Easymodel (2.2)

A quick 3-d modeling program by J.Thesing

In this help file you will get help on the following items:

Work area Opening a file Saving a file Importing a file Using an object file Creating objects Walk through a scene Changing objects Shading Modeling The menu

This is the shareware version of Easymodel. It's a fully functional version, and you can try it for a period of 30 days. If you still use this program after 30 days we expect you will register. Registration will only cost you \$20. Here is how you register.

Registration

How do you register

Send an email to : jthesing@hotmail.com

In this email you indicate that you want to register Easymodel.

You will receive a registration code by email. After you have received this code you start Easymodel, and the registration box appears. You can also call the registration box by choosing from the menu |Help|Register|

You enter the registration code in the registration field at the bottom of the registration box. After you have pressed the "Register" button below, you will be a registered owner of Easymodel.

How do you pay

You transfer the amount of \$20 to :

Bank	Postbank
Swift code	INGB NL 2A
Adress	Foreign operations
	Postbus 1800
	1000 BV
	Amsterdam
Account number	4191165
In the name of	J.Thesing
	Hoofddorp

What are the benefits of being a registered owner

- The registration box will no longer appear every time you start Easymodel.

- You will get help if you send an email that is accompanied with the registration code.

- Every update will cost you less then unregistered users.

- You will help us develop other cheap applications.

The work area

When you start the program you enter the <u>work area.</u> Here is where you design your scenes.

Here you also see the toolbox. Several tools and adjustments are to be used here.

The **menu** helps you do make the following choices: Save and load files and objects

- Edit objects
- Set several options and modify settings
 Set viewing options
- Choose help
- Exit the program

Work area

🏄 Easymodel : noname	
<u>File Edit Options View Help</u>	
Front view Cw Of Cg Cp	Survey view (
This is the turning point. You can move it by clicking the right mouse button.	
This is the working-area of the program. Here is where you design your objects. There are four views: Front, top, side and survey view. In the first three views you can esign and edit your objects, the fourth is to show an overview of the scene.	
Top view Of Og Op	▼ ▲ Side view ⓒ

Open a file

There are 4 file-types to be opened:

- Easymodel This is the default file type (*.emd)
- DXF This is an autocad file-type
- VRML Virtual Reality Modeling Language. This file type is often used on the Internet. The extension of this file type is ".wrl".
- 3DS This is the file format of 3D-Studio

Choose the type of file by clicking on the file-type list-box.

Because Easymodel does not support all possible functions used in VRML#1 or VRML#2 these file-types may cause some trouble.

All file formats beside the default file type will be imported into the existing scene. So, if you want these files to be a new scene, you first have to create a new scene by choosing |File|New|.

Save a file

There are 6 file-types that can be saved:

Vector orientated images:

- Easymodel	This is the default file type (*.emd)
- DXF	This is an autocad file-type
- VRML	Virtual reality modeling language. This file type is often used on the Internet. The
	extension of this file type is ".wrl".
- 3DS	This is the file format of 3D-Studio.
- POV	This is the file format of POV-Ray, an excellent freeware render-program.

Pixel orientated images: you will only save the current view, to edit your objects later you have to choose a vector orientated image!

- BMP The visible scene in the front-screen will be saved as a bitmap.
- JPG The visible scene in the front-screen will be saved as a jpeg-image.

Choose the type of file by clicking on the file-type list-box.

By using the default file type no image-information will be lost. If you use the DXF, VRML or 3DS file type the object will be converted. This can result in a loss of image-information. You can not load a bitmap, so make sure you use another format (preferably .emd) to save your scene also.

Importing a file

This gives you the possibility to add a scene to another scene. Just load or create a scene and then choose |Edit|Import Easymodel|. The Easymodel scene you select will be imported into the existing scene.

Using an object-file

After you have created a scene you can use this to create an object-file. Objects from object-files can be imported into scenes several times. You can create a chair for example, and import this in a model of your living room.

When you create an object-file the several parts will be placed into one new object, so they cannot separately be selected.

To create an object file you first have to select the objects from the current scene you want to place into a new object-file. Now choose from the menu |File|Save selection as object|. After you have entered a name for the object-file, all selected items from the current scene are saved as one new object in the object-file.

To use this object you have to choose from the menu | File|Import object|. Now choose the object-file you want. After you have done this a rectangle will be shown to indicate the size of the object. Move this rectangle to the place you want the imported object to be placed, and click the mouse-button. The object will be inserted in the current scene.

Creating objects

To create an object you have to use the buttons on the <u>toolbox-square</u> Here is an overview of all the objects.

After you have selected an object button you can start drawing. You can either place the object in the front- top- or side-window.

- First determine what shape you want to use. You can select a <u>pre-defined shape</u> or a <u>user</u> <u>defined shape</u>.

A special way of creating user-defined objects is modeling.

- Then determine which preciseness the shape has to be. If the amount of degrees in the degreelistbox is smaller, the precision of the object will be higher. Take care the amount of degrees is not too small, because it will slow down the drawing and viewing speed, and enlarge the file. An amount of 20 degrees mostly will do.

- If you want the scene to be of a certain scale, you can enter it in the scale edit box.

- The depth shows the distance from the mouse-pointer to the last position you have clicked while creating an object.

Here is how you create different objects:

Pre-defined shapes:

Triangle 📂

Click on 3 different places to create a triangle

Box

First click on the top-left point. Then click on the bottom-right point. Then move the mouse to determine the depth of the box.

Sphere **S**

First click on the center of the sphere. When moving the mouse you see the size of the sphere. Click again to create the sphere.

Point 🍊

First click on the top-position. Then move to the right to determine the base of the point. Click when the right size is reached.

Tube 🎹

First <u>click</u> on the top-left point. Then click on the bottom-right point.

Ring 🦕

First create a circle for the size of the ring. After you have done this you draw a second circle to determine the outline of the ring

Multi surface 🏛

A multi surface is a square that consists of several smaller squares. The number of degrees in the toolbox determines the number of squares in a multi-surface. Just draw a square.

User-defined shapes:

Multi tube 🚾

First create a line which determines the form of the multi-tube. Then you have to draw a circle to determine the outline of the multi-tube.

Polygon 🍊

A polygon is a user-defined shape. You can choose to define an open polygon or a closed polygon. The radio buttons at the right side of the polygon-button will be enabled after you clicked the polygon-button.

First draw a line to indicate the shape of the polygon. Then click the right button to finish indicating the shape. Now move the mouse to indicate the depth of the polygon. When the correct depth is reached, you click left, and the polygon is made. If you have chosen an open polygon the polygon is only projected in depth, a closed polygon will also connect all points in the line.



You can choose either a x,y,z-rotated array or a line array. The radio buttons at the right side of the array-button will be enabled after you clicked the array button.

<u>X,y,z array:</u>

An array is a number of lines of which every point is connected with another rotated image of that line. First draw a line. Then click right. Then move to the rotation point of the array. Click again (left) and the line will be rotated in x, y or z-position.

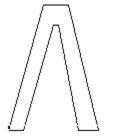
Line array

First draw a line to indicate the shape of the array. Then click the right button to finish indicating the shape. Now draw a second line to indicate the "shape in depth". After drawing the line, click right again, and the line will be copied and joined together.

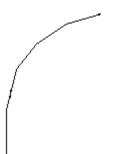
Now you see a preview window, where you can indicate a rotation in x,y or z-direction of each line-part in the object. After you have pushed the ok-button the object is formed.

Here is an line-array example:

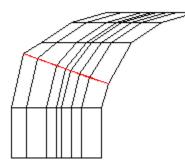
First draw the shape by drawing the first line in the front window:



Now draw the shape in depth by drawing a line in the top window:



Now you see the preview window: here you can rotate segments of the shape:

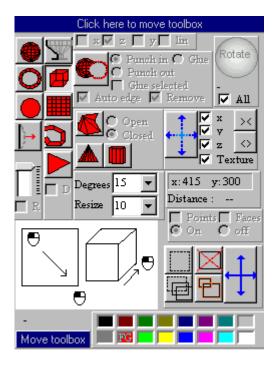


After you have chosen Ok the shape will be formed:



Toolbox-square

This is how the toolbox looks:

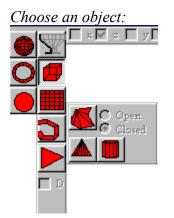


On the toolbox you find items to:

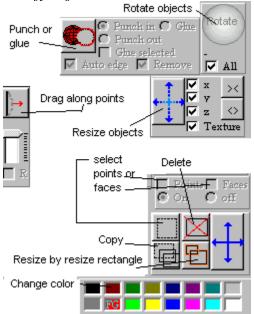
<u>Choose an object</u> <u>Modify objects</u> <u>Follow the mouse-position</u> <u>Change color</u> Modify some settings like <u>adjusting radians</u> <u>Punch objects</u> <u>Drag along objects</u>

You can move the toolbox by clicking somewhere on an empty area of the toolbox, and then move the mouse while keeping the left mouse button pressed. You can also click on the blue panel and move the mouse while the left button is pressed.

If you have selected an object the toolbox shows a picture of how the object can be designed. In the picture you can see when to click the left mouse button : \bigcirc or the right mouse button : \bigcirc



Modify objects



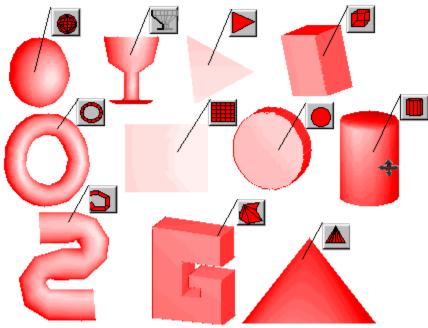
Follow the mouse-position x: 490 y: 335 Distance : --

Adjust radians

Degrees		
15	-	
15		
20		
25 30		
35		
40		
45		
50		

Change color

Objects Here is an overview of all the objects. On every object you can see the button to select the object-type.



Viewing and moving through a scene

You might want to walk through the scene you have created. This is possible in the perspectivewindow.

Open this window by choosing |View|Walk through|.

Now you see the scene as if it was real, using perspective. You have the following ways to walk through the scene:

Moving closer or further away:

First click left somewhere in the middle of the screen. Then move you mouse backward or forward while pressing the left button.

Moving in x/y-position

Click on one of these arrows:



Rotating in z-position

First click left somewhere in the middle of the screen. Then move the mouse left or right while pressing the left button.

Rotating in y-position

First click right somewhere in the middle of the screen. Then move you mouse backward or forward while pressing the right button.

Rotating in x-position

First click right somewhere in the middle of the screen. Then move the mouse left or right while pressing the right button.

You can select a *speed* from quick to slow to move through the scene.

By pressing the *restore* button you can restore the starting-point.

If the study checkbox is checked you can rotate the scene without moving closer.

If you like what you see, you can save the view as a bitmap by pressing the bitmap button.

Changing objects

Once you have drawn an object, you may want to change it. There are several ways to do this. Before changing an object you first have to <u>select it</u>

Move objects Resize objects Rotate objects **Delete** objects Reshape objects by punching Reshape objects by the resize rectangle Copy objects Change the color of objects Turn objects Smart turn object Undo changes Face smoothing Copy object around center position Centering objects Drag along points in object Mirror selected faces Extend faces Using materials Glue selected points

Move objects

First select the move modus by clicking on this button



Now move the mouse while keeping the left button pressed. All selected objects follow the mouse-movement.

Resize objects

First select the resize modus by clicking on this button



Now move the mouse while keeping the left button pressed. All selected objects will be resized according to the mouse-movement. Moving the mouse up will cause the objects to be reduced. Moving down will cause enlargement.

On the right side of the resize-button you see three checkboxes. If the x-box is checked resizing will be done in x-direction. This goes also for the y- and z-direction

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$\rightarrow <$	

If you want to resize the object step by step you can use these buttons:

The upper button enlarges and the lower button reduces. The extend of resizing is indicated by the number of degrees in the degree-listbox.

Rotate objects

To rotate objects use these buttons:



If the select button is down only the selected objects will be rotated. If not, all objects will be rotated.

Rotation will be carried out around the center-position.

Delete objects

Selected objects will be deleted after you have clicked this button:



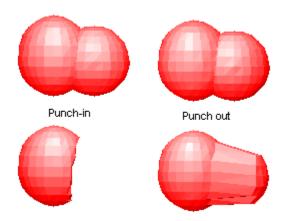
Reshape objects by punching

First you have to select the punch mode by clicking this button:



Now determine if you want to punch in or punch out.

Punching in will cause the points of the first object to be pasted on the points of the second object if the points of the first object are more in z-position then the second object. Punching out will cause the points of the first object to be pasted on the points of the second object if the points of the first object are less in z-position then the second object. Here is an example of punching:



After you have selected the punch button you move the mouse to the object you want to be punched. A rectangle will be placed around then closest object to the mouse-pointer. Select that object by clicking the left button while the object has a rectangle. Then move the mouse to the object to punch with and click left again: make sure the first object will be punched and the second object will punch (and removed).

If you want the second object to be removed after the operation, just check the removecheckbox.

Punching will be calculated according to z-position of the object points. If the objects mainly differ in x- or y-direction, no punching will be carried out. You can prevent this by checking the Auto-edge checkbox. If this s checked, the objects will be rotated in a way that maximum z difference is accomplished. If you are sure that the objects are in sufficient z position to each other, don't check the auto-edge checkbox.

Besides punching in- or out, you can also choose to stick the selected points of one object to the closest faces of another object. Check the check-box "Glue". If you don't check the radiobutton "Glue selected" all points of an object will be glued onto another object. By checking the radiobutton only the selected points will be glued.

Reshape objects by the resize rectangle

Use this button to perform this operation:



Move to the top left position you want the object to be resized to and click left. Then move the bottom right position and click again. All selected objects will be resized according to the size of the rectangle.

In the front view, resizing will be done in x- en y-direction. In the top view, resizing will be done in x- en z-direction. In the side view, resizing will be done in z- en y-direction.

Copy objects

Use this button to copy selected objects:

First move to the place you want to copy from and click left. Then move to the place you want to copy to. After you have clicked on this place the selected objects are copied.

Change the color of objects

Just click on one of the color rectangles in the color-grid, and the color of all selected objects will be changed. A way to get to choose more colors is to select the menu-item |Options|Color| and choose one of the colors.

You can also change the colors in the extended color-grid that is evoked by this menu-choice.

Turn objects

An object consists of several triangles. If the points of the triangle are clockwise, it faces the front, otherwise it faces the background. No light is reflected if the triangle is anti-clockwise. This can be unwanted and you may need to turn the triangles. To do so choose the menu option| Edit|Turn|.

Smart turn objects

If you choose the menu option |Edit|Smart turn| every triangle in an object is compared to the triangles it is connected with. If more then half of the connected triangles are faced to another side, the triangle will be turned. Especially on bigger scenes this may take a while.

Undo changes

The last change you made on the objects can be cancelled by choosing |Edit|Undo|.

Copy object around center position

All selected objects will be copied and rotated around the <u>center position</u>. After you have chosen the menu-option |Edit|Copy selected objects around center position|, you will be asked to confirm the right parameters. These are: Rotation direction: You can choose to rotate around the x- y- or z-axis Rotation position : You can change the position of the rotation Radians: You can change the number of times the rotation is carried out.

Centering objects

Choose the menu option |Edit|Center| to place all objets around the center position.

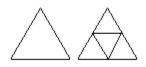
Mirror selected faces

Every selected face is mirrored around the center of the object. Every face is therefore rotated by

an angle of 180 degrees, and it may be necessary to turn every mirrored face.

Extend faces

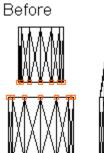
A face is in fact a polygon, consisting of three points. Sometimes it can be handy if you could extend the polygon to more faces. Here is an example :



There are several ways to extend faces. Choose one from the menu : |Edit|extend faces|. You will see an example in the toolbox.

Glue selected points

Here is the possibility to join several objects together. Select the points of the objects you want to join, and choose from then menu |Edit|Glue selected points|. Here is a small example of how it works :





Selecting objects

You can select objects or separate points or faces in an object.

There are three ways of selecting an object:

- Select one object

First get in selection mode by clicking this button:



Now click on the object you want to select. When the object is selected a rectangle will be placed around it. The color of this select-indicate rectangle can be changed in <u>settings</u>.

- Select all objects

You can do this by choosing the menu option |Edit|Select all|

- Select an area

First choose the menu option |Edit|Select area|. Now click on the top left side of the area you want to select. When you move the mouse a rectangle is placed around the area. When you click again all objects that are (partly) in this area will be selected.

If you select separate **points** in an object you have to select an area. Al points within this area will be selected. All modifications will be carried out on the selected points in an object.

If you want a single **face** to be selected choose |Edit|Select area|Face| or click on the select button, and make sure the face radio-button is checked. Now if you click on a face it will be selected.

Center position

This is a spot in the scene that is indicated by a small cross: ** Rotations will be carried out around this point.

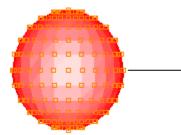
When you draw an object in the front view, its z-position will be the center position. When you draw an object in the top view, its y-position will be the center position. When you draw an object in the side view, its x-position will be the center position.

You can change the center position by clicking the right mouse button somewhere in the scene. This only doesn't work when you are drawing a polygon or array.

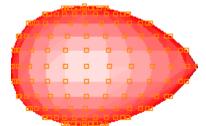
Drag along points in an object

First you choose |Edit|Drag along| from the menu, or press the drag along button : Now you can move the points in an object, depending of the distance of the mouse-movement. Here is an example :

First select points in an object, then choose "drag along" and click on the start position to start dragging.



Now move the mouse to the end position to stop dragging. The points in the object will be moved to the end position, according to the distance of the point in the scene where you first clicked.



If you want the points to be moved more relative to the mouse position, change the bolt-meter besides the drag-along button.

If you want the points to be moved ore relative to the center position, you have the check the "Relative" checkbox.

Shading

There are four methods of viewing the scene :

- Xray or wired view

You will only see the contour of the polygons in the object. No shading is done. This is the quickest, but less orderly kind of viewing

Shading

If we use shading, we let the objects be illuminated by a light source. We can change the position of this light source by choosing from the menu |Options|Light position|. Now we can change the position (x and y) and distance(z) of the light source.

- Flat shading

For every polygon the angle to the light source will be calculated. The color or material of the whole polygon will be illuminated according to this angle.

- Gourad shading

Every polygon will be illuminated reckoned with his surrounding polygon. This will result in a smooth color path.

- Phong shading

This is the most exact shading method, but also the slowest. From every point in a polygon the normal-vector is calculated and this determines the extend of illuminating.

You can adjust the lightning method by checking one of these radiobuttons :

Front view Cw 🖲 f Cg Cp

The w-radiobutton is for wired view, f = flat shading, g = gourad shading and p = phong shading.

Smoothing or unsmoothing faces

If you have chosen to light the scene according to the gourad or phong method, every angle will be smoothed. This is not always what you want. A box, for example, has sharp angles. To prevent this you can determine for every polygon to be smoothly enlightened or not. Simply select the polygons, and choose from the menu : |Edit|Face smoothing|Unsmooth| or | Smooth selected faces|.

Using materials

In this program no real materials are used. As materials you can use bitmaps. The bitmaps are either wrapped around an object or flat projected on a bitmap.

If you choose to wrap the bitmap around an object there are three methods:

- Wrap around bitmap according to depth and height.
- Wrap around bitmap according to depth and width.
- Wrap around bitmap in both directions.

Here are examples of all four methods, where a bitmap of a cat is projected on a sphere :



Flat



Only width



Width and height



Only height

To see an overview of all materials used in the current scene choose |Edit|Material|Materials used|. Here you can also edit the material names: Take care you make sure the material name you change does exist.

If you want to export a scene to VRML, make sure you use no bitmaps (BMP) as a material. Some VRML-viewers can not use this file-format. Use JPG or GIF instead.

If you want to export a scene to POV-Ray, make sure you use no bitmaps (BMP) or Jpeg (JPG) images as a material. POV-Ray can not use this file-format. Use GIF instead.

Modelling

If you want to create complex objects, like the human face, it is laborious to define each point in every polygon the object is put together with. Therefore you can use the special modeling-unit. You can invoke this unit by choosing |Edit|Modelling|.

You can get help here on the following subjects :

An overview of the interface <u>Placing points</u> <u>Defining faces</u> <u>Using pictures</u> <u>Saving and loading</u>

Saving and loading modeling files

You can save your modeling work into a file, and load it later again to continue your work. There are no images saved in modeling files. The extension of modeling files is ".mdd".

You can also import modeling files into the work area of Easymodel. The models will be imported around the turning point position.

To edit models you can also select faces and export them to a modeling file. After you have save objects into a modeling file you can edit them in the modeler.

An overview of the interface

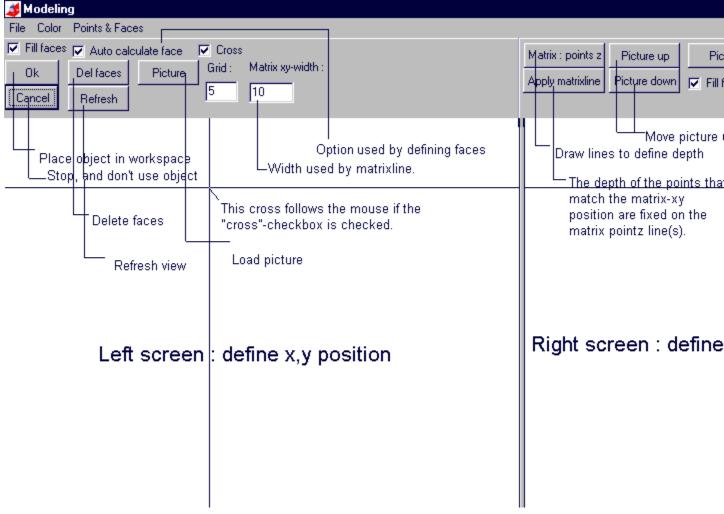
The modeling unit consists of 2 screens: the left screen is where you define the x and y position of a point, the right screen is where you define depth (z-position).

Every point you have placed is represented as a little square on the screen.

After you have defined a face it is shown as a yellow triangle if you have checked the "Fill faces" checkbox. If this checkbox is unchecked, three lines will represent the face.

In general, creating an object is defining the polygons the object is build of. Each polygon consists of three points. Every point has a x, y and z-position. If you easily can define the position of each point, and define which three points form the polygon, you can create any object within reasonable time.

Here is an overview of the interface:

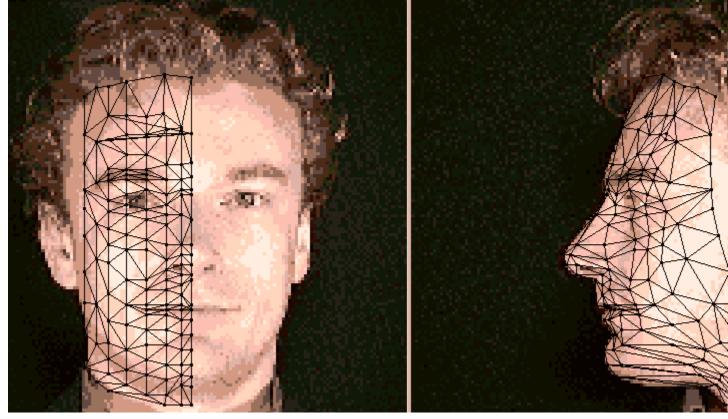


Using pictures

If you want to create a complex object you can use some help. It would be very handy if you could trace a figure. Therefore it is possible to use pictures in both screens. If you want to make a model of a human face, the left screen can be used to trace the front view, the right screen can be used to define depth, by using a picture of the outline of the face.

If you are using a dark picture you can change the color of points nd faces into white.

Here is an example :



Placing points :

There are 3 ways to place points :

- Define each point apart (points x,y,z)

The most accurate, but also most time-expensive way. You can start either in the left or right screen. Make sure you define the position of the point in both screens.

- Matrix of points

If you use a matrix of points pre-defined number of points will be created within the area you have indicated first.

Choose form the menu |Points & faces|Make matrix|. Now you can choose between defining only points, or faces also.

To determine depth of every point in the matrix you can use the matrix pointz line.

- Facepoint

You define each point apart, just like points x,y,z. There are two differences :

- If you place a point very close to another then the coordinates of the closest point will be taken over.

- Every three points will form a polygon.

- Matrixpoints

If you choose |Points & faces|Matrixpoints x,y|, the x-position of every point you place will be equal to the first point you placed. To change the x-position for the next series of points, you have to choose this menu-option again. Defining points in this way can be very handy if you want to combine several objects. For example: if you are modeling a human face, you only have to make a model of one half of the face. The other half can be obtained by copying and mirroring the first half. Now if you put the two half together, you have a whole face.

Changing points

You can change the position of points afterward. Choose from the menu |Points & Faces|Replace position|. When you move the mouse position a small rectangle is placed arounr the point, closest to the mouse position. If you click now, this point will be selected for editing. Deposition of the point will be equal to the mouse position. So if you move the mouse, the point position (coordinates) will be changed.

If you click again now, the current position of the point will be deselected, and you can choose another point for editing.

Defining faces in the modeling unit

To define a face you have to choose three points that will form the outline of the face(polygon).

There are two ways of choosing points :

- Auto calculate : The program will choose three points that are close to the mouse-position. A yellow triangle indicates the auto-calculated face. Click if the calculated polygon matches your wish.

- User calculate : The closest point to the mouse-position will be surrounded with a little rectangle. If you want this point to be part of the face you are defining you just click once. After you have chosen three points the face is defined.

To switch between auto- and user calculate you have to check the "Auto calculate face" checkbox, or choose from the menu | Points&faces|Faces|Auto calculate| or |..User calculate|.

Using the matrix : pointz line.

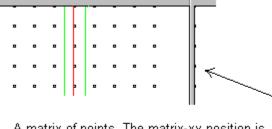
Of course you can reposition every point apart. But especially when you are working with pictures, it can be very handy to define the depth of a number of points in one time. To do so, you have to take the following steps :

- First you have to indicate which points will be influenced. Especially when you are working with a matrix of points this is very easy. First choose from the menu |Points & faces|Set matrix xy position|. Now move to the x-position where the points are placed that you want to be influenced. Every point that is within the range of this line will be influenced. Take care: the range is : position of the matrix-xy line – the matrix xy width/2 to the position of the matrix-xy line + matrix xy width/2. Here is an example :

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This is the matrix xy line.									
ma	trix	ху	line				1	Mati	rix xy-width is 16
Only points within this range are influenced by point z-lines									

- After you have set the matrix-xy position, choose to draw the pointz line. Push the button "Matrix : point z" or choose from the menu |Points & faces|Matrix pointz|.

Now draw the line(s) in the right screen that determine the depth of the points. After you draw then pointz line push the button "Apply matrixline". Now the depth of every point within the range of the matrix-xy position is set to the pointz-line. Here is an example : Step 1 :



A matrix of points. The matrix-xy position is indicated by the red line. As you can see the depth of every point is 0.

Step 2 :

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The pointz line is drawn in the right screen $^{\prime}$

Step 3 :

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After applying the depth of the points is changed

The menu

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	New
	Save
	Load
	Import Easymodel file
	Modeling files
	Save selection as object
	Load object
	Print options
	<u>Print</u>
	Exit
Edit	
Lan	La de
	Undo
	<u>Select area</u>
	<u>Select all</u>
	Delete
	Turn selected faces
	Smart turn selected faces
	Collect selected faces into new object
	Mirror selected faces
	Face smoothing
	Copy selected faces round center position
	<u>Center</u>
	Drag along
	Extend faces
	Material
	Modeling
	Glue selected points
Options	
1	Reflection selected faces
	Shadow
	Light position
	Color
	Settings
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View	
	Walk through
	Zoom
	Windows
	Cross
Halm	<u></u>
Help	
	Help
	About

File new

Closes the current file, and opens a new one. Make sure you have saved all your work. It is not possible to work on multiple files.

File exit Closes the program. Make sure all your work is saved !

Save selection as object

The objects you have selected can be saved as one new object. Now you can use then in every new scene you create.

Collect selected faces into new object

All selected objects will be collected into one new object. This option can be used if you want to do gourad or phong shading, and you want all faces in the objects to be smoothed. It also can be handy to select multiple objects.

Reflection selected faces

In the real world every material has it's own attributes. One of these attributes is the extend to which they reflect light. Since we are designing objects that are also influenced by light, we also might want to set this attribute.

Choose from the menu |Options|Reflection selected faces| and set the reflection to max(maximum reflection), normal (medium reflection) or min (minimal reflection).

Shadow

There are three possible shadow-settings : max, normal and min. If shadow is max, no lightning from other sources is assumed. If shadow is min, there is no shadow. If shadow is normal, it is assumed that there is lightning from other sources.

Settings

The settings dialogue-box allows you to change the settings of :

Degrees: Used to determine rotation and resolution if certain objects (like sphere, tube, array). Resize : Used to determine enlargement or reduction of objects. Selection color: Set the color to indicate which objects or points are selected. Background color: set the background color of the scene.

Survey view:

- X, Y and Z-rotation: The scene will be rotated in x,y and z direction using the values you have filled in.

- Scale: The scene will be rescaled using the values you filled in. A scale >1 will result in enlargement, a scale between 0 and 1 will result in reduction of the scene.

Default search path :

The path where the program starts to search for fles can be enterd here. You can use the directory-listbox to browse your computer or you can enter the text in the text-edit item.

If you choose to save the current settings, Easymodel will use this settings the next you start a new session.

Zoom

If you want a closer look to a certain part of the scene, you can zoom in on that part. Zooming will be executed around the <u>center position</u>

Place the center position to where to want to have a closer look, and choose form the menu | View|Zoom|. Now you can zoom in from 125 to 400 %, of zoom out from 25 to 75 %.

You can also enter another zoom percentage by choosing |View|Zoom|Other|. Now you can enter any percentage you want. Any percentage below 100 % will reduce the view and above 100 will enlarge the view.

Windows

If you open the program, there are 4 windows by default : Front view Top view Side view Survey view

In the first three windows you can draw and edit objects. In the survey-view window you can see an overview of the scene by a certain angle.

Clicking on the right mouse button in the survey view allows you to save the scene as shown in the survey view, as a jpeg-image.

You can choose to work only in front view or work in front-top-side view.

You can also choose if you want the survey-view window to be shown.

Cross

The mouse pointer forms the center of a cross by default. You can disable this option. Using this cross will help you by placing several objects at the same x- or y- position.

Help

This screen, that's obvious.

About

The about dialogue-box informs you aboutThe version of this productThe number of objects usedThe number of faces used

Print options

This menu options allows you to set the printer properties. No printing is done yet.

Print

This menu option will cause the printer to print the scene as shown in the front screen. First a dialogue box is shown to set the printer properties. If you choose Ok the printing will be done.