

Demonstrating the use of CAPE-OPEN technology in process simulation

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Outline

- ◆ **What is CAPE-OPEN?**
- ◆ **Scenario of use A**
 - ⇒ **A 3rd party CAPE-OPEN Property Package used within a process simulation model**
- ◆ **Scenario of use B**
 - ⇒ **A 3rd party CAPE-OPEN Unit Operation used within a process simulation model**
- ◆ **Conclusion and perspectives**

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MRW1

but can be done without a wizard as well

Malcolm Woodman, 11/9/2009

What is CAPE-OPEN?

◆ CAPE-OPEN

- ⇒ defines rules and interfaces that allow CAPE (Computer-Aided Process Engineering) applications or components to interoperate
- ⇒ is a freely available documentation set

◆ CAPE-OPEN interfaces are implemented

- ⇒ By process simulation software vendors
 - AspenTech, Honeywell, HTRI, Infochem, Process Systems Enterprise, ProSim, SimSci-Esscor, SolidSim, TUV NEL ...
- ⇒ By in-house developers
 - BASF, KBC Profimatics, SASOL, TOTAL,, etc...
- ⇒ By academics
 - Ruhr Universität Bochum, University of Trieste, etc...



Scenario A

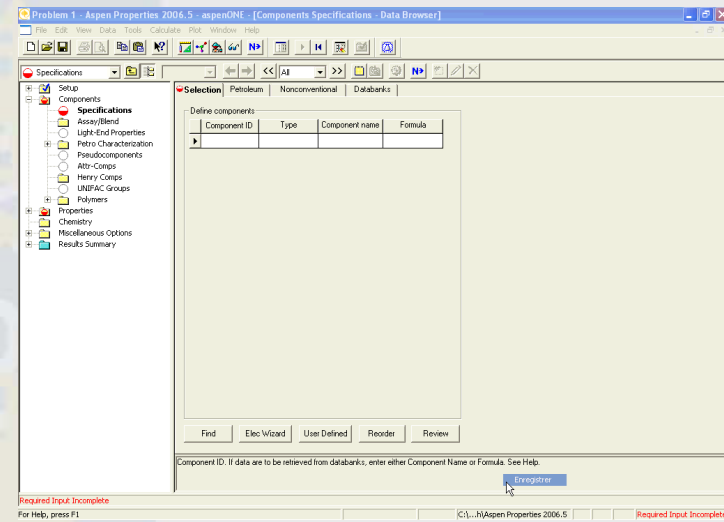
- ◆ **Export / create CAPE-OPEN Property Package**
- ◆ **Insert it**
- ◆ **Use it in process simulator X**
- ◆ **Use it in process simulator Y**

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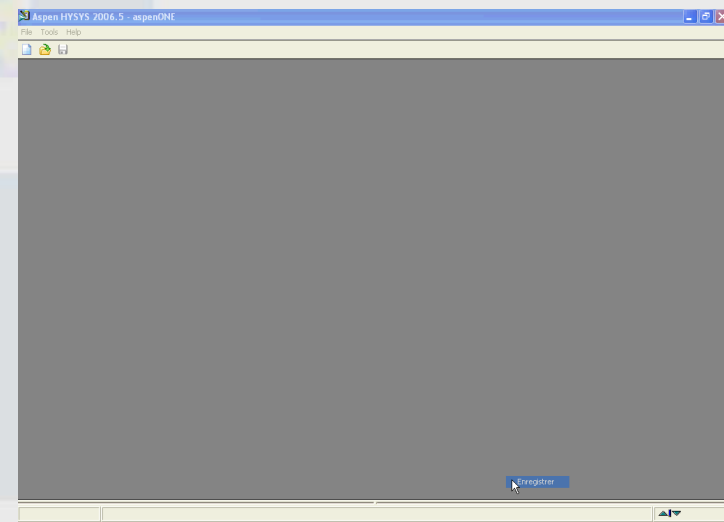


Export a CAPE-OPEN Property Package

◆ Out of Aspen Plus

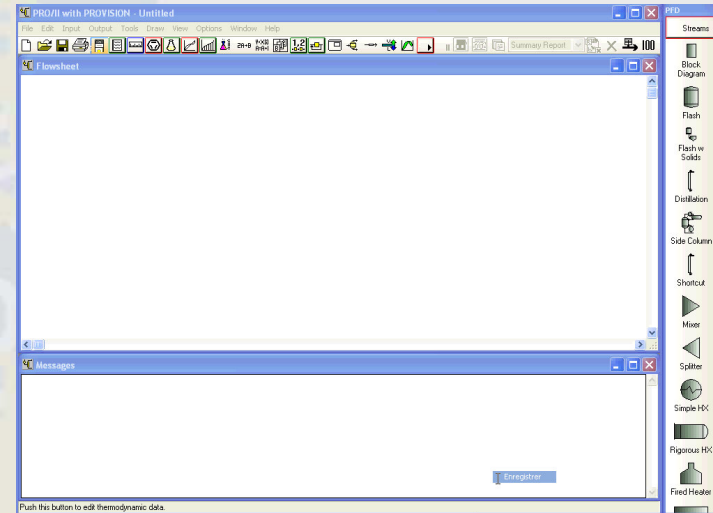


◆ Out of Aspen Hysys

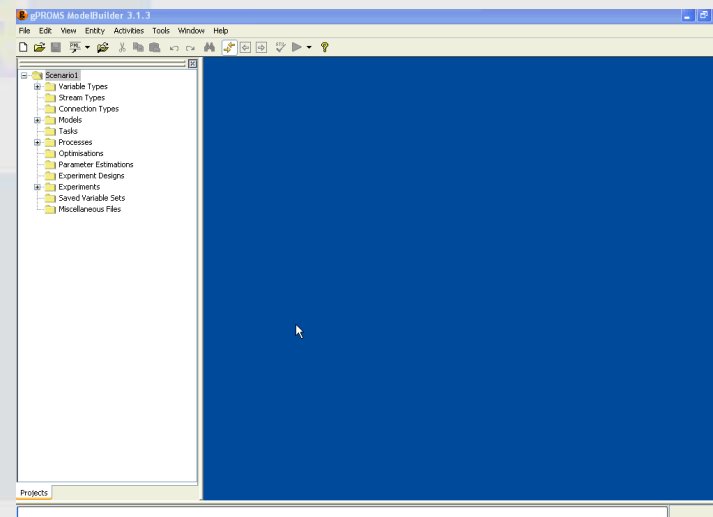


Insert the Property Package and use it

◆ In PRO/II



◆ In gPROMS



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Scenario B

- ◆ Plug in 3rd party Unit Operation in process simulator X
- ◆ Calculate
- ◆ Plug in 3rd party Unit Operation in process simulator Y
- ◆ Calculate

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Gas-Liquid Cylindrical Cyclone (GLCC)

◆ Context

- ⇒ **Alternative to conventional separators: simple, compact, less expensive, lower weight, less maintenance**
- ⇒ **Design and verification code available as stand-alone piece of software**
- ⇒ **Need to use the GLCC design and simulation code in process simulators**

◆ Constraint

- ⇒ **Resources: one interface to fit all simulators**

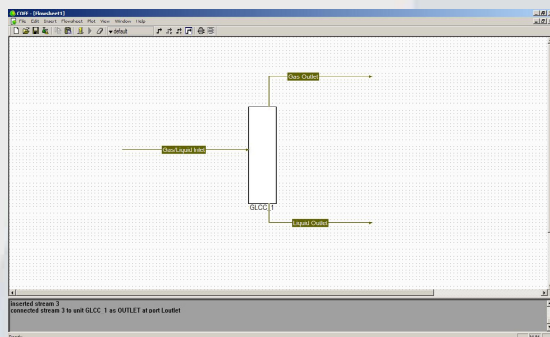
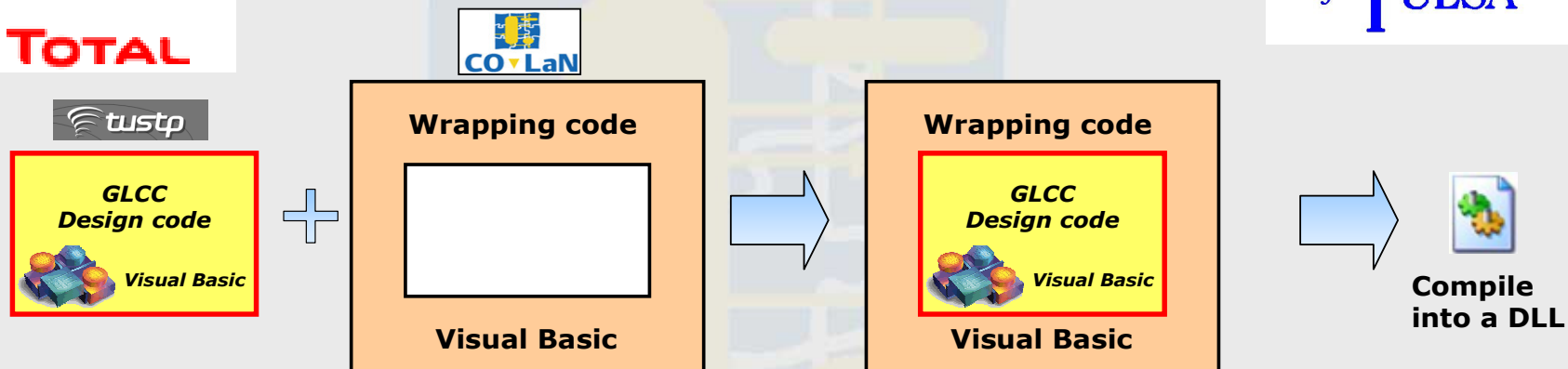
◆ Solution

- ⇒ **Wrap existing code as CAPE-OPEN Unit Operation**

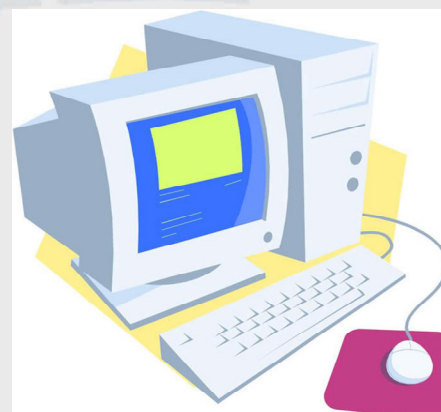




GLCC UO development



Ready to use GLCC in a simulation environment

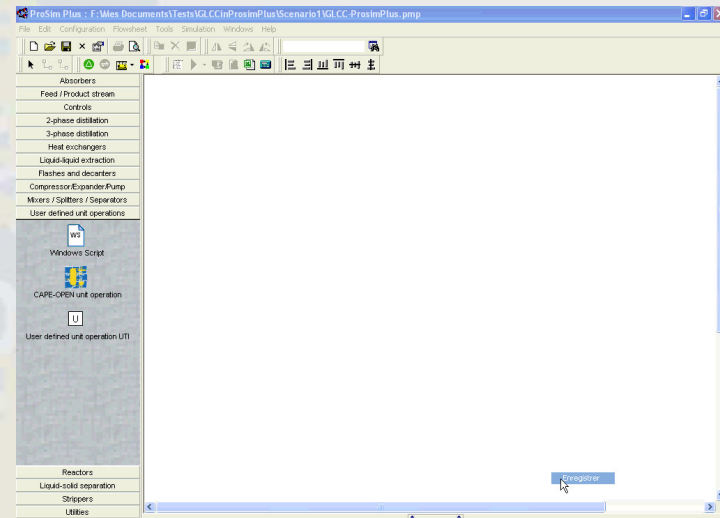


Install on user computer

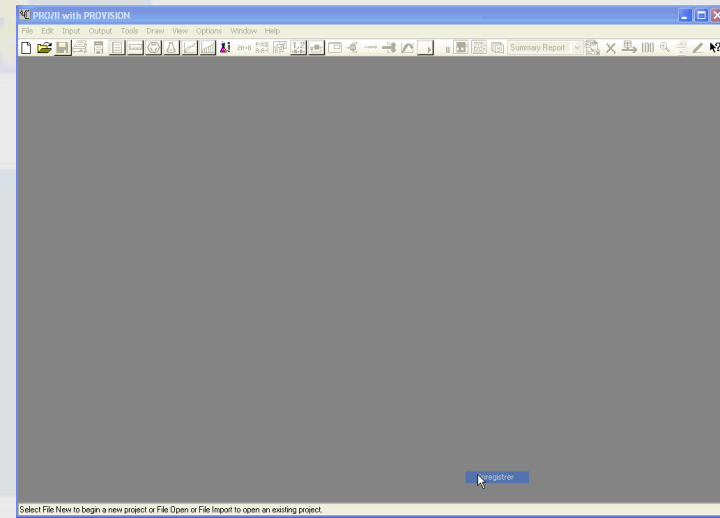


Plug in and calculate

◆ GLCC in ProSim Plus



◆ GLCC in PRO/II



Conclusions and perspectives

- ◆ CAPE-OPEN technology is no more difficult to use than generic process simulation functionality
- ◆ Software components developed to be used in one simulator may be easily reused in another simulator
- ◆ Implementation of CAPE-OPEN interfaces in major simulators has much progressed but contains still some defects:
 - ⇒ If you intend to make use of CAPE-OPEN, press your favorite process simulation tool supplier so that the remaining defects are resolved quickly





Demonstrating the use of CAPE-OPEN technology in process simulation

Thank you for your attention!

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