Cyba3 Sample Tutorial.
Animated Cyba. Lofts, Particles & Video Post FX. Introduction

The intention of this animation was to create a ‘firework effect’ that writes text. The ‘firework effect’ is achieved with a particle system and video post. The particle system is animated along a path , synchronised with the opacity of a loft object (the path and loft line and the same shape)

This tutorial is broken down into 8 sections.

1) Setup. Setting up time configurations and loading a reference image for the spline.

2) Creation of a spline to be used as a loft path. The path is also used when animating the particle system.

3) Editing the spline- refining the spline at the sub object level.

4) Creating a loft object from the spline.

5) Creating a particle system.

6) Animating the particle system along a spline.

7) Controlling the opacity of the loft object with a material.

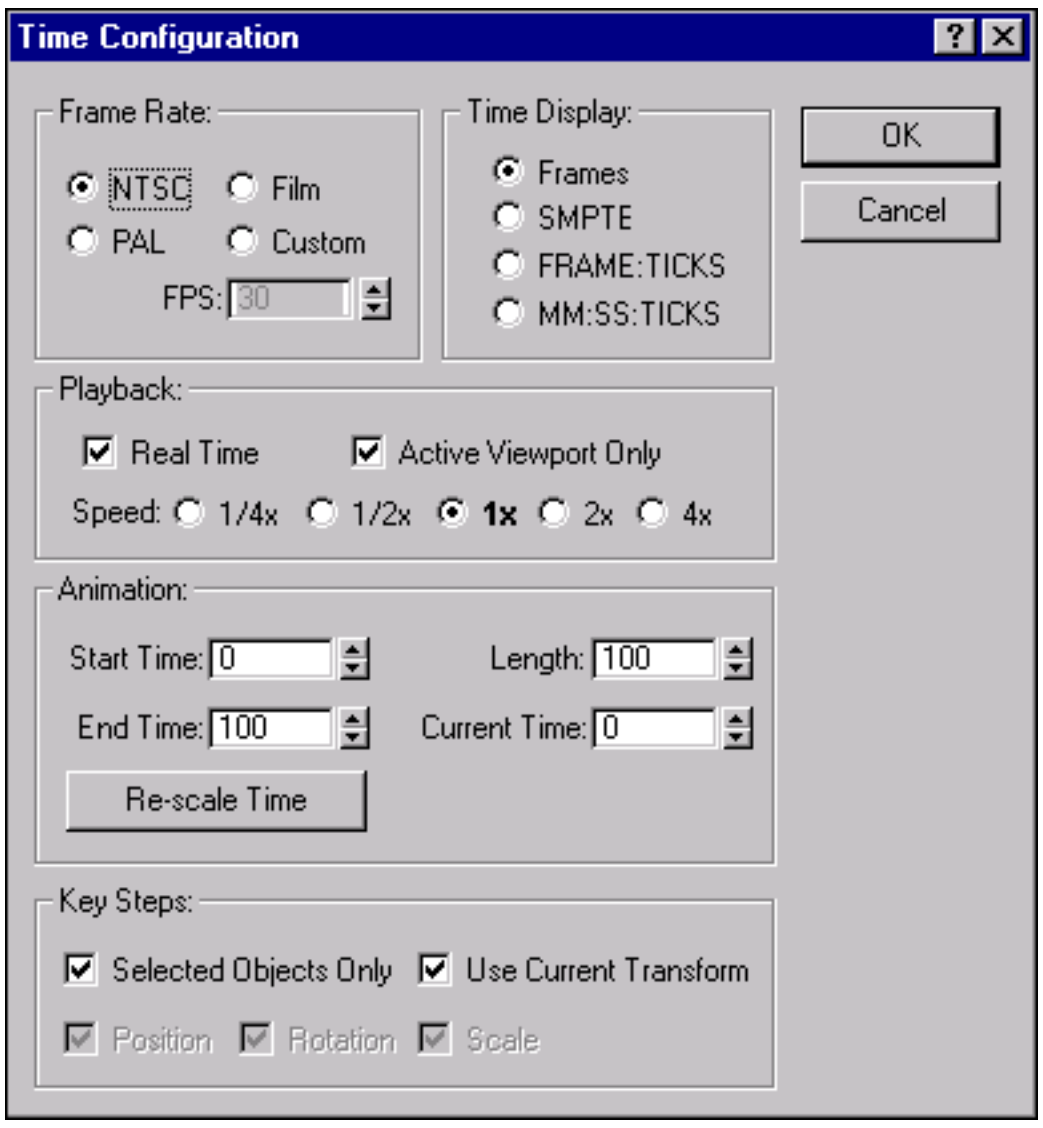
8) Adding FX in Video Post.

Time Configuration.

Prior to beginning any project it is necessary to configure the time settings. In this tutorial a frame rate of 25 frames per second (fps) **Pal Video** is used.

1) Left click the **Time Configuration** icon…

…the **Time Configuration** dialogue box will appear.



2) Under **Frame Rate**, left click the **PAL** radio button.

Note that the FPS spinner does not update until the Time Configuration settings have been accepted (OK)

3) Under **Animation**, type **250** <**Enter**> in the **End Time** spinner.
The active time segment is now 250 frames.

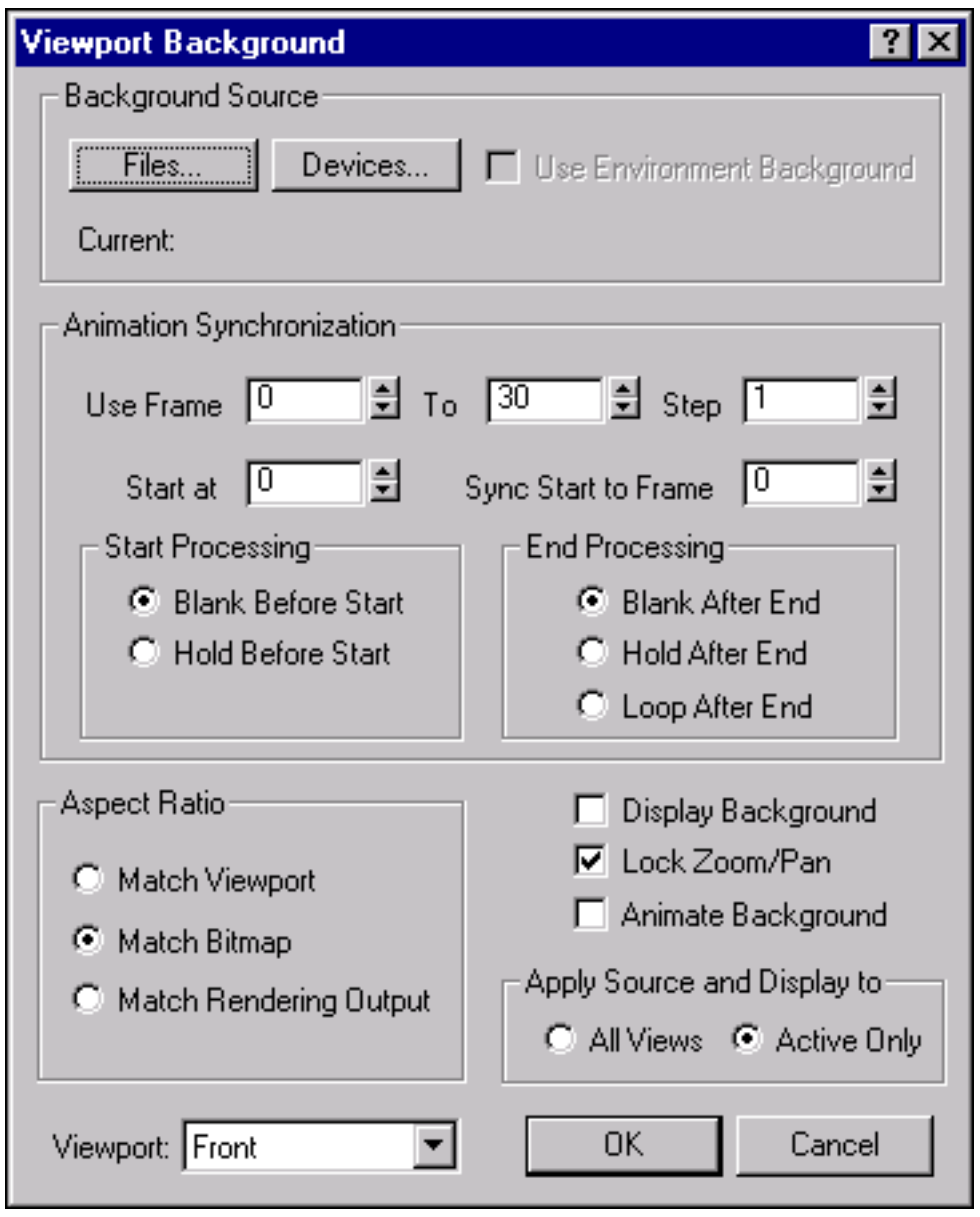
3) Left click **OK** to close the dialogue box and accept the **Time Configuration** settings.

Loading and Displaying the Reference Image.

4) Right click the **Front** viewport to activate it.

5) From the **Main Toolbar** choose **Views -> Background Image**. The **Viewport Background** dialogue box will appear.

The **Viewport Background** dialogue box allows the user to load and set parameters for background images in any or all of the viewports.



- **Background Source:** Select a background image from the usual sources.
- **Animation Synchronisation:** Set parameters for animated backgrounds.

- **Aspect Ratio:** The proportions of an image expressed as the ratio of width to height. For example, a 35mm slide has an aspect ratio of 4:3. 3D Studio Max provides 3 options.

1. Match Viewport:
Changes the aspect ratio of the image to match the aspect ratio of the viewport.

2. Match Bitmap:
Locks the aspect ratio of the image to the native aspect ratio of the bitmap.

3. Match Rendering Output:
Changes the aspect ratio of the image to match the aspect ratio of the active rendering output device.

When the second or third option is chosen, 3D Studio MAX centres the image and clears the edges of the viewport to the background color.

- **Display Background:** Toggles display of the background image in the viewport.

- **Lock Zoom/Pan:** Locks the background to the geometry during zoom and pan operations in orthographic or user viewports.

6) Left click the **Files** button. A file browser will appear.

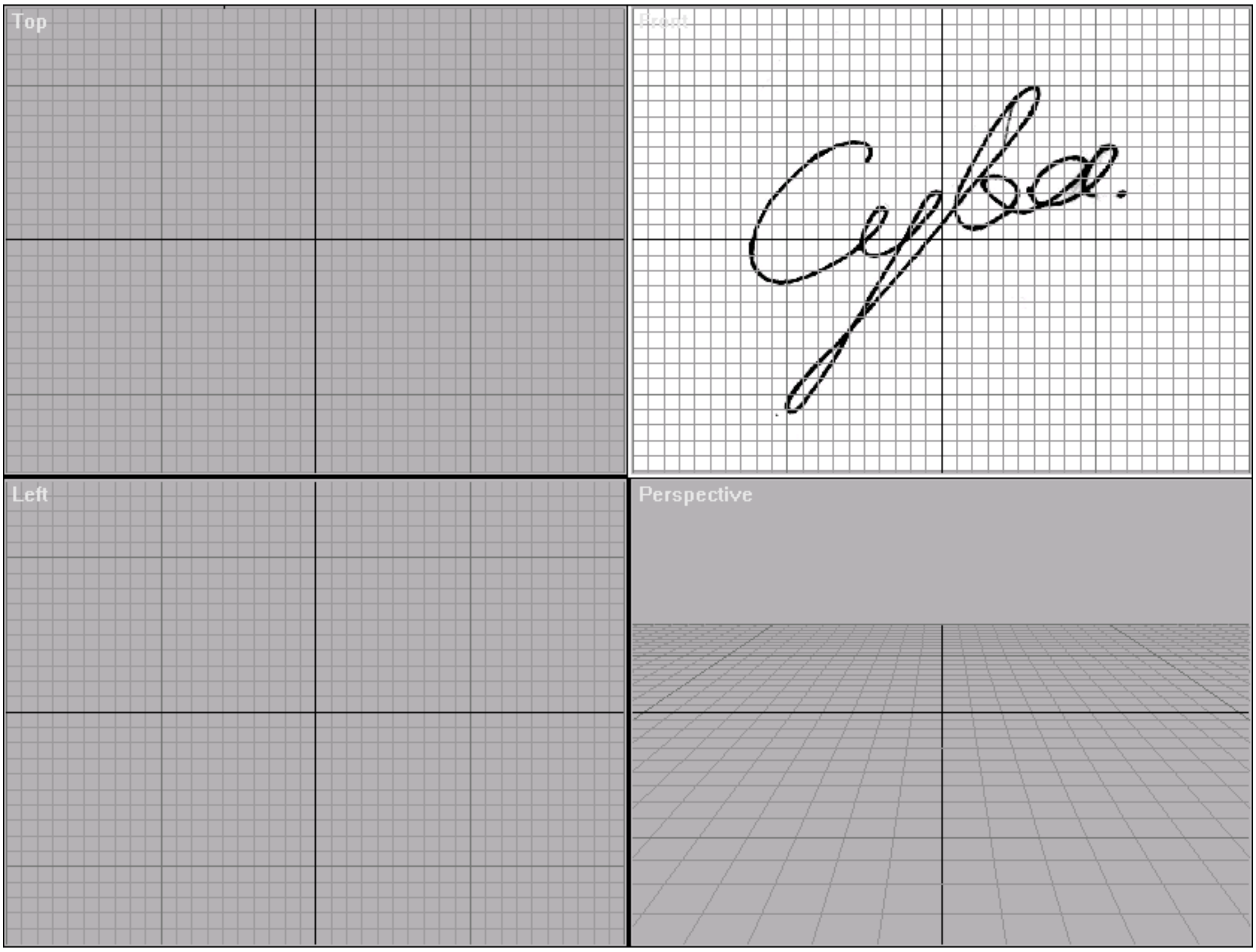
7) From the file browser choose **Spline_guide.jpg** and click **OK**.

8) Under **Aspect Ratio**, left click the **Match Bitmap** radio button.
This will ensure the reference image is not distorted.

9) Check the **Lock, Zoom and Pan** checkbox.
This allows the user to zoom in on the background image and geometry proportionally.

10) Left click **OK** to exit this dialogue box and accept the parameter settings.

The front viewport displays the background reference image:



11) **Save** the scene.

Creating a Spline to Loft From.

If you're uncertain about the results that you achieved in section 1, then load the scene **ac01.max**
It may be necessary to change the path of the background image.

A spline is a type of curve that is interpolated between three or more control points. The term dates from 1756, and derives from a thin wood or metal strip used for drafting curves in architecture and ship design.

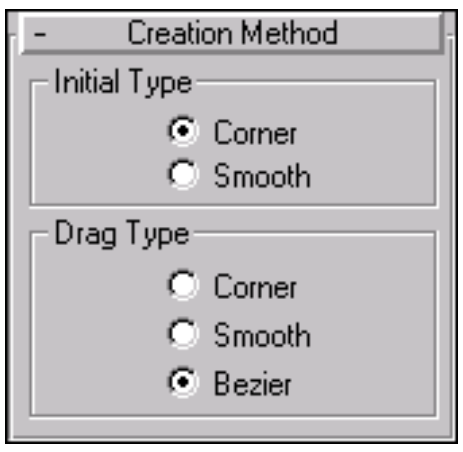
1) Left click the **Create Tab**.

2) Left click the **Shapes** icon.

3) Left click the **Line** button.

4) Right click the **Front** viewport label and select **Show Grid** from the pop – up menu.
The viewport grid is hidden.

The **Creation Method** rollout provides parameter settings for vertex type. Two creation options are provided, **Initial Type** and **Drag Type**.



Initial Type: Vertices created by left clicking.

- **Corner:** The spline is linear to either side of the vertex.
- **Smooth:** Produces a smooth, non-adjustable curve through the vertex. The spacing of vertices sets the amount of curvature.

Drag Type: Vertices created by dragging. Note that dragging only relates to Bezier vertices.

- **Corner:** As Initial Type.
- **Smooth:** As Initial Type.
- **Bezier:** Produces a smooth, adjustable curve through the vertex. The amount and direction of the curvature is set by dragging.

To create a spline:

1) Left click a point to indicate the first vertex of the spline.
The vertex will be of type corner.

2) Click to create additional Corner vertices or click drag to create Bezier vertices.

3) Right click to indicate completion of the spline.

Note that it is not necessary to be completely accurate when creating a spline. Splines can be edited at the Sub Object level.

5) Using the background image as reference, create a spline in the **Front** viewport.
Trace the letters of the word as if writing it.

6) From the **Main Toolbar**, choose **Views** -> **Background Image**. The **Viewport Background** dialogue box will appear.

7) In the **Viewport Background** dialogue box, uncheck the **Display Background** image.
The background image disappears from the front viewport.

8) **Save** the scene.

Editing the Spline.

If you're uncertain about the results that you achieved in section 2, then load the scene **cs_02.max**

1) Left click the **Modify Tab**.

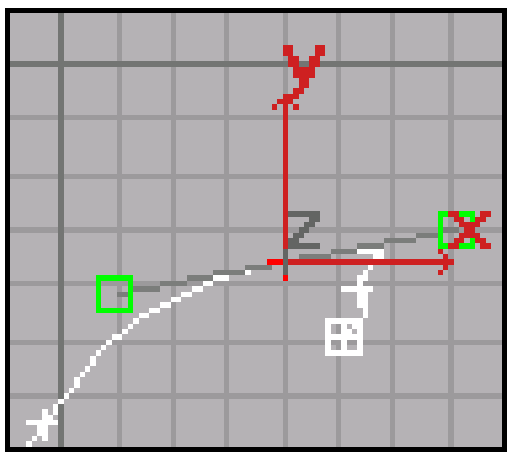
2) Left click the **Sub-Object** button.
The button turns yellow when active.

3) Select **Vertex** from the **Sub-Object Level** drop – down.

4) Left click the **Select and Move** icon.

To Edit a Bezier Vertex

- Using **Regional Select**, select a vertex. **Bezier** vertices display **Tangent Handles**. If a selected vertex does not display tangent handles then it is not a **Bezier** vertex.

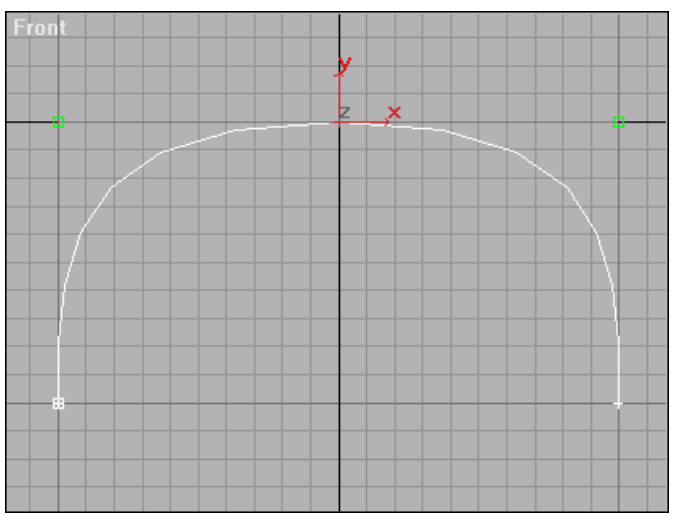


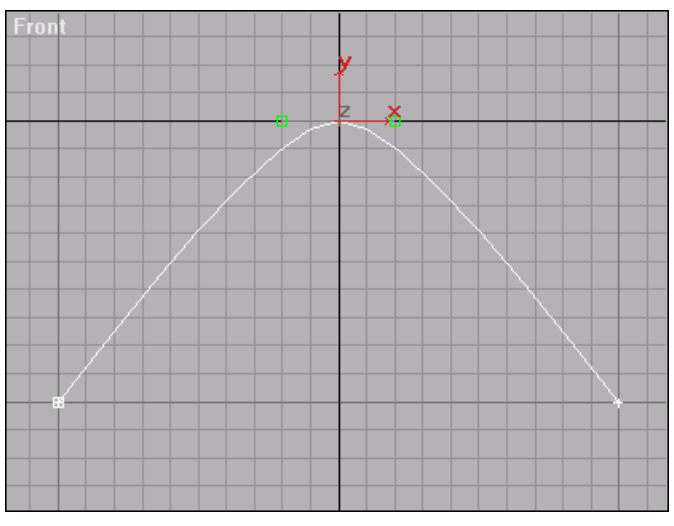
- To refine the curve adjust the **Tangent Handle**. To adjust a **Tangent Handle**, **Select and Move** the green box at the end of the handle.

- Vertex handles can be adjusted in magnitude and direction.

  Magnitude (length) sets the amount of curvature for the corresponding segment.

  Direction sets the direction of the curve segment. A segment is tangent to the Handle at the vertex location.





To Move a Vertex

1) **Select and Move** the vertex or vertices.

To Add Vertices to a Spline

1) Left click **Refine**.

2) Click on the spline to create the vertex.
Bezier type by default.

If a Vertex is Not Bezier Type and Bezier Type is Required.

1) Create a vertex using **Refine** (see above)

2) **Delete** the old vertex.

To Delete an Unwanted Vertex

1) Select the vertex using **Regional Select**.

2) Press the **Delete** key.

5) Edit the spline so that it matches the background image exactly.

6) Left click the **Sub-Object** button to return to the object level.

7) **Save** the scene.

Creating the Loft Object.

If you're uncertain about the results that you achieved in section 3, then load the scene **cs_03.max**

Creating the Loft Shape.

1) Left click the **Create Tab**.

2) Left click the **3D Snap** icon.

3) Left click the **Shapes** icon.

4) Left click the **Circle** button.

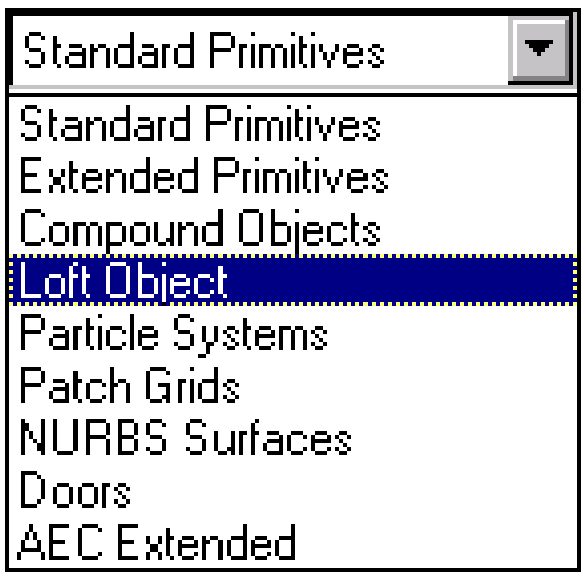
5) In the left viewport, create a circle of **Radius 2**.

6) Select the spline.

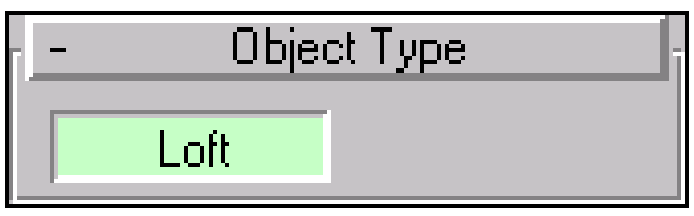
Lofting the Shape along the Spline

7) Left click the **Geometry** icon.

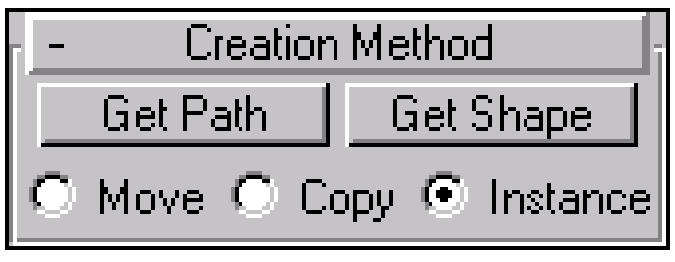
8) From the drop-down choose **Loft Object**.



9) Under the **Object Type** rollout, left click the **Loft** button**.**

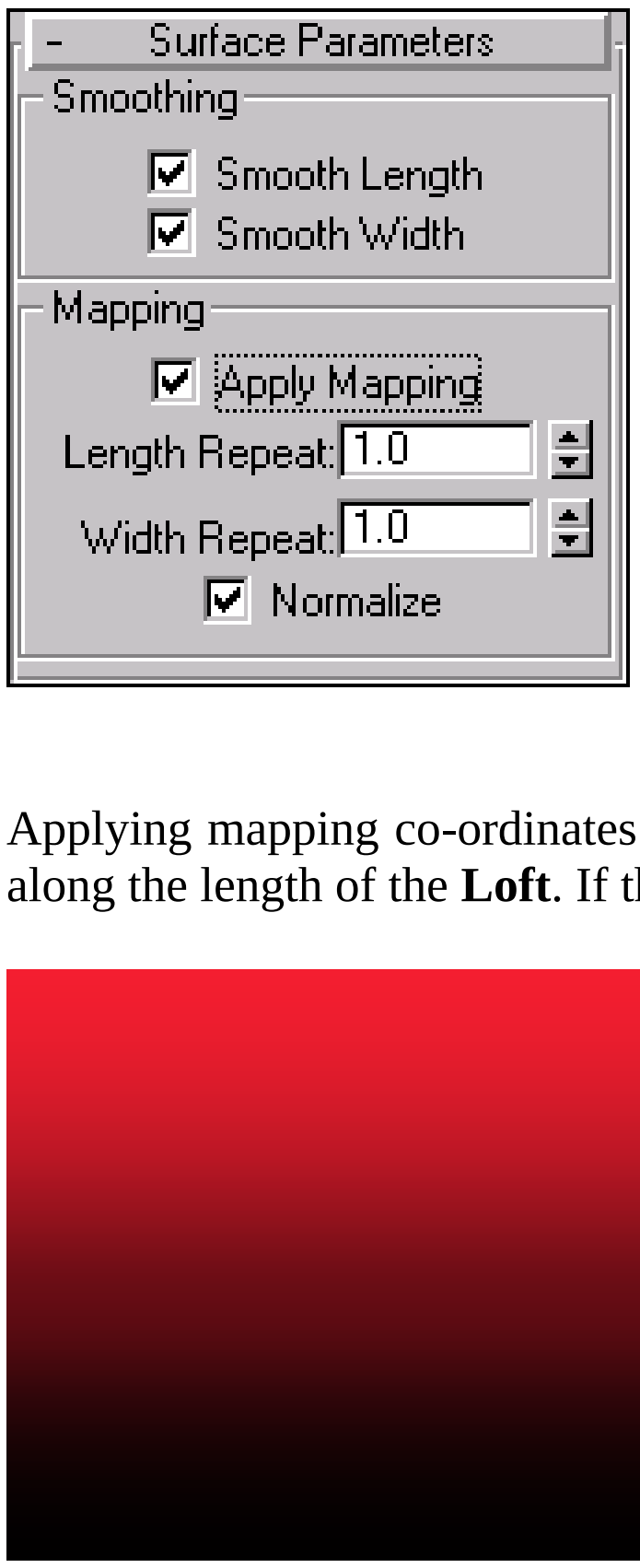


10) Under the **Creation Method** rollout, left click the **Get Shape** button.
The instance radio button is selected by default, therefore modifying the shape (circle) will effect the loft object.



11) Left click the **Circle**.
The loft object is only visible in shaded viewports (default display params)

12) Under the **Surface Parameters** rollout, check the **Apply Mapping** checkbox.



Applying mapping co-ordinates in the **Surface Parameters** rollout creates **UVW Mapping Co-ordinates** along the length of the **Loft**. If the **Loft** twists and turns then so do the **UVW Mapping Co-ordinates**.

Compare the illustrations, below, mapped using the bitmap shown above.

Image (A) Mapping co-ordinates applied in **Loft Command Panel**, **Surface Parameters**.

Image (B) Mapping co-ordinates applied with **UVW Map Modifier**.

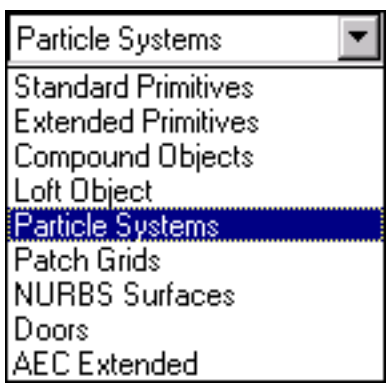
Image (A) Image (B)

13) **Save** the scene.

Creating a Particle System.

If you're uncertain about the results that you achieved in section 4, then load the scene **cs_04.max**

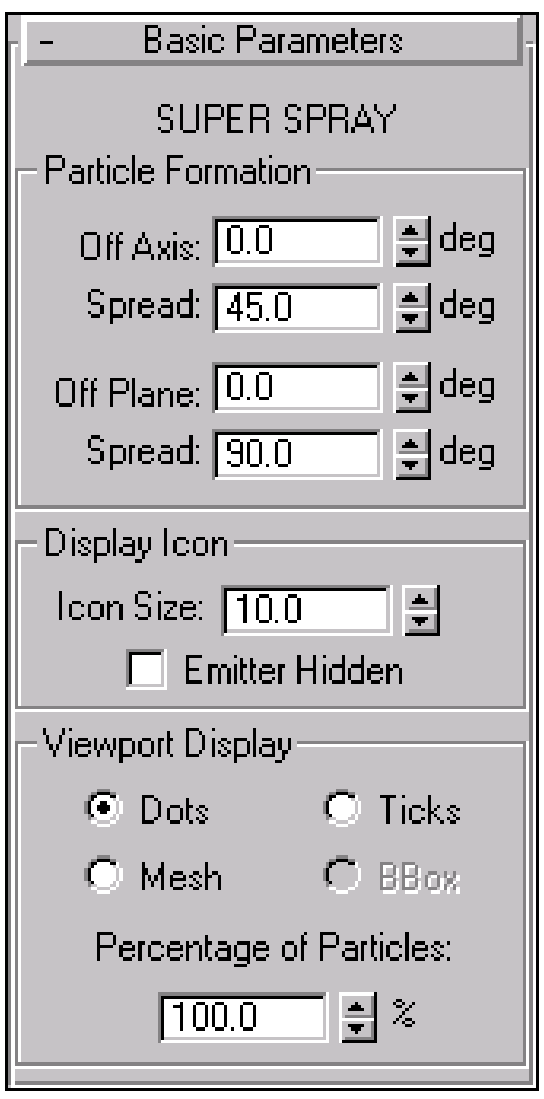
1.) From the object drop – down select **Particle Systems**.

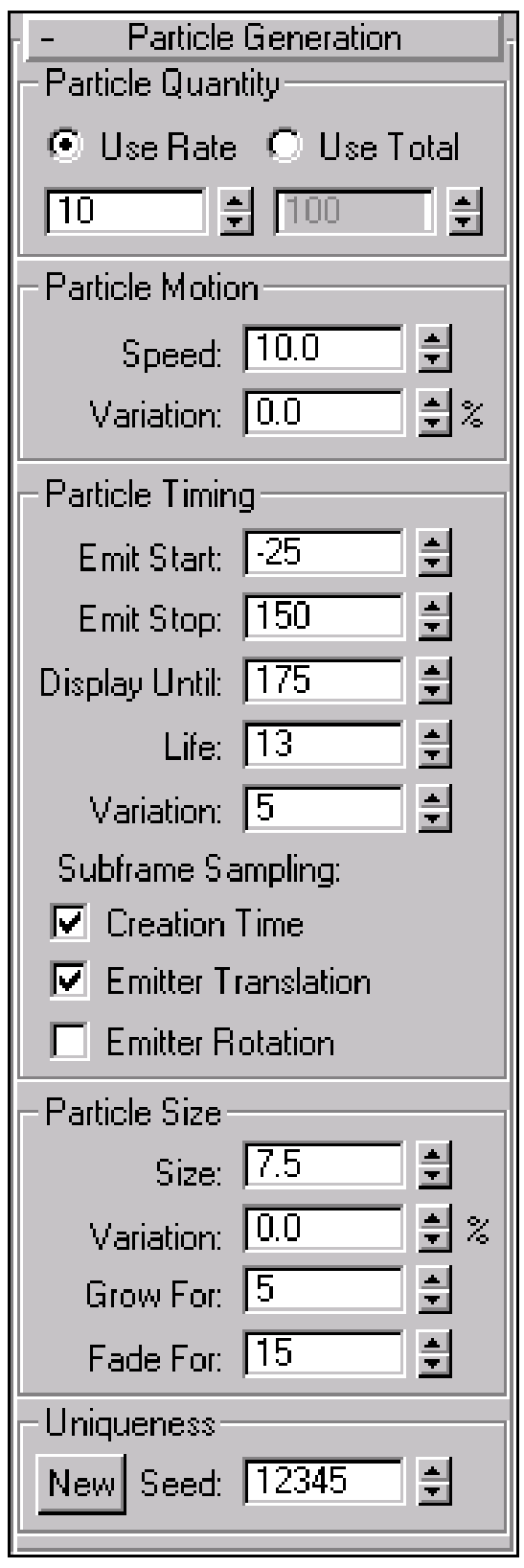


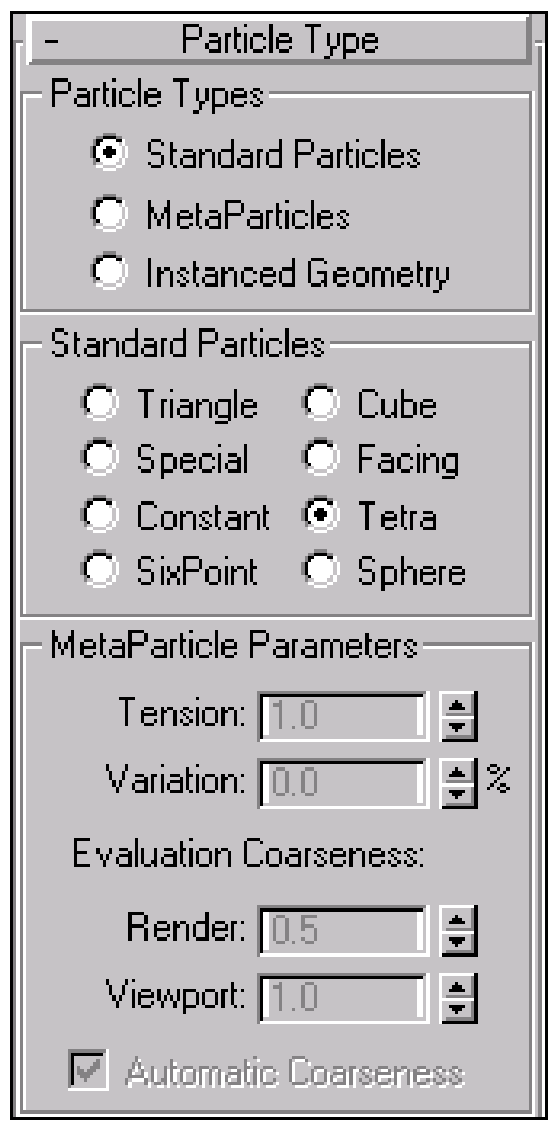
2.) Under the object-type rollout, left click the **Super Spray** button.

3.) Click – drag in the **Top** viewport to create an **Emitter**.

4.) Set the parameters as illustrated below.







4.) **Save** the scene.

Animating the Particle System Along the Spline.

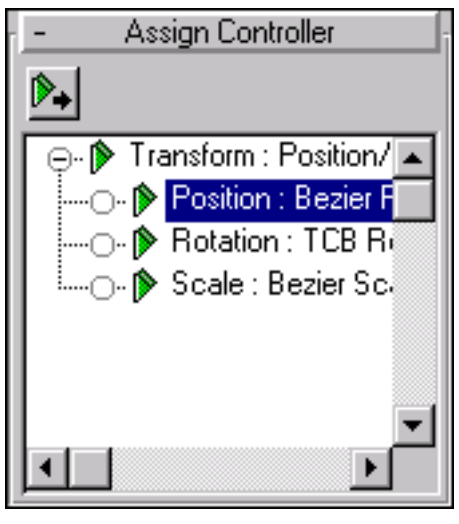
If you're uncertain about the results that you achieved in section 5, then load the scene **cs_05.max**

1) Ensure the **Particle Emitter** is selected.

2) Left click the **Motion Tab**.

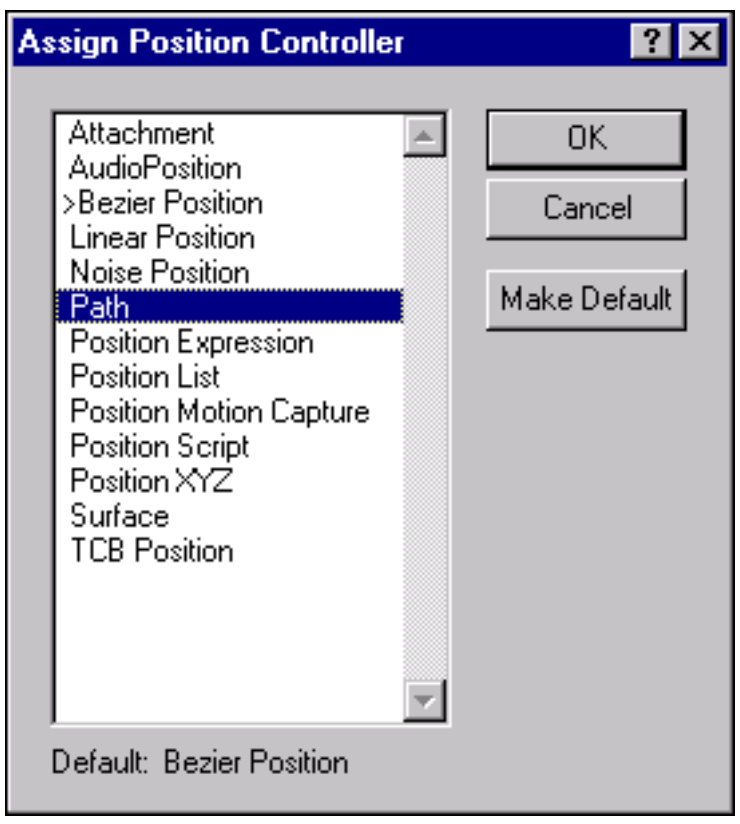
3) Expand the **Assign Controller** rollout.

4) Left click on the word **Position.**
When selected the word will be highlighted in blue.

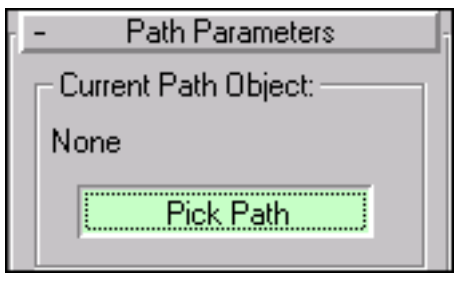


5) Left click the **Assign Controller** icon. **The Assign Position Controller** dialogue box will appear.

6) Select **Path** and click **OK**.

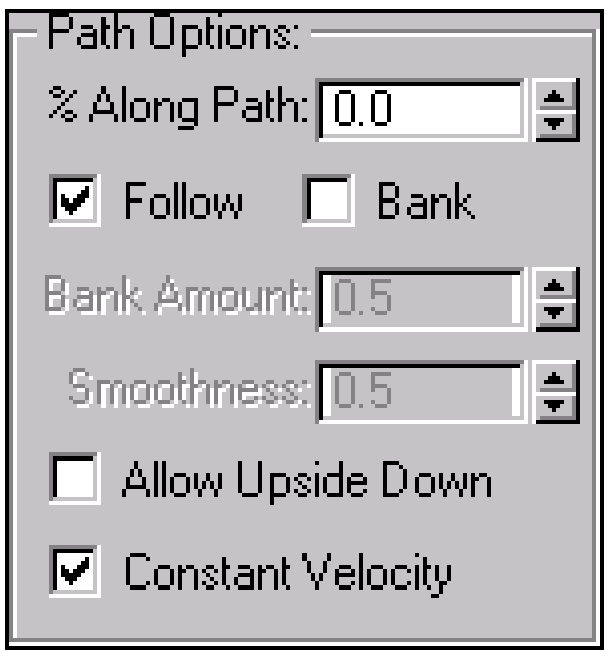


7) Under the **Path Parameters** rollout, left click the **Pick Path** button.

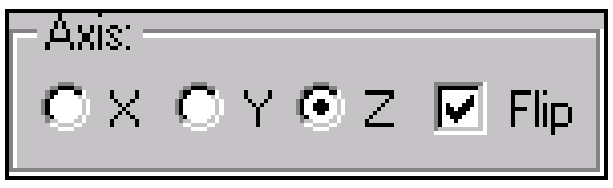


8) Left click the **Spline**.

9) Under **Path Options**, check the **Follow** and the **Constant Velocity** checkbox's.



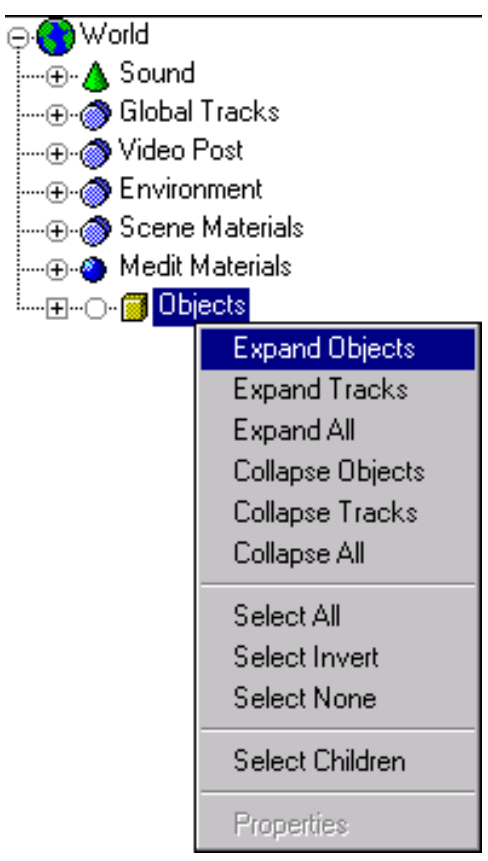
10) Under **Axis**, check the **Z** radio button and the **Flip** checkbox.



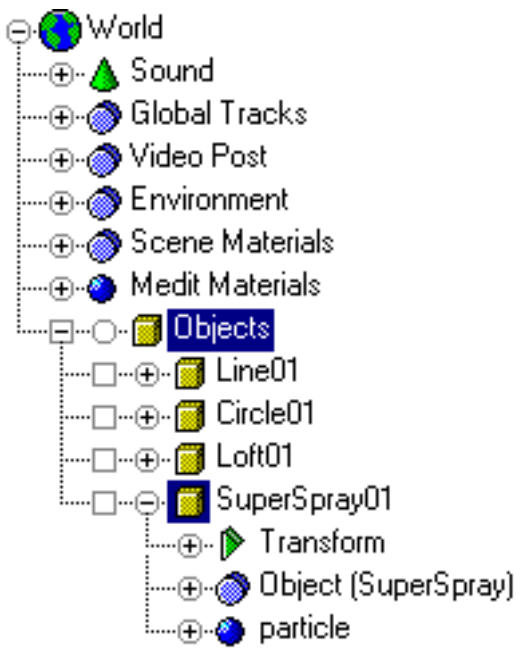
The Particle Emitter should be orientated like that illustrated below.

11) Left click the **Track View** icon.

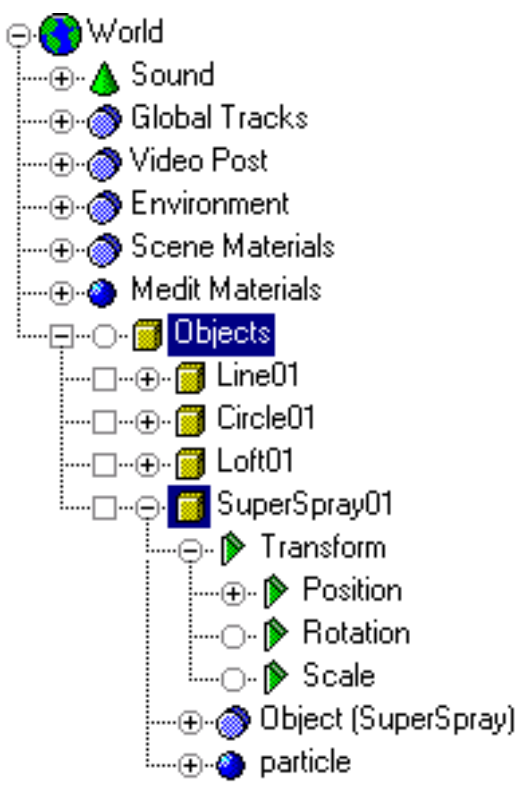
12) In the left window, right click the word objects and select **Expand Objects**.



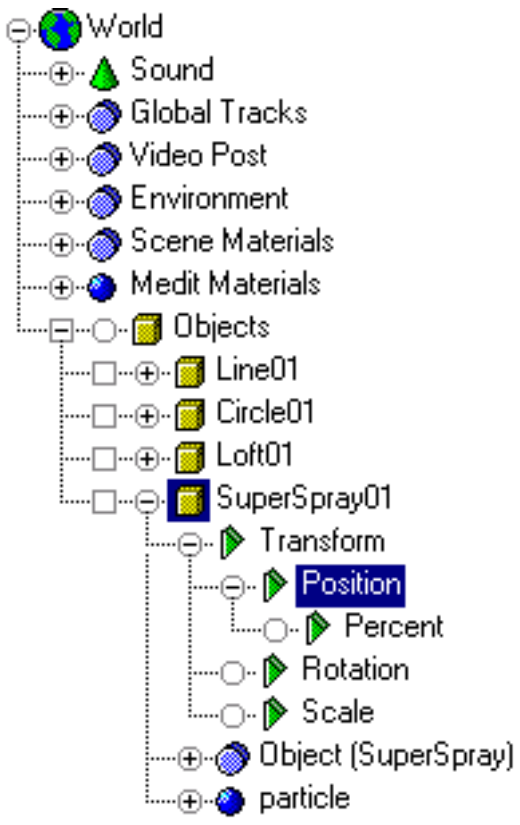
13) Left click the addition symbol next to the word **SuperSpray**.



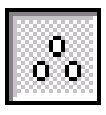
14) Left click the addition symbol next to the word **Transform**.



15) Left click the addition symbol next to the word **Position**.



16) Left click the **Edit Keys** icon.
Track View opens in this edit mode by default.



16) Click drag the **Percent** key at **frame 250** to **frame 150**
(Percentage along spline 0 to 100, start to finish)

17) Minimise **Track View**.

18.) Create a **Preview Animaion**.

19.) **Save** the scene.

Controlling the Opacity of The Loft Object With a Material

If you're uncertain about the results that you achieved in section 6, then load the scene **cs_06.max**

The intention of this section is to control the opacity of the loft object using a material. The **Opacity Map** of material in 3D Studio Max responds to **Black** and **White**.

- White is **Opaque**.
- Black is **Transparent**.
- Gradients between **Opaque** and **Transparent** are achieved with grey.

The intention of this animation to fool the viewer into thinking that the particle system is creating the text An animated **Opacity Map** is therefore necessary. Obviously the timing of the **Particle System** and the **Opacity Map** must be carefully planned.

The Avi, above, is to be used as an opacity map for the loft.

1) Open the **Material Editor**.

2) Select the first slot by clicking on it.

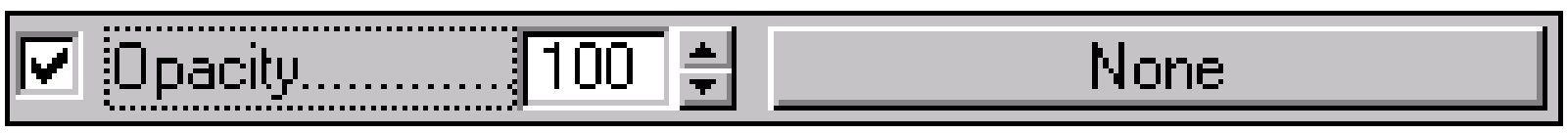
3) Choose a **Diffuse** colour of your choice (click on the colour swatch)

4) Copy the material from the first to the second slot by drag dropping.

5) In the **Material Editor**, select the first slot.

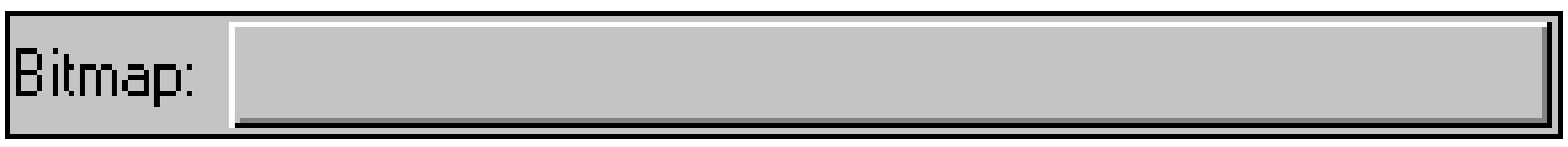
6) Under the **Maps** rollout, check the **Opacity** checkbox.

7) Left click the **Opacity**, **None** button. The **Material Map Browser** will appear.



8) Select **Bitmap** and click **OK**.

9) Under the **Bitmap Parameters** rollout, left click the ‘blank’ button next to the word **bitmap:** The select **Bitmap Image File Browser** will appear.



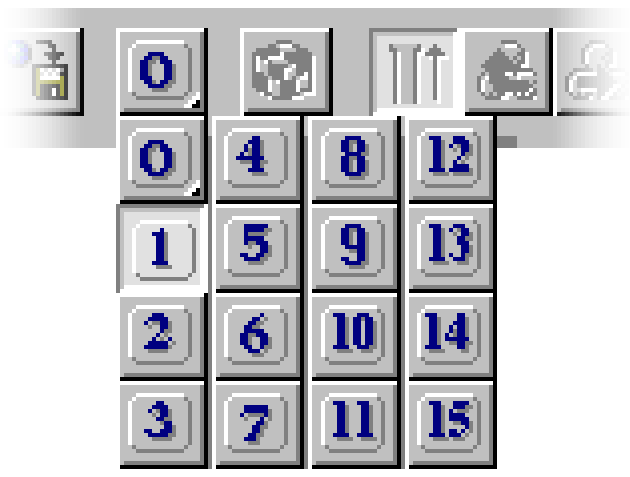
10) Select **Opacity_Matte.Avi** and click **OK**.

11) Left click the **Display in Viewport** icon.

12) Left click the **Go To Parent** icon.

14) Change the **Material Effects Channel** to **1**.

The Effects Channel will be utilised in the next section.



15) Apply the material to the loft object.

16) Select the second material slot.

17) Change the **Material Effects Channel** to **2**.

18) Apply the material to the particle sytsem.

19) Close the **Material Editor**.

20) Create a **Preview Animation**.

21) **Save** the scene.

Adding FX in Videpost.

If you're uncertain about the results that you achieved in section 7, then load the scene **cs_07.max**

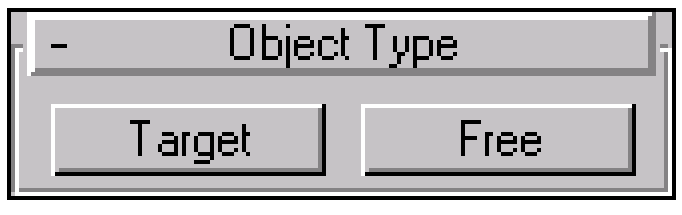
Creating a Camera

1) Left click the **Create Tab**.

2) Left click the **Cameras** icon.

3) Right click the **Top** viewport.

4) Under the **Object Type** rollout, right click the **Target** button.

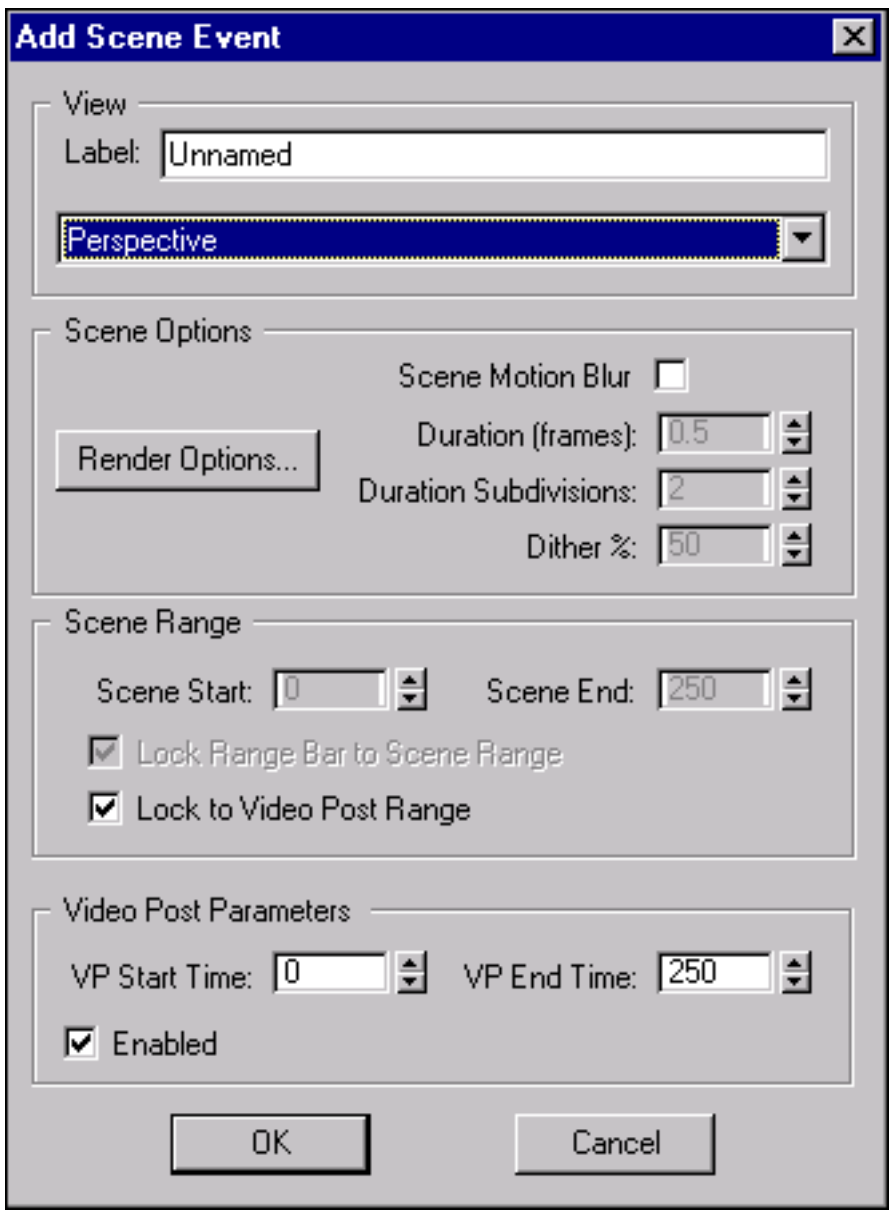


5) Right click the **Perspective** viewport and press **C** on the keyboard. *The perspective viewport will become Camera01.*

Note that certain effects applied in Video Post, such as Starfield, require a Camera as opposed to a standard viewport.

6) From the **Main Toolbar**, choose **Rendering -> Video Post**.

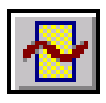
7) Left click the **Add Scene Event** icon. The Add Scene Event dialogue box will appear.

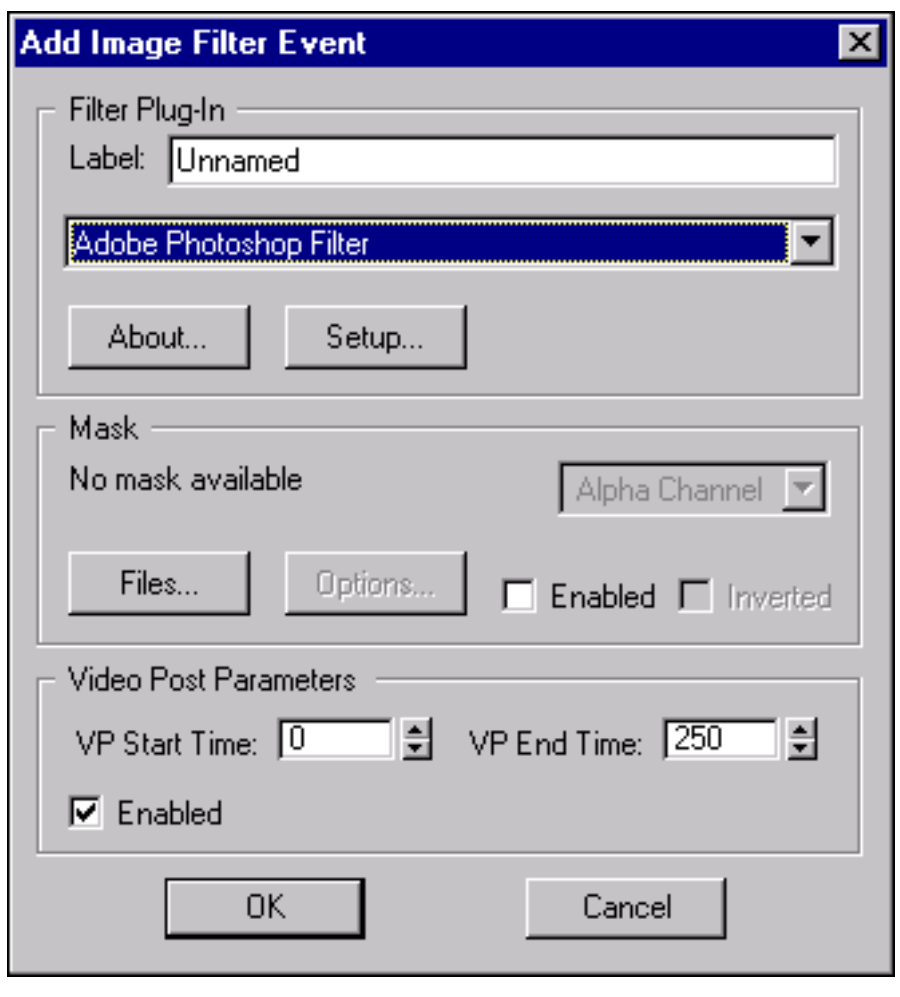


8) Under **View**, choose **Camera01** from the drop – down.

9) Left click **OK**.

10) Left click the **Add Image Filter Event** icon. The Add Image Filter Event dialogue box will appear.





11) Under **Filter Plug – Ins**, choose **Lens Effects Glow** from the drop – down.

12) In the **Label** field type, **Spline Glow**.

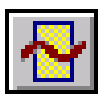
13) Left click **Ok**.

14) Left click the **Add Image Filter Event** icon. The **Add Image Filter Event** dialogue box will appear.

15) Under **Filter Plug – Ins**, choose **Lens Effects Highlight**.

16) In the **Label** field type, **Particle Highlight**.

17) Left click **Ok**.



18) Left click the **Add Image Filter Event** icon. The **Add Image Filter Event** dialogue box will appear.

19) Under **Filter Plug – Ins**, choose **Lens Effects Glow**.

20) In the **Label** field type, **Particle Glow**.

21) Left click **OK**.

22) Left click the **Add Image Output Event** icon. The **Add Image Filter Event** dialogue box will appear.

23) Under **Filter Plug – Ins**, choose **Starfield**.

24) In the **Label Field** type, **Space Background**.

25) Left click **OK**.

26) Left click the **Add Scene Output Event** icon. The **Add Scene Output Event** dialogue box will appear.

27) Left click the **Files** button. A file browser will appear.

28) Choose a folder and enter a **Filename** in the usual manner.

29) From the **Files of Type** drop – down, choose **Avi**.

30) Left click **OK** to exit the file browser.

31) Left click **OK** to exit the **Add Scene Output Event** dialogue box.

Setting Spline Glow Parameters.

32) Left click the words ‘ **Spline Glow’**.
Words are highlighted in blue when selected.

33) Left click the **Edit Current Event** icon. *The Edit Filter Event dialogue box will appear.*

34) Under **Filter Plug – Ins**, left click the **Setup** button.

35) Left click the **Vp Queue** button.

36) Left click the **Preview** button. *The scene will be rendered to the preview window.*

37) Move the **Time Slider** to frame 100.

38) Left click the **Update** button.

39) Left click the **Properties** tab.

40) Under **Source**, uncheck the **Object ID** checkbox.

41) Check the **Effects ID** checkbox.

42) Left click the **Preferences** tab.

43) Under **Effect**, type **5 <Enter>** in the **Size** field.

44) Under **Colour**, type **90 <Enter>** in the **Intensity** field.

45) Left click **OK**.

Setting Particle Highlight Paramters.

46) Left click the words ‘**Particle Highlight**’.

47) Left click the **Edit Current Event** icon.
The Edit Filter Event dialogue box will appear.

48) Left click the **Setup** button.

49) Left click the **Vp Queue** button.

50) Left click the **Preview** button. *The scene will be rendered to the preview window.*

51) Left click the **Properties** tab.

52) Under **Source**, uncheck the **Object ID** checkbox.

53) Under **Source**, check the **Effects ID** checkbox.

54) Under Source, type **2 <Enter>** in the **Effects ID** field.

55) Left click the **Preferences** tab.

56) Under **Effects**, type **3.5 <Enter>** in the **Size** field.

57) Under **Effects**, type **30 <Enter>** in the **Points** field.

58) Under **Colour**, type **40 <Enter>** in the **Intensity** field.

59) Left click **Ok**.

Setting Particle Glow Parameters.

60) Left click the words '**Particle Glow**'.

61) Left click the **Edit Current Event** icon. *The Edit Filter Event dialogue box will appear.*

62) Left click the **Setup** button.

63) Left click the **Vp Queue** button.

64) Left click the **Preview** button. *The scene will be rendered to the preview window.*

65) Left click the **Properties** tab.

66) Under **Source**, uncheck the **Object ID** checkbox.

67) Under **Source**, check the **Effects ID** checkbox.

68) Under Source, type **2 <Enter>** in the **Effects ID** field.

69) Left click the **Preferences** tab.

70) Under **Effects**, type **7.5 <Enter>** in the **Size** field.

71) Under **Colour**, type **50 <Enter>** in the **Intensity** field.

72) Left click **OK**.

Setting Starfield Parameters.

73) Left click the words '**Space Background**'.

74) Left click the **Edit Current Event** icon. The **Edit Filter Event** dialogue box will appear.

75) Left click the **Setup** button.

76) Under **Star Database** type **100000 <Enter>** in the **Count** field.

77) Left click **Ok**.

78) **Save** the Scene.

Cyba3 Sample Tutorial
Animated Cyba. Lofts, Particles & Video Post FX. Section 8b.

Adding FX in Videpost.

If you're uncertain about the results that you achieved in section 8, then load the scene **cs_08.max**

1) Ensure no **Video Post Filters** are selected.

2) Left click the **Execute Sequence** icon. The execute **Video Post** dialogue box will appear.

Rendering the animation is very time consuming. In such a situation it is often profitable to create a sample render.

3) Under **Time Output**, type **10** <**Enter**> in the **Every Nth Frame** field.

If the sample render is acceptable then change the **Nth** frame spinner back to 1 and create a full render.