



# GRAVITACION I

Nuestro segundo programa en Easy Java

Teoria (no es para asustarse... el programa la entiende)

$$v = \frac{dx}{dt}$$

$$\frac{dv}{dt} = -g$$

Variables

$$x(t)$$

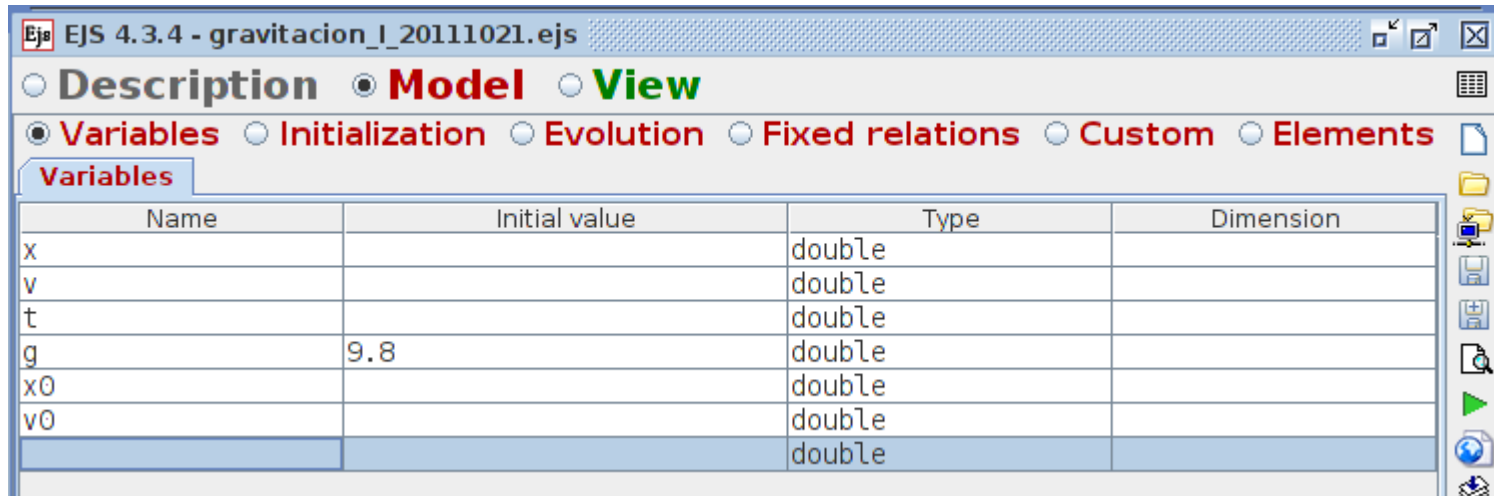
$$v(t)$$

Condiciones iniciales

$$x_0 = x(0)$$

$$v_0 = v(0)$$

## Usando nuestro programa Caos I – nuevas variables



EJS 4.3.4 - gravitacion\_I\_20111021.ejs

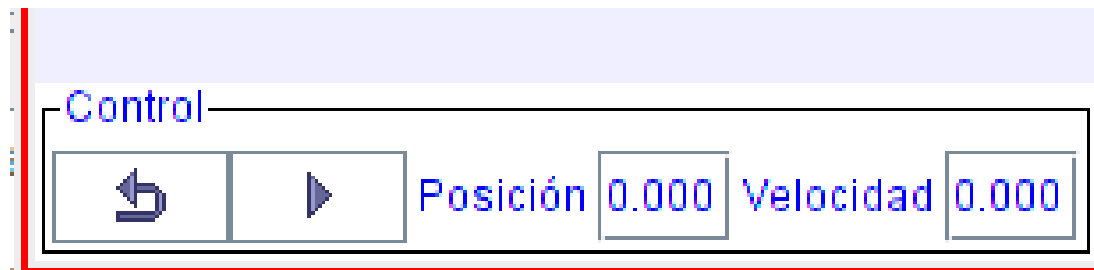
Description  **Model**  View

**Variables**  Initialization  Evolution  Fixed relations  Custom  Elements

Variables

Name	Initial value	Type	Dimension
x		double	
v		double	
t		double	
g	9.8	double	
x0		double	
v0		double	
		double	

No olvidar cambiar los textos y variables en la ventana

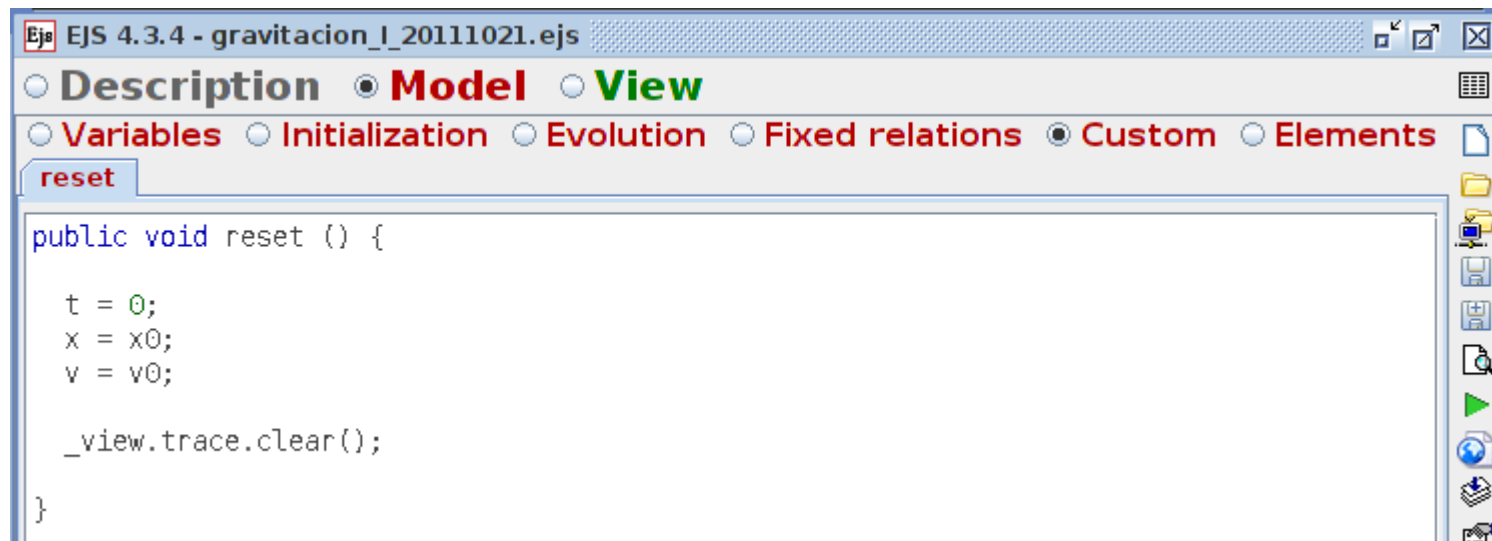


## Usando nuestro programa Caos I – situación inicial y rutina de reset



The screenshot shows the EJS 4.3.4 interface for the file 'gravitacion\_I\_20111021.ejs'. The 'Model' tab is selected, and the 'Inicio' sub-tab is active. The code editor contains the following text:

```
v0 = 1.0;  
x0 = 0.0;  
reset();
```



The screenshot shows the EJS 4.3.4 interface for the file 'gravitacion\_I\_20111021.ejs'. The 'Model' tab is selected, and the 'reset' sub-tab is active. The code editor contains the following text:

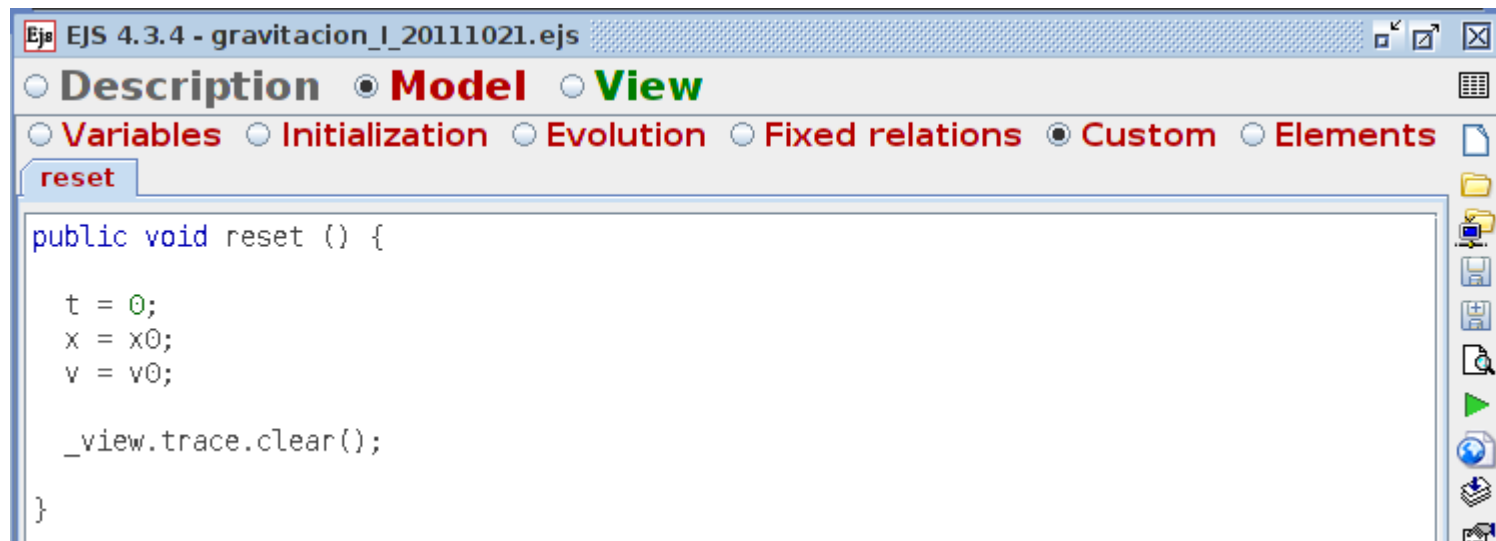
```
public void reset () {  
  
    t = 0;  
    x = x0;  
    v = v0;  
  
    _view.trace.clear();  
  
}
```

## Usando nuestro programa Caos I – situación inicial y rutina de reset



The screenshot shows the EJS 4.3.4 interface for the file 'gravitacion\_I\_20111021.ejs'. The 'Model' tab is selected, and the 'Inicio' sub-tab is active. The code editor contains the following text:

```
v0 = 1.0;  
x0 = 0.0;  
reset();
```



The screenshot shows the EJS 4.3.4 interface for the file 'gravitacion\_I\_20111021.ejs'. The 'Model' tab is selected, and the 'reset' sub-tab is active. The code editor contains the following text:

```
public void reset () {  
  
    t = 0;  
    x = x0;  
    v = v0;  
  
    _view.trace.clear();  
  
}
```

Usando nuestro programa Caos I – borrar ventana e ingresar ecuaciones

EJS 4.3.4 - gravitacion\_I\_20111021.ejs

Description  **Model**  View

Variables  Initialization  Evolution  Fixed relations  Custom  Elements

Frames per second: 100, 20, 15, 10, 5, 1

**Dinamica**

Indep. Var. t Increment 0.05 Prelim code

State	Rate
$\frac{dx}{dt} =$	v
$\frac{dv}{dt} =$	-g

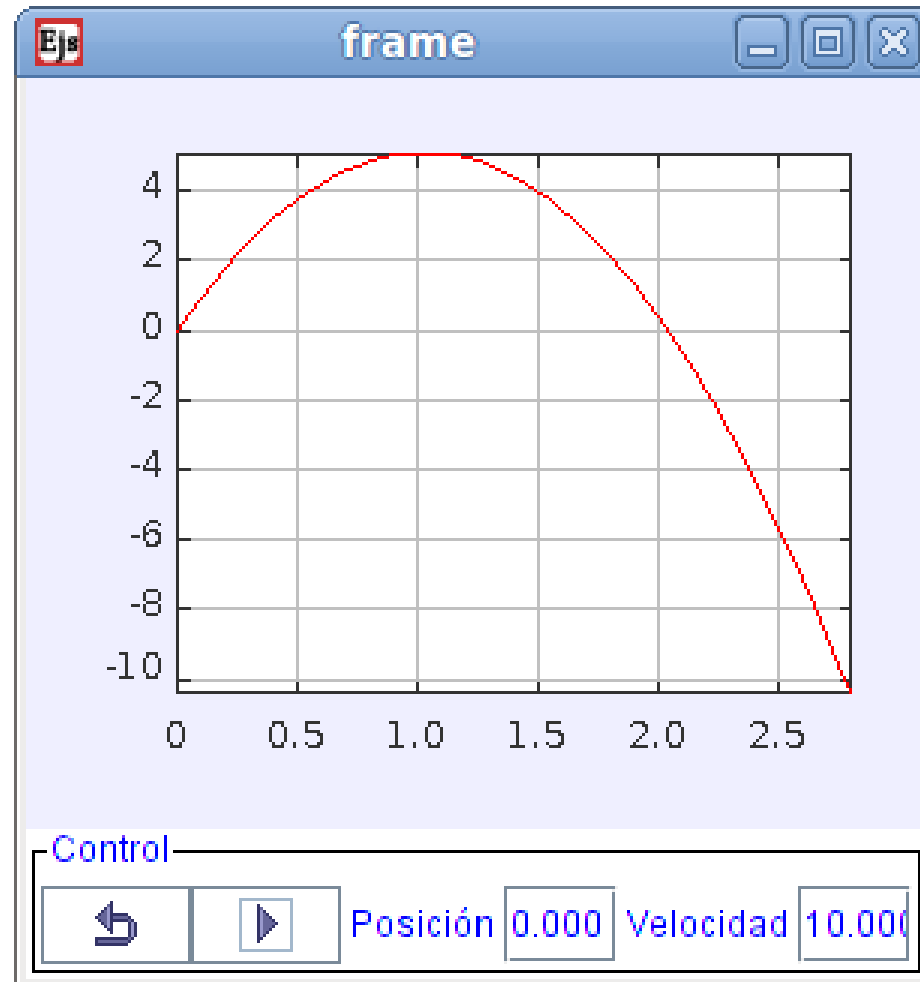
FPS 20 SPD 1 Solver Runge-Kutta 4 Tol 0.00001 Advanced Events 0

Autoplay Comment

**Output** Clear output

```
Generating simulation file gravitacion_I_20111021...
Compilation successful
Congratulations! The simulation was generated successfully.
Trying to run simulation gravitacion_I_20111021...
Congratulations! The simulation seems to run alright.
```

... y listo!!!



¿Que tal un resorte?

Teoria (no es para asustarse... el programa la entiende)

$$v = \frac{dx}{dt}$$

$$\frac{dv}{dt} = -kx$$

Variables

$$x(t)$$

$$v(t)$$

Condiciones iniciales

$$x_0 = x(0)$$

$$v_0 = v(0)$$