

Index

- ACID, 106, 107
- ActiveX, 132, 142, 237
- Adaptive Communications Environment (ACE), 134
- AJAX, 12, 82, 134, 140, 142, 143, 144, 150, 226, 227, 228, 229, 233, 234, 236, 237–238, 239, 240, 241, 242
- Anti-Grain Geometry (AGG), 82, 83
- Apache, 38, 85, 131, 149, 150, 254
- Application binary interface (ABI), 99
- ArcSDE, 109, 127, 138
- ASP.NET, 134, 147
- Asynchronous JavaScript and XML, 134, 227
- Autodesk, 15, 39, 40, 58, 132, 134, 136, 138, 139, 142

- Binary, 26, 72, 91, 99, 106, 109, 112, 113, 120, 175, 189, 192
- Binary large object (BLOB), 106, 109
- B-Trees, 120
- Business models, 21–47, 55–56, 58–59, 62

- C#, 12, 65, 80, 84, 99, 103, 204
- C++, 51, 80, 87, 91, 99, 100, 106, 108, 141, 190, 193, 194, 196, 204, 248, 252, 254, 262, 267
- CAD, 40, 136, 139, 146, 175
- Cartographic Projections Library (PROJ.4), 70, 85, 224
- Catalog Services, 9
- Cell-spaces, 260, 261
- CGDI, 60
- CGI, 12, 65, 67, 71, 73, 74, 78, 79, 80, 81, 84, 141, 149, 194
- Chameleon, 82, 227, 228, 229, 237, 239, 240, 241
- Client-server, 4, 12, 15, 192
- Collaborative, 33, 35, 41, 43, 47, 132, 204, 219, 221, 222, 226
- Colorbrewer, 161, 167

- COM, 110, 254, 255
- Common gateway interface (CGI), 12, 65, 67, 70, 71, 73, 74, 78, 79, 80, 81, 84, 141, 149, 194
- Concurrency, 3, 106, 107, 123
- Consultation, 40, 42, 44, 45, 47
- Coordination, 202, 205, 207, 209, 211–212, 215
- Copyright, 29, 30, 38
- Copyleft, 7, 28, 29, 33, 101, 168, 226, 227
- CORBA, 110
- Coverage, 8, 12, 72, 73, 90, 91, 94, 100, 151, 157, 159, 255
- Coverage Service (WCS), 12, 73, 151, 159, 255
- Creative Commons, 42

- 2D, 110, 116, 119, 123, 143, 171, 172, 173, 174, 175, 176, 177, 179, 182, 192, 253, 261
- 3D, 110, 123, 124, 143, 151, 152, 171, 172, 173, 174, 175, 176, 177, 179, 192, 195, 203, 208
- Database, 3, 5, 12, 13, 14, 33, 38, 39, 60, 61, 75, 77, 100, 105–128
- Debian GNU/Linux, 28, 29, 30, 34, 38, 39, 42, 88, 124, 172, 174, 264, 266
- Development cycle model, 31
- DM-Solutions Group, 35
- Documentation, 9, 27, 41, 42, 53, 69, 92, 98, 103, 107, 189, 250, 255
- Document Object Model and DOM, 7, 10, 237
- DWF, 134, 136, 138, 139, 142, 146

- Eclipse, 38
- Ecosystem, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 61, 62, 64
- ESRI, 15, 39, 66, 67, 70, 75, 90, 91, 100, 109, 125, 126, 143, 153, 155, 162, 265
- European Petroleum, 94, 166, 174

- Extensible Markup Language (XML), 7, 10, 13, 15, 16, 73, 74, 76, 85, 124, 131, 134, 135, 136, 139, 227, 228, 229, 233, 234, 236, 237, 238, 239, 240
- Factory*, 162, 164, 255, 257, 267
- FDL, 42
- Fear, Uncertainty and Doubt (FUD), 23
- Feature Data Object (FDO), 40, 137, 138
- Feature Service, 9, 73, 134, 137, 138, 141, 151, 175, 197, 255
- Federal Geographic Data Committee (FGDC), 3, 6, 151
- Filter, 12, 74, 137, 162, 163, 164, 165, 206, 210, 255, 257
- FOSS, 22, 23, 24, 25, 29, 30, 31, 32, 34, 35, 36, 37, 38, 40, 41, 44, 45, 46, 47, 193
- FOSS4G, 1, 5, 12, 13, 14, 39, 42, 46, 47, 50, 64, 65, 67, 83, 84, 85, 88, 101, 104, 116, 128, 152, 153, 172, 189, 191, 192, 196, 197, 198, 201, 202, 216, 218, 222, 223, 224, 225, 226, 244, 248, 249, 250, 263, 265, 266, 267
- Free Documentation License, 42
- Free Software, 21–47
- Free Software Foundation (FSF), 29, 30
- FS, 24, 27, 28, 34, 36, 37, 38

- GDAL, 34, 47, 69, 73, 74, 75, 85, 87, 88, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 138, 174, 175, 193, 195, 196, 224
- GDB, 88, 89, 90, 91
- Generalized Search Trees, 120
- General Public License (GPL), 29, 34, 38, 39, 89, 101, 132, 172, 174, 264, 266
- GeoAPI, 153, 159, 161, 164, 168
- GeoConnections, 3, 60
- Geodata, geoprocessing, 34, 100, 126, 128
- GeoGateway, 88
- Geographic information systems (GIS), 2, 50, 66, 91, 116, 203, 221
- Geography Markup Language(GML), 9, 12, 13, 15, 16, 74, 115, 123, 124
- GeoJSON, 11, 84
- Geometry, 70, 73, 100, 106, 108, 110, 111, 112, 113, 114, 115, 117, 118, 119, 120, 121, 124, 125, 126
- Geometry Collection, 112
- Geometry Types, 106, 110, 113, 114, 121
- GeoRSS, 11, 13, 18, 73, 82, 84
- GEOS, 81, 85, 148
- GeoServer, 13, 15, 156, 157, 159, 167
- Geospatial data infrastructure, 1
- GeoTIFF, 75, 88, 89, 173
- GeoTools, 12, 153–168, 206, 207, 208, 210, 218
- GeoVISTA, 153, 167, 201–219
- GIS, 2, 7, 10, 13, 15, 39, 50, 51, 60, 65, 66, 67, 70, 76, 77, 79, 80, 81, 82, 91, 101, 108, 109, 116, 119, 120, 128, 133, 140, 152, 153, 154, 155, 168, 171–198, 206
- Global positioning system (GPS), 175
- GNU project, 29
- Google, 10, 11, 49, 82, 83, 134, 139, 140, 142, 143, 144, 151, 167, 198, 222, 223, 236, 243
- Google Earth, 11, 134, 139, 140, 142, 143, 144, 145, 151, 221–222, 223
- Google Maps, 10, 11, 49, 222, 236, 243
- GRASS, 13, 42, 87, 92, 101, 116, 171–198
- Grid Coverage, 91, 94, 100, 157, 159
- Grid Coverage Services, 159

- HTML (DHTML), 7, 10, 12, 70, 72, 73, 78, 142, 150, 223, 227, 228, 229, 237, 238, 239, 241
- Hybrid, 37, 38, 40, 261

- Image classification, 185, 187
- Incubation, 23, 34, 132, 225
- Ingres, 105, 106, 107, 108, 109, 125
- Integrated Directed Graph Library, 183
- Intellectual property, 7, 50, 88, 205, 226
- International Organization for Standardization (ISO), 6, 8, 10, 151
- Internet, 1, 2, 3, 4, 5, 10, 12, 13, 18, 38, 39, 46, 52, 60, 67, 68, 133, 142, 143, 158, 172, 189
- Internet Relay Chat (IRC), 36, 158, 189
- Interoperability, 1, 2, 4, 6, 7, 9, 11, 151, 159, 175, 196
- Interpolate, 175, 181, 260
- IP, 4, 7, 104, 205, 226, 227, 266

- Java, 11, 13, 65, 67, 68, 80, 84, 99, 102, 103, 116, 131, 132, 134, 141, 147, 153, 154, 159, 162, 166, 201, 202, 204, 207, 209, 212, 218, 219, 237, 248, 252, 255
- JavaBeans, 202, 205, 207, 208
- Java Database Connectivity (JDBC), 116
- JavaScript, 10, 11, 12, 131, 132, 134, 136, 224, 227, 228, 229, 237, 238, 239, 240, 241
- Java Unified Mapping Platform (JUMP), 35
- Java Virtual machine (JVM), 99, 207
- JSON, 11, 73, 84
- JSP, 147, 212

- Kernel, 109, 110, 176, 177, 254, 255, 259, 266
- Keyhole Markup Language (KML), 10, 73, 82, 84, 124, 139, 144
- Knowledge discovery, 201, 206, 219
- Lesser GPL(LGPL), 89, 101, 132, 266
- Libgeotiff, 88, 89, 267
- Library, 69, 75, 87–104, 117, 134, 154, 161, 206–207, 247–267
- Libtiff, 85, 88, 89, 93
- Life cycle model, 31
- Light Detection and Ranging (LIDAR), 151, 178, 184, 185
- Linear Reference Systems, 184
- Loose coupling, 259, 261
- Mapbender, 32, 34
- Mapbuilder, 12–13, 82
- MapGuide, 39, 55, 58, 87, 100, 102, 131–152
- MapServer, 12, 13, 14, 15, 16, 35, 44, 55, 56, 58, 60, 65–85
- MBR (Minimum Bounding Rectangle), 122
- Metadata, 8, 9, 13, 18, 74, 77, 90, 93, 94, 96, 97, 103, 104, 139, 151, 186, 228, 229, 230, 253, 255, 257
- Microsoft, 36, 37, 49, 65, 68, 69, 91, 106, 131, 132, 134, 138, 142, 147, 150, 151
- Microsoft Windows, 37, 65, 69, 91, 106, 131, 132, 134, 142
- MIT/X, 69, 89, 101
- MIT/X11, 69
- model-view-controller (MVC), 106, 252
- MySQL, 14, 38, 85, 105, 106, 107, 108, 121, 122, 123, 124, 125, 127, 138, 192, 247, 254, 255
- Non-first normal form, 109
- NVIZ, 174, 179, 192, 193, 195
- Object-oriented, 105, 108, 116, 125, 126, 127, 196, 204, 250, 252, 257
- Object-oriented database management system (ORDBMS), 105, 109, 128
- Object-relational DBMSs (ORDBMS), 105, 109, 127, 128
- OGC FeatureModel, 159
- OGR, 85, 87, 99, 102, 103, 104, 116, 138, 174, 175, 196, 224, 785
- Online analytic processing (OLAP), 107
- Online transaction processing(OLTP), 107
- Open Geospatial Consortium (OGC), 8, 10, 11, 60, 65, 73, 90, 91, 106, 134, 137, 151, 153, 159, 172, 207, 248
- OpenGIS Consortium, 8
- OpenLayers, 65, 82, 150
- Open source databases, 105–128
- Open Source Geospatial Foundation (OSGeo), 1, 11, 21, 23, 34, 39, 40, 42, 45, 64, 87, 99, 104, 132, 137, 171, 172, 189, 225
- Open Source Initiative, 26, 226
- Open standards, 1–19
- Operating system, 6, 32, 33, 37, 38, 39, 65, 70, 91–92, 106, 172, 173, 174, 190, 195, 264
- Oracle, 39, 75, 100, 105, 109, 122, 123, 124, 127, 128, 135, 138
- Oracle Spatial, 75, 100, 105, 109, 122, 123, 128, 138
- OSDB, 105, 106, 107, 108, 110, 116, 125, 126, 128
- OS licenses, 26, 159, 226
- Participatory input, 155, 221, 223
- Perl, 12, 14, 65, 80, 81, 85, 99, 103, 106, 144, 190, 196
- PGSQL, 120, 228, 240, 241
- PHP, 14, 38, 69, 80, 85, 131, 134, 141, 147, 190, 196, 223, 224, 227, 228, 229, 233, 236, 238, 239, 240, 241, 242, 265
- PL/PGSQL, 120
- Plugins, 161, 166, 237
- Portal, 196, 227, 231, 232
- PostGIS, 13, 14, 39, 42, 65, 75, 77, 85, 100, 105, 106, 109, 110, 116, 119, 120, 121, 122, 123, 124, 126, 127, 136, 138, 162, 191, 196, 224, 225, 227, 228, 230, 235, 240
- PostgreSQL, 13, 14, 39, 77, 85, 105, 106, 107, 108, 109, 110, 116, 117, 119, 120, 123, 127, 177, 192, 224, 225, 227, 228, 240
- Proj. 4, 70, 85, 224
- Project management committee (PMC), 157, 158, 168
- Project Steering Committee (PSC), 34, 99, 132, 189
- Proprietary, 7, 14, 21, 22, 23, 28, 29, 30, 31, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 45, 47, 48, 50, 51, 54, 55, 57, 58, 59, 63, 66, 87, 88, 89, 99, 101, 104, 106
- Python, 12, 14, 65, 80, 85, 92, 99, 103, 106, 173, 190, 195, 196, 197, 217, 218
- Python MapScript, 14
- QGIS, 87, 174, 191, 192, 194
- Quantum GIS, 174, 192, 225
- Raster, 60, 67, 68, 75, 76, 81, 87, 90, 91, 92, 93, 94, 95, 97, 98, 100, 102, 104, 123, 125, 127, 128, 132, 165, 171, 172, 173, 174, 175, 176, 177, 179, 185, 186, 187, 192

- RDBMS, 108, 172, 192
- Relational DBMS (RDBMS), 108, 109, 178, 192
- Rendering Service, 74, 139, 140
- Representational State Transfer (REST), 151
- R programming, 248, 259
- R-Trees, 120, 122, 123

- Scaleable Vector Graphics (SVG), 8
- Schemas, 3, 16, 229, 231, 241
- Scripts, 66, 147, 190, 228, 229, 239, 240, 241
- SDF, 138
- SDI, 2, 3, 4, 5, 6, 7, 15, 19, 196
- SEAGIS, 157, 166
- Semantics, 3, 9, 126, 127, 218, 236
- Sensor Web, 10
- Service Oriented Architecture Protocol (SOAP), 151
- Service Oriented Architecture (SOA), 14, 135, 151
- SFS, 13, 14, 105, 110, 112, 123, 251, 253
- SFSQL, 105, 110, 112, 123
- Shapefile, 10, 11, 70, 75, 77, 84, 90, 91, 100, 153, 155, 162, 163, 267
- Shapelib, 67, 70, 75, 85, 88, 89, 90, 193, 252, 267
- Simple Feature Library, 224
- Simplified Wrapper and Interface Generator (SWIG), 80, 81, 85, 99, 103, 190, 195, 196
- Source code, 16, 22, 25, 26, 29, 31, 33, 47, 69, 101, 105, 106, 108, 139, 158, 172, 174, 189, 190, 195, 203, 205, 252
- Spatial analysis, 34, 132, 141, 148, 151, 173, 182, 189, 190, 192, 202, 203, 205, 206, 217, 248, 249, 251, 255, 256, 259
- Spatial databases, 3, 60, 75, 105, 109, 110, 126, 128, 247, 248, 249
- Spatial Data Format, 72, 75, 87, 90, 138, 224, 263
- Spatial Group (EPSG), 166
- Spatio-temporal, 125, 126–127, 185, 247, 248, 249, 250, 251, 254, 255, 257–258, 263, 267
- SQL, 13, 78, 91, 105, 106, 109, 110, 111, 112, 113–114, 115, 116, 119, 120, 121, 123, 124, 127, 138, 162, 171, 172, 174, 177, 178, 183, 191, 192, 198, 240, 241, 258
- Standards, 1–19, 84, 110, 159
- Standard Template Library (STL), 252
- Steering committee, 34, 35, 36, 47, 64, 99, 132, 189
- Styled Layer Description (SLD), 12, 13, 79, 164

- Summer of Code, 167, 198
- Supervised classification, 187, 188

- TC211, 8
- Teaching, 41, 43, 44, 219, 226
- TerraAmazon, 248, 262, 264, 265
- TerraLib, 60, 127, 247–267
- TerraView, 248, 259, 260, 262, 263, 264, 267
- “Thin client”, 12, 134, 139, 142
- TIFF, GeoTIFF, 75
- Tiled, 11, 81, 83, 93, 97, 138, 140
- Topology, 74, 124, 125, 126, 153, 177, 182, 185, 198, 203, 212, 250
- Training, 21, 22, 39, 40–41, 42, 43, 44, 48, 53, 57, 187, 188, 265, 267

- UDig, 13, 153, 167, 191, 192
- Uniform Resource, 7, 135
- University of Minnesota, 12, 49, 65, 67, 68
- Unsupervised classification, 187, 188
- URI, 135
- UsedWeb Feature Service (WFS), 9, 12, 13, 15, 18, 73, 74, 124, 134, 138, 139, 141, 142, 151, 175, 224, 255
- User Defined Types (UDT), 113, 116

- Vector, 8, 9, 68, 75, 79, 81, 87, 91, 104, 123, 125, 128, 132, 136, 139, 171, 172, 173, 174, 175, 177–178, 179, 182, 183, 184, 185, 190, 191, 192, 193, 195, 196, 197, 198, 224, 229, 231, 235, 247, 253, 255, 256, 257, 261, 267
- Visualization, 1, 3, 5, 6, 8, 9, 10, 16, 17, 151, 155, 171, 172, 174, 175, 185, 191, 192, 193, 195, 202, 206, 207, 208, 209, 210, 211, 212, 213, 215, 216, 217, 254

- W3C, 7–8, 10, 11, 16, 18
- Web Coverage Service (WCS), 12, 13, 18, 73, 74, 151, 197, 255
- Web Feature Service (WFS), 9, 12, 13, 15, 18, 73, 74, 124, 134, 138, 141, 142, 151, 175, 197, 224, 255
- Web mapping, 11, 12, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 67, 70, 82, 131, 132, 152, 159, 222, 227, 235
- Web Mapping Context (WMC), 12, 13, 74, 151
- Web Map Service (WMS), 9, 10, 11, 12, 13, 15, 16, 17, 18, 73, 74, 123, 134, 138, 141, 142, 151, 157, 159, 175, 197, 221, 224, 255, 265
- Web Processing Service (WPS), 10, 196, 197, 198
- Web Server, 39, 131, 133, 134, 140, 141, 150, 223, 224, 227, 228, 254

Web services, 8, 9, 10, 15, 18, 74, 131, 132,
151, 174, 204, 205, 217, 219
Well Known Text (WKT), 31, 91, 112
Widget, 150, 240, 241, 242

Wiki, 10, 36, 43, 69, 193, 196
Wrappers, 80, 217, 224, 240, 242
Yahoo, 11, 82