

# VEX2 and Near Field Sources

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# From VEX2 defining document, SOURCE block

For source type `bsp`:

Parameter	Field	Description	Type	Allowed values	Units	Comments
<code>bsp_file_name</code>	1	filename containing the ephemeris	char			explicit file path should not be used
<code>bsp_object_id</code>	1	object number within ephemeris file	int			positive or negative

Notes:

1. Since the `vex` file will be used both at observe time and correlation time, explicit paths for the ephemeris file will cause trouble. Each consumer of `vex+bsp` files should establish their own strategy for handling this.
2. The `vex` specification does not rule out use of an URL (e.g., "`http://www.bsp.org/moon.bsp`", however implementation of this is up to each consumer and may be limited by availability of network infrastructure.

For source type `t1e`:

Parameter	Field	Description	Type	Allowed values	Units	Comments
<code>t1e0</code>	1	0th line of TLE	char			quoted verbatim comon source name for TLE, 20 characters
<code>t1e1</code>	1	1st line of TLE	char			quoted verbatim 1st line of TLE, 69 characters
<code>t1e2</code>	1	2nd line of TLE	char			quoted verbatim 2nd line of TLE, 69 characters

Notes:

1. The `t1e` source type is for earth satellites with orbits specified by NORAD Two Line Elements (optionally including the 0th line with the satellite name). The `t1e0`, `t1e1`, and `t1e2` parameters represent the TLE lines as quoted verbatim strings (there are embedded spaces).
2. References: The elements provided in TLEs can be propogated using the SGP4/SDP4 algorithms. The *predict* program, URL: <http://www.qsl.net/kd2bd/predict.html>, can be used to calculate azimuth and elevation for observing the satellite using the TLE data as provided here.

# Non-star tracking issues

- There is no universal standard for tracking of non-star objects, this is partly due to antennas having different interfaces.
- It should be easy to provide a few workable options to support non-star tracking that will flow the needed information from the schedules to the antennas.
- These options can be based on station independent tools and techniques using VEX2 and the FS/DRUDG.
- However, in general the bulk of the work will be at the stations to interface the station independent approaches to the details of the antennas.
- Software developer effort not yet identified for modifications to NRAO sched.