

# **Tutorial of fragment split by MolAICal**

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## 1. Introduction

Sometime, to study the fragment properties of ligands, the ligands need to be split into smaller pieces. Here, MolAICal provides a way to split ligands into small fragments according to rotatable bonds. In this tutorial, the method of fragment split is introduced based on the protocol of MolAICal.

## 2. Materials

### 2.1. Software requirement

1) MolAICal: <https://molaical.github.io>

### 2.2. Example files

1) All the necessary tutorial files are downloaded from:

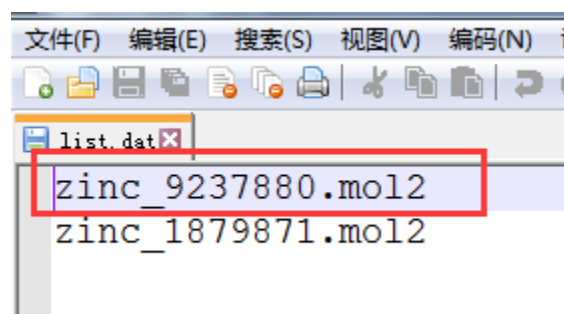
<https://github.com/MolAICal/tutorials/tree/master/013-fragmentSplit>

## 3. Procedure

Change directory to “013-fragmentSplit”:

```
#> cd 013-fragmentSplit
```

Preparing the input file named “list.dat” that contains the files’ name of ligands:



1. Split ligands into small fragments without adding or deleting hydrogen

```
#> molaical.exe -tool fragSplit -i list.dat -o initial -oa results
```

Or

```
#> molaical.exe -tool fragSplit -i list.dat -o initial -oa results -w off
```

2. Split ligands into small fragments with adding hydrogen

```
#> molaical.exe -tool fragSplit -i list.dat -o initial -oa results -w add
```

3. Split ligands into small fragments with deleting hydrogen

```
#> molaical.exe -tool fragSplit -i list.dat -o initial -oa results -w del
```

**Note:** The folder “initial” includes split fragments without adding or deleting hydrogen. The folder “results” contains fragments that have been dealt with command parameter “-w”.

if you want to merge the split fragments or ligands into one file, the command can be used as below:

```
#> molaical.exe -tool merge -m mol2 -i results -o all_frag.mol2
```