Virtual-O Introduction

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Virtual-O is an orienteering simulation game available on Windows PCs. The representation of different terrains and modelling of orienteering processes is excellent and make it a very useful training tool as well as fun to play. Although it's still in development and there are just four maps, it offers hundreds of hours of challenging gameplay, with night orienteering, contour and corridor exercises etc. to keep things interesting.

Maps are generated from OCAD files but terrain features are customised to suit the particular area and randomised 'clutter' such as extra small unmapped boulders, thickets, marshes etc. combine with state of the art graphics techniques to give a very realistic experience.

Running speed is slower off paths, through rough terrain, up hills, and importantly you slow down when looking at the map for more than a quick glance. You have to avoid trees, boulders, uncrossable fences, lakes etc. and there's random deviations of direction built in.

On the down side manipulating the map is harder than real orienteering and you are limited to thumb compass techniques with no option to take a bearing. Terrain interpretation and sense of distance is good, but the narrow field of vision makes it difficult to maintain an overall sense of direction and turning at controls and relocating can be hard. It's also harder than it should be to stay on a path particularly when reading the map.

It doesn't take long to pick up the basic controls and thereafter makes an excellent training and coaching tool allowing you to stretch your skills in unfamiliar terrains optionally 'shadowed' by a coach. The mental challenges are very close to real orienteering as you try to push hard whilst staying in control and the approach taken generally reflects the individual's style of orienteering.

Elite orienteers might find they change their style a little to suit the game, but in my opinion it's still a good opportunity to practice very similar skills and processes, and poor technique is usually punished more than in real orienteering.

Hardware Requirements

The minimum spec is Windows PC with Intel i7 processor with 8 GB RAM (typical of mid-range laptop).
A dedicated graphics card (e.g. NVidia or AMD) is recommended (typical of a high end 'gaming' PC/Laptop
Virtual-O doesn't yet work on a Mac.
You can check your system specs using a utility called dxdiag
Type 'dxdiag' in your search or start menu

System Tab -> Processor	describes the processor (e.g. i5 or i7)
System Tab -> Memory	describes the RAM - you need 8000Mb (8 GB) minimum.
Display Tab	the integrated graphics card (usually Intel)
Render Tab (if present)	the dedicated graphics card (e.g. NVidia or AMD)

Licensing and Installing

Virtual-O is licensed and run through a games distribution platform called Steam
http://store.steampowered.com/about/
First download and install the Steam client application and set up an account
Go to the 'Shop' page and purchase Virtual-O (cost £35)
You have 14 days trial period after which you can get a refund if it doesn't work on your PC
You can install Steam on more than one PC but only one person can play at a time in online mode.

Graphics Configuration

Suggestions to maximise performance without compromising gameplay.

Use a **mains adaptor** to avoid power saving mode interfering with graphics performance. When launching Virtual-O select a mid-range **screen resolution** for example 1490x900 or 1600x900.

Select the Graphics page in the main menu and set Graphics to **VERY LOW** then adjust the following:

Object Streaming	On
Level of detail Bias	> 1.5
Grass Drawing Distance	> 100m

The main performance hit is from shadows so make Shadow Distance is 0 unless you have a gaming PC. The key above the Tab key turns on diagnostics in when playing, check the frame rate (min about 10 FPS). Try increasing **field of view** (fov) to 90 (increases peripheral vision, but makes things look further away).

Game Configuration (for more comfortable and realistic gameplay)

Select the **Input** page from the main menu and add alternative keys for the most useful commands:

Focus on current leg	E
Orient map to North	Q
Focus on next leg	R

Select the **Options** page from the main menu and set **Map Handling** to Default

Group Sessions

For club nights and squad camps Virtual-O can be used as a presentation tool for discussing technique or for hands on practice or competitions.

Virtual-O doesn't yet include multi-player environments. For group sessions without an internet connection you can start Steam in Offline Mode. You will need to download courses beforehand or create your own courses and copy the course data to each computer from here:

C:\Program Files (x86)\Steam\steamapps\common\Virtual-O\Virtual-O_Data\StreamingAssets\Maps\Base\Competitions

Course Builder

The Course Builder is built into the main application – it's a bit quirky so worth reading these notes before attempting to create course!

To get to the Course Builder mode you select a Country/Map, choose the Course Builder option and when the terrain is loaded hit the 'Esc' key and then select Course Builder from the menu.

Courses are organised at three different levels (create or select on of each):

Competition	including one or more Events on different maps.
Event	including one or more Courses which share a set of controls
Course	a selection of controls from an Event

Courses are created using three Builder Modes:

Insert Control	select this mode first to add the controls for the event
Course Building	select the controls for this course including the start and finish
Editing	select individual controls to move, delete or edit properties of a control

In Editing Mode you get a small inset view of the control site and a panel that allows you to tweak the position of the flag using X,Y,Z coordinates. You can also set the control descriptions.

You can download a low resolution image of the map and course to use as a template for creating an overlay image for creating window or corridor exercises.

You can also submit the entire competition or individual course to Steam for others to share, but note that you need to add descriptions to each control.

Playing Virtual-O

First choose a **Country / Map**   (note the **scale** of the map – not accurate but gives a feel for distance)
Select a **Course** from the list (note that the **Course Difficulty** uses Swedish colour coding with Green easiest)

When you first download a course you run it 'online' and your time is added to the results.
After the race you can review your route and compare with other competitors.

Once downloaded the status is 'local' and you can re-run the course offline
For local courses you can change the **Course Conditions** (e.g. run at night with head light)

You can also set your running speed for the course using **Game Mode**

Normal	x2 speed	not too unrealistic and gets the game over quicker
Beginner	x1 speed	more realistic and better for the sprint map (Spain/Gironella)
Elite	x4 speed	gameplay is more challenging but less realistic for training purposes

In Normal Game (x2 speed) race time also speeds up so 40 mins of race time takes just 20 mins of real time.

Virtual-O Commands

The Input page on the main menu lists all the Actions and associates keys and mouse movements, you can also add and setup a games controller.

The most useful commands are summarised in the list below.

Race controls:

W (or up arrow)	Run forward	
Mouse (or < >)	Turn left right	
Tab + Mouse	Look around	
Spacebar	Show map	Running speed is slower when map showing
Escape key	Pause game	Quit the game, change options or take a break

Manipulating the map (when map displayed):

E (or Ctrl)	Current control	Use after punching a control
Q (or Alt)	Orientate map	Checking direction when following path or 'bearing', and also use when relocating.
Mouse Wheel	Zoom	Use for sprint maps, long legs or relocating
Drag mouse	Move map	For long legs or relocating
Mouse Right Button	Rotate map	
R (or Shift)	Next Control	For planning ahead

Gameplay Tips

I'd recommend using a mouse in your right hand, use your left thumb on the space bar and fingers on the QWE keys (assuming they're configured as described above).

A combination of unrealistic running speeds and maps displayed at arbitrary scales makes it hard to judge distance so take time at the start of the course to get a feel for the map.

With a narrow field of vision, maintaining a sense of direction and manipulating the map are more difficult than real orienteering so check your map and compass frequently, particularly when leaving controls.

Rotating the map and following the compass is much harder than real life – an alternative is to use the Q (or Alt) keys to orientate the map and adjust your direction of travel if the map isn't orientated as expected.