Graphviz Graphs from text

CONCEPTS

Edges use → in digraph and -- in graph; mixing them is a syntax error.

DOT text .gv / .dot
↓ dot
Layout positions
↓ -T<fmt>
Output svg, png, pdf

Pick the engine by graph shape: dot for hierarchies, neato/fdp for networks, circo for rings.

Quote any ID with spaces or dashes: "my node". Keywords like node or edge need quotes too.

COMMAND LINE

dot -T*fmt* *file* -o *out*
Render with an explicit format

dot -Tsvg *file* > *out*.svg
Render SVG to stdout redirect

dot -Kneato -Tpng *file* -o *out*
Choose layout engine by name

neato / fdp / circo / twopi
Alternative layout programs

dot -Gkey=value *file*
Set a graph attribute

dot -V
Show version

GRAPH BASICS

digraph G { ... }
Directed graph body

strict digraph G { ... }
Merge duplicate edges

a → b → c
Chain of edges

a → {b c d}
One source, many targets

a [label="Name"]
Node with display text

a → b [label="x"]
Edge with a label

// ... /* ... */ # ...
Comment forms

GRAPH BASICS (cont.)

"two words"
Quote IDs with spaces

label="line1\nline2"
Line break in a label

node [shape=box]
Set node defaults from here on

graph [bgcolor=white]
Set graph-wide attribute

NODES

shape=box
Rectangle node

shape=circle / diamond
Circle or decision diamond

shape=record
Field-split box

shape=plaintext / none
Text with no outline

style=filled fillcolor=*c*
Fill node colour

color=*c* penwidth=*n*
Outline colour and width

fontname=*f* fontsize=*n*
Font face and size

EDGES

style=dashed / dotted
Line style

dir=both
Arrowheads on both ends

dir=none
No arrowheads

arrowhead=*type*
Arrow style at head

constraint=false
Edge ignored for ranking

weight=*n*
Keep edge short and straight

splines=ortho
Right-angle edge routing

LAYOUT AND GROUPS

rankdir=LR
Left to right (TB default)

{rank=same; a; b}
Put nodes on one rank

LAYOUT AND GROUPS (cont.)

subgraph cluster_*n* { ... }
Box group; name must start cluster

label="*t*"; style=filled;
Style the cluster box

nodesep=*in* ranksep=*in*
Spacing between nodes and ranks

ratio=*r* size="*w*,*h*"
Constrain overall size

Layout engines

Engine	Best for
dot	Layered hierarchies, flows
neato	Spring model, small graphs
fdp	Springs with clusters
sfdp	Very large graphs
circo	Circular layouts
twopi	Radial from a root

COLOURS AND LABELS

color="#rrggbb"
Hex colour

label=<bold>
HTML-like label

RECIPES

Flowchart left to right

```
digraph G {
  rankdir=LR; node [shape=box,
style=rounded];
  start → build → test →
deploy;
  test → build [label="fail",
style=dashed];
}
```

Cluster with shared rank

```
digraph G {
  subgraph cluster_a
{ label="Backend"; api; db; }
  web → api → db;
  {rank=same; web; cache}
}
```

Record node with ports

```
digraph G {
  node [shape=record];
  t [label="{name|<id>id|
<fk>owner}"];
  u [label="{user|<id>id}"];
  t:fk → u:id;
}
```

Batch render a folder

```
for f in *.gv; do
  dot -Tsvg "$f" -o
"${f%.gv}.svg"
done
```