TdhGIS Database Versions

A new database version results from a change in the database structure used by TdhGIS. Prior to database version 150105, TdhGIS database versions were not named. Starting with TdhGIS version 150105, the database version for which the TdhGIS version was designed is noted in the Help | About information.

Backward Compatibility

It is a goal of TdhGIS to maintain backward compatibility with earlier versions of the database, i.e. that versions of TdhGIS can read earlier versions of the database than the one for which it was designed. This is accomplished by updating the structure of earlier database versions to the current version. Starting with TdhGIS version 150105, the user will be prompted for permission to update earlier versions of the database. If the user declines, the database will be neither updated nor read.

Backward database compatibility is not guaranteed for any versions of TdhGIS, but there is currently no known backward incompatibility. Backward database incompatibility would likely result in abnormal program termination.

Forward Compatibility

It is a goal of TdhGIS to maintain forward compatibility for at least the next version of the database, i.e. that each version of TdhGIS can read the next version of the database after the one for which it was designed. Starting with TdhGIS version 150105, the user will be prompted for permission to use a forward database version. If the user accepts, an attempt will be made to read the database but the structure will not be modified. If the user declines, no attempt will be made to read the database. Saving data to a forward database will likely mean that some newer database fields will not be filled. In general, it is recommended that use of forward databases be avoided by using the latest version of TdhGIS.

Forward database compatibility is not guaranteed for any version of the TdhGIS database, but there is currently no known forward incompatibility. Forward database incompatibility would likely result in abnormal program termination.

Named Database Versions

Unnamed versions – not compatible with TdhGIS versions 140814 and later

150105 – established January 05, 2015; first used in TdhGIS version 150105; no known forward incompatibilities.

150311 – established March 11, 2015; first used in TdhGIS version 150317; no known forward

incompatibilities.

160728 – first used in TdhGIS version 160729. no known forward incompatibilities

170725 – first used in TdhGIS version 170725. no known forward incompatibilities
- CadDbDir, CadDrawing and CadDisplayFlag fields added to the Options table.

Database Structure

Version 160728 (see TdhGIS_DatabaseVersions.pdf in the TdhGIS Library at tdhgis.com)

TdhGIS uses 2 SqLite3 databases:
- TdhGIS_config.sqlite – contains 1 table that maintains information about Projects. Normally, there will be no more than one such database per user.
- TdhGIS_Data.sqlite – contains several tables maintaining all the data for a single Project. There may be many of these databases per user, each one in a different directory.

TdhGIS_config.sqlite

The Projects table contains the following fields:

- Name – user defined text that must be unique among projects.

- Directory – the directory containing the TdhGIS database for the project.

- Description – user defined text that can be used to search the project

- Selected – a flag to indicate the most recently selected project.

* Additional unused fields have been left in this table to maintain forward compatibility for earlier versions of TdhGIS (i.e.< 150105). These unused fields may be dropped in future db versions.

TdhGIS_Data.sqlite

The Options table contains only one record with the following fields:

- Version – the version number for the database.

- Date – the date the database structure was created or last modified.

- SelectFill – stores the SelectFill option for the project.

- SnapOn – stores the SnapOn option for the project.

- SnapValue – stores the Snap Value for the project.

- WhiteBackground – stores the WhiteBackground option for the project.

- WhiteToBlack – store the WhiteToBlack export option for the project.

- FlipY – stores the flipy option for the project.

- PtRadius – stores the Pt Radius.

- Distance_Units – the default distance units.

- Image_File – the image file name most recently used for the project.

- Image_Alpha – the transparency value for the image.

- Coordinate_Info - text providing information about the coordinate system used as a destination default when converting group.

- LongLat – stores the longlat option for the project.

- ImageScale – the maximum scale at which the image will be displayed.

- ImageSuppress – the image suppress flag.

- DistTolerance – the distance tolerance for non long/lat coordinates.

- DistTolerance – the distance tolerance for long/lat coordinates.

- GridFlag – flag for display of grid

- GridLabels – flag for display of grid cell labels

- GridOverlay – flag for display of grid as overlay rather than backgroud

- Grid_CellDescritption – text defining grid cell label format

- Grid_CellXDescript – text defining exterior cell labels on x axis

- Grid_CellYDescript – text defining exterior cell labels on y axis

- CadDbDir – the directory containing a TdhCad database used for exporting and importing Cad drawings.

- CadDrawing – the TdhCAD drawing used for exporting and importing Cad data, including legends.

- CadDisplayFlag – specifies whether the Cad drawing is automatically displayed during project startup.

The Displays table maintains data about the displayed layers and contains the following fields:

- DataType – the type of data on the layer, 0 – Pt Group, 2 – Polygon or MultiLine Group.

- ID – the layer ID.

- Hide – flag to hide layer.

The PolygonGroups table maintains data about Polygon and MultiLine Groups and has the following fields:

- ID – a user defined text that must be unique within a project.

- Code – an automatically generated value that uniquely identifies the group. This allows the ID to be changed without invalidating references to the group within the database.

- Description – the group description, user defined text.

- Parent1 – for groups created by Spatial Operations, the ID for the first input Polygon Group or the Pt Group in the case of Thiessen polygons.

- Parent2 - for groups created by Spatial Operations, the ID for the second input Polygon Group.

- Polygon_Type – 2 for polygons, 3 for multilines, 4 for contour lines.

- Color – the outline color the group with be drawn, in RGBA integer.

- Create_Op – for groups created by Spatial Operations, a string describing the operation.

- Fill – a flag to indicate whether polygons within the group will be filled when drawn. Fill color is determined within the polygon data.

- Coordinate_Info – text providing information about the coordinate system used within the group.

The PolygonPt table maintains the polygon point data for all polygons and multilines in the project and has the following fields:

- OwnerCode – the Code value of the Polygon to which the point belongs

- PtIndex – an automatically generated sequential number used to ensure that points are retrieved in the correct order.

- xcord – x coordinate.

- Ycord - y coordinate.

- Zcord – z coordinate (not currently used).

The Polygons table maintains the polygon data for all polygons and multilines in the project and has the following fields:

- ID – the polygon id, a user defined text that must be unique within the Polygon Group.

- Code – an automatically generated number that is unique among all polygons in the <u>project</u> (not just the polygon group).

- Area – the area of the polygon, automatically calculated.

- Perimeter – the perimeter of the polygon, automatically calculated.

- User_Data – a user defined data value that can be used as input in the allocation process and used by TdhGIS to store allocation results.

- Group_Code – the Code value for the Polygon Group to which the Polygon belongs. A negative value indicates an exclusion polygon belonging to the polygon with the positive value code.

- Parent1 – for polygons created by Spatial Operations, the polygon ID from the first Polygon Group used to create the polygon.

- Parent2 – for polygons created by Spatial Operations, the polygon ID from the second Polygon Group used to create the polygon.

- Allocate_Factor – an automatically calculated factor used in polygon to polygon data allocation, as explained in Intersect Polygons.

- Color – the fill color for a polygon.

- Width – the width of a multiline. A positive value is the width in geometric units, a negative value is the width in pixels (will not change with zooming). The default value of 0 is translated to -1.05.

- FillFlag – a flag indicating whether the polygon will be drawn in outline or filled.

The PtData table maintains the data for Pt Data and has the following fields.

- OwnerCode – The Code value for the Pt Group to which the Pt Data belongs.

- User_ID – a user defined text that must be unique with the Pt Group.

- x – the x coordinate.

- y – the y coordinate.

- z - not currently used.

- User_Data – a user defined data value used in the allocation process.

- AllocatedTo – the polygon ID the Pt Data was most recently allocated to.

The PtOwner table maintains data for Pt Groups and has the following fields:

- ID – a user defined text that must be unique within a project.

- Code - an automatically generated value that uniquely identifies the group. This allows the ID to be changed without invalidating references to the group within the database.

- Description – user defined text that can be used to search for the group.

- Color - the color the group with be drawn, in RGBA integer.

- AllocatedTo – the Polygon Group the Pt Group was most recently allocated to.

- Coordinate_Info – text providing information about the coordinate system used within the group.

The Queries table maintains data for saved queries and has the following fields:

- Query_ID – a user defined text that must be unique among saved queries.

- Query_Type – an automatically generated value defining the query type. (0 = Contour Lines).

- Date_Created – the date the query was first saved, automatically generated.

- Query_Text – the text for the query.

- Query_Description – user defined text that can be used to search for the query.