

Part 18 - Exploding Monsters

Time to have the monsters explode into bits of jelly when we shoot them. Another new asset:



Right click and save this image into the data/texture folder of our project as "jelly.png".

Every monster will explode into several of these jelly objects when shot.

Create graphics for the jelly frames:

```
[JellyGraphic]
Texture      = jelly.png
TextureOrigin = (0, 0, 0)
TextureSize  = (32, 32, 0)
Pivot       = center
```

Then an individual JellyObject:

```
[JellyObject]
Graphic      = JellyGraphic
AnimationSet = JellyAnimationSet
Speed        = (-50, -50, 0) ~ (50, -50, 0)
Position     = (0, -300, 0)
Body         = JellyBody
```

Next to make the JellyAnimationSet:

```
[JellyAnimationSet]
Texture      = jelly.png
FrameSize    = (32, 32, 0)
JellyWobbleAnim = -1
StartAnim    = JellyWobbleAnim
JellyWobbleAnim-> = JellyWobbleAnim
Pivot        = center

[JellyWobbleAnim]
KeyDuration = 0.08
```

The jelly needs a body. This is so the bits will bounce nicely over the platforms:

```
[JellyBody]
Dynamic = true
PartList = JellyBodyPart

[JellyBodyPart]
Type = sphere
```

```
Radius      = 10  
Solid       = true  
SelfFlags   = jelly  
CheckMask   = platforms
```

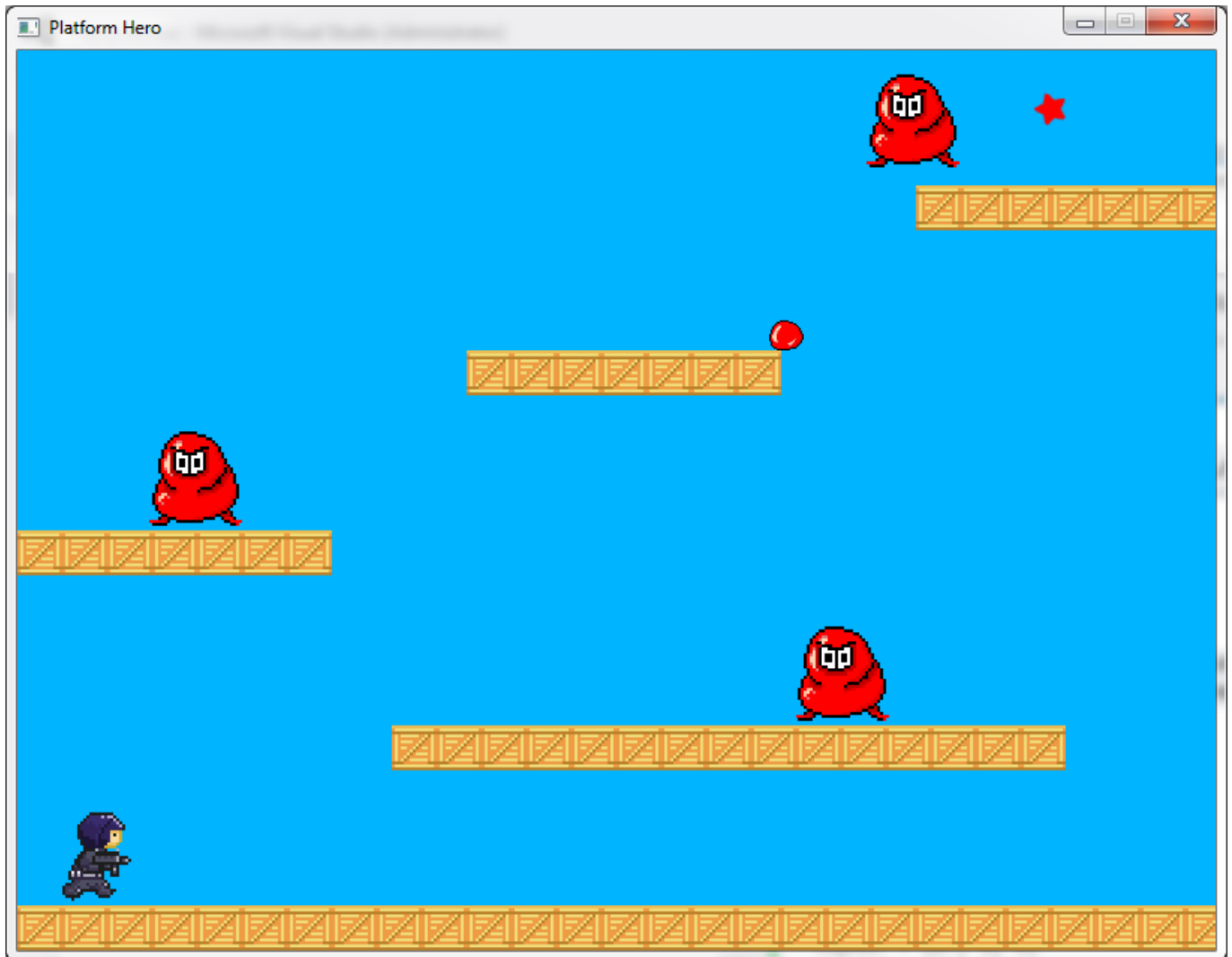
Then let the platforms know about the jelly, by adding it the platform's mask:

```
[PlatformBodyPart]  
Type        = box  
Solid       = true  
SelfFlags   = platforms  
CheckMask   = hero # monster # jelly
```

Test it by adding a JellyObject to the Scene section:

```
[Scene]  
ChildList = PlatformObject # MiddlePlatformObject #  
TopLeftPlatformObject # TopPlatformObject #  
TopRightPlatformObject #  
StarObject # JellyObject  
TrackList = MonsterMakerTrack
```

Run it and a jelly with drop onto the platform:



That's not bad, but really... the animation frame setup isn't quite what we're after. In our `JellyAnimationSet` we're just letting Orx automatically take the three frames in the sprite sheet. We really need four frames:

- Frame 1
- Frame 2
- Frame 1
- Frame 3

That is how the animation should be. Thankfully Orx will let us specify the third and fourth frames for an animation manually. Add the following config to set this up:

```
[JellyWobbleAnim3]
TextureOrigin = (0, 0, 0)

[JellyWobbleAnim4]
TextureOrigin = (64, 0, 0)
```

Great. By using the name of the animation (`JellyWobbleAnim`) + the frame number, now frames 3 and 4 are overridden in the sheet while frames 1 and 2 are picked up automatically by Orx.

The next step is to create an explosion object. This will be an empty object that contains a spawner. The spawner will shoot out five jellies. These explosion objects can be placed on any monster for

dramatic effect:

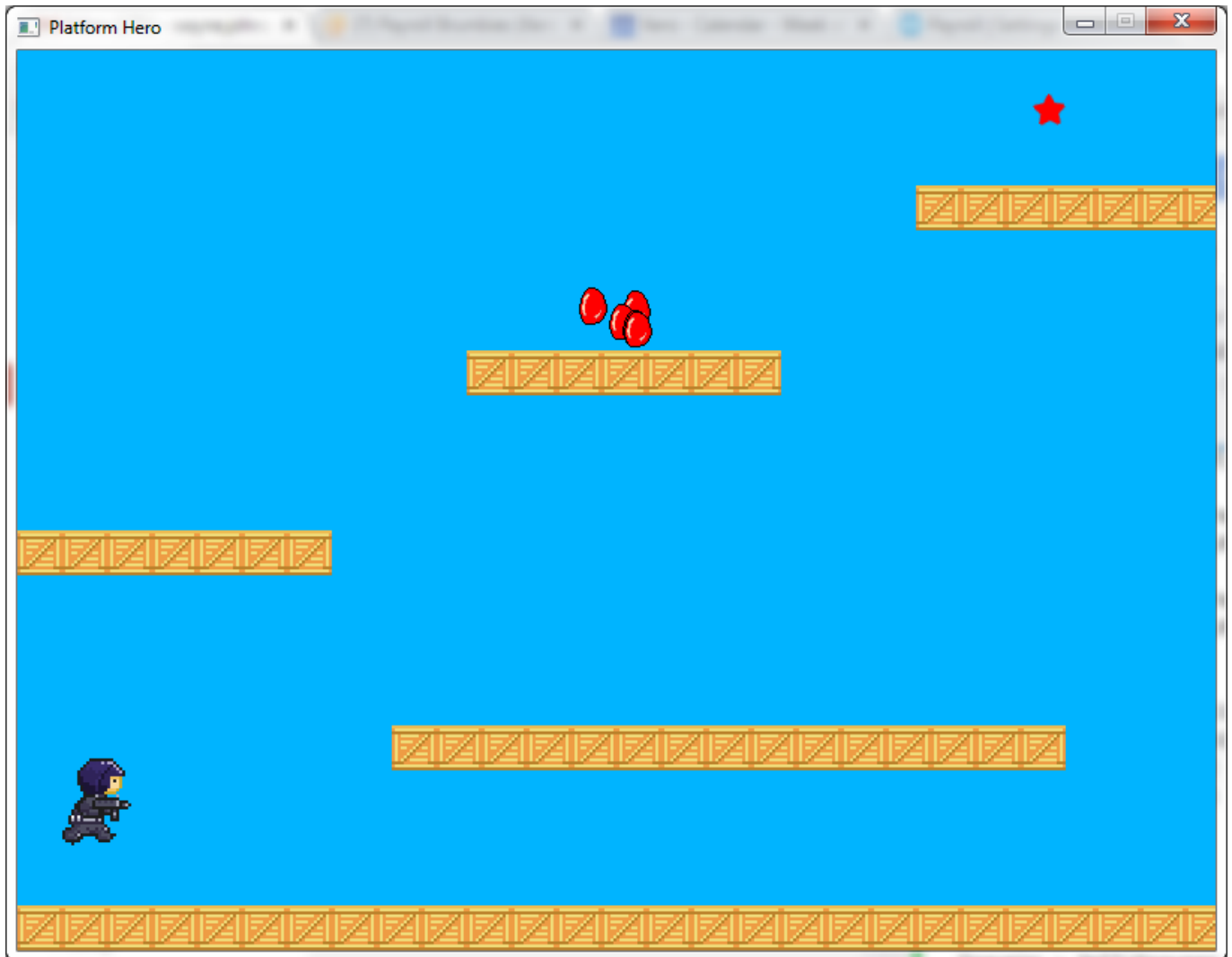
```
[JellyExploder]
Spawner          = JellySpawner

[JellySpawner]
Object           = JellyObject
WaveSize         = 5
WaveDelay        = 0.1
TotalObject      = 5
```

To test one of the these, remove the JellyObject from the Scene section and add the JellyExploder instead:

```
[Scene]
ChildList = PlatformObject # MiddlePlatformObject #
TopLeftPlatformObject # TopPlatformObject #
TopRightPlatformObject #
StarObject # JellyExploder
TrackList = MonsterMakerTrack
```

Run the game to test the exploder:



Great, we see a bunch of jelly blobs appear. Remove the JellyExploder from the Scene selector:

```
[Scene]
ChildList = PlatformObject # MiddlePlatformObject #
TopLeftPlatformObject # TopPlatformObject #
TopRightPlatformObject #
StarObject
TrackList = MonsterMakerTrack
```

Also remove the Position parameter from the JellyObject because these will soon be dynamically placed. Also change the Speed parameter to be more dramatic:

```
[JellyObject]
Graphic      = JellyGraphic
AnimationSet = JellyAnimationSet
Speed        = (-50, -250, 0) ~ (50, -450, 0)
Body         = JellyBody
```

Next, we need to ensure that the BulletObject has a body and that it can collide with a monster:

```
[BulletObject]
Graphic = BulletGraphic
```

```
LifeTime = 1.0
Scale     = 0.25
Body      = BulletBody

[BulletBody]
Dynamic   = false
PartList  = BulletBodyPart

[BulletBodyPart]
Type      = box
Solid     = false
SelfFlags = bullet
CheckMask = monster
```

The bullets are not affected by gravity (not Dynamic) nor do they bounce off other objects (not Solid).

In order to make a monster explode, we can make a function in the code which will create a exploder object on top off a monster object, and then destroy the monster itself:

```
void CreateExplosionAtObject(OrxObject *object, OrxString
exploderObjectName)
{
    if (object == OrxNull)
        return;

    OrxVector objectVector;
    OrxObject_GetWorldPosition(object, &objectVector);
    objectVector.fZ = 0.0;

    OrxObject *explosion = OrxObject_CreateFromConfig(exploderObjectName);

    OrxObject_SetPosition(explosion, &objectVector);
}
```

We are passing in a named exploderObjectName so that we can re-use this function later for other exploders we'll make.

Now to use it. In the physics event, add a check for collision between a bullet and a monster and process it:

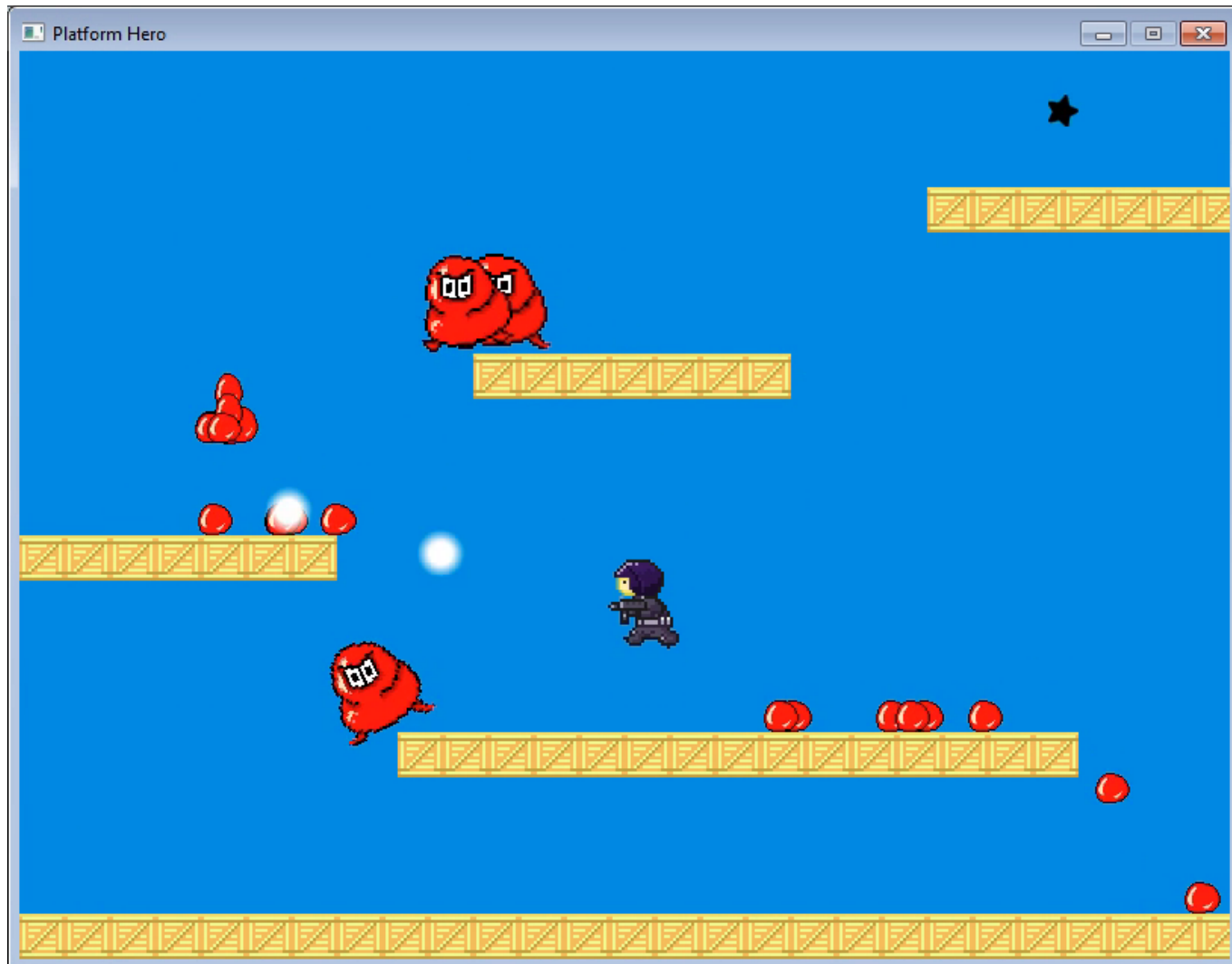
```
if (OrxString_Compare(senderObjectName, "BulletObject") == 0){
    CreateExplosionAtObject(pstRecipientObject, "JellyExploder");
    OrxObject_SetLifeTime(pstSenderObject, 0);
    OrxObject_SetLifeTime(pstRecipientObject, 0);
}

if (OrxString_Compare(recipientObjectName, "BulletObject") == 0){
    CreateExplosionAtObject(pstSenderObject, "JellyExploder");
    OrxObject_SetLifeTime(pstSenderObject, 0);
}
```

```
    orxObject_SetLifeTime(pstRecipientObject, 0);  
}
```

So in both cases, create the JellyExplosion on top of a monster, then destroy both the monster and the bullet that hit it.

Compile and run. You'll get some crazy jelly action all over the screen:



The jelly blobs never disappear. Fix that by giving it a specific lifetime:

```
[JellyObject]  
Graphic      = JellyGraphic  
AnimationSet = JellyAnimationSet  
Speed        = (-50, -250, 0) ~ (50, -450, 0)  
Body         = JellyBody  
LifeTime     = 5
```

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