Innovative Teaching Approaches in development of Software Designed Instrumentation and its application in real-time systems

The Advanced Applications of LabVIEW

Lecture 8: Object-Oriented Programming.

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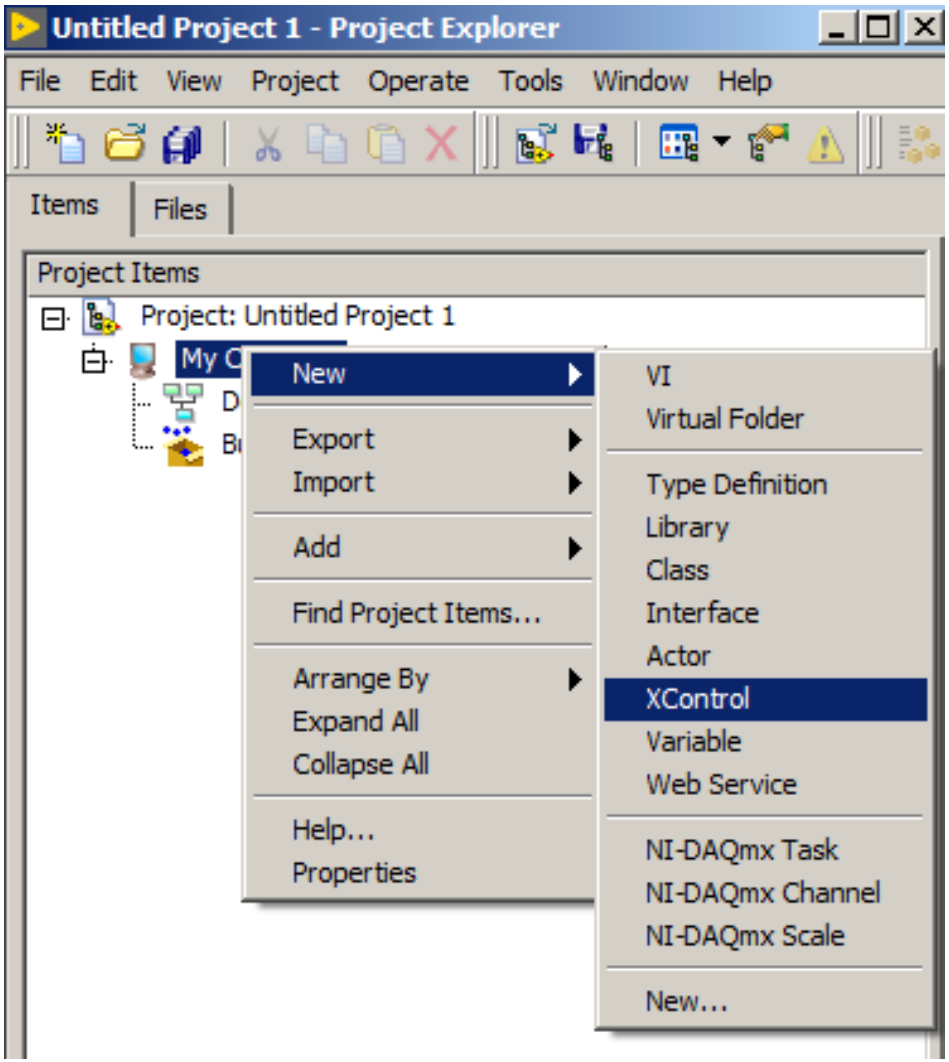
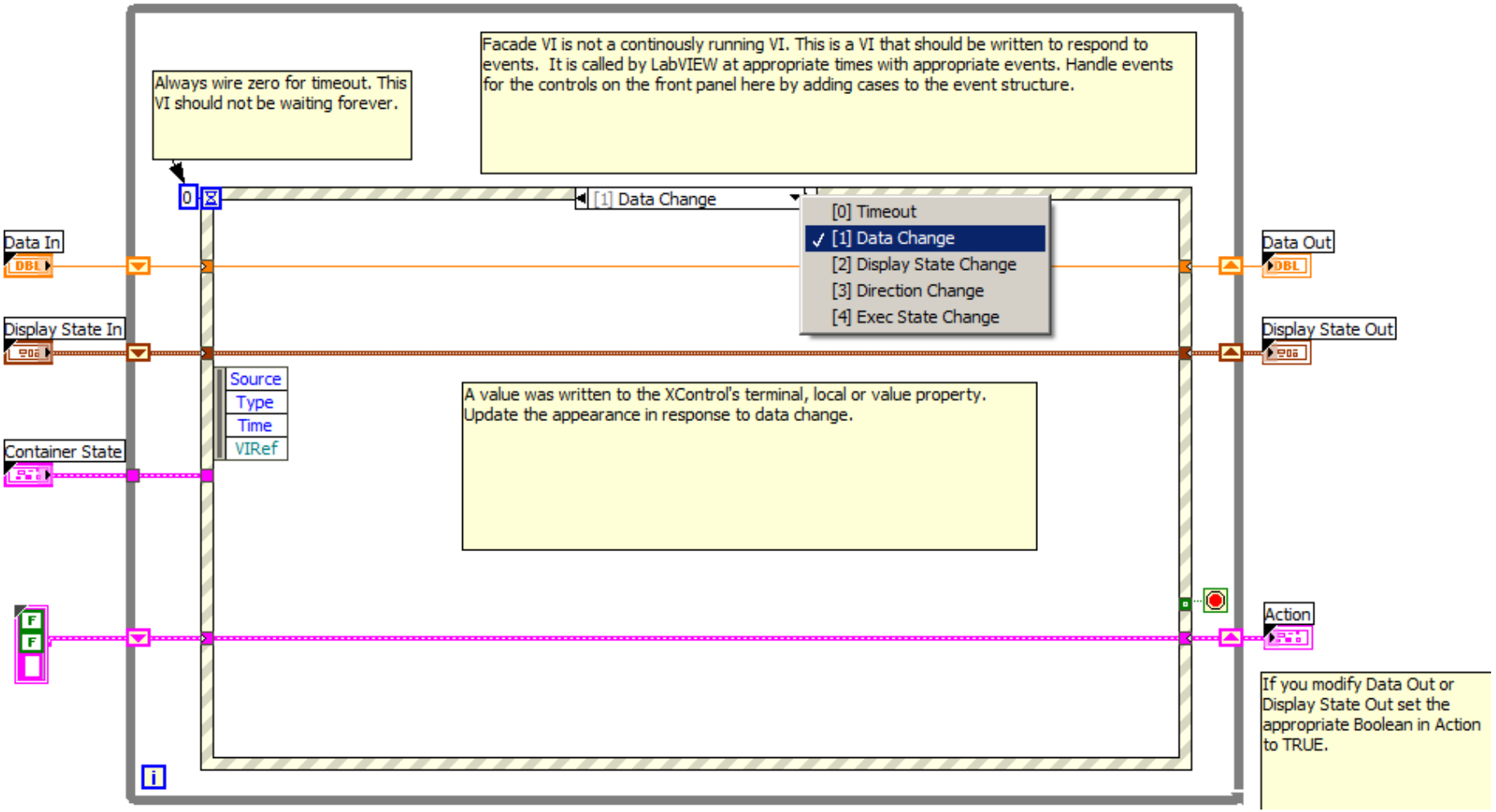
XControl

- The object-oriented programming in LabVIEW is based on XControls.
- XControls is a object, which can be used multiply time in project.
- XControl consists on:
  - data - typedef, which defines how input and output data will look like.
  - facade - define how object will be visible in front panel. Here you can specify, how object will react on events.
  - init - initialization of XControl.
  - state - typedef of states.

How to create XControl?

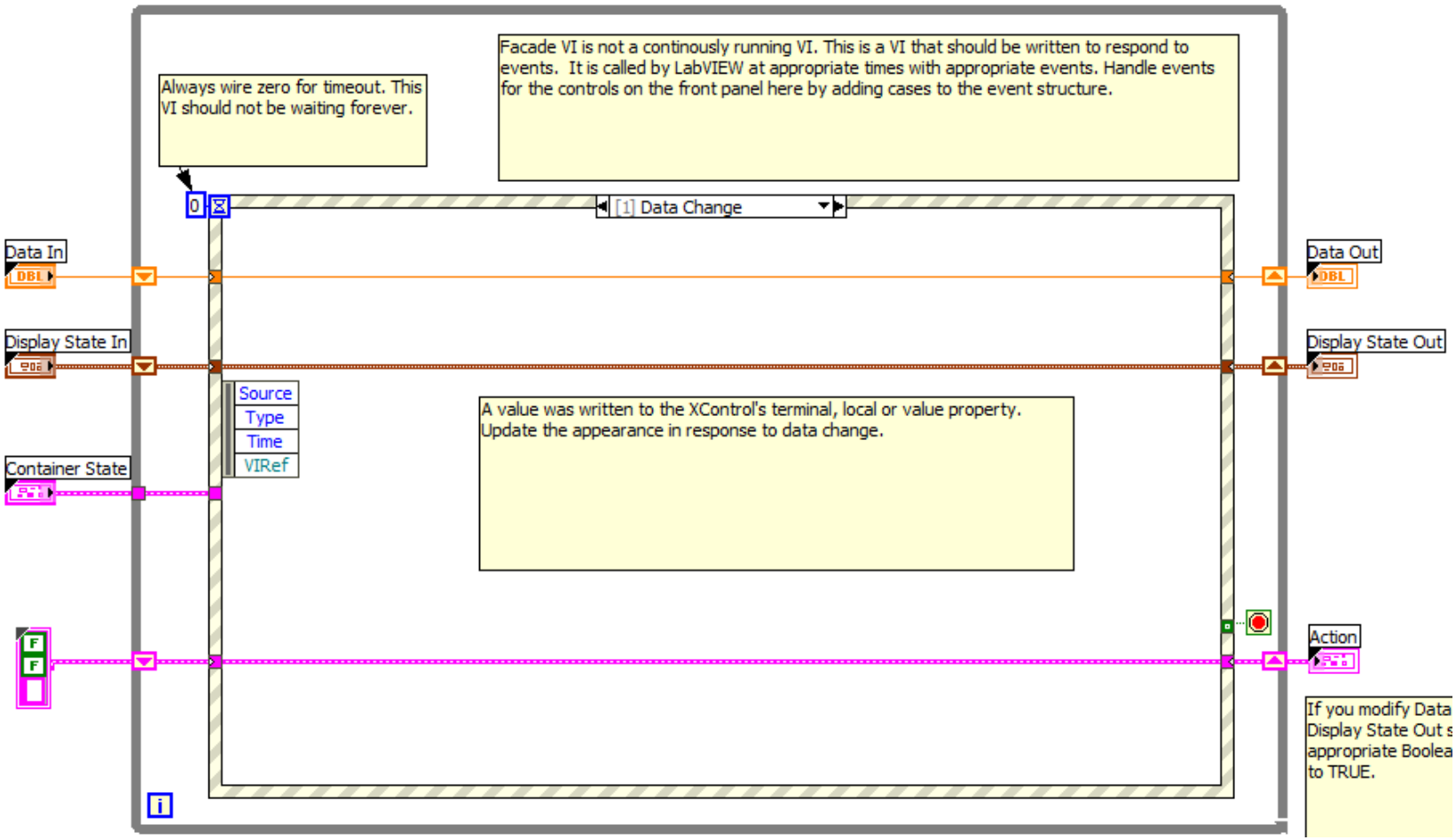


Facade


Facade VI is not a continously running VI. This is a VI that should be written to respond to events. It is called by LabVIEW at appropriate times with appropriate events. Handle events for the controls on the front panel here by adding cases to the event structure.
Always wire zero for timeout. This VI should not be waiting forever.
0
[1] Data Change
[0] Timeout
[1] Data Change
[2] Display State Change
[3] Direction Change
[4] Exec State Change
Data In
Display State In
Container State
Source
Type
Time
VIRef
A value was written to the XControl's terminal, local or value property. Update the appearance in response to data change.
Data Out
Display State Out
Action
If you modify Data Out or Display State Out set the appropriate Boolean in Action to TRUE.

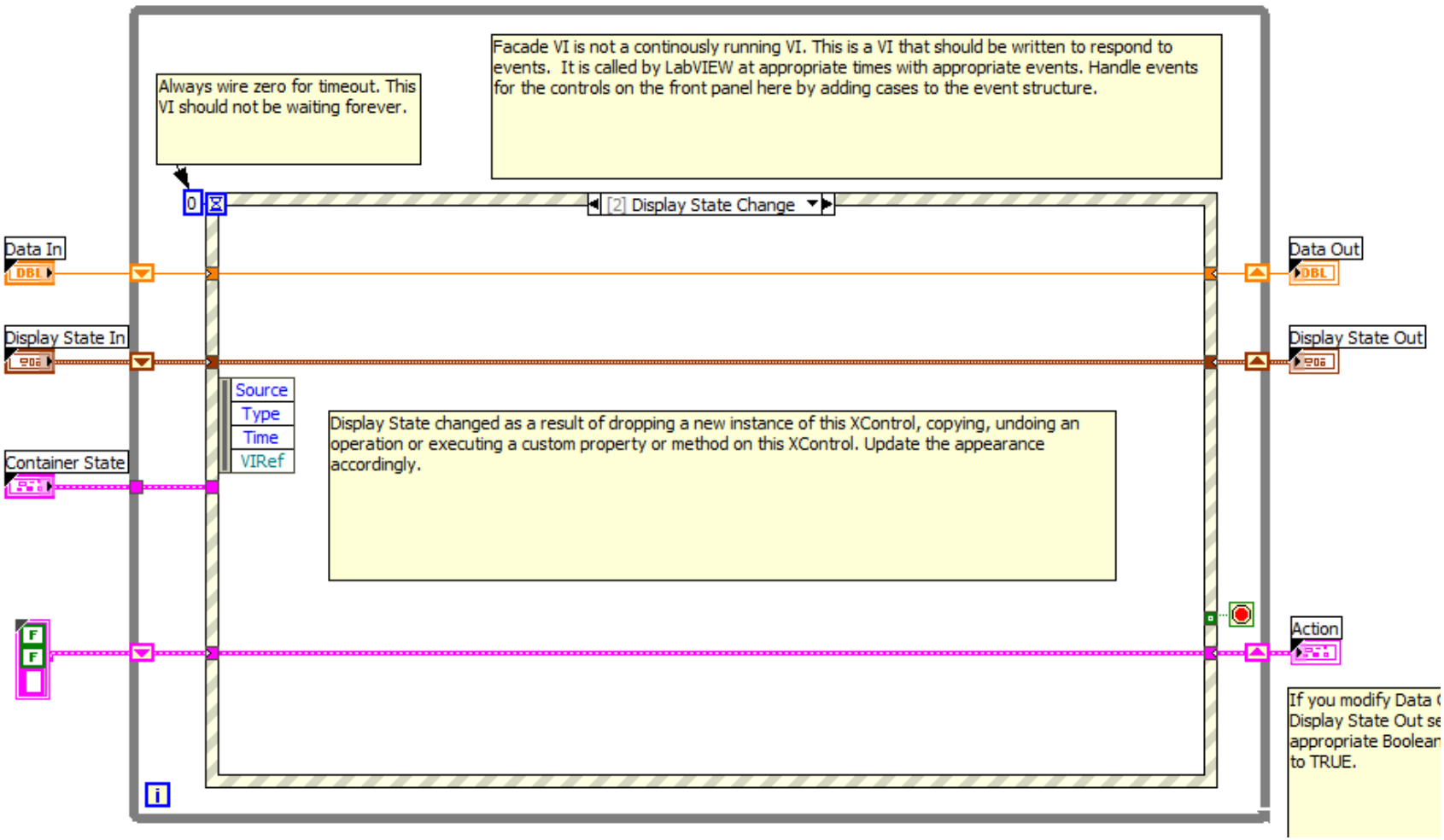
Data Change

- This event is generated when the value od XControl is changed by using terminal, local variable or property node.



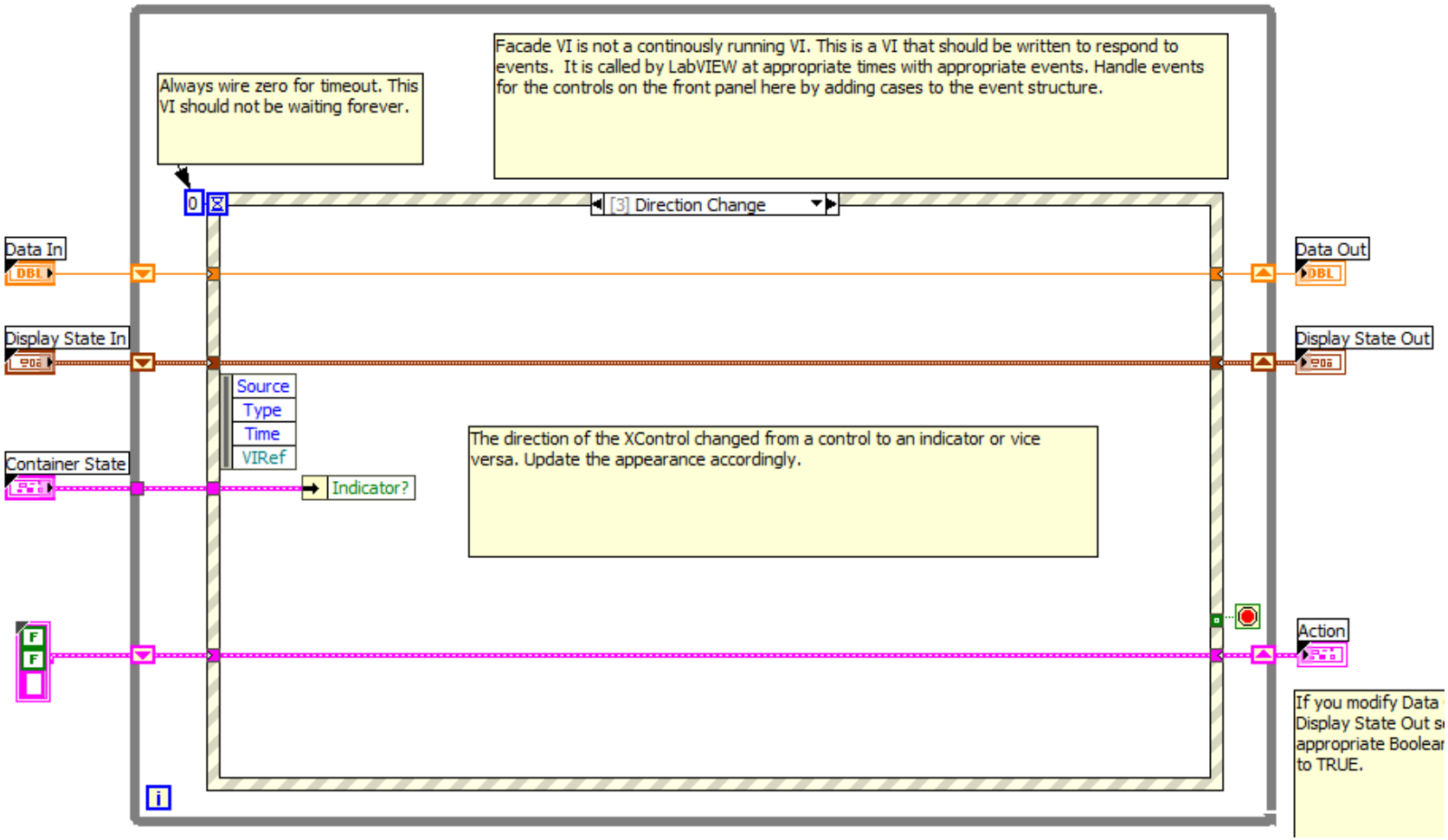
Display State Change

- This event is generated when the method or property node is executed.



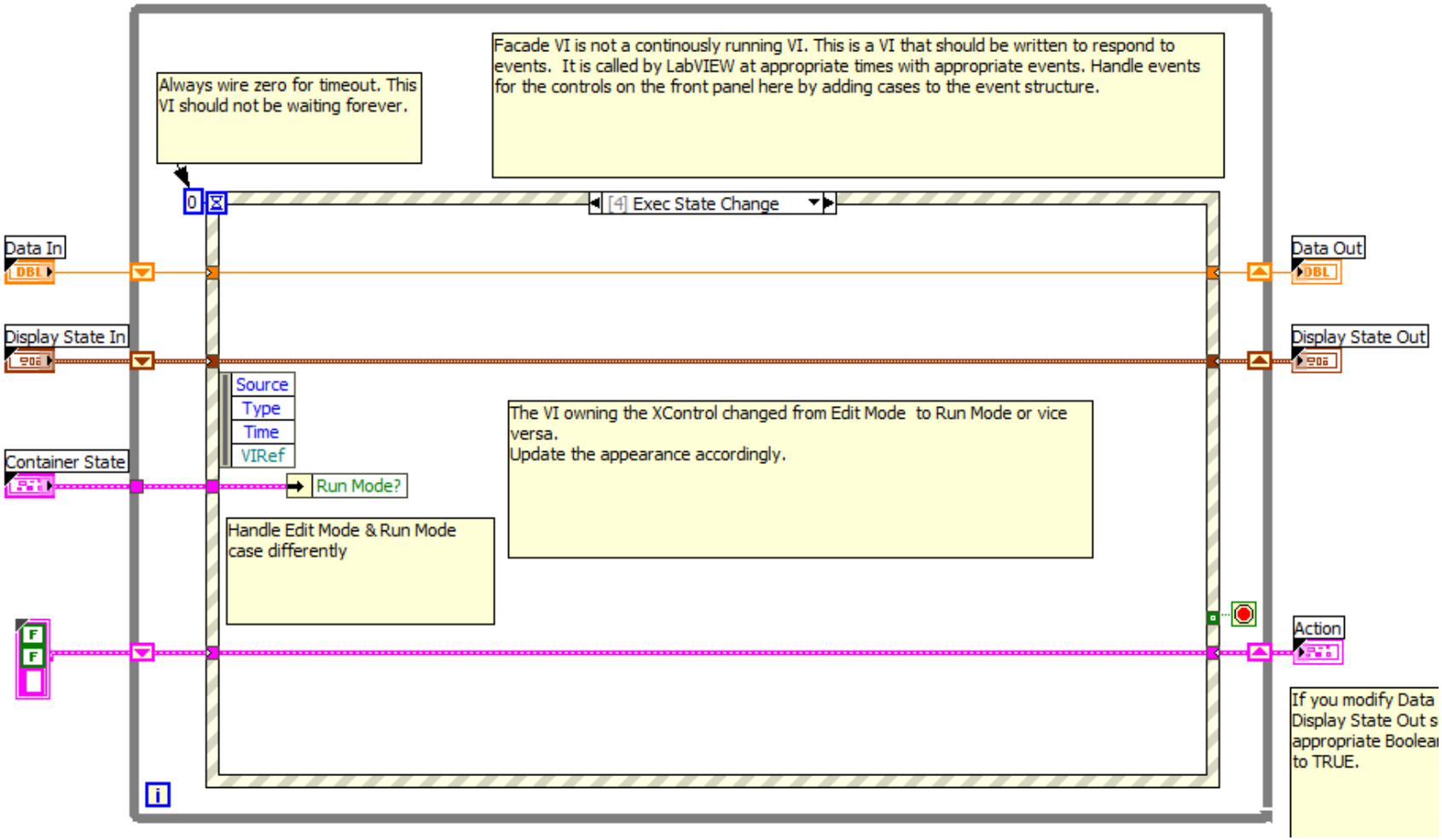
Direction Change

- This event is generated when an object is converted from control to indicator or vice versa.



Exec State Change

- This event is generated when master VI move from edit to run mode.



Thank you for attention!

Lecture was prepared based on materials from: "LabVIEW Core 3 Course Manual".

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