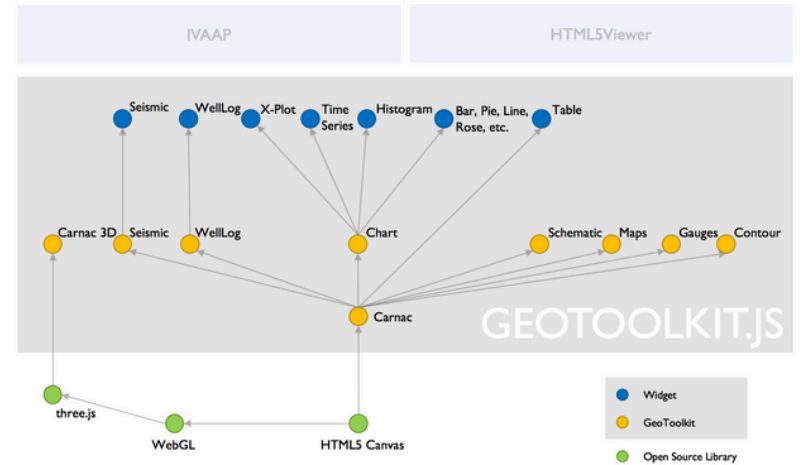# GeoToolkit.JS 2024 (4.1)
Features and Architecture Overview
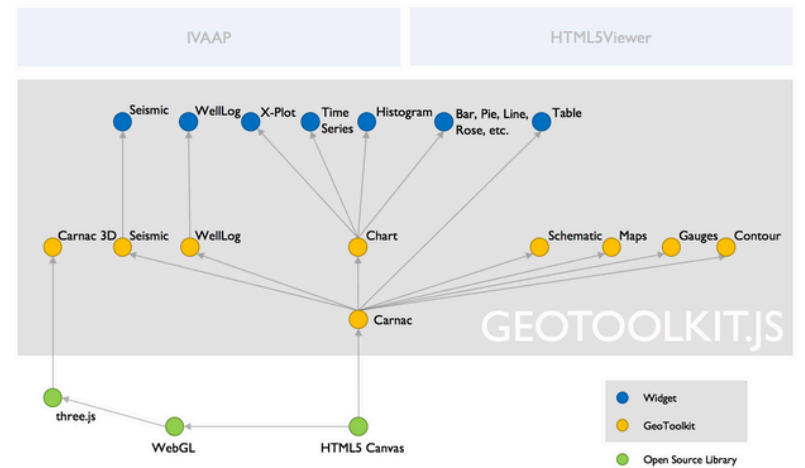

E&P Libraries and Widgets

WellLog

WellLog Visuals

Log curve Discrete curve
Tick curve Value curve
Gradient curve Stacked
curve Fill between two
curves or
base line
Gradient fill
Stacked fill
Marker (tops)
Lithology
Annotations
Array log
Tadpole
Rose diagram
Density log
Image log
Raster log
Core image
Cross-section
Waveform (requires
seismic module)
Custom/third-party
visuals
Cutoff log
Micropostions

Correlation Widget

Display multiple wells
Supports header/footer
Option to share the same
template between wells
Horizontal mode
Lazy loading for proxy well
Attached / deatched
headers and footers
Proportional / equal
distance spacing between
wells

Data Formats

LAS
Data Object Model

Deviated View

Deviated view (existing
visuals)
Attached header / footer
Fills to accumulation cycle
visual

WellLog Widget

Display single well log data
Vertical or horizontal view
Template support
Interactive tool support
Time or depth-based data
Real-time support PDF
printing
Custom header/footer
Cursor tracking tool
Zones support

Headers

Curve Fill Lithology
histogram Track
Collapsed
Composite
Custom/third-party
headers
Cursor tracking

Tracks

Linear Logarithmic
Axis
Navigation
Tangential
Split track

Misc

Responsive (level of
details) Annotation
overlay LAS 2.0 writer
LAS 3.0 writer

Tools

Ghost tool (linear and
deviated tracks)
Tops editor
Curve and marker editor
Drag and drop tool
Lithology editor
Interactive annotation
editing
Symbols mode to Log-
MudLog Section
Paint annotations

Schematics

Display Features

Linear or compressed
Vertical or deviated L-
shaped Multi-string
High-quality SVG
symbols Labeling and
annotations Real-time
Fluid levels Lithology
Well log track Options to
integrate own
schematics elements
library (vector/raster
img.)
Support for Reach
Native

Widgets

Widget schematic
L-Shape schematic
widget Multilateral
schematics Deviated
schematics Tooltip tool
Dual schematics widget

Seismic

Widgets

Seismic widget Seismic
widget with trace
header table
Seismic widget with
auxiliary graph
Trace headers table view
Annotations overlay

Display Features

Wiggles anti-aliasing
Positive and negative fill
Variable density with
custom color map
Trace headers
Variable trace spacing
Waveform pattern
Decimation and clipping
Vertical or horizontal view
Trace headers table
Time slices in base maps
Auxiliary graph
Base map
Overlay support
Variable trace spacing
Horizon picking tool
Transparency support for
each type of density, fills,
traces and traces by
status

Data Processing

Interpolation (linear,
quadratic, step)
Normalization
(maximum,
avg., RMS, specific limits)
Taper filter
Automatic gain control

Data Formats

SEG-Y Memory data
source Remote data
source INTGeoServer
integration
with trace decimation
and
data compression
Custom source IVAAP
integration with
decimation and data
compression Azure SEG-
Y reader IVAAP
integration with
decimation and data
wavelets based and ZFP
compression
IVAAP Backend and
INTGeoServer 3.0+
Backend

Real-Time Support

Real-time traces
Waveform
DTS acquisition
Shot monitoring
ZFP decompression for
IVAAP backend

Contour

Display Features

2D/3D
Isolines with labels
Smoothing
Label collision detection
Colormap-based fill
Faults
Overlays

Types

Regular rectangular grid
Arbitrary triangular grid
Gridding algorithms:
Kriging and ThinPlate

3D

Display Features

Grid
Compass
Three.js library integration
v152
Different cameras
Well trajectory
Log curve: cylinder or 2D
Log fill
Array log
Well annotations
Vector object
Surfaces
Height maps
Seismic slices
Seismic overlays
Pointset (microseismic)
2D map
Animations
Picking
Reservoir grid
Schematics
VTK formats
Seismic volume support
ScatterPlot
GigaGrid
3D shape highlighting
Contour 3D
Multi-lateral trajectory
tube
Faults visualization Surface
Projection widget
Grid Surface loader and
data type
Seismic fence intersection
support
WellLog array 2D
3D reservoir along
trajectory
Highlight mode
Volumetric rendering
WellLog Array 2D
Clipping support of
different objects

INT
Empowering Visualization

GeoToolkit.JS 2024 (4.1)
Features and Architecture Overview

Generic Libraries and Widgets (CARNAC Modules)

Base 2D Graphics

Scene Graph: Graphical Primitives

Line/polyline
Polygon
Rectangle
Ellipse
Arc
Arrow
Generic path (bezier)
Spline
Symbol
Text
Image
Tiled image
Groups Pyramid image support
Event map

Interactive Tools

Cross hair
Rubber band
Point and area selection
Shape Editor
Elastic zoom and scroll
DOM tools
Annotations tool and layer
Measure Distance
Zoom support for logarithmic tick generator

Export Options

Image
PDF
CGM

Axes and Grids

Regular interval
Adaptive (depending on current on zoom factor)
Logarithmic
Time-based
Automatic step and limits
Finite / Infinite axes

Node Layout

CSS Vertical/horizontal Grid
Annotated
Margins and padding
Flexbox

Table Widget

Large dataset
Sort
Cell editing
Custom cells

Data Source

Data Series: represent a single series of values
Data Table: a group of data series organized as table
Data View: read-only sub view of data series/table
Data Set: a set of data tables

Misc

Color bar
Legends
Color providers
Scrollbars
Support of CSS styles
Support of CSS 2D transform
Support CSS text-transform
Persistence
JSON schema
Units
Transition animation
Responsive style (supports level of details)
HTML text formatting
Internationalization/localization
Abstract layer for http communication
Global Z-order
ToolTip API

Generic

Supported platform: Mobile, Desktop (Chrome, etc.), Node JS
Supported frameworks: Vue, React Native for iOS and Android, Angular
Supported languages: TypeScript, JavaScript (ECMAScript 2015 (ES6) and beyond)

Charts

Types

Area
Bar
Box plot
Bubble
Donut
Histogram
Table
Pyramid
Line
Pie
Radar
Rose
Cross plot (Geoscience)
Stacked area
Tornado
XY Line chart
Heat map
Multiseries
Peity (small charts)
Treemap
Flow charts
Multi-histogram
Linear / non-linear regression
Regression line
Cross-section
Real-time support for all charts and widgets
DensityContour Shape
Ternary Plot
Chart widget
Polar Chart
Line chart colored by other variable
Error Chart (Uncertainty Chart)

Maps

Display Features

Support for different layers
WMTS services: Google, MapQuest, ESRI, OpenStreet map, Bing
ArcGIS GeoServices (feature, map service)
ArcGIS web map
ArcGIS query/identify/legend API support for ArcGIS servers
GeoJSON support
KML support
GeoRSS
Stream service
CSS
Limited Error Raster Compression format
Coordinate systems Vector tiles Overlays Symbols aggregation Symbol aggregation as bubble chart
Smart labeling
Tool to measure distances and area GPX format support
Opt. UI floating control
Infinite horizontal scroll
Contour layer (requires Contour module)
Heatmap layer
GeoTIFF support
Webmap support

Gauges/Alarms

Display Features

Circular
Half-circular
Linear
Numeric
Digital
Traffic
Multi-value
Custom gauges

Time Series

Display Features

Customizable time axis
Annotations Overlays
Fill/fill between
Interpolation modes
Linear/logarithmic Micro Positions Zoom behavior
Stacked / percentage mode

Reports

Display Features

Document preview
PDF

INT
Empowering Visualization