

# Self certification proposal

**Bryn Stenhouse / Michel Pons**  
**CAPE-OPEN 2015 Annual Meeting**  
**Shell Technology Centre Amsterdam, Netherlands**  
**October 13, 2015**

# Background to Self Certification Proposal

- Proposal originating from 2014 AGM “Futures” session
- Need to quickly identify CO-compliant PMEs and PMCs
  - Of interest to modelers as well as to developers
- Who should define compliance and certify it?
  - Certification by CO-Lan is non workable
  - Proposal is self-certification by software vendors
- Dissemination
  - Certificates to be published on CO-LaN website

# Certification process

## ◆ CO-LaN

- ⇒ Defines the required functionality for compliance level
- ⇒ Describes compliance tests

## ◆ Software vendor

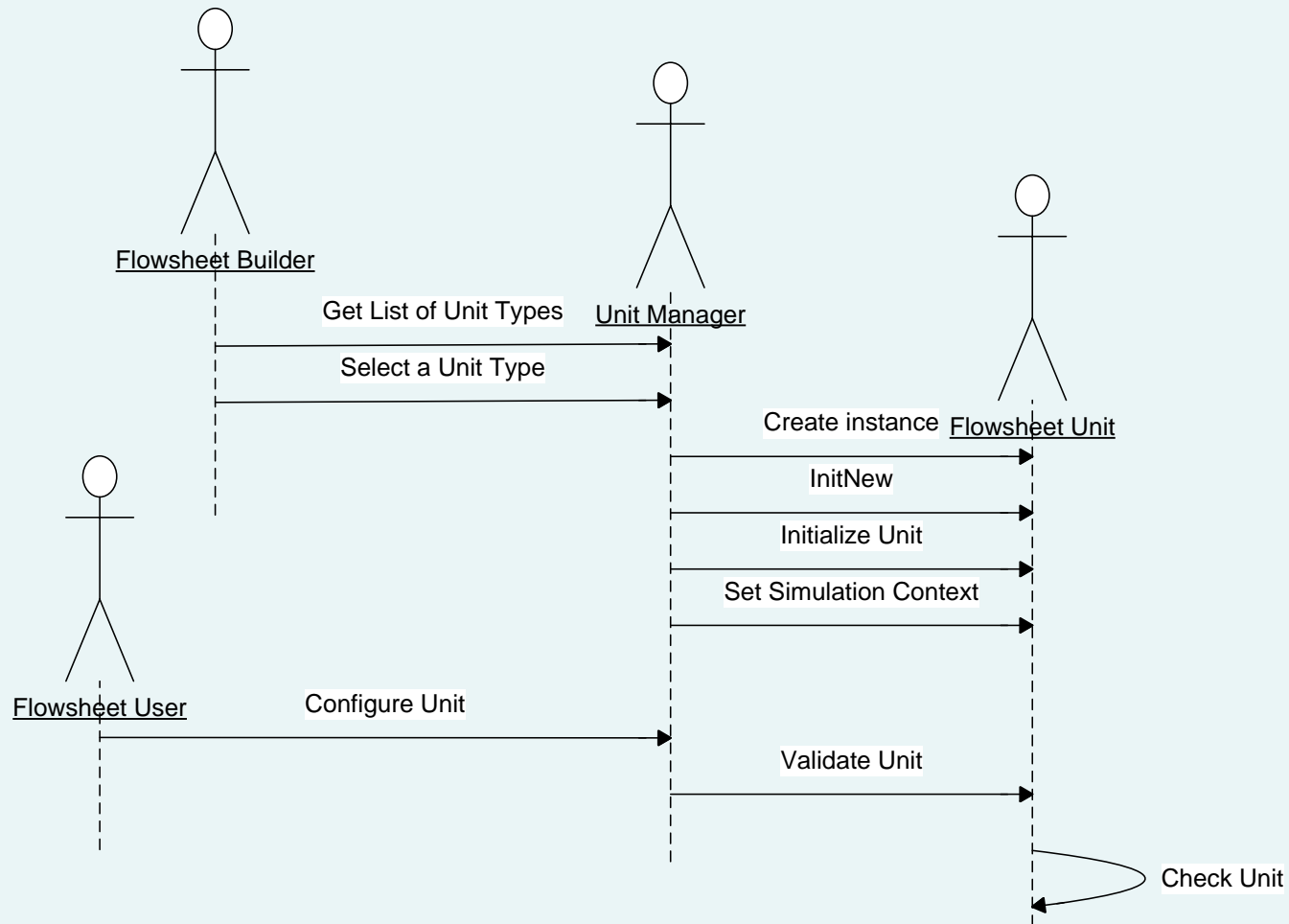
- ⇒ Performs compliance tests
- ⇒ Indicates available CAPE-OPEN functionality
- ⇒ No obligation to document how it has been tested
- ⇒ Indicates to which version(s) of software certification applies

## ◆ CO-LaN publishes self-certification statements

# Required functionality

- ◆ **Extracted from CAPE-OPEN specifications**
  - ⇒ **Mandatory/optional implementation of interfaces**
  - ⇒ **Operability of methods per interface**
    - **Use Cases**
- ◆ **Scenarios of tests**
  - ⇒ **Similar however slightly different for PMCs and PME**s
  - ⇒ **Aim at exercising as many methods as possible**

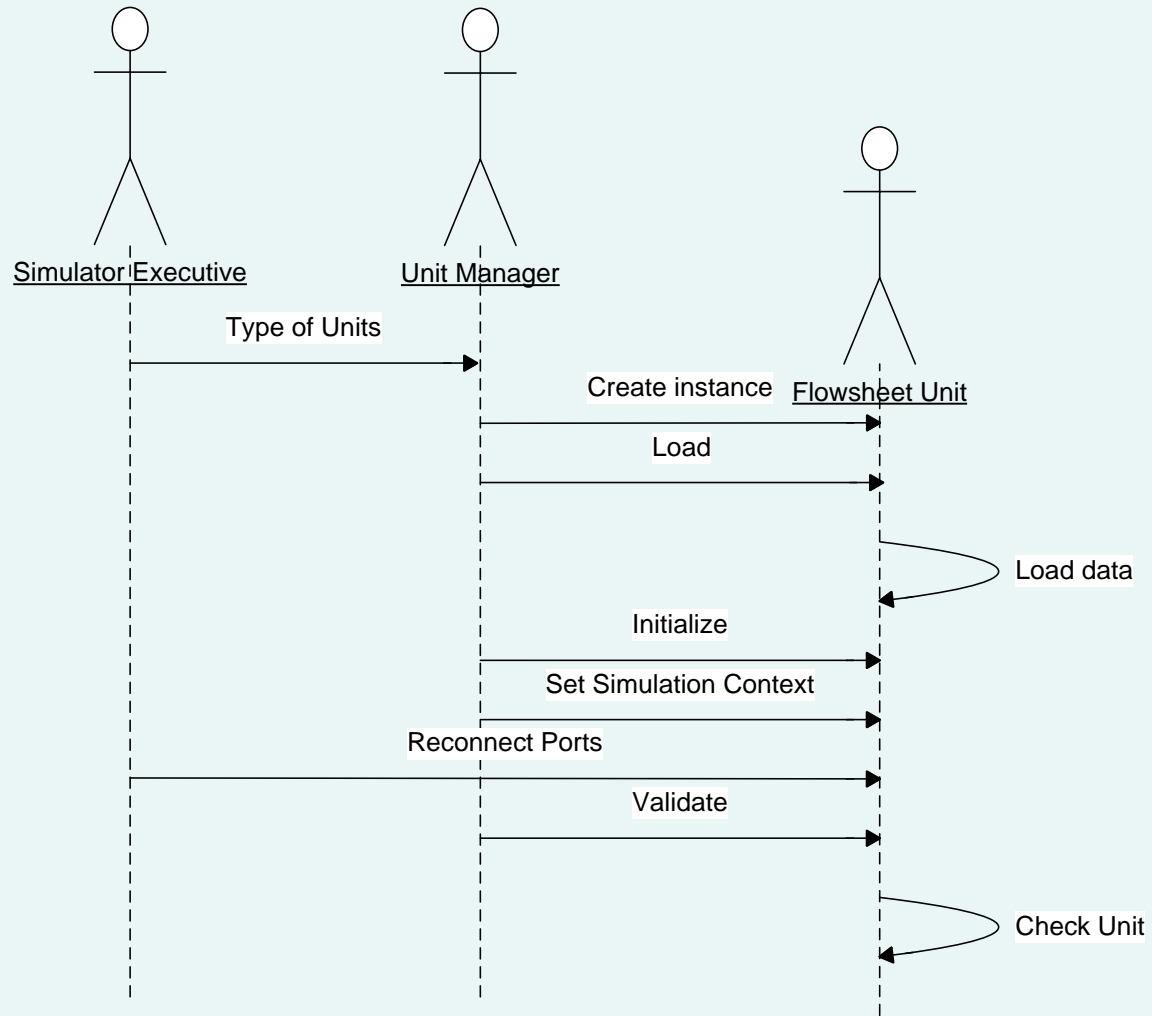
# UC-001: Add Unit to Flowsheet



# Scenario A-1

- ◆ **Start from a Flowsheet with thermodynamics and compounds defined**
  - ⇒ **Select a Unit Operation (UC-001)**
  - ⇒ **Drop the Unit Operation in Flowsheet (UC-001)**
  - ⇒ **Connect a material stream to each material Port (UC-002)**
  - ⇒ **Edit the Unit Operation (UC-008)**
  - ⇒ **Calculate the Unit Operation (UC-021)**
  - ⇒ **Save the Flowsheet and exit the PME (UC-018)**
  
- ◆ **Checks how configuration, connection, validation, calculation and persistence are called.**

# UC-020: Retrieve Flowsheet



# Scenario A-2

- ◆ Reload a Flowsheet containing a CAPE-OPEN UO
  - ◆ Edit the Unit Operation (UC-008)
  - ◆ Calculate (UC-021)
  - ◆ Save and exit (UC-018)
- 
- ◆ Checks how persistence is called, as well as configuration and calculation. Consistency with saved configuration checked: “connectivity data must be persisted by the simulator, including Port names.”

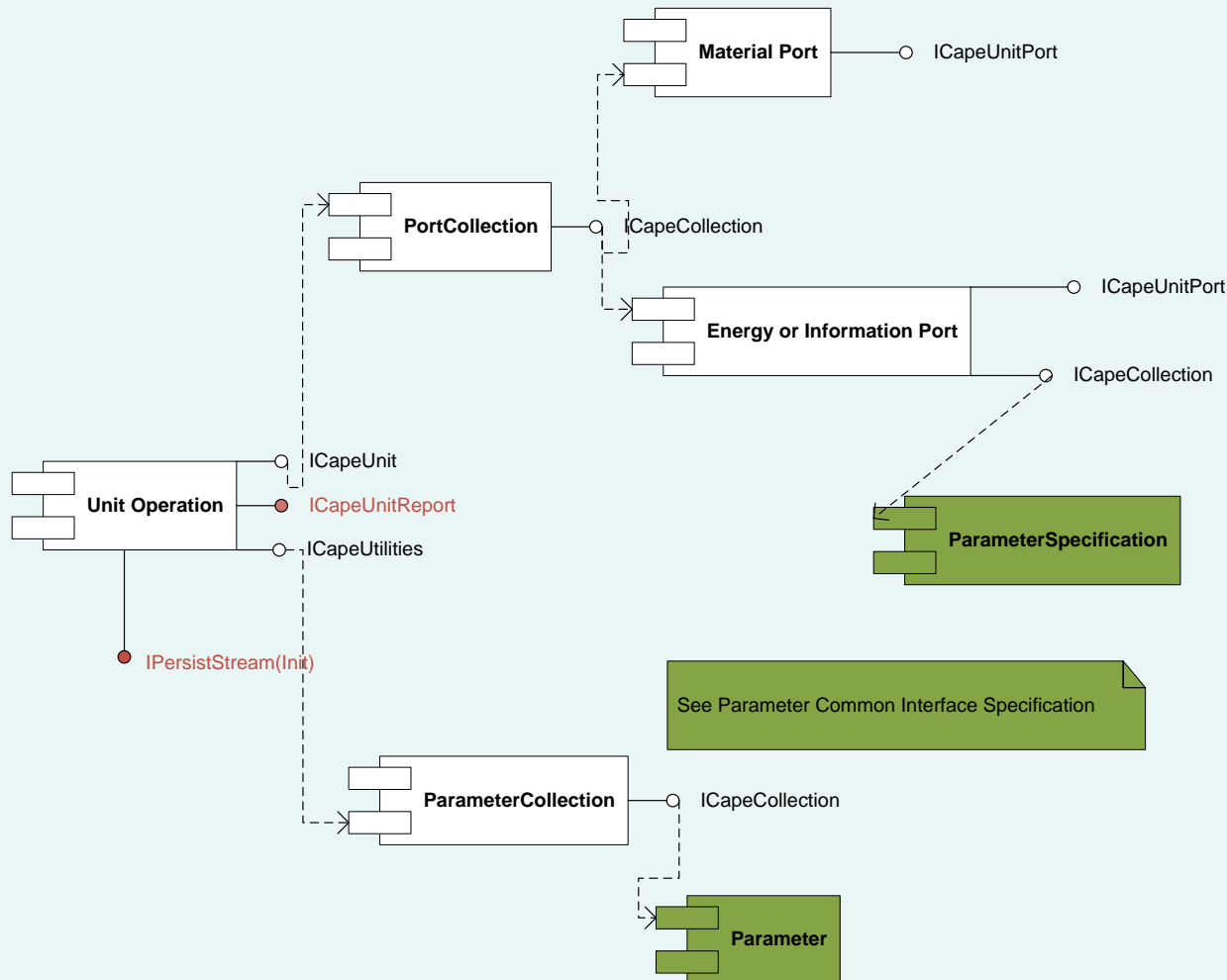


# Publication of compliance

- ◆ In public area of CO-LaN website
  - ⇒ Available to members as well as visitors
- ◆ PMEs and PMCs displayed in separate lists
  - ⇒ Accessed from end-user viewpoint
- ◆ Each PME and PMC described in a separate page
  - ⇒ Overall description and CAPE-OPEN functionality
    - Provided by software vendor
  - ⇒ List of PMCs working in each PME
    - CO-LaN editing: based on functionality described
    - Ideally substantiated by videos and logs
      - Videos on CAPE-OPEN Youtube channel
  - ⇒ Or List of PMEs in which a PMC is working

# CAPE-OPEN functionality

All objects are implementing Identification and Error Common Interfaces



**Mandatory**  
**Optional**

# Example: Page for PRO/II

The screenshot shows a web browser window with the address bar displaying `http://colan.gilocalhost.net/process-modeling-environment/pr`. The page title is "PRO/II | the CAPE-OPEN La...". The browser's menu bar includes "Fichier", "Edition", "Affichage", "Favoris", and "Outils". The address bar also shows "the CAPE-OPEN Laboratories Network" and "Howdy, Michel Pons".

The website header features the CO-LaN logo, navigation links for "HOME", "CAPE-OPEN STANDARD", "PARTICIPATE", "ACTIVITIES", "RESSOURCES", "NEWS & EVENTS", and "ABOUT US". There are also buttons for "MEMBER LOGIN" and "FORUM", and a search bar.

The main content area has a breadcrumb trail: "Home > Process Modeling Environment > PRO/II". The title "PRO/II" is prominently displayed. Below it, the text reads: "CAPE-OPEN standards provide an open interface that allows seamless integration of CAPE modules from various software vendors. SimSci-Esscor has embarked on a project designed to provide its flagship process simulation software, PRO/II, with open interoperability, integration, and reusability through emerging CAPE-OPEN standards."

The Schneider Electric logo is featured in the center. To the right, under the heading "Works with", there is a list of compatible software: ChemSep, MultiFlash, IK-CAPE, and Shortcut (with a "uo" icon).

Below this, the section "Other Process Modeling Environment" includes a box for "BatchColumn" with the text: "BatchColumn is dedicated to the simulation of the behavior of a batch distillation process. Main features: Rigorous dynamic model..."

The Windows taskbar at the bottom shows various application icons and the system tray with the date "12/10/2015" and time "07:38".

# Example: page for PRO/II

- ◆ If self-certified by Schneider Electric, will carry a statement such as:
- ◆ Schneider Electric has certified that PRO/II from version 9.3 upwards has the following CAPE-OPEN functionality:
  - ⇒ CAPE-OPEN Unit Operation socket
  - ⇒ CAPE-OPEN Thermodynamics 1.0 socket
  - ⇒ CAPE-OPEN Thermodynamics 1.1 socket
- ◆ More details may be provided under each item

# Example of interoperability test

the CAPE-OPEN Laboratories Network 0 + New Edit Post Howdy, Michel Pons

MEMBER LOGIN FORUM Search

CO LaN HOME | CAPE-OPEN STANDARD | PARTICIPATE | ACTIVITIES | RESSOURCES | NEWS & EVENTS | ABOUT US

Home > Interoperability Test > Shortcut in PRO/II

## Shortcut in PRO/II

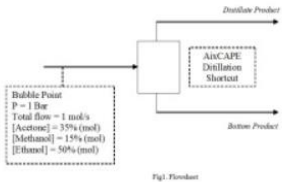
Versions of software in use

Shortcut is at version 1.0.

PRO/II 8.2 is used.

### Scenario

A shortcut separation is performed on a single material Stream as described below::



Distillate Product

Bottom Product

Bubble Point  
P = 1 Bar  
Total Flow = 1 mol/s  
[Acetone] = 35% (mol)  
[Methanol] = 15% (mol)  
[Ethanol] = 50% (mol)

Fig. Florent

## Other Interoperability Test

### GLCC in ProSimPlus

Versions of software used  
ProSimPlus is at version 2.1.8  
GLCC Unit Operation is at beta version  
Scenario

Video

Disclaimer  
CO-LaN is not making...

→ More

# What if problems arise?

- ◆ **Interoperability issues raised by CO-LaN or 3<sup>rd</sup> parties**
- ◆ **Compliance statement will be removed from CO-LaN website if:**
  - ⇒ **An issue has been discovered and not resolved within an appropriate period of time**
    - **Period of time to be defined with software vendor**
      - At least 3 months, no more than one year
      - During this period the software component will still be listed as compliant.
    - **CO-LaN will not publish any information on the nature of the identified issues without permission of the respective software vendors.**

# CO-LaN services

## ◆ Available to:

- ⇒ Conduct the compliancy tests for self-certification
- ⇒ Help identify and resolve problems between respective software vendors.
  - Ideally any identified problems would be resolved between the respective software vendors without CO-LaN involvement.
  - If CO-LaN assistance is requested then CO-LaN (or a consultant providing services to CO-LaN) would need to be provided with the appropriate licences from the relevant software vendors.

## ◆ CO-LaN will charge for its services.

**Thank you for your attention!**

**Views and comments welcome**