1. Without the index :22686ms returned 62 rows.
   1. With the index: 62ms 62 rows
   2. Improvement factor : 22686 / 62 = 365.90
   3. Index statement: CREATE INDEX feature\_name\_geom\_gist on geoname(lower(feature\_name));
2. Without the index 18138ms 6 rows returned.
   1. With Index: 22ms 6 rows
   2. Improvement Factor: 18138/22 = 824.4545
   3. CREATE INDEX feature\_name\_mult\_geom\_gist on geoname(lower(feature\_name), admin1);
   4. There is a major improvement factor

|  |  |  |  |
| --- | --- | --- | --- |
| Scenario | Time before indexing | Time after indexing | Index statement |
| Geoname | 12370ms | 12630 | CREATE INDEX feature\_name\_geom\_gist 0n geoname(feature\_name, admin1) |
| States | 12370ms | 12328 | select feature\_name, admin1 from geoname, states where st\_within(geoname.geom, states.geom) and states.state\_name = 'Wisconsin |
| Geoname and states | 12370ms |  |  |
|  |  |  |  |

CREATE INDEX geoname\_geom\_gist on geoname(lower(feature\_name), admin1, geom);