



SolidCAD
A  **Cansel Company**

Combining Reality Capture and Traditional Survey Data

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Session Description

- Reality capture includes LiDAR, 3D scanning data and even models created from photographs. In this session, you will learn how data from these new technologies can be combined into a single model with more traditional survey pickup. Autodesk Recap, InfraWorks, and Civil 3D will be demonstrated.



Overview

- ▼ Software Used and their Purposes
- ▼ Combine Scans
- ▼ Combine Scans and UAV Clouds
- ▼ Combine Clouds and Traditional Survey
- ▼ Combine Surfaces from Model Builder and Civil 3D
- ▼ Combine Cloud and Surveyed Surfaces



Software

Autodesk's AEC Collection contains many software applications which the Civil engineer requires for typical designs. The following applications will be demonstrated.



Civil 3D



Infraworks



Recap



Recap Photo

Civil 3D

- ▼ Civil 3D® software supports BIM (Building Information Modeling) for enhanced civil engineering design and construction documentation.



- ▼ Detailed design.
- ▼ Construction drawings.



Infraworks

InfraWorks® software supports connected BIM (Building Information Modeling) processes, enabling designers and civil engineers to plan and design infrastructure projects in the context of the real world.



- ▶ Preliminary design.
- ▶ Analysis.
- ▶ Visualization.
- ▶ Data aggregation.



Recap

- Use ReCap™ reality capture software to convert reality into a 3D model or 2D drawing that's ready for further design.



- Import multiple scans.



- Register scans.



- Organize data.

- Edit and clean data.



- Measure.

- Annotate.

- Merge laser scans with UAV clouds.

- Export.



Recap Photo

- ReCap Photo is a cloud-connected app equipped with advanced features to generate geo-located textured meshes, point clouds, and ortho-photos. It also has powerful tools for mesh viewing and editing.



- Drone capture with [appropriate technique](#).



- Include targets.



- Create a photo project (aerial or object).

- Up to 1000 photos (aerial) and 300 (object). (cloud credits required)



- Include ground control points (GCP).

- Download selected files (RCP, OBJ, Ortho photo).

Scanned Clouds

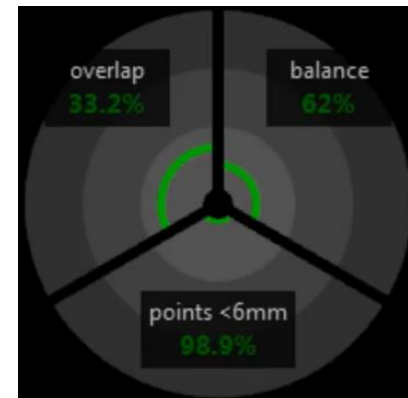
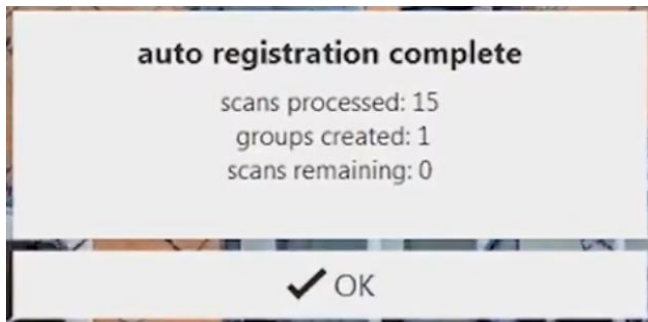
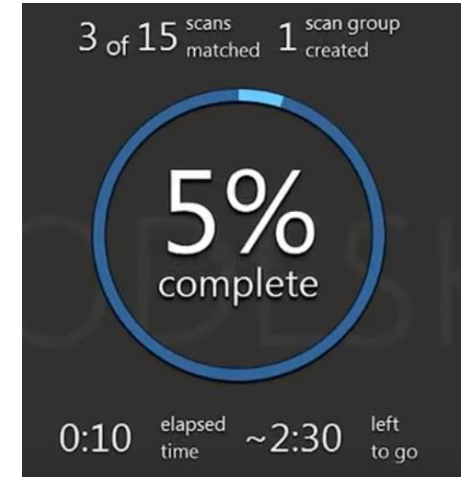
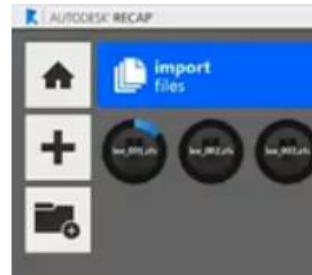
Recap Pro is used for this one.



Import all scans.

Register

- Use GCP's
- Automatic
- Manual



Scanned and UAV Clouds

Recap Pro is used for this one.



- ▼ Create both clouds.
- ▼ Import one into the other.
- ▼ Register
 - ▼ Use GCP's
 - ▼ Automatic
 - ▼ Manual

Cloud and Survey

Is this actually required?



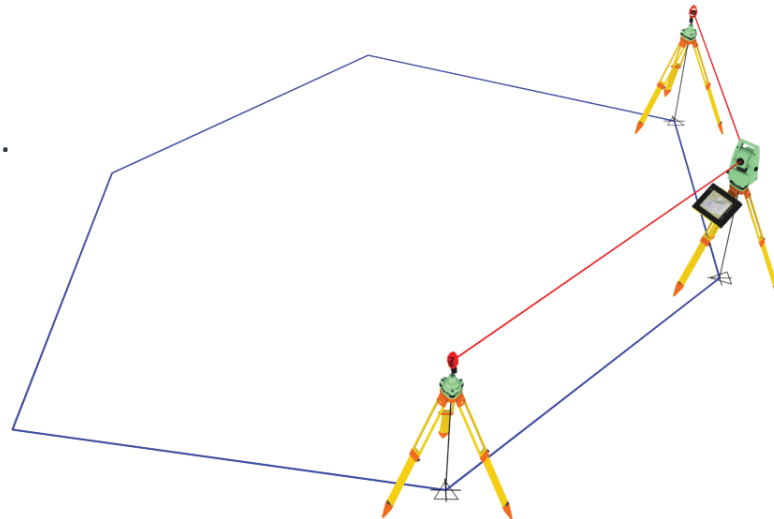
Clouds

- Surface creation.



Survey

- Object location.
- Linework.
- Surface creation.

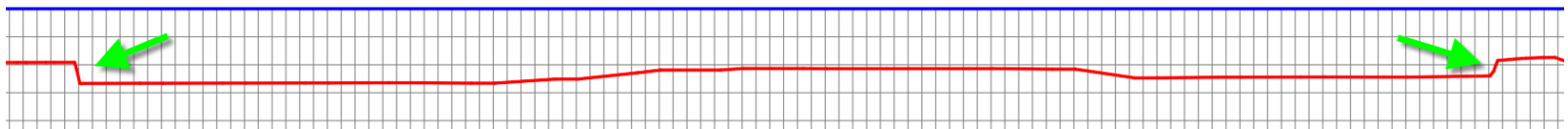


Model Builder and Survey

▼ Infracore and Civil 3D are used.

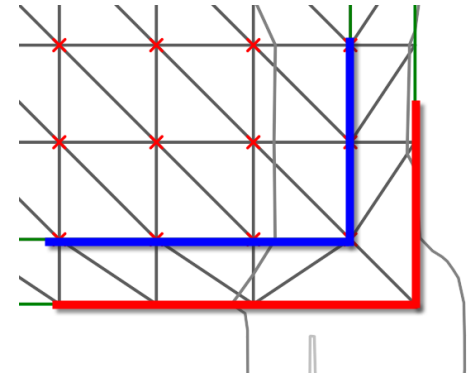


- ▼ IW surface import into Civil 3D
- ▼ Create surveyed surface in Civil 3D
- ▼ Create composite surface and paste both
- ▼ Check for discrepancies where they intersect

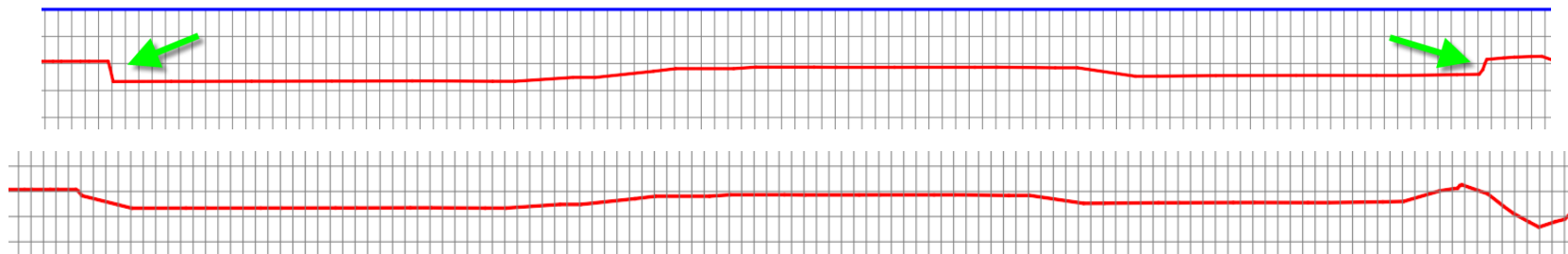


Model Builder and Survey

▼ Infraworks and Civil 3D are used.

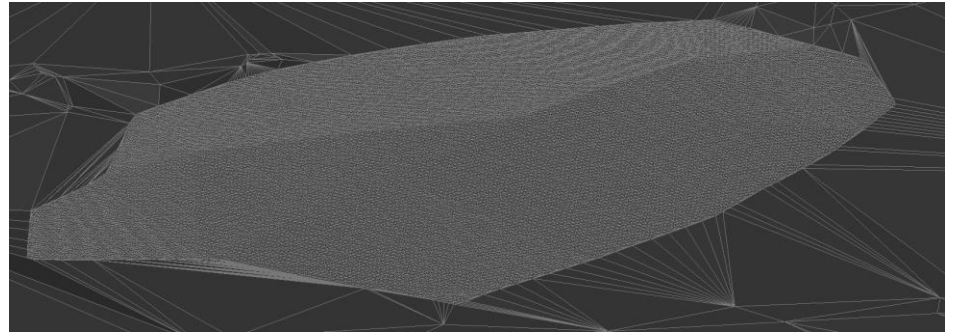


- ▼ Offset survey surface boundary to create a “buffer”
- ▼ Drape the buffer over the IW surface and use as both a breakline and a surface boundary.
- ▼ Import the composite surface into IW and remove the model builder surface.



Cloud and Surveyed Surface

▼ Civil 3D or Infraworks can be used.



▼ Civil 3D

- ▼ Create both surfaces.
- ▼ Paste together.
- ▼ Check intersections for discrepancies.

▼ Infraworks

- ▼ Create or import surfaces in the desired order.
- ▼ They are automatically pasted.

Questions?
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