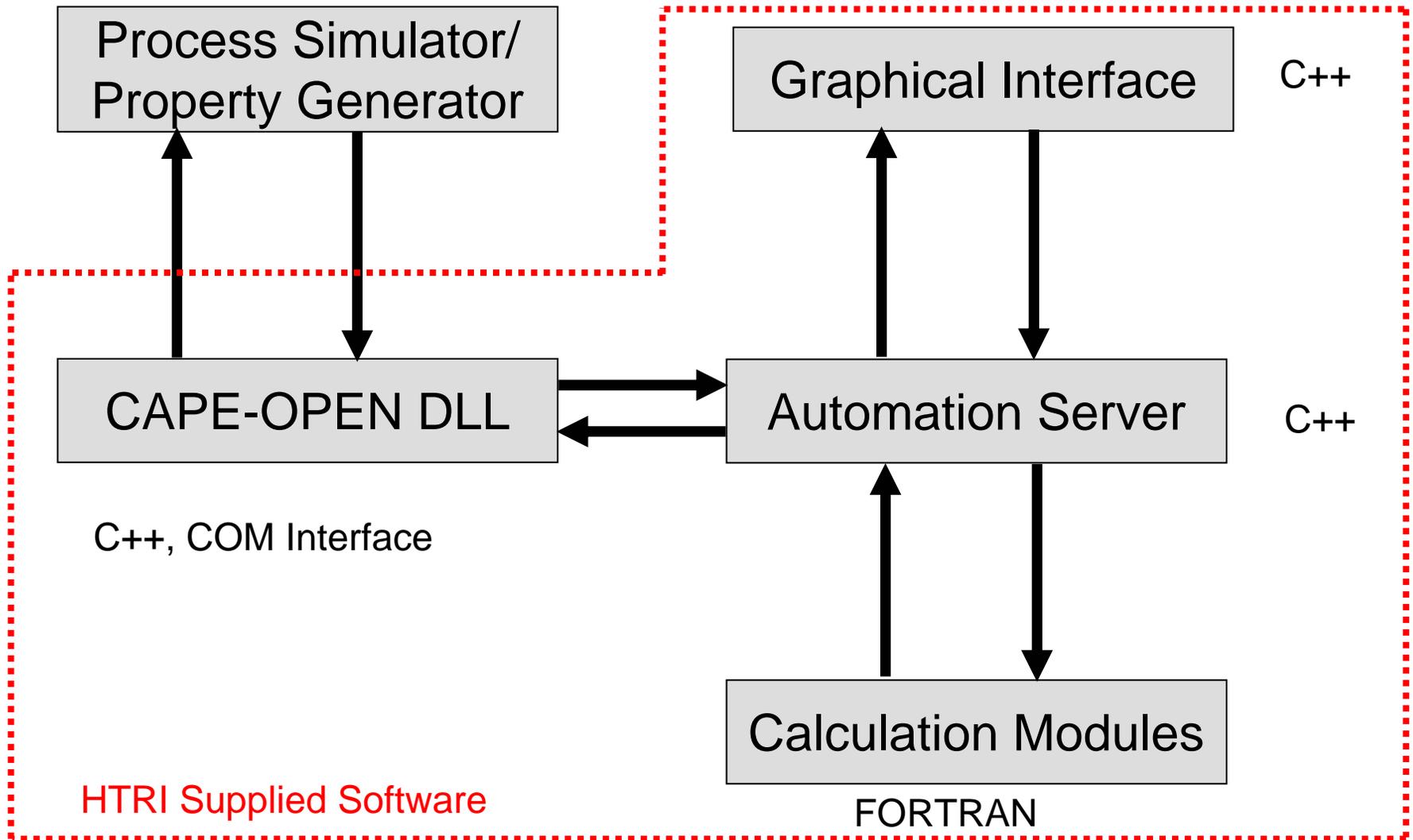
HTRI CAPE-OPEN Implementation

- Unit Operation interface implemented in HTRI *Xchanger Suite* 4.0
 - Allows embedding of HTRI rigorous calculations in CAPE-OPEN compliant simulators
- Thermodynamic interface implemented in HTRI *Xchanger Suite* 5.0
 - Allows generation of fluid physical properties from within *Xchanger Suite* interface
 - Release in early 2006

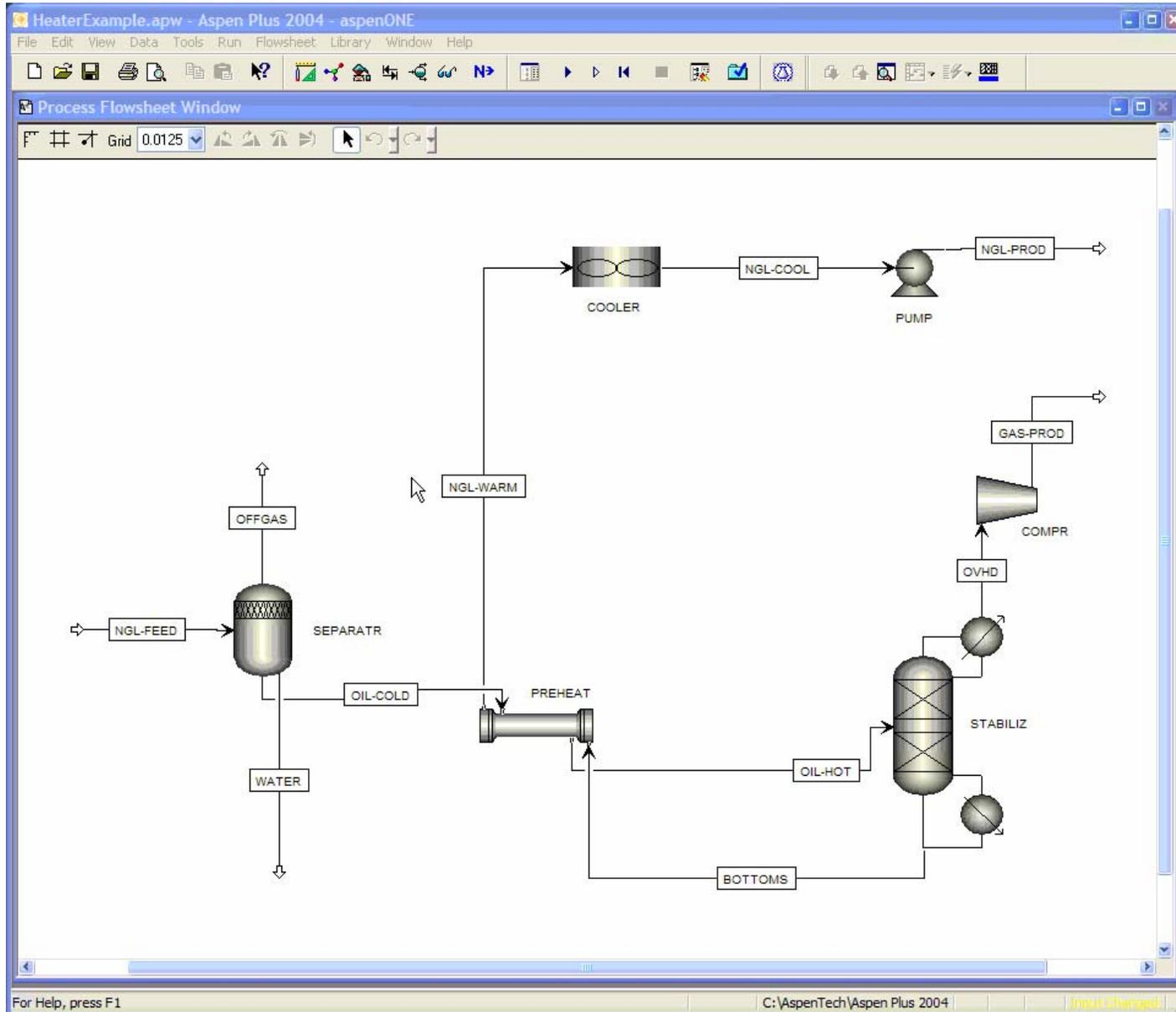
Thermodynamic Interface

- Allows external access to fluid physical property predictions
- Requires initial export of CAPE-OPEN property package/system
- This mechanism allows the exported packages to support the full capabilities of the underlying property system
- CAPE-OPEN API need not deal with complexities of underlying packages

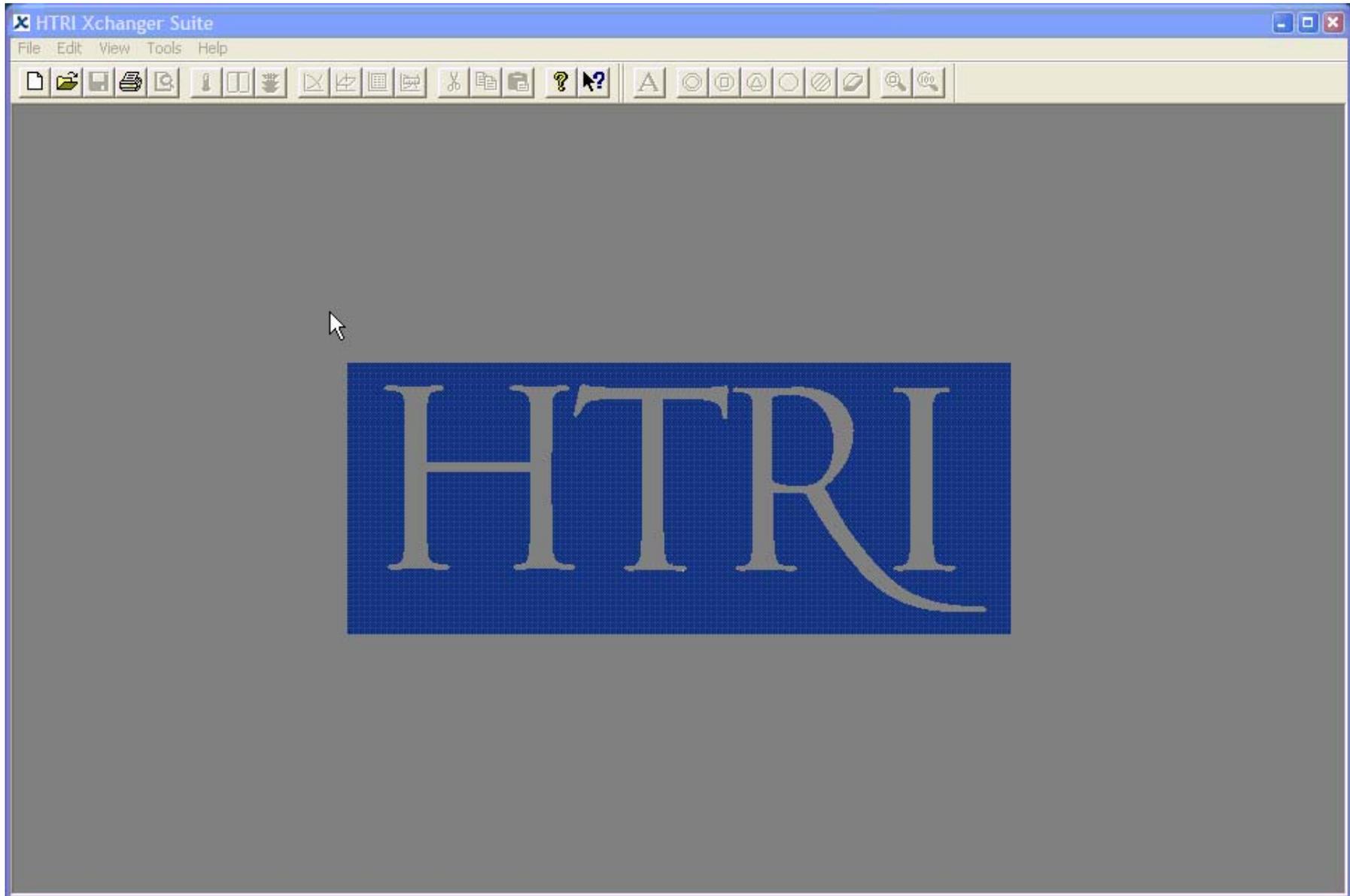
HTRI CAPE-OPEN Implementation



Exporting CO property package from Aspen Plus 2004

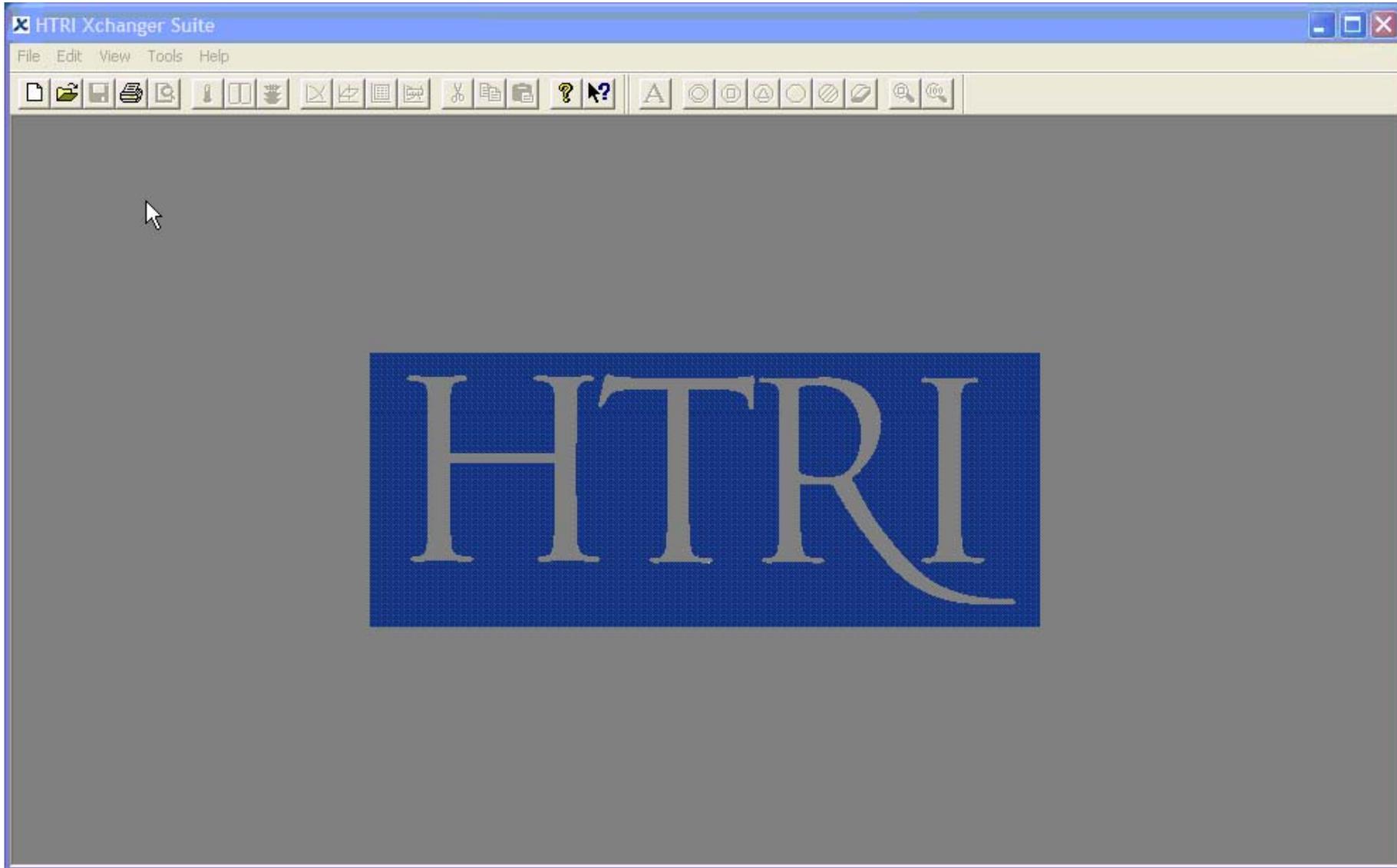


Using CO package exported from Aspen Plus 2004



Demonstrate use of CAPE-OPEN interface with Simulis property package

Using PPDS property package through CO interface



Lessons Learned

- Similar to experience with implementation of Unit Operation interface
 - Necessary to test with multiple property packages
 - Small differences in the way properties are returned require changes to handle all packages
 - Common code for multiple software platforms is possible

Future Development

Support for additional vendors

- Unit Operation interface works with developmental version of PRO/II 7.1
- Thermodynamic interface for HYSYS under development
 - Minor adjustments on how properties are returned by HYSYS

HTRI