# Maintainable & testable GUIs

## Sample 1 - Remarks

* Readability of the CreateGUI function is very low.
* Identifying callbacks is hard.
* Moving fields around is very hard.
* Changing the CountryGotChanged function is hard.
* Some callbacks are disruptive during debugging.

("Configure", "GotFocus", "LostFocus", "KeyPress")

## Sample 1b - Remarks

Pretty much the same as Sample 1 but with plenty of :With statements.

Although this might look attractive it has significant disadvantages:

* You cannot edit callbacks anymore
* Moving a control elsewhere can become a nightmare

(##.##.Foo <--> ##.##.##.##.##.Foo)

## Sample 2 - Improvements

Readability of the Create\* stuff is significantly better now:

* Every single "Create" statement has just one property per line.
* Logical groups of controls go into just one "Create{whatever}" function.

## Sample 3 - Improvements

* All callback functions follow a certain naming convention: On{Object}{What}.
* The event 1234 is not hard-coded anymore.
* Certain callbacks are not causing trouble anymore.

("Configure", "GotFocus", "LostFocus")

## Sample 4 - Improvements

* Now Refs are used rather than names.
* Introducing the "n" namespace.
* All callbacks are now dealing with refs rather than names.

## Sample 5 - Improvements

* Refs are now also used to create the controls.
* All "Create\*" functions are grouped in their own sub namespace.

## Sample 6 - Changes

* All original controls went to a (single) tab.
* The "Turnover" field went into the group "Type".
* The data is now coming from a namespace G (Global).

## Sample 6 - Improvements

* Positioning is now relative rather than absolute.

## Sample 7 - Changes

* The first tab now has two "columns".
* There is a Notepad control available on a second tab.
* There is an additional field "State" when "Country" is "USA".

## Sample 7 - Improvements

* All "final" actions are now performed in "OnOK" & "OnCancel"
* The dialog is not modal anymore and therefore testable.

## Sample 8 - Improvements

The labels are now named properly: "State\_Label" rather than "Label5".

The test case examples can be executed by calling either #.TestCases.RunBatchTests or #.TestCases.RunDebug. While the first one uses error trapping and delivers just a zero for Okay or a 1 for failure the second one does not use error trapping at all and stops on any unexpected result which is good for investigating problems.