# orxOBJECT structure

## Summary

```
[ObjectTemplate]
Alpha              = <float>
AngularVelocity    = <float>
AnimationFrequency = <float>
AnimationSet       = AnimationSetTemplate
AutoScroll         = x | y | both
BlendMode          = alpha | multiply | add | none
Body               = BodyTemplate
ChildList          = ObjectTemplate1 # ObjectTemplate2
ChildJointList     = JointTemplate1 # JointTemplate2
Clock              = ClockTemplate
Color              = <vector>
DepthScale         = <bool>
Graphic            = GraphicTemplate
Flip               = x | y | both
FXList             = FXTemplate1 # FXTemplate2
LifeTime           = <float>
ParentCamera       = CameraTemplate
Position           = <vector>
Repeat             = <vector>
Rotation           = <float>
Speed              = <vector>
Scale              = <vector> | <float>
ShaderList         = ShaderTemplate1 # ShaderTemplate2
SoundList          = SoundTemplate1 # SoundTemplate2
Spawner            = SpawnerTemplate
Smoothing          = <bool>
UseParentSpace     = <bool> | none | position | scale | both
UseRelativeSpeed   = <bool>
```

## Details

Here's a list of the available properties for an `orxOBJECT` structure:

- `Alpha`: Opacity of the object. Its value should be between 0.0 and 1.0. By default, its value is 1.0 (fully opaque).
- `AngularVelocity`: Initial angular velocity for this object, in degrees/second. By default its value is 0°/s.
- `AnimationFrequency`: Relative frequency at which animations should be played on this object. This acts as a multiplier on the original frequency of played animations. By default its value is 1.0.
- `AnimationSet`: Config name of the animation set to use for this object (see orxANIM section). If none is provided, no animation will be available for this object. In order to use an `AnimationsSet`, a valid orxGRAPHIC has to be provided for the `Graphic` property.

- `AutoScroll`: Defines if this object should have an automated differential scrolling rendering depending on its relative depth (Z axis) to the camera. If can be defined for the X axis or the Y axis or even `both` at sametime. If none is provided, no differential scrolling will be used for this object (ie. default plain rendering position).
- `BlendMode`: Defines which blend mode will be used when rendering this object. By default its value is alpha, which means the alpha channel will be used as opacity value. This rendering parameter can be overridden by the current rendered graphic object.
- `Body`: Config name of the orxBODY to use for this object. This gives physical properties [1] to the object. If none is provided, the object won't have any physical properties (ie. no collision detection).
- `ChildList`: List of objects (config names) to create along this object. They'll be linked as children which means they'll adapt to the object's current position, rotation and scale (they'll 'follow' it). Children will automatically be deleted when the current object (ie. their parent) is deleted. Up to 255 children can be created. If no value is provided for this property, no children will be created.
- `ChildJointList`: Optional list of joints to use to link the children to the parent. If defined, its indices **must** match those of the `ChildList` property. Defaults to nothing.
- `Clock`: Associates the corresponding clock and creates it if needed. If no value is provided, no clock will be associated (updates will only depend of the main (aka core) clock). Associated clocks are useful to achieve time localized stretching (only for the corresponding object). When an object is time strectched by an associated clock, all its properties will behave accordingly (spawners, FXs, physics and sound pitch).
- `Color`: Defines a color (ie. teint) to apply on this object when rendered. This color will override any color defined in the current rendered orxGRAPHIC for this object. If none is provided, the color of the current orxGRAPHIC will be used is available, the white color (ie. no teint) will be used otherwise.
- `DepthScale`: Defines if the object should be *visually* (and not physically) scaled when rendered, depending on its relative depth (Z axis) to the camera. If you want to achieve a physically correct display of an object with differential scrolling, this property should be set to true *AND* `AutoScroll` set to `both`. If not you might get visual gaps at rendering. Howevere, if you don't use orxBODY for this object, it doesn't matter. By default its value is `false`.
- `Graphic`: Config name of the orxGRAPHIC associated to this object. When an object is animated, the current frame's graphic will be displayed instead. If none is provided, the object will exist but won't be visible (ie. nothing will be displayed for it by the renderer).
- `Flip`: Defines if the object should be flipped when rendered [2]. It can be flipped on either X axis or Y axis or on the `both` axes at the same time. If no value is provided, no flipping will occur.
- `FXList`: Specifies a list of orxFX to apply on this object when created. Up to 4 FXs can be defined. If none is provided, no orxFX will be applied.
- `LifeTime`: Specified the life time of this object in seconds. 0 means it'll be instantly deleted. It's default value is -1.0, which means the object has an infinite life time.
- `ParentCamera`: Config name of the orxCAMERA that will be used as parent. This is very useful to place objects in the camera space for UI purposes, for example. If none is provided, the object won't have any parent except if it was created through a `ChildList` of another object.
- `Position`: Initial position for this object, in pixels. If an object has a parent, this value will be considered in parent's space instead than in world space. By default its value is (0.0, 0.0, 0.0).
- `Repeat`: Specifies if the object should be repeated (so as to achieve a tiling effect) when rendered. The vector specifies the number of times the object will be repeated on X and Y axes (Z being ignored). If none is provided, the value specified for the current orxGRAPHIC will be

used.

- `Rotation`: Initial 2D rotation for this object, in degrees. If an object has a parent, this value will be considered in parent's space instead than in world space. By default its value is 0.0.
- `Speed`: Initial speed for this object, in pixels/second. Even objects without an orxBODY can use speed. By default its value is (0.0, 0.0, 0.0).
- `Scale`: Initial scale for this object (Z component being ignored). By default its value is 1.0. (ie. (1.0, 1.0, 0.0) ))
- `ShaderList`: List of orxSHADER to apply when this object will be rendered. The shader is applied after the object's rendering but object without any `Graphic` can also use them. Up to 4 shaders can be defined. If none is provided, no shader will be applied when the object is rendered.
- `SoundList`: List of orxSOUND to apply on the object at its creation. They can be both music or sound. Up to 4 sounds can be defined. If none is provided, no sound will be created with this object.
- `Spawner`: Config name of the orxSPAWNER that will be created and linked to this object. By default no spawner will be created.
- `Smoothing`: Specifies if the graphic object should be rendered with antialising or not. This property is overridden by the current orxGRAPHIC used for this object. By default its value is default which means the global display setting value will be used.
- `UseParentSpace`: If set to `true` or `both` and the object has a valid parent orxCAMERA [3], its position and scale will be considered in parent's space, ie. values between 0.0 and 1.0 defines parent's size on each axis [4]. Only one of the two parent property can be considered by using the value `position` or `rotation`. Its value is `true` by default.
- `UseRelativeSpeed`: If set to `true`, the value of the `Speed` property will be considered relatively to the current object's rotation and scale. By default its value is `false`.

1)

collision detection/dynamics through the use of orx's internal physics plugin

2)

it only affects the visual, physical property, ie. its body, won't be affected

3)

this won't affect objects created through another object's `ChildList`

4)

mainly used for easiness of placing UI objects relative to camera that will remain resolution independent

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