VoxVR

User Manual

VoxVR Version 1.1.0

Broken Vector

Content

About VoxVR

Thank you for buying VoxVR!

VoxVR is a creative tool that allows you to create 3D models using cubes in virtual reality. Creating voxel art has never been more intuitive and easier! Stand in your own artwork while creating it or edit your existing creations by importing existing voxel files (.vox, .qb) to view them from a whole new perspective. This software offers artists and gamers lots of fun by providing an entertaining and easy to use VR-workspace.

Setup

Requirements

Hardware
- Minimum System Requirements:
    - Requires a 64-bit processor and operating system
    - OS: Windows 7 (64 bit)
    - Processor: CPU: Intel i5-4590, AMD FX 8350
    - Memory: 4 GB RAM
    - Graphics: Nvidia GeForce GTX 970, AMD Radeon R9 290
    - DirectX: Version 11
    - Storage: 300 MB available space
- Recommended System Requirements:
    - Requires a 64-bit processor and operating system
    - OS: Windows 7 or higher (64 bit)
    - Processor: CPU: Intel i5-4590, AMD FX 8350 or better
    - Memory: 6 GB RAM
    - Graphics: Nvidia GeForce GTX 970, AMD Radeon R9 290 or better
    - DirectX: Version 11
    - Storage: 1 GB available space

Additional to the VR Headset, you will need *Motion Controllers* (HTC Vive or Oculus Touch) to use *VoxVR*

Software
You either need to install *SteamVR* (HTC Vive) or the *Oculus Software* (Oculus).

Installation

Download and install using Steam or Oculus Store. More detailed instructions can be found here (Steam) and here (Oculus Store).

Controller Terminology

The following images show the names of each button for the *Oculus* and *HTC Vive Motion Controller*:
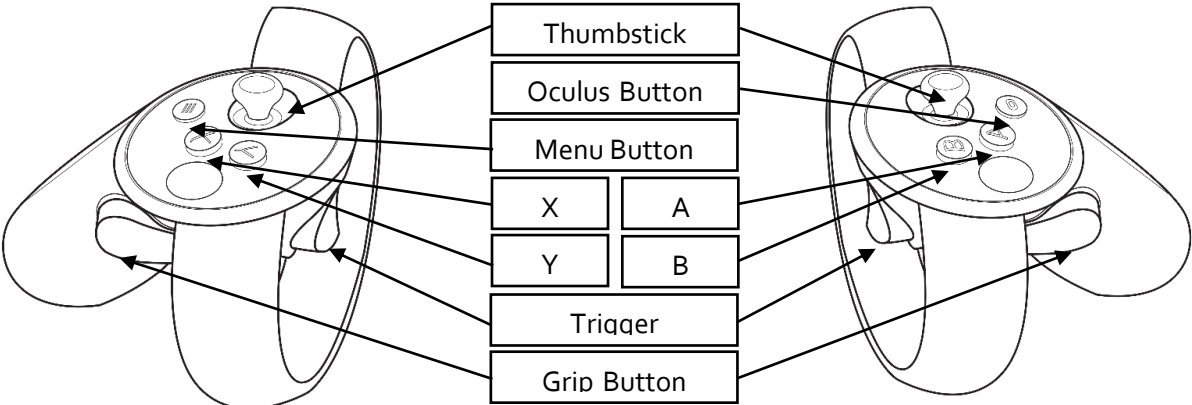
Oculus Touch

Thumbstick	
Oculus Button	
Menu Button	
X	A
Y	B
Trigger	
Grip Button	

Image source: https://developer.oculus.com/downloads/package/oculus-controller-art/

HTC Vive

Grip Button
Trigger

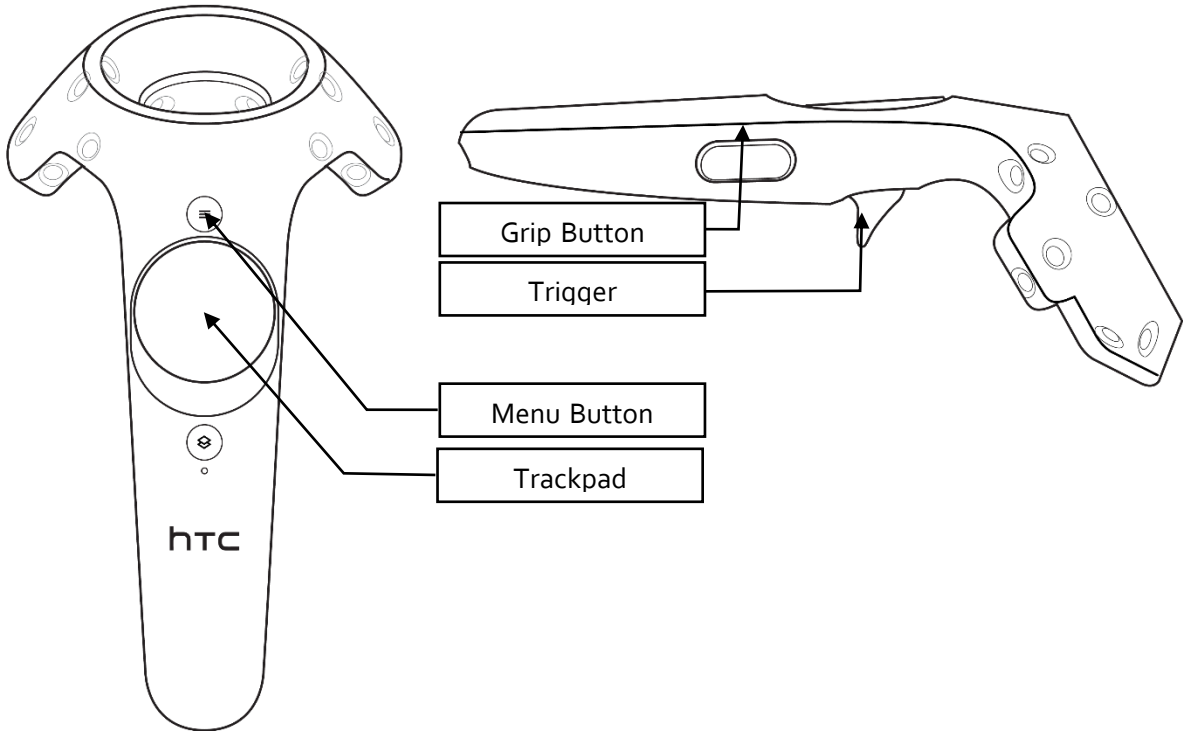| Menu Button |
| :---: |
| Trackpad |

Image source: https://imgur.com/gallery/5rTX05h

Main Menu

When entering the *Main Menu* inside VR, you will be placed in a dome environment. In front of you should be a *Menu Bar* (see below) with four buttons. If not turn around and look for it.

To press a button, point a controller towards it (the green line shows the direction) and press the *Trigger*. Going in order from left to right the buttons have the following functionality:

Green plus sign

This enables you to create a new project. After pressing the button, a menu will appear for selecting the environment that you want to work in. If you selected the environment, the project will start, and you are ready for editing.

Folder

Here you can load files.
VoxVR will show you four types of files that you may load:

- Existing *VoxVR* (.vxvr) files. These are stored at:
  AppData/LocalLow/Broken Vector/VoxVR/Saves
  The full file path will also be displayed.
- Existing *Qubicle* (.qb) and *MagicaVoxel* (.vox) files. These are stored at:
  AppData/LocalLow/Broken Vector/VoxVR/Import
  The full file path will also be displayed. These get automatically imported when selected.
- Projects that you are subscribed to in the *Steam Workshop*.
- Two autosave projects that *VoxVR* creates automatically (every 5 minutes) to help you with data recovery.

You may use the scrollbar on the right-hand side to look for further files. Finish the process by selecting the file.

VoxVR logo

This will show you the credits of *VoxVR*.

Exit sign

Here you can exit *VoxVR*. Just confirm by pressing the "Yes" button to leave.

VR Menu

The *VR Menu* is the three-dimensional menu attached to your left controller. When moving the right controller close to it, the brush preview will disappear and instead show a dot on the *VR Menu*, the so-called *VR Cursor*. To click a button on the menu just press the *Trigger* on your right controller once. For dragging sliders, keep the trigger pressed until you hit your desired value and release. If you struggle to hit the buttons precisely, you might want to try menu locking or smoothing its motion under settings. To navigate the different options of the menu simply click one of the boxes on the right. These include:
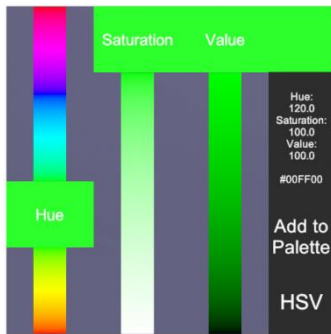
Color

The *Color Menu* can be used to define new colors for the brush. You can either use the RGB or the HSV picker, which can be switched by the button in the bottom left. To pick a color simply manipulate the three sliders, by dragging them up or down. You can now already paint in the color shown in the top right. If you want to store it in the palette for later use hit the "*Add to Palette*" button.
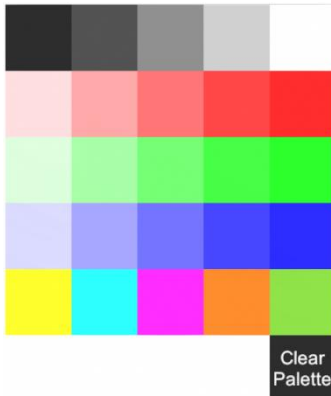
Palette

The palette stores up to 25 colors. By default, it contains some premade colors. To get rid of them or clear your own palette click the "*Clear Palette*" button. You can change your brush color by clicking on one of the color squares. New colors can be added using the color picker (*Color Menu*). You can also export and import palettes in the *PC Menu*.
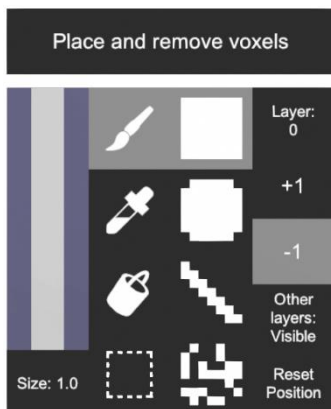
Tool

The *Tool Menu* lets you switch the tool attached to your right controller by clicking its icon. There are four tools:

1. **Brush:** Lets you place and remove voxels. While the brush is equipped you can also undo and redo actions. To do this press your *Trackpad* (*HTC Vive*) or your *Thumbstick*(*Oculus*) to left (undo) or right (redo) on your right controller.
2. **Pipette:** Lets you pick a blocks color.
3. **Fill Bucket:** Lets you change the color of a bunch of voxels at once. The color will spread to new voxels if they share a face and the same original color.
4. **Move/Clone:** Lets you make a selection and either move or duplicate it. For selecting simply drag your right controller while holding the trigger. To start the action press your *Trackpad* (*HTC Vive*) or your *Thumbstick* (*Oculus*) to left (clone) or right (move). Now every time you press the Trigger you will place your selection. Be aware that the selection does not copy empty voxels. To finish the action just press down.

It also lets you edit your current brush. The slider on the left-hand side sets the brush radius and the other 4 icons set your brush type:

1. **Cube:** creates a cube-shaped volume
2. **Sphere:** creates a sphere-shaped volume
3. **Sword:** creates a line that follows the orientation of the controller. Move to draw surfaces.
4. **Scatter:** creates a randomly filled sphere-shaped volume

The layer system on the right-hand side lets you draw on multiple layers. You can set the current layer and enable/disable other layers. Be aware that transforming your voxels (see "Transform all Voxels") will always only affect your current layer.
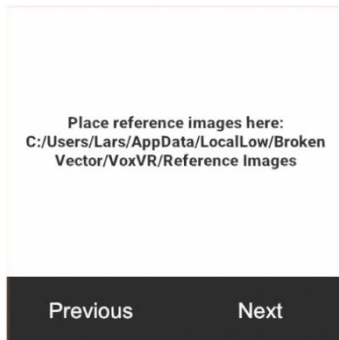
Reference Image

The *Reference Image Menu* lets you view images inside VR, so you do not need to leave the immersion to revisit your source of inspiration. It will automatically load all .png and .jpg files from the folder:
*AppData/LocalLow/Broken Vector/VoxVR/Reference Images*

Settings

*Settings* contains all options for the experience in VR:
1. Tutorial: toggles the button descriptions on the controller
2. Lock Menu: toggle freezing the menus position if it is being used
3. Menu Smoothing: toggle smoothing the menus motion
4. .vox Boundaries: hide/show the limits set by the .vox format
5. Haptic Feedback: toggle vibration feedback e.g. when voxels are being placed
6. Left Handed: switch the functionality of both controllers
7. Ambient Occlusion: This enables a visual effect that can enhance your visuals and your depth perception while working with the voxels, but it might cause framerate drops.
8. Volume: change the sound volume
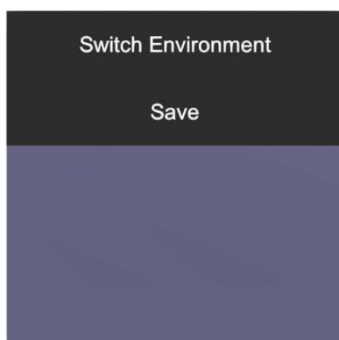
Project

Other contains all Settings regarding your project. You can switch the environment if you want to get a different perspective on your creation.
You can also save your project here. If you forget to do so, the autosave might help you to restore your progress, but make sure to save it eventually, since the autosave is constantly being overwritten.
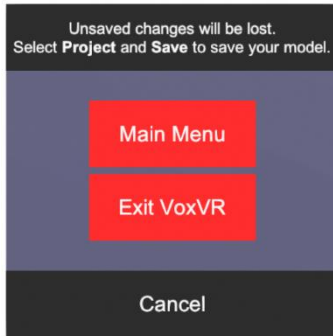
Exit

Exit lets you go back to the *Main Menu* or exit *VoxVR* entirely. Do not forget to save before you do so.

Navigation

VoxVR offers some options for repositioning yourself relative to your creation.

Teleport

The *Teleporter* can be activated by pressing the trigger on the *Menu Controller*. While the trigger is being pressed a dotted line with an endpoint will show you where you will be teleported to. Rotate around yourself to choose a direction and tilt the controller up and down to choose a distance. Release the *Trigger* to perform the teleport.

Transform all voxels

The second option is to move your creation instead of yourself. To move all voxels at once just hold the *Grip Buttons* on one of the controllers and move it until releasing. Alternatively, you can also hold the *Grip Buttons* on both controllers to resize your creation. To Rotate hold the *Grip Buttons* on your right Controller and press the *Touchpad/Thumbstick* on your left one. Be aware that this only affects you current layer!

Rotate

To rotate yourself by 45 degrees, touch the *Touchpad* on the *Menu Controller* left/right (*HTC Vive*) or move the *Joystick* on the *Menu Controller* left/right (*Oculus*).

Desktop Menu

You have some handy extra if you take off your *HMD* and look at the *VoxVR* window. You can toggle the *Desktop Menu* by pressing "F2".

Spectator

Spectator Mode and *Spectator Camera* offer you some options for recording or livestreaming your workflow. You can choose between three modes:

1. VR View: This follows your target. You can either make it follow your head to get the same view as in VR or follow one of your controllers.
2. Free Flight: You can move the camera freely by pressing W/A/S/D for moving and holding right mouse button to rotate the view. The camera will be displayed by a small model inside VR.
3. Rotate: This has a target like *VR View*. But it does not directly follow it, but instead rotates around it. When using a custom origin you can press shift to reposition yourself using W/A/S/D to move horizontally and Q/E for vertical movement.

You may also choose speed, distance and angle to position your camera optimally relative to the target.

By enabling "lock" you can temporarily lock the cameras position and rotation. Make sure to set your FOV. A small FOV will result in a small rather undistorted view and a high FOV in a broader, but more distorted one.

Save/Load

The *Controls* let you Save/Load your VoxVR projects (.vxvr). When saving you are free to choose any file path, but we recommend saving under *AppData\LocalLow\Broken Vector\VoxVR\Saves* so that it will show up in the *Main Menu*.

Import/Export

Import is supported for:

- Voxel formats: *Qubicle* (.qb), *MagicaVoxel* (.vox)
- Images: *PNG* (.png; pixels get converted to voxel plane) and *Palette* (.png)

Export is supported for:

- Voxel formats: *Qubicle* (.qb), *MagicaVoxel* (.vox)
- Mesh formats: *Collada* (.dae), *OBJ* (.obj), *STL* (.stl)
- Sketchfab: Upload directly to *Sketchfab*
- Steam Workshop: Upload directly to the *Steam Workshop* (only works in Steam version)

Meshes will be optimized by joining aligned faces of the same color.

Feedback and Bug Reports

You can also send us some feedback or bug reports here, so we can keep improving our software and your experience. Alternatively, you can send an e-mail to: support@brokenvector.com