NAME
gvgen − generate graphs

SYNOPSIS
gvgen [ -dv? ] [ -i n ] [ -c n ] [ -x,y ] [ -g f x,y ] [ -h n ] [ -kn ] [ -x,y ] [ -M x,y ] [ -p n ] [ -r x,y ] [ -Rx x,y ] [ -Sn n ] [ -Sn,d n ] [ -Td,n ] [ -T x,y ] [ -T x,y,u,v ] [ -w n ] [ -n prefix ] [ -N name ] [ -o outfile ]

DESCRIPTION
gvgen generates a variety of simple, regularly-structured abstract graphs.

OPTIONS
The following options are supported:
-c n Generate a cycle with n vertices and edges.
-C x,y Generate an x by y cylinder. This will have x*y vertices and 2*x*y - y edges.
-g f x,y Generate an x by y grid. If f is given, the grid is folded, with an edge attaching each pair of opposing corner vertices. This will have x*y vertices and 2*x*y - y - x edges if unfolded and 2*x*y - y - x + 2 edges if folded.
-G f x,y Generate an x by y partial grid. If f is given, the grid is folded, with an edge attaching each pair of opposing corner vertices. This will have x*y vertices.
-h n Generate a hypercube of degree n. This will have 2^n vertices and n*2^(n-1) edges.
-k n Generate a complete graph on n vertices with n*(n-1)/2 edges.
-b x,y Generate a complete x by y bipartite graph. This will have x+y vertices and x*y edges.
-B x,y Generate an x by y ball, i.e., an x by y cylinder with two "cap" nodes closing the ends. This will have x*y + 2 vertices and 2*x*y + y edges.
-m n Generate a triangular mesh with n vertices on a side. This will have (n+1)*n/2 vertices and 3*(n-1)*n/2 edges.
-M x,y Generate an x by y Moebius strip. This will have x*y vertices and 2*x*y - y edges.
-p n Generate a path on n vertices. This will have n-1 edges.
-r x,y Generate a random graph. The number of vertices will be the largest value of the form 2^n-1 less than or equal to x. Larger values of y increase the density of the graph.
-R x Generate a random rooted tree on x vertices.
-s n Generate a star on n vertices. This will have n-1 edges.
-S n Generate a Sierpinski graph of order n. This will have 3*(3^(n-1) + 1)/2 vertices and 3^n edges.
-S n,d Generate a d-dimensional Sierpinski graph of order n. At present, d must be 2 or 3. For d equal to 3, there will be 4*(4^(d-1) + 1)/2 vertices and 6 * 4^(d-1) edges.
-t n Generate a binary tree of height n. This will have 2^n-1 vertices and 2^n-2 edges.
-t h,n Generate an n-ary tree of height h.
-T x,y
-T x,y,u,v Generate an x by y torus. This will have x*y vertices and 2*x*y edges. If u and v are given, they specify twists of that amount in the horizontal and vertical directions, respectively.
-w n Generate a path on n vertices. This will have n-1 edges.
-i n Generate n graphs of the requested type. At present, only available if the -R flag is used.
-n prefix
   Normally, integers are used as node names. If prefix is specified, this will be prepended to the integer to create the name.

-N name
   Use name as the name of the graph. By default, the graph is anonymous.

-o outfile
   If specified, the generated graph is written into the file outfile. Otherwise, the graph is written to standard out.

-d
   Make the generated graph directed.

-v
   Verbose output.

-?
   Print usage information.

EXIT STATUS
   gvgen exits with 0 on successful completion, and exits with 1 if given an ill-formed or incorrect flag, or if the specified output file could not be opened.

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SEE ALSO
   gc(1), acyclic(1), gvpr(1), gvcolor(1), ccomps(1), sccmap(1), tred(1), libgraph(3)