

GOSPLAN 2.0 · OPEN PLANNING

A digital twin of the Kremlin from open data

The Kremlin, Manezhnaya and Red Square assembled into a 3D model from OpenStreetMap by a script: 5,472 outlines, 4,227 with height, 100 domes. Three walks, a scene passport, an honest list of what the data lacks.

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Source: <https://gosplan2.ru/en/digital-twin>

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Visualisation from OpenStreetMap data, neither a photograph nor a project. Data © OpenStreetMap contributors, ODbL. Buildings are raised to tagged heights, domes and spires follow roof shapes; what the data lacks is absent here too. Scene passport

Assembled in minutes

Everything in the frame is from OpenStreetMap: 5,472 outlines, 4,227 with height, 2,982 with roof shape. Not a single line is hand-drawn; the script builds the model from the extract in seconds.

Why the Kremlin

The most thoroughly mapped place in the country: towers described tier by tier with heights from and to, domes given a shape. This is the ceiling of what open data gives today.

What the data lacks

The Manezhnaya renovation with its planted beds, underground volumes, terrain. The twin shows the state on the extract date, not what has been promised. The Kremlin and Manezhnaya Square assembled from open data Everything in the frames on this page was built by a script from OpenStreetMap without a single hand-drawn line: 5,472 outlines of buildings and their parts, 4,227 of them with height, 2,956 with facade colour and 2,982 with roof shape; 1,918 trees, 1,631 of them with species; 4,629 road segments. Extract of 6 September 2026. The Kremlin was not chosen for beauty. It is the most thoroughly mapped place in the country: towers are described tier by tier with heights from and to, domes have shapes, facades have colours. The twin shows the ceiling of what open data gives today, and by contrast how little of it a typical quarter has, where the same task stands.

What comes from the data and what it lacks

Taken from the data, verifiable

- — Building outlines and heights: the height tag, otherwise the number of floors, otherwise a default by building type; which rule applied is recorded in the passport.
- — Facade colours from building:colour; parts without a colour inherit their building's.
- — Tented and pyramidal roofs, domes and onion domes from roof:shape and roof:height; gold only on churches.
- — Trees as natural=tree points with coordinates; green and water areas; roads with widths by class.

- — The Kremlin wall as building=wall polygons with heights per section; the Kitay-gorod wall as a line at a default 6 m.

Absent from the data, absent from the twin

- — The Manezhnaya renovation project with planted beds and glass domes: it is not on the map, and the twin does not invent it.
 - — Underground volumes: Okhotny Ryad is tagged underground and is not shown on the surface.
 - — People, cars, signs, stone texture: the scene shows volumes, not life.
 - — Terrain: the site is taken as flat; the drop to the embankment was not modelled.
 - — Details under a square metre: 1,350 kokoshniks and pinnacles are skipped; they exist in the data but do not read in the frame. Visualisation from OpenStreetMap data, neither a photograph nor a project. Data © OpenStreetMap contributors, ODbL. Buildings are raised to tagged heights, domes and spires follow roof shapes; what the data lacks is absent here too.
- Scene passport

Manezhnaya Square

The view from the National hotel across the Alexander Garden: the Corner Arsenal and Trinity towers stand where the coordinates put them, at their tagged heights.

Trees from the data

Every tree in the frame exists in OpenStreetMap as a point, most with a species. The canopy here is schematic: the data does not describe shape or size.

Exactly what is known

The planted beds and glass domes of the renovation project are not mapped, so they are not here. Once they appear on the map they appear in the twin, with no change to the script.

Why the project needs this

Open planning rests on quantities that can be computed from open data and checked by an outsider. The twin is the same idea taken to a picture: if the height of a tower is in the tags, it is in the model; if a flower bed is not in the data, it is not in the frame. That makes the image an argument rather than an illustration. The same script that assembled the Kremlin would assemble a typical quarter as boxes without colour or roofs: there the buildings have at best a floor count. The gap between those two pictures is the register of what is digitised and what is

not. Visualisation from OpenStreetMap data, neither a photograph nor a project. Data © OpenStreetMap contributors, ODbL. Buildings are raised to tagged heights, domes and spires follow roof shapes; what the data lacks is absent here too. Scene passport

Red Square

From the Historical Museum to the Spasskaya Tower between the Kremlin wall and GUM. The width of the square and the position of the facades come from the outlines, not from framing.

The tiers of Spasskaya

The tower is assembled from a dozen parts with heights from 14 to 71 metres and a tented roof on top. The outline as a whole is not drawn: its parts replace it, as OpenStreetMap intends.

A cathedral of onion domes

St Basil's: domes from roof:shape=onion, gold only where there is a church. Facade colours from the tags; where there are none, light grey, so that a guess is not passed off as data.

How to verify

The scene passport lists the source, the extract date, the bounding box, the number of objects of each type and the construction rules. The scene is deterministic: the same script on the same extract gives the same frames. The data can be compared with the OpenStreetMap map building by building. Data: OpenStreetMap, © OpenStreetMap contributors, ODbL 1.0. Render: gosplan2.ru, Blender 5.2, procedural build. A visualisation, not a photograph.

This file is built automatically from the section text and repeats it verbatim. Interactive elements, maps and photographs are not included. The current edition is always at the address above.