

Aliases and Short Names

Features

GNE Version 8.2 allows aliases for entity names and attribute names. For example, the "Volume A ==> B" attribute might have an alias of "VolumeAB". Aliases have a maximum of 10 alphanumeric characters and do not include blanks or special characters. Aliases are given to GNE in the application schema section and are saved with the network. Some QRS II application schemas have predefined aliases. Aliases are not case sensitive, but mixing upper and lower case letters can improve readability.

Aliases should be unique within a single entity type, but can be repeated across different entity types, as a convenience. Thus, it is permissible to have an alias of "TTimeAB" both on one-way streets and on centroid connectors. Aliases for system attributes should be entirely unique, since they can be mixed with aliases for node or link attributes within expressions. Aliases have three purposes within GNE.

- Shapefiles (actually, the database, dbf, component of a shapefile) will be annotated with aliases when written by GNE. Also, the names of layers will contain the aliases for entity types.
- Aliases may appear in all GNE expressions instead of the old two character variable names, such as A3 and S5.
- Aliases may appear in Extract/Update format strings. When using aliases in these strings, they must be separated by commas.

For Extract/Update, only, GNE defines short names for various properties. These short names may be included in Extract/Update format strings. When used in format strings, they must be separated by commas. (The space character is no longer defined by Extract/Update to denote a blank field, so it is possible to use spaces to improve readability of format strings.) Tables 1 and 2 contain a full set of short names. "Alias" in these tables indicates that an alias may be used to denote an attribute value.

Table 2. Extract Short Names

Code	Short Name	Description of Field
{	Blank1	Blank field, " "
0	Zero	Zero, " 0"
1...9	<i>Alias</i>	Value of that attribute
a...z	<i>Alias</i>	Value of the 10th to 35th attribute
B	NName	Entity name
B	LName	Entity name
C	Width1	Value of the first link width expression
C	Size1	Value of the first node size expression
]	Width1	Value of the second link width
]	Size2	Value of the second node size expression
D	EName	Entity type name
E	CName	Entity class, "NODE " or "LINK "
F	Serial	Internal node serial number (nodes only)
G	SerialA	Internal A-node serial number (links only)
H	SerialB	Internal B-node serial number (links only)
I	BNodeX	B-node X coordinate (links only)
J	BNodeY	B-node Y coordinate (links only)
K	Entity	Entity type serial number (1...10)
L	Length	Length of link in pixels (links only)
M	Area	Polygon area (nodes only);
O	PStyle	Polygon style number (0 ... 40, nodes only)
P	NNameA	A-node name (links only)
Q	NNameB	B-node name (links only)
S	Vertices	Number of vertices in a polygon (nodes only)
	Shapes	Number of link shape points (links only)
T	Font	Label font code (0...10)
U	Label1	First label (0...35, 101...110 if node; 0...35, 101...107 if link)
V	Label2	Second label (0...35, 101...110 if node; 0...35, 101...107 if link)
W	Place	Label place (0...7)
X	NodeX	Node X coordinate, integer (if node)
	ANodeX	A-node X coordinate, integer (if link)
Y	NodeY	Node Y coordinate, integer (if node)
	ANodeY	A-node Y coordinate, integer (if link)
Z	Suppress	Label suppress (0..1)
\$	Chain	Length of open polygon chain (nodes only)

@	Perimeter	Perimeter of polygon (nodes only)
^	CentroidX	X coordinate of polygon centroid (nodes only)
_	CentroidY	Y coordinate of polygon centroid (nodes only)
[Layer	Layer (nodes only)
}	Coord	Coordinates of all polygon vertices (nodes only)
	Coord	Coordinates of all shape points (links only)
-	Long	Longitude (decimal degrees) (if node)
	Lat	Latitude (decimal degrees) (if node)
;	Elev	Elevation (user units) (if node)
~	Orient	Polygon is clockwise (0 = no; 1 = yes)
(Note1	First "note" (up to 30 characters)
)	Note2	Second "note" (up to 30 characters)

Table 2. Update Short Names

Code	Short Name	Description of Field
{	Blank	Ignore field of 11 characters
+	Blnk3	Ignore field of 33 characters
=	Blnk10	Ignore field of 110 characters
1...9	<i>Alias</i>	Value of that attribute
a...z	<i>Alias</i>	Value of the 10th to 35th attribute
B	NName	Node entity name
	LName	Link entity name
K	Entity	Entity type serial number (1...10)
O	PStyle	Polygon style number (0 ... 40, if node)
P	NNameA	A-node name (new links only)
Q	NNameB	B-node name (new links only)
S	Vertices	Number of polygon vertices to follow (if node)
	Shapes	Number of shape points to follow (if link)
T	Font	Label font code (0...10)
U	Label1	First label (0...35, 101...105 if node; 0...35, 101...103 if link)
V	Label2	Second label (0...35, 101...105 if node; 0...35, 101...103 if link)
W	Place	Label place (0...7)
X	NodeX	Node X coordinate, may be real-valued (if node)
Y	NodeY	Node Y coordinate, may be real valued (if node)
Z	Suppress	Label suppress (0..1)
[Layer	Layer (1..10 if node)
}	Coord	Vertex coordinate pairs (if node)
	Coord	Shape point coordinate pairs (if link)
-	Long	Longitude (decimal degrees) (if node)
	Lat	Latitude (decimal degrees) (if node)
;	Elev	Elevation (user units) (if node)

Properties in expressions are still defined by the two-character names, e.g., "nm" or "NM" is still the area of a polygon. The property names for Extract/Update are not available in expressions.

Examples

Aliases are definable by the user, but some QRS II application schemas have aliases already in them. These application schemas are:

QRSDynamic9.dta
QRSDynamicUK9.dta

QRSExtended9.dta
QRSExtendedUK9.dta
QRSTransit9.dta

The "9" indicates that these schemas are compatible with GNE version 8.2 or later.

Example 1. Extract/Update Format String

The following format string on two-way streets will extract the street name, the speed, and the capacity in the A to B direction and the length of the link:

LName,Speed,CapacityAB,Length

which is functionally identical to the old style:

B27L

Because the aliases in the new-style string (Speed, CapacityAB) are identical to those on one-way street links, this format string will have an identical behavior on one-way street links. Note that the old style format for one-way streets (B25L) would have differed, because Capacity A to B is the fifth attribute. Further note how commas are used to separate short names and aliases from each other.

Example 2. Link Width Expressions

This example illustrates an expression to enable displaying link widths as a function of the number of lanes as inferred from the capacity attributes. For one-way streets, there is need for only one expression, so the number of lanes can be approximated by:

$\text{round}(\text{CapacityAB}/1800)$

For two-way streets, there is a need to show lanes on both sides of the road, so two expressions are needed (with QRSDynamic.dta):

$\text{round}(\text{CapacityAB}/1800) : \text{round}(\text{CapacityBA}/1800)$

These expressions will produce identical results to the old style:

$\text{round}(\text{A5}/1800)$

and

$\text{round}(\text{A7}/1800) : \text{round}(\text{A9}/1800)$

Example 3. Calculating Travel Time on Links from Speeds

The following statement will calculate travel times, A to B, on two-way street links from the given speed on the link, the link length in pixels and the scale of the network.

$$TTimeAB = 60 * LL / (Speed * Scale)$$

Where "Scale" is an alias for a system attribute. The statement will have the same affect as the old style statement:

$$A3 = 60 * LL / (A2 * S5)$$

Again, since many link types share certain aliases, the new style expression will work correctly on two-way streets and centroid connectors, even though the orders of attributes differ.