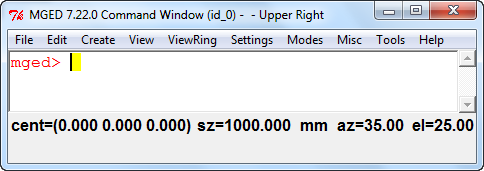
MGED

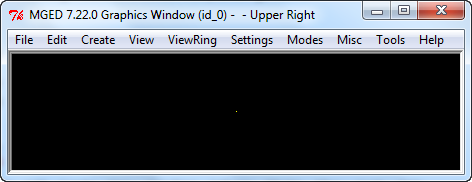
**Introduction to Mged**

MGED is currently the primary geometry editor in BRL-CAD. By default, MGED will provide a graphical user interface for modeling, editing, render, and managing geometry models. MGED can also be run in a command-line "classic" mode using the "-c" command-line option, which can also be used for scripting interactions. MGED does not provide a discoverable graphical user interface. Going through the available tutorials and documentation is required to be proficient. MGED is expert-friendly with minimal documentation and feedback inside the application itself. MGED maintains immediate storage persistence, i.e. automatic and immediate saves. There is no need to save your file(s) as all modifications are immediately saved as soon as they are applied. MGED (and most of the BRL-CAD tools) perform constant validity checking and will abort early at the first sign of error or corruption detection in order to minimize or prevent data loss at all costs. MGED is intentionally a highly modal editor (similar to vi) in that there are various editing modes and states that you can go to/from while editing geometry.

As soon as you open Mged from your OS menu there will be two windows that pop out.

1. The Command Window
2. The Graphical Window

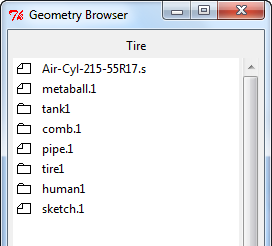


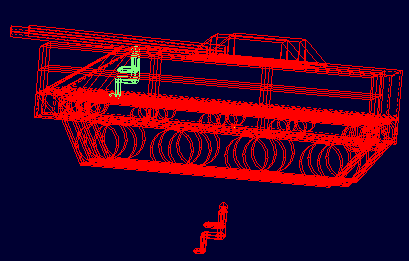
1. 

Of course the Window sizes are bigger than the screen shots here……..

We shall first start of with the **Graphical Window.**

So first ill load a model for a whole demonstration. After loading it you will see a blank black window. Don’t worry, after you load it you will have to draw it – either by the draw command or by the following option- Browse Geometry-



By just double clicking the element it will be available for you to see in the graphics window. So I loaded this –

**The Above picture is also called the geometry tree**

Excuse me for the man sitting in mid air but that is important for future demonstrations.

**Key Bindings**

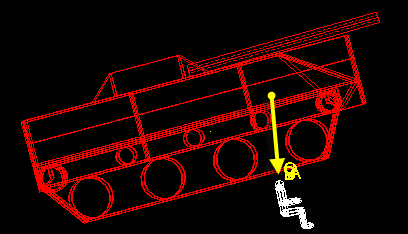
Using combinations if shift, mouse and ctrl you have browse through the graphical interphase of the graphical windows of Mged.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Category** | **Key Combination** | **Normal Viewing** | **Edit**  **Model** | **Angle Dist Cursor1** |
| Translate  (move) | SHIFT + (***Leftt*** *or* ***Middle****)* + mouse drag | Moves view in any direction | Translates object in any direction | Move center |
| SHIFT + ***Right*** mouse + mouse drag | Moves view in any direction | Translates object in any direction | Change tick marks in/out |
| Constrained Translation | SHIFT + ALT +  ***left*** mouse button + mouse drag | Moves view in the *X* direction | Moves object in the *X* direction | Move center |
| SHIFT + ALT + ***Middle*** mouse button + mouse  drag | Moves view in the *Y* direction | Moves object in the *Y* direction | Move center |
| SHIFT + ALT + ***Right*** mouse button + mouse  drag | Moves view in the *Z* direction | Moves object in the *Z* direction | Tick marks move in/out |
| Rotate | CTRL + ***Left***Mouse  *+* mouse drag | Rotates view in any direction | Rotates object in any direction | Rotates solid angle line |
| CTRL + ***Middle***Mouse *+* mouse  drag | Rotates view in any direction | Rotates object in any direction | Rotates dotted angle line |
| CTRL + ***Right***mouse button *+* mouse drag | Rotates view in any direction | Rotates object in any direction | Tick marks move in/out |
| Constrained Rotation | CTRL + ALT + ***Left*** mouse button + mouse  drag | Rotates view about the *X* axis | Rotates Object about the *X* Axis | Rotates dotted angle line |
| CTRL + ALT + ***Middle*** mouse button + mouse  drag | Rotates view about the *Y* axis | Rotates Object about the *Y* Axis | Rotates dotted angle line |
| CTRL + ALT + ***Right*** mouse button + mouse  drag | Rotates view about the *Z* axis | Rotates Object about the *Z* Axis | Tick marks move in/out |
| Scale | SHIFT + CTRL + ALT + ***Any***mouse button + mouse drag | Scales view larger/smaller | Scales object larger/smaller | Tick marks move in/out |

So lets try them one by one

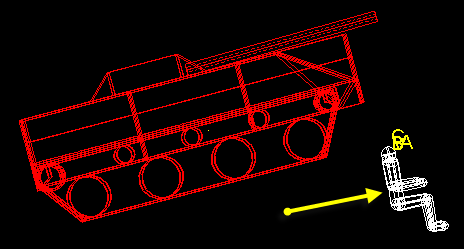
1. move - SHIFT + (***Leftt*** *or* ***Middle****)* + mouse drag

Ill try that on the human- After selecting your preferred element press shift and mouse drag

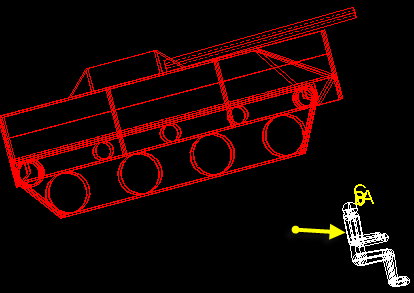


* Constrained Translation-

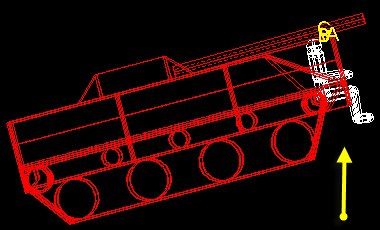
1. SHIFT + ALT + ***left*** mouse button + mouse drag- Moves view in the *X* direction



1. SHIFT + ALT + ***Middle*** mouse button + mouse drag – Moves the element to the y axis

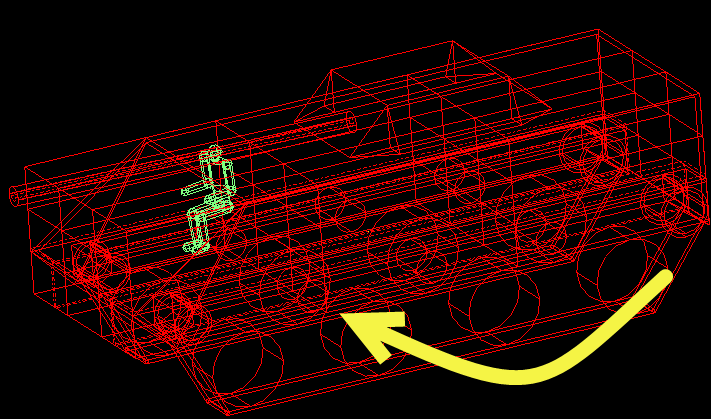


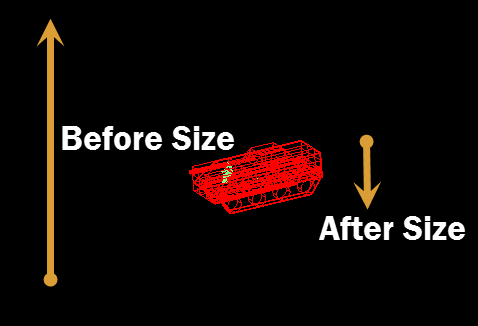
1. SHIFT + ALT + ***Right*** mouse button + mouse drag – Move it in the Z direction



* Rotate

Ctrl+any Mouse Button+Drag

* Scale- Shift+Ctrl+mouse Drag Up or Down or Shift+ctrl+alt+ mouse drag Up or down

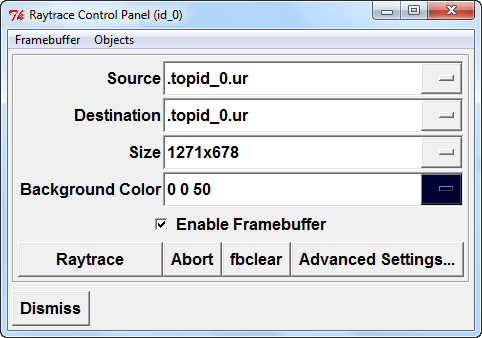


There is another Shortcut for increasing and decreasing the size but this is for the whole screen

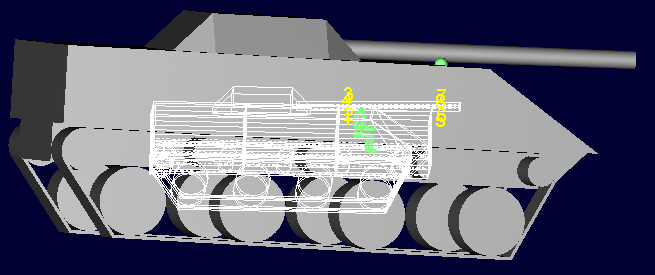
Left Click- Zoom Out   
Right Click – Zoom In

Raytrace control panel.

You can open the raytrace control panel by going to the tools menu in your graphics window and selecting “Raytrace control panel” or you can see it in File. By using the raytrace control panel you can change the size of an object or all objects from the “Size” drop-down menu and change the background color of the “Graphics window” using the “Background color” drop-down menu. After making the changes you should click on “Raytrace” to make the changes.



I selected only the tank using the matrix selection and then retraced it. This is what I get after I do it.

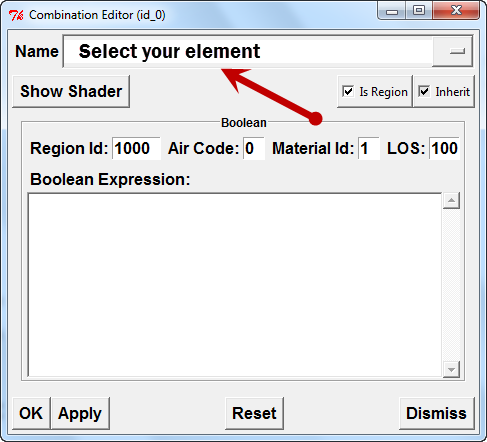


The disable framebuffer you can just tick the option off.

In the objects tab you can edit the objects to be retraced but I prefer the matrix selection method.

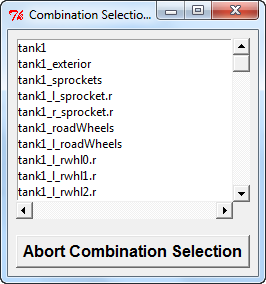
**The Combination Editor**

To select the combination Editor you will have to go to Edit>Combination editor

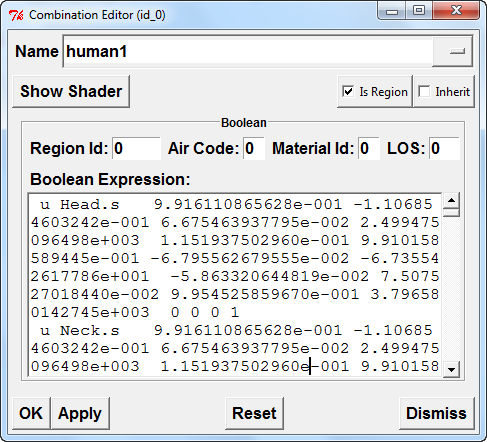
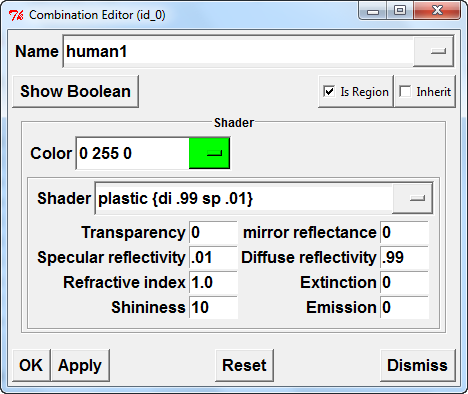
And then a windows will popup like this-

Using the following menu you can control the color combination for your creation in Mged.

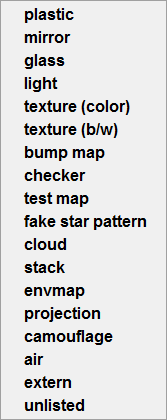
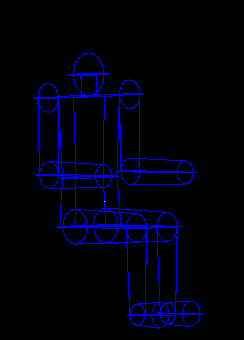
For example if you remember the man sitting on the tank in the above examples. You will see that his color is green so now will change his heads color and his color.

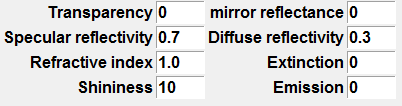
We shall first select(You may select it from the displayed or other that is specified in the options that drop down before clicking) the whole human in using column marked above change its color. You will get a windows called the combination selection to make your selection -

If you are cool enough to edit the combination using the Boolean menu then that’s good for you. As for me Ill choose the shader.



So here is the new painted human –

**Point to be noted- Mged** provides many other stuff like by which you make a cool looking 3D model. ---🡪🡪🡪

That’s not all you have many more options like transparency, Shininess ETC.

**Other Key Bindings**

|  |  |
| --- | --- |
| **Command** | **Description** |
| BACKSPACE | backward delete a character |
| DELETE | backward delete a character |
| Left | go backward one character |
| Right | go forward one character |
| Up | repeat the previous command |
| Down | go to the next command |
| Home | go to the beginning of the line |
| End | go to the end of the line |
| CTRL+a | go to the beginning of the line |
| CTRL+b | go backward one character |
| CTRL+c | interrupt command (not really an emacs command, but it works) |
| CTRL+d | delete character under cursor |
| CTRL+e | go to the end of line |
| CTRL+f | go forward a character |
| CTRL+h | delete character to left of cursor |
| CTRL+k | delete characters to end of line |
| CTRL+p | go to previous command |
| CTRL+t | transpose next two characters |
| CTRL+u | undelete line |
| CTRL + L+w | delete to beginning of line |