Some advices on Unit Operation interfaces

by Leo Bency

leobcbooo@yahoo.com

The bugs exist in original UO

* Can not “Reset” the UO after have finished a calculation, including clear the calculation results, and change the indication icons of Unit Operation;

* Can not get the status whether the parameters have changed in UO, for example some simulators have a strategy which only needs to calculate value-changed Unit Operation and

A neither good nor bad idea suggested by others

* Some one advises to add a new value named "ResetOnValidate" to COSEUtilities Interface, UO could call it after every “Validate”;

* But I don’t think it’s rational, it will be time-consuming and make operation ambiguous; Simulator also can’t get the value changed status in UO.

Add a new interface to UO

* To enhance the abilities of UO, I advise to add a new interface named “ICapeUnitEx”.

Method name	Description
GetPorts	Same with original CAPE-OPEN get_ports.
GetValStatus	Same with original CAPE-OPEN get_ValStatus.
DoCalc	Same with original CAPE-OPEN Calculate.
CheckValidation	Same with original CAPE-OPEN Validate.
Reset	To clear the calculation results and caches, clear temporary values, restore UO indication icons to initial status.
GetValueChangedStatus	For the simulator to check whether the parameters in UO are changed, so the simulator could decide to calculate this UO and downstream UO, not all the process.

The compatibility with old version

* For a new version UO, it is better to fulfill both ICapeUnitEx and ICapeUnit, to be compatible with all version simulators;
* For the old version simulator, it still will be compatible with this UO through ICapeUnit interface;
* For the new version simulator, it will check whether ICapeUnitEx exists firstly, if not to call

ICapeUnitEx

* Reset: Simulator could reset the UO after calculation through this method, including clear caches in UO calculation process, clear results, change UO indication icons.
* GetValueChangedStatus: After UO is edited, simulator could get UO value-changed status through this method, then simulator could decide to calculate this UO and the affected other Unit Operations. After calculation finished, the UO will set the value-changed