

Dynamic Buttons

SCENARIO:
Implementing Dynamic Model Type GraphRep



Scenario Description

Case:

A attribute dependent GraphRep is implemented which ,due to modelling procedure, shows/hides buttons that triggers certain mechanisms. Hence enables/disables functionalities.

GOAL:

Demonstrate how Model-GraphReps can be dynamically changes based on attribute value in order to guide user by following modelling procedure.



Description of Procedure

Procedure:

1. At the beginning user should create at least one container
2. After creation of container object(s) can be created and Function 3 can be called
3. As once Function 3 has been called function is disabled Function 4 is enabled
4. After creation of container and object(s) connector can be created
5. After creation of connector Function 1 and Function 2 are enabled

Added Value of Metamodelling Platform



Used meta-modelling functionality for realisation of the scenario:

- **GraphRep:**
- **Hotspot**
- **Attribute Type: PROGRAMCALL**

ADOxx Realisation Hands-On



1. Modelling Language to demonstrate Dynamic Buttons




1. New model type “Dynamic Model”
2. New classes “__ModelTypeData__”
3. New Model Attributes “DynamicModelGraphRep”, “boolContainerCreated”, “boolObjectCreated”, “boolConnectorCreated”, “boolNewContainerCreated”, “AddContainer”, “AddObject”, “AddConnector”, “CallFunction1”, “CallFunction2”, “CallFunction3”, “CallFunction4”


- **Implement Set Functions with ADOscript**

- Using ADOscript Core message port implement set function for each Boolean attributes.

Used ADOxx Functionality: Implementing an Algorithm



Introduction
Setup of Implementation Environment
Modelling Language Implementation
Classes 
Relations
Class Attributes and Attributes
GRAPHREP
ATTRREP
CLASS Cardinality
CONVERSION
Model Pointer
Attribute Facets 
Model Types 

Mechanisms & Algorithms Implementation
Core Functions for Model Manipulation
Database
Visualisation
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Visualisation
Query 
External Coupling ADOxx Functionality
ADOscript Triggers
ADOscript Language Constructs
Visualisation ADOscript
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Transformation ADOscript
ADD-ON Implementation
ADOxx Web-Service
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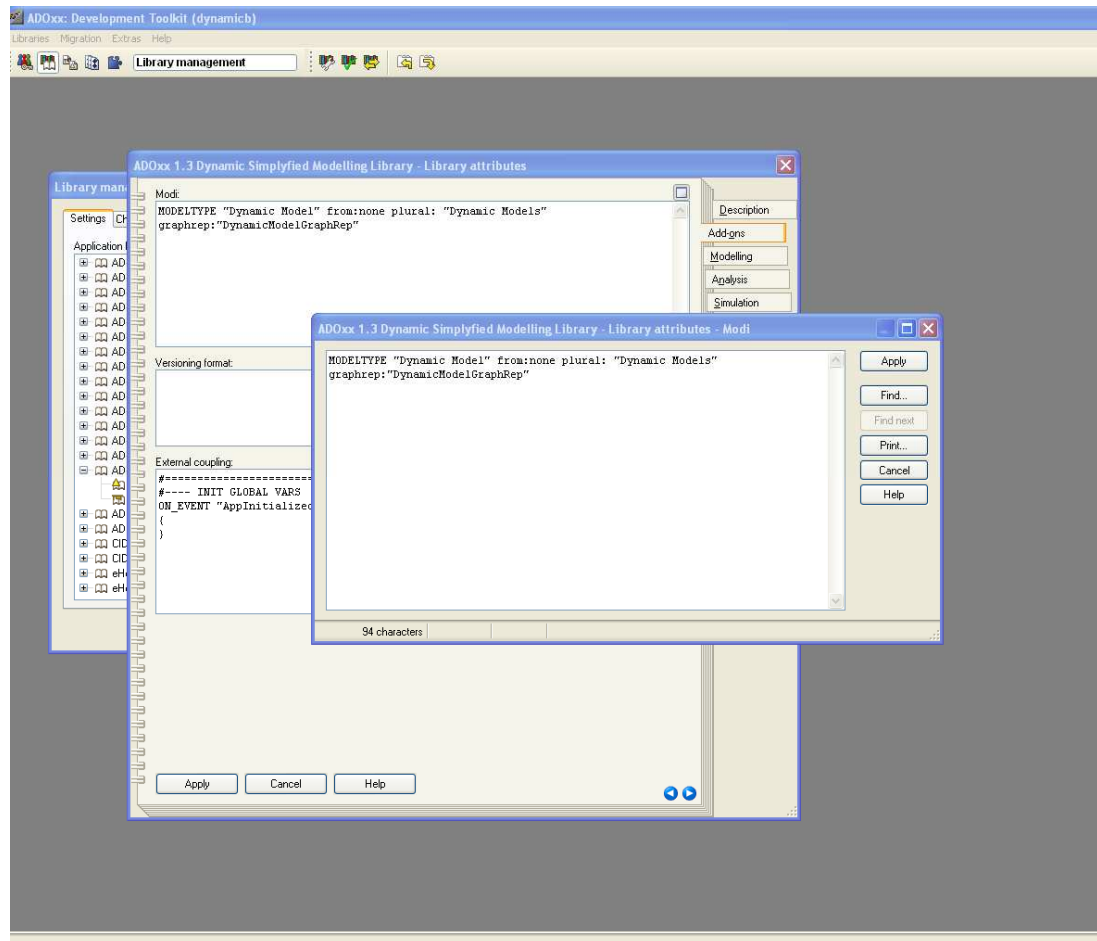


HANDS-ON

Dynamic Buttons

SCENARIO: **Implementing Dynamic Model Type GraphRep**

Define new Modeltype „Dynamic Model“

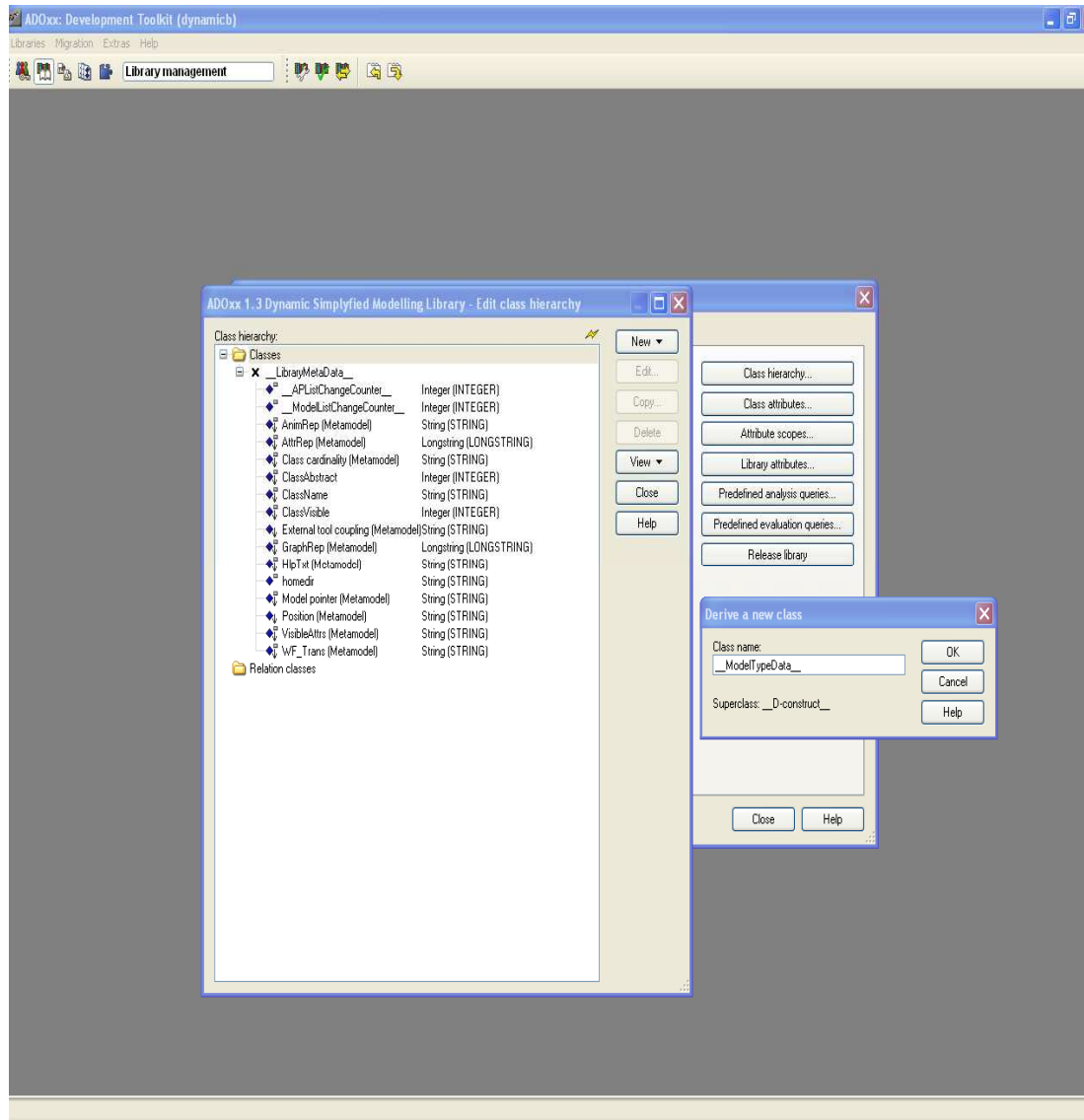


New Modeltype:

- Select “Dynamic Buttons Dynamic Library” and open Library attributes.
- Got to Add Ons
- Add the Modeltype “Dynamic Model” in the Modi attribute
- When the classes are defined, you need to INCLUDE “Container”, “Object”, “Connector”

```
MODELTYPE "Dynamic Model"  
from:none plural: "Dynamic Models"  
graphrep:"DynamicModelGraphRep"
```


Create New Class



New Class

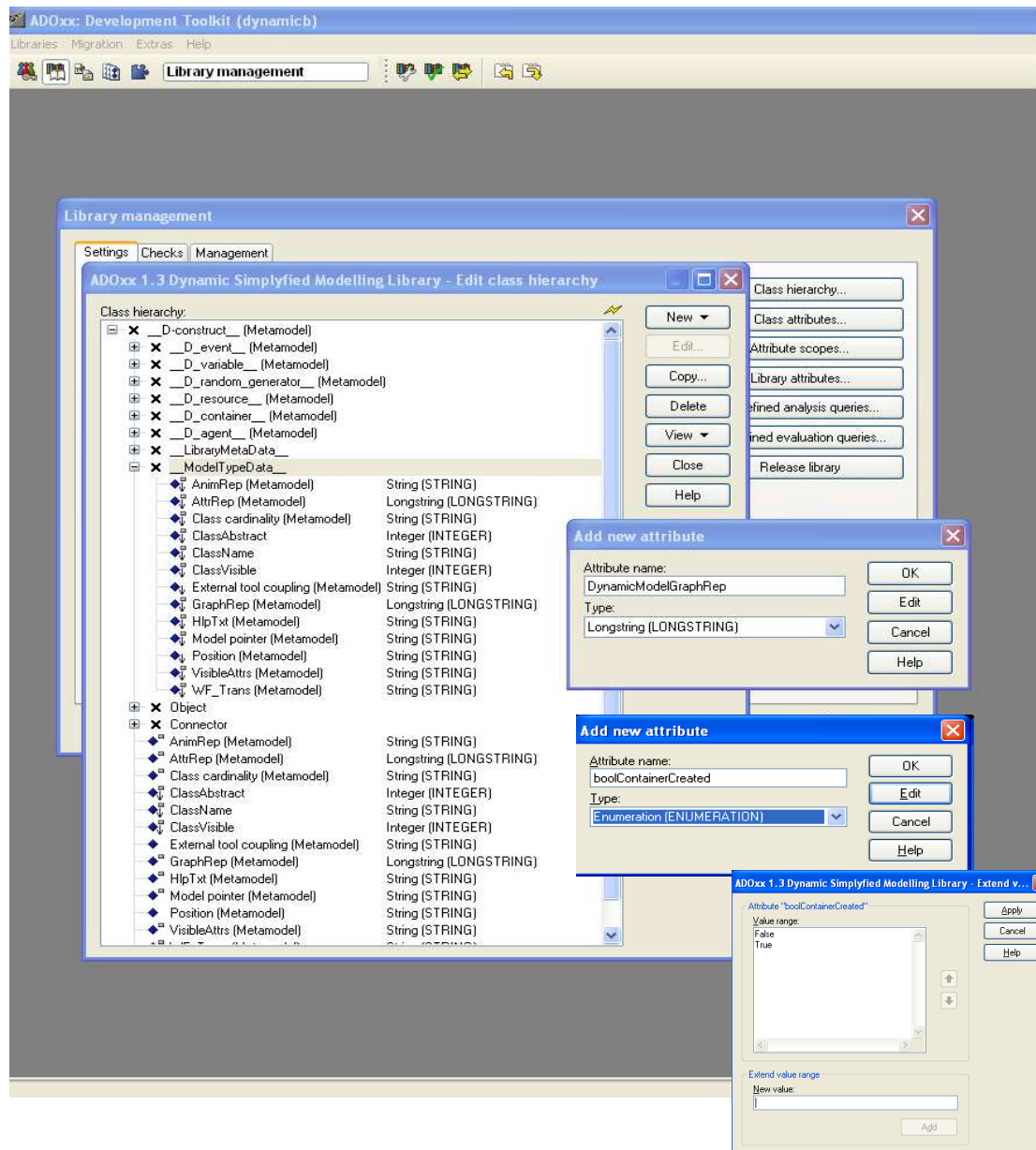
- Open Class hierarchy, view “Metamodel” and “Class hierarchy” in the View button, select `__D-construct__` and click new class.

- Name new classes:

“`__ModelTypeData__`”, “Object”, “Connector”

- “`__ModelTypeData__`”, “is the sub-class of “`__D-construct__`”

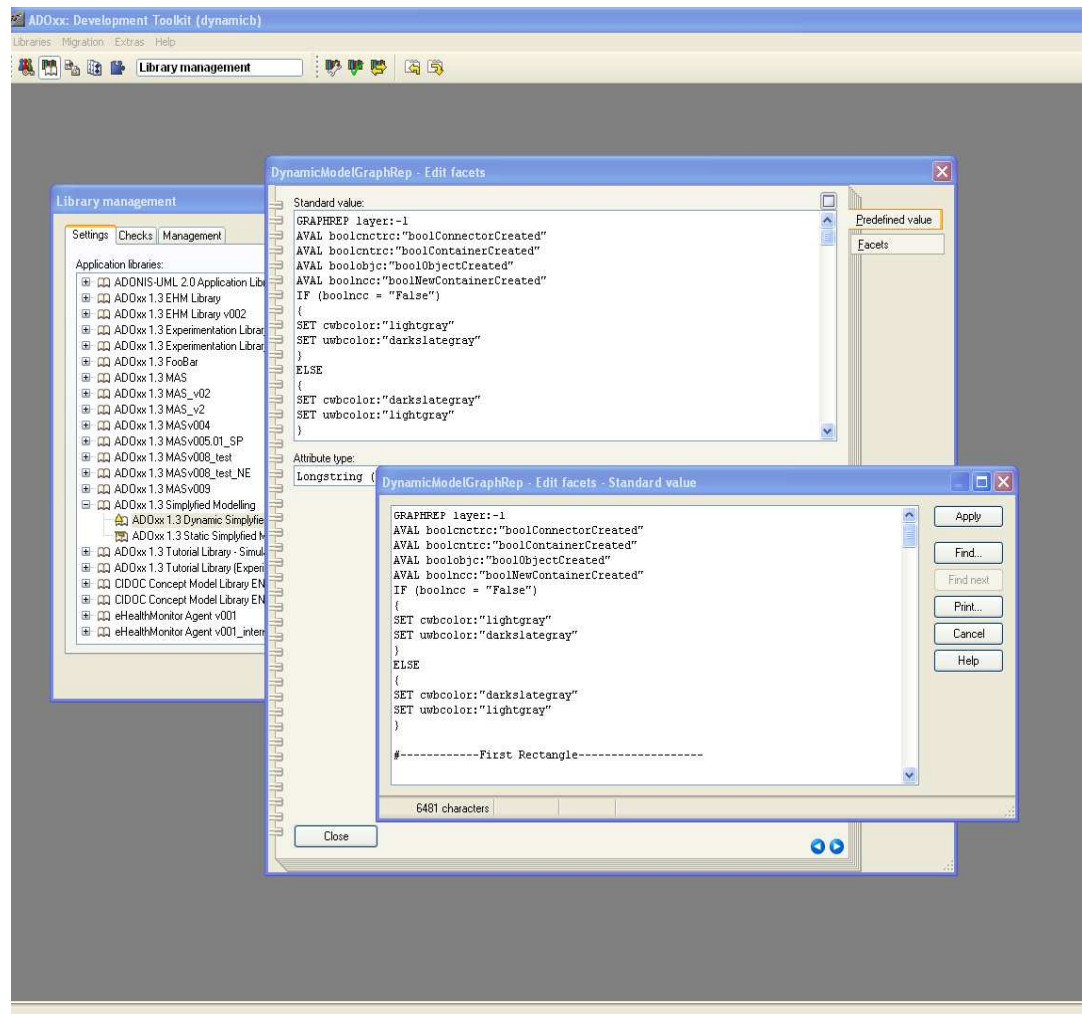
Add Model Attributes for Model “Dynamic Model”



Add Attributes

- Select “__ModelTypeData__” and click New, attribute.
- Make “DynamicModelGraphRep” as type LONGSTRING.
- Make “boolContainerCreated”, “boolObjectCreated”, “boolConnectorCreated”, “boolNewContainerCreated” as type ENUMERATION
Select Facets and define EnumerationDomain “False@True”
- Make “AddContainer”, “AddObject”, “AddConnector”, “CallFunction1”, “CallFunction2”, “CallFunction3”, “CallFunction4”, as type PROGRAMCALL
- Make “XCoordOfLastContainer” as type INTEGER

Add GRAPHREP



Specification of GRAPHREP

- Select class “__ModelTypeMetaData”
- Click on Attribute “DynamicModelGraphRep”
- Enter graphrep code and apply it

GRAPHREP



```
GRAPHREP layer:-1
AVAL boolcntrc:"boolConnectorCreated"
AVAL boolcntrc:"boolContainerCreated"
AVAL boolobjc:"boolObjectCreated"
AVAL boolncc:"boolNewContainerCreated"
IF (boolncc = "False")
{
SET cwbcolor:"lightgray"
SET uwbcolor:"darkslategray"
}
ELSE
{
SET cwbcolor:"darkslategray"
SET uwbcolor:"lightgray"
}

#-----First Rectangle-----
GRADIENT_RECT x:2.6cm y:.6cm w:3.2cm h:1.2cm style:diagcross color2:lightgray
color1:gray color3:lightgray color4:gray
GRADIENT_RECT x:2.8cm y:.7cm w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:2.6cm y:.6cm w:3.2cm h:1.2cm
FONT color:( "darkslategray" ) bold h:9pt
TEXT "Add\nContainer" x:4.3cm y:1.1cm line-break:words w:c:2.4cm
FONT "Wingdings" bold h:22pt color:( "darkslategray" )
TEXT "?" x:3.2cm y:.9cm w:c h:c
FONT color:( "darkslategray" )
HOTSPOT "AddContainer" x:2.6cm y:.6cm w:3.2cm h:1.2cm
SET n_dynamic_x_coordinate_1:6.6
SET n_dynamic_x_coordinate_2:(n_dynamic_x_coordinate_1+4)
SET n_dynamic_y_coordinate_1:0.6
SET n_dynamic_y_coordinate_2:n_dynamic_y_coordinate_1
```



GRAPHREP



```
#-----Second Rectangle-----
IF (boolcntrc = "True")
GRADIENT_RECT x:6.6cm y:.6cm w:3.2cm h:1.2cm style:diagcross color2:lightgray color1:gray
color3:lightgray color4:gray
GRADIENT_RECT x:6.8cm y:.7cm w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:6.6cm y:.6cm w:3.2cm h:1.2cm
FONT color:( "darkslategray") bold h:9pt
TEXT "Add\nObject" x:8.3cm y:1.cm line-break:words w:c:2.4cm
FONT "Wingdings" bold h:22pt color:( "darkslategray")
TEXT "?" x:7.2cm y:0.9cm w:c h:c
FONT color:( "darkslategray")
HOTSPOT "AddObject" x:6.6cm y:.6cm w:3.2cm h:1.2cm
SET n_dynamic_x_coordinate_1:(n_dynamic_x_coordinate_1+4)
SET n_dynamic_x_coordinate_2:(n_dynamic_x_coordinate_1+4)
SET n_dynamic_y_coordinate_1:0.6
SET n_dynamic_y_coordinate_2:0.6
ENDIF
```

2

```
#-----Third Rectangle-----
IF (boolobjc = "True")
GRADIENT_RECT x:10.6cm y:.6cm w:3.2cm h:1.2cm style:diagcross color2:lightgray color1:gray
color3:lightgray color4:gray
GRADIENT_RECT x:10.8cm y:.7cm w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:10.6cm y:.6cm w:3.2cm h:1.2cm
FONT color:( "darkslategray") bold h:9pt
TEXT "Add\nConnector" x:12.4cm y:.8cm line-break:words w:c:2.2cm
FONT "Wingdings" bold h:22pt color:( "darkslategray")
TEXT "?" x:11.2cm y:0.9cm w:c h:c
FONT color:( "darkslategray")
HOTSPOT "AddConnector" x:10.6cm y:.6cm w:3.2cm h:1.2cm
SET n_dynamic_x_coordinate_1:(n_dynamic_x_coordinate_1+4)
SET n_dynamic_x_coordinate_2:2.6
SET n_dynamic_y_coordinate_1:0.6
SET n_dynamic_y_coordinate_2:2.1
```

4

GRAPHREP



```
#-----Forth Rectangle-----
IF (boolcnctrc = "True")
GRADIENT_RECT x:14.6cm y:.6cm w:3.2cm h:1.2cm style:diagcross color2:lightgray color1:gray
color3:lightgray color4:gray
GRADIENT_RECT x:14.8cm y:.7cm w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:14.6cm y:.6cm w:3.2cm h:1.2cm
FONT color:("darkslategray") bold h:9pt
TEXT "Call\nFunction 1" x:16.3cm y:.8cm line-break:words w:c:2.4cm
FONT "Arial" bold h:9pt color:("darkslategray")
TEXT "1" x:14.9cm y:.9cm w:c h:c
FONT "Arial" bold h:14pt color:("darkslategray")
TEXT "2" x:15.1cm y:.9cm w:c h:c
FONT "Arial" bold h:9pt color:("darkslategray")
TEXT "3" x:15.3cm y:.9cm w:c h:c
FONT color:("darkslategray")
HOTSPOT "CallFunction1" x:14.6cm y:.6cm w:3.2cm h:1.2cm
#-----Fifth Rectangle-----
GRADIENT_RECT x:2.6cm y:2.1cm w:3.2cm h:1.2cm style:diagcross color2:lightgray color1:gray
color3:lightgray color4:gray
GRADIENT_RECT x:2.8cm y:2.2cm w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:2.6cm y:2.1cm w:3.2cm h:1.2cm
FONT color:("darkslategray") bold h:9pt
TEXT "Call\nFunction 2" x:4.2cm y:2.3cm line-break:words w:c:2.4cm
FONT "Wingdings 3" bold h:18pt color:("darkslategray")
TEXT "D" x:3.2cm y:2.4cm w:c h:c
HOTSPOT "CallFunction2" x:2.6cm y:2.1cm w:3.2cm h:1.2cm
SET n_dynamic_x_coordinate_1:6.6
SET n_dynamic_x_coordinate_2:(n_dynamic_x_coordinate_1+4)
SET n_dynamic_y_coordinate_1:2.1
SET n_dynamic_y_coordinate_2:n_dynamic_y_coordinate_1
ENDIF
```

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GRAPHREP

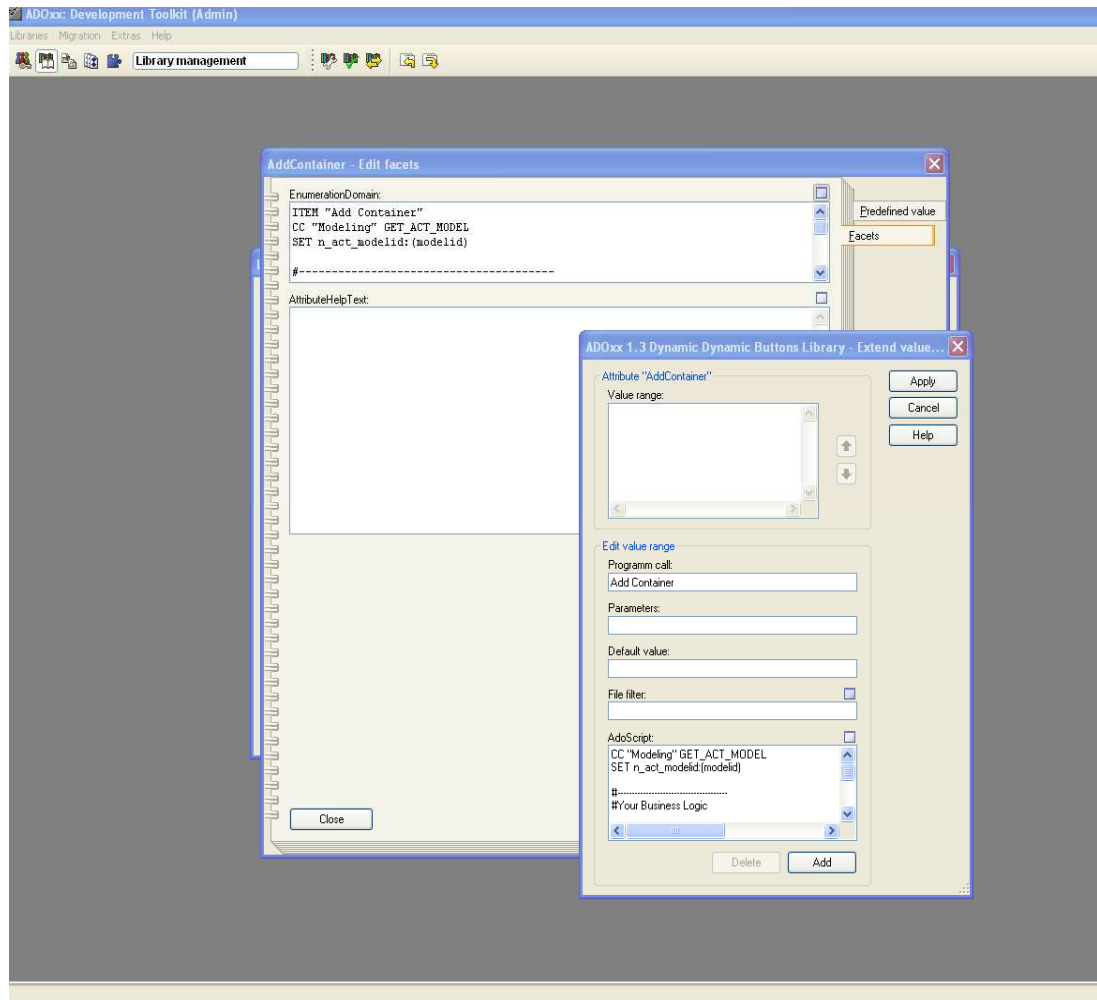


Condition Dependent Positioning

```
#-----Dynamic First Rectangle (Sixth)-----
IF (boolcntrc = "True")
GRADIENT_RECT x:(CM n_dynamic_x_coordinate_1) y:(CM n_dynamic_y_coordinate_1) w:3.2cm h:1.2cm
style:diagcross color2:lightgray color1:gray color3:lightgray color4:gray
GRADIENT_RECT x:(CM (n_dynamic_x_coordinate_1+0.2)) y:(CM (n_dynamic_y_coordinate_1+0.1))
w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:(CM n_dynamic_x_coordinate_1) y:(CM n_dynamic_y_coordinate_1) w:3.2cm h:1.2cm
FONT color:(cwbcolor) bold h:9pt
TEXT "Call\nFunction 3" x:(CM (n_dynamic_x_coordinate_1+1.6)) y:(CM
(n_dynamic_y_coordinate_1+0.2)) line-break:words w:c:2.4cm
FONT "Wingdings" bold h:22pt color:(cwbcolor)
TEXT "?" x:(CM (n_dynamic_x_coordinate_1+0.6)) y:(CM (n_dynamic_y_coordinate_1+0.3)) w:c h:c
FONT color:( "darkslategray" )
IF (boolncc = "True")
HOTSPOT "CallFunction3" x:(CM n_dynamic_x_coordinate_1) y:(CM n_dynamic_y_coordinate_1)
w:3.2cm h:1.2cm
ENDIF
ENDIF
#-----Dynamic Second Rectangle (Seventh)-----
IF (boolcntrc = "True")
GRADIENT_RECT x:(CM n_dynamic_x_coordinate_2) y:(CM n_dynamic_y_coordinate_2) w:3.2cm h:1.2cm
style:diagcross color2:lightgray color1:gray color3:lightgray color4:gray
GRADIENT_RECT x:(CM (n_dynamic_x_coordinate_2+0.2)) y:(CM (n_dynamic_y_coordinate_2+0.1))
w:2.8cm h:1.0cm style:vert color2:lightgray color1:white
PEN w:0.05cm color:darkgray
FILL style:null
RECTANGLE x:(CM n_dynamic_x_coordinate_2) y:(CM n_dynamic_y_coordinate_2) w:3.2cm h:1.2cm
FONT color:(uwbcolor) bold h:9pt
TEXT "Call\nFunction 4" x:(CM (n_dynamic_x_coordinate_2+1.9)) y:(CM
(n_dynamic_y_coordinate_2+0.2)) line-break:words w:c:2.4cm
FONT "Wingdings 3" bold h:19pt color:(uwbcolor)
TEXT "P" x:(CM (n_dynamic_x_coordinate_2+0.5)) y:(CM (n_dynamic_y_coordinate_2+0.4)) w:c h:c
FONT color:( "darkslategray" )
IF (boolncc = "False")
HOTSPOT "CallFunction4" x:(CM n_dynamic_x_coordinate_2) y:(CM n_dynamic_y_coordinate_2)
w:3.2cm h:1.2cm
```

3

Copy and Configure ADOscripts in Corresponding Programcall

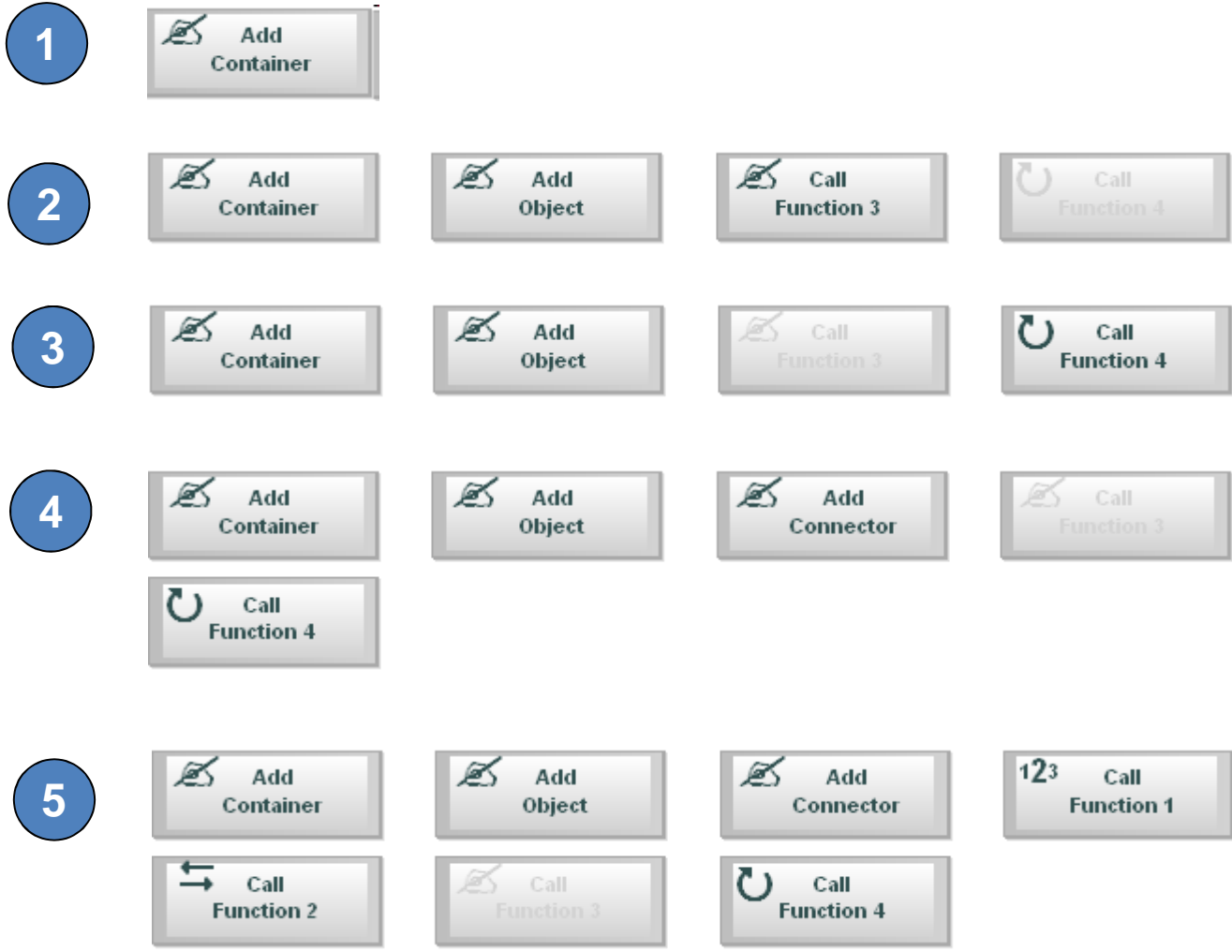


Configure Programcalls

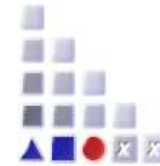
- Select Dynamic Library.
- Open Class hierarchy
- Select “__ModelTypeMetaData__
- Edit Programcall attribute “AddContainer”
- Open Facets and edit EnumerationDomain
- Name Programm call as “Add Container”
- Copy AdoScript code in AdoScript

- Repeat Steps for other programcall attributes “AddObject”, “AddConnector”, “CallFunction1”, “CallFunction2”, “CallFunction3” and “CallFunction4”

Result



Further Questions?



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