

# CAPE-OPEN Logging and Testing Tool (COLTT) – Production Release

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# Background

## Steps to create a CAPE-OPEN Process Modelling Component:

### 1. Create a component implementing CO interfaces

- **Wizards are available for Unit PMCs in VB, C++, FORTRAN & Borland Delphi**

## Background (2)

### Steps to create a CAPE-OPEN process engineering component:

#### 2. Check that the interfaces are correctly implemented

- Testers are available for Unit, Thermo, PPDB, SMST & MINLP PMCs

## Background (3)

### Steps to create a CAPE-OPEN process engineering component:

#### 3. Run the component with the target PME

- ⇒ May work correctly, but if not it can be hard to find the problem
- ⇒ COLTT is designed to help by logging the information flows between component and PME at runtime

# COLTT

**COLTT has been developed in 3 phases:**

**◆ Phase 1 – concept development**

- ⇒ No coding changes needed by user?**
- ⇒ No interference with the PMC or PME?**
- ⇒ Prototype shown last year – some productive use, but also a number of problems**

# COLTT

## ◆ Phase 2 – systematic testing and analysis by SHMA & CTO

<b>PME</b>	<b>Unit PMC</b>	<b>Thermo PMC</b>
Aspen Plus	HTRI (Xist)	MultiFlash
Aspen HYSYS	ChemSep	PPDS
PRO/II	AixCAPE ShortCut Toolbox	Aspen Properties
gPROMS	Aspentech Mixer-Splitter	COM Thermo
INDISS	gO:CAPE-OPEN Mixer	CPA Property Package
SIMULIS Thermodynamics		SIMULIS Thermodynamics

# COLTT

## ◆ Phase 3 – problem resolution

- ⇒ Solutions developed by SHMA supported by CTO
- ⇒ Production version now available (v1.0)

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# COLTT Demonstration

- ◆ **Michel Pons will demonstrate COLTT shortly**
- ◆ **All the software mentioned above, plus Anjum Raheel and Ahsan Akhtar of SHMA and Michel Pons of CO-LaN, will be available during the Workshop sessions**
- ◆ **Please take advantage of this while you are here, use the software to assist in your future developments and give us your feedback on its performance and utility**

**Thank you!**







# COLTT demonstration

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# Scope

- ◆ **Logging controller**
  - ⇒ Allows selection of logged PMCs
  - ⇒ Sets required registry entries
    - Admin privilege not required to run COLTT (since v1.01)
  - ⇒ Allows choice of destination for logging output
- ◆ **Loggers (CO standards 1.0 supported only)**
  - ⇒ Partial implementation
    - Unit, Material Object, Property Package, Port, Collection, Thermo System, Simulation context
  - ⇒ Do not cover
    - Error handling, Parameter

# Progress in version 1.0

## ◆ Usability

- ⇒ User selects PMCs for logging
- ⇒ User controls log file location

## ◆ CAPE-OPEN 1.0 coverage

- ⇒ See previous slide

## ◆ Robustness

- ⇒ Support .EXE servers

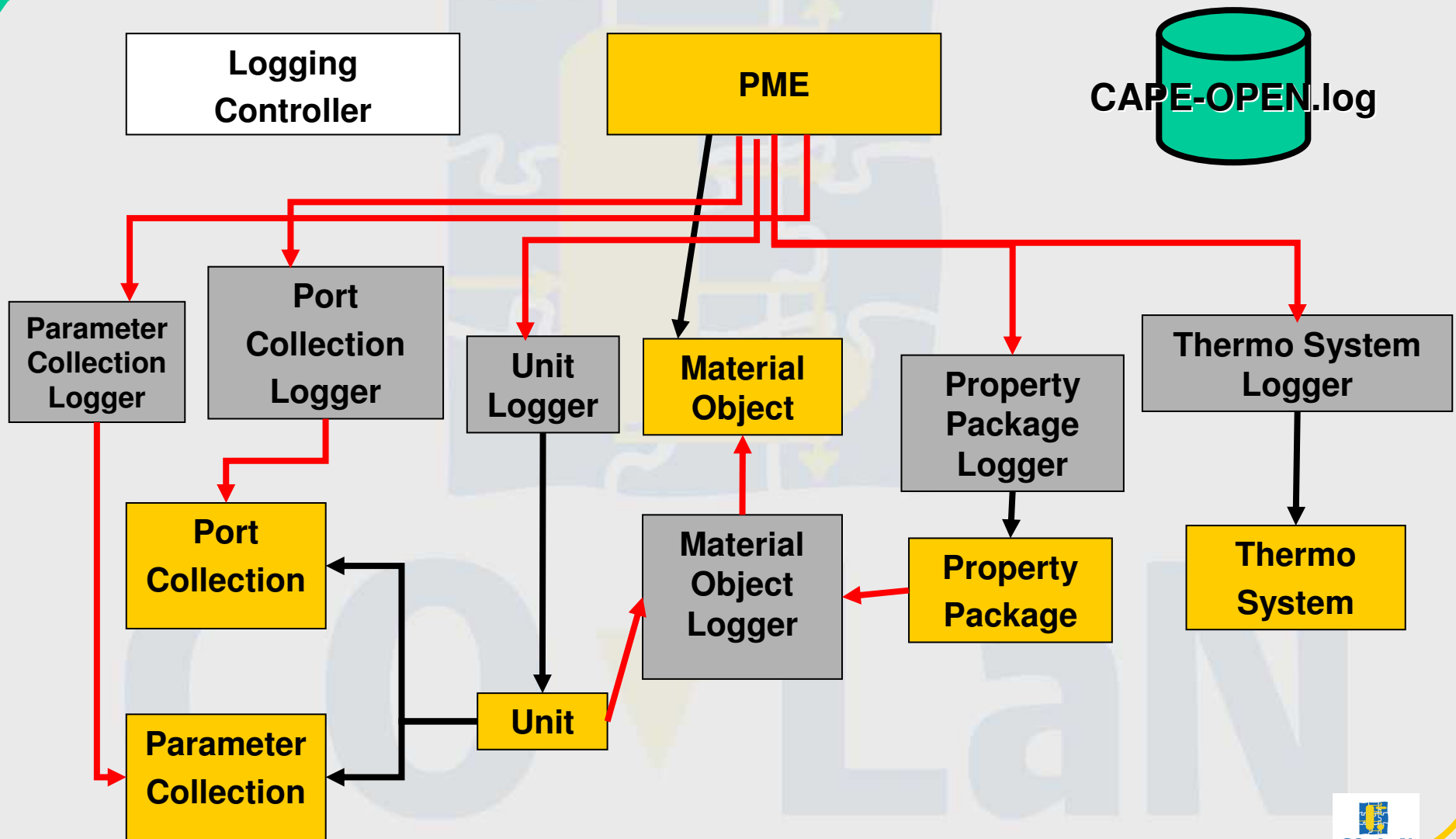
## ◆ Maintainability

- ⇒ Remove duplicated source code in Loggers

# Suggested workflow

- ◆ **Install COLTT on your machine (MSI file provided)**
  - ⇒ **Logging controller**
  - ⇒ **Various loggers**
- ◆ **Define logging output (file)**
- ◆ **Enable logging on PMC(s) via Logging controller**
- ◆ **Run the simulation between PME and PMC(s)**
- ◆ **Disable logging on PMC(s) via Logging controller**
- ◆ **Analyze log**

# CAPE-OPEN Logger/Tester Communication



# System files installed (1)

File name	Version	Created on	Size
MFC71.dll	7.10.3077.0	March 19, 2003, 10:19:59 AM	1.01 MB
mfc71d.dll	7.10.3077.0	March 19, 2003, 9:28:39 AM	2.07 MB
msvcp71d.dll	7.10.3077.0	March 19, 2003, 8:04:24 AM	748 KB
msvcr71.dll	7.10.3052.4	February 21, 2003, 5:42:21 PM	340 KB
regtypelib.exe		May 25, 1999, 11:56:30 AM	152 KB
riched20.dll	5.30.23.1221	August 04, 2004, 3:56:46 AM	421 KB

## System files installed (2)

File name	Version	Created on	Size
<b>riched32.dll</b>	<b>5.1.2600.0</b>	<b>August 23, 2001, 5:00:00 PM</b>	<b>3.50 KB</b>
<b>RICHTEXT.SRG</b>		<b>May 07, 1998, 12:00:00 AM</b>	<b>111 bytes</b>
<b>Richtx32.dep</b>		<b>February 21, 1999, 7:40:56 PM</b>	<b>2.93 KB</b>
<b>RICHTX32.OCX</b>	<b>6.0.88.4</b>	<b>May 22, 2000, 5:58:10 PM</b>	<b>199 KB</b>
<b>xmlread.tlb</b>		<b>December 07, 2004, 12:31:48 AM</b>	<b>8.16 KB</b>



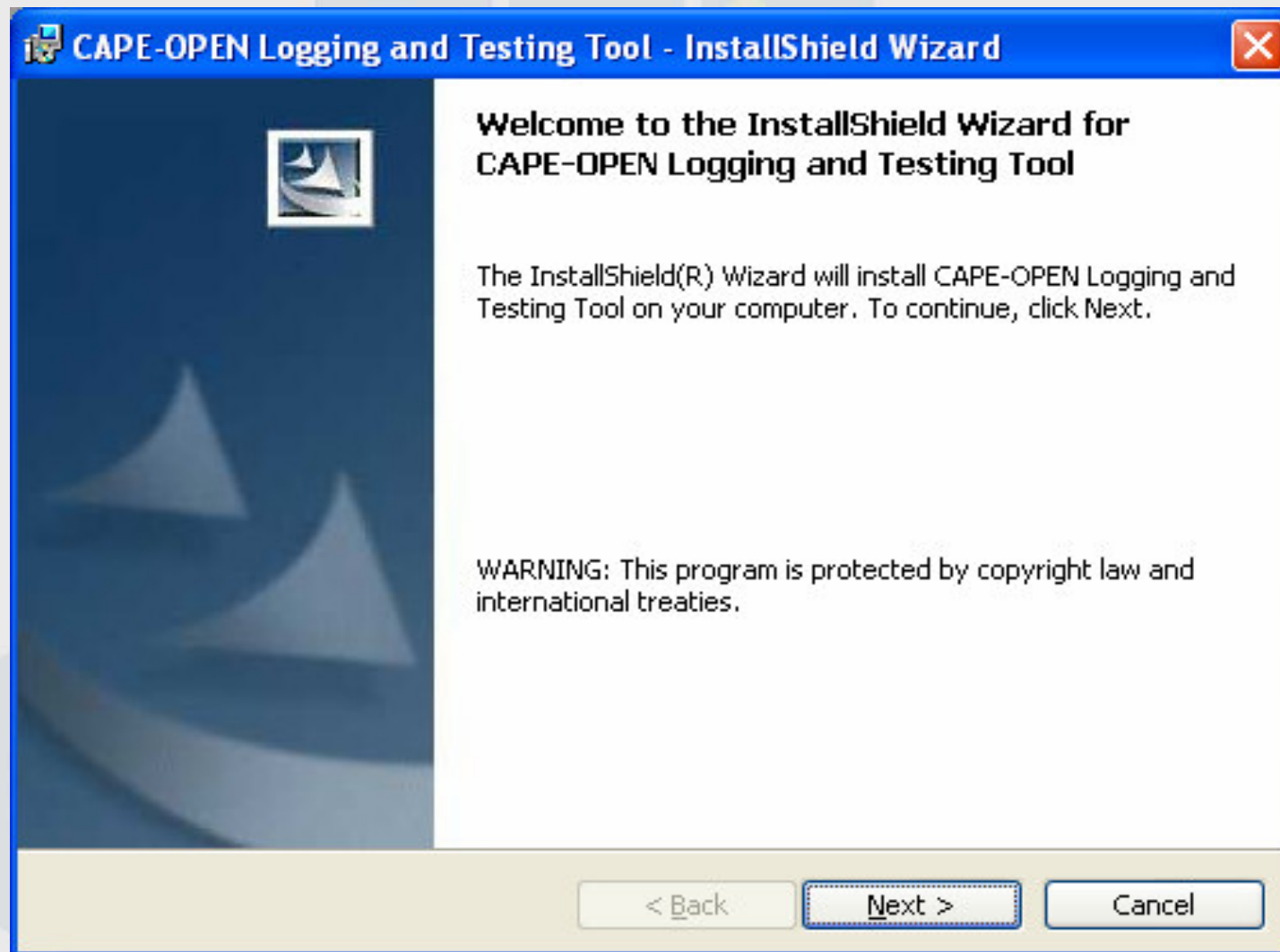
Demo

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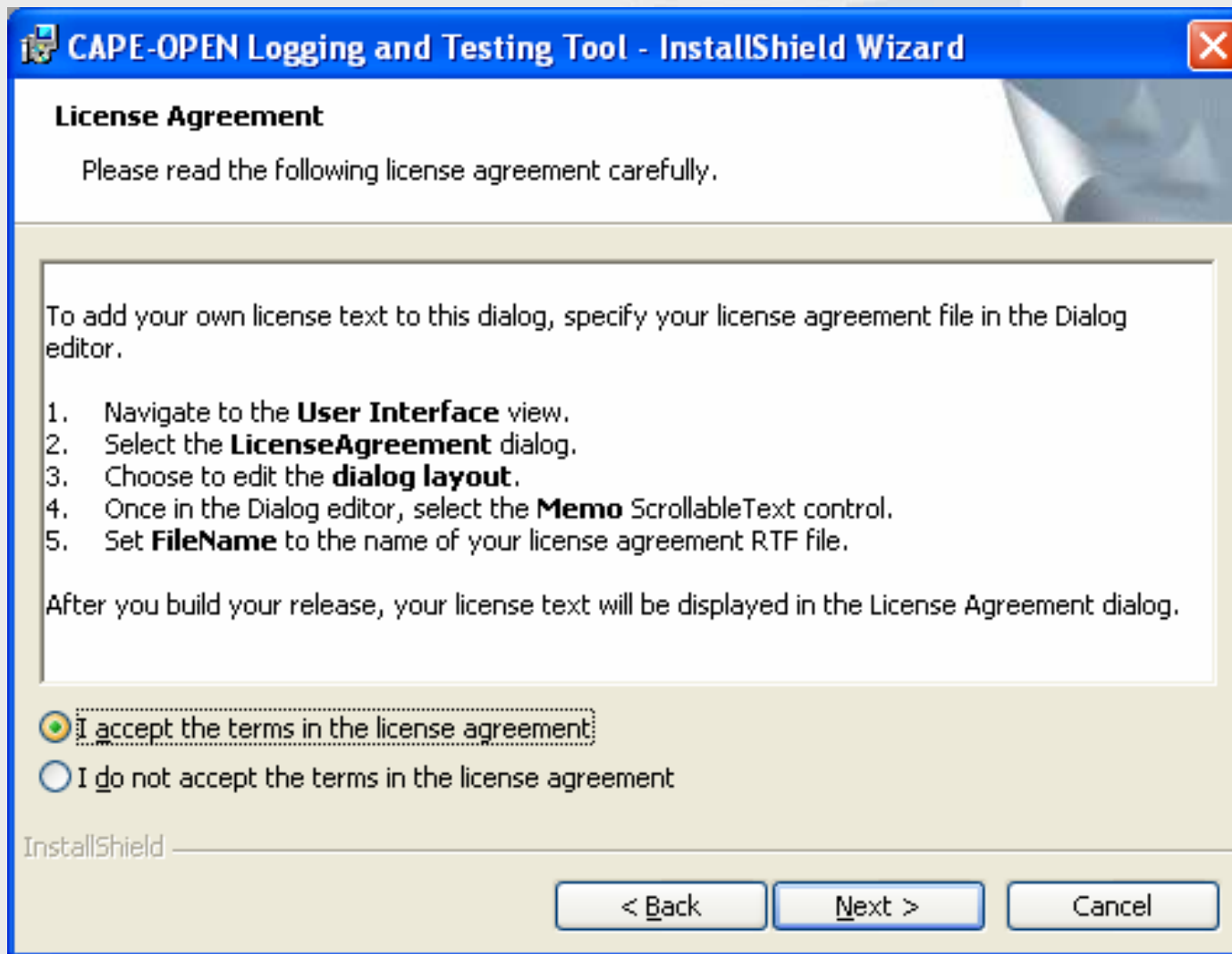




# Installation (1)



# Installation (2)



# Installation (3)

**CAPE-OPEN Logging and Testing Tool - InstallShield Wizard**

**Customer Information**  
Please enter your information.

User Name:

Organization:

Install this application for:

Anyone who uses this computer (all users)  
 Only for me (PONS)

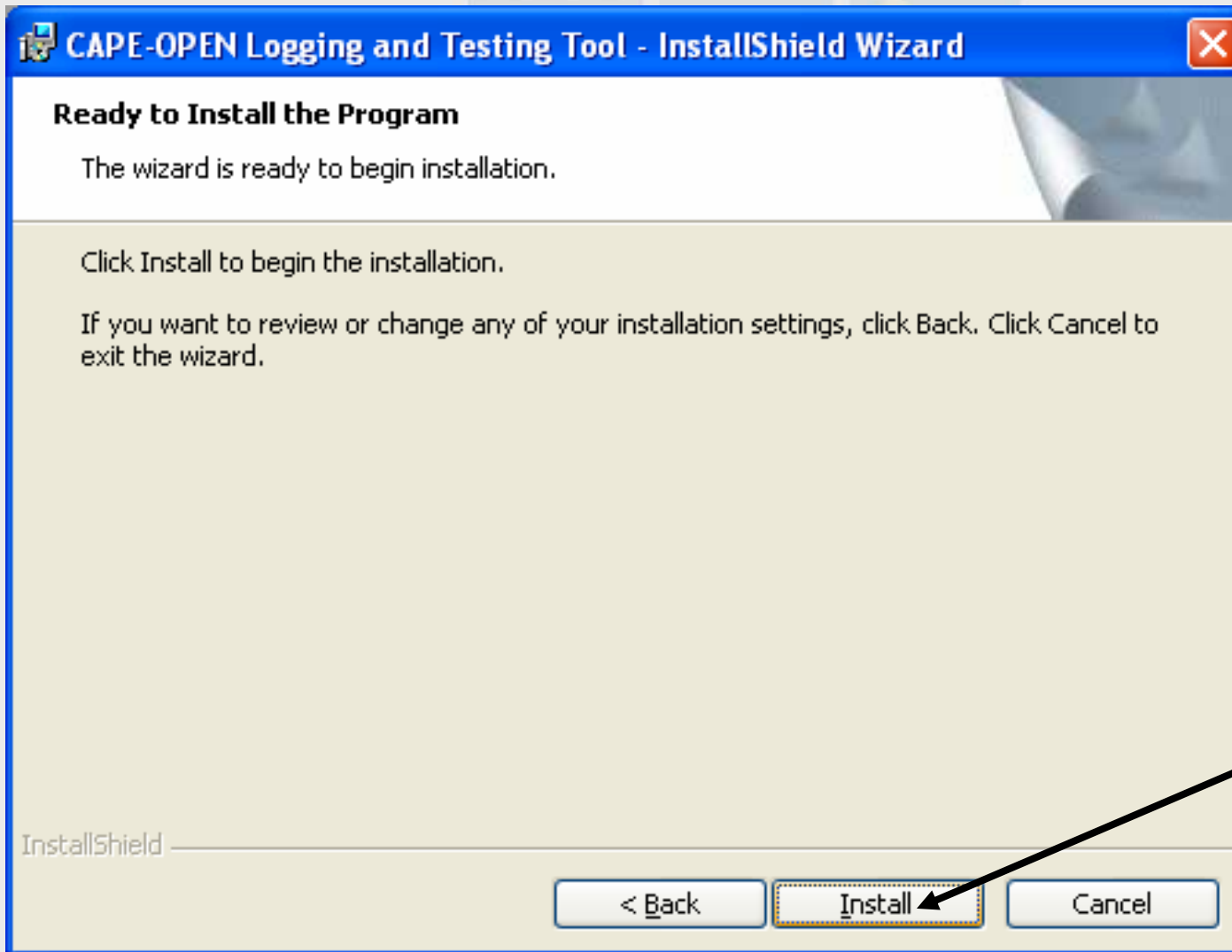
InstallShield \_\_\_\_\_

< Back    Next >    Cancel

Should be filled automatically



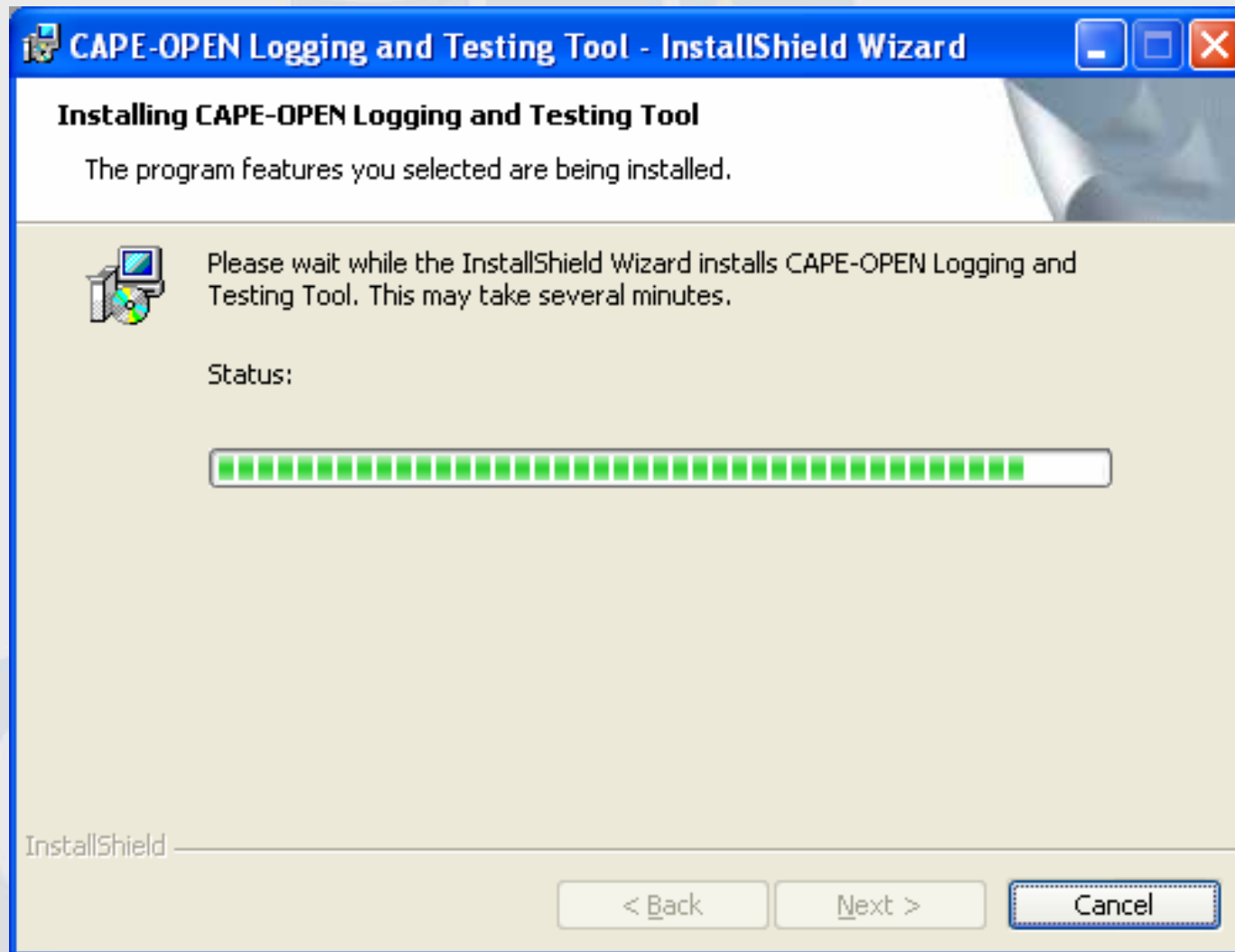
# Installation (4)



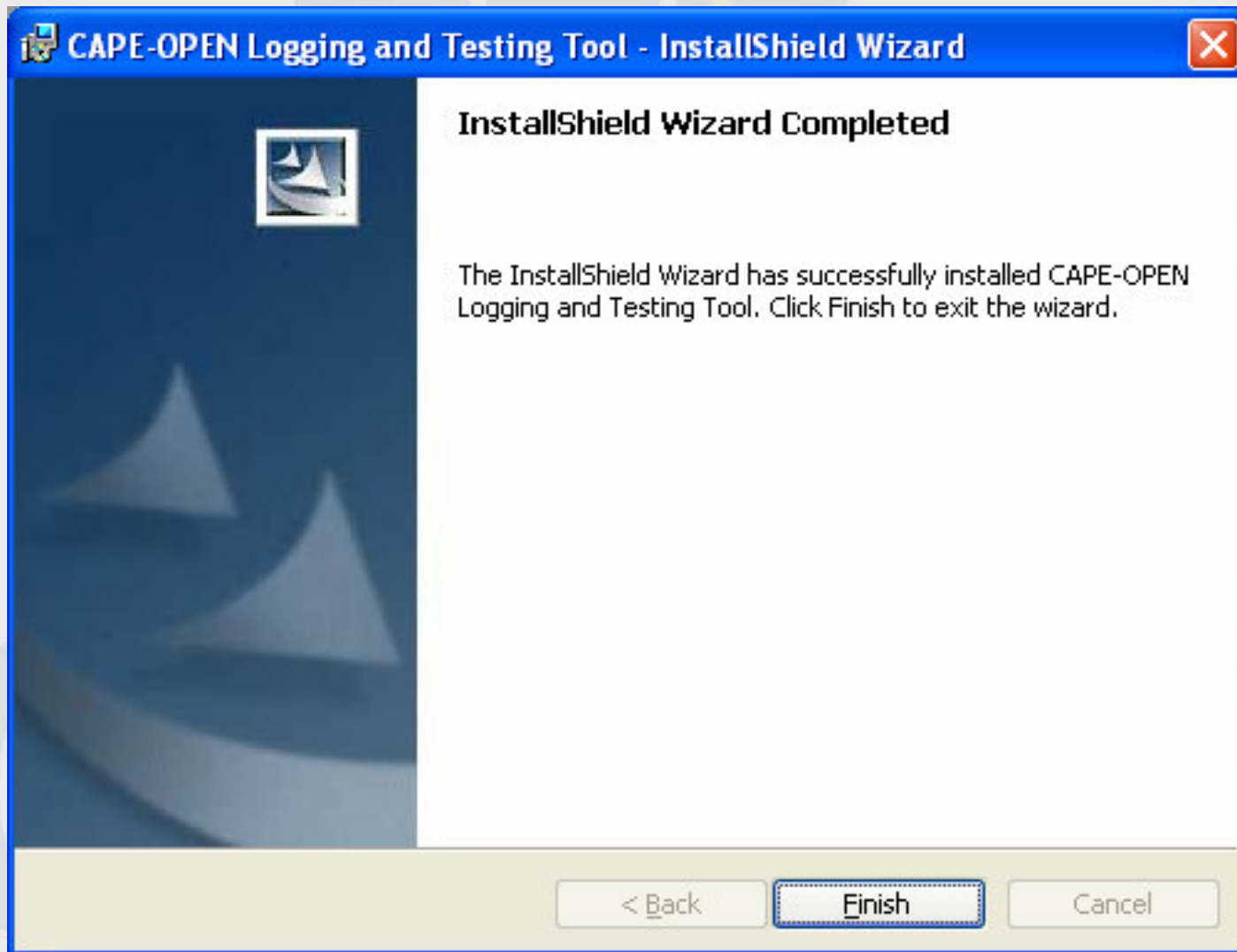
**Click on  
Install**



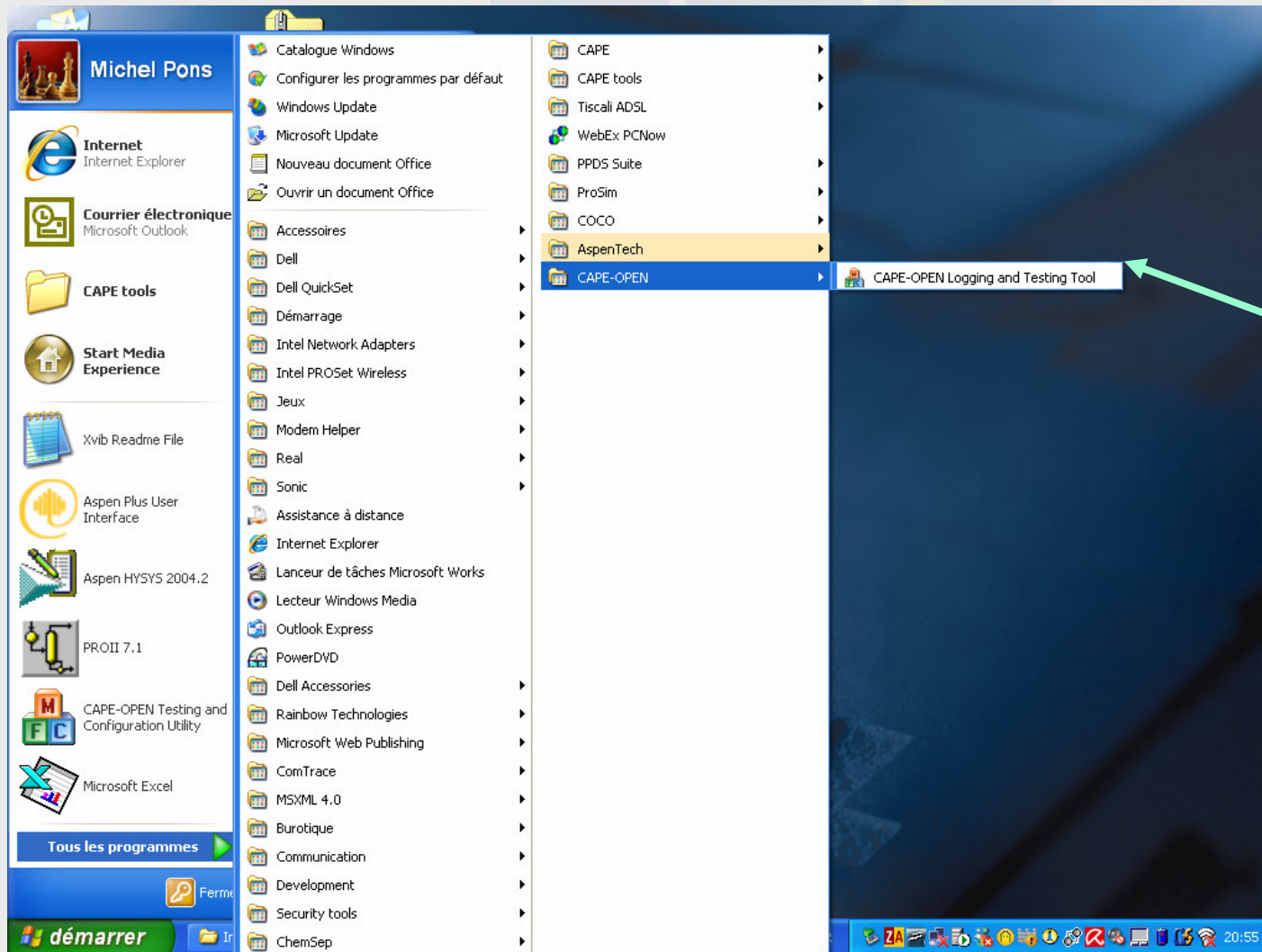
# Installation (5)



# Installation (6)



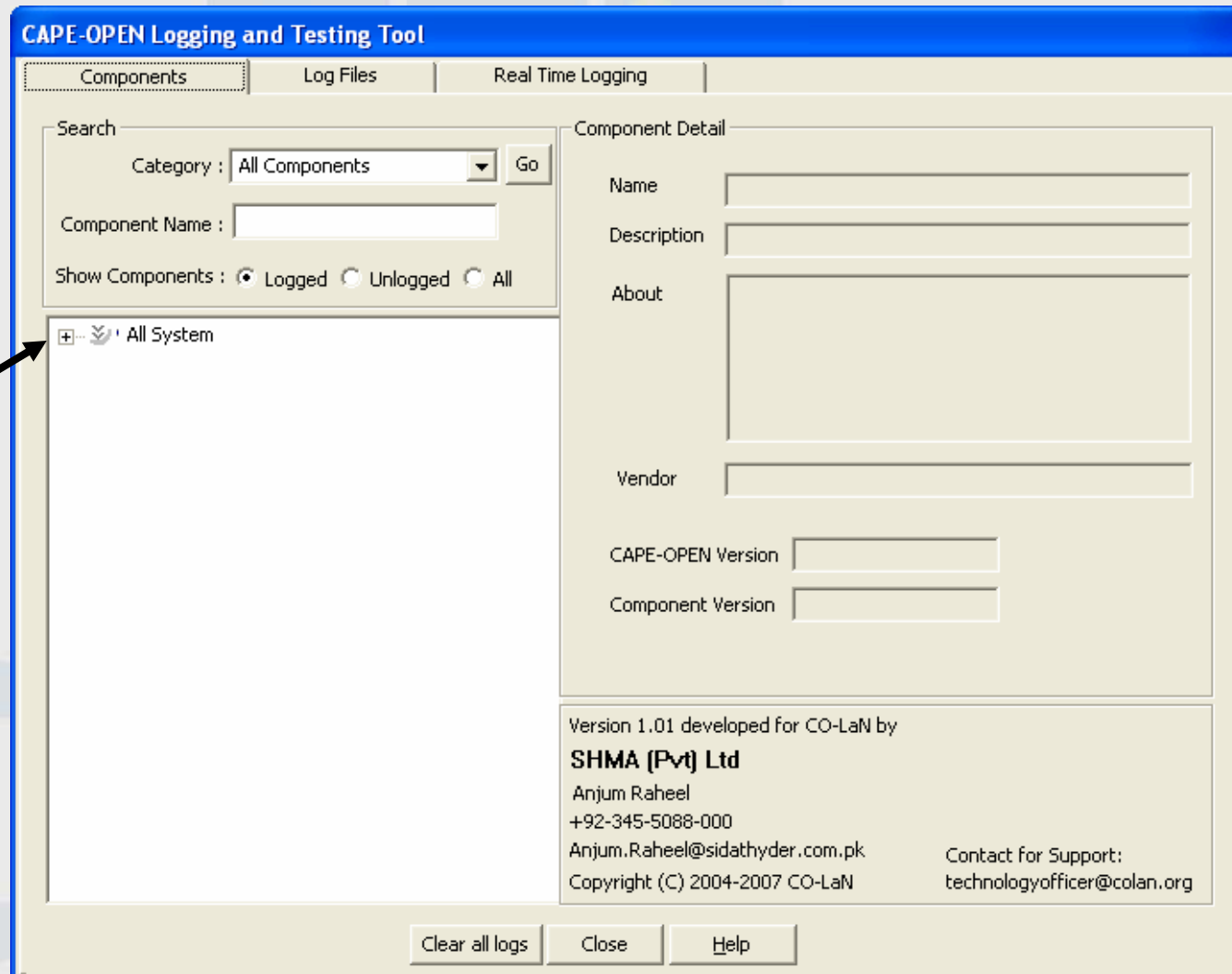
# Usage (1)



**Available  
since  
version 1.01**



# Usage (2): COLTT controller



Expand this entry



# Usage (3): Browse the PMCs installed

The screenshot displays the 'CAPE-OPEN Logging and Testing Tool' interface. It features three tabs: 'Components', 'Log Files', and 'Real Time Logging'. The 'Components' tab is active, showing a search area and a tree view of installed components. The search area includes a 'Category' dropdown set to 'All Components', a 'Component Name' text box, and radio buttons for 'Show Components' (Logged, Unlogged, All). The tree view shows a hierarchy starting with 'All System', followed by 'Thermo Systems', 'Standalone Property Packages', and 'Unit Operations'. Under 'Unit Operations', several components are listed with red 'X' marks, indicating they are not logged. The 'Component Detail' panel on the right shows information for the selected component, 'gO\_CAPE-OPEN'. It includes fields for Name, Description, About (with a multi-line text area), Vendor, CAPE-OPEN Version (1.0-0), and Component Version (3.0.0). There is also an 'Enable Logging' checkbox. At the bottom of the tool, there are buttons for 'Clear all logs', 'Close', and 'Help'. A footer section at the bottom right of the tool window provides contact information for SHMA (Pvt) Ltd, including a phone number, email address, and website.

CAPE-OPEN Logging and Testing Tool

Components | Log Files | Real Time Logging

Search

Category : All Components [Go]

Component Name : [ ]

Show Components :  Logged  Unlogged  All

- All System
  - Thermo Systems
  - Standalone Property Packages
  - Unit Operations
    - SimSci Mixer Unit
    - Splitter
    - MixNSplit 12
    - RSIManifold
    - SPEC : specification handling module
    - Compressor
    - Distillation shortcut
    - RSIBatteryLimit
    - DesignSpec
    - XaceEconomizer
    - Mixer
    - SolidSimEnvCO
    - PSE EnhancedMixSplit
    - FixedConversionReactor

Component Detail

Name: gO\_CAPE-OPEN

Description: gPROMS based CAPE-OPEN(1-0-0) Unit

About: This is a gPROMS based CAPE-OPEN Unit  
from Process Systems Enterprise Ltd  
Bridge Studios  
107a Hammersmith Bridge Road  
London W6 9DA  
UK  
<http://www.psenderprise.com>

Vendor: <http://www.psenderprise.com>

CAPE-OPEN Version: 1.0-0

Component Version: 3.0.0

Enable Logging

Version 1.01 developed for CO-LaN by  
**SHMA (Pvt) Ltd**  
Anjum Raheel  
+92-345-5088-000  
Anjum.Raheel@sidathyder.com.pk  
Copyright (C) 2004-2007 CO-LaN

Contact for Support:  
technologyofficer@colan.org

Clear all logs | Close | Help

# Usage (4): Select PMCs for logging

**CAPE-OPEN Logging and Testing Tool**

Components | Log Files | Real Time Logging

Search  
Category : All Components [Go]  
Component Name :  
Show Components :  Logged  Unlogged  All

Component Detail

Name: gO\_CAPE-OPEN  
Description: gPROMS based CAPE-OPEN(1-0-0) Unit  
About: This is a gPROMS based CAPE-OPEN Unit  
Vendor: http://www.psenderprise.com  
CAPE-OPEN Version: 1.0-0  
Component Version: 3.0.0  
 Enable Logging

Version 1.01 developed for CO-LaN by  
**SHMA (Pvt) Ltd**  
Anjum Raheel  
+92-345-5088-000  
Anjum.Raheel@sidathyder.com.pk  
Copyright (C) 2004-2007 CO-LaN  
Contact for Support: technologyofficer@colan.org

Clear all logs | Close | Help

Select and  
enable  
logging  
then  
close

## Usage (5)

- ◆ **Run the simulation**
- ◆ **Load controller again**
  - ⇒ **Disable logging on PMcs**
  - ⇒ **Close controller**
- ◆ **Review log**
  - ⇒ **Log file location in C:\Program Files\CAPE-OPEN\COLTT\CAPE-OPENLogs.ini**
  - ⇒ **Update line og4j.appender.A1.File=c:\\CAPE-OPEN.log**
  - ⇒ **Use of \\ mandatory!**

# Report bugs and successes

- ◆ COLTT will be maintained through SHMA (Pvt) Ltd.
- ◆ Report all bugs to CTO ([technologyofficer@colan.org](mailto:technologyofficer@colan.org))
- ◆ Voice your wishes regarding COLTT
- ◆ Report your successes in using COLTT
- ◆ Put it to use!