Simutrans

Pak 128 Nordic

Rev. 28

Table of Contents

Preface

Pak 128 Nordic is currently a pakset for Simutrans Extended edition. The focus is mainly on Sweden, but are not excluding the other Nordic countries. The basic rule is that design and look has priority over reality.

General guidelines

These are common for everything in this pakset, unless specific stated otherwise.

Style

The graphic feel and look should be clean and not cluttered. Don't use photo images as textures because if it doesn't look 100% photo realistic, it only looks awkward. Since there is no real perspective, it can never look photo realistic. However, a photo can be used as a template or base to produce a clean, less detailed texture.

A guide line is to look at the Standard 128 and the Comic paks. The simplicity shall be in between the two paks.

Dimensions and Scale

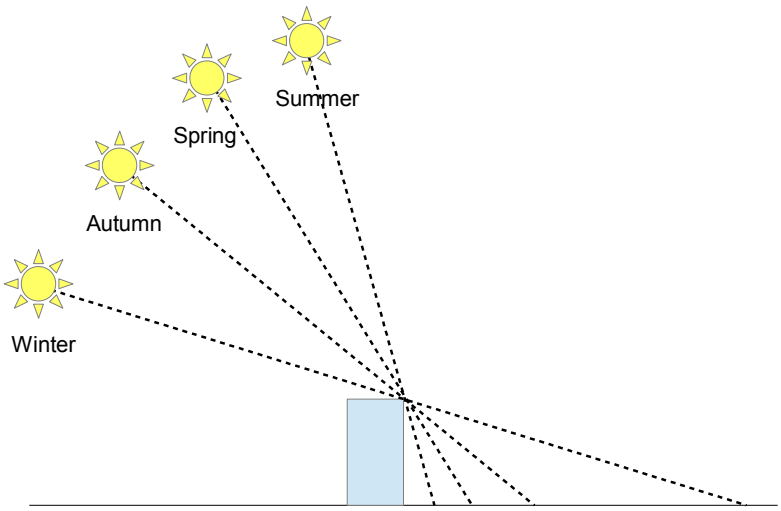
A tile is 128x128 pixels in RGB565 (16bit). Trains are scaled to 24m/tile and yields a 1.5 pixels per Simutrans step. Buildings will have a different scale of 20m/tile as a base and adjusted if the building needs tweaking to look good.

Light

In Standard Simutrans it is said that the sun is 60° from the south and there is always a clear sky. The fact that the Nordic countries are further up in the north means the sun has different angles depending on season. To capture this, the Nordic pack will have different set of shadows for summer and winter, reflecting the suns position in the sky at 12:00 o'clock.

The sun

To make the pack consistent, the sun's angle are calculated from longitude 57°42'00.0"N Latitude 16°00'00.0"E which is the ruff middle between Copenhagen, Oslo, Stockholm and Helsinki. For each season the middle date has been chosen at 12:00 o'clock.



Season	Sun's angle	Shadow factor
Spring	42.41°	0.91
Summer	54.52°	1.4
Autumn	23.29°	0.43
Winter	11.72°	0.21

Shadows

The shadow lengths are calculated by $shadow\,length = \frac{object\,height}{\tan(sun\,angle)}$ and going from south to north. To calculate the shadow length, take the object height and divide it with the shadow factor from the table above.

Example: An 8 pixel heigh wall casts a 8/1.4 = 5.7 pixel long shadow in the Summer and 8/0.21 = 38 pixel shadow in the winter.

Although Simutrans sun is defined to always be in the south, the shadows gets a bit boring. A suggestion would be to redefine the sun position in such a way that the shadows are a little bit off but still in an angle that makes it easy to paint by hand.

Sun colors

When the sun is at a low angle, the Rayleigh scattering shifts the colors towards red (due to scattering of green and blue wavelengths). This means that all surfaces are receiving more red light. This can be simulated in two ways; either we intensify the red color component, or decrease the green and blue color components with a factor depending on the season.

One exception to this is the winter because the snow is reflecting the UV light and shifts the colors towards blue in addition to the red. This can be done by using a different factor for blue during winter.

While it is near impossible to calculate the true color shift, a number of color samples was made from photographs taken at daylight during the four seasons. By looking at the RGB composition in a grey area a ruff estimate could be done. The smallest difference between all the seasons are at 12:00 o'clock. It might only be useful to use a normal color scale for summer and then just increase the blue component about 1.1 to 1.2 in the Winter.

SketchUp to Blender

To export the drawings select “File->Export 3D...” and 3D Studio Max (.3ds) as filter. Click options and use Meter as unit and uncheck everything except “selection”.

In blender set unit to Meter and scale to 24 if you want to use 1 blender unit per tile, or 12 if you use 2 blender units per tile (or whatever scale you need to translate correctly).

Import .3ds and your SctechUp Drawing should be in the right scale (24m/tile).

Trains

This section applies to train related vehicles and buildings for “normalspå” (1435mm), unless stated otherwise.

Tracks

We use the standard “normalspår” of 1435mm. For narrow gauge there are a few to choose from, see “Narrow Gauge” for more information.

Platforms

There are 3 sizes on platforms in Sweden; Low, medium and high. The low and medium are used for passengers while high is used for goods loading/unloading.

In this pakset we will use the medium for passengers/mail and high for goods. The differences are the height of the platform above the track (RÖK).

Platform	RÖK
Medium	580mm
Large	730mm

The distance from track-centre to platform is always 1700mm.

Narrow gauge

In Sweden there where a few number of standards. We need to decide which one to use.
TBD.