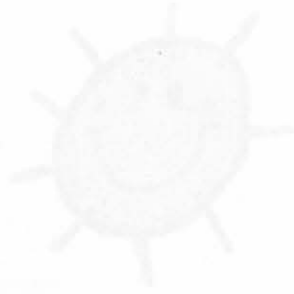


Appendix C

iTiles Ecosystem Virtual Laboratory manual

A guide to using the iTiles
Ecosystem Virtual Laboratory

This section presents the manual for the iTiles Ecosystem Virtual Laboratory application.

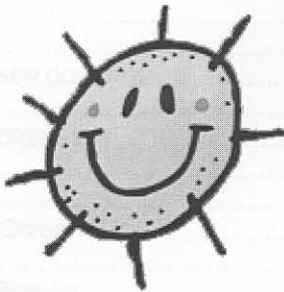


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iTiles

Intelligent Tiles

A guide to using the iTiles Ecosystem Virtual Laboratory



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Installation instructions

The iTiles Ecosystem Virtual Laboratory application requires about 30Mb free hard drive space. On the CD please execute the installation program <install.exe> which can be found in the <Installation> directory. This will launch the WinZip Self-Extractor application that will prompt you to which folder you wish to install iTiles (the default is c:\iTiles).

Starting the program

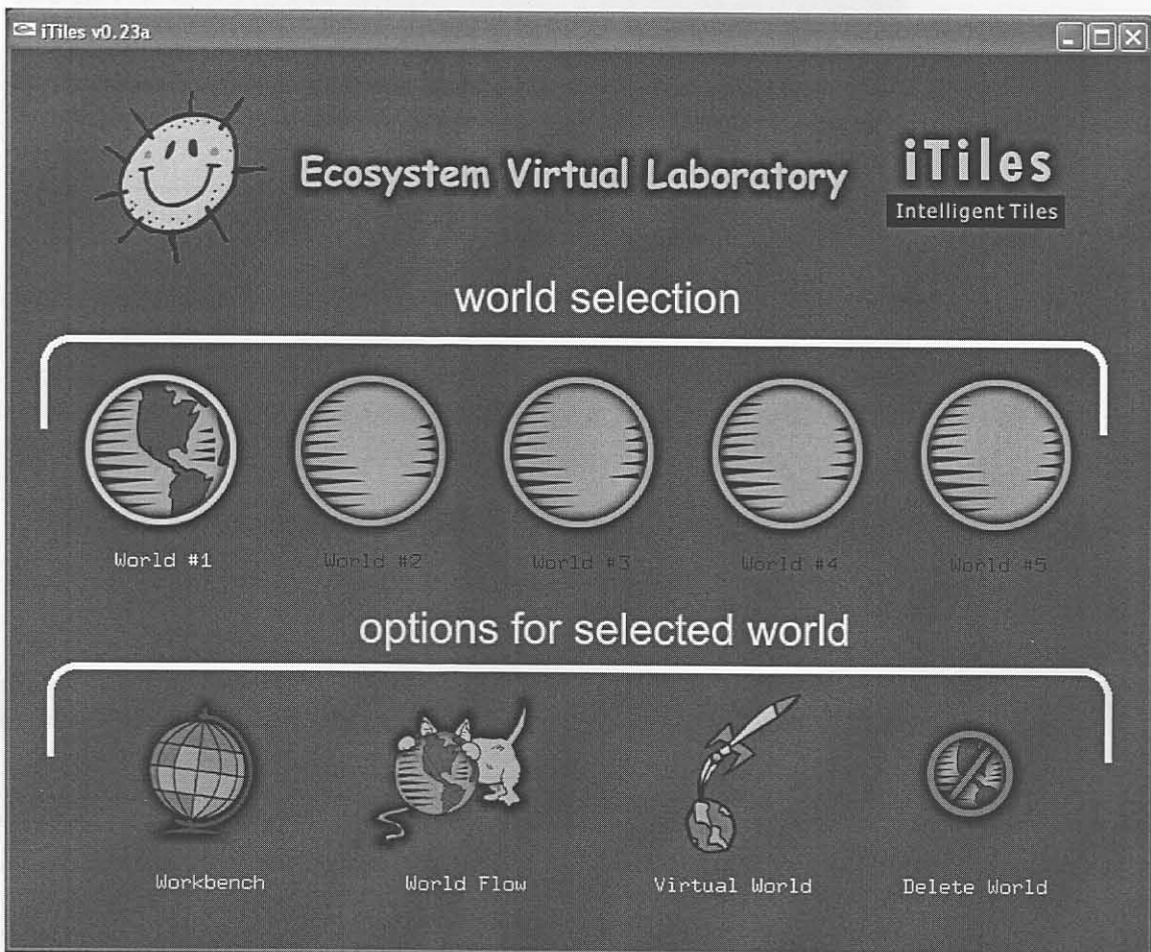
To start the program run the executable <iTiles.exe> found in the directory of installation.

All DLLs required for the execution of iTiles can be found on the installation CD in the directory named <Installation/DLL>. If you are experiencing problems starting the program, please copy the required DLL from this directory to the directory where you installed iTiles.

Using the program

The introduction screen

When the application is launched the introduction screen is shown, allowing you to choose which iTiles world you wish to work with during your iTiles session. The selected world will be highlighted with a yellow circle (as shown in the image below with World #1 being selected).



There are five world slots available in the iTiles system. If a world slot is empty, it is indicated with an empty world (in the image above, World #2-5 are empty). To clear a world slot, you can press the delete world button in the options section for the selected world.

The function buttons will be coloured red and appear as negatives if they are not available.

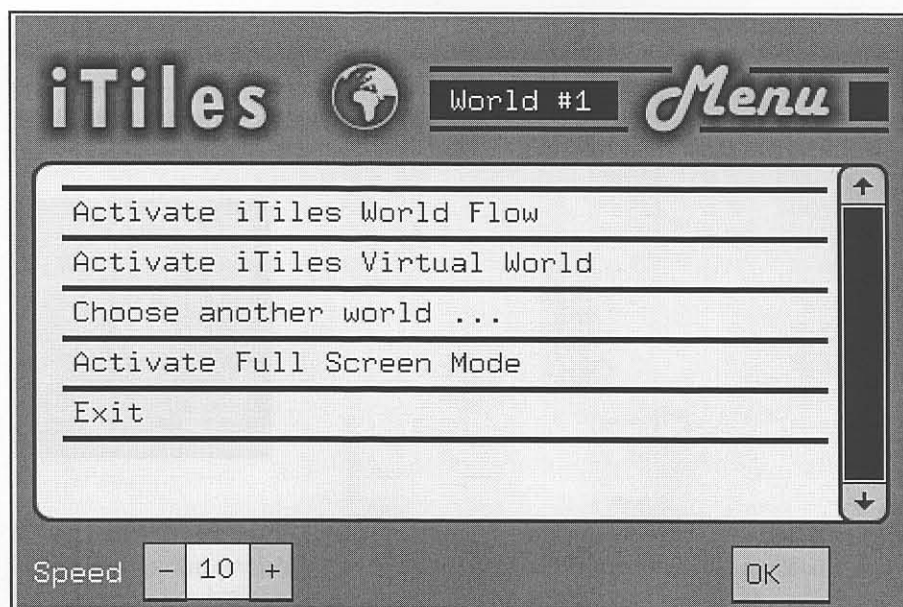
An iTiles world requires that the iTiles world first be authored using the iTiles Workbench tool before proceeding with the iTiles World Flow tool. Once the World Flow has been saved for that iTiles world, you activate the iTiles Virtual World simulation.

The text below the Workbench and World Flow functions will be coloured yellow if the world already has these attributes, and white if it doesn't and the function is available to proceed with (e.g.: If a world already has an authored world defined in a workbench, the text will be yellow)

Activating the menu

The iTiles menu is available at any time during the program.

Press the <Esc> key on the keyboard to activate the menu. Press <Esc> again to make it disappear if you do not wish to use the menu. For instructions on how to change the animation speed value please see below.



The menu also displays the currently selected world slot (in the image above, world slot #1 is selected).

The following functions are available from the menu. Please note that some options may not be available, since they are dependent on the program's current state.

Function	Description
Activate iTiles Workbench	Launches the iTiles Workbench tool
Activate iTiles World Flow	Launches the iTiles World Flow tool
Activate Virtual World	Launches the iTiles Virtual World simulation tool
Choose another world ...	Takes you back to the introduction screen where you can choose another iTiles world
Activate Full Screen Mode	Make the application fill the whole screen
Activate Windowed Mode	Application is enclosed within a window
Exit	Exit the iTiles Ecosystem Virtual Laboratory

Animation speed

The animation speed value is used in a camera smoothing function for the animation of smooth transitions in the 3D virtual environment. The smoothing function is dependent on how fast a computer's processor is, and whether or not the PC has a 3D accelerator card. The larger the animation speed value, the smoother the camera animation will be. For a slow computer without a 3D accelerator, a low animation speed value is recommended.

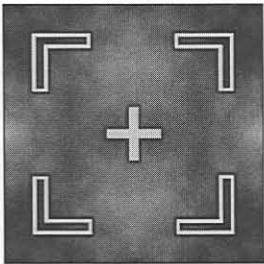
To change the animation speed, press <ESC> to display the menu, change the speed value and press <ESC> again to make the menu disappear (If you don't do this and press the OK button, an option in the list may have been selected and you'll turn up where you don't want to be).

Using the iTiles Workbench tool

Navigation in the environment

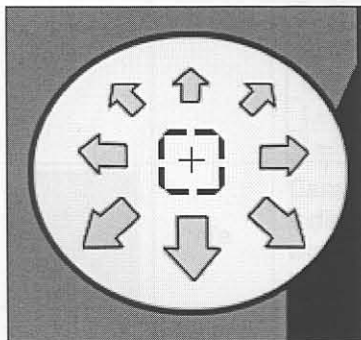
Selection indication

The selected tile in the environment is indicated by a crosshair. In camera tracking mode (see below in the camera navigation section), the selected tile will always appear in the centre of the screen. When world object authoring mode is activated a white wire frame cube will be drawn around the selected world object.



Navigation







Navigation in the environment is done by clicking the arrows indicated in the image below, or by using the equivalent arrow key on the keyboard.



Camera navigation

The view of the world can be changed. The world's axes can be changed and functionality for zooming in and out is available.

The following table explains the different camera modes available. The cursor will change when certain camera modes are activated.

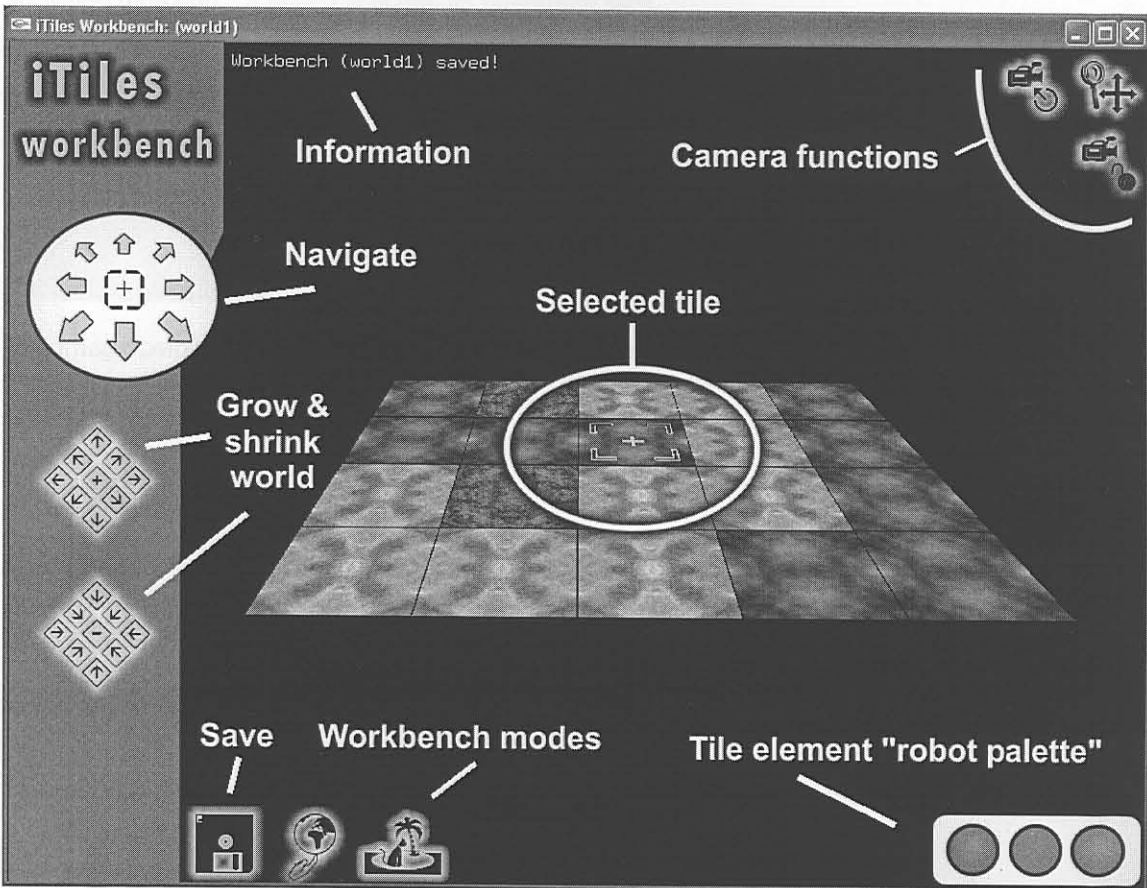
Button	Cursor	Description																					
		<p>Camera Rotation Click this button to enable Camera Rotation mode. When this mode is activated the image will be blue and the mouse cursor will change as indicated. To deactivate the mode, re-click the button.</p> <p>The following mouse movements influence a transformation in the camera's position and are achieved by keeping the mouse button pressed and moving the mouse in a particular direction (drag the mouse gently and slowly in the desired direction).</p> <table border="1"> <thead> <tr> <th>Mouse button</th> <th>Mouse movement</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Right</td> <td>Left</td> <td>World rotates left</td> </tr> <tr> <td>Right</td> <td>Right</td> <td>World rotates right</td> </tr> <tr> <td>Left</td> <td>Up</td> <td>World tilts up</td> </tr> <tr> <td>Left</td> <td>Down</td> <td>World tilts down</td> </tr> <tr> <td>Left</td> <td>Left</td> <td>World moves left</td> </tr> <tr> <td>Left</td> <td>Right</td> <td>World moves right</td> </tr> </tbody> </table>	Mouse button	Mouse movement	Result	Right	Left	World rotates left	Right	Right	World rotates right	Left	Up	World tilts up	Left	Down	World tilts down	Left	Left	World moves left	Left	Right	World moves right
Mouse button	Mouse movement	Result																					
Right	Left	World rotates left																					
Right	Right	World rotates right																					
Left	Up	World tilts up																					
Left	Down	World tilts down																					
Left	Left	World moves left																					
Left	Right	World moves right																					
		<p>Zoom and panning This is for zooming and panning the world. When activated, the button colouring will be blue and the mouse cursor will change as indicated. To deactivate the mode, re-click the button.</p> <p>The following mouse movements influence a transformation in the camera's position and are achieved by keeping the mouse button pressed and moving the mouse in a particular direction (drag the mouse gently and slowly in the desired direction).</p> <table border="1"> <thead> <tr> <th>Mouse button</th> <th>Mouse movement</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Right</td> <td>Up</td> <td>Zoom in</td> </tr> <tr> <td>Right</td> <td>Down</td> <td>Zoom out</td> </tr> <tr> <td>Left</td> <td>Up</td> <td>World moves up</td> </tr> <tr> <td>Left</td> <td>Down</td> <td>World moves down</td> </tr> <tr> <td>Left</td> <td>Left</td> <td>World moves left</td> </tr> <tr> <td>Left</td> <td>Right</td> <td>World moves right</td> </tr> </tbody> </table>	Mouse button	Mouse movement	Result	Right	Up	Zoom in	Right	Down	Zoom out	Left	Up	World moves up	Left	Down	World moves down	Left	Left	World moves left	Left	Right	World moves right
Mouse button	Mouse movement	Result																					
Right	Up	Zoom in																					
Right	Down	Zoom out																					
Left	Up	World moves up																					
Left	Down	World moves down																					
Left	Left	World moves left																					
Left	Right	World moves right																					
	n/a	<p>Camera tracking Indicates camera-tracking mode is activated. The selected tile or world object will always be drawn at the centre of the screen. Click on this button to lock the camera in its current position.</p>																					
	n/a	<p>Camera locking The camera will be locked in its current position. Click on this button to change back to camera tracking. Please note, when resizing the world in tile editing mode, the camera mode will revert back to camera tracking mode if it is locked.</p>																					

The following keyboard equivalents are available for most of the above:

Key	Description
r	Reset the camera to its original location. This may be needed as sometimes the camera is completely disoriented.
x	Tilt world down
X	Tilt world up
z	Rotate world left
Z	Rotate world right
+	Zoom in
-	Zoom out
y	Tilt world left
Y	Tilt world right

Growing and shrinking the world

Tile editing mode

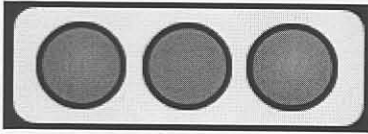


The iTiles Workbench tool automatically starts in tile editing mode. If the workbench is in world object editing mode, you can enter tile-editing mode by clicking the following button:



Editing tile elements

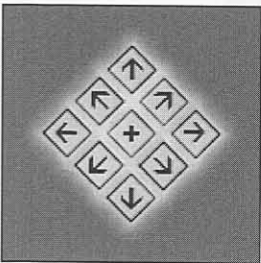
In tile editing mode, you can set the element of the selected tile by clicking on desired element type on the “traffic light palette”. The numeric keys 1,2 or 3 can also be used.



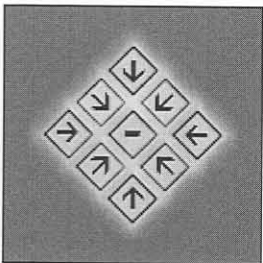
Please note: If a tile that contains a world object element is changed to an element that the world object can't be placed on, then the world object will be automatically removed from the tile.

Growing and shrinking the world

The image below contains buttons that are used for growing the world. By clicking the plus, the world will grow in all directions. Using the appropriate arrow, the world will grow in the specified direction if it hasn't reached its maximum size.

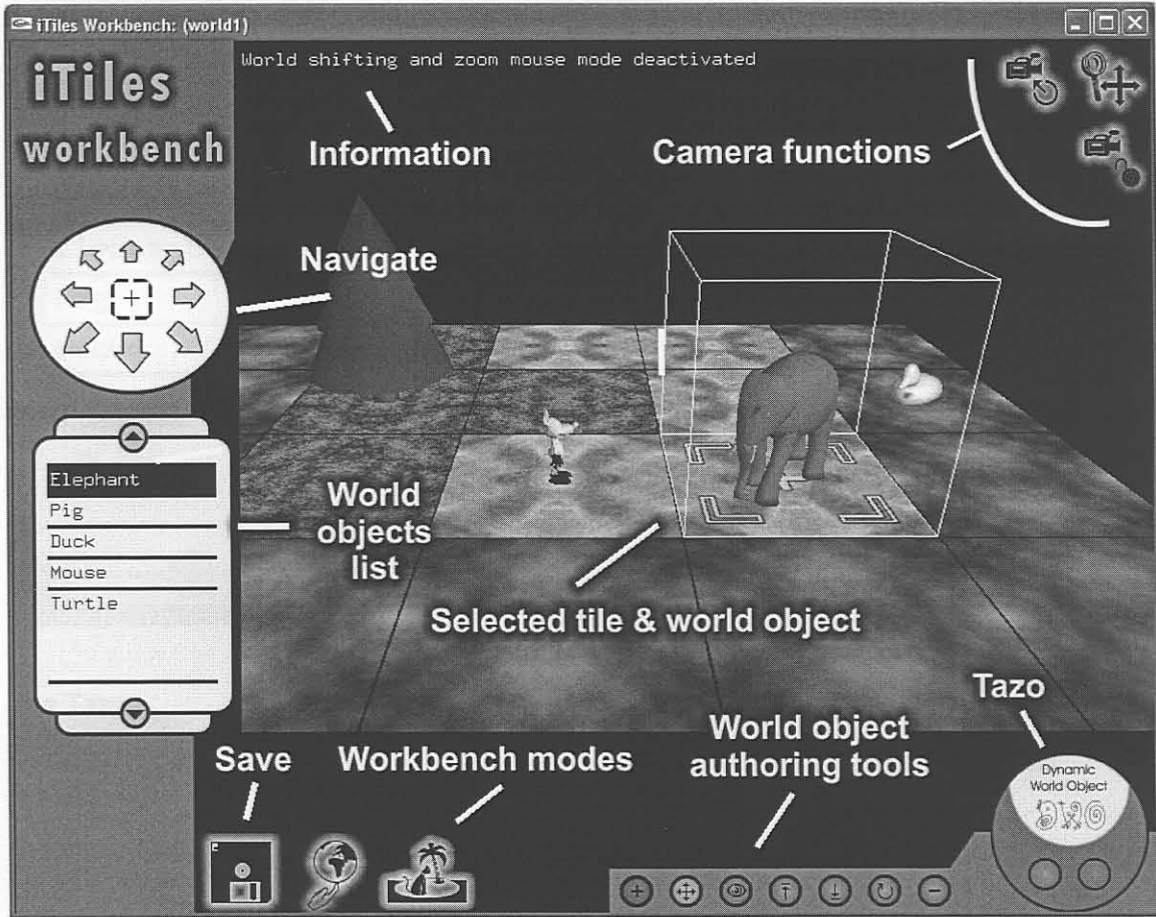


The image below contains buttons that are used for shrinking the world. By clicking the minus, the world will shrink in all directions. The appropriate arrow will shrink the world in the specified direction if it hasn't reached its minimum size.



Please note: An iTiles world has a maximum size of 10x10 and a minimum size of 2x2.

World Object authoring mode

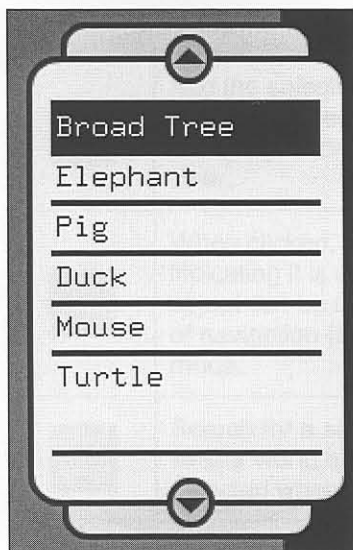


Clicking the following button will activate world object authoring mode:



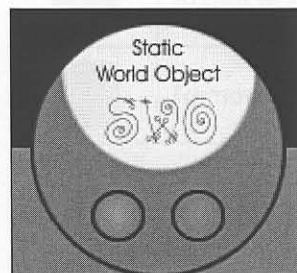
Selecting a world object

The selected world object will be indicated in the world object list. Please note that an empty tile first needs to be selected in order to change the selected world object in the list. When navigating through the world, the list will automatically be updated to select the world object that is currently being selected.










The Tazo

The Tazo indicates the tile properties of a world object that is selected and what tile elements the world object may be placed on. It also indicates whether the world object is a static or dynamic world object.



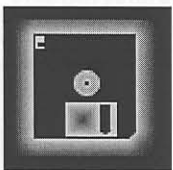
World object authoring

The following buttons are available for authoring the world objects in a world. The buttons will be coloured red if they are disabled, and green when enabled. With some buttons, a mode can be activated, and in this case the button will be coloured orange to indicate the mode is active.

Button	Description
	Add the selected world object from the list to the world on the selected empty tile. If this is red, this means that according to the world object's properties, the world object can't be placed on that particular tile type or the tile may not be clear.
	When clicked, it will activate world object movement mode (Will become orange, indicating it is activated). As long as this mode is active, the selected world object can be moved to the closest free tile it may be placed on in the direction of navigation (by navigating tiles as usual). Re-click the button to deactivate the mode.
	Search for a similar world object type in the world. This will be red if there are no similar world objects in the world. The first similar world object type will be selected when found.
	Scale world object up. When red, the world object is at its maximum scale
	Scale world object down. When red, the world object is at its minimum scale
	Rotate world object 45 degrees clockwise
	Remove the selected world object from the world

Saving the iTiles Workbench

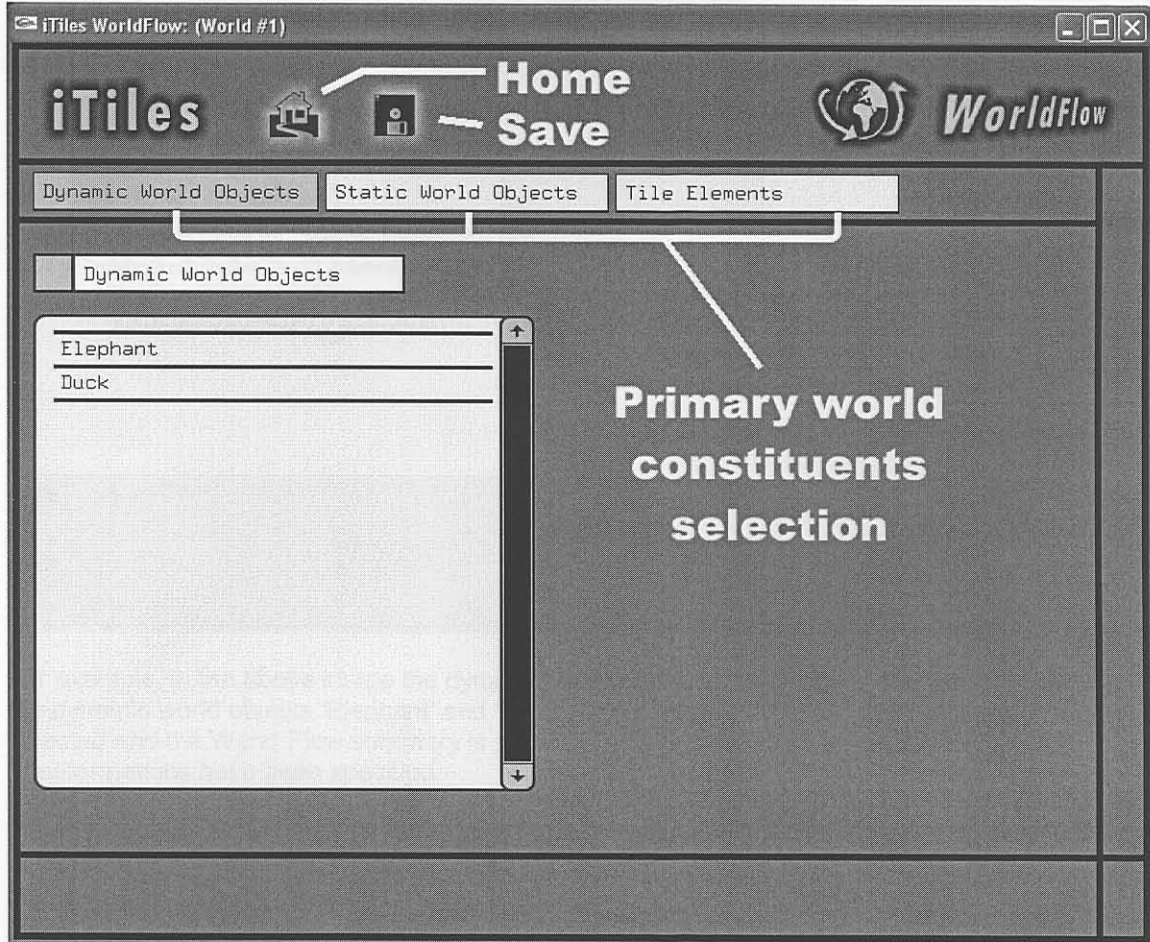
When you are happy with the world you have created, please click the following button:



Using the iTiles World Flow tool

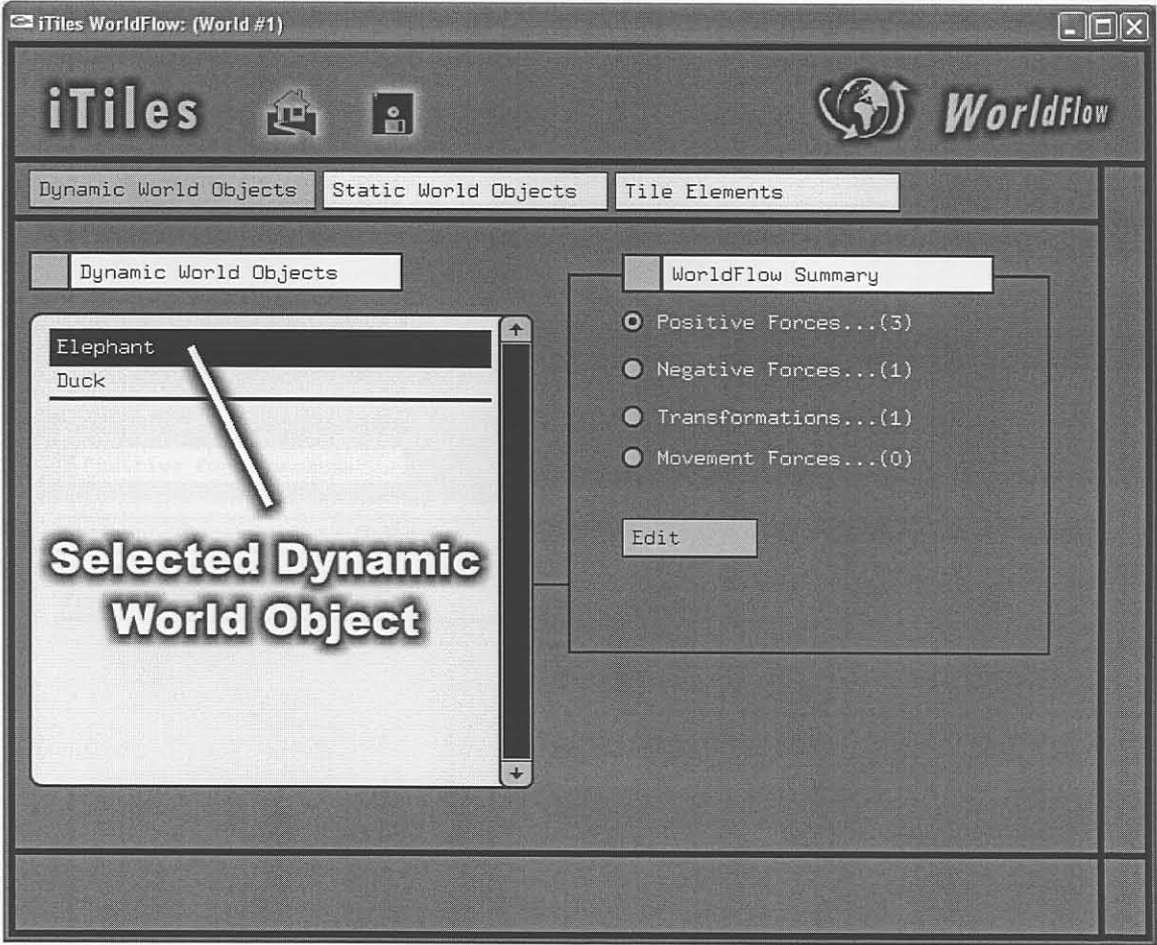
Main Navigation techniques

The iTiles World Flow main screen is presented in the image below. The home button will transport you back to this screen from any other screen in the World Flow, and the screen will remain in the same state in which you last left it.



The tab buttons at the top indicate the primary world components. When clicking on a tab button the corresponding world components will be displayed in the list. Please note that for static and dynamic world objects, the list will only contain those world object types specified when authoring the iTiles world in the iTiles Workbench tool. If the list is empty, this means that the authored world contained no such world objects types.

When something is chosen from the list, a World Flow summary is presented indicating how many forces (dynamic world objects only) and transformations exist for that selected world component. The editing and addition of these forces or transformations is done by selecting the corresponding radio button, and pressing the edit button. Pressing the edit button will take you to the selection screen which is described later in this section.



For example, in the above image the dynamic world object tab is selected, the list contains the dynamic world objects 'Elephant' and 'Duck'. The Elephant dynamic world object is selected and the World Flow summary is shown indicating how many forces and transformations have been specified.

Saving the World Flow

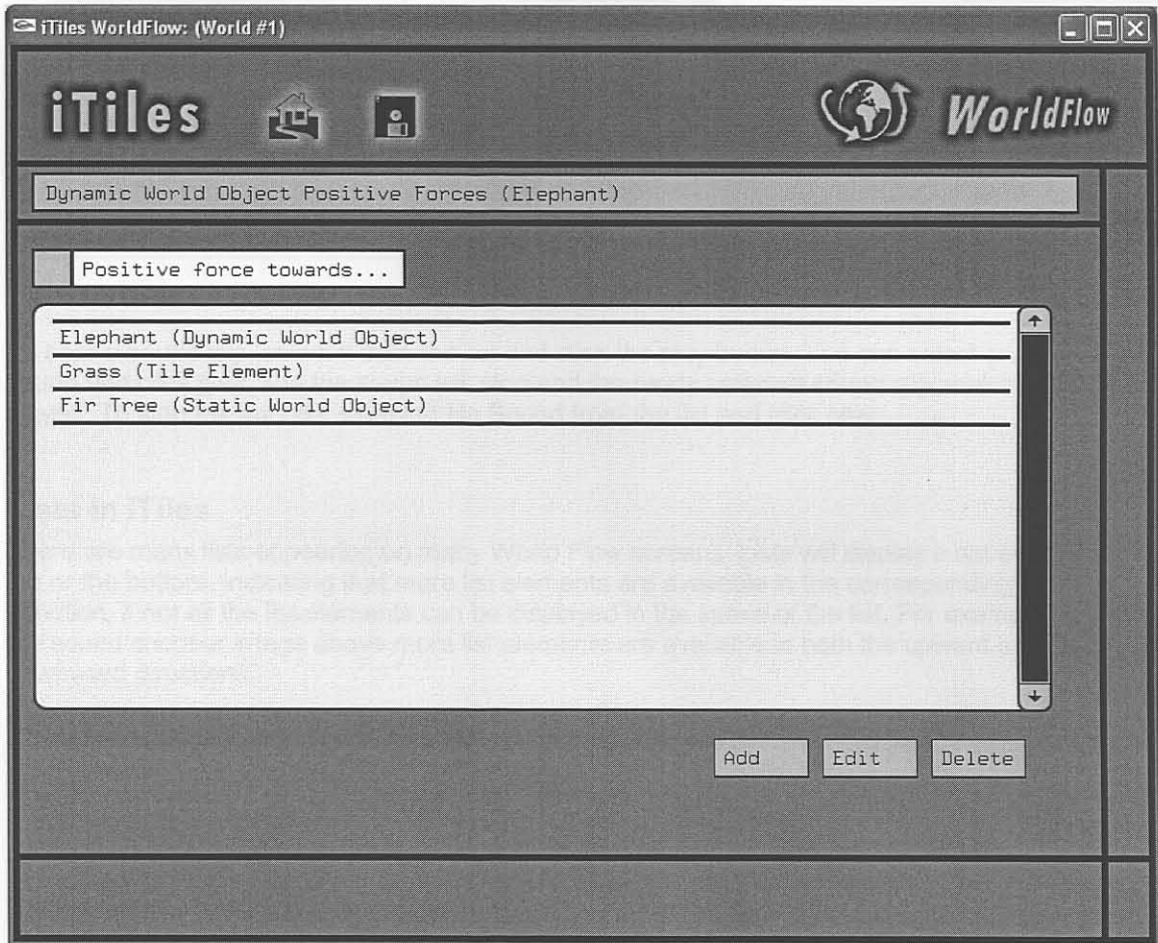
Press the save button at any time when you are happy with the World Flow you have specified.

Button	Description
Add	A new force or transformation can be added by pressing the add button.
Edit	To edit an existing force or transformation, select it from the list and press the edit button.
Delete	To delete an existing force or transformation, select it from the list and press the delete button.

Please note: In the case of movement forces, these can only be added or deleted. Also, if a transformation is deleted, all those forces that have been specified to trigger the transformation will be reset, whereby no transformation will be specified for those where the transformation that was deleted was selected.

Selection screen Sound Chooser control

When pressing the edit button on the World Flow main screen summary for transformations or forces you will be taken to a selection screen for those transformations or forces for the dynamic world object, static world object or tile element you have chosen.



The above image indicates the selection screen for the 'Elephant' dynamic world object's positive forces.

The following functions are available on a selection screen:

Button	Description
Add	A new force or transformation can be added by pressing the add button.
Edit	To edit an existing force or transformation, select it from the list and press the edit button
Delete	To delete an existing force or transformation, select it from the list and press the delete button

Please note: In the case of movement forces, these can only be edited or deleted. Also, if a transformation is deleted, all those forces that have been specified to trigger the transformation will be reset, whereby no transformation will be specified for them where the transformation that was deleted was selected.

Using the World Sound Chooser control

Many screens in the iTiles World Flow contain the world sound chooser control and you may have to select sounds for various forces and transformations.

Please note not to select too many sounds in the iTiles World Flow tool, as in the simulation of the iTiles world there may be much confusion with too sounds playing.



To hear a sound clip, select it from the list and click the play button. You can select another sound and click play, and the sound will stop and the newly selected sound clip shall be played. To stop the sounds, selected No Sound from the list and click play.

Page 5 from Tool

Lists in iTiles

There are many lists appearing on many World Flow screens. Lists will display a dot either on top or the bottom, indicating that more list elements are available in the corresponding direction, if not all the list elements can be displayed in the space of the list. For example, in the sound chooser image above more list elements are available in both the upward and downward directions.

Explanation of World Flow screens

For a dynamic world object, positive forces, negative forces, transformations or movement forces can be specified. For static world objects, world object transformations can be specified and for tile elements, tile transformations can be specified. The following is an explanation of the screens used to capture these World Flow concepts.

Each screen can be in editing mode or adding mode (depending on whether you have chosen to edit or add the specific force or transformation), and will behave differently in these modes, whereby some components may not be editable (read only) in edit mode.

In most cases, when the input captured is sufficient to satisfy a World Flow concept, an OK button will appear in the bottom left of a World Flow screen.

Positive Force Screen

The positive force information is captured on a total of four pages. Next and previous buttons will appear in the bottom left corner of the screen when they are available. Use these buttons to navigate through the pages.

Page 1:

On the first page you have the option to select to what the world object is attracted to. This list will only contain those world components that have not been specified yet. In other words the lists will only contain those world components that have not already been defined as positive or negative forces. A dynamic world object can't be attracted to or afraid of the same thing, so if a negative force is already defined for that world component, it won't appear in the list.

Once a world component is selected, you may go to the next page (click on the next button).

Page 2:

On the second page the force seeking type and found action type are specified.

Force Seeking Type

The force seeking type can be specified as either constant or incremental. With a constant force seeking type, a constant force strength (a value between 50 and 100) is specified. Thus the dynamic world object will constantly have an attraction for this world component.

An incremental force seeking type is a force that gets stronger over time. The following parameters are needed:

Parameter	Description
Initial force strength	The strength of the force at the start of the simulation
Increase percentage unit	The amount the force increases by when the increase time has elapsed
Increase time unit(s)	The amount of world beats that elapse for a force increase to occur
Reset force strength	The value the force is reset to when the positive force is acted upon (i.e. what the dynamic world object was seeking was found)

Found Action Type

When the world component is eventually found, the dynamic world object can either do nothing or stay in the location for a specific time period (in world beats).

Page 3:

On the third page the sighted and found sounds are specified.

Sighted sound

When the dynamic world object sees what it likes, it will output the sighted sound. Please note that when a dynamic world object looks around, it will only play this sound for the first thing that it likes is spotted (otherwise there will be too many sounds in the simulation).

Found sound

This sound will be played when the dynamic world object acts on this positive force and finds what it likes.

Page 4:

On the fourth page, the transformations that are triggered are specified. The top transformation list displayed is always that of the dynamic world object and the bottom is of the world component specified (the world component that dynamic world object likes).

If the transformation chosen has a trigger type that is a gradual transformation, there will be an option available to specify by how many units trigger this transformation's meter is increased.

Movement Force Screen

Movement forces can be specified for the elements that a dynamic world object can move on.

When a dynamic world object moves on a particular tile element, transformations of the tile and itself can be triggered. A movement sound can also be specified, and will be played when the dynamic world object moves on that particular tile element.

Negative Force Screen

Here you have the option to select what the world object is afraid of. This list will only contain those world components that have not been specified yet. In other words the lists will only contain those world components that have not already been defined as positive or negative forces. A dynamic world object can't be attracted to or afraid of the same thing, so if a positive force is already defined for that world component, it won't appear on the list.

Please note, a dynamic world object can't be afraid of tile elements that it can be placed on or move on, and thus these tile elements wouldn't appear in the list. Thus a dynamic world object can only be afraid of the edge of a tile element it can't be placed on (eg: if it's afraid of water it'll try and avoid the water's tile edge).

Sighted sound

A sighted sound can be specified, and in the simulation when the dynamic world object sees what it is afraid of, it will output this sighted sound. Please note that when a dynamic world object looks around, it will only play this sound for the first thing that it dislikes is spotted (otherwise there will be too many sounds in the simulation).

Caught sound

If the world component specified is a dynamic world object (ie: the dynamic world object is afraid of another dynamic world object) then a caught sound can be specified. This sound will be played with the other dynamic world object "finds it" if it's attracted to it (it being the dynamic world object to which this negative force belongs to).

World Object Transformation Screen

On this screen the world object transformation is specified.

Transformation Type

Firstly you must specify the transformation type whereby a world object can either specified to be scaled (larger or smaller) or made to disappear. If the transformation type is chosen as scale object, a percentage unit must be specified by how much the world object will be scaled larger or smaller when the transformation occurs.

Trigger Type

The trigger type of a transformation can be specified to happen immediately or gradually. If the trigger type is chosen as gradual, the transformation has a meter that can be influenced by a transformation trigger by a certain unit. When the meter reaches 100% (it starts at zero) the transformation will occur.

Meter Alteration Sound

If the trigger type is chosen as gradual, a meter alteration sound can be specified that will be played when the transformation is triggered.

Transformation Sound

This sound will be played when the transformation occurs.

Movement Force Screen

Movement forces can be specified for tile elements that a dynamic world object can move on.

When a dynamic world object moves on a particular tile element, transformations of the tile and itself can be triggered. A movement sound can also be specified, and will be played when the dynamic world object moves on that particular tile element.

Tile Element Transformation Screen

A tile element transformation is very similar to a world object's transformation, except that the tile element transformation is the change of one tile element to another tile element. Please note that once a tile transforms to another tile element in the simulation, it gets all tile transformations as specified in the original transformation listing of the tile it is transforming to.

A note about transformation triggers

For dynamic world object's movement and positive forces, please note the following: Tile transformations cannot be triggered that will alter to a tile element that the selected dynamic world object won't be able to walk on once the transformation occurs. This is only the case if the tile element selected is that which the dynamic world object can move on or be placed on. These rules are enforced in the world flow screens, and you need not worry about selecting the wrong options (it's just if you wanted to do something and were wandering why it isn't displayed, or why you cannot select such options).

Navigating world objects

When the Virtual World starts, no world object is selected by default. By clicking the button below (which signifies a magic portal that transfers you to a particular part of the world), a different world object will be selected. Firstly all dynamic world objects will be composed through, then all static world objects. If any world object is to disappear in the world, the navigation order will be reset.



On the keyboard, the <back> key is the equivalent of pressing the button.

The selected world object's name will appear in the box as indicated in the image below (Duck is selected). The Tazoo will also be displayed (please see the explanation of the Tazoo in the Warbler section).

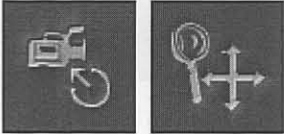


Using the iTiles Virtual World tool

First and third person views are available for a selected world object. In first person view you see the world from the director's point of view (3rd person) and will take on the identity of (family).

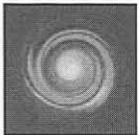
Camera navigation

Camera navigation is the same as in the iTiles Workbench. The camera functions are only available when no world object is selected, or when a world object is selected in 3rd person view (see below).



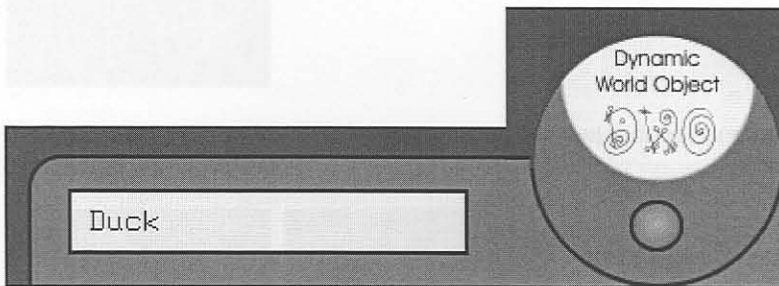
Navigating world objects

When the Virtual World starts, no world object is selected by default. By clicking the button below (which signifies a magic portal that transfers you to a particular part of the world), a different world object will be selected. Firstly all dynamic world objects will be navigated through, then all static world objects. If any world object is to disappear in the world, the navigation order will be reset.



On the keyboard, the <space bar> key is the equivalent of pressing the button.

The selected world object's name will appear in the box as indicated in the image below (Duck is selected). The Tazo will also be displayed (please see the explanation of the Tazo in the Workbench section).



Speeding up and slowing down time

The arrows next to the world list signify the amount of time of each world beat. E.g. in the Tazo world, each world beat occurs every three seconds. By changing the value the simulation can be slowed down or sped up.

Likes and dislikes

First and third person views

First and third person views are available for a selected world object. In first person view you see the world from the character's point of view (inner vision) and will take on the identity of that world object (virtual identity).

To enter the world, and go into first person view, press the following button:



To go back to third person view, press the following button.



On the keyboard, the <enter> key is the equivalent of pressing both buttons.

Please note: When the virtual world is animated, sometimes the camera-smoothing algorithm may be a bit jerky. This is due to the calculations being performed by each dynamic world object in the world to determine the most favourable direction to move.

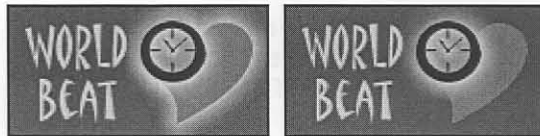
Starting and stopping the simulation

When the Virtual World is started up, time is initially paused.

To start the animation of the simulation, press the play button below:



The following button images indicate that the simulation is running. Press these buttons to pause the simulation.



Speeding up and slowing down time

The number next to the world beat signifies the amount of time of each world beat. E.g.: In the image below, each world beat occurs every three seconds. By changing this value the simulation can be slowed down or sped up.



Likes and dislikes

You can dig into a character's brain and see what it likes and doesn't like. When clicking on the buttons below (the happy face signifying what the character likes, and the unhappy face signifying what the character dislikes), a list is shown with the relevant information. Click on the button again to make the list disappear.



If a static world object is selected, all the dynamic world objects that like it will appear on the likes list, and vice versa for the don't like list.

Character vision

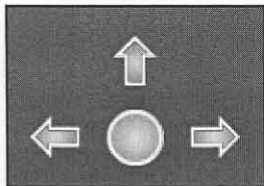
To see what a character sees when making its decision to move, press the eye button. When activated it will be yellow. Deactivate character vision mode by pressing the button again.

In this mode you can see how the characters look around and see what they like and don't like and steer themselves in a favourable direction.



Controlling a character

You have the ability to control a dynamic world object. See the button explanation below for details.



Buttons	Description
	The control character button can be the following colours, with the following meanings:
	Red: The character can't be controlled
	Blue: The character can be controlled by pressing this button
	Yellow: The character is being controlled. Press this to disable control
	The equivalent key on the keyboard for this button is the insert key.
	The arrows control the movement of the character. The arrow buttons are only functional when yellow. The up arrow moves the character straight, the left arrow right turns the character left and the right arrow turns the character right.
	When the character is being controlled, the buttons may become red indicating the character is busy performing an action for a period of time (frozen), and control will only be available as time passes (character finishes action)
	The equivalent arrow keys on the keyboard can also be used for navigation.

iTiles Setup and Configuration Files

The following is an explanation of the configuration files on the iTiles system.

Extending the iTiles system

Currently the system supports extension, however it needs to be done by a manual process, by editing system configuration files. A front-end user interface to make extending iTiles in a much more user-friendly way will be made available in future versions of iTiles.

When adding any new thing to a configuration file, please use the next number in the sequence for the unique identifier (last number plus 1).

Adding additional world objects

The 3D model file format used in iTiles is the Milkshape 3D ASCII file format. Textures specified for these models can only be in TGA file format. For best results the 3D model should be placed centrally on the main axis facing the user. Determining the minimum and maximum scale of a world object is sometimes a cumbersome process, since the world object must fit perfectly on a tile in the system. This is done by experimentation and by changing the values and testing the effects. Hopefully this process will be simplified in future versions of iTiles.

Adding static world objects

The static world object's configuration file <staticobjects.ini> will be found in the installation directory. Please edit this configuration file to add additional static world objects.

The file is composed of lines of comma-separated values. An example of a line is: "1,Fir Tree,1,1,0,0.1,0.5,models/static/tree/firtree.txt".

These fields and values are described in the table below:

Field	Name	Description (including possible values)
1	ID	Unique identifier
2	Name	Name of the static world object
3	Grass Property	0 (Can't be placed on element) 1 (Can be placed on element)
4	Sand Property	"
5	Water Property	"
6	Minimum Scale Value	Floating point number
7	Maximum Scale Value	Floating point number
8	3D Model Filename	A filename relative to the iTiles installation directory

Adding dynamic world objects

The dynamic world object's configuration file <dynamicobjects.ini> will be found in the installation directory. Please edit this configuration file to add additional dynamic world objects.

The file is composed of lines of comma-separated values. An example of a line is:
"3,Duck,0,0,1,0.3,0.8,models/dynamic/duck/whiteduck.txt,0,2".

The contents of fields 1-8 are identical to the static world objects configuration file. Fields 3,4,5 also indicate the elements that the character can move on. The additional fields are:

Field	Name	Description (including possible values)
9	Vision type	The vision type affects how the character sees the world. 0 – Herbivore vision type 1 – Carnivore vision type
10	Vision depth	The vision depth indicates how many tiles a character can see (how far the character can see).

Adding additional sounds

The listing of sounds used in the iTiles system is stored in the configuration file <worldsounds.ini>, that can be found in the installation directory.

The file is composed of lines of comma-separated values. An example of a line is:
"5,Water,wav/water.wav".

These fields and values are described in the table below:

Field	Name	Description (including possible values)
1	ID	Unique identifier
2	WAV Filename	A filename relative to the iTiles installation directory

Please note that the sound files used in the iTiles System can only be of WAV PCM format (8 bits per sample).

Files and directories found in the installation directory

The iTiles worlds are stored in the installation directory. The files <world*> are the saved Workbench files and the <world*_wf> are the saved World Flow files (where * can be a number from 1-5).

The following directories are present in the iTiles directory, and have the following functions:

Directory Name	Description
models	All 3D models are stored in this directory
wav	All WAV sounds are stored in this directory
img	All images needed for iTiles are stored in this directory

Sample Worlds

Some sample iTiles worlds (virtual laboratories) are presented to display the functionality of the iTiles Ecosystem Virtual Laboratory application. They illustrate the vast amount of worlds that can be authored, explain some use of the iTiles World Flow concepts and some ideas of how the iTiles Virtual World simulation can be used.

Please note: These iTiles worlds are also available in the iTiles Ecosystem Virtual Laboratory application.

iTiles World 1: Ducks in the park

iTiles Workbench

The world is authored to look like a park. It has a dam, and there is dirt path for walking along the dam. Ducks swim in the dam, and the park has a local resident dog that likes to walk around. Willow trees are placed along the water's edge.

iTiles World Flow

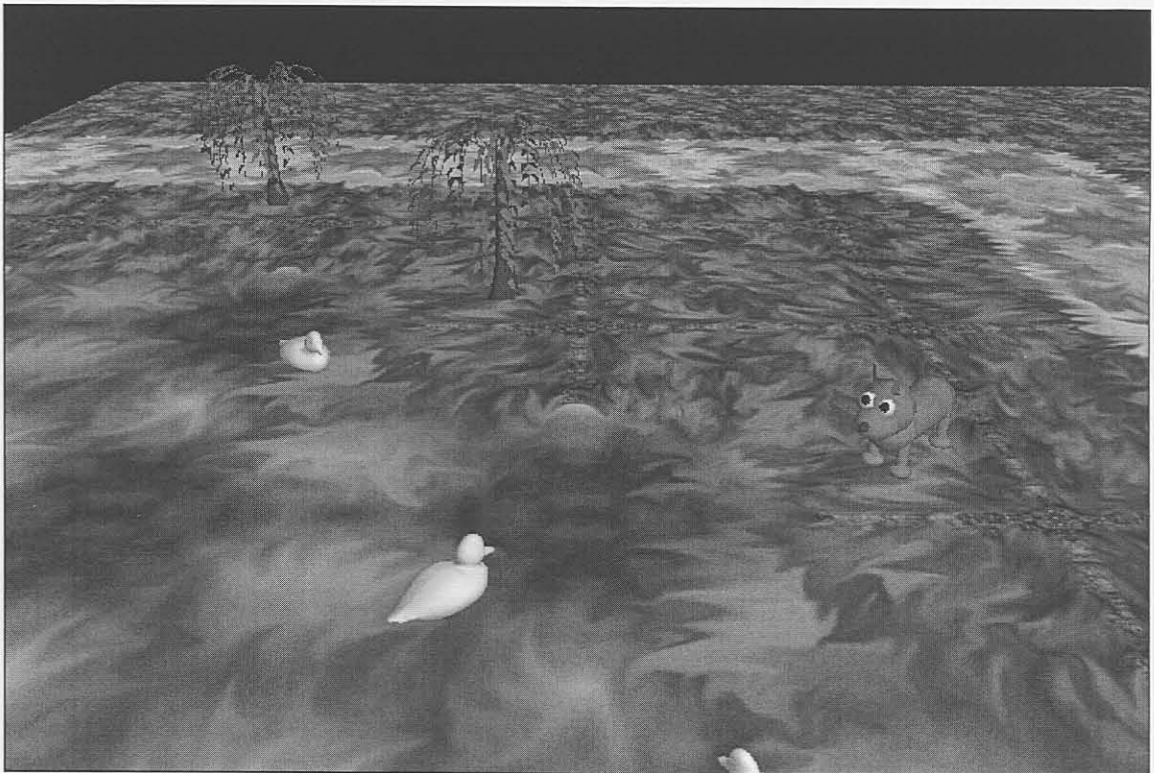
When the dog walks near trees, we can hear the birds singing. He doesn't like ducks much, so when he sees a duck he barks at it. The dog sometimes gets thirsty and comes to drink at the water's edge.

Ducks like each other, and when they see each other they quack. If they are close to each other, they stop for quick chat.

iTiles Virtual World

Things kids can do: Have fun exploring the park!

They can hear the ducks quack and the dog barking at the ducks. Hear the birds sing when a dog approaches a willow tree.



iTiles World 2: Drought in Africa

iTiles Workbench

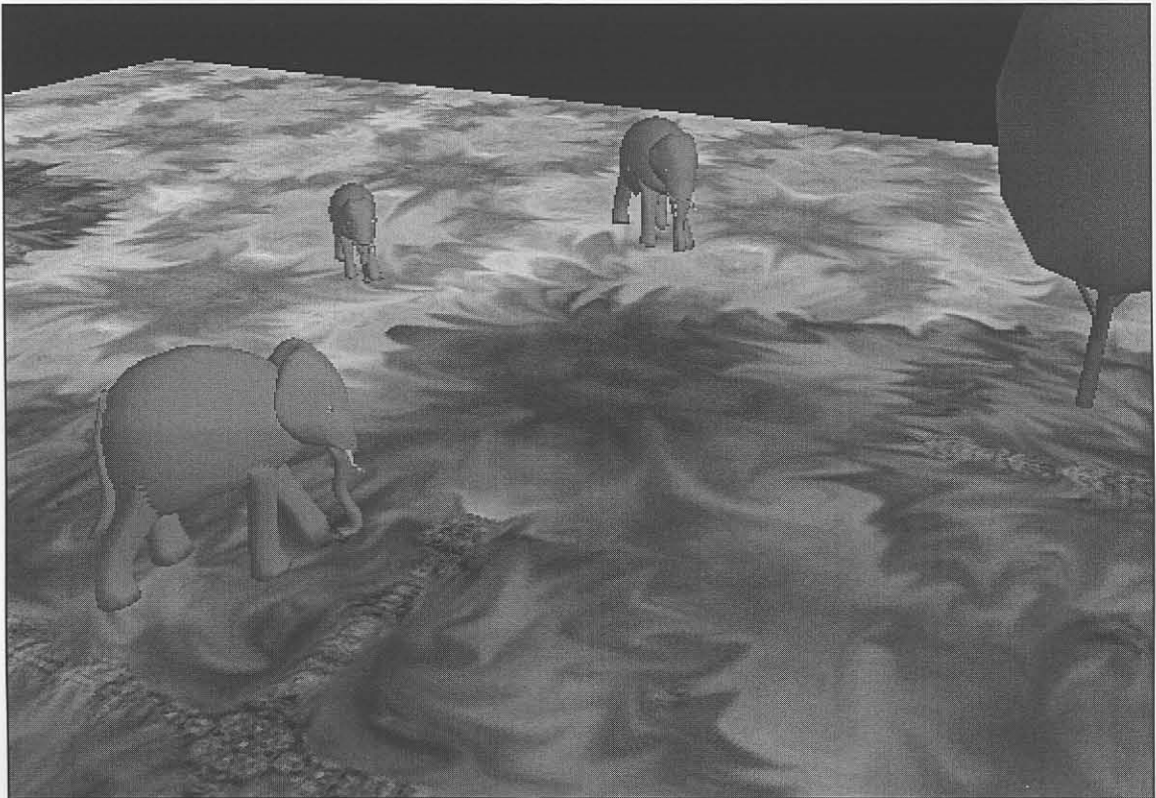
The world is authored to look like an arid African savannah during a harsh drought. There are areas with a bit of water, from which the elephants can drink, with patches of grass around the water.

iTiles World Flow

This iTiles world presents how the environment can change. The elephants drink from the scarce supply of water, and it becomes sand indicating the drought. The elephants also walk on the fragile grass and it erodes to sand. Elephants eat the leaves from the trees and the trees become smaller.

iTiles Virtual World

The main lesson of this world is to show how tough it can be in times of drought. Kids can see how thirsty the elephants are, and how the environment is transformed by their actions. The environment is eventually transformed to sand, and food supply (the trees) gets scarce.



iTiles World 3: Paradise Island

iTiles Workbench

The world is authored to look like seashore on a paradise island. There are palm trees and some wild pigs that roam free. In the sea there are some turtles.

iTiles World Flow

It's the season when the turtles lay their eggs, so they come on shore now and again and lay some eggs. The wild pigs roam the island and when they see each other they snort to say hello. Turtles like the water and you can hear it splashing when they do, but when it's time to lay eggs they have a mission: find land (you won't hear any splashing then).

iTiles Virtual World

This world illustrates how turtles lay their eggs on the seashore. The wild pigs can be observed as they travel around the island.

