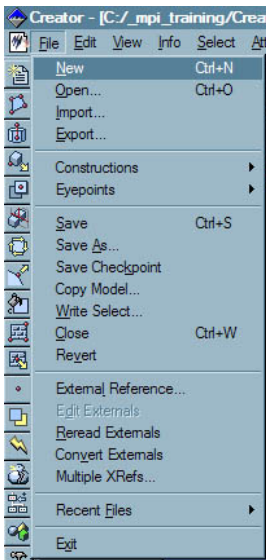# Switch - Example 2

This example will give you an understanding of how to create and manipulate **Switch Nodes** and how to create and set **Masks** to control which of the switch nodes children will be displayed when a mask is active.
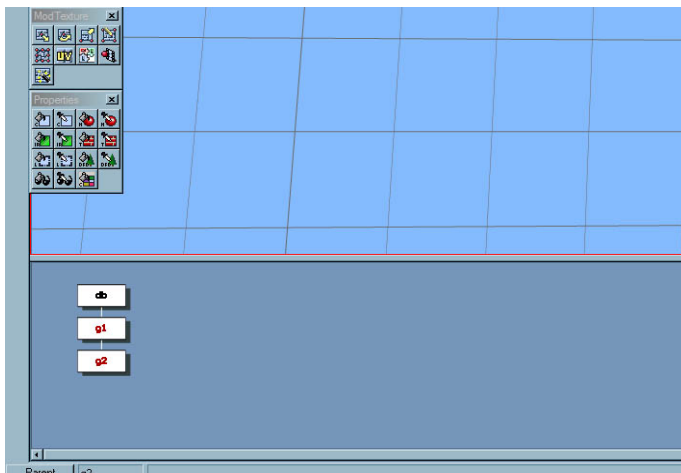
Part 1: Create the Database

1. First close any Open Flight files that are Open

2. Next create a **new** database *(DB)*, select File from the main menu and New *(Ctrl + N)* see image(1)

(Image 1 : File Menu)

3. Next save the file, select File from the main menu and Save As , Set the file name as "**SwitchExample.flt**" *(See Image 1)*

4. Drag the bottom bar of the graphics window up to show the hierarchy window see image (2)

5. Select the group node **g2** and set the parent to **g2** *(alt+ left mouse on **g2** node or left click on parent button)*
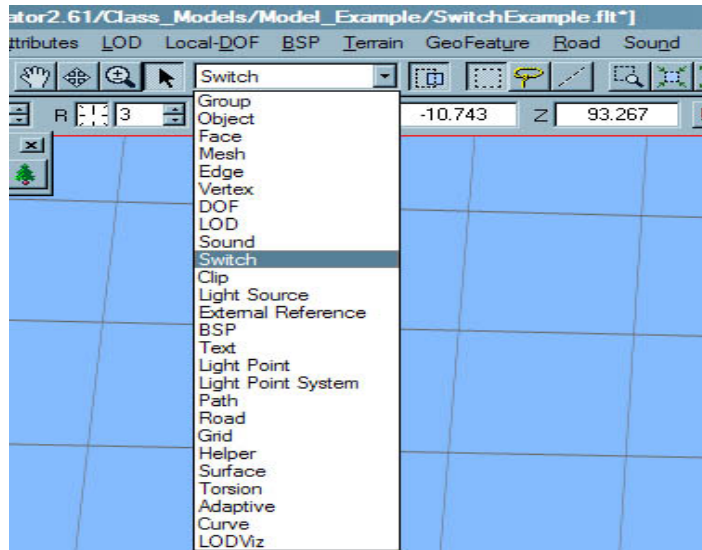

(Image 2 : Hierarchy View)

6. Set the selection mode to **Switch** *(from the Mode pull-down list or on the Mode Tool Box)* see image 3.
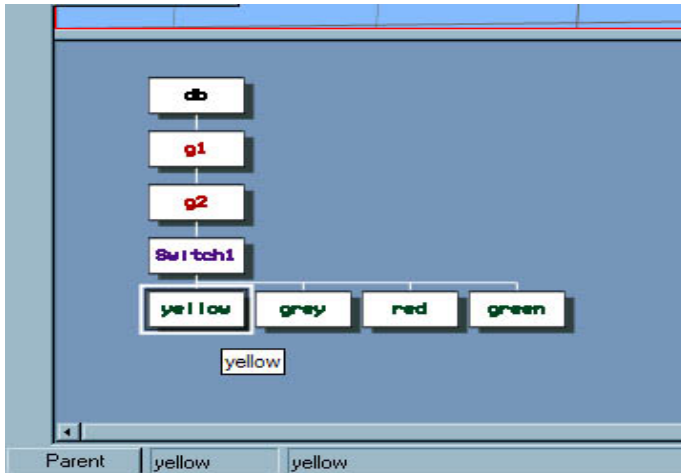
(Image 3 : Switch Mode)

7. Create a new **Switch** node *(shift + C, or Create Switch in the Create Tool Box see image 4)*
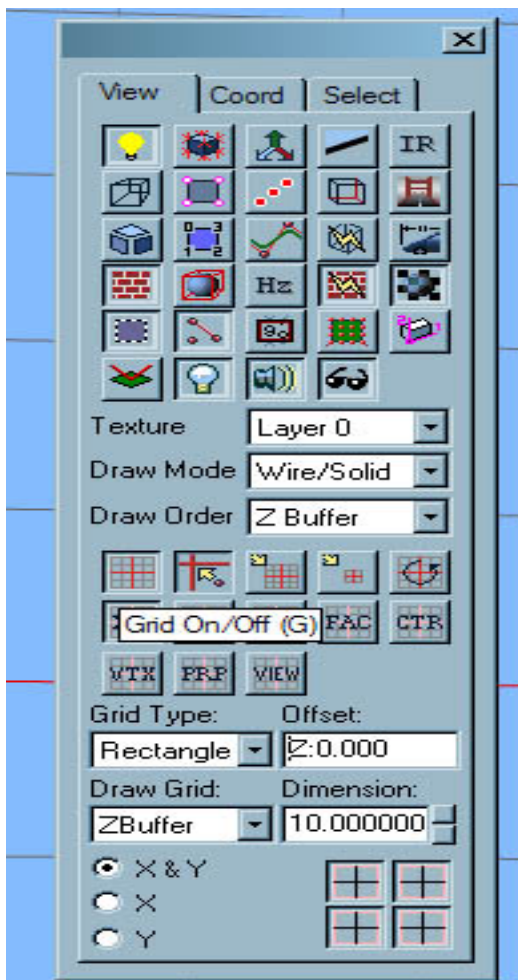
(Image 4 : Create Switch)

8. Rename the new switch node to "**Switch1**" *(control + J)*

9. Set the "**Switch1**" node as the parent node *(alt+ left mouse)*

10. Set the selection Mode to **Object** *(shift + O)*

11. Create **4** new **object** nodes *(shift + C 4 times)*

12. Select the first Object and name to "**yellow**" *(control + J)*

13. Select the second Object and name to "**grey**" *(control + J)*

14. Select the second Object and name to "**red**" *(control + J)*

15. Select the second Object and name to "**green**" *(control + J)*

16. You should now have an hierarchy similar to that as shown in image 5

17. Save the file *(control + S)*

(Image 5: Objects Hierarchy)

Part 2: Set-up the View and Grid

18. Turn the Modeling Grid on *(G, or from the View/Grid Control Tool box see image 6)*

(Image 6: View/Grid Controls)

19. Set the Grid dimensions 10

20. Set the Grid type to rectangle

21. Set grid to an XY plane

22. Set the Grid draw to Zbuffer

23. Set the View so that you are looking down on to grid, the Translation is set to X = -10, Y = -30 , Z = 240 and orientation to Y = 0, P = 90, R = 0, *(see image 7)*
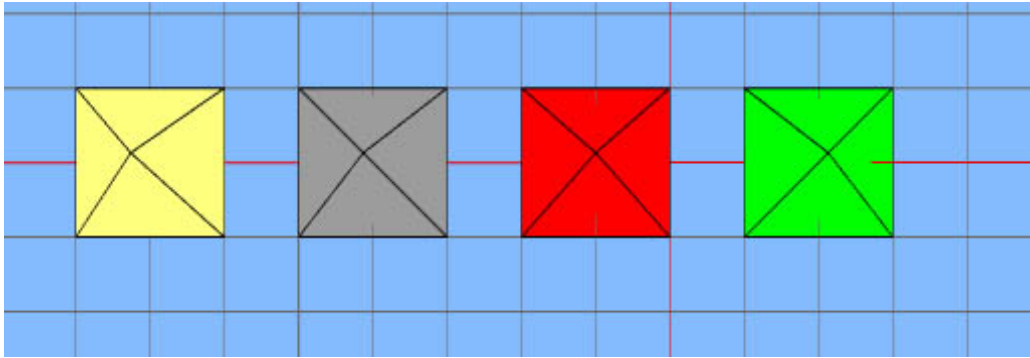

(Image 6: View Controls)

24. Save the file *(control + S)*
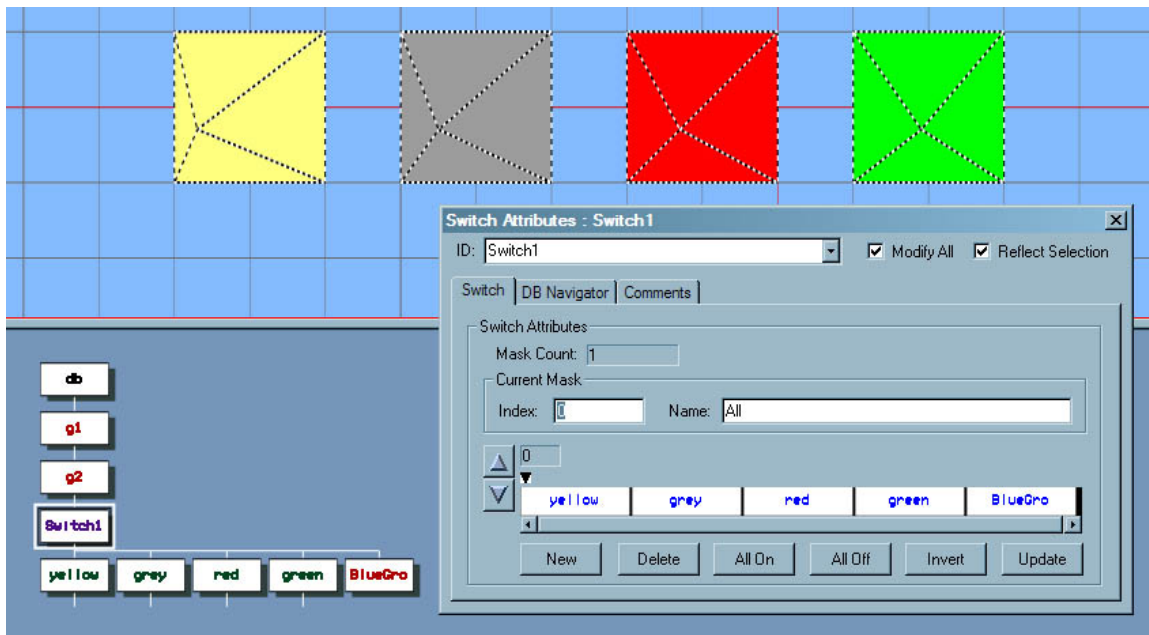
Part 3: Create Some Geometry

25. Set the "**Yellow**" object node as the parent node *(alt+ left mouse)*

26. Open the color Palette (control + P, or from the menu)

27. Select a **Yellow** color as the primary color, and close the palette

28. Use the rectangle tool to create a polygon, set the point at -80,10,0 and the second point at -60,-10,0

29. Set the "**Grey**" object node as the parent node *(alt+ left mouse)*

30. Select the color Palette (control + P, or from the menu)

31. Select a **Grey** color as the primary color, and close the palette

32. Use the rectangle tool to create a polygon, set the point at -50,10,0 and the second point at -30,-10,0

33. Set the "**Red**" object node as the parent node *(alt+ left mouse)*

34. Select the color Palette (control + P, or from the menu)

35. Select a **Red** color as the primary color, and close the palette

36. Use the rectangle tool to create a polygon, set the point at -20,10,0 and the second point at 0,-10,0

37. Set the "**Green**" object node as the parent node *(alt+ left mouse)*

38. Select the color Palette (control + P, or from the menu)

39. Select a **Red** color as the primary color, and close the palette

40. Use the rectangle tool to create a polygon, set the point at 10,10,0 and the second point at -20,-10,0

41. Set Selection mode to Face (shift + F)

42. Select the Yellow, Grey, Red and Green polygon, you can do this with the mouse and a drag select in the Graphics or Hierarchy windows, or use shift and left mouse click for multi-selection)

43. With all 4 polygons selected, open the Peak Tool from the geometry tool box (shift + P)

44. Set the height to 10 and click on ok, this will create pyramids from the selected geometry, you should have geometry similar to that seen in image 7

45. Save the file *(control + S)*
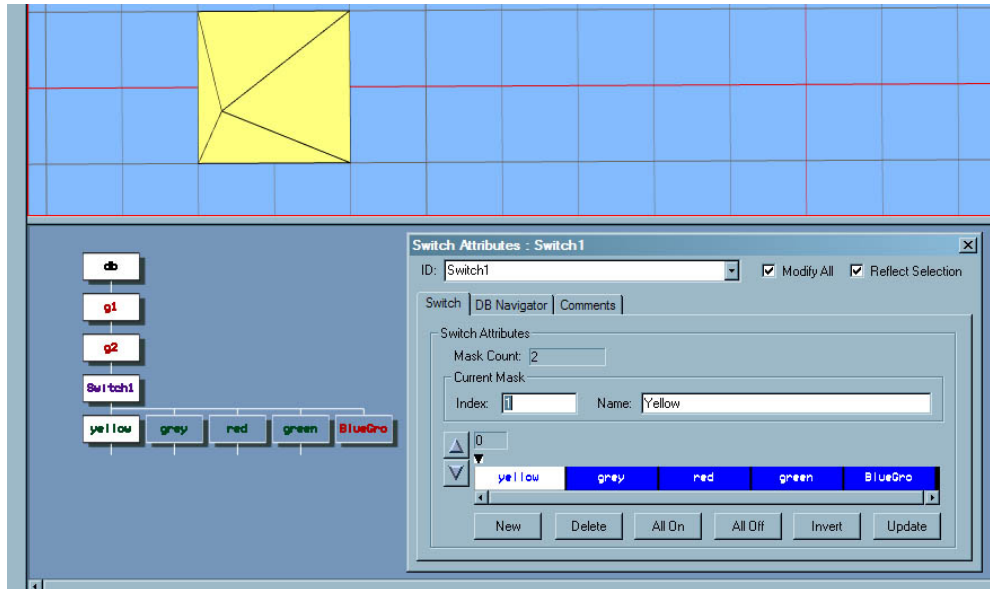
(Image 7: Yellow, Grey, Red and Green Pyramids)

Part 4: Create Switch Masks

46. Set the "**Switch1**" node as the parent node *(alt+ left mouse)*

47. Set the selection mode to Group *(shift + G)*

48. Create a new group *(shift + C)*

49. Rename the new group to "**BlueGroup**" *(control + J)*

50. Open the Switch Attribute Dialog *(Control + =, or double click on the "Switch1" node)*

51. You will see the default **mask 0**, with all the switch children shown as **ON**.

52. Set the name of the mask to "**All**" *(see image 8)*

(Image 8: Switch Attributes)

53. Create a new mask, by clicking on the "**New**" button on the Switch Attributes dialog, the mask count should change to 2, and the name of the mask should automatically be named yellow.

54. Click on the white buttons once in the attribute dialog named "Grey", "Red", "Green" and "BlueGroup", then boxes should turn blue and the geometry of the grey, red, green pyramids should not be visible but the Yellow geometry should still be visible *(see image 9)*

(Image 9: Yellow Mask)

55. Now create the following new masks so that
    - The Yellow and Red Pyramids are drawn, name the mask "**YellowRed**"
    - The Grey and Green Pyramids are drawn, name the mask "**GreyGreen**"
    - Nothing is drawn, name the mask "**Non**"
    - The "**BlueGroup**" is drawn, name the mask "**BlueGrp**"

56. Save the file *(control + S)*

57. You should have 5 masks when you are done, use the Up/Down arrows on the dialog to cycle through the masks you have created.

    You will notice that as you cycle through the masks that the masks named "**Non**" and "**Blue**" that both show no geometry, this is correct as we need to add some geometry to the "**BlueGroup**" node.
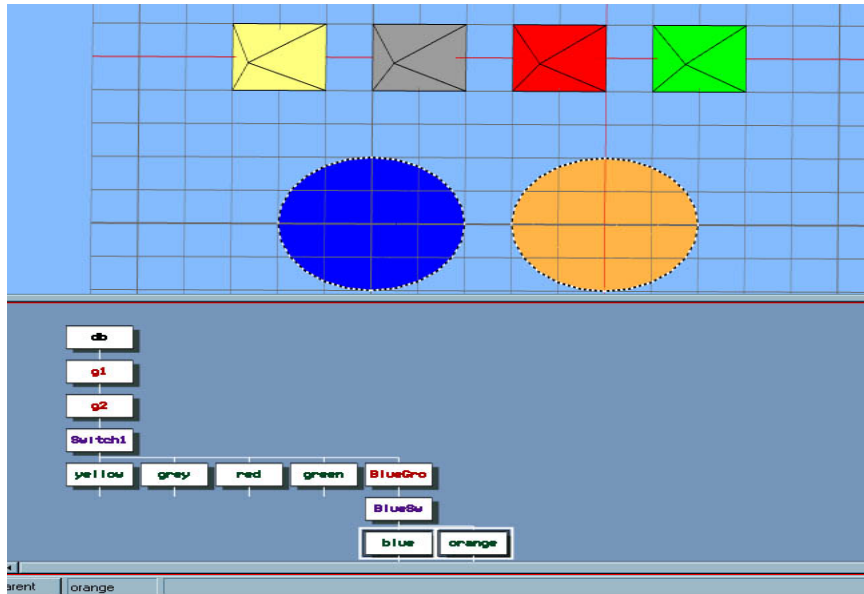
Part 4: Create Hierarchical Switch Node

58. Select the "**BlueGrp**" mask so that the "**BlueGroup**" is visible and not hidden

59. Close the switch attribute dialog

60. Set the "**BlueGroup**" node as the parent node *(alt+ left mouse)*

61. Set the selection mode to **Switch** *(from the Mode pull-down list or on the Mode Tool Box see image 3)*

62. Create a new **Switch** node *(shift + C, or Create Switch on Create Tool Box see image 4)*

63. Rename the new switch node to "**BlueSw**" *(control + J)*

64. Set the selection Mode to **Object** *(shift + O)*

65. Create **2** new **object** nodes *(shift + C 2 times)*

66. Name the first Object to "**blue**" *(control + J)*

67. Name the second Object to "**orange**" *(control + J)*

68. Turn the Modeling Grid on *(G, or from the View/Grid Control Tool box see image 6)*

69. Set the Grid dimensions 10

70. Set the Grid type to rectangle

71. Set grid to an XY plane

72. Save the file *(control + S)*

73. Set the "**Blue**" object node as the parent node *(alt+ left mouse)*

74. Open the color Palette (control + P, or from the menu)

75. Select a **Blue** color as the primary color, and close the palette

76. Use the circle tool to create a circle polygon (Face Tool Box), Center point at -50,-50,0 and the radius point at -30,-50,0

77. Save the file *(control + S)*

78. Set the "**Orange**" object node as the parent node *(alt+ left mouse)*

79. Open the color Palette (control + P, or from the menu)

80. Select a **Orange** color as the primary color, and close the palette

81. Use the circle tool to create a circle polygon (Face Tool Box), center point at 0,-50,0 and the radius point at 20,-50,0 *(You should now have something that looks similar to image 10)*

82. Save the file *(control + S)*

(Image 10: Blue & orange Circle)

83. Set the "**BlueSw**" node as the parent node *(alt+ left mouse)*

84. Open the Switch Attribute Dialog *(Control + =, or double click on the **BlueSw** node)*

85. You will see the default mask 0, with all the switch children shown as ON.

86. Set the name of the mask to "**All2**"

87. Now create the following new masks so that

- The Blue circle is drawn, name the mask "**blue**"

- The Orange circle is drawn, name the mask "**orange**"

- Nothing is drawn, name the mask "**non2**"

88. Save the file *(control + S)*

89. You should have 4 masks when you are done, use the mouse with the "Up" and "Down" arrows on the dialog to cycle through the masks you have created.

90. Double click on the "**Switch1**" switch node and select the mask called "**RedYellow**" or "**Non**", notice that the Geometry under the "**BlueSw**"is no longer drawn. Try changing the Active masks on the "**BlueSw**" node and you will see that no matter which mask you chose nothing is drawn. Now make the "**BlueGrp**" mask active on the "**Switch1**" and you should find that the geometry for "**BlueSw**" will now be drawn

This shows an important feature that in order for a switch's children to be drawn its parent has to be drawn as well.