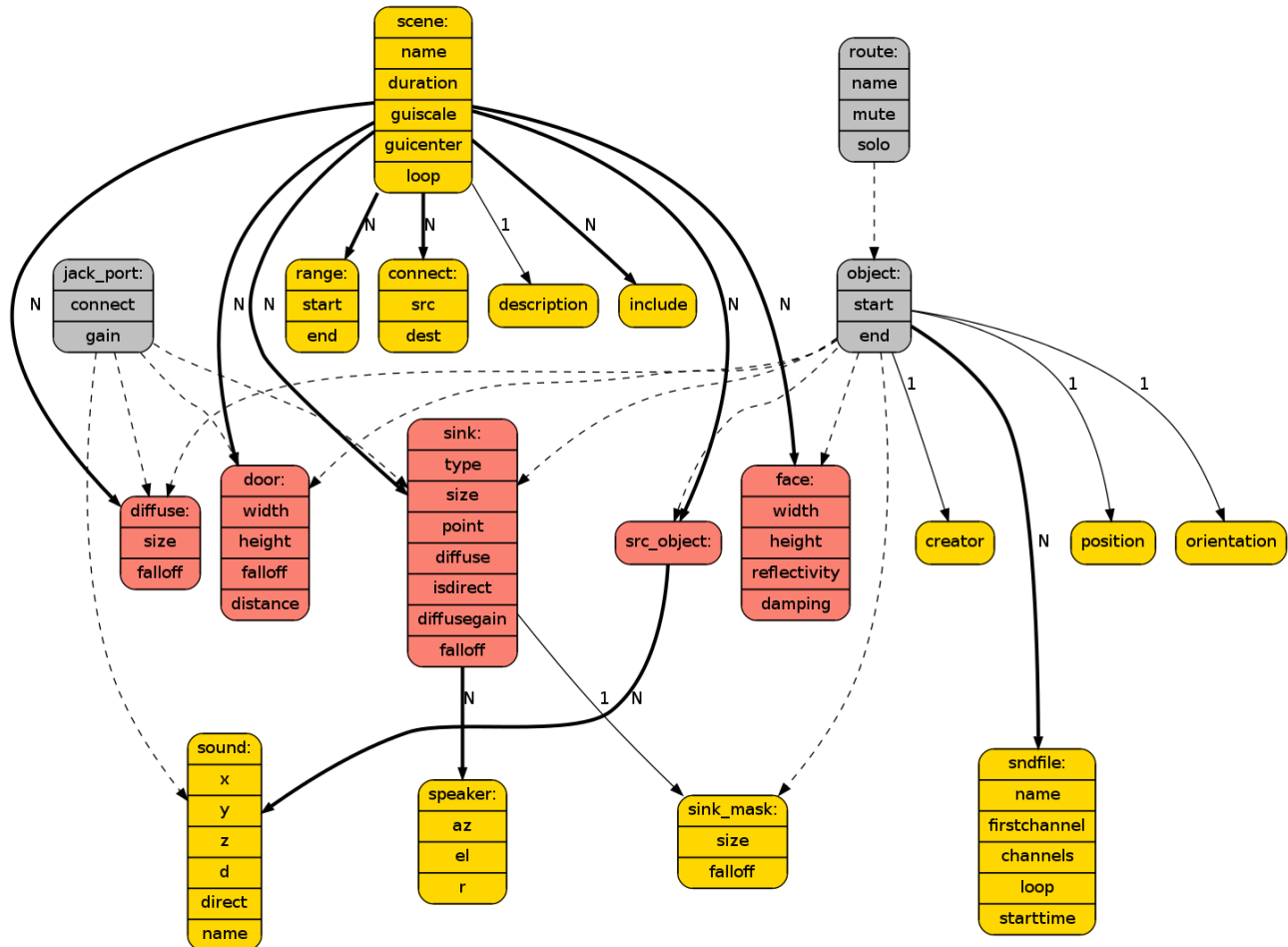# Specification of TASCAR file format

TASCAR is a toolbox for acoustic scene creation and rendering. Acoustic scenes are stored in a scene definition file in XML format together with a list of sound files. Scenes can be defined either manually or with the help of scene creation tools (e.g., GPS track manipulation and conversion tools, blender 3D authoring tool).

Solid arrows: Sub-nodes; dashed arrows: attribute inheritance

scene

Top-level node of a TASCAR scene definition (tsc) file.

Valid attributes:

name	Name of scene
duration	Duration of scene in seconds; default: 60
guiscale	Display scaling in meter; default: 200
guicenter	Display center (x, y, z) in meter; default: 0 0 0
loop	Loop scene (true|false); default: false

Valid sub-nodes:
src_object, sink, diffuse, door, face, range, connect, description, include

src_object

Define an object with sound sources.

Valid attributes:

name	Name of a source object
mute	Mute object (true|false); default: false
solo	Solo object (true|false); default: false
start	Render activity start time in seconds; default: 0
end	Render activity end time in seconds; default: 0

The render activity is limited to the interval [start,end] if end > start.

Valid sub-nodes:
position, orientation, creator, sndfile, sound

sink

Valid attributes:
name, mute, solo, start, end (see above)

connect	Connection to jack port
gain	Gain of jack port in dB; default: 0
type	Sink type (omni|cardioid|amb3h3v|amb3h0v|nsp)
size	Size of box in which no distance-rule is applied (x,y,z in m); default: 0 0 0
point	Render point sources (true|false); default: true
diffuse	Render diffuse sources (true|false); default: true
isdirect	Render direct sources (true|false); default: true
diffusegain	Gain applied to diffuse sources in dB; default: 0
falloff	Length of Hanning ramp in m, or -1 for normal distance model; default: -1

diffuse

name, mute, solo, start, end (see above)

connect	Jack connection of port
gain	Gain of jack port in dB; default: 0
size	Size of box in which the diffuse source is audible; default: 1 1 1
falloff	Length of Hanning ramp outside of box in m; default: 1

face

name, mute, solo, start, end (see above)

width	Width of rectangular reflector in m; default: 1
height	Height of rectangular reflector in m; default: 1
reflectivity	(currently unused; default: 1)
damping	(currently unused; default: 0)

door

name, mute, solo, start, end (see above)

connect	Jack connection of port
gain	Gain of jack port in dB; default: 0
width	Width in m; default: 1
height	Height in m; default: 2
falloff	Length of Hanning ramp when passing the door; default: 1
distance	Distance of virtual summed source in m; default: 1

sound

connect	Jack connection
gain	Gain of jack port in dB; default: 0
x,y,z	Relative position to object; default: 0
d	Distance from object along motion path; default: 0
direct	treat sound as direct sound (true) or mirrored sound (false); default: true
name	Name of sound

sndfile

name	Sound file name (can be any libsndfile supported file type)
firstchannel	First channel in sound file to be used; default: 0
channels	Number of channels to be used; default: 1
loop	Loop count, or 0 to loop infinitely; default: 1
starttime	Start time in sound file in seconds (negative values: start with zeros); default: 0

creator

load, origin, addpoints,velocity, rotate, scale, translate, smooth, resample, trim, time

```
                          ┌─────────────────────┐
                          │       load:         │
                          ├─────────────────────┤
                          │       name          │
                          ├─────────────────────┤
                          │  format (gpx,csv)   │
                          └─────────────────────┘

                       ┌────────────────────────────┐
                       │         origin:            │
                       ├────────────────────────────┤
                       │    src (center,trkpt)      │
                       ├────────────────────────────┤
                       │ mode (tangent,translate)   │
                       └────────────────────────────┘

                          ┌─────────────────────┐
                          │     addpoints:      │
                          ├─────────────────────┤
                          │  format (trkpt)     │
                          └─────────────────────┘

                            ┌───────────────┐
                            │   velocity:   │
                            ├───────────────┤
                            │     const     │
                            ├───────────────┤
                            │    csvfile    │
                            ├───────────────┤
                            │     start     │
                            └───────────────┘

                            ┌───────────────┐
                            │    rotate:    │
                            ├───────────────┤
                            │     angle     │
                            └───────────────┘

                            ┌───────────────┐
                            │    scale:     │
                            ├───────────────┤
                            │      x        │
                            ├───────────────┤
      ┌───────────┐         │      y        │
      │ creator:  │─────────├───────────────┤
      └───────────┘         │      z        │
                            └───────────────┘

                            ┌───────────────┐
                            │  translate:   │
                            ├───────────────┤
                            │      x        │
                            ├───────────────┤
                            │      y        │
                            ├───────────────┤
                            │      z        │
                            └───────────────┘

                            ┌───────────────┐
                            │   smooth:     │
                            ├───────────────┤
                            │      n        │
                            └───────────────┘

                            ┌───────────────┐
                            │  resample:    │
                            ├───────────────┤
                            │      dt       │
                            └───────────────┘

                            ┌───────────────┐
                            │    trim:      │
                            ├───────────────┤
                            │    start      │
                            ├───────────────┤
                            │     end       │
                            └───────────────┘

                            ┌───────────────┐
                            │    time:      │
                            ├───────────────┤
                            │    start      │
                            ├───────────────┤
                            │    scale      │
                            └───────────────┘
```