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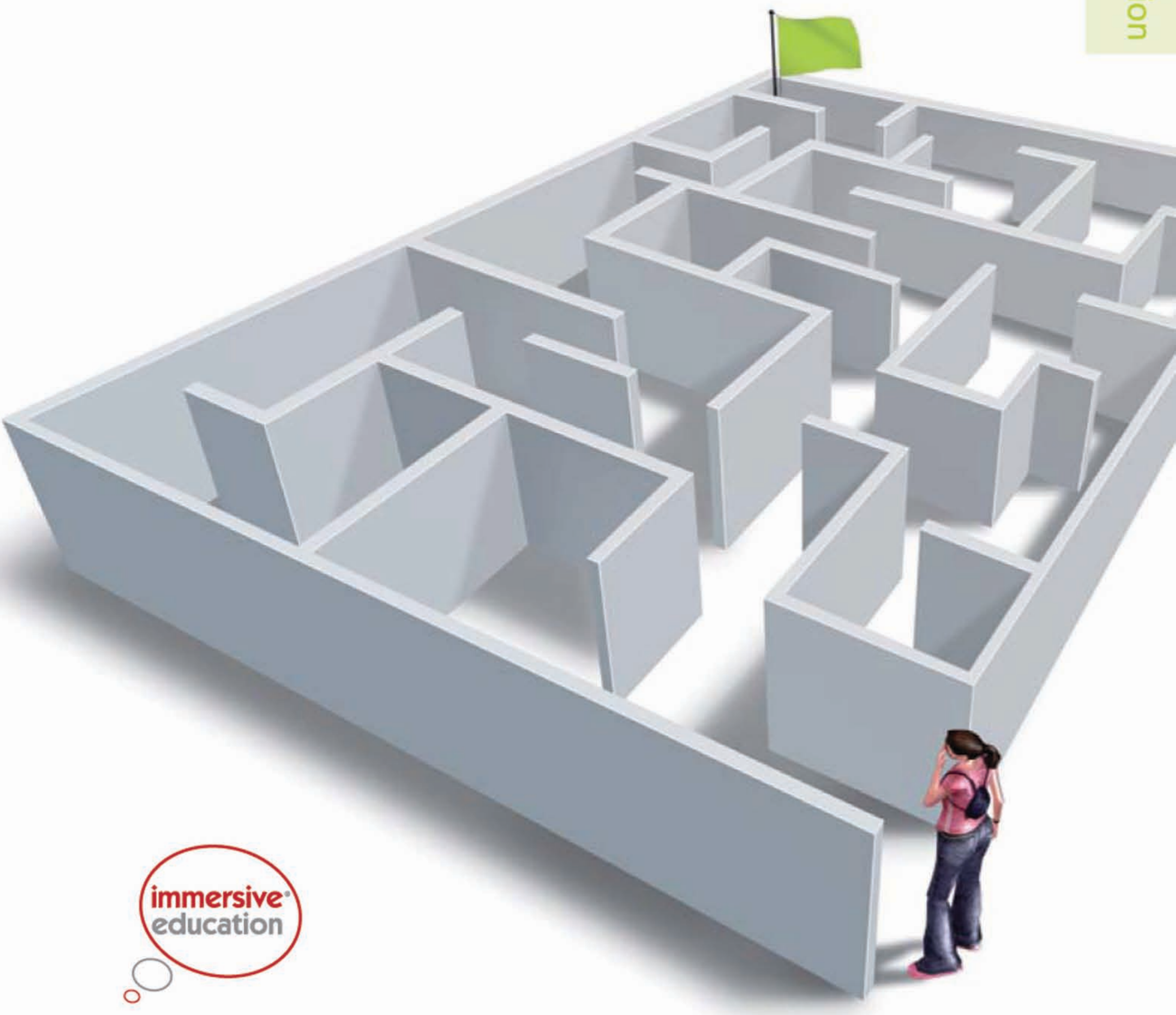
training services

familiarisation

missionmaker

Game authoring tool for creative learning



immersive® education

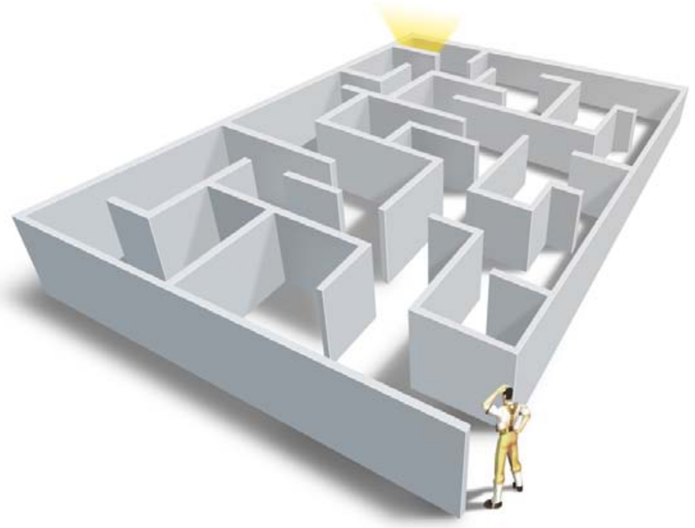
Contents

Mission Maker Thoughts & Walkthrough

Why Games?

> Games are ... the most ancient and time-honored (sic) vehicle for education. They are the original educational technology, the natural one ... We don't see mother lions lecturing cubs at the chalkboard ... in light of this, the question, 'Can games have educational value?' becomes absurd. It is not games but schools that are the newfangled notion ... Game-playing is a vital educational function for any creature capable of learning.'

Crawford, C (1982) *The Art of Computer Game Design*, www.vancouver.wsu.edu/fac
(Search 'game design' for entire text of book – now out of print)



Background

Three years ago Immersive Education was approached by the Institute of Education (specifically the Department of Media, Youth and Culture) to draw up a joint bid for research funds. The aim, as stated at this time, was to produce a software tool that:

> ... will enable 11-14 year olds to create their own 3D computer games. The research will inform the software's development and develop pedagogic models to support its use in schools and in the leisure sector.

The project outputs were specified as:

□ a game authoring tool within a 3D environment allowing children to design their own role-playing and action adventure games

□ a model of game literacy building on the growing belief that children should be aware and conversant with a range of multi-modal literacies outside the traditional text literacy which examinations and, therefore, schools generally endorse

□ a pedagogic model identifying how such game literacy can be taught in a school context

□ a model for industrial design incorporating children's and teachers' feedback.

The result to date is MissionMaker.

What is MissionMaker?

As with all Immersive Education software, MissionMaker is fundamentally a creative tool. It enables both students and teachers to plan, build and play a range of games before evaluating and revising them according to end-user need. Its open-ended approach means that it can be used to support a range of curriculum areas as well as cross-curricular projects.

Unlike a level editor, MissionMaker allows users to start with a relatively blank canvas and provides a number of choices enabling game-makers to select their own game-playing genre based mainly around the chosen **Locations** and the consequent narratives they suggest. The choices range from baronial courts, through modern streets to science fiction space stations. All can be customised by the addition of locally produced visual and audio **Media**.

Although as a BETA product the interface is fairly basic, it is still relatively intuitive to use and provides users with a set of building blocks from which to build their chosen game. The best way of introducing these and some of the concepts underpinning good gameplay will be subject to the curriculum focus and intended aims and objectives; and, to be honest, an area that the research is still investigating. Therefore, this is something that we can work on together as the project progresses.

In summary, MissionMaker is a game authoring tool that enables users to become critical producers of games as opposed to mere consumers.

Potential Educational Benefits

Benefits dependent upon:

- tasks set
- feedback
- teacher mediation
- type of game

It seems to us, and others, that there is a wealth of potential educational benefits waiting to be tapped through a co-ordinated approach to game-making and playing. There has been much media attention, numerous academic articles and a host of educational conferences dedicated to the subject. We maintain that, as with all creative tools, the specific benefits will be largely a product of: the tasks set; the method of feedback and target setting employed; the quality of teacher mediation as well as the type of game.

It would be presumptuous, in these very early days, to say we can define precisely what these are, but we can explore the potential. This view is supported by Kirriemuir and McFarlane.

> ... the differences between genres, and even between games within one genre, differentiate the way they are played, and their potential to support learning ... there are few hard and fast findings in the literature.

Kirriemuir, J and McFarlane, A (2004) *Literature Review in Games and Learning*, NESTA Futurelab

With MissionMaker the identification of benefits is further complicated. In the first instance, there are the benefits associated with **authoring games**. There are also **player** benefits, particularly marked when the game has a curriculum focus.

Learning Benefits

Development of cognitive skills ...
Key Skills

- Communication
- Application of number
- Information technology;
- Working with others
- Improving own learning and performance
- Problem solving

Thinking Skills

- Information-processing
- Communication
- Reasoning
- Enquiry
- Creative thinking
- Evaluation

Understanding of:

- grammar of game design
- needs of game player

Critical thinking about the medium of games and how they work

Making curriculum-based games can help:

- consolidate learning
- demonstrate understanding

Authoring

One might argue that the learning benefits associated with games authoring are mainly associated with the development of generic cognitive skills. These can be mapped to Key Skills (Communication, Application of Number; Information Technology; Working with Others; Improving Own Learning and Performance; Problem Solving) and Thinking Skills (Information-processing; Reasoning; Enquiry; Creative Thinking; Evaluation) as outlined in the National Curriculum. The breadth of potential learning is more eloquently described by NESTA Futurelab's Ben Williamson in his description of James Gee's work on semiotic domains. Although this talks about playing games, it seems equally, if not more, applicable to the process of making and evaluating games.

> ... players must understand what they are doing and develop their comprehension of both a game's internal design grammar, or the ways in which its content is presented, and its external design grammar, or the ongoing social practices that determine the principles and patterns through which members of the domain recognise all the activities and practices which comprise it. Such systematic thinking, Gee argues, allows players to think about and critique games as systems and designed spaces rather than simply moment-by-moment playable environments. Such critical thinking is not only absent in many schooling practices, but goes unnoticed in much appreciation of what games can offer in terms of learning.

Williamson, B (2003) *A Review of Gee's 'What Videogames Can Teach Us About Learning and Literacy'*, NESTA Futurelab Website.
In considering audience and purpose, game authoring increases the educational challenges.

In MissionMaker the games can be made by teachers, Immersive Education, and, most importantly, by students. In the last example if students make curriculum-based games for each other it provides a way of consolidating learning and demonstrating understanding.

If we want to be more specific and make links to particular curriculum subjects it seems that generic games authoring can be seen as relevant to, most obviously:

- ❑ production skills in Media Studies – historically it has been possible to be both a consumer and producer of most of the media studied with the exception of games; increasingly games are being analysed and are now a part of at least one A level Media course, but the focus is still analysis rather than production – having said this, production can also support analysis by making the theory concrete thus enabling a constructivist approach to study
- ❑ design process in D&T – through the process of planning, building, playing, evaluating and refining games students engage in an end-to-end design process
- ❑ writing - MissionMaker can support both the development of transactional writing skills (instructions, clues etc in pop-ups) and creative writing (scripts, narrative frames) as part of the literacy curriculum.

Developing notion of multiple literacies that demand:

- multimodal approaches
- multi-layers
- levels of interpretation
- multiple readings

In terms of literacy Brindley argues that, ‘It is my contention that schooled literacy, which traditionally sees the acquisition of the ability to construct and interpret text as largely an individual activity, bounded by the concept of text as linear and fixed, is no longer adequate ... computer literacy ... is a lifelong literacy. This entails the ability to construct and manipulate text, which is no longer seen as linear but multidimensional and multimedia and which is no longer fixed but infinitely changeable. The model here is far closer to that required by school leavers at the beginning of the new millennium’s world of literacy ... when reading skills need to extend beyond book print to screen print ... (*and arguably other media*) ... ICT is the medium of access and construction. Brindley, S ‘ICT and Literacy’ in Gamble, N and Easingwood, N (2000) *ICT and Literacy*, Continuum

Other areas of specific relevance might include vocational courses, DIDA, BTECs, computing – what do you think?

Other potential educational benefits from game authoring and areas of curriculum relevance:

✍

Playing

Learning Benefits
- problem-solving
- decision making
- strategic planning

Prensky:
- rapid information processing
- deciding relevance
- synthesising information from range of sources

Doing in order to learn, rather than learning in order to do!

Many of the skills developed during the making of a game can also be applied to thoughtful gameplay. How the Player solves problems, makes decisions, thinks about their situation and formulates a strategy can be captured within Mission Maker thus aiding the assessment of process as well as product. (See *Walkthrough Player* at the end of the document). In Williamson's 2003 review cited earlier, he refers to the work of Marc Prensky:

> Prensky's ten characteristics of new methods of learning could be described as young people developing the ability to process information very quickly, determining what is and is not of relevance to them; the ability to process information in parallel at the same time from a range of different sources; the familiarity with exploring information in a non-linear fashion ... creating links rather than following a story; the tendency to access information in the first instance through imagery and then use text to clarify/expand and explore... and having a model of doing in order to learn, rather than learning in order to do. (ibid)

Games players do all of these things throughout their gameplay.

Game-play promotes active and critical learning:
- Multi-tasking
- collating and processing information
- planning
- thinking strategically
- trial and error
- perseverance
- plural reading
- decision-making
- testing hypotheses, options, and imaginative alternatives
- active learning
- reflection

Various academics in this field also list what they consider to be the key benefits of game playing. Atkins says that game-play promotes 'Multi-tasking, collating and processing information, planning, thinking strategically, trial and error, perseverance... plural reading – decision-making, ... testing hypotheses, options, and imaginative alternatives.' Atkins, B (2003) *More Than A Game*, Manchester University Press. Whereas, talking about game worlds Bartle maintains, 'Virtual worlds offer educators the following features: they are collaborative; they are motivational; they involve language use; children find it easier to express themselves in them ...' Bartle, R (2003) *Designing Virtual Worlds*, New Riders.

Games encourage students to become active learners, positive about the experience of learning. 'The game encourages him to think of himself as an active problem solver, one who persists in trying to solve problems even after making mistakes; one who, in fact, does not see mistakes as errors but as opportunities for reflection and learning ... Video games have the potential to lead to active and critical learning ...They situate meaning in a multimodal space through embodied experiences to solve problems and reflect on the intricacies of the design of imagined worlds and the design of both real and imagined social relationships and identities in the modern world ... the potential of good video games played in environments that encourage overt reflection.' Gee, J (2003) *What Video Games Have to Teach Us About Learning and Literacy*, Palgrave Macmillan.

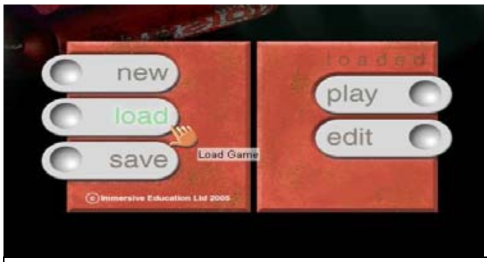
Games:
- engage people intellectually and emotionally
- contextualise learning
- encourage enquiry based approach

In addition, where specific curriculum-based games are made the learning benefits can be linked to subject specific skills and learning objectives. Some of their value lies in their, ‘capacity to engage people intellectually as well as emotionally, to enhance the contextual aspects of information, and to encourage integrated, holistic responses.’ (Laurel, B (1991) *Computers as Theatre*, Addison-Wesley) Games encourage active process of enquiry rather than passive memorisation of facts.

Other potential educational benefits from game playing and areas of curriculum relevance:

✍

Example Game: Browning



Load and play the Browning Mission. This was created by two English teachers from Parkside Community College in Cambridge to help students study ‘My Last Duchess’ a poem by Robert Browning.

My Last Duchess

Ferrara

That's my last Duchess painted on the wall,
Looking as if she were alive. I call
That piece a wonder, now: Frà Pandolf's hands
Worked busily a day, and there she stands.
Will't please you sit and look at her? I said
"Frà Pandolf" by design, for never read
Strangers like you that pictured countenance,
The depth and passion of its earnest glance,
But to myselfthey turned (since none puts by
The curtain I have drawn for you, but I)
And seemed as they would ask me, if they durst,
How such a glance came there; so, not the first
Are you to turn and ask thus. Sir, 'twas not
Her husband's presence only, called that spot
Of joy into the Duchess' cheek: perhaps
Frà Pandolf chanced to say "Her mantle laps
Over my Lady's wrist too much," or "Paint
Must never hope to reproduce the faint
Half-flush that dies along her throat": such stuff
Was courtesy, she thought, and cause enough
For calling up that spot of joy. She had
A heart -- how shall I say? -- too soon made glad,
Too easily impressed; she liked whate'er
She looked on, and her looks went everywhere.
Sir, 'twas all one! My favour at her breast,
The dropping of the daylight in the West,
The bough of cherries some officious fool
Broke in the orchard for her, the white mule
She rode with round the terrace -- all and each
Would draw from her alike the approving speech,
Or blush, at least. She thanked men, -- good! but thanked
Somehow -- I know not how -- as if she ranked
My gift of a nine-hundred-years-old name
With anybody's gift. Who'd stoop to blame
This sort of trifling? Even had you skill
In speech -- (which I have not) -- to make your will
Quite clear to such an one, and say, "Just this
Or that in you disgusts me; here you miss,
Or there exceed the mark" -- and if she let
Herself be lessoned so, nor plainly
Her wits to yours, forsooth, and made excuse,
--E'en then would be some stooping, and I choose
Never to stoop. Oh sir, she smiled, no doubt,
Whene'er I passed her; but who passed without
Much the same smile? This grew; I gave commands;
Then all smiles stopped together. There she stands
As if alive. Will't please you rise? We'll meet
The company below, then. I repeat,
The Count your master's known munificence
Is ample warrant that no just pretence
Of mine for dowry will be disallowed;
Though his fair daughter's self, as I avowed
At starting, is my object. Nay, we'll go
Together down, sir. Notice Neptune, though,
Taming a sea-horse, thought a rarity,
Which Claus of Innsbruck cast in bronze for me!

To play the game you may need some help with navigation!

Navigating

There are various ways to move around the environment you have created and you’ll find the one that suits you best during the day.

1. You can use the arrow keys (or WASD) to move forwards, backwards, left and right; and the right mouse button to orientate up and down.

2. You can also press down on the middle scroll button and use your mouse to navigate around the environment driving forward as you go.

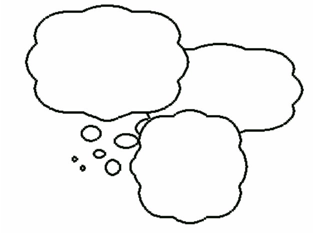
3. Alternatively, you might like to use a combination of the two. The scroll button to zoom around and the arrow keys and right button to refine your position. You can only move backwards with the down arrow.

Try them all out now.

You'll find that your students get the hang of this very quickly, especially if they already play CD games. As a non- 'digital native' I can sometimes tie myself in knots! It's worth practising.

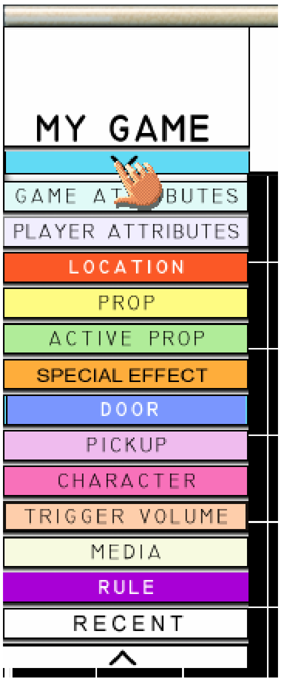
In addition there are some hidden tricks – features of an incomplete interface.

- □ To crouch click **Ctrl** (good when you get stuck in a corner)
- □ To run press **Shift**
- □ To jump click the **Space Bar** (you can alter the force of the jump in the MY GAME menu under 'Player Attributes').



What sorts of things did you discover?
How might you use the software in your centre? Do you want students to make games and/or to make games for students to play?

Walkthrough of Features in the Editor



As you can see from the two dropdown menus, MissionMaker game creation comprises a number of aspects.

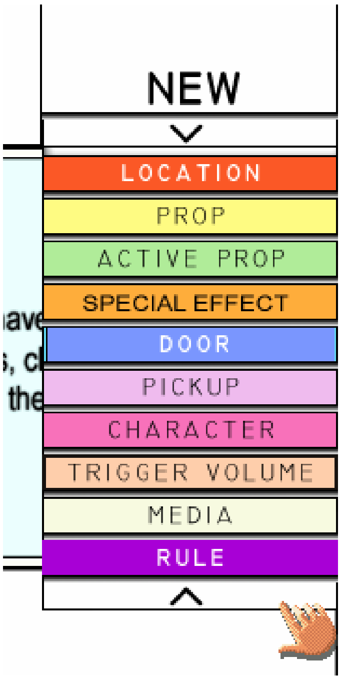
My Game

The menu on the left allows a user to establish the overall context of the game: requirements for success or failure based on such things as point scoring and timings. It also allows the user to establish something about the Player: health and vulnerability, hunger, strength and how these can be influenced by the gameplay. In order to activate many of these you need to establish your gaming environment, that is, create a **Location** first. The other areas of **MY GAME** record all of the features the game player adds to the game and consequently allows them to be edited easily.

Take a look at the MY GAME elements now. In particular check out **Game Attributes** and **Player Attributes**. You won't be able to create actions until you've started to build your game. However, you can begin to think about what they might be.

New

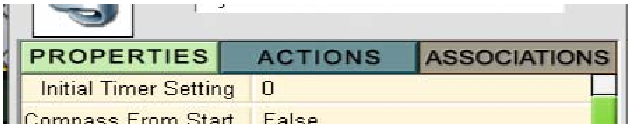
The menu on the right provides access to the various building blocks that make up the game. This *walkthrough* will take each one in turn and take you through the functionality.



Once you are familiar with the way the software works, you might choose to do this in a slightly different order with your students. For instance, if the focus is literacy, and therefore the narrative context, **Media**, and in particular **Popups** might be the starting point. However, establishing the genre through the choice of **Location** will also be essential.

It's probably a good idea to browse the content and then do a paper planning exercise before beginning game-making in earnest. Some of the students in the pilot began by playing board games and thinking about the criteria for defining a game. How you begin will depend largely on the task you set.

Properties, Actions, Associations



Initial Timer Setting	0
Compass From Start	False

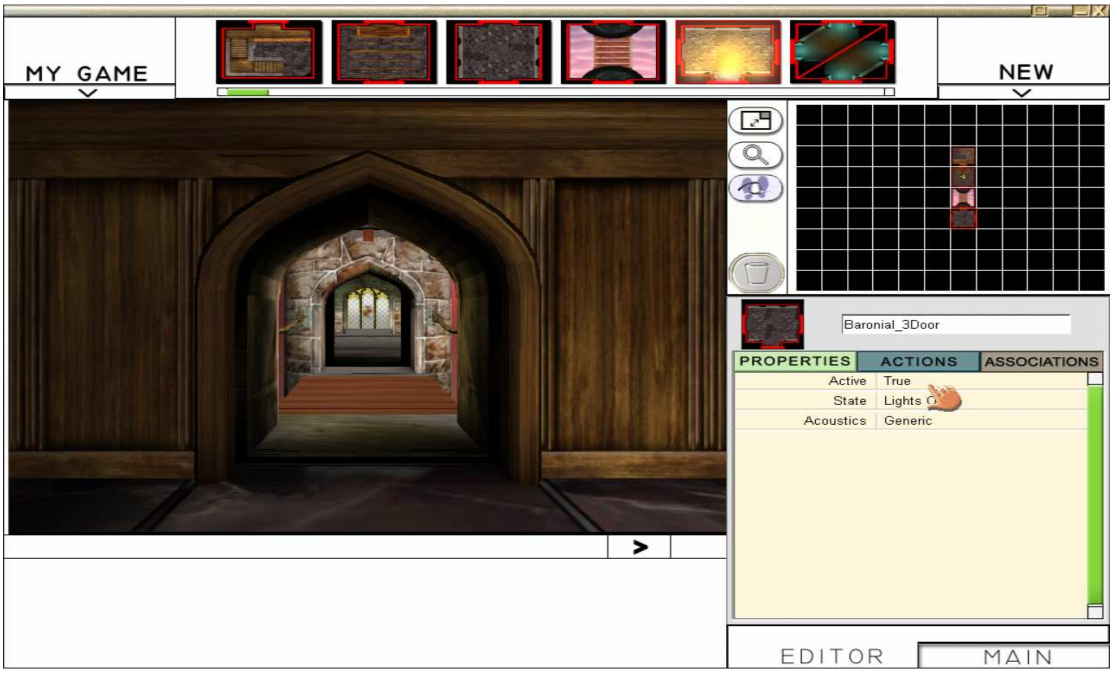
Every item you add to your game comprises:

- **Properties** – these are the physical characteristics of the item
- **Actions** – the things that you can cause to happen
- **Associations** – how this item links to others in the game.

You can alter Properties and Actions in order to create your gameplay.

Editor Interface

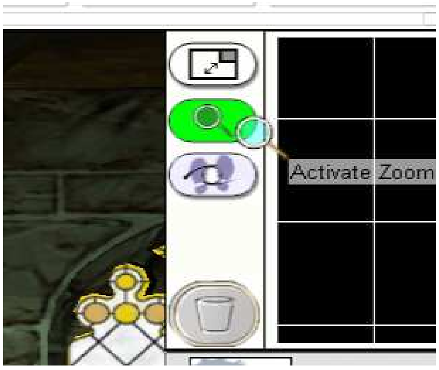
This is the interface in which you will build your game. To **SAVE** return to the MAIN screen and click save.



Baronial_3Door

Active	True
State	Lights O
Acoustics	Generic

The following buttons allow you to move between the 3D and plan view, increase the size of your grid and set the starting point of your game.



□ Click on the top button to swap the large and small screens, that is, move between the 3D world and the 2D plan.

□ Click on the middle button to zoom in on an area of the plan.

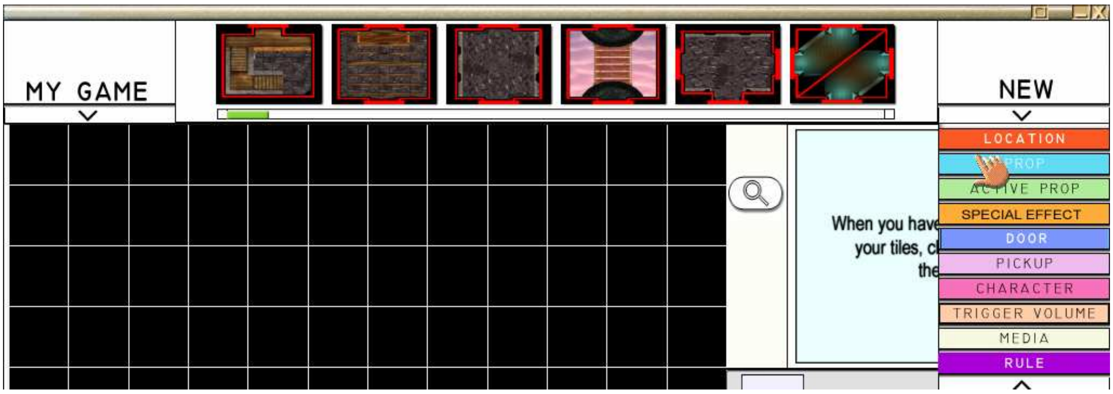
□ Click on the bottom button, the feet, to set where you want your game to start.

□ Delete items by clicking on them and then clicking the bin. You will be asked if you are sure that you want to delete.

New Menu

For the purposes of the training we'll work through all the features as they appear on the menu. When you have separate sessions with students this might not be the most useful or logical method depending on the outcomes you want to achieve.

Location



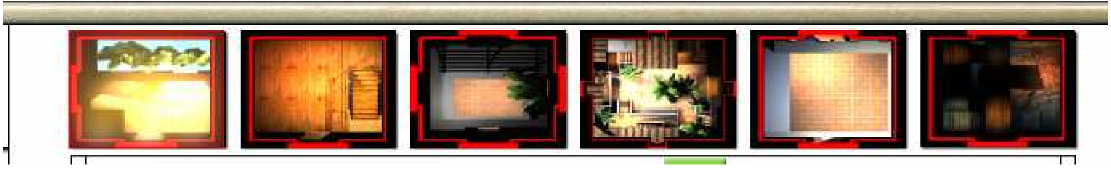
When you have your tiles, c the

When you open MissionMaker you'll see some tiles at the top of the screen.
If you can't, click on **NEW** and then on the **Location** tab.
Use the green scrolling tool to work your way through the tiles. There are about 100 individual tiles making up scenes for about ten different types of **Location**.
These are grouped loosely, but some are a little haphazard in the prototype!

- □ Western
- □ Victorian
- □ Egyptian
- □ White Room – plain brightly lit room
- □ Holiday Resort
- □ Industrial
- □ Baronial
- □ Cityscape
- □ Mini-world (interior, exterior and drains)
- □ Space-ship/Science fiction
- □ Stone Age

The sheer number seems daunting to start with, but it does allow for very creative environment building and a wide range of genres/narrative types.

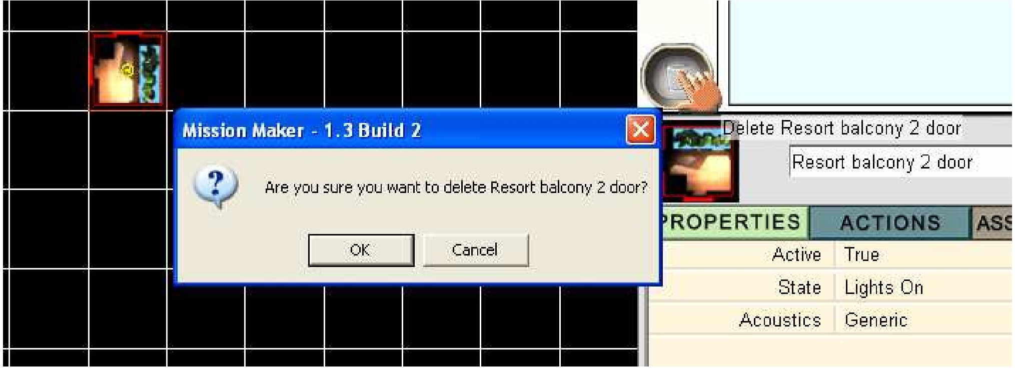
Each tile comprises a 3D **Location** and a number of **Doors** that enable it to be joined to another tile of a similar or totally different style. **Doors** are indicated by the **thicker red lines** on the perimeter of the tile.



These tiles form a virtual world when dragged onto the 2D grid below the selector bar.

1. To locate a tile on the grid: choose the tile you want, click and drag to position.
2. To rotate a tile just click on it. Each click takes you through a 90° clockwise rotation.

3. To add a second tile: select the tile and drag to a grid block adjacent to the first tile. Click and rotate until the **Doors** match.
4. To delete a tile: click on the tile to select then click on the waste bin. You will be asked if you are sure that you want to delete it.



Are you sure you want to delete Resort balcony 2 door?

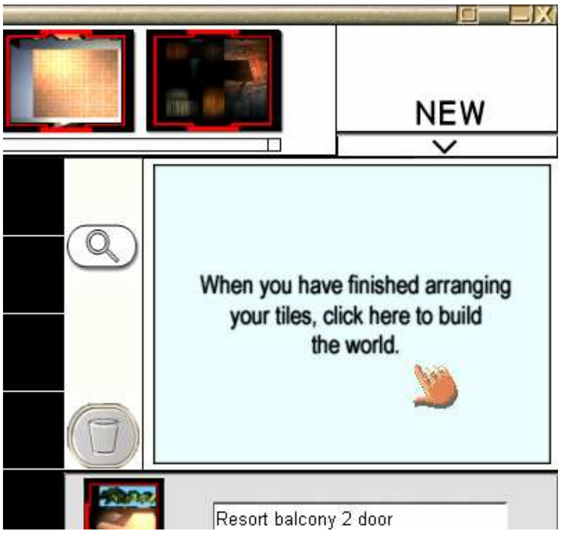
Resort balcony 2 door

Active	True
State	Lights On
Acoustics	Generic

When you have added sufficient tiles, you can build your world in 3D. Try not to add too many to start – four is good!

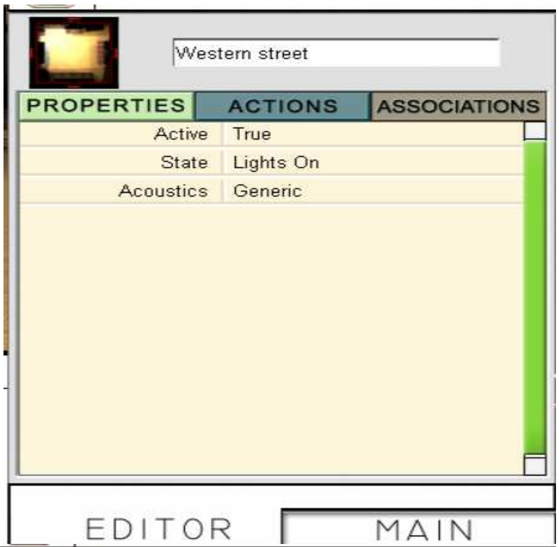
5. To create the 3D world, click on the pale blue box at the top right of the screen and wait while the computer compiles your world. This is where the 'wow' factor enters the equation!

If you add unlinked tiles, when you build the world you'll find yourself in the first tile you added, that is where the game starts. To access the others you'll need to use the teleport function (See later).



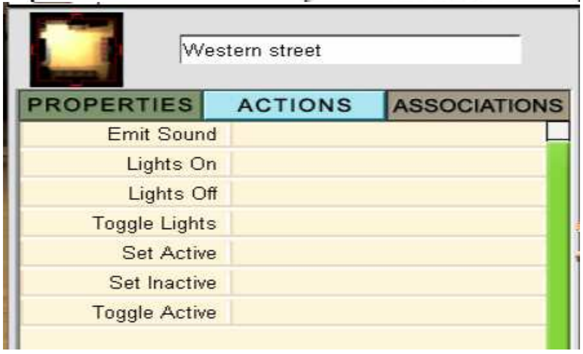
When you have finished arranging your tiles, click here to build the world.

Resort balcony 2 door



Western street

Active	True
State	Lights On
Acoustics	Generic



Western street

As with every item you add, the **Location** can be described in terms of its **Properties** and can have **Actions** attached to it.

Properties

'Active' means that you can see the **Location**, in other words it is active in the gameplaying world. This actually doesn't work in an inactive state!

When you go into a **Location** the lights are by default on, but you can change this and require the player to do something in order to turn them on.

You can also change the 'Acoustics' in order to add to the atmosphere.

Actions

In this dialogue box you can add an audio effect (See **Media** section later); turn lights on, off or alternate between both using triggers. See later hint box on triggers.

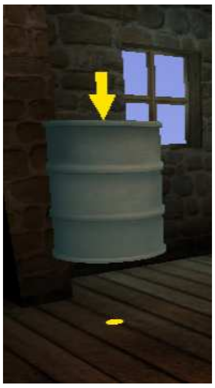
Associations

In this dialogue box you will find a summary of every aspect of the game linked with the particular **Location**. This helps the game editor/author keep track of the gameplay.

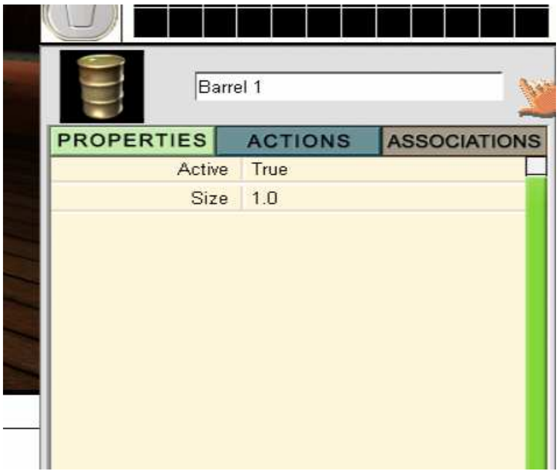
Props

These can be used to *furnish* your world and ensure that the look of your game is different to everyone else's. They don't really do much except add atmosphere, although they can change state. There will be more about this later.

1. To add a **Prop**, click on the **Prop** you want, left click and drag it to your world. If you get a warning (red circle with a diagonal line), the prop is too big for the area. Just back up using the down arrow and try again.
2. To delete a **Prop**, click on it and then on the bin. You'll be asked if you're sure you want to delete. This is just like you saw in **Locations**.
3. When you add a **Prop** to your scene: left click and drag to move it, you'll see a hand. When it's located, click again and you'll be able to rotate it to the position you want.
4. If you want to raise the **Prop**, particularly useful if it's a picture or banner, left click on the yellow arrow and drag to position. Don't worry, the yellow arrows don't show in the player mode.
5. Sometimes, if you need to move something to an exact position, the easiest way to do it is to, raise the **Prop** slightly and move the yellow dot to position before lowering it again. This just requires you to left click and drag the yellow dot.



When you add a new **Prop** you'll notice a dialogue box appear in the bottom right hand corner. As before, this gives you the item's **Properties, Actions** and **Associations**.



Barrel 1

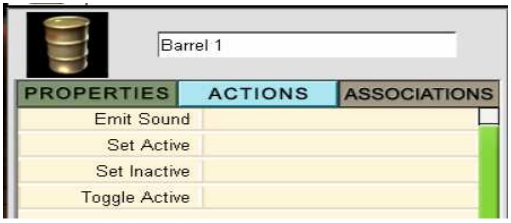
PROPERTIES	ACTIONS	ASSOCIATIONS

Active	True
Size	1.0

Properties

- □ The **Prop** is 'Active' by default– that is, you can see it in the screen. You can change this. If you click on active 'True'. You can change the statement to 'False' and the item will disappear until you set a rule to make it reappear.
- □ Its other property is 'Size' and this is set at 1.0. You can make it smaller by reducing the number and larger by increasing it.

To check out 'what' the **Prop** can do, you need to click on the **Actions** tab at the top. This gives you a different dialogue box.



Barrel 1

PROPERTIES | ACTIONS | ASSOCIATIONS

Emit Sound
Set Active
Set Inactive
Toggle Active

Actions

- □ You'll see that you can make the **Prop** emit a sound. To do this you need to have selected or created an audio file through the **Media** tab. (See later section **Media**)
- □ You can also make the **Prop** appear or disappear, that is, 'Set Active' or 'Inactive' within your game. To do this you need to select an appropriate 'Trigger', that is, set the rules to make it happen. (See below). You can also move between 'Active' and 'Inactive' states by using the 'Toggle Active' line.

Associations

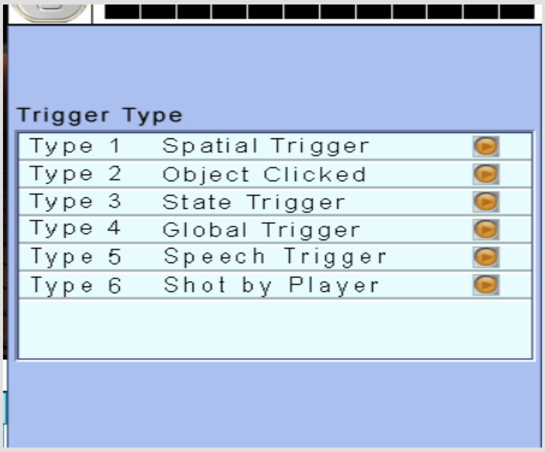
If you use a **Prop** as a trigger to make something else happen, or as an obstacle it will be linked with other game features and these will be listed in the **Associations** dialogue box.

At this point you might wonder why we've included 'Active/Inactive' and how you might use it. So, as an example, within the game you might want to use the wand or some other 'Trigger' to remove an obstacle. That is, make a **Prop** that is acting as an obstacle into a **Prop** that is 'Inactive' and therefore removed from the world.

Triggers

Before we go any further we need to explore 'Triggers' or the things that make other things happen. In order to make a **Prop** active or inactive, a switch on or off, we need to insert triggers.

When you click on 'Active' or 'State' in the **Props** and **Active Props** the 'Trigger Type' dialogue box appears. It's worth playing with each of these to get an understanding of what they can do.



Trigger Type

Type 1	Spatial Trigger	●
Type 2	Object Clicked	●
Type 3	State Trigger	●
Type 4	Global Trigger	●
Type 5	Speech Trigger	●
Type 6	Shot by Player	●

As you can see there is a range of triggers:

□ The Spatial Trigger means that you need to add a **Trigger Volume** to something so that when an object or person enters that space you 'trigger' a pre-specified action

□ Object Clicked – here the action occurs when a selected object is clicked by the player. This object can be anything within the game playing space.

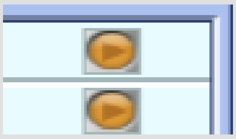
□ A State Trigger operates when an object within the game is in a certain 'state' active or inactive, on or off and so forth.

□ The Global Trigger can be one of a number of things – points exceeding a certain number, the health of the player, based on time or the start of the game.

□ As you would expect the Speech Trigger is prompted by something an in-game **Character** or the Player says.

□ Shot by Player, is also pretty obvious, this can be an object or an in-game **Character**.

□

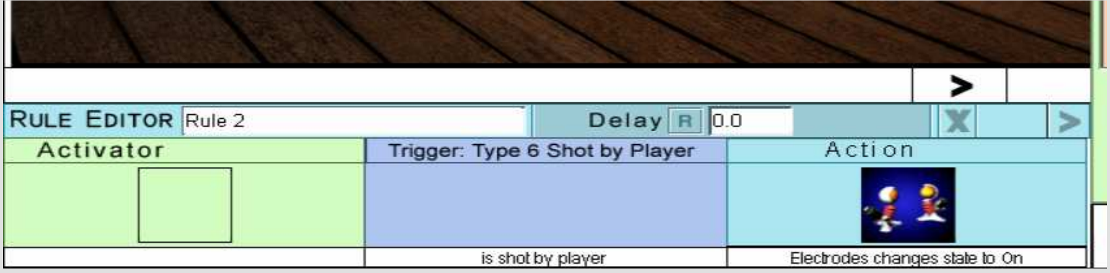


To select one of the triggers click on the orange arrow at the end of the line.

You'll then find that the rule editor appears. It might be helpful to think of this as the statement:

If *this* happens then *that* will occur.

This is reinforced by the images.



RULE EDITOR Rule 2 Delay R 0.0

Activator	Trigger: Type 6 Shot by Player	Action
	is shot by player	Electrodes changes state to On

Look at this example. We want the electrodes to turn on. In this instance the trigger 'shot by player has been selected'. Now all the editor has to do is decide what needs to be shot by the player – this is the 'activator'.

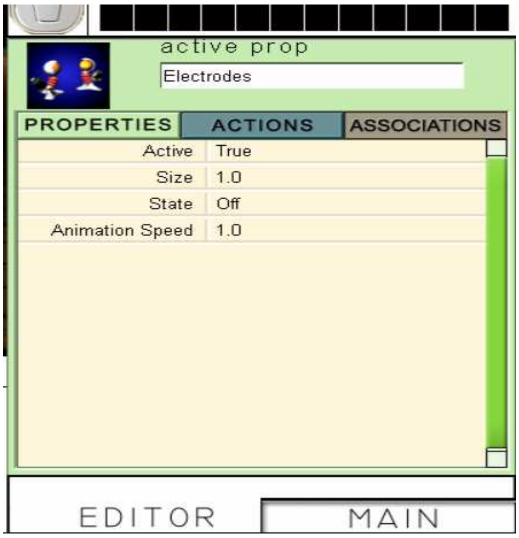
The statement will then read:

If [*selected object*] is shot by player electrodes change state to on.

If you are happy with this, create the rule by clicking on the blue right facing arrow >.

Active Props

Below the **Props** tab, you'll find the **Active Props**. These tend to have an obvious action or alternative state. For example, on and off. Like **Props** they can be used to populate a scene and thus provide atmosphere. They can also be used as 'Triggers' to another action. Again, like **Props**, they have **Properties**, **Actions** and **Associations**.



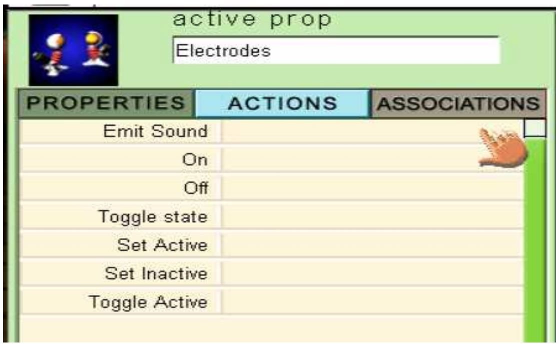
active prop

Electrodes

Active	True
Size	1.0
State	Off
Animation Speed	1.0

Properties

In addition to the **Properties** you saw in **Props** there is a button to indicate the object's state when added to the game space, as well as the speed of the animation. Both can be changed. It's worth experimenting with these.

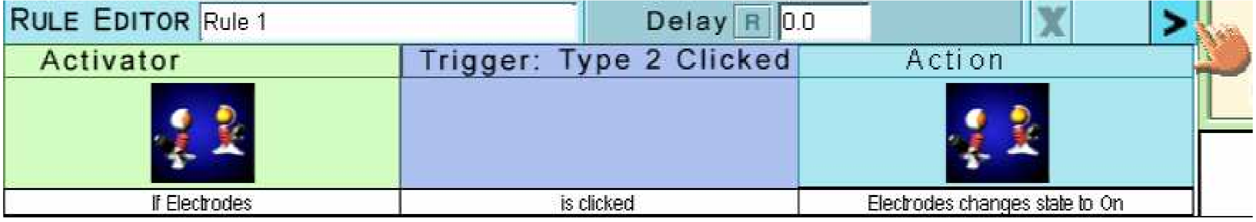


active prop

Electrodes

Actions

These behave much as they do in **Props,** but the optional 'states' can also be controlled here. For example, in the case of the electrodes, they can be on, off or alternate between the two (toggle). As the game editor or author you need to specify what makes these things happen by choosing an appropriate 'trigger'.



RULE EDITOR Rule 1

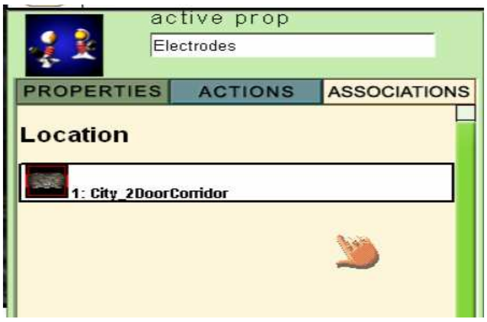
Delay R 0.0

If Electrodes | is clicked | Electrodes changes state to On

See rule: If Electrodes is clicked Electrodes changes state to on.
(Great grammar)

Associations

As before, if you use a prop as a trigger to make something else happen, or as an obstacle it will be linked with other game features and these will be listed as a rule in the **Associations** dialogue box. This also gives the **Location** which is useful if you've used an object more than once in various places.



active prop

Electrodes

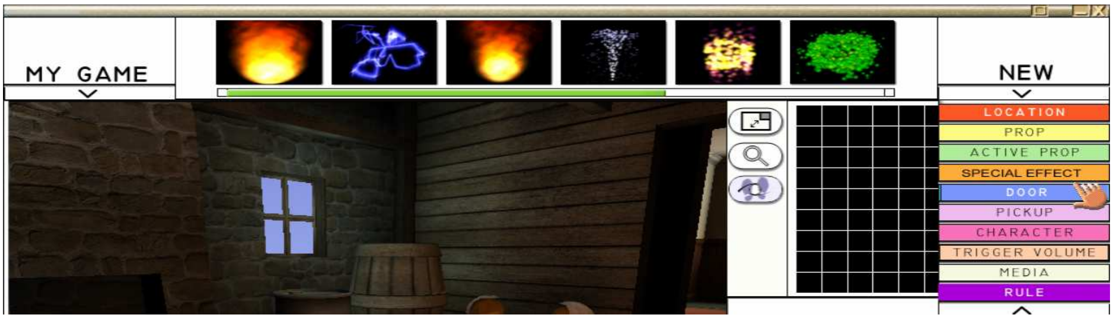
Location

1: City_2DoorCorridor

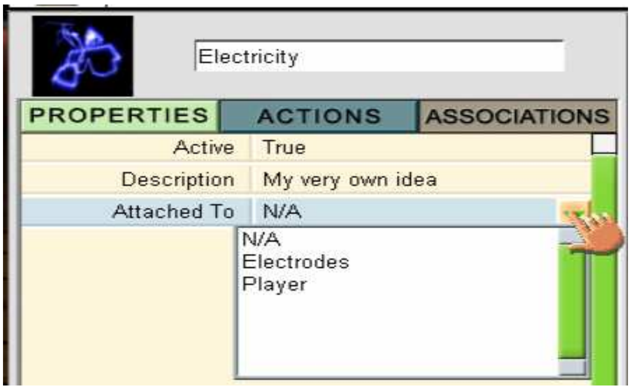
In this example, the active prop only has one association and that is its location.

Special Effect

To add slime, smoke, fire, a fountain ... or a whole rang of other goodies; you need to click on the **Special Effect** tab. To select your **Special Effect** use the scroll bar and click on the effect you wish to add.



As with all the items, so far, left click on your selected effect and drag it to position. The dialogue box for **Properties**, **Actions** and **Associations** will appear at the bottom right.



Electricity

Active	True
Description	My very own idea
Attached To	N/A

N/A
Electrodes
Player

Properties

This time you'll see the 'Active' button as before and 'Description', which you can change. This allows some lateral thinking and wider use of the **Special Effect**. What is green slime to one person is soapy bubbles to another!

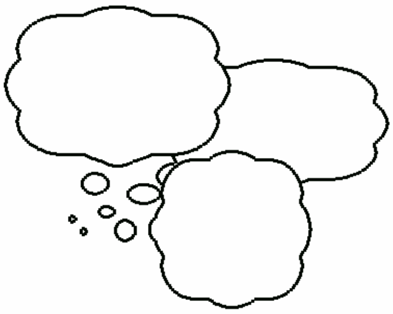
Another additional feature is the 'Attached To' label. For instance, you might want to attach the electricity to the electrodes, the fireball to the camp fire and so forth. Click on the downward facing arrow and you'll be able to select the item to which you want to attach the effect. Just highlight and click on it.

Actions

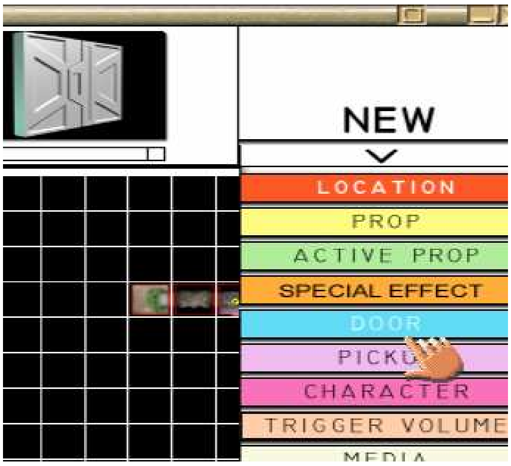
No surprises here; they work as they do in **Props** – Emit Sound, Active, Inactive and Toggle.

Associations

As before, these link objects and provide details of the **Location**.



Where and how do you think you might use Special Effect function?



Door

This is a typical feature of role-playing and adventure games. **Doors** link two environments and can be used to challenge the player who needs to work out how to get through.

You're probably getting the idea about how to do things by now. So have a look at **Doors** and finish the instructions in the spaces below.

When showing students this feature it can be quite useful to get them to choose a four door room then demonstrate four different ways to open four **Door**s! **You could try now.**

Using a Door

To add a Door:

Properties:

Actions (*Tick as you use each trigger type and explain what you did*)**:**

❑ Spatial Trigger

❑ Object Clicked

❑ State Trigger

❑ Global Trigger

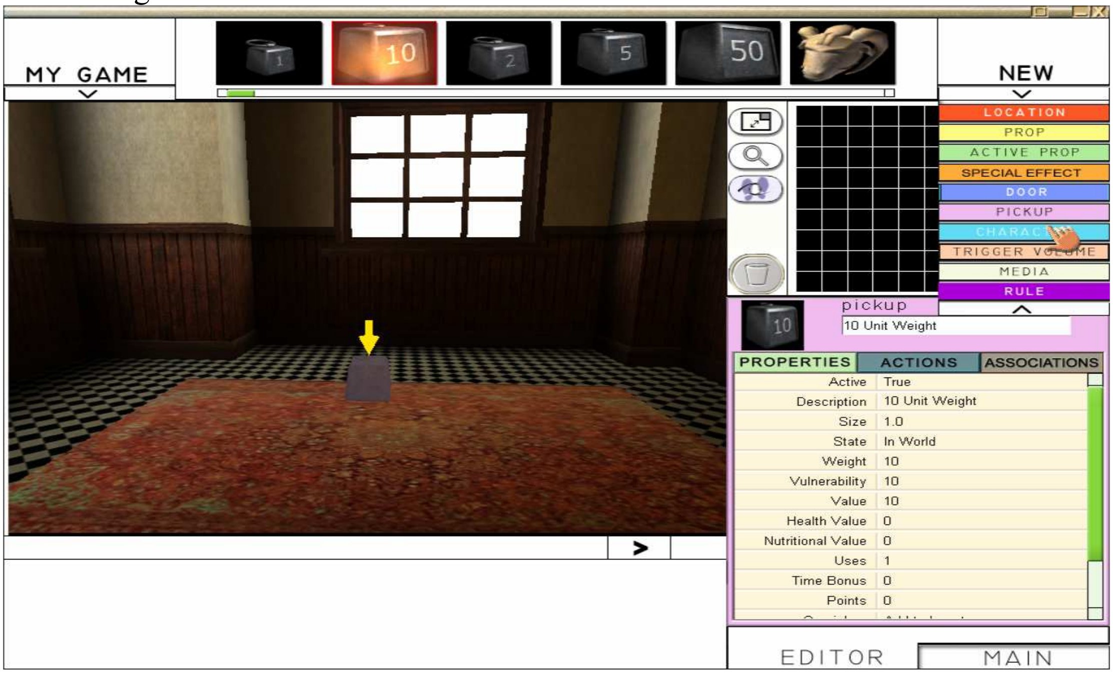
❑ Speech Trigger

❑ Shot by Player

Associations:

Pickup

Pickups are a little different, slightly more complex, and they can contribute to the gameplay in a different way. As you can see the dialogue box is bigger and you need to use the green scroll bar at the side to see it all.

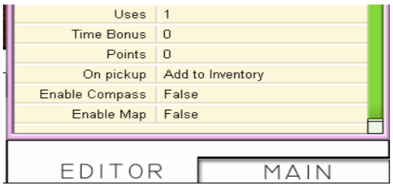


pickup

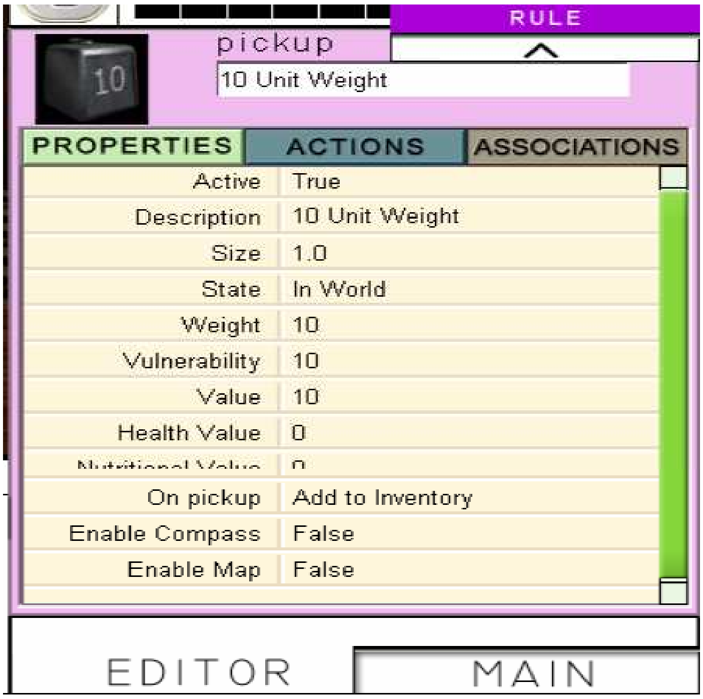
10 Unit Weight

Active	True
Description	10 Unit Weight
Size	1.0
State	In World
Weight	10
Vulnerability	10
Value	10
Health Value	0
Nutritional Value	0
Uses	1
Time Bonus	0
Points	0

Some of the information required is much the same as with **Props**, **Active Props**, **Special Effects** and **Doors**. But **Pickups** can add more to the gameplay.



Uses	1
Time Bonus	0
Points	0
On pickup	Add to Inventory
Enable Compass	False
Enable Map	False



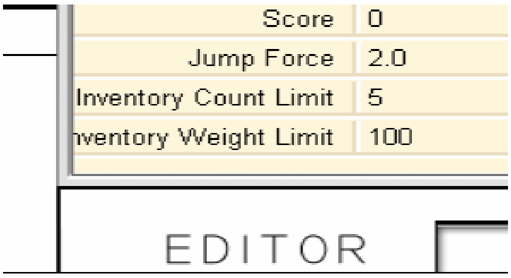
pickup

10 Unit Weight

Active	True
Description	10 Unit Weight
Size	1.0
State	In World
Weight	10
Vulnerability	10
Value	10
Health Value	0
Nutritional Value	0
On pickup	Add to Inventory
Enable Compass	False
Enable Map	False

Properties

- □ Active/Inactive is as before.
- □ You can add a description to provide clues for the player. What you type here appears when the game player investigates the **Pickup** in their inventory.
- □ Size – you can rescale the object by changing the number.
- □ State – 'In World' means it's ready to be added to the Player's inventory. 'Owned by Player' means it is in the inventory at the game start.
- □ The weight is significant because you can set a maximum weight for the Player's inventory. To do this you go into the MY GAME menu, **Player Attributes** and **Properties**. Change the Inventory Weight Limit.

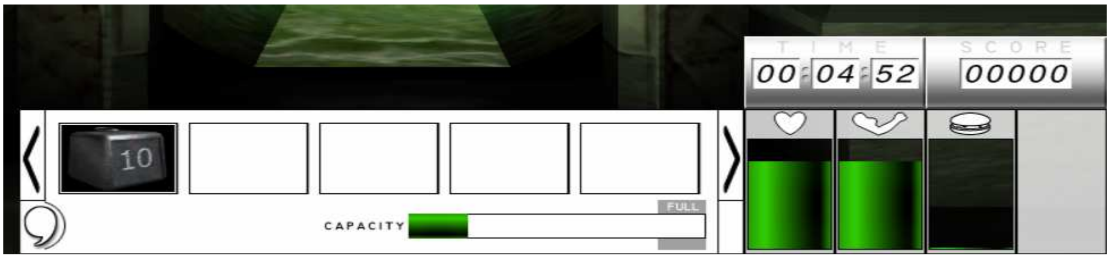


Score	0
Jump Force	2.0
Inventory Count Limit	5
nventory Weight Limit	100

❑ Vulnerability refers to its strength or hardiness in the world, oddly, the higher the vulnerability the harder it is to destroy with the gun or wand. (This will need changing as the terminology isn't right and will prove confusing. Until this is fixed it may be helpful to think of the number as layers of protection.)

❑ *Value – this has a history: at one point we were considering 'trading' as a concept. It hasn't been implemented so 'value' in the prototype has no function.*

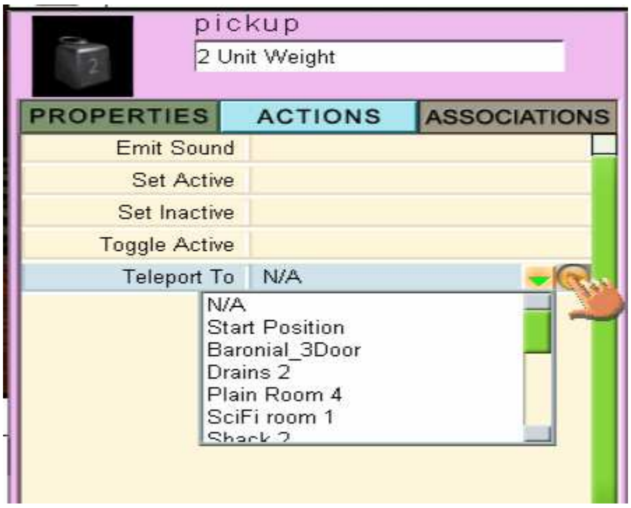
❑ Health and Nutritional values refer to the number of points a player adds to these 'economies' when the object is added to the inventory. (In the MY GAME menu, under **Game Attributes** you can set the number of points the Player needs to win/die etc.) The three economies in the game comprise: health, strength and nutrition. In the example below you can also see the inventory, timer and score board. Time bonuses and points would be registered here.



❑ The 'Uses' line in the dialogue box prevents a player from putting an item in the inventory, receiving all the points, taking it out, putting it back and getting the points again. It also means you can use points more effectively to set Maths challenges.

❑ On **Pickup** the player is allowed to left click and drag the item to their inventory, for later use or to use the description as a clue. Alternatively once it has been picked up it can be made to disappear. This is good if its only function is to add points or some other value at this point in the game, but has no later use.

❑ Any **Pickup** can be used to make the map and/or compass appear as aids to the Player.



pickup

2 Unit Weight

Teleport To N/A

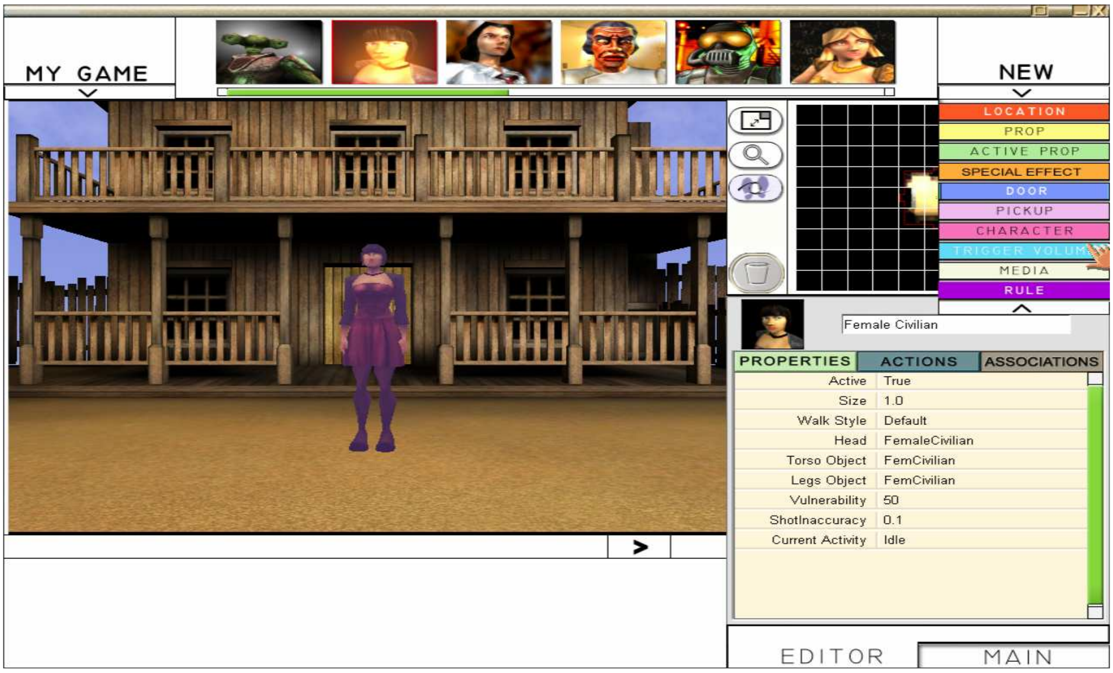
Actions

These work in a way that is very similar to all the other objects you have added to your game, but with one additional feature. A **Pickup** can be teleported to another **Location**. This can be a room within the game, or to the player. This means that if the player fails to heed warnings they can lose things from their inventory. Alternatively, if they do something good or meet a friendly player objects can be drawn to them.

Character

Adding a **Character** is just like adding an object.

- Click on **NEW** and then on **Character**.
- Select the **Character** you want by clicking and dragging him or her into the space. This is where the fun starts!

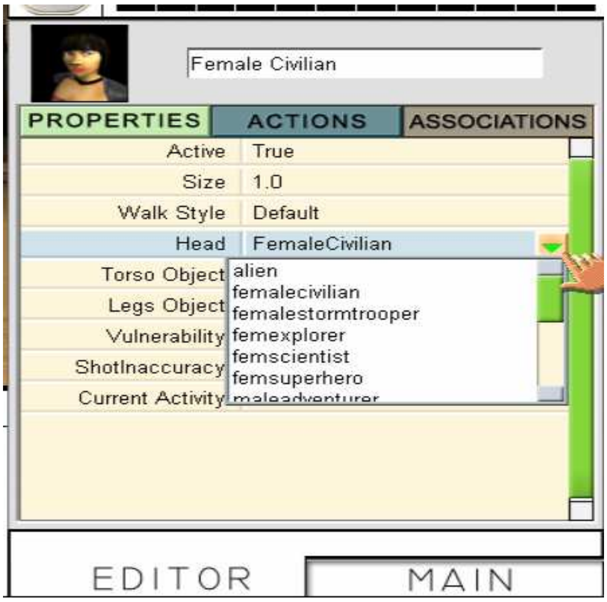


Female Civilian

Active	True
Size	1.0
Walk Style	Default
Head	FemaleCivilian
Torso Object	FemCivilian
Legs Object	FemCivilian
Vulnerability	50
ShotInaccuracy	0.1
Current Activity	Idle

Properties

You're probably familiar with many of the **Properties** by this point, and within the game the **Character** functions in many ways like the objects you've already explored. For instance the default is, 'Active' and the size 1.0. Both of these can be changed, so you can make **Characters** appear as if from nowhere and, by changing the size, you can create tiny, pixie helpers or giant monsters.



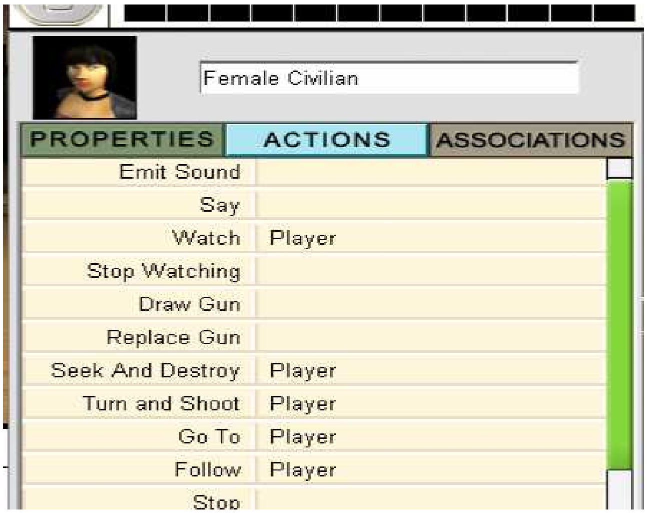
Female Civilian

Active	True
Size	1.0
Walk Style	Default
Head	FemaleCivilian
Torso Object	alien
Legs Object	femalecivilian
Vulnerability	femalestormtrooper
ShotInaccuracy	femexplorer
Current Activity	femscientist

alien
femalecivilian
femalestormtrooper
femexplorer
femscientist
femsuperhero
maleadventurer

- In order to suggest something about your **Character**, and introduce greater personalisation, you can alter both the appearance (head, torso, legs) and walk style. (Remember the heads, bodies, legs books you had as a child?).
- Vulnerability indicates how many times you may need to shoot them or wave your wand (!) and so make them disappear. The higher the number the harder it will be. It doesn't quite follow with the definition of vulnerability – so it might help to think of it as the number of bullet-proof vests the **Character** is wearing!
- Current activity can't be changed in the **Properties** dialogue box, but it does record the decisions made in the **Actions** area. Consequently it is 'greyed out'.

Actions
This is another quite involved dialogue box involving the use of the scroll bar to see all of the options. It really is worth playing with these, but the following may help you start the process. You'll immediately recognise some of the **Actions** associated with earlier features in the game.

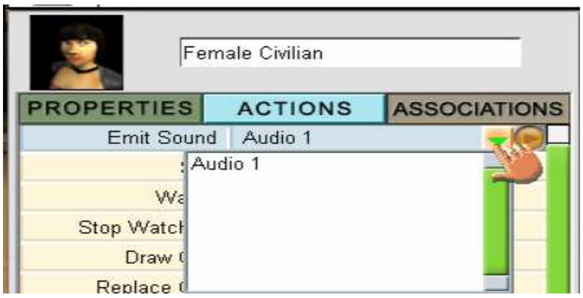


Female Civilian

PROPERTIES | ACTIONS | ASSOCIATIONS

Emit Sound	
Say	
Watch	Player
Stop Watching	
Draw Gun	
Replace Gun	
Seek And Destroy	Player
Turn and Shoot	Player
Go To	Player
Follow	Player
Stop	

- If you have created an audio file, you can make the **Character** 'Emit Sound'. Click on Emit sound, click on the downward facing arrow and choose the **Media** file you want and then select the 'Trigger' by clicking on the right facing arrow.



Female Civilian

PROPERTIES | ACTIONS | ASSOCIATIONS

Emit Sound	Audio 1
	Audio 1
Wa	
Stop Watcl	
Draw (	
Replace (	

- Similarly with 'Say' you need to have created the **Media** file first. See the **Speech** hints and tips box below.

- With Watch you can control what the **Character** sees. Clicking on this line provides you with a menu of the things that the **Character** could potentially watch. Click on the downward facing arrow. Having selected, click on the right facing arrow and set the 'Trigger'. This, along with the 'Stop Watching' means that you can change the focus at any time in the game.

Shoot 'em Ups

The are four 'shooting' lines :

- Draw gun
- Replace gun
- Seek and destroy
- Turn and shoot

These are useful if the game genre is a 'Shoot 'em Up'. Each option operates in the same way as anything else that is managed by a 'Trigger'. That is select line; select trigger and establish the rule.

Where there is a choice of target, you'll be provided with a drop down menu.

For the Player to shoot, the game author needs to have provided the appropriate **Pickups**. These are a wand or gun and ammunition (bullets or flowers!).

To shoot, the Player selects the gun or wand and clicks on 'Use'. This activates the cross hair mechanism for shooting.

1. Go To and Follow operate in a similar way to ‘shoot’. Select where you want them to go or who to follow from the drop down menu and then the ‘Trigger’. ‘Stop’ just requires a trigger, but you’ll need to remove this when you want the **Character** to move.
2. By using ‘Triggers’ to set ‘Active’, ‘Inactive’ or to alternate, toggle, between the two, you can make the **Character** seem to appear and disappear – great in a magic game.

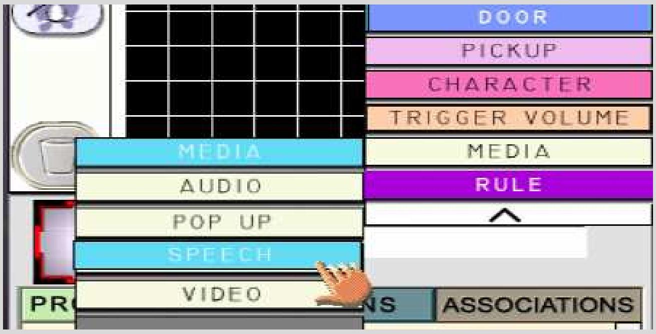
Creating Speech

In order to create a meaningful conversation, you need to plan your **Speech** carefully. What you produce could be envisaged as a branching dialogue and might be represented as a tree diagram. You may find it easier to plan this on paper first.
For example: (**C** = **Character** and **P**= Player)

C: Hello, can I help you?		
P: No thanks, I’m just looking around.	**P:** Yes, please, I need to find my way out of here.	
C: If you need me I’ll be hanging around. See you.	**C:** Why should I help you?	
	P: Because I have a gun	**P:** Because it would be a kind thing to do and I can pay you.
	C: Good call - okay	**C:** How much?

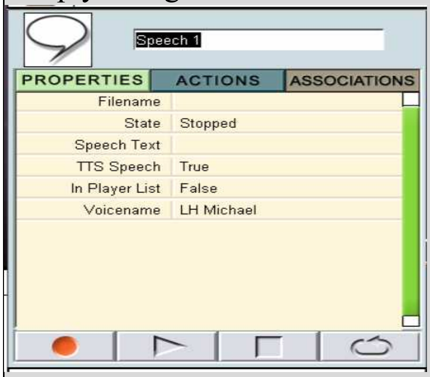
The Player’s potential comments can be made to appear in the ‘Player List’ and the **Character’s** reactions can be made to depend on the choice the Player makes.

Having got a rough, or even detailed, idea of the branching dialogue you want to create select **NEW** and **Media** from the drop down menu. Select **Speech**. You’ll see this dialogue box. (Note that it has **Properties**, **Actions** and **Associations**, just as before)



Properties

It’s worth highlighting the filename and giving your clip a meaningful title. This will help you organise the order of the conversation later as well as allocate it to the **Character** or the Player list.



Speech 1

Filename	
State	Stopped
Speech Text	
TTS Speech	True
In Player List	False
Voicename	LH Michael

The next important line is the ‘Speech Text’. Write your conversation in here.

You can now use your computer’s default Text to Speech (TTS) engine or record your own voice.

If you want to add your own recording, change ‘TTS Speech’ to ‘False’. If you’re using TTS select your ‘Voicename’ by clicking in the box.

To start recording your own voice press the red, circular button. To stop hit the square. Preview by clicking on the play arrow. It’s worth doing this to check that you have recorded!

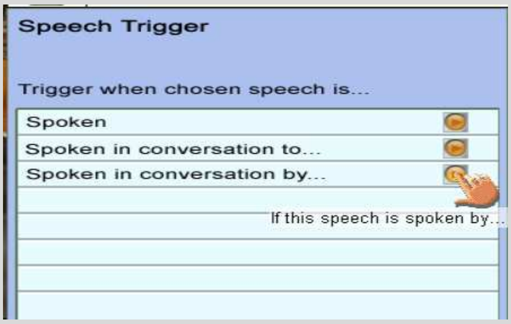
Now decide whether the **Speech** should be spoken by a **Character** or in the player list. **If it should be spoken by the player at some point, change ’In Player List’ to True.**

Actions

I tend to use **Actions** in **Speech** for the Player's **Speech**, these are the options that get added to the Player's List, but add the **Character's Speech** by clicking on the **Character** who is to speak.

Character Speech

1. Click on the **Character**.
2. Click on **Actions**
3. Select 'Say' and the downward facing arrow to select the piece of **Speech Media.** Click on the right facing arrow and choose the 'Trigger'. If this is the first speech you may want a spatial trigger or object clicked. If it's part of an ongoing dialogue, this is likely to be a Speech Trigger. Select this from the **MY GAME** menu and **Media**.
4. Click on speech trigger. Select the piece of speech from **MY GAME** and this dialogue will appear. Click spoken in conversation by and then select who speaks it. If it's the player you need to click **MY GAME** menu again and on Player Attributes.



Speech Trigger

Trigger when chosen speech is...

Spoken

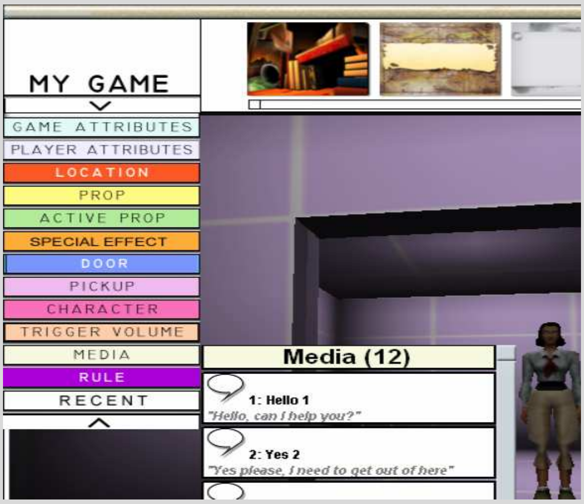
Spoken in conversation to...

Spoken in conversation by...

If this speech is spoken by...

Player's Speech

1. Select the **Speech** you want to activate. To do this, go into the **MY GAME** menu and click on the relevant piece of **Media**. It will open the dialogue box on the right hand side.
2. Go into **Actions** and click 'Add to Player List' and click on the arrow at the end of the row. This will bring up the 'Trigger Type' dialogue box.

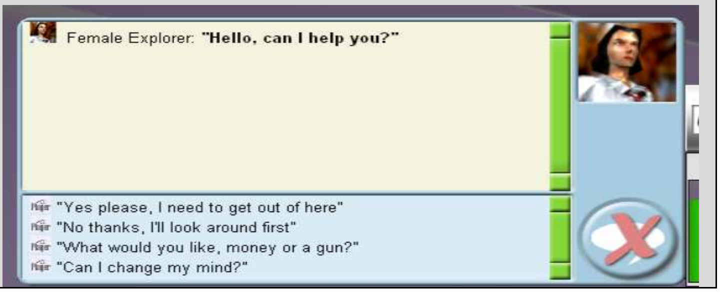


Media (12)

1: Hello 1
"Hello, can I help you?"

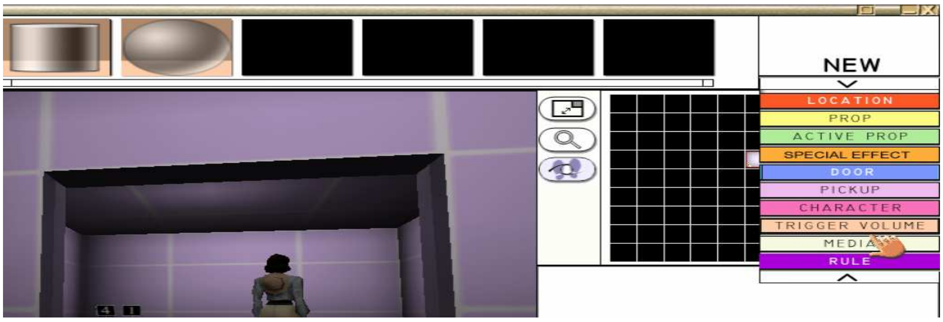
2: Yes 2
"Yes please, I need to get out of here"

3. Click on the appropriate trigger. If this is a' Speech Trigger' you will be asked to select a piece of **Media** from your game. You do this by returning to the **MY GAME** menu, selecting, **Media** and then the speech you want to use as a trigger to add the **Speech** to the player list. Click spoken in conversation by and then select who speaks it. It's worth noting at this point, that the **Character** always has the last word! That means, that in order for the **Speech** to appear in the player list, you have to have created a possible response for the **Character**.
4. After a player has made his or her response you might want to remove the **Speech** from their list. This helps keep the options manageable. Decide if the player is likely to want to use the response again. If not, click on the 'Remove from List'. The best trigger to use here is 'Speech'. Next select the **Media** that has been spoken. In this way, once the Player has said the **Speech**, it disappears as a choice in the list.
5. To close the **Speech** window click on the red cross.



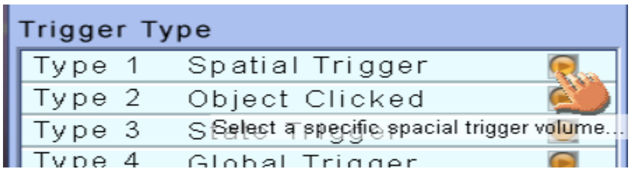
Female Explorer: **"Hello, can I help you?"**

"Yes please, I need to get out of here"
"No thanks, I'll look around first"
"What would you like, money or a gun?"
"Can I change my mind?"



Trigger Volume

Trigger Volumes can be placed anywhere within the game world and attached to both objects and **Characters**.



Trigger Type

Type 1	Spatial Trigger
Type 2	Object Clicked
Type 3	S Trigger
Type 4	Global Trigger

Select a specific spacial trigger volume...

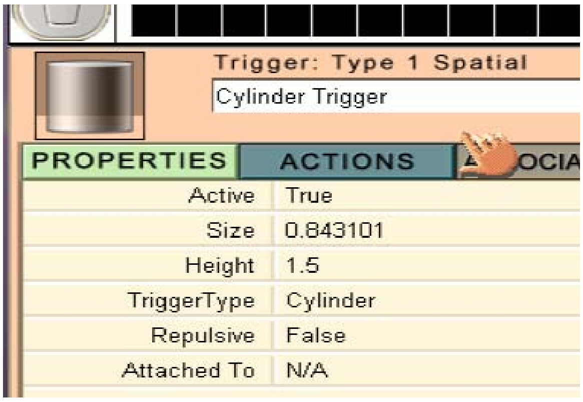
They can then be selected as one of the Triggers to prompt an action. This is the 'Spatial Trigger'.

The **Trigger Volume** can be activated by a **Character**, the Player or an object (**Pickup**) entering the space. For instance, put a key in a trigger volume in front of a door and the door can be made to open.

Actions and **Associations** are similar to other gameplay features. There are, however, some additional **Properties**.

Properties

1. To place a **Trigger Volume**, select either the cylinder or sphere. The cylinder is probably easiest to manage. Drag it into position much as you would a **Prop**. Click on it again to rotate or lift, as well as resize. This can be tricky, so you need to practise!



Trigger: Type 1 Spatial

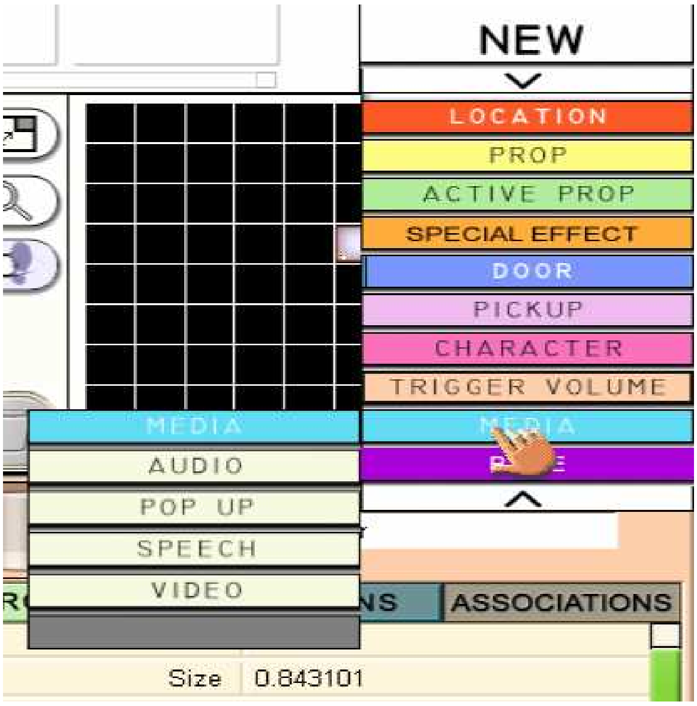
Cylinder Trigger

Active	True
Size	0.843101
Height	1.5
TriggerType	Cylinder
Repulsive	False
Attached To	N/A

2. To resize, drag the sides to make it wider, drag the bottom or top to make it taller. You can also change the dimensions by overtyping the figures in the dialogue box.
3. 'Repulsive' means that a **Character** will not walkthrough it. This means that you can stop them walking through fires and the like.
4. 'Attached To' means that it's possible to add a **Trigger Volume** to a **Character** or object and then use this to trigger an action if the Player or another object enters that space. It is worth attaching **Trigger Volumes** to Characters if they are going to move. You can achieve simple trading in this way. For instance, the **Character** wants money, the player throws a **Pickup** coin into the **Trigger Volume**, (makes it inactive) and then the **Character** performs the required task ...

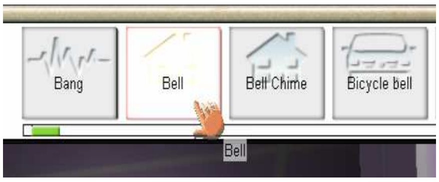
Media

As you can see from the image, there is a range of different **Media** types.



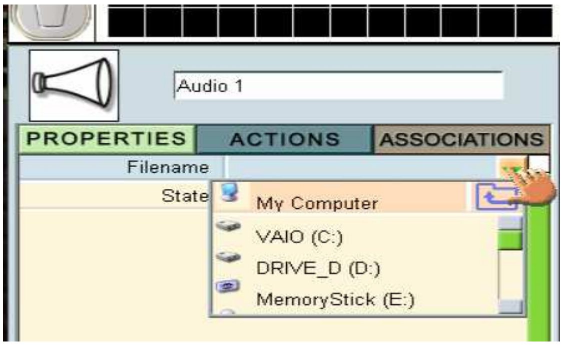
Audio

By clicking on this tab you are provided with a selection of sound effects. To preview them just click on the appropriate image in the selector bar. Scroll along until you find a suitable noise.



Don't worry if you can't, you're able to add your own.

To do this click on the 'Filename' line and using the down facing arrow navigate to where your sound is stored on your computer or network.



This needs to be in MP3 format. (There are free tools to convert files to MP3, for example, Audio Video to MP3 Maker which can be found with a Google search. Others include Quintessential and Audacity).

Once you've selected your sound effect, give the audio a more memorable name. Next you can choose to alter the **Properties** and create **Actions**.

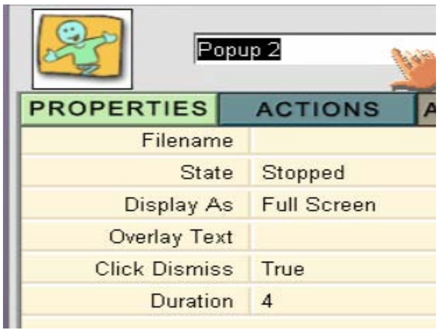
Properties
As always, these are pretty straightforward: just filename and then the default setting (which is 'stopped').

Actions
Here you can choose the Trigger to make the sound effect play much as you would anything else.

Popup

This is probably one of the first things you'll want to create once you've grasped the functionality and have started making a game.

Having planned, and built your 'world' you'll probably want to create a **Popup** that plays at the start of the game (Global Trigger) to establish the context and set the gameplay objectives. It can also be used to add images in jpeg format.



Popup 2

Filename	
State	Stopped
Display As	Full Screen
Overlay Text	
Click Dismiss	True
Duration	4

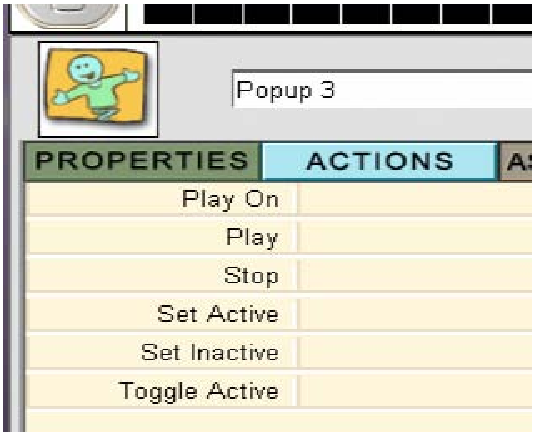
Properties

1. It's worth overtyping the name of the **Popup** so it's easy to find in your list of **Media** in the **MY GAME** menu.
2. Next select the **Popup** you want from the selector bar at the top. When you've selected this the name will appear in the 'Filename' line.
3. If you want to add your own jpeg picture navigate to where it is saved through the 'Filename' line. Just as you did with the audio.
4. The default position is 'Stopped'. (Set when you want it to play in the **Actions** dialogue box.)
5. Choose whether or not you want to play as full screen or as a small **Popup**.
6. Type the text you want to appear in the 'Overlay Text' section.
7. Finally you need to decide whether you want the **Popup** to disappear if the player clicks on it and how long the text should stay on the screen. The default is 4 seconds.

Actions

In order for the **Popup** to 'Play On' something, the game author needs to have added an editable **Active Prop** to the game space. There are a few problems with displaying text on editable props in the Beta version.

Editable props include monitors, TVs, banners and so forth. If one *has* been added, the 'Play On' line includes a drop down menu (down facing arrow) from which the author can select the object onto which the **Popup** will play.



Popup 3

Play On	
Play	
Stop	
Set Active	
Set Inactive	
Toggle Active	

Having selected the screen/object the author then selects the trigger and creates the rule. All the other possible **Actions** operate as in previous features.

Speech

This has already been covered under **Character**.

Video

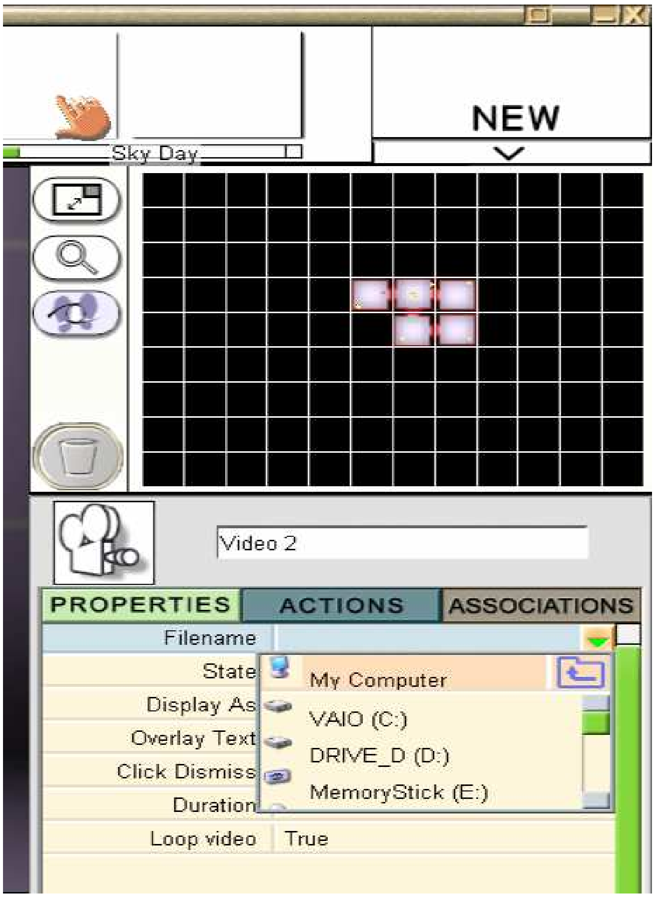
You can add any **Video** to your game as full screen or to an editable **Active Prop**.

Properties

There are some **Video** loops provided and, although there is no image in the selector bar the tooltip tells you what this is. Click on one of these and the name will appear under 'Filename'. (depending on your machine's codec settings you may have problems with some of these).

Alternatively, if you have your own **Video**, you can click on the downward pointing arrow and navigate to where it is saved on your network.

The default is to play full screen. If you want it to play on an **Active Prop**, change the 'Display As' line.



Video 2

Loop video True

You can add 'Overlay Text', much as in a **Popup**, but only in full screen mode. You can also change the duration when in full screen mode. Type in the number of seconds you want the **Video** to last. This allows you to shorten a performance. If you want to play the whole thing leave this as 0.

The final line enables looping. If you don't want this to happen, change 'True' to 'False'.

Actions

These are much as with other features with the author/editor selecting Triggers to create rules. 'Play On' allows you to select the **Active Prop** on which you wish the **Video** to be displayed.

My Game Menu

The two areas of this you might want to alter, probably near the start of creating your game, are: **Game Attributes** and **Player Attributes**. In this area you can set the goals of the game, criteria for failure and success and so forth.

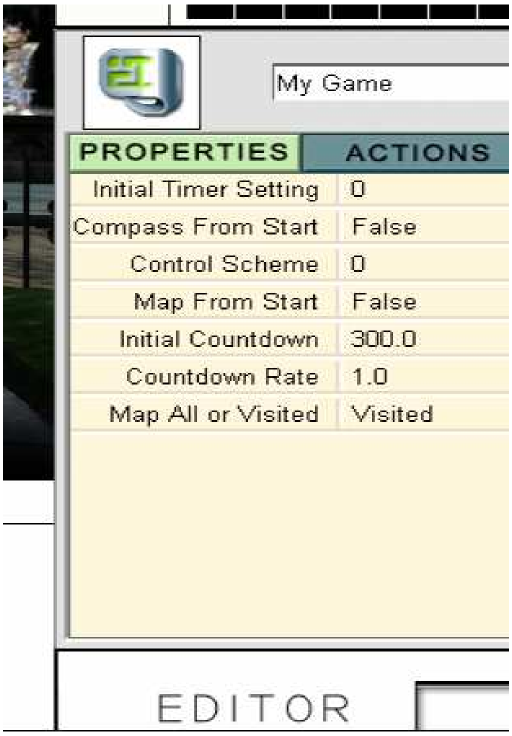
The other sections list the features you have added to your game. If you want to change a **Rule** access it from this menu.

Game Attributes

This is where settings can be applied to the whole game.

Properties

You can change the name of your game in the box at the top, by overtyping 'My Game'.



My Game

PROPERTIES | ACTIONS

Initial Timer Setting	0
Compass From Start	False
Control Scheme	0
Map From Start	False
Initial Countdown	300.0
Countdown Rate	1.0
Map All or Visited	Visited

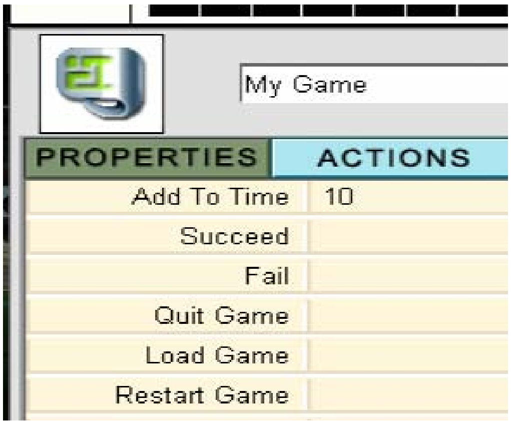
Initial Timer Setting and **Control Scheme** don't currently do anything.

Compass and Map From Start – just decide whether you want the player to have access immediately. By default they're not available. Change to 'True' if you want them to appear in the player space.

Initial Countdown, this is set at 5 minutes (300 seconds). Nothing happens if you exceed this time. To do this you need to establish a rule.

Countdown rate is in seconds, but can be speeded up – not sure why you would want to do this because it can't be triggered as it's not an action – you may, however, have ideas!

Map All or Visited is a choice you can make at the start. Will the player have the map of the whole world (when the map is made available) or will they only see the **Locations** they have visited and so build up their world picture slowly.



My Game

PROPERTIES | ACTIONS

Add To Time	10
Succeed	
Fail	
Quit Game	
Load Game	
Restart Game	

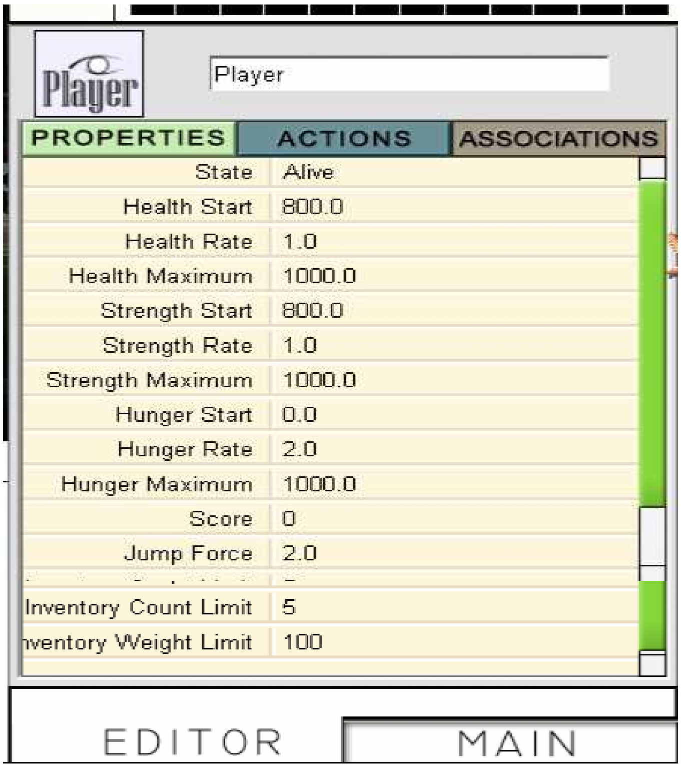
Actions

As with previous **Actions** these need to be triggered by something. So, having selected one you are asked to select a trigger and establish a rule. Most a re self-explanatory, but for those that aren't:

Quit Game takes you to the Editor and out of Player mode.

Load Game allows you to link different games – almost a *teleporting* feature. The only limitation is that the player doesn't take anything in their inventory with them.

Player Attributes



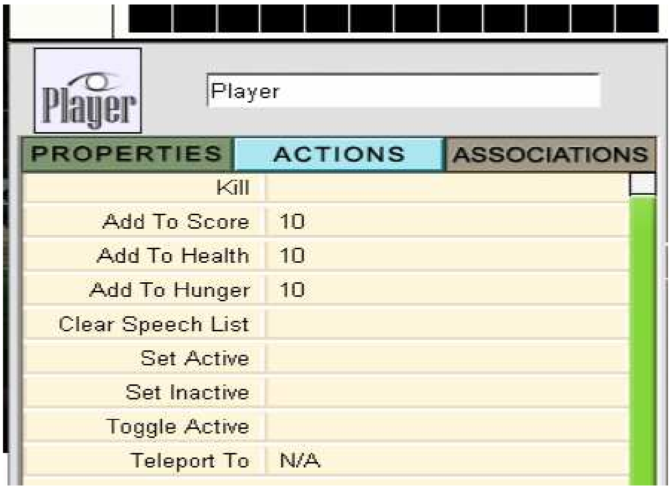
State	Alive
Health Start	800.0
Health Rate	1.0
Health Maximum	1000.0
Strength Start	800.0
Strength Rate	1.0
Strength Maximum	1000.0
Hunger Start	0.0
Hunger Rate	2.0
Hunger Maximum	1000.0
Score	0
Jump Force	2.0
Inventory Count Limit	5
nventory Weight Limit	100

Properties
This is where the game designer establishes the Player's health, strength and nutrition levels at the start of the game as well as the speed with which they deteriorate.

The editor can also establish how high the player can jump, as well as the size (number) and weight of the items that can be added to the inventory.

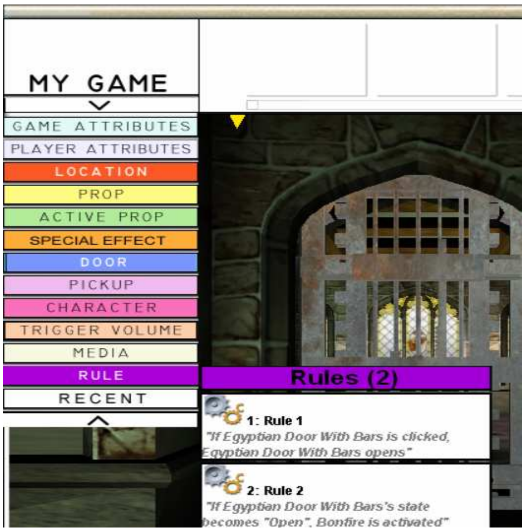
If you want to give the Player a name overtype the 'Player' box at the top.

Actions
Here the Editor can enable these **Player Attributes** to change in response to selected triggers and rules.



Kill	
Add To Score	10
Add To Health	10
Add To Hunger	10
Clear Speech List	
Set Active	
Set Inactive	
Toggle Active	
Teleport To	N/A

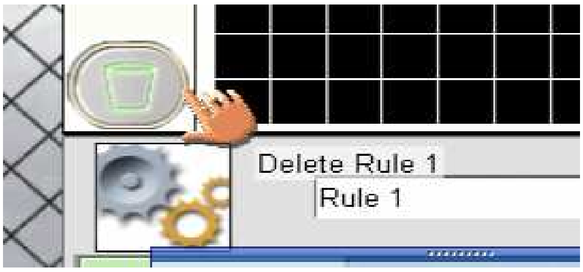
Rules



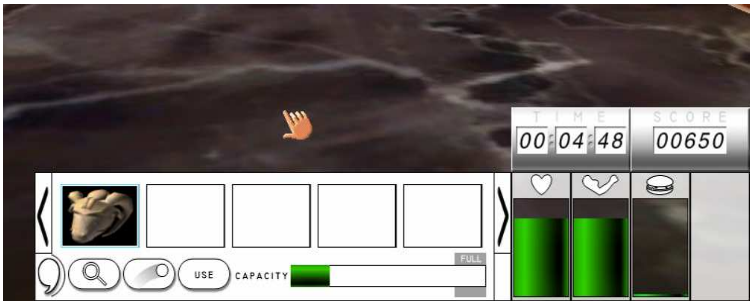
1: Rule 1
"If Egyptian Door With Bars is clicked, Egyptian Door With Bars opens"

2: Rule 2
"If Egyptian Door With Bars's state becomes "Open", Bonfire is activated"

To alter a **Rule** click on the **MY GAME** menu and **Rule**. You will see a list of all the **Rules** you have made. Select the one you want to alter and it will appear at the bottom of the screen. Amend as you want. If you wish to delete a **Rule** click on the bin.



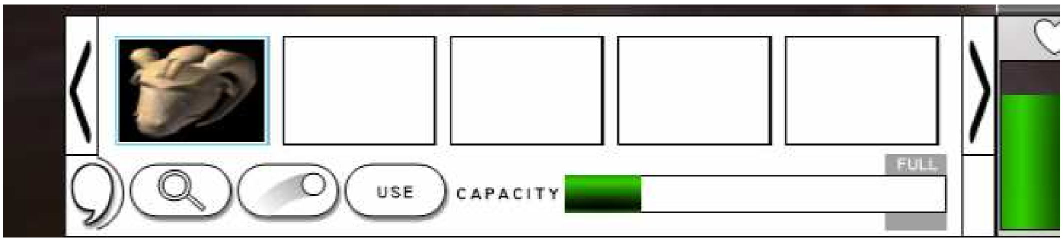
Brief Walkthrough of Player Features



In player mode various things happen at the bottom of the screen.
You'll find the:

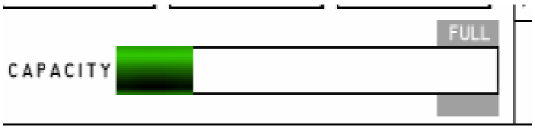
- **Inventory**
- **Economies**
- **Speech**.
- **Camera/Player's Log**

Inventory



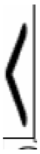
Pickups can be left clicked and dragged to the inventory.

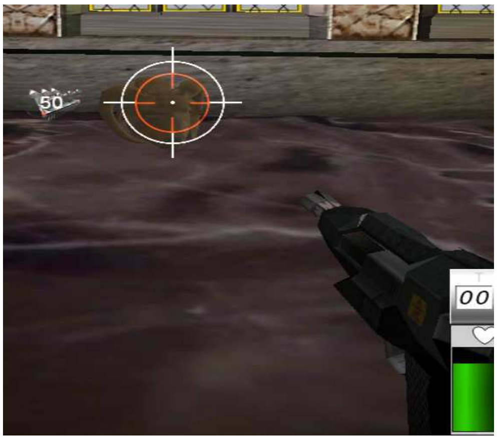
- To explore them more fully the Player should click on the magnifying glass.
- To eject a **Pickup**, Players use the throw button.
- To use an item such as the gun or wand they click on the 'use' button.



The green capacity bar indicates how full the inventory is, or conversely how much more room there is.

The arrows at either end allow the Player to scroll through an inventory that holds more than five objects.





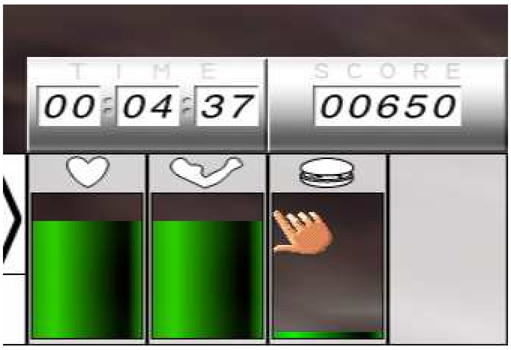
When you click on Use with an item such as a gun or wand, you'll see the gun barrel, cross-hairs and a number representing the amount of ammunition you have left.

To shoot left click.

To return to the inventory, the Player must right click.

Other **Pickups** can be used to add to health, strength and nutrition economies, as well as to points.

Economies



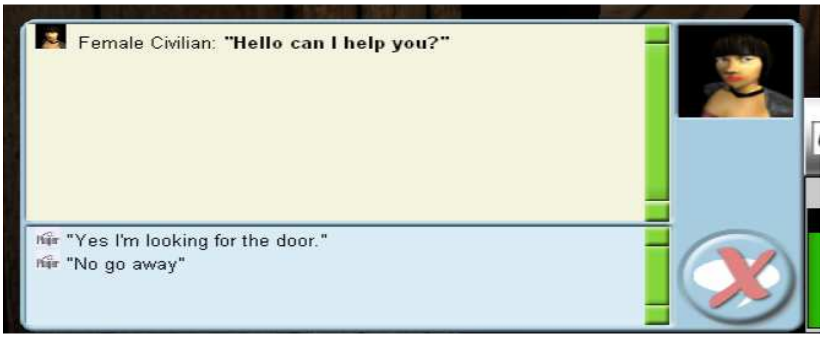
These comprise:

- a timer at the top left; the default will be to countdown from 5.00 minutes
- the score top right
- health – bottom left
- strength bottom centre
- nutrition bottom right

Health and strength reduce whereas nutrition increases.

To add to any of these scores the editor/author needs to establish the rules.

Speech



Female Civilian: **"Hello can I help you?"**

"Yes I'm looking for the door."

"No go away"

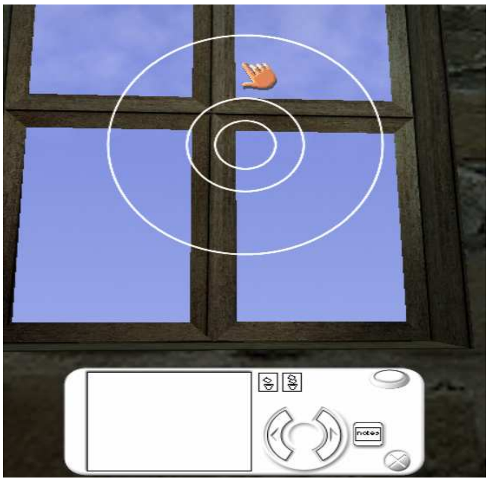
When a Character speaks this box appears.

The Player can select their response from the box at the bottom.

Click on the red cross to close this window.

Click on the speech bubble at the edge of the inventory to open it.

Camera/ Player's Log



Press **F6** to activate the Player's log.

Aim the 'sight' at a selected image and press the button (top right) to take a snapshot.

Click on the **notes** button to add a commentary.

Players can scroll through images and notes by using the curved arrows. They can delete one or all of their pages of notes and pictures by clicking on the bin.

At the end of the game they'll be asked to save their images.
Close by clicking on the cross – bottom right.

Glossary

Active/Inactive This refers to whether the object is in use, and visible, in the gameplay space. Inactive means that the object is no longer there and can be made to 'disappear' by magic or violence!

Attach to **Trigger Volumes** can be attached to objects or **Characters**, this is useful when they wander about!

Click dismiss This allows the Player to make **Media** disappear once they've got the information they need.

Compass The Game designer can include a compass so that Players can orientate themselves within the gameplay space.

Duration Length of time in seconds.

Emissive This refers to something like a screen emitting its own light., thus it would glow in a darkened room.

Map The Game designer can include a map so that Players can see where they are and/or where they have been within the gameplay space.

Repulsive **Trigger Volumes** can be used to prevent **Characters** going into certain areas, thus avoiding **Special Effects** or creating safe spaces for the Player.

State All of the objects in the game have at least two states, active and inactive. many have more: on/off; up/down and so forth.

Toggle This means switching between states depending on the action chosen.

Vulnerability This is currently a little counter intuitive: it does refer to the ease with which something or someone is destroyed but the higher the 'vulnerability' the harder it is to destroy them. View the number as layers of protection.

Checklist!