

ALMA Science

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How do I specify antenna locations in simobserve?

Paul Fisher - 2026-03-17 - Offline Data Reduction and/or CASA

The simobserve task reads the antenna locations from a configuration file specified by the parameter "antennalist." This is a plain text file which lists x, y, and z coordinates for each antenna as well as antenna diameter and pad name. A list of antenna configuration files available in the CASA distribution is available [in the CASAGuides](#). Configuration files for ALMA can be found under the [CASA Simulation & Config files page of the ALMA Science Portal](#).

If you need to specify antenna positions that are not in any of the existing configuration files, you will need to create a new configuration file and specify the name of that file as the antennalist parameter in simobserve. Since the antenna configuration file is just a text file, one can create such a file with any text editor. However, if you just need a file containing the antenna configuration for a previous observation then the buildConfigurationFile function found in the Analysis Utilities package will read an existing measurement set (MS) and create an antenna configuration file which contains the positions of the antennas at the time the data were collected. A full description of Analysis Utilities, including the steps required to download and import the package into CASA, may be found [here](#).

In short, if you wish to create a configuration file containing the positions of the antennas used during observations of a MS named, for example, "uid__A002_X000aaa_X12ab.ms", you should issue the CASA commands:

```
import analysisUtils as au
au.buildConfigurationFile('uid__A002_X000aaa_X12ab.ms')
```

This will create a configuration file named "uid__A002_X000aaa_X12ab.ms.cfg" and will also print the contents of that file to the screen. You may then specify this file as the value of the antennalist parameter in simobserve (assuming all other inputs to simobserve have been properly set) by typing:

```
antennalist = 'uid__A002_X000aaa_X12ab.ms.cfg'
simobserve()
```

More information on simulations can be found in the [CASA documentation](#).

Tags

simulation