PostGIS
Terms and Data Management

DEFINITIONS

Geographic Information System (GIS)
a system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

Open Geospatial Consortium (OGC)
A standards body made up of 482 companies managing participating in a consensus process to develop publicly available interface standards.

Spatial Reference System (SRS)
A coordinate-based system used to locate geographical entities, defining a specific map projection, and transformations between different spatial reference systems.

Spatial Refernece Identifier (SRID)
A unique value used to unambiguously identify projected, unprojected, and local spatial coordinate system definitions.

Map Projection
Any method of representing the surface of a sphere or other three-dimensional body on a flat plane.

Web Mercator or Sperical Mercator
A map projection popularized by Google Maps using the cylindrical mercator projection and a simplified, sperical representation of Earth.

Shapefile
A popular geospatial vector data format for storing geometries and associated attributes.developed and regulated by Esri as a (mostly) open specification.

Well Known Text (WKT) and Extended WKT (EWKT)
A text markup language for representing grometry, spatial reference systems. EWKT is a non-standard superset of WKT available in PostGIS adding support for 3d and 4d coordinates and embedded SRIDs.

Well Known Binary (WKB) and Extended WKB (EWKB)
The binary equivalents of WKT and EWKT used by databases for storage and transfer. EWKB is a non-standard superset of WKB available in PostGIS adding support for 3d and 4d coordinates and embedded SRIDs.

GEOMETRY FORMAT CONVERSION

Well-known text (WKT)
ST_GeomFromText(text) returns geometry
ST_AsText(geometry) returns text
ST_AsEWKT(geometry) returns text

Well-known binary (WKB)
ST_GeomFromWKB(bytea) returns geometry
ST_AsBinary(geometry) returns bytea
ST_AsEWKB(geometry) returns bytea

Geographic Mark-up Language (GML)
ST_GeomFromGML(text) returns geometry
ST_AsGML(geometry) returns text

Keyhole Mark-up Language (KML)
ST_GeomFromKML(text) returns geometry
ST_AsKML(geometry) returns text

GeoJSON
ST_AsGeoJSON(geometry) returns text
ST_GeomFromGeoJSON(text geomjson);

Scalable Vector Graphics (SVG)
ST_AsSVG(geometry) returns text

COMMON PA SPATIAL REFERENCE IDS

SRID	Description
4326	WSG84 Latitude and Longitude
900913	Web Mercator
2272	Pennsylvania State Plain (Feet)

DEFINITIONS (continued)

GeoJSON
A JavaScript Object Notation schema for representing vector geometries.
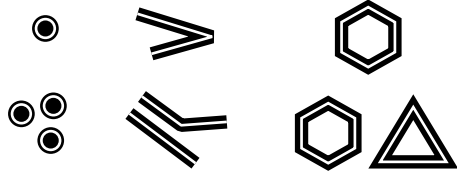
Keyhole Markup Language (KML)
An XML notation for expressing geographic annotation and visualization

Scalable Vector Graphics (SVG)
An XML-based vector image format for two-dimensional graphics that has support for interactivity and animation.

PostGIS
Geometries and Spatial Relationships

POINT   LINE   POLYGON   MULTIPOINT   MULTILINE   MULTIPOLYGON
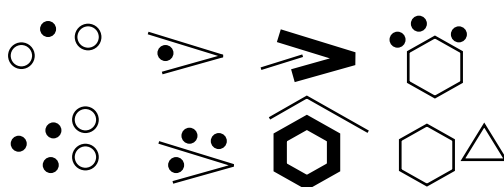
ST_Equals(geometry A, geometry B)

ST_Equals returns TRUE if two geometries of the same type have identical x,y coordinate values, i.e. if the second shape is equal (identical) to the first shape.
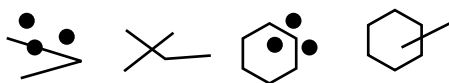
ST_Intersects(geometry A, geometry B)
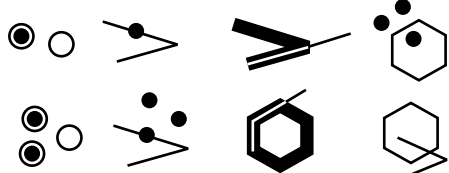
ST_Intersects returns TRUE if the two shapes have any space in common, i.e., if their boundaries or interiors intersect.

ST_Disjoint(geometry A, geometry B)

ST_Disjoint is the opposite of ST_Intersects. It is often more efficient to test "not intersects" than to test "disjoint" because the intersects tests can be spatially indexed, while the disjoint test cannot.
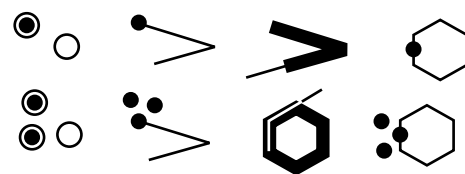
ST_Crosses(geometry A, geometry B)

ST_Crosses returns TRUE if the intersection results in a geometry whose dimension is one less than the maximum dimension of the two source geometries and the intersection set is interior to both.

ST_Overlaps(geometry A, geometry B)

ST_Overlaps compares two geometries of the same dimension and returns TRUE if their intersection set results in a geometry different from both but of the same dimension.
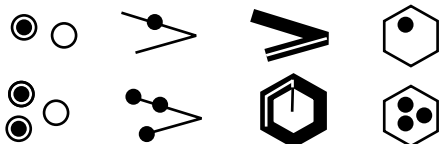
ST_Touches(geometry A, geometry B)

ST_Touches tests whether two geometries touch at their boundaries, but do not intersect in their interiors

**ST_Within(geometry A, geometry B)**
ST_Contains(geometry A, geometry B)

ST_Within returns TRUE if the first geometry is completely within the second geometry. ST_Within tests for the exact opposite result of ST_Contains.

ST_Contains returns TRUE if the second geometry is completely contained by the first geometry.

ST_Distance(geom A, geom B)
ST_DWithin(geom A, geom B, double dist)
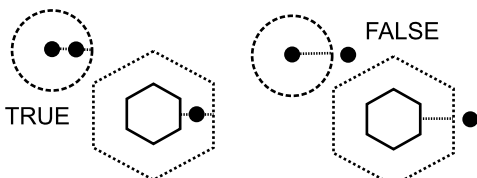
ST_Distance calculates the shortest distance between two geometries.

ST_DWithin is an index-accelerated true/false test of whether two objects are within a distance of one another.

FALSE

TRUE

Philly PostgreSQL
User Group