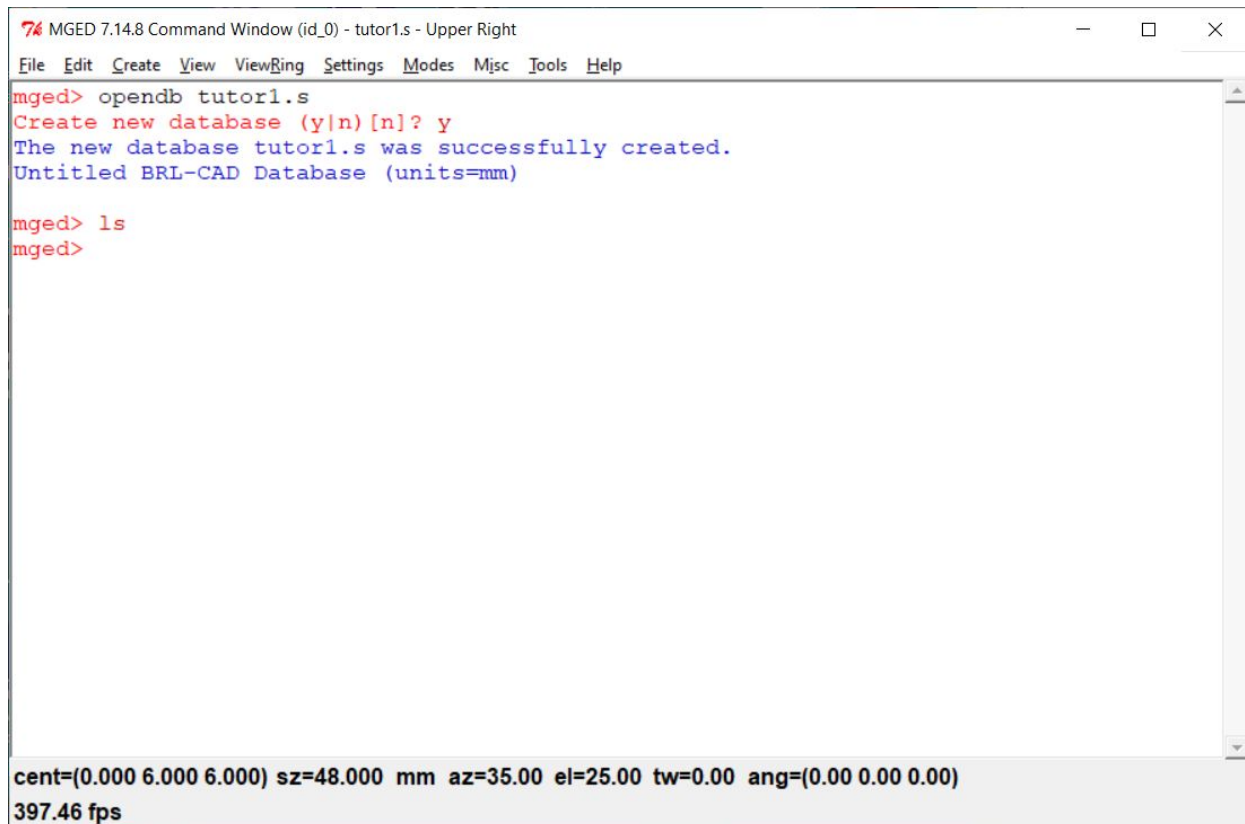


Metaball is one of the primitive types in BRL-CAD and in this tutorial, I will show how to create and inspect metaball. I would like to create a snowman figure using two metaballs. This tutorial assumes that you had installed BRL-CAD apps - MGED and Archer.

**Step 1:** Open MGED by clicking on **MGED**. This will open three windows .

**Step 2:** In MGED Command window, create a database by entering **opendb** your db name. I had created with a new db called **tutor1.s**. When you give a new db name, then you need to confirm that name by typing **y** and enter. Default value is **n**.



```
MGED 7.14.8 Command Window (id_0) - tutor1.s - Upper Right
File Edit Create View ViewRing Settings Modes Misc Tools Help
mged> opendb tutor1.s
Create new database (y|n)[n]? y
The new database tutor1.s was successfully created.
Untitled BRL-CAD Database (units=mm)

mged> ls
mged>

cent=(0.000 6.000 6.000) sz=48.000 mm az=35.00 el=25.00 tw=0.00 ang=(0.00 0.00 0.00)
397.46 fps
```

Once db is created, you get confirmation that a new database is created.

If you want to use existing db then enter opendb existing db name.

**Step 3:** Within the db (**tutor1.s**), I will create a snowman figure using metaball. To create snowman figure, enter : **in snowman.metaball metaball 1 3 2 0 0 0 6 0 0 5 3**

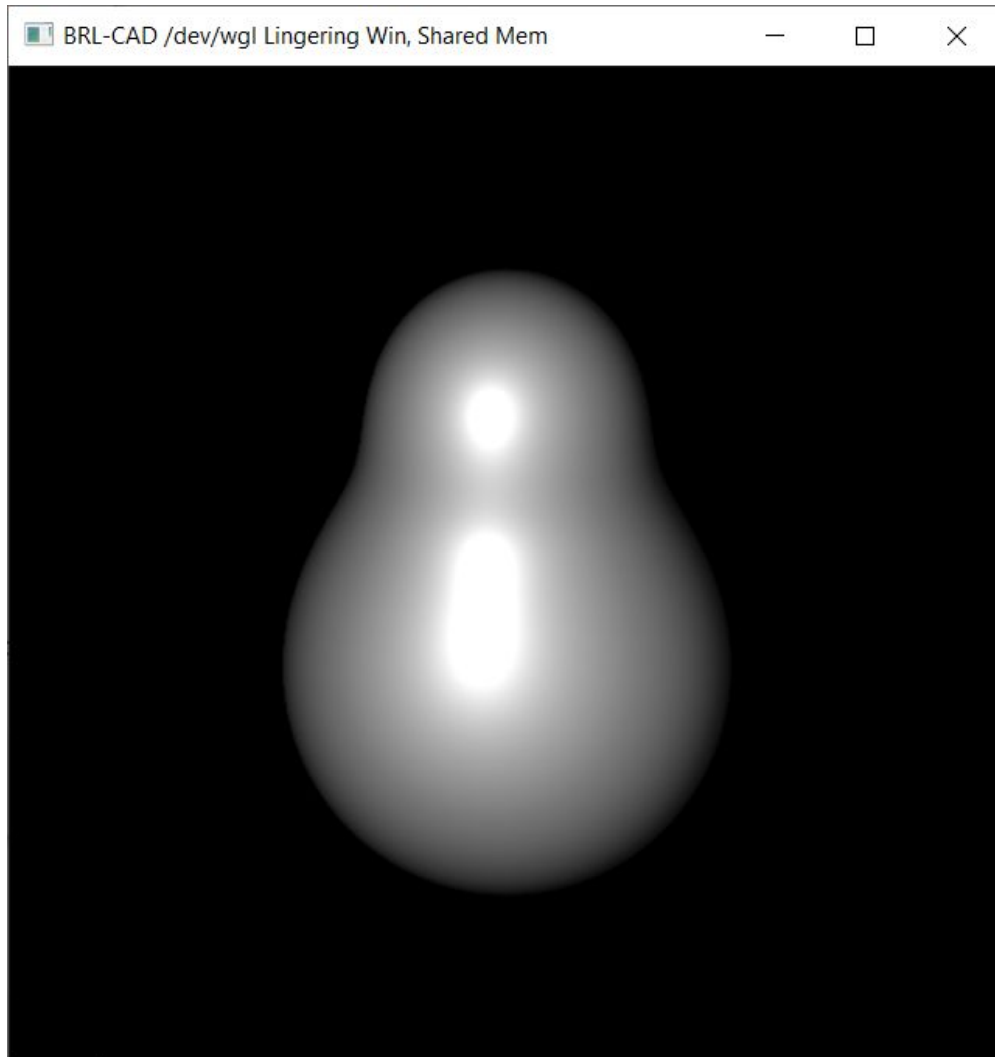
```
mged> in snowman.metaball metaball 1 3 2 0 0 0 6 0 0 5 3
mged> rt
```

It is long command with lot of digits, so I will explain what each one means (in the same order as given above):

- In - To create an object (like metaball)
- Snowman.metaball - Name of of the metaball to be created. Since I am creating snowman figure, I called it snowman.metaball

- Render Method: 1
- Threshold: 3
- Number of points: 2 , since I wanted snowman with two objects (head and body)
- X, Y, Z, Field Strength: 0 0 0 6. First three are coordinates for body and the last one is for size. So I had asked first point to be generated at the origin (0,0,0) with field strength (or radius) of 6
- X, Y, Z, Field Strength: 0 0 5 3. First three are coordinates for head and the last one is for size. As you can see, Z coordinate is different for second object created and it is because I wanted the second object to be head to be placed certain height over first one! Since radius of first ball is 6, I am placing it at 5 to get the necessary height. Last value passed is the field strength of the second ball.

**Step 5:** Please enter *rt* to raytrace the objects and our snowman is generated as follows:



**Step 6:** To understand what we have created, let us inspect the **tutor1.s**. To check the contents of db, please type **ls** in Command Window.

```
mged> ls
snowman.metaball
```

It lists snowman.metaball object that I had just created.

To check the properties of the metaball that I had created, please type **l -r snowman.metaball**.

```
mged> l -r snowman.metaball
/snowman.metaball:
Metaball with 2 points and a threshold of 3 (Isopotential rendering)
  1: 6 field strength at (0, 0, 0)
  2: 3 field strength at (0, 0, 5)
```

It lists all details of snowman.metaball, like the metaball is Isopotential rendering with 2 points with various field strengths.