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1. What is UnrealPolyEd (UPE)?

UnrealPolyEd (or UPE) is a program that allows creating complex 3D brushes that model outdoor terrain in the Unreal engine. It primarily targets the Unreal1 and the Unreal Tournament (UT) engine, which itself lack support for creation of complex 3D brush geometry. Similar tools must have been used by the original creators of *Unreal*, *Unreal: Return to Na Pali* and *Unreal Tournament*. Notice the environment brush geometry in the following example.

- ▶ *Example: Glathriel Village in Unreal: Return to Na Pali*



It is unclear how those brushes were originally created, because the official editor released with the games (UnrealEd) does not directly support their

creation. *UnrealPolyEd* is an external tool that fills this gap. It is specifically suitable to create 3D outdoor environment brushes for use in Unreal1 or Unreal Tournament.

2. How does UnrealPolyEd work?

The easiest way to create a terrain in Unreal1 and Unreal Tournament is to create a big subtractive brush that carves the walkable areas out of the world. Details can then be subsequently added to that area. Since all solid brushes need to be "closed" (i.e., they need to form a 3D object whose surface does not contain any holes), a suitable terrain brush needs to consist of the ground (forming the terrain itself), the walls (typically mountain-like shapes) and the ceiling (typically sky).

The sides of a brush are made up of polygons. Each polygon can have a texture assigned that determines the visual representation of the surface. The simplest case is to build the terrain brush out of triangles. This has the advantage that no degenerated faces can be produced. Degenerated means that the nodes the polygon is defined by (also called vertexes) are not located on a plane. Degenerated surfaces may cause rendering and clipping issues are runtime. In order to prevent such problems, we use triangles (i.e., polygons with three nodes) to build terrain brushes. A polygon with more than three nodes can be degenerated, but a polygon (triangle) with exactly three nodes is never really degenerated. Notice however that all three nodes of a polygon might be located on a line and hence the polygon not being rendered. However, this is typically easy to spot.

The most important part of a terrain is the ground, because this is the surface that the player will interact with. The walls are there to prevent the player from leaving the map and the sky closes the map on the top. Of course the sky should be made high enough such that the other geometrical elements of the terrain, such as mountains and valleys, fit well underneath it.

UnrealPolyEd allows to precisely model the coordinates of all nodes that make up a polygon. As explained above, every polygon (triangle) consists of three nodes. Neighboring polygons typically share a common edge (i.e., two of their nodes are the same). Using this simple principle, the grid of neighboring polygons forms a brush that is closed in itself. Just like patches that are stitched together to form a soccer ball, polygons are used in UnrealPolyEd to form a large-scale hull inside which the player will be walking.

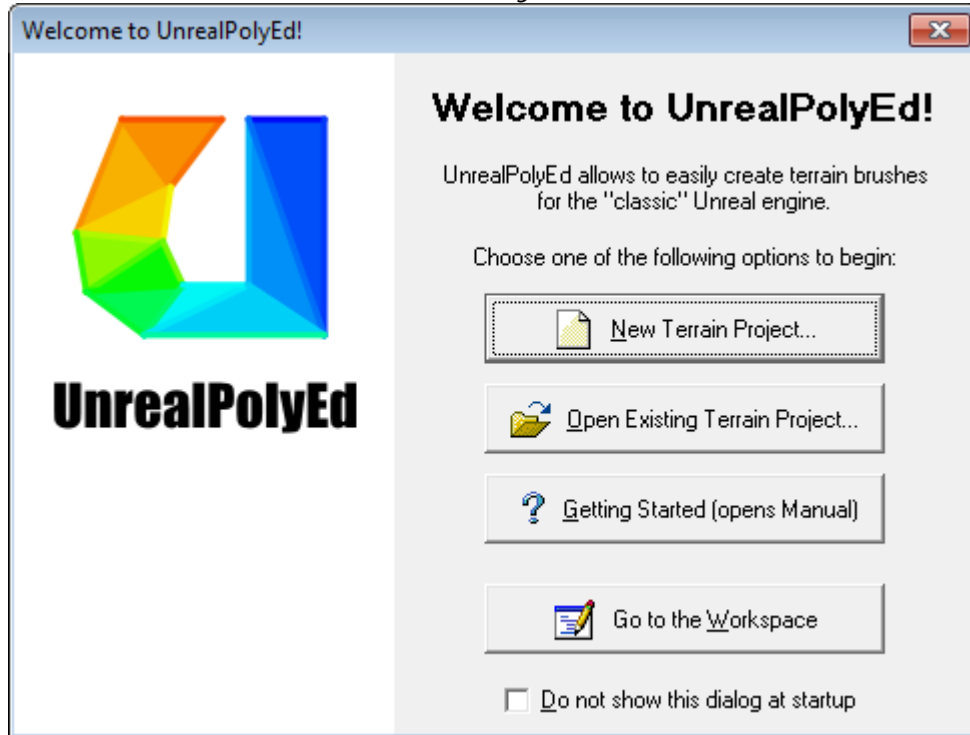
The following sections first explain the [UnrealPolyEd windows](#) and then list [typical tasks](#). It is recommended to read the sections in order to get the full picture. However, if you want to directly check for a specific command, the following list might be helpful:

- [Navigating in the 2D Drawing Area](#)
- [Adding a Node](#)
- [Moving Nodes](#)
- [Adding a Polygon](#)
- [Applying Textures to Polygons](#)
- [Removing Nodes and Polygons](#)

- [Importing the Terrain into UnrealEd](#)

3. UnrealPolyEd Windows

▶ *Screenshot: UnrealPolyEd Welcome Screen*

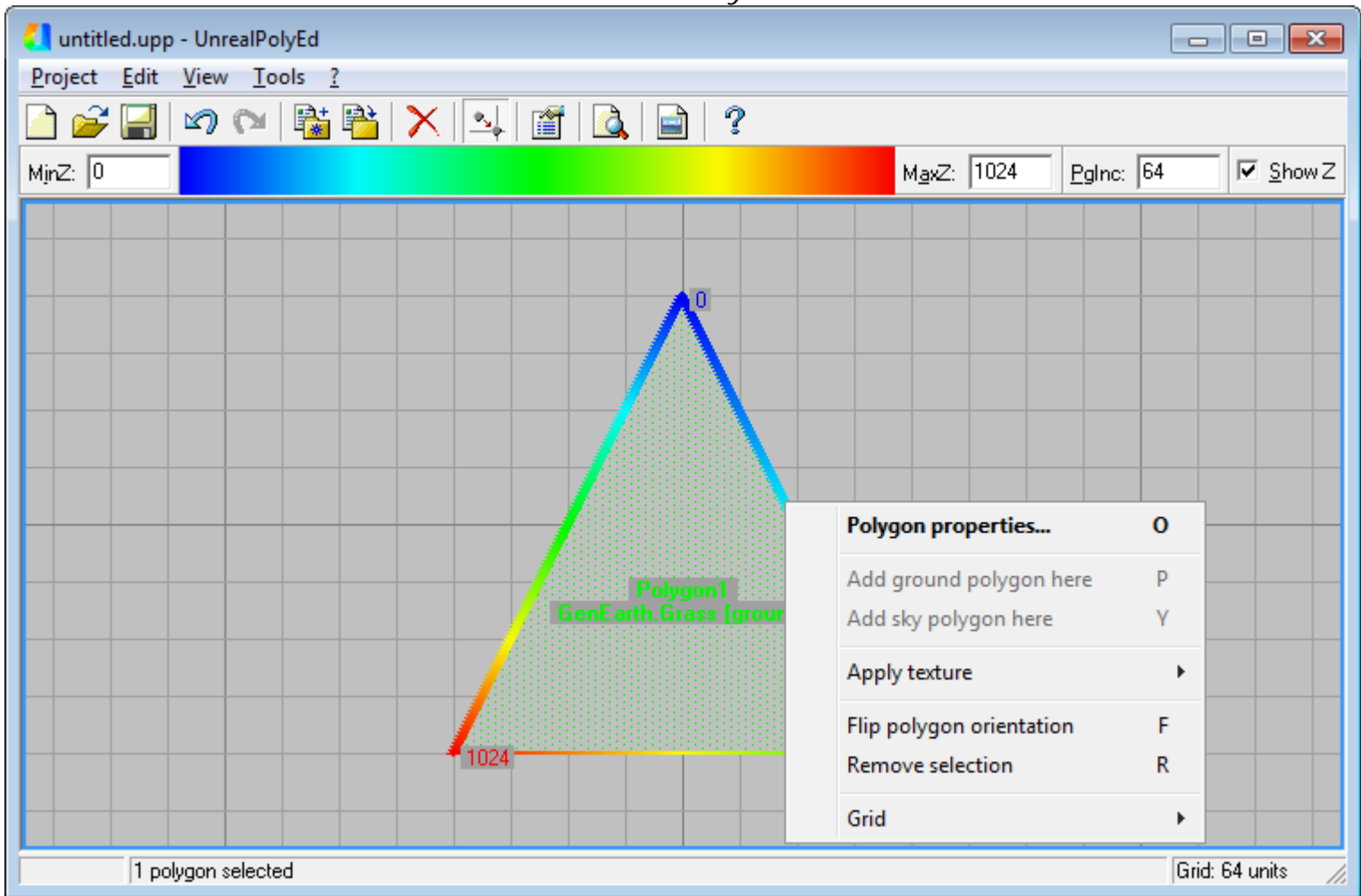


The *Welcome Screen* is usually displayed at startup. It allows you to quickly select the task to execute or to continue previous work.

- ▶ **New Terrain Project:** Creates a new terrain project. When clicking this option, a popup menu with additional options appears:
 - ▶ **Single Triangle (three Nodes, one Polygon):** Creates just three nodes and one polygon at the origin to serve as a starting point. This is the default when creating a new project.
 - ▶ **Blank Project:** Creates a completely blank project with no nodes or polygons.
 - ▶ **Mesh (Quadratic Regular Grid):** Creates a mesh consisting of the given number of columns and rows of polygons. The mesh can be freely deformed afterwards.
- ▶ **Open Existing Terrain Project:** Opens an existing terrain project from file. When clicking this option, a popup menu with additional options appears:
 - ▶ **Open Other Terrain Project:** Lets you browse for an UnrealPolyEd project file to open.
 - ▶ **Recent File List:** Shows the name(s) of recently opened projects. The most recently used file is located at the top. The list is initially populated with the projects from the `examples` subdirectory on the UnrealPolyEd installation.
- ▶ **Getting Started (opens Manual):** Opens this manual in the default web browser.
- ▶ **Go to the Workspace:** Close the *Welcome Screen* and directly go to the workspace.
- ▶ **Do not Show this Dialog at Startup:** Check this if the *Welcome Screen* should not be shown at UnrealPolyEd startup in the future. If you have selected this option once and

want to get the *Welcome Screen* back, choose the option *?? Welcome screen...* from the main menu or press *Ctrl+W*.

► Screenshot: UnrealPolyEd Main Window



In the following, the individual components of the UnrealPolyEd main window are explained in detail.



► **Menu Bar:** The menu bar allows invoking various commands with respect to project management, import/export, addition and removal of objects, view settings, tools and help.

UnrealPolyEd can load and save projects from/to files with the extension *.upp*. To do so, use the *Project ? Open...*, *Project ? Save As...* and *Project ? Save* commands in the main menu. Alternatively, you may use the *Open* or *Save* tool bar buttons.

In addition, the tools allows exporting the terrain brush in formats that are recognized by UnrealEd (brush export). Read section [Importing the Terrain into UnrealEd](#) for details.




► **Tool Bar:** The tool bar provides quick access to the most common commands from the main [menu bar](#).





► **2D Drawing Area:** The largest part of the UnrealPolyEd main window is covered by the 2D drawing area. It has similar characteristics as the top view in UnrealEd. The screenshot above shows the initial configuration: a single polygon made of three nodes drawn on a grid with a spacing of 16 units (UnrealPolyEd units are equivalent to UnrealEd units). The numbers next to the nodes indicate their Z coordinate (i.e., their absolute height in the world). The shown polygon's bottom left corner, drawn in red, is the highest part of the polygon, while the top part, drawn in blue, is the lowest part. If a player would walk on this polygon, he would probably slide down to the blue area due to the extreme difference in height.


Nodes can be selected by clicking on them. To select multiple nodes, hold the *Ctrl* key down while clicking on the nodes. Polygons can be selected by either clicking on the colored dot in their center or onto one of their edges. Notice however that since neighboring polygons share edges, you might accidentally select the wrong polygon. In


this case, click on the same edge again to select the other neighboring polygon. Navigating in the 2D drawing area is similar to moving in a 2D perspective in UnrealEd. See section [Navigating in the 2D Drawing Area](#) for more information.

 ▶ **Popup Menu:** The popup menu can be invoked by right-clicking in the [2D drawing area](#). The available commands depend on the object(s) being clicked on.

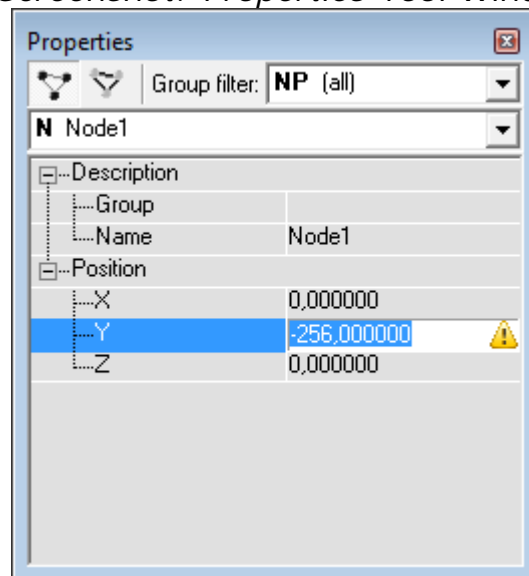
 ▶ **Gradient Panel:** In order to visually indicate the slope of the terrain, different colors are used to represent different Z (i.e., height) coordinates. The gradient panel, located above the 2D drawing area, illustrates which color corresponds to which height. The *MinZ* input to the left of the gradient allows entering the Z coordinate that corresponds to blue color. Nodes or polygons with an even lower Z coordinate will be shown in black color. The *MaxZ* input to the right of the gradient allows entering the Z coordinate that corresponds to red color. Nodes or polygons with an even higher Z coordinate will be shown in white color.

 ▶ **Page Increment (PgInc):** Modification of the Z coordinate (height) of a node works as follows: first select the respective node(s) by clicking on them (possibly holding down the *Ctrl* key). Notice that the selected nodes do not have to belong to the same polygon. Then you have two options: either you use the *PgUp* (page up) and *PgDown* (page down) keys on your keyboard to adjust the height or you use the mouse wheel while the focus is on the UnrealPolyEd main window. The increment/decrement applied with every pressing of the key or mouse wheel move can be adjusted in the "PgInc" input located on the right side above the 2D drawing area. You can also raise all nodes of one or multiple polygon at once. To do so, select the polygon(s) by clicking on their centers or edges (possibly holding down the *Ctrl* key) and then press the *PgUp*/*PgDown* key or move the mouse wheel. The nodes that make up the polygons will be automatically added to the selection for you in this case.


 ▶ **Show Z:** Toggles whether the Z (height) coordinates of all vertexes are always rendered in the 2D drawing area. If disabled, the Z coordinates are only rendered for selected nodes.

 ▶ **Status Bar:** The status bar provides some read-only information about the state of the project, the current selection and the current grid size.

▶ *Screenshot: Properties Tool Window*



▶ **Properties Tool Window:** In order to edit the properties of nodes and polygons in detail, you can double-click in the 2D drawing area to bring up the *Properties* tool window. This window is similar to the respective window in UnrealEd.

 ▶ **Show Nodes:** Indicates whether the object selection box should list nodes. This setting has no effect on the terrain itself; it merely serves as a filter for the *Properties* tool window.



► **Show Polygons:** Indicates whether the object selection box should list polygons. This setting has no effect on the terrain itself; it merely serves as a filter for the *Properties* tool window.



► **Group filter:** If set to a non-empty value, only objects matching the given group filter are shown in the object selection box. Group names starting with an **N** are defined on nodes, those starting with a **P** are defined on polygons and those listed as **NP** are defined on both nodes and polygons. This setting has no effect on the terrain itself; it merely serves as a filter for the *Properties* tool window.



► **Object selection box:** This box allows selecting a specific node or polygon for editing its properties. When selecting one or multiple nodes or polygons in the 2D drawing area, the selection in this box will be updated automatically.

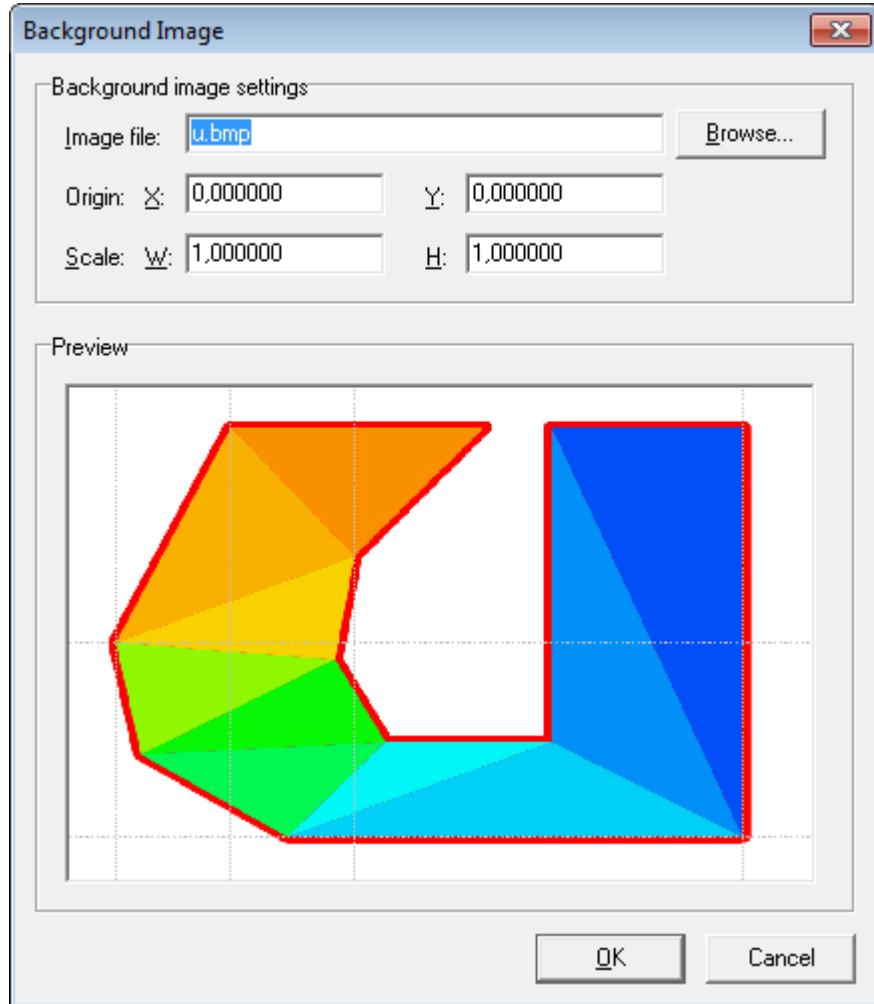


► **Property editor:** The property editor shows the current values of the properties for the selected objects. You can edit a value by clicking on the respective row, just like in UnrealEd. Press the *Enter* key on your keyboard to apply the new value. If multiple entities are selected, the common values among all objects are displayed. Editing a property will apply it to all selected objects in this case. The following properties are available:

- *Description ? Group (NP)*: Optional group name for the selected object(s).
- *Description ? Name (NP)*: Optional name for the selected object(s).
- *Position ? X (N)*: Horizontal (X axis) coordinate of a node.
- *Position ? Y (N)*: Vertical (Y axis) coordinate of a node.
- *Position ? Z (N)*: Height (Z axis) coordinate of a node.
- *Vertexes ? Node1 (P)*: First vertex index of the polygon (ranges from zero to the number of nodes minus one).
- *Vertexes ? Node2 (P)*: Second vertex index of the polygon (ranges from zero to the number of nodes minus one).
- *Vertexes ? Node3 (P)*: Third vertex index of the polygon (ranges from zero to the number of nodes minus one).
- *Display ? Color (P)*: Optional color to assign to the polygon. Colors are specified numerically in decimal or hexadecimal (\$ prefix) format. The byte order is (from lowest to highest byte) red, green and blue. For example, \$FF is red, \$FF00 is green and \$FFFF is yellow. The color is only visible if *View ? Gradient lines* is disabled in the main menu. The special color value -1 or \$FFFFFFFF disables polygon coloring (i.e., color always depends on the height of the polygon).
- *Display ? Texture (P)*: Specifies the texture to be applied to the polygon in the engine. Format is *PackageName.TextureName*, just like in UnrealEd.

If a ⚠ warning icon is shown in the property editor, hover over the icon to see the reason. Currently the icon is shown when editing the coordinates of nodes while the *Edit ? Automatically snap X and Y to grid* main menu option is active to indicate that the entered values will be automatically rounded to the next grid coordinate.

► *Screenshot: Background Image Dialog*



▶ **Background Image Dialog:** The *Background Image* dialog, which is accessed via *Tools ? Background image...* can be used to specify a background image to render in the 2D drawing area. This feature is useful for displaying a reference image for creating the terrain, such as a sketch. The controls of the dialog are explained in the following.



▶ **Image file:** Name of the image file to serve as a reference. The image must be in .jpg, .jpeg, .png, .bmp, .wmf or .emf format. Leave empty to disable background image rendering.



▶ **Browse:** Open a dialog where the image file to use can be chosen.



▶ **Origin X/Y:** Position in world coordinates (units) where the center of the reference image is to be rendered. Defaults to 0.0.

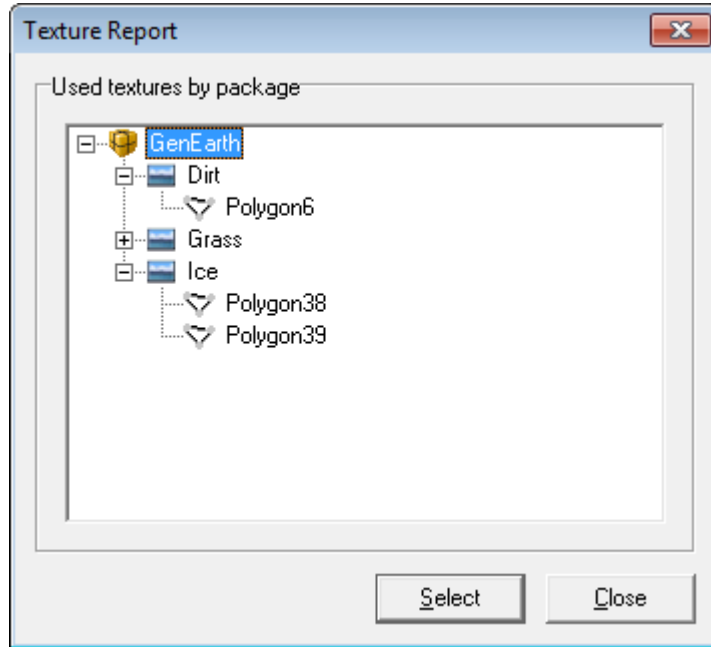


▶ **Scale W/H:** Scale to use along the X and Y axis when rendering the reference image. Defaults to 1.0.




▶ **Preview:** Renders a preview of the reference image, if any. If the preview image is larger than the available space, it will be stretched to fit the area completely. Notice that the origin and scale values are *not* applied in the preview.

▶ *Screenshot: Texture Report Dialog*





▶ **Texture Report Dialog:** The *Texture Report* dialog, which is accessed via *Tools ? Texture report...* displays a list of all textures used in the current terrain, sorted by package name. The *Select* button may be used to select all polygons whose texture is set to the respective package or texture name.



4. Common Tasks

▶ **Starting a New Project:** In order to create a new terrain, select *Project ? New* from the main menu. Alternatively, use the  *New* [tool bar](#) button. If the previously open project has been modified, UnrealPolyEd will ask you to save it first.

▶ **Navigating in the 2D Drawing Area:** Navigation in the 2D drawing area is similar to UnrealEd: left-click and drag to pan the view slowly. Right-click and drag to pan the view quickly. Hold the left and right mouse button and move the mouse vertically to zoom in and out. Click on an object to select it (for polygons, click on the center knob or one of its edges).


▶ **Zooming the 2D Drawing Area to Fit:** If you want to adjust position and zoom of the 2D drawing area to fit all present objects, use the *View ? Zoom to fit* main menu option, press *Ctrl+M* or click the  *Zoom to Fit* [tool bar](#) button.

▶ **Adding a Reference Image:** In case you have a sketch of the terrain you want to create around, you can load it into UnrealPolyEd in order to save as a reference. To do so, export your sketch as *.jpg*, *.jpeg*, *.png*, *.bmp*, *.wmf* or *.emf* and then click *Tools ? Background image...* to bring up the [Background Image](#) dialog. The same can be achieved with the  *Background Image* [tool bar](#) button. Choose *Tools ? Clear background image* to hide the reference image.

▶ **Undo and Redo:** In order to undo a previous action, choose *Edit ? Undo*. In order to redo a previously undone action, choose *Edit ? Redo*. If you want to undo or redo multiple actions at once, hold the left mouse button down on the  *Undo* or  *Redo* [tool bar](#) button, respectively, until a popup menu appears. When selecting an item in the popup menu,

all actions above and left to it are automatically undone/redone as well. Not all actions can be undone, such as [Navigating in the 2D Drawing Area](#) or exporting the terrain to a file to disk (see [Importing the Terrain into UnrealEd](#)).

▶ **Changing Grid Settings:** Right-click on the 2D drawing area without moving the mouse to bring up the popup menu. In the menu, select the respective item in the *Grid* submenu to adjust the grid density.

In order to toggle automatic snap-to-grid of nodes, invoke the respective option in the *Edit* submenu of the main menu. Alternatively, you can click on the  [Automatically Snap X/Y to Grid tool bar](#) button. Notice that enabling this option does *not* automatically snap all existing nodes to the grid. See also the [Snapping Nodes to the Grid](#) section.

▶ **Adding a Node:** A new node can be added by either double-clicking on an empty space in the 2D drawing area or by right-clicking on an empty space and selecting *Add node here*. If the *Edit ? Automatically snap X and Y to grid* main menu option is active, the nodes will be automatically snapped to the nearest grid coordinate.

▶ **Moving Nodes:** To move one or multiple nodes, first select them (possibly holding down the *Ctrl* key). For selecting all nodes, use the *Select all* option in the *Edit* submenu of the main menu. Then hold down the *Ctrl* key while left-clicking on one of the selected nodes and move the mouse to move the node(s). If the *Edit ? Automatically snap X and Y to grid* main menu option is active, the nodes will be automatically snapped to the nearest grid coordinate.

▶ **Snapping Nodes to the Grid:** For snapping selected nodes to the grid, select the node(s) (possibly holding down the *Ctrl* key), right-click on one of the selected nodes and choose *Snap to grid* from the popup menu.

▶ **Hint:** For selecting all nodes, use the *Edit ? Select all ? Nodes* option in the main menu.

▶ **Adding a Polygon:** There are multiple ways available to create a polygon: either you let UnrealPolyEd automatically fill the area in between three nodes or you specify the nodes that make up the polygon individually.

▶ **Automatic polygon creation:** To let UnrealPolyEd create a polygon for you to fill a gap in your terrain, make sure that you have added at least three nodes (see section [Adding a Node](#)). Then right-click into the area between the three nodes. In the popup menu, you will see the options *Add ground polygon here* and *Add sky polygon here*. Choose one of the options depending on the type of polygon you want to create. UnrealPolyEd will then find the three nearest nodes that do not yet make up a polygon and create a polygon with the respective orientation.

Alternatively, you can use the *Ctrl+D* (ground polygon) and *Ctrl+K* (sky polygon) key bindings (see the respective items in the *Edit* menu). Notice that the position of the cursor denotes the rough place where to add the polygon when executing the keyboard commands.

▶ **Manual polygon creation:** If UnrealPolyEd is unable to detect which polygon is to be created, you can specify the vertexes to use manually as follows: select exactly three nodes and right-click on one of the selected nodes. In the popup menu, you will see the options *Add ground polygon* and *Add sky polygon*. Choose one of the options depending on the type of polygon you want to create.


▶ **Moving Polygons:** To move one or multiple polygons, select them by clicking on their centers or edges (possibly holding down the *Ctrl* key). To


move the polygon(s), hold the *Ctrl* key down, hold the left mouse button pressed while in the 2D drawing area and move the mouse.

▶ **Applying Textures to Polygons:** Each newly created polygon is assigned a default texture, namely "GenEarth.Grass". The texture name is the same as displayed in UnrealEd's texture browser. In order to assign a different texture, two options exist. First, you can double-click on a polygon to open the *Properties* tool window. The texture can be modified by editing the respective value. Second, if you have already assigned the needed texture to a different polygon, you can simply right-click on the polygon and select the respective item in the *Apply texture* submenu.

See also question [How can I obtain a list of all textures used by my terrain?](#)



▶ **Flipping the Polygon Orientation:** Polygons can be ground or sky polygons, depending on whether the player stands on them (ground) or sees them from below (sky). The current orientation is printed in square brackets when the polygon is selected; it reads either *[ground]* or *[sky]*. If you want to flip the orientation of one or multiple polygons, select them first (possibly holding down the *Ctrl* key) and then choose one of the following options: right-click on one of the selected polygons (not on a node) and select *Flip polygon orientation*, invoke the same command from the *Edit* main menu or press *Ctrl+F*. See also question [My brush seemed to import fine into UnrealEd, but after subtracting, it has holes or is not visible at all?](#)

▶ **Removing Nodes and Polygons:** In order to delete one or multiple nodes and/or polygons, select them first and then right-click on one of the selected objects and choose *Remove selection*. Alternatively, choose the *Edit ? Remove selection* main menu command, click on the  *Remove Selection* [tool bar](#) button or press the *Del* key.



▶ **Importing the Terrain into UnrealEd:** In order to import the terrain into UnrealEd, you first have to convert the UnrealPolyEd project to a file format that is shared with UnrealEd. For this purpose, UnrealPolyEd supports exporting the terrain as a *.t3d* file. To export, click on *Project* in the main menu and select *Export* or click the  *Export* [tool bar](#) button. In the dialog box, choose *Unreal Text (*.t3d)* and click *Export...*. Choose a name for the exported file.

In order to import the *.t3d* file in UnrealEd, choose *Brush* from UnrealEd's main menu, choose *Import...* and select the file you just exported. In the *Import Brush* dialog, you should typically leave the default settings (i.e., don't *merge faces* and *solid mesh*). The red builder brush should now have the shape of the terrain modeled in UnrealPolyEd. Before subtracting the brush from the world, make sure that you **load the required texture packages**, because UnrealEd won't automatically load them for you. See [Why do I see the white "mildew" texture on my terrain?](#) for more information.

▶ **Hint:** If you have previously exported the terrain to a file for a given UnrealPolyEd project, you can also choose *Project ? Export again* to export the terrain once more using the same format to the same file.

▶ **Importing and Exporting Terrain Data:** Sometimes it is useful to import/export the coordinates of nodes from/to file. This can be achieved with the *Project ? Import...*, *Project ? Export...* and *Project ? Export again* main menu options and the respective [tool bar](#) buttons  *Import* and  *Export*.

▶ **Adjusting Display Settings:** The *View* menu offers various options for tuning the visual representation of the UnrealPolyEd main window and the 2D drawing area that are explained in the following.

- ▶ **Tool bar:** Toggle display of the [tool bar](#) on and off.
- ▶ **Gradient panel:** Toggle display of the [gradient panel](#) (including *MinZ*, *MaxZ*, *PgInc* and *Show Z* controls) on and off.
- ▶ **Status bar:** Toggle display of the [status bar](#) on and off.
- ▶ **Gradient lines:** Draw polygon lines in color gradients to accurately represent the Z coordinate. Enabling this option may affect rendering performance.
- ▶ **Show node names:** Show the names of all nodes in the 2D drawing area. If this option is disabled, names are only shown for selected nodes.
- ▶ **Show Z coordinates:** Show the Z coordinates of all polygons in the 2D drawing area. If this option is disabled, Z coordinates are only shown for selected polygons.
- ▶ **Show polygon names:** Show the names of all polygons in the 2D drawing area. If this option is disabled, names are only shown for selected polygons.
- ▶ **Show texture names:** Show the texture names of all polygons in the 2D drawing area. If this option is disabled, texture names are only shown for selected polygons.
- ▶ **Show position:** Render position information in the top left corner of the 2D drawing area. For debugging purposes only.
- ▶ **Show scale:** Render the current scale (zoom factor) in the top left corner of the 2D drawing area. For debugging purposes only.
- ▶ **Show log:** Show or hide the UnrealPolyEd command log window.
- ▶ **Show properties:** Show or hide the [Properties Tool Window](#). Same as the  *Properties* [tool bar](#) button.
- ▶ **Automatically show properties:** If enabled, the [Properties Tool Window](#) is automatically shown depending on the current selection in the 2D drawing area.
- ▶ **Opening the Manual:** In order to open this manual from within UnrealPolyEd, choose the *?? Manual* option in the main menu or click then  *Manual* [tool bar](#) button.



5. Key Bindings



▶ Project Management, Import and Export	▶ Edit, Undo and Redo	▶ View and Zoom
<p>Ctrl+W Show Welcome Screen</p> <p>Ctrl+N New Project</p> <p>Ctrl+O Open Project</p>	<p>Ctrl+Z Undo</p> <p>Ctrl+Y Redo</p> <p>Ctrl+G Toggle Auto-Snap X and Y to Grid</p> <p>Ctrl+D Add Ground Polygon</p> <p>Ctrl+K Add Sky Polygon</p> <p>Ctrl+F Flip Polygon</p>	<p>Ctrl+M Zoom to Fit</p> <p>Ctrl+R Show Properties</p> <p>Alt+I Edit MinZ</p> <p>Alt+A Edit MaxZ</p> <p>Alt+P Edit PgInc</p> <p>Alt+Z Toggle Show Z</p>

Ctrl+S	Save Project	Ctrl+A	Orientation Select All	► Tools	
Ctrl+I	Import	Del	Remove Selection	Ctrl+B	Background Image Settings
Ctrl+E	Export	PgUp	Raise Selected Nodes by Pglnc	Ctrl+U	Texture Report
Ctrl+X	Export Again	PgDown	Lower Selected Nodes by Pglnc	► Help	
Alt+F4	Quit			F1	Show Manual

6. Frequently Asked Questions (FAQ)

► **Why do I see the white "mildew" texture on my terrain?** This happens in the following two cases: either you have not assigned a valid texture to the respective polygon or you have applied (i.e., subtracted or added) the terrain brush in UnrealEd without previously loading the required texture packages. Unfortunately, UnrealEd does **not** load the texture packages automatically for you. For example, if your terrain has the `GenEarth.Grass` texture applied (see section [Applying Textures to Polygons](#)), fire up the texture browser in UnrealEd and load the `GenEarth` texture package. Repeat this step for every texture package. You only need to do this only once after you started UnrealEd and only if the loaded map does not require the respective textures to be loaded. Only after doing that, subtract or add the brush from/to the world. See also question [How can I obtain a list of all textures used by my terrain?](#)

► **My brush seemed to import fine into UnrealEd, but after subtracting, it has holes or is not visible at all?** Double-check that the polygons of your terrain have the correct orientation. As a first guess, you might want to fly underneath your terrain to check whether the respective polygons are visible from below. If this is the case, then you need to flip the orientation of the respective polygon(s) in UnrealPolyEd and import the terrain again into UnrealEd. In UnrealPolyEd, select the polygon(s) in question and then pay attention to the text displayed in the polygon(s). If you read "[sky]", but you actually want the polygon(s) to form the ground, right-click on the polygon(s) and select *Flip polygon orientation*. Now the respective text should read *[ground]*. Flipping the orientation again will get you back to *[sky]*. After having done this, follow the steps from section [Importing the Terrain into UnrealEd](#) to import the terrain again into UnrealEd.

► **How can I obtain a list of all textures used by my terrain?** You can choose *Tools* from UnrealPolyEd's main menu and select *Texture report...* to list all the  textures (and  texture packages) required to correctly import your terrain into UnrealEd. Remember to load these texture packages before applying (i.e., subtracting or adding) your brush from/to the world or you will otherwise see the white "mildew" texture on your terrain. See also question [Why do I see the white "mildew" texture on my terrain?](#)

7. Changelog

Version 0.7 (2014-04-21):

- ▶ *New*: Experimental support for importing .t3d files exported via UnrealEd's *File ? Export*
- ▶ *New*: Allow to deselect objects by clicking again on them while holding down *Ctrl*
- ▶ *New*: Highlight active grid setting in popup menu
- ▶ *New*: Examples now ship with exported .t3d files
- ▶ *Fixed*: "New" tool button doing nothing
- ▶ *Fixed*: Assertion failure in conjunction with node selection and redo
- ▶ *Fixed*: Unintended view pan when right-click, then left-click or right-click somewhere else
- ▶ *Fixed*: Selection of individual polygons in *Texture Report* form not working

Version 0.6 (2014-03-15):

- ▶ *New*: Install and uninstall support
- ▶ *New*: Undo/redo support
- ▶ *New*: UPE-specific icon
- ▶ *New*: Welcome screen on startup
- ▶ *New*: Background image support
- ▶ *New*: Texture report support
- ▶ *New*: Extensive manual (this document)
- ▶ *New*: Example projects
- ▶ *New*: Automatic polygon creation algorithm ("Add ground/sky polygon here" command)
- ▶ *New*: "Export again" support when previously exported
- ▶ *New*: "Zoom to fit" support
- ▶ *New*: Many more commands in tool bar
- ▶ *New*: Show polygon orientation (ground/sky) for selected polygons
- ▶ *New*: Allow to set focus on 3D drawing area
- ▶ *New*: Draw frame around 2D drawing area when focused
- ▶ *New*: "Remove selection" command in main menu (*Del* key)
- ▶ *New*: "Add ground/sky polygon" command in main menu
- ▶ *New*: Option to hide "gradient panel"
- ▶ *New*: Move selected polygons (including their vertexes) when holding down *Ctrl* and moving the mouse
- ▶ *New*: *Enter* in property editor applies new value
- ▶ *New*: "Flip polygon orientation" command in main menu and popup menu
- ▶ *New*: "Snap to grid" options for Z axis
- ▶ *New*: Double-click in 2D drawing area to add node
- ▶ *New*: Status bar shows selection statistics (nodes/polygons)
- ▶ *Changed*: Polygons are now created by selecting three nodes as opposed to selecting the nodes one after another
- ▶ *Changed*: Project default settings (*MinZ*, *PgInc*, *Grid*)
- ▶ *Changed*: Height of nodes created by default when creating new project
- ▶ *Changed*: Removed obsolete "Edit polygon" command
- ▶ *Changed*: Do not enable "Show position" and "Show scale" by default
- ▶ *Fixed*: Bad performance with gradient lines at high zoom factors
- ▶ *Fixed*: Disallow entering of invalid node indexes for polygon vertexes
- ▶ *Fixed*: *Esc* key dismisses dialog windows

Version 0.5 BETA (2014-02-19):

- ▶ *New*: Start new projects with three nodes and one ground polygon
- ▶ *New*: Grid support
- ▶ *New*: Snap to grid support
- ▶ *New*: Option to render polygon lines as color gradients
- ▶ *New*: Option to always show texture names
- ▶ *New*: Added "center handles" to polygons to allow easier selection and detection of holes
- ▶ *New*: "Remove polygon" command in popup menu
- ▶ *New*: Allow to use mouse wheel to raise/lower selected polygons/nodes
- ▶ *Fixed*: Unable to remove nodes

Version 0.4 BETA (2014-02-15):

- ▶ *New*: English translation
- ▶ *New*: Options to always show node and polygon names
- ▶ *New*: Highlight selected polygons more clearly
- ▶ *New*: Tutorial video of German version

Version 0.3 BETA (2003-03-09):

- ▶ *New*: First public release

8. Contact Information, Copyright and License

Contact information:

- ▶ *Homepage*: <http://www.sidewinder.de.vu/>
- ▶ *E-Mail*: Sidewinder_GER@hotmail.com

Copyright:

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For updates, please check my website or send me an e-mail with subject "UnrealPolyEd". Suggestions for improvements, bug reports and reports on how and for which purpose you are using UnrealPolyEd are of course also welcome!

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