

PostGIS 2.0 Raster Cheatsheet

New in this release ¹ Enhanced in this release ² Requires GEOS 3.3 or higher^{3,3} 2.5/3D support^{3d} SQL-MM^{mm} Supports geography ^G

Raster Support Data types

geomval A spatial datatype with two fields - geom (holding a geometry object) and val (holding a double precision pixel value from a raster band).

histogram A composite type used as record output of the ST_Histogram and ST_Approx-histogram functions.

raster raster spatial data type.

reclassarg A composite type used as input into the ST_Reclass function defining the behavior of reclassification.

summarystats A composite type used as output of the ST_SummaryStats function.

Raster Management

AddRasterConstraints¹ Adds raster constraints to a loaded raster table for a specific column that constrains spatial ref, scaling, blocksize, alignment, bands, band type and a flag to denote if raster column is regularly blocked. The table must be loaded with data for the constraints to be inferred. Returns true if the constraint setting was accomplished and if issues a notice.

1. rasttable, rastcolumn, srid, scale_x, scale_y, blocksize_x, blocksize_y, same_alignment, regular_blocking, num_bands=true, pixel_types=true, nodata_values=true, out_db=true, extent=true
2. rasttable, rastcolumn, VARIADIC constraints
3. rastschema, rasttable, rastcolumn, VARIADIC constraints
4. rastschema, rasttable, rastcolumn, srid=true, scale_x=true, scale_y=true, blocksize_x=true, blocksize_y=true, same_alignment=true, regular_blocking=true, num_bands=true, pixel_types=true, nodata_values=true, out_db=true, extent=true

DropRasterConstraints¹ Drops PostGIS raster constraints that refer to a raster table column. Useful if you need to reload data or update your raster column data.

1. rasttable, rastcolumn, srid, scale_x, scale_y, blocksize_x, blocksize_y, same_alignment, regular_blocking, num_bands=true, pixel_types=true, nodata_values=true, out_db=true, extent=true
2. rastschema, rasttable, rastcolumn, srid=true, scale_x=true, scale_y=true, blocksize_x=true, blocksize_y=true, same_alignment=true, regular_blocking=true, num_bands=true, pixel_types=true, nodata_values=true, out_db=true, extent=true
3. rastschema, rasttable, rastcolumn, constraints

PostGIS_Raster_Lib_Build_Date () Reports full raster library build date.

PostGIS_Raster_Lib_Version () Reports full raster version and build configuration infos.

ST_GDALDrivers¹ () Returns a list of raster formats supported by your lib gdal. These are the formats you can output your raster using ST_AsGDALRaster.

Raster Constructors

ST_AddBand Returns a raster with the new band(s) of given type added with given initial value in the given index location. If no index is specified, the band is added to the end.

1. rast, pixeltype, initialvalue=0, nodataval=NULL
2. rast, index, pixeltype, initialvalue=0, nodataval=NULL
3. torast, fromrast, fromband=1, torastindex=at_end
4. torast, fromrasts, fromband=1

ST_AsRaster¹ Converts a PostGIS geometry to a PostGIS raster.

1. geom, ref, pixeltype, value=1, nodataval=0, touched=false
2. geom, ref, pixeltype=ARRAY['8BUI'], value=ARRAY[1], nodataval=ARRAY[0], touched=false
3. geom, scalex, scaley, gridx, gridy, pixeltype, value=1, nodataval=0, skewx=0, skewy=0, touched=false
4. geom, scalex, scaley, gridx=NULL, gridy=NULL, pixeltype=ARRAY['8BUI'], value=ARRAY[1], nodataval=ARRAY[0], skewx=0, skewy=0, touched=false
5. geom, scalex, scaley, pixeltype, value=1, nodataval=0, upperleftx=NULL, upperlefty=NULL, skewx=0, skewy=0, touched=false
6. geom, scalex, scaley, pixeltype, value=ARRAY[1], nodataval=ARRAY[0], upperleftx=NULL, upperlefty=NULL, skewx=0, skewy=0, touched=false
7. geom, width, height, gridx, gridy, pixeltype, value=1, nodataval=0, skewx=0, skewy=0, touched=false
8. geom, width, height, gridx=NULL, gridy=NULL, pixeltype=ARRAY['8BUI'], value=ARRAY[1], nodataval=ARRAY[0], skewx=0, skewy=0, touched=false
9. geom, width, height, pixeltype, value=1, nodataval=0, upperleftx=NULL, upperlefty=NULL, skewx=0, skewy=0, touched=false
10. geom, width, height, pixeltype, value=ARRAY[1], nodataval=ARRAY[0], upperleftx=NULL, upperlefty=NULL, skewx=0, skewy=0, touched=false

ST_Band¹ Returns one or more bands of an existing raster as a new raster. Useful for building new rasters from existing rasters.

```
1. rast, nbands = ARRAY[1]
2. rast, nbands, delimiter=,
3. rast, nband
```

ST_MakeEmptyRaster Returns an empty raster (having no bands) of given dimensions (width & height), upperleft X and Y, pixel size and rotation (scalex, scaley, skewx & skewy) and reference system (srid). If a raster is passed in, returns a new raster with the same size, alignment and SRID. If srid is left out, the spatial ref is set to unknown (0).

```
1. rast
2. width, height, upperleftx, upperlefty, scalex, scaley, skewx, skewy, srid=unknown
3. width, height, upperleftx, upperlefty, pixelsize
```

Raster Accessors

ST_GeoReference (rast, format=GDAL) Returns the georeference meta data in GDAL or ESRI format as commonly seen in a world file. Default is GDAL.

ST_Height (rast) Returns the height of the raster in pixels.

ST_MetaData (rast) Returns basic meta data about a raster object such as pixel size, rotation (skew), upper, lower left, etc.

ST_NumBands (rast) Returns the number of bands in the raster object.

ST_PixelHeight (rast) Returns the pixel height in geometric units of the spatial reference system.

ST_PixelWidth (rast) Returns the pixel width in geometric units of the spatial reference system.

ST_ScaleX (rast) Returns the X component of the pixel width in units of coordinate reference system.

ST_ScaleY (rast) Returns the Y component of the pixel height in units of coordinate reference system.

ST_Raster2WorldCoordX Returns the geometric X coordinate upper left of a raster, column and row. Numbering of columns and rows starts at 1.

```
1. rast, xcolumn
2. rast, xcolumn, yrow
```

ST_Raster2WorldCoordY Returns the geometric Y coordinate upper left corner of a raster, column and row. Numbering of columns and rows starts at 1.

```
1. rast, yrow
2. rast, xcolumn, yrow
```

ST_Rotation (rast) Returns the rotation of the raster in radian.

ST_SkewX (rast) Returns the georeference X skew (or rotation parameter).

ST_SkewY (rast) Returns the georeference Y skew (or rotation parameter).

ST_SRID (rast) Returns the spatial reference identifier of the raster as defined in spatial_ref_sys table.

ST_UpperLeftX (rast) Returns the upper left X coordinate of raster in projected spatial ref.

ST_UpperLeftY (rast) Returns the upper left Y coordinate of raster in projected spatial ref.

ST_Width (rast) Returns the width of the raster in pixels.

ST_World2RasterCoordX Returns the column in the raster of the point geometry (pt) or a X and Y world coordinate (xw, yw) represented in world spatial reference system of raster.

```
1. rast, pt
2. rast, xw
3. rast, xw, yw
```

ST_World2RasterCoordY Returns the row in the raster of the point geometry (pt) or a X and Y world coordinate (xw, yw) represented in world spatial reference system of raster.

```
1. rast, pt
2. rast, xw
3. rast, xw, yw
```

ST_IsEmpty (rast) Returns true if the raster is empty (width = 0 and height = 0). Otherwise, returns false.

Raster Band Accessors

ST_BandMetaData (rast, bandnum=1) Returns basic meta data for a specific raster band. band num 1 is assumed if none-specified.

ST_BandNoDataValue (rast, bandnum=1) Returns the value in a given band that represents no data. If no band num 1 is assumed.

ST_BandIsNoData¹ Returns true if the band is filled with only nodata values.

```
1. rast, band, forceChecking=true
2. rast, forceChecking=true
```

Raster Pixel Accessors and Setters

ST_PixelAsPolygon (rast, columnx, rowy) Returns the geometry that bounds the pixel for a particular row and column.

ST_PixelAsPolygons (rast, band=1) Returns the geometry that bounds every pixel of a raster band along with the value, the X and the Y raster coordinates of each pixel.

ST_Value² Returns the value of a given band in a given columnx, rowy pixel or at a particular geometric point. Band numbers start at 1 and assumed to be 1 if not specified. If exclude_nodata_value is set to false, then all pixels include nodata pixels are considered to intersect and return value. If exclude_nodata_value is not passed in then reads it from metadata of raster.

1. rast, pt, exclude_nodata_value=true
2. rast, bandnum, pt, exclude_nodata_value=true
3. rast, columnx, rowy, exclude_nodata_value=true
4. rast, bandnum, columnx, rowy, exclude_nodata_value=true

ST_SetValue Returns modified raster resulting from setting the value of a given band in a given columnx, rowy pixel or at a pixel that intersects a particular geometric point. Band numbers start at 1 and assumed to be 1 if not specified.

1. rast, pt, newvalue
2. rast, bandnum, pt, newvalue
3. rast, columnx, rowy, newvalue
4. rast, bandnum, columnx, rowy, newvalue

Raster Editors

ST_SetGeoReference (rast, georefcoords, format=GDAL) Set Georeference 6 georeference parameters in a single call. Numbers should be separated by white space. Accepts inputs in GDAL or ESRI format. Default is GDAL.

ST_SetRotation (rast, rotation) Set the rotation of the raster in radian.

ST_SetScale Sets the X and Y size of pixels in units of coordinate reference system. Number units/pixel width/height.

1. rast, xy
2. rast, x, y

ST_SetSkew Sets the georeference X and Y skew (or rotation parameter). If only one is passed in, sets X and Y to the same value.

1. rast, skewxy
2. rast, skewx, skewy

ST_SetSRID (rast, srid) Sets the SRID of a raster to a particular integer srid defined in the spatial_ref_sys table.

ST_SetUpperLeft (rast, x, y) Sets the value of the upper left corner of the pixel to projected X and Y coordinates.

ST_Resample¹ Resample a raster using a specified resampling algorithm, new dimensions, an arbitrary grid corner and a set of raster georeferencing attributes defined or borrowed from another raster. New pixel values are computed using the NearestNeighbor (english or american spelling), Bilinear, Cubic, CubicSpline or Lanczos resampling algorithm. Default is NearestNeighbor.

1. rast, width, height, srid=same_as_rast, gridx=NULL, gridy=NULL, skewx=0, skewy=0, algorithm=NearestNeighbour, maxerr=0.125
2. rast, srid=NULL, scalex=0, scaley=0, gridx=NULL, gridy=NULL, skewx=0, skewy=0, algorithm=NearestNeighbor, maxerr=0.125
3. rast, ref, algorithm=NearestNeighbour, maxerr=0.125, usescale=true
4. rast, ref, usescale, algorithm=NearestNeighbour, maxerr=0.125

ST_Rescale¹ Resample a raster by adjusting only its scale (or pixel size). New pixel values are computed using the NearestNeighbor (english or american spelling), Bilinear, Cubic, CubicSpline or Lanczos resampling algorithm. Default is NearestNeighbor.

1. rast, scalexy, algorithm=NearestNeighbour, maxerr=0.125
2. rast, scalex, scaley, algorithm=NearestNeighbour, maxerr=0.125

ST_Reskew¹ Resample a raster by adjusting only its skew (or rotation parameters). New pixel values are computed using the NearestNeighbor (english or american spelling), Bilinear, Cubic, CubicSpline or Lanczos resampling algorithm. Default is NearestNeighbor.

1. rast, skewxy, algorithm=NearestNeighbour, maxerr=0.125
2. rast, skewx, skewy, algorithm=NearestNeighbour, maxerr=0.125

ST_SnapToGrid¹ Resample a raster by snapping it to a grid. New pixel values are computed using the NearestNeighbor (english or american spelling), Bilinear, Cubic, CubicSpline or Lanczos resampling algorithm. Default is NearestNeighbor.

1. rast, gridx, gridy, algorithm=NearestNeighbour, maxerr=0.125, scalex=DEFAULT 0, scaley=DEFAULT 0
2. rast, gridx, gridy, scalex, scaley, algorithm=NearestNeighbour, maxerr=0.125
3. rast, gridx, gridy, scalexy, algorithm=NearestNeighbour, maxerr=0.125

ST_Transform¹ Reprojects a raster in a known spatial reference system to another known spatial reference system using specified resampling algorithm. Options are NearestNeighbor, Bilinear, Cubic, CubicSpline, Lanczos defaulting to NearestNeighbor.

1. rast, srid, scalex, scaley, algorithm=NearestNeighbor, maxerr=0.125
2. rast, srid, algorithm=NearestNeighbor, maxerr=0.125, scalex, scaley

Raster Band Editors

ST_SetBandNoDataValue Sets the value for the given band that represents no data. Band 1 is assumed if no band is specified. To mark a band as having no nodata value, set the nodata value = NULL.

1. rast, nodatavalue
2. rast, band, nodatavalue, forcechecking=false

ST_SetBandIsNoData¹ (rast, band=1) Sets the isnodata flag of the band to TRUE.

Raster Band Statistics and Analytics

ST_Count¹ Returns the number of pixels in a given band of a raster or raster coverage. If no band is specified defaults to band 1. If exclude_nodata_value is set to true, will only count pixels that are not equal to the nodata value.

1. rast, nband=1, exclude_nodata_value=true
2. rast, exclude_nodata_value
3. rastertable, rastercolumn, nband=1, exclude_nodata_value=true
4. rastertable, rastercolumn, exclude_nodata_value

ST_Histogram¹ Returns a set of histogram summarizing a raster or raster coverage data distribution separate bin ranges. Number of bins are autocomputed if not specified.

1. rast, nband=1, exclude_nodata_value=true, bins=autocomputed, width=NULL, right=false
2. rast, nband, bins, width=NULL, right=false
3. rast, nband, exclude_nodata_value, bins, right
4. rast, nband, bins, right
5. rastertable, rastercolumn, nband, bins, right
6. rastertable, rastercolumn, nband, exclude_nodata_value, bins, right
7. rastertable, rastercolumn, nband=1, exclude_nodata_value=true, bins=autocomputed, width=NULL, right=false
8. rastertable, rastercolumn, nband=1, bins, width=NULL, right=false

ST_Quantile¹ Compute quantiles for a raster or raster table coverage in the context of the sample or population. Thus, a value could be examined to be at the raster's 25%, 50%, 75% percentile.

1. rast, nband=1, exclude_nodata_value=true, quantiles=NULL
2. rast, quantiles
3. rast, nband, quantiles
4. rast, quantile
5. rast, exclude_nodata_value, quantile=NULL
6. rast, nband, quantile
7. rast, nband, exclude_nodata_value, quantile
8. rast, nband, quantile
9. rastertable, rastercolumn, nband=1, exclude_nodata_value=true, quantiles=NULL
10. rastertable, rastercolumn, nband, quantiles

ST_SummaryStats¹ Returns summary stats consisting of count,sum,mean,stddev,min,max for a given raster band of a raster or raster coverage. Band 1 is assumed is no band is specified.

1. rastertable, rastercolumn, exclude_nodata_value
2. rast, exclude_nodata_value
3. rastertable, rastercolumn, nband=1, exclude_nodata_value=true
4. rast, nband, exclude_nodata_value

ST_ValueCount¹ Returns a set of records containing a pixel band value and count of the number of pixels in a given band of a raster (or a raster coverage) that have a given set of values. If no band is specified defaults to band 1. By default nodata value pixels are not counted. and all other values in the pixel are output and pixel band values are rounded to the nearest integer.

1. rast, nband=1, exclude_nodata_value=true, searchvalues=NULL, roundto=0,
2. rast, nband, searchvalues, roundto=0,
3. rast, searchvalues, roundto=0,
4. rast, searchvalue, roundto=0
5. rast, nband, exclude_nodata_value, searchvalue, roundto=0
6. rast, nband, searchvalue, roundto=0
7. rastertable, rastercolumn, nband=1, exclude_nodata_value=true, searchvalues=NULL, roundto=0,
8. rastertable, rastercolumn, searchvalues, roundto=0,
9. rastertable, rastercolumn, nband, searchvalues, roundto=0,

10. rastertable, rastercolumn, nband, exclude_nodata_value, searchvalue, roundto=0
11. rastertable, rastercolumn, searchvalue, roundto=0
12. rastertable, rastercolumn, nband, searchvalue, roundto=0

Raster Outputs

ST_AsBinary (rast) Return the Well-Known Binary (WKB) representation of the raster without SRID meta data.

ST_AsGDALRaster¹ (rast, format, options=NULL, srid=sameassource) Return the raster tile in the designated GDAL Raster format. Raster formats are one of those supported by your compiled library. Use ST_GDALRasters() to get a list of formats supported by your library.

ST_AsJPEG¹ Return the raster tile selected bands as a single Joint Photographic Exports Group (JPEG) image (byte array). If no band is specified and 1 or more than 3 bands, then only the first band is used. If only 3 bands then all 3 bands are used and mapped to RGB.

1. rast, options=NULL
2. rast, nband, quality
3. rast, nband, options=NULL
4. rast, nbands, options=NULL
5. rast, nbands, quality

ST_AsPNG¹ Return the raster tile selected bands as a single portable network graphics (PNG) image (byte array). If 1, 3, or 4 bands in raster and no bands are specified, then all bands are used. If more 2 or more than 4 bands and no bands specified, then only band 1 is used. Bands are mapped to RGB or RGBA space.

1. rast, options=NULL
2. rast, nband, compression
3. rast, nband, options=NULL
4. rast, nbands, compression
5. rast, nbands, options=NULL

ST_AsTIFF¹ Return the raster selected bands as a single TIFF image (byte array). If no band is specified, then will try to use all bands.

1. rast, options='', srid=sameassource
2. rast, compression='', srid=sameassource
3. rast, nbands, compression='', srid=sameassource
4. rast, nbands, options, srid=sameassource

Raster Processing

Box3D (rast) Returns the box 3d representation of the enclosing box of the raster.

ST_Clip¹ Returns the raster clipped by the input geometry. If no band is specified all bands are returned. If crop is not specified, true is assumed meaning the output raster is cropped.

1. rast, geom, nodataval=NULL, crop=true
2. rast, geom, crop
3. rast, band, geom, crop

ST_ConvexHull (rast) Return the convex hull geometry of the raster including pixel values equal to BandNoDataValue. For regular shaped and non-skewed rasters, this gives the same result as ST_Envelope so only useful for irregularly shaped or skewed rasters.

ST_DumpAsPolygons (rast, band_num=1) Returns a set of geomval (geom,val) rows, from a given raster band. If no band number is specified, band num defaults to 1.

ST_Envelope (rast) Returns the polygon representation of the extent of the raster.

ST_HillShade¹ (rast, band, pixeltpe, azimuth, altitude, max_bright=255, elevation_scale=1) Returns the hypothetical illumination of an elevation raster band using provided azimuth, altitude, brightness and elevation scale inputs. Useful for visualizing terrain.

ST_Aspect¹ (rast, band, pixeltpe) Returns the surface aspect of an elevation raster band. Useful for analyzing terrain.

ST_Slope¹ (rast, band, pixeltpe) Returns the surface slope of an elevation raster band. Useful for analyzing terrain.

ST_Intersection² Returns a raster or a set of geometry-pixelvalue pairs representing the shared portion of two rasters or the geometrical intersection of a vectorization of the raster and a geometry.

1. geom, rast, band_num=1
2. rast, geom
3. rast, band_num, geom
4. rast1, rast2, nodataval
5. rast1, rast2, returnband='BOTH', nodataval=NULL
6. rast1, band_num1, rast2, band_num2, nodataval
7. rast1, band_num1, rast2, band_num2, returnband='BOTH', nodataval=NULL

ST_MapAlgebraExpr¹ 1 raster band version: Creates a new one band raster formed by applying a valid PostgreSQL algebraic operation on the input raster band and of pixeltype provided. Band 1 is assumed if no band is specified.

1. rast, band, pixeltype, expression, nodataval=NULL
2. rast, pixeltype, expression, nodataval=NULL

ST_MapAlgebraExpr¹ 2 raster band version: Creates a new one band raster formed by applying a valid PostgreSQL algebraic operation on the two input raster bands and of pixeltype provided. band 1 of each raster is assumed if no band numbers are specified. The resulting raster will be aligned (scale, skew and pixel corners) on the grid defined by the first raster and have its extent defined by the "extenttype" parameter. Values for "extenttype" can be: INTERSECTION, UNION, FIRST, SECOND.

1. rast1, rast2, expression, pixeltype=same_as_rast1_band, extenttype=INTERSECTION, nodataexpr=NULL, nodata2expr=NULL, nodatanodataval=NULL
2. rast1, band1, rast2, band2, expression, pixeltype=same_as_rast1_band, extenttype=INTERSECTION, nodataexpr=NULL, nodata2expr=NULL, nodatanodataval=NULL

ST_MapAlgebraFct¹ 1 band version - Creates a new one band raster formed by applying a valid PostgreSQL function on the input raster band and of pixeltype provided. Band 1 is assumed if no band is specified.

1. rast, onerasteruserfunc
2. rast, onerasteruserfunc, VARIADIC args
3. rast, pixeltype, onerasteruserfunc
4. rast, pixeltype, onerasteruserfunc, VARIADIC args
5. rast, band, onerasteruserfunc
6. rast, band, onerasteruserfunc, VARIADIC args
7. rast, band, pixeltype, onerasteruserfunc
8. rast, band, pixeltype, onerasteruserfunc, VARIADIC args

ST_MapAlgebraFct¹ 2 band version - Creates a new one band raster formed by applying a valid PostgreSQL function on the 2 input raster bands and of pixeltype provided. Band 1 is assumed if no band is specified. Extent type defaults to INTERSECTION if not specified.

1. rast1, rast2, tworasteruserfunc, pixeltype=same_as_rast1, extenttype=INTERSECTION, VARIADIC userargs
2. rast1, band1, rast2, band2, tworasteruserfunc, pixeltype=same_as_rast1, extenttype=INTERSECTION, VARIADIC userargs

ST_MapAlgebraFctNgb¹ (rast, band, pixeltype, ngbwidth, ngbheight, onerastngbuserfunc, nodatamode, VARIADIC args) 1-band version: Map Algebra Nearest Neighbor using user-defined PostgreSQL function. Return a raster which values are the result of a PLPGSQL user function involving a neighborhood of values from the input raster band.

ST_Polygon (rast, band_num=1) Returns a polygon geometry formed by the union of pixels that have a pixel value that is not no data value. If no band number is specified, band num defaults to 1.

ST_Reclass¹ Creates a new raster composed of band types reclassified from original. The nband is the band to be changed. If nband is not specified assumed to be 1. All other bands are returned unchanged. Use case: convert a 16BUI band to a 8BUI and so forth for simpler rendering as viewable formats.

1. rast, nband, reclassexpr, pixeltype, nodataval=NULL
2. rast, VARIADIC reclassargset
3. rast, reclassexpr, pixeltype

ST_Union¹ Returns the union of a set of raster tiles into a single raster composed of 1 band. If no band is specified for unioning, band num 1 is assumed. The resulting raster's extent is the extent of the whole set. In the case of intersection, the resulting value is defined by p_expression which is one of the following: LAST - the default when none is specified, MEAN, SUM, FIRST, MAX, MIN.

1. rast
2. rast, band_num
3. rast, p_expression
4. rast, band_num, p_expression

Raster Processing Builtin Functions

ST_Min4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the minimum pixel value in a neighborhood.

ST_Max4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the maximum pixel value in a neighborhood.

ST_Sum4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the sum of all pixel values in a neighborhood.

ST_Mean4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the mean pixel value in a neighborhood.

ST_Range4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the range of pixel values in a neighborhood.

ST_Distinct4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the number of unique pixel values in a neighborhood.

ST_StdDev4ma¹ (matrix, nodatamode, VARIADIC args) Raster processing function that calculates the standard deviation of pixel values in a neighborhood.

Raster Operators

&& (A, B) Returns TRUE if A's bounding box overlaps B's.

&< (A, B) Returns TRUE if A's bounding box is to the left of B's.

&> (A, B) Returns TRUE if A's bounding box is to the right of B's.

Raster and Raster Band Spatial Relationships

ST_Intersects² Return true if the raster spatially intersects a separate raster or geometry. If the band number is not provided (or set to NULL), only the convex hull of the raster is considered in the test. If the band number is provided, only those pixels with value (not NODATA) are considered in the test.

1. rasta, nbanda, rastb, nbandb
2. rasta, rastb
3. rast, nband, geommin
4. rast, geommin, nband=NULL
5. geommin, rast, nband=NULL

ST_SameAlignment¹ Returns true if rasters have same skew, scale, spatial ref and false if they don't with notice detailing issue.

1. rastA, rastB
2. ulx1, uly1, scalex1, scaley1, skewx1, skewy1, ulx2, uly2, scalex2, scaley2, skewx2, skewy2



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