

Index

- A**
- ACTION optional argument, MAP statement 124
 - actions 138
 - ADDRESS optional argument, COMPOSITE statement 92
 - ALIAS= optional argument
 - COPY statement 129
 - MOVE statement 131
 - SYNC statement 132
 - ANGLE= optional argument, LAYER statement 117
 - ARC/INFO data
 - data set composites 57
 - data set variables 57
 - filerefs 47, 52
 - importing 28
 - area layers 6
 - AREA optional argument
 - COMPOSITE statement 92
 - POLYGONAL INDEX statement 97
 - AREA= optional argument, LAYER statement 110, 116
 - areas 136
 - definition 136
 - SAS/GIS topology 136
 - attribute data 5, 135
 - assessing 13
 - linking to spatial data 20
 - SAS/GIS topology 138
 - storing 138
 - uses for 8
 - ATTRIBUTE optional argument, MAP statement 125
 - AV= parameter 75
- B**
- batch facility, geocoding data 72
 - BILATERAL optional argument, COMPOSITE statement 91
 - BLANK optional argument
 - COPY statement 129
 - MOVE statement 130
 - SYNC statement 132
 - BLENDCOLOR optional argument, LAYER statement 114, 115, 117
 - BLENDSIZE optional argument, LAYER statement 114
 - BLENDSPACING optional argument, LAYER statement 117
 - BLENDWIDTH optional argument, LAYER statement 115
 - boundary chains 136
- C**
- CARTESIAN optional argument
 - MAP statement 122
 - SPATIAL statement 87
 - catalog entries 142
 - copying 128
 - definition 142
 - moving 129
 - CATALOG statement, GIS procedure 84
 - Census Tract maps 41
 - CENTERLINE= optional argument, LAYER statement 109, 115
 - CENTROID optional argument, POLYGONAL INDEX statement 97
 - chains 56, 136
 - boundary 136
 - cycles 137
 - internal 136
 - chains data sets 56, 139
 - CHAINS= optional argument, SPATIAL statement 87
 - CHARACTER= optional argument, LAYER statement 114
 - CHECKPARENT optional argument, MOVE statement 130
 - CITY optional argument, COMPOSITE statement 93
 - class attributes 67, 146
 - CLASS= optional argument, COMPOSITE statement 91, 92
 - CLASS values 71
 - CLASSIFICATION optional argument, COMPOSITE statement 93
 - color coding maps 7
 - COLOR= optional argument, LAYER statement 114, 115, 116, 117
 - colors, map background 18
 - COMPOSITE= optional argument
 - LAYER statement 105, 113
 - MAP statement 126
 - POLYGONAL INDEX statement 97
 - COMPOSITE statement, GIS procedure 65
 - examples 94
 - syntax 89
 - composites 8, 145
 - See also* data set composites
 - class attributes 67
 - creating 90, 94
 - defining for imported data 36
 - definition 145
 - deleting 90
 - left/right type 91
 - modifying defaults 53
 - replacing 90
 - spatial databases 67
 - table of 37
 - updating 90, 146
 - variable associations 67
 - CONTENTS operation
 - CATALOG statement 84
 - COVERAGE statement 101
 - LAYER statement 104
 - MAP statement 120
 - SPATIAL statement 85
 - coordinate systems 87, 122
 - COPY optional argument, MAP statement 124, 125
 - COPY statement, GIS procedure 128
 - syntax 128
 - coverage 7
 - See also* GISCOVER catalog entries
 - nonuniversal 69
 - coverage entries 65, 143
 - See also* GISCOVER catalog entries
 - contents of 144
 - creating 101, 144
 - definition 143
 - deleting 101
 - displaying information about 100, 101
 - replacing 101
 - subsets, defining 103
 - universal, defining 103
 - updating 102, 144
 - COVERAGE= optional argument, MAP statement 122
 - COVERAGE statement, GIS procedure 100
 - examples 103
 - syntax 101
 - CREATE operation
 - COMPOSITE statement 90

COVERAGE statement 101
 LAYER statement 104
 MAP statement 120
 POLYGONAL INDEX statement 95
 SPATIAL statement 85
 CREATE optional argument
 LAYER statement 111
 MAP statement 125
 CV= parameter 75

D

data for SAS/GIS applications 5
See also attribute data
See spatial data
 data links
 copying 125, 127
 creating 125
 deleting 126
 renaming 126
 updating 126
 data set composites 57
 ARC/INFO data 57
 DLG data 57
 DXF data 57
 DYNAMAP data 57
 GENLINE data 57
 GENPOINT data 57
 GENPOLY data 57
 MapInfo data 57
 SAS/GRAPH data 57
 TIGER data 57
 data set variables 57
 ARC/INFO data 57
 DLG data 57
 DXF data 57
 DYNAMAP data 57
 GENLINE data 57
 GENPOINT data 57
 GENPOLY data 57
 MapInfo data 57
 SAS/GRAPH data 57
 TIGER data 57
 DATASET= optional argument
 LAYER statement 113
 MAP statement 126
 DATAVAR= optional argument
 LAYER statement 113
 MAP statement 126
 DEFAULT= optional argument, LAYER statement 108
 DEGREES optional argument
 MAP statement 122
 SPATIAL statement 87
 DELETE operation
 COMPOSITE statement 90
 COVERAGE statement 101
 LAYER statement 104
 MAP statement 120

POLYGONAL INDEX statement 96
 SPATIAL statement 85
 DELETE optional argument
 LAYER statement 112
 MAP statement 124, 126
 DESCRIPTION= optional argument
 COVERAGE statement 102
 LAYER statement 106
 MAP statement 122
 SPATIAL statement 88
 DESTCAT= optional argument
 COPY statement 128
 MOVE statement 130
 DESTLIB= optional argument
 COPY statement 129
 MOVE statement 130
 detail points 56
 DETAILON optional argument, LAYER statement 106
 details data sets 56, 141
 DETAILS optional argument
 LAYER statement 106
 MAP statement 122
 DETAILS= optional argument, SPATIAL statement 87
 DIRECTION_PREFIX optional argument, COMPOSITE statement 93
 DIRECTION_SUFFIX optional argument, COMPOSITE statement 93
 DLG (Digital Line Graph) data 28
 data set composites 57
 data set variables 57
 filerefs 47, 52
 importing 28
 DXF (Drawing Exchange File) data 29
 data set composites 57
 data set variables 57
 filerefs 47, 52
 importing 29
 DYNAMAP data
 data set composites 57
 data set variables 57
 filerefs 47, 52
 importing 29, 53

E

E00 files, importing 28
 EAST optional argument, SPATIAL statement 87
 EDGEMATCH merges 68, 88
 edgematching 68
 ENCLOSES optional argument, LATTICE statement 99
 ENTRYTYPE= optional argument
 COPY statement 128
 MOVE statement 130
 SYNC statement 131, 132

ERRORS= optional argument, POLYGONAL INDEX statement 97
 errors, logging 97

F

field value controls 10
 File Open window 11
 filerefs
 ARC/INFO data 47, 52
 DLG data 47, 52
 DXF data 47, 52
 DYNAMAP data 47, 52
 MapInfo data 47, 52
 SAS/GIS Batch Import 47
 TIGER data 47, 52
 FONT= optional argument, LAYER statement 114
 FORCE optional argument
 LAYER statement 108
 MAP statement 127
 POLYGONAL INDEX statement 98
 FROM= optional argument, MAP statement 125, 126
 from-nodes 56

G

%GCBATCH macro 74
 Generic input types, importing 47
 GENLINE data
 data set composites 57
 data set variables 57
 importing 34
 GENPOINT data
 data set composites 57
 data set variables 57
 importing 34, 50
 GENPOLY data
 data set composites 57
 data set variables 57
 importing 35
 geocoding, batch 71, 73
 addresses in spatial data 71
 AV= parameter 75
 batch facility 72
 CV= parameter 75
 example 76
 %GCBATCH macro 74
 GEOD= parameter 75
 GLIB= parameter 75
 hints and tips 77
 libref specification 75
 MNAME= parameter 75
 NEWDATA= parameter 75
 NV= parameter 76
 P4Z= parameter 76
 PV= parameter 76
 SV= parameter 76

- ZIPD= parameter 76
- ZV= parameter 76
- GEOD= parameter 75
- geographic information system (GIS) 3
- GEOLIB.USAM data set 73
- GEOLIB.USAP data set 73
- GEOLIB.USAS data set 73
- GIS (geographic information system) 3
- GIS actions
 - copying 124
 - deleting 124
 - updating 124
- GIS procedure 80
 - EDGEMATCH merges 88
 - invoking 83
 - OVERLAP merges 88
 - statements 84
 - statements, processing 81
- GIS Spatial Data Importing window 15, 24
 - command buttons 26
 - Import Type field 25
 - Input field 25
 - Output field 25
- GISCOVER catalog entries 65
 - creating 101
 - deleting 101
 - descriptive text 102
 - displaying information about 101
- GISLAYER catalog entries 66
 - descriptive text 106
 - displaying information about 104
- GISMAP catalog entries 66
 - creating 120
 - deleting 120
 - descriptive text 122
 - displaying information about 120
 - GIS actions 124
- GISSPA catalog entries 63
 - creating 85, 89
 - deleting 85
 - descriptive text 88
 - displaying information about 85
 - moving and renaming SAS data sets 86
 - replacing 86
 - selecting 84
 - spatial entries 64
 - updating 86, 89
- GLIB= parameter 75

H

- hiding layers 19

I

- IDVARn macro variable 47
- Import Type field 25
- IMP_TYPE macro variable 46

- INFILE macro variable 47
- input data type 46
- Input field 25
- internal chains 136
- internal pathnames, clearing
 - COPY statement 129
 - MOVE statement 130
 - SYNC statement 132

K

- KEEP optional argument
 - POLYGONAL INDEX statement 98
 - SPATIAL statement 88

L

- label data sets 56
- LABEL= optional argument, MAP statement 124
- LABELON= optional argument, LAYER statement 106
- LATLON optional argument
 - MAP statement 122
 - SPATIAL statement 87
- LATTICE statement, GIS procedure 65, 98
 - examples 100
 - syntax 99
- lattices 98
 - examples 100
- layer entries 66, 144
 - creating 104
 - definition 144
 - deleting 104
 - displaying information about 104
 - replacing 104
 - updating 105
- LAYER statement, GIS procedure 103
 - examples 118
 - syntax 104
- layers 6
 - areas 6
 - defining for imported data 38
 - defining with category variables 118
 - defining with composites 118
 - hiding 19
 - lines 6
 - modifying defaults 53
 - points 6
 - selecting for display 19
 - static 7
 - thematic 7
- LAYERS= optional argument, MAP statement 123
- LAYERS+= optional argument, MAP statement 123

- LAYERS-= optional argument, MAP statement 123
- LAYERSOFF= optional argument, MAP statement 123
- LAYERSOFF+= optional argument, MAP statement 123
- LAYERSOFF-= optional argument, MAP statement 123
- LAYERSON= optional argument, MAP statement 123
- LAYERSON+= optional argument, MAP statement 123
- LAYERSON-= optional argument, MAP statement 123
- LEGEND= optional argument, MAP statement 127
- LEVEL= optional argument, LAYER statement 114, 115, 116
- librefs 53
 - defaults 53
 - specifying 75
 - updating 131
- librefs, translating
 - COPY statement 129
 - MOVE statement 131
 - SYNC statement 132
- line data, importing 34
- line layers 6
- LINE= optional argument, LAYER statement 109
- lines 136
- LINK= optional argument, LAYER statement 112

M

- MAKE_CURRENT optional argument, LAYER statement 113
- map entries 66, 145
 - contents of 145
 - creating 120, 145
 - definition 145
 - deleting 120
 - displaying information about 120, 145
 - replacing 121
 - updating 121
- MAP optional argument, LAYER statement 106
- MAP statement, GIS procedure 119
 - examples 127
 - syntax 120
- MapInfo data
 - data set composites 57
 - data set variables 57
 - filerefs 47, 52
 - importing 31
- maps
 - background colors 18
 - Census Tract 41
 - color coding 7
 - coordinate systems 87, 122
 - creating 127

defaults 17
 detail level 20
 hemispheres 87, 88
 layers 6, 19
 physical details, and layers 6
 projections 17
 saving changes to 21
 scale mode 18
 selecting 11
 showing larger areas 68
 unit of measure 18
 updating 127

MERGE= optional argument, SPATIAL statement 68, 88

merged spatial entries 64, 142

merging spatial data 67
 benefits of 68
 EDGEMATCH merges 68
 edgematching 68
 hints and tips 69
 MERGE= optional argument 68, 88
 OVERLAP merges 68

MNAME= parameter 75

mouse 10

MOVE statement, GIS procedure 129

MULT= optional argument
 MAP statement 124
 SPATIAL statement 88

N

NAME optional argument, COMPOSITE statement 93

NAME= optional argument, MAP statement 125, 126

NEWDATA= parameter 75

NIDVARS macro variable 47

NLEVELS= optional argument, LAYER statement 113

nodes 136

nodes data sets 56, 141

NODES= optional argument, SPATIAL statement 88

NODETAILS optional argument
 LAYER statement 106
 MAP statement 122

nonuniversal coverage 69

NORTH optional argument, SPATIAL statement 88

NOT_CURRENT optional argument, LAYER statement 113

NOWARN optional argument, MAP statement 127

NV= parameter 76

O

OFFSCALE= optional argument, LAYER statement 106

ONSCALE= optional argument, LAYER statement 106

OUT= optional argument, POLYGONAL INDEX statement 98

OUTLINE= optional argument, LAYER statement 110, 117

Output field 25

OVERLAP merges 68, 88

P

P4Z= parameter 76

PLACE optional argument, COMPOSITE statement 93

PLUS4 optional argument, COMPOSITE statement 93

point layers 6

POINT= optional argument, LAYER statement 108, 114

points 136
 definition 136
 importing generic data for 34, 50
 SAS/GIS topology 136

polygon data
 chains 56
 generic, importing 35, 47

polygonal index data sets 56, 141
 creating 95
 definition 141
 deleting 96
 renaming/moving with host commands 98
 replacing 96
 updating 96

POLYGONAL INDEX statement, GIS procedure 65
 example 98
 syntax 95

polylines 139

POSITION= optional argument, LAYER statement 113

PROC GIS statement 81, 83

procedures 4
See GIS procedure

projections 17

pull-down controls 10

pull-out controls 10

PV= parameter 76

R

RADIANS optional argument
 MAP statement 122
 SPATIAL statement 87

RANGE= optional argument, LAYER statement 112

RENAME= optional argument, MAP statement 125, 126

RENAME_LAYER optional argument, MAP statement 126

REPLACE operation
 COMPOSITE statement 90
 COVERAGE statement 101
 LAYER statement 104
 MAP statement 121
 POLYGONAL INDEX statement 96
 SPATIAL statement 86

REPLACE optional argument
 COPY statement 129
 LAYER statement 111
 MOVE statement 130

RUN-group processing 81

S

SAS catalogs
 defaults 84
 displaying information about 84

SAS data sets 55
See also SAS/GIS data sets
 importing 33
 SAS indexes 55
 selecting 11

SAS/GIS Batch Import 45
 composites, modifying defaults 53
 error checking 53
 examples 49, 50
 Generic Import Types 47
 hints and tips 53
 IDVAR\in\l macro variable 47
 IMP_TYPE macro variable 46
 INFILE macro variable 47
 input data type 46
 input parameters 46
 layers, modifying defaults 53
 libref defaults 53
 NIDVARS macro variable 47
 output destination 48
 output parameters 48
 required filerefs 47
 SASGRAPH input 47
 SASHELP.GISIMP file 53
 starting 49

SAS/GIS data model 135

SAS/GIS data sets 56
See also spatial data
 chains 56
 chains data set 56
 data set variables 57
 detail points 56
 details data set 56
 from-nodes 56
 label data set 56
 nodes data set 56
 polygon index data set 56
 to-nodes 56

- SAS/GIS interface 10
 - field value controls 10
 - File Open window 11
 - mouse 10
 - pull-down controls 10
 - pull-out controls 10
 - starting SAS/GIS software 10
 - SAS/GIS software 12
 - starting 10
 - SAS/GIS spatial databases 138
 - SAS/GRAPH data
 - data set composites 57
 - data set variables 57
 - SAS/GRAPH map data sets, importing 31
 - SAS System features 4
 - SAS views 8, 55
 - SASGRAPH data, importing
 - example 50
 - macro variables for 47
 - SASHELP.GISIMP file 40, 53
 - scale mode 18
 - SECONDS optional argument
 - MAP statement 122
 - SPATIAL statement 87
 - SELECT optional argument
 - MOVE statement 131
 - SYNC statement 132
 - SELECT= optional argument, COPY statement 129
 - simple spatial entries 64, 142
 - SIZE= optional argument, LAYER statement 114
 - SOUTH optional argument, SPATIAL statement 88
 - SPACING= optional argument, LAYER statement 117
 - spatial data 5, 135
 - See also* layers
 - addresses in 71
 - CLASS values 71
 - composites 8
 - coverage 7
 - linking to attribute data 20
 - locating a source of 14
 - points, importing generic data for 34
 - requirements for 14
 - themes 20, 118
 - spatial data sets 138
 - spatial data, importing 15, 23
 - See also* GIS Spatial Data Importing window
 - See also* SAS/GIS Batch Import
 - ARC/INFO data 28
 - composites 36, 37
 - DLG data 28
 - DXF data 29
 - DYNAMAP data 29
 - E00 files 28
 - GENLINE data 34
 - GENPOINT data 34
 - GENPOLY data 35
 - layers, defining 38
 - line data, generic 34
 - MapInfo data 31
 - point data, generic 34
 - polygon data, generic 35
 - process for 27
 - SAS data sets 33
 - SAS/GRAPH map data sets 31
 - SASHELP.GISIMP file 40
 - spatial data, generic 33
 - TIGER data 32
 - spatial databases 138
 - See also* catalog entries
 - areas 136
 - catalog entries 142
 - chains data sets 139
 - class attributes 146
 - common variables 138
 - COMPOSITE statement 65
 - composites 67, 145
 - coverage entries 143
 - definition 138
 - designing 9
 - details data sets 141
 - LATTICE statement 65
 - layer entries 144
 - lines 136
 - managing size of 56
 - map entries 145
 - merging 89
 - nodes data sets 141
 - points 136
 - polygonal index data sets 141
 - POLYGONAL INDEX statement 65
 - sample code for 69
 - SAS/GIS data model 135
 - spatial entries 142
 - structure 138
 - variable associations 145
 - variable linkages 139
 - spatial entries 142
 - contents of 142
 - creating 85, 143
 - definition 142
 - deleting 85
 - displaying information about 85, 143
 - merged 64, 142
 - replacing 86
 - simple 64, 142
 - updating 86, 143
 - SPATIAL= optional argument, COVERAGE statement 102
 - SPATIAL statement, GIS procedure 84
 - examples 89
 - syntax 85
 - STATIC optional argument, LAYER statement 107
 - STYLE= optional argument, LAYER statement 115, 116, 117, 118
 - SV= parameter 76
 - SYNC statement, GIS procedure 131
- ## T
- THEMATIC optional argument, LAYER statement 107
 - THEME= optional argument, LAYER statement 111
 - themes 20
 - creating 111, 118
 - deleting 112
 - replacing 111
 - updating 111, 119
 - THEMEVAR= optional argument, LAYER statement 112
 - TIGER data 32
 - data set composites 57
 - data set variables 57
 - filerefs 47, 52
 - importing 32, 49, 53
 - to-nodes 56
 - topological completeness 137
 - topological errors, logging 97
 - topological-geometric consistency 137
 - topology 136
 - areas 136
 - attribute data 138
 - chains 136
 - errors 137
 - lines 136
 - nodes 136
 - points 136
 - topological completeness 137
 - topological-geometric consistency 137
 - TYPE optional argument, COMPOSITE statement 93
 - TYPE= optional argument, LAYER statement 107
- ## U
- unit of measure, selecting 18
 - UNITS optional argument, LAYER statement 107
 - UPDATE operation
 - COMPOSITE statement 90
 - COVERAGE statement 102
 - LAYER statement 105
 - MAP statement 121
 - POLYGONAL INDEX statement 96
 - SPATIAL statement 86
 - UPDATE optional argument
 - LAYER statement 111
 - MAP statement 124, 126

V

VAR= optional argument, COMPOSITE statement 91, 94
variable associations 67, 145
variable linkages 139

W

WEST optional argument, SPATIAL statement 87
WHEN= optional argument, MAP statement 125
WHERE= optional argument
 COVERAGE statement 102

LAYER statement 108
WIDTH= optional argument, LAYER statement 115, 116, 117

X

X optional argument, COMPOSITE statement 93

Y

Y optional argument, COMPOSITE statement 93

Z

ZIP codes
 geocoding 76
 PLUS4 optional argument, COMPOSITE statement 93
 ZIPCODE optional argument, COMPOSITE statement 93
ZIPCODE optional argument, COMPOSITE statement 93
ZIPD= parameter 76
ZV= parameter 76