



JSON FILE

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Introduction

As fully cloud-based software tool, Pmass uses JSON file format to store the project and also to transfer it between client's browser and Pmass's server. Project's JSON file include the input parameters used to define the project including material library, models and analysis. Project's JSON file can be downloaded from the project page<download>Project JSON. A new project can be created by uploading the JSON file. This enable Pmass users to create and edit a JSON file to easily add materials, geometries and analysis parameters. An example of Pmass's JSON file is provided here:

```
{
  "ProjectName": "stressAnalysis3D",
  "analysis": {
    "dimension": 3,
    "is_inclusion_damage": "true",
    "load_segments": [
      {
        "num_save": 5,
        "num_segment": 10,
        "ratio_segment": 1,
        "type": "static"
      }
    ],
    "name": "analysis1",
    "quasi_static": {
      "max_iteration": 1000,
      "precondition": 1e-10,
      "tolerance": 1e-07
    },
    "time_increment": 1e-08,
    "type": "hybrid",
    "zero_energy": {
      "type": "averaging"
    }
  },
  "materials": [
    {
      "behavior": "elastic",
      "density": 0.01,
      "dimension": 3,
      "elastic_properties": {
        "E": 72000,
        "G": 46800,
        "nu": 0.3
      },
      "failure_parameters": {
```

```

        "scr": 0.04,
        "type": "critical_stretch"
    },
    "name": "mat1",
    "type": "isotropic"
}
],
"models": [
{
    "boundary_zones": [
        {
            "dimension": 3,
            "geometry": {
                "center": [
                    0,
                    50,
                    5
                ],
                "length": [
                    4,
                    100,
                    10
                ],
                "name": "geo1",
                "pitch": 0,
                "roll": 0,
                "type": "cuboid",
                "yaw": 0
            },
            "name": "boundary1",
            "properties": {
                "direction": "X",
                "type": "displacement",
                "value": 0
            }
        },
        {
            "dimension": 3,
            "geometry": {
                "center": [
                    0,
                    50,
                    5
                ],
                "length": [

```

```
        4,
        100,
        10
    ],
    "name": "geo1",
    "pitch": 0,
    "roll": 0,
    "type": "cuboid",
    "yaw": 0
},
"name": "boundary2",
"properties": {
    "direction": "Y",
    "type": "displacement",
    "value": 0
}
},
{
    "dimension": 3,
    "geometry": {
        "center": [
            0,
            50,
            5
        ],
        "length": [
            4,
            100,
            10
        ],
        "name": "geo1",
        "pitch": 0,
        "roll": 0,
        "type": "cuboid",
        "yaw": 0
    },
    "name": "boundary3",
    "properties": {
        "direction": "Z",
        "type": "displacement",
        "value": 0
    }
},
{
    "dimension": 3,
```

```

    "geometry": {
      "center": [
        100,
        50,
        5
      ],
      "length": [
        4,
        100,
        10
      ],
      "name": "geo1",
      "pitch": 0,
      "roll": 0,
      "type": "cuboid",
      "yaw": 0
    },
    "name": "boundary4",
    "properties": {
      "direction": "X",
      "type": "displacement",
      "value": 1.0
    }
  }
],
"cracks": [],
"dimension": 3,
"failure_zones": [],
"inclusions": [],
"laminated_solids": [],
"name": "model1",
"output_zones": [],
"random_solids": [],
"solids": [
  {
    "dimension": 3,
    "geometry": {
      "center": [
        50,
        50,
        5
      ],
      "length": [
        100,
        100,

```

```

        10
    ],
    "name": "geo1",
    "pitch": 0,
    "roll": 0,
    "type": "cuboid",
    "yaw": 0
  },
  "grid": {
    "dx": 1.0,
    "dy": 1.0,
    "dz": 1.0,
    "grid_type": "quadrilateral3D",
    "horizon_type": "sphere",
    "hr": 3.1,
    "pitch": 0,
    "roll": 0,
    "yaw": 0
  },
  "material": {
    "name": "mat1",
    "pitch": 0,
    "roll": 0,
    "type": "constant",
    "yaw": 0
  },
  "name": "ply1"
},
{
  "dimension": 3,
  "geometry": {
    "center": [
      50,
      50,
      1.5
    ],
    "length": [
      100,
      100,
      1
    ],
    "name": "geo1",
    "pitch": 0,
    "roll": 0,
    "type": "cuboid",

```

```
    "yaw": 0
  },
  "grid": {
    "dx": 1.0,
    "dy": 1.0,
    "dz": 1.0,
    "grid_type": "quadrilateral3D",
    "horizon_type": "sphere",
    "hr": 3.1,
    "pitch": 0,
    "roll": 0,
    "yaw": 0
  },
  "material": {
    "name": "mat1",
    "pitch": 0,
    "roll": 0,
    "type": "constant",
    "yaw": 0
  },
  "name": "ply2"
},
{
  "dimension": 3,
  "geometry": {
    "center": [
      50,
      50,
      2.5
    ],
    "length": [
      100,
      100,
      1
    ],
    "name": "geo1",
    "pitch": 0,
    "roll": 0,
    "type": "cuboid",
    "yaw": 0
  },
  "grid": {
    "dx": 1.0,
    "dy": 1.0,
    "dz": 1.0,
```

```
    "grid_type": "quadrilateral3D",
    "horizon_type": "sphere",
    "hr": 3.1,
    "pitch": 0,
    "roll": 0,
    "yaw": 0
  },
  "material": {
    "name": "mat1",
    "pitch": 0,
    "roll": 0,
    "type": "constant",
    "yaw": 0
  },
  "name": "ply3"
},
{
  "dimension": 3,
  "geometry": {
    "center": [
      50,
      50,
      3.5
    ],
    "length": [
      100,
      100,
      1
    ],
    "name": "geo1",
    "pitch": 0,
    "roll": 0,
    "type": "cuboid",
    "yaw": 0
  },
  "grid": {
    "dx": 1.0,
    "dy": 1.0,
    "dz": 1.0,
    "grid_type": "quadrilateral3D",
    "horizon_type": "sphere",
    "hr": 3.1,
    "pitch": 0,
    "roll": 0,
    "yaw": 0
  }
}
```



```
    },
    "material": {
      "name": "mat1",
      "pitch": 0,
      "roll": 0,
      "type": "constant",
      "yaw": 0
    },
    "name": "ply4"
  }
],
"voids": []
}
],
"type": "type1"
}
```