



*Image Courtesy of Municipality of Helsinki*

## iTwin<sup>®</sup> Capture Modeler

Add Real-world Insights to Your Digital Twins  
with Reality Modeling

With iTwin Capture Modeler you can create the first layer of a digital twin with your own hardware. Its advanced visualization capabilities will automatically turn raw reality data into an actionable reality mesh before it is shared in a connected reality data environment, and serves as a single source of truth to advance your infrastructure workflows.

iTwin Capture Modeler is distributed with two editions: iTwin Capture Modeler and iTwin Capture Modeler Center. Both offer the highest fidelity and most versatile capabilities for creating reality data that provides digital context for design and engineering, construction, and operations workflows.

### **REALITY DATA CREATION AND ENHANCEMENT**

With iTwin Capture Modeler, you can import any reality data to enable various data ingestion workflows. The application also allows you to create engineering-ready reality data, such as reality meshes, point clouds and orthophotos, by using any digital camera, scanner, or mobile mapping device.

iTwin Capture Modeler provides an advanced set of features, such as masks, water constraints, and advanced retouching capabilities to enhance your reality data.

The application can improve the precision of reality meshes with ground control points, flight metadata, or camera calibration management, assessed throughout the processing stage. The quality of the resulting reality mesh is the best on the market, and is only limited by the image or point cloud quality you use.

### **SCALABILITY AND PARALLEL COMPUTING**

iTwin Capture Modeler is highly scalable. From objects measuring a few centimeters to projects replicating entire cities, the product performs at any scale.

iTwin Capture Modeler empowers you to get the most value from your hardware. With a powerful graphical processing unit and parallel computing capabilities, you can drastically accelerate processing city-scale scenes and execute them in few days, enabling fast progression of the most ambitious projects.

### **INTEROPERABILITY WITH DESKTOP SOLUTIONS AND ITWIN**

Reality meshes, point clouds, and orthophotos created by iTwin Capture Modeler can be easily managed by desktop and web applications in downstream workflows.

iTwin Capture Modeler can export files in a wide range of formats that will fit in your preferred design, engineering, construction, and operations applications.

Unique level-of-detail technology, available in most export formats, ensures smooth navigation around reality meshes of any size, in both desktop and web environments.

### **MAKING REALITY CAPTURE EASY**

Every digital twin should provide users with immediate access to real-world insights across their workflows. With iTwin Capture Modeler, we are committed to making reality capture an everyday part of your work.

iTwin Capture Modeler is a comprehensive, cost-effective solution that allows you to generate a 3D single source of truth. The application makes your data actionable, so that stakeholders can receive the right information at the right time and make more informed and timely decisions throughout the project lifecycle.

iTwin Capture Modeler helps you:

- ◆ Deliver the best reality meshes at the highest speed possible based on laser scanning and photogrammetry.
- ◆ Use all reality modeling techniques and data types in a desktop environment.
- ◆ Ensure accurate geo-registration of your work for smooth collaboration between project stakeholders.
- ◆ Assess the precision of your work thanks to multiple reports and insights.
- ◆ Generate web-ready reality meshes that will be smoothly navigated in other iTwin applications.
- ◆ Share deliverables to a connected environment to enable data ingestion workflows.

## SYSTEM REQUIREMENTS

**MINIMUM:** 8 GB RAM, NVIDIA\*, AMD, or Intel GPU, Microsoft Windows 10 64 bit

**RECOMMENDED:** 64 GB RAM, NVIDIA GeForce RTX2080Ti GPU, Intel 9 4.0 GHz CPU

\*Advanced functionalities like machine learning automatic color equalization, ground and feature extraction requires an Nvidia graphic card

# iTwin Capture Modeler At-A-Glance

## GEO-REGISTRATION, QUALITY, AND MEASUREMENTS

- ◆ Leverage ground control point import, recording, and automatic detection
- ◆ Handle any flight metadata from EXIF tags to external columned files
- ◆ Generate quality reports and review quality metrics in 3D
- ◆ Import camera calibration reports to enable more accurate processing

## REALITY MESH PROCESSING

- ◆ Import reality data of any type (image, point cloud, video) or size in various formats
- ◆ Create reality meshes, orthophotos, and point clouds
- ◆ Leverage parallel computing to reach high processing speeds
- ◆ Employ advanced level-of-detail technology to ensure smooth navigation on city-scale scenes

## RETOUCHING

- ◆ Remove floating artifacts
- ◆ Fill holes or make areas flat
- ◆ Improve image transition in orthophotos

## SHARING TO CONNECTED REALITY DATA ENVIRONMENTS

- ◆ Share images, point clouds, and meshes straight from the user interface
- ◆ Share image collections as mapping runs to enable web-based photo navigation
- ◆ Import images from the Reality Management Service directly into your project

CAPABILITIES	ITWIN CAPTURE MODELER	ITWIN CAPTURE MODELER CENTER
Imagery dataset size per project	Unlimited	Unlimited
Scanned point clouds limitation per project	Unlimited	Unlimited
Mesh export formats (3MX/3SM/DGN/I3S/OBJ/FBX/STL/DAE/OSGB/Cesium)	◆	◆
Colored point cloud export (LAS/OPC/POD)	◆	◆
True orthophoto / 2.5D digital surface model (TIFF/GEOTIFF/KML)	◆	◆
Georeferencing	◆	◆
SDK	◆	◆
Parallel (cluster) processing for unlimited scalability	Up to 2 engines	◆
Process several jobs in parallel	Up to 2 engines	◆
AI feature extraction	◆	◆



Courtesy of Setis - Groupe Degaud



City-scale modeling - Seattle Microsoft Campus