Zap Engine - Collisions Events

Types of bodies

Attaching a `PhysicsComponent` to an entity gives you an option to choose its type. The types hint the physics system on how to treat the entity regarding forces, gravity, and so on.

The available types are:

- **Dynamic**: Responds to all forces
- **Kinematic**: Does not respond to forces, can be moved using velocities
- **Static**: Non movable by physics. Position is driven from TransformComponent and events are still called

Moving physics bodies

If the type is anything else than **Static**, you cannot set the position using the TransformComponent. For this, use the Physics functions in scripting:
`Physics::SetPosition(Entity, Vector3)`
`Physics::SetLocalPosition(Entity, Vector3)`
`Physics::SetRotation(Entity, Quaternion)`
`Physics::SetLocalRotation(Entity, Quaternion)`

Collisions

In AngelScript, you can use the `OnCollision(Entity other)` function, that lets you know when **this entity** collided with a **different entity**.

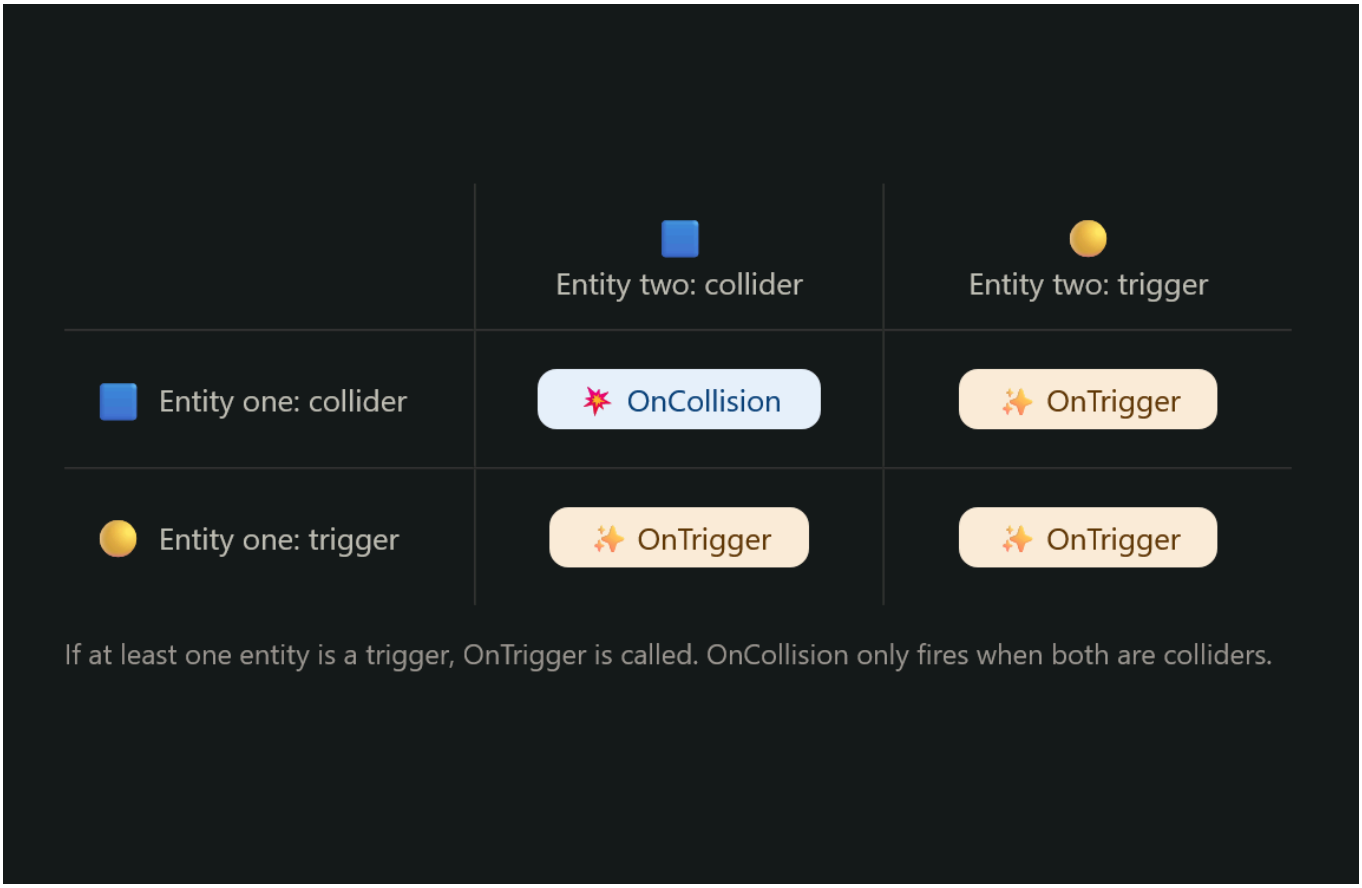
```
void OnCollision(Entity other) {
    Log::Info(str: "Entity collided with other entity: " + other.GetName());
}
```

Trigger

Similar to collisions, it is also possible to listen to trigger events. If at least one body is of type trigger, it will call `OnTrigger` on that entity.

```
void OnTrigger(Entity other)
{
    Log::Info(str: "Trigger: " + other.GetName());
}
```

To better understand what gets called and when:



Limitations

Two **static bodies** do not report any events.

Tips

Use F1 to enable collision rendering.