

Native File Format for Graphs

The native file format for graphs consists of several lines which are separated by `endl`. Comment-lines have a `#` character in the first column and are ignored. The output can be partitioned in three sections:

Header Section

The first line always contains the string `LEDA.GRAPH`. If the graph type is not parameterized, i.e. `graph`, the following two lines both contain the string `void`. In case the graph is parameterized, i.e. `GRAPH`, these lines contain a description of the node type and the edge type. The fourth line specifies if the graph is either `directed (-1)` or `undirected (-2)`.

Nodes Section

The first line contains `n`, the number of nodes in the graph. The nodes are ordered and numbered according to their position in the node list of the graph. Each of the following `n` lines contains the information which is associated with the respective node of the graph. When the information of a node (or an edge) is sent to an output stream, it is always enclosed by the strings `{` and `}`. If the graph is not parameterized, then the string between these parantheses is empty, so that all the `n` lines contain the string `{ }`.

Edges Section

The first line contains `m`, the number of edges in the graph. The edges of the graph are ordered by two criteria: first according to the number of their source node and second according to their position in the adjacency list of the source node. Each of the next `m` lines contains the description of an edge which consists of four space-separated parts:

1. the number of the source node
2. the number of the target node
3. the number of the reversal edge or 0, if no such edge is set
4. the information associated with the edge (cf. nodes section)

Note: For the data type `planar_map` the order of the edges is important, because the ordering of the edges in the adjacency list of a node corresponds to the counter-clockwise ordering of these edges around the node in the planar embedding. And the information about reversal edges is also vital for this data type.

Example of a Graph

The following lines show a graph in native file format. It consists of five nodes and seven edges. The nodes have a parameter of type string and the edges have a parameter of type int.

```
#header section
LEDA.GRAPH
string
int
-1
#nodes section
5
|{v1}|
|{v2}|
|{v3}|
|{v4}|
|{v5}|

#edges section
7
```

See
also:

[GML
Parser for
Graphs](#)

[Graphs
and
Related
Data
Types](#)

[GraphWin
File
Format](#)

[GraphWin](#)

Manual
Entries:

[GML
parser for
Graphs](#)

1	2	0		{4}	
1	3	0		{3}	
2	3	0		{2}	
3	4	0		{3}	
3	5	0		{7}	
4	5	0		{6}	
5	1	0		{1}	

Example of how to use GML format and native graph file format

Strength

- fast

Disadvantage

- not portable

Tips

- Use the native format if you need to store a LEDA graph or [GraphWin](#)

Document URL: http://www.algorithmic-solutions.info/leda_guide/graphs/leda_native_graph_fileformat.html;

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Please send any suggestions, comments or questions to leda@algorithmic-solutions.com

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