



SOFTWARE SOLUTIONS

FULLY OPTIMIZED FOR ALL MAIN LiDAR DATA AND 3D IMAGING



JRC stands for Joint Research Centre, the research institute of the European Commission located at Ispra (Maggiore lake, North of Italy). The IPSC (Institute for the Protection and Security of the Citizen) of the JRC developed the *JRC 3D Reconstructor* software to support the 3D inspections in nuclear power plants made by the International Atomic Energy Agency (IAEA). Since 2007 the full code of *JRC 3D Reconstructor* has been transferred to Gexcel (Geomatics&Excellence) that continues the development in a fully independent way. Today, *JRC 3D Reconstructor* is known worldwide as one of the most powerful software packages for LiDAR data management.

JRC 3D Reconstructor FULL

The leading and worldwide well known top level Gexcel software solution to easily process 3D data from different laser scanner data-formats and sources (terrestrial, mobile and airborne).

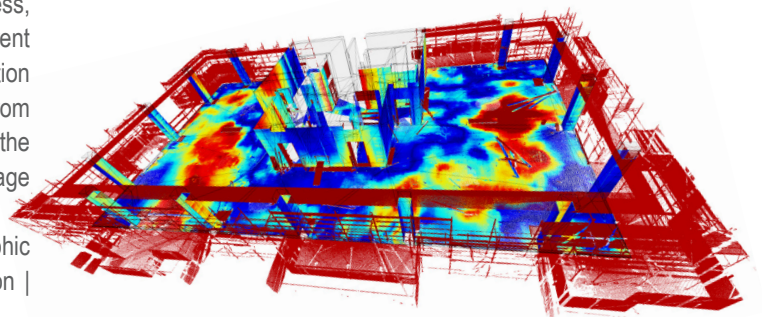
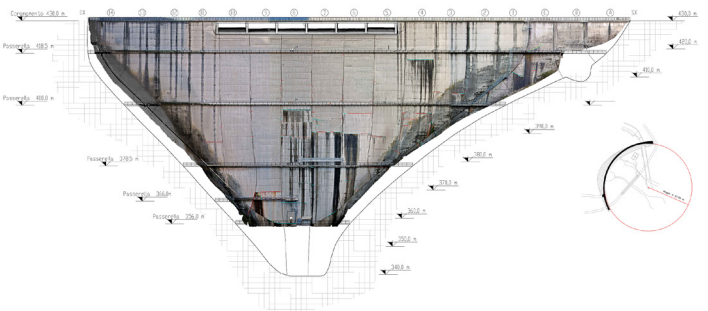
It can easily integrate several models and manage them in cartographic coordinates, **3D LiDAR** data, high resolution **RGB images**, **GNSS topographic** 3D surveyed points and **3D mesh models**. It can manage the complete data processing workflow: scans **alignment** (with point based fitting algorithm) and **georeference**, data **filtering** and **editing**, **3D mesh generation**, final output completely **CAD compatible**.

It is the ideal software for users who need a top level solution to process, integrate and analyze different laser scanner data-formats from different sensors (terrestrial, mobile and airborne). The unique **virtual scan** function allows to re-organize in a more usable way the point clouds coming from multiple sensors and platforms, to one new regular point cloud. With the peculiar image processing tools, it can provide high resolution digital image texture mapping using any uncalibrated image.

Main fields of application: Construction | High Level Topographic Survey | Civil Engineering | Cultural Heritage | Architecture | Restoration | Tunneling | Mining | Forensic | Industrial Plants Surveillance

Main results: Photo-realistic 3D models with fully high resolution digital images | Cross sections extraction | Fly-through video creation | Change detection | Cracks mapping | Detailed photo-interpretation analysis on concrete structures | Support to geo-mechanical analysis | Digital Terrain Models | Volumes and areas calculation | Deformations in geology and geomorphology | landslides monitoring | Analysis of rock discontinuities | Crime scenes analysis (projectile trajectories)

Fully compatible with all the main laser scanner data formats



JRC 3D Reconstructor FULL EDUCATIONAL

The solution for Research Centers, Universities and no profit organisation that includes all the *JRC 3D Reconstructor FULL* functionalities. The software can be activated with a server key with multiple seats and it is particularly appreciated for classrooms (a single software license key is additionally provided for the teacher/professor on his individual PC).

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JRC 3D Reconstructor CONSTRUCTION

The LiDAR data software solution specifically designed for **construction**, **infrastructure** and **civil engineering** sector.

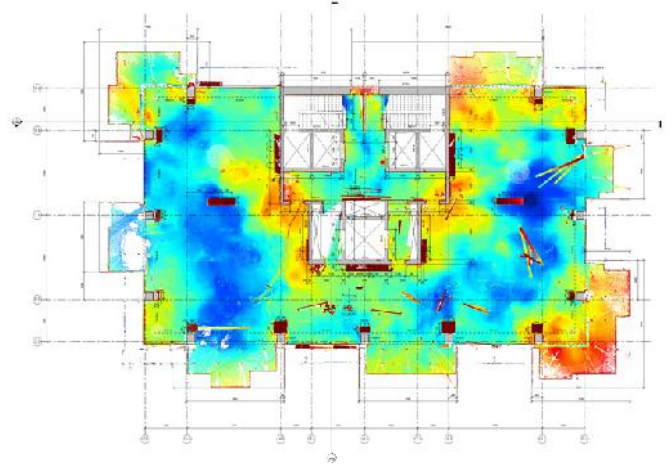
Cross sections and front-buildings, orthographic views can be easily extracted, **deformation**, **displacement** and **verticality** maps can be provided, areas and volumes can be computed directly from laser data and go from 3D models to CAD. High level semi-automatic registration and referencing are supported. Point clouds can be easily aligned and georeferenced using **external reference** points and targets measured with **total station** or **GNSS**.

The **geo-referencing tool** supports **large format** East, North cartographic coordinates systems (i.e. UTM WGS84).

Main users: Civil Engineers | Engineering and Geotechnical companies | Construction companies | Architects | Surveyors | Insurance companies | Certifiers | Researchers

Results: Cross sections | Front-buildings orthographic views | CAD drawings | Deformation and displacement maps | Planarity and verticality check maps | Contour lines | Areas and volumes calculation

Fully compatible with all the main laser scanner data formats



JRC 3D Reconstructor MINING/TUNNELLING

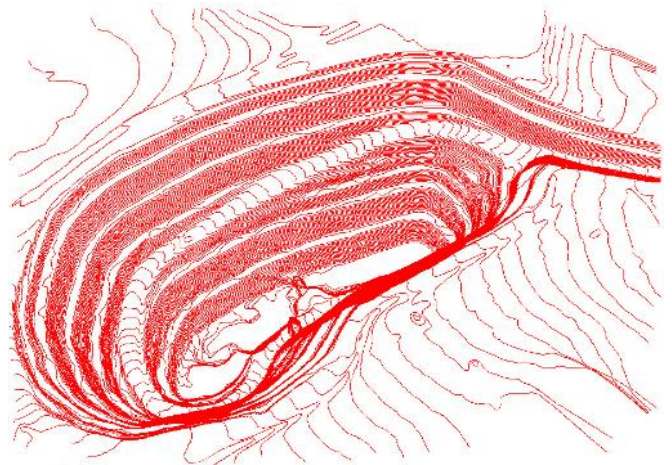
The surveyors dedicated solution to manage **laser** and **UAV** topographic data of **mining sites**, **tunnels** and areas with **geological** and **geotechnical** problems.

3D points surveyed by GNSS or total station can be easily combined with LiDAR data, working in the same large format East, North cartographic coordinates systems (i.e. UTM WGS84).

Mining and cave surveys data process is supported by the extraction of **contour lines**, **crest&toe** (mines break lines), **DTM** generation, **volumes** and **cut&fill** evaluation with printable PDF reports, **cross sections**, **coloured elevation maps**.

GeoTiff UAV data images can be easily managed to create high resolution orthophotos and textured DTM.

All the processes are guided thanks to step by step wizards and all the extract results are CAD compatible.



Main users: Civil Engineers | Engineering and Geotechnical companies | Surveyors in the field of mining and tunnelling | Geologists

Results: Cross sections | Isolines | Digital Terrain Models | Mines break lines as CAD drawings | Deformation and displacement maps | Areas and cut&fill volumes calculation with pdf reports

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JRC 3D Reconstructor HERITAGE/ARCHITECTURAL

Designed to easily create 3D colored models using high resolution **RGB images** and **3D laser scanner** data, the software can calibrate and reproject full resolution RGB images over mesh models, efficiently created with meshing tools or imported from third parties software starting from a point clouds. All the resolution of the RGB images is so used to obtain high level realistic 3D models of the reality. A must for **cultural heritage**, architecture and high level civil engineering applications. **Photo-realistic 3D models** and **orthophotos** can be easily created and fly-through videos recorded. Ideal also for **cracks detection** and detailed **photo-interpretation analysis** of concrete structures, it is also perfect for artefacts, historical, archaeological and cultural heritage sites. The software enables to easily and quickly obtain the calibration parameters of digital cameras and of various optics, using a self printed chessboard for calibration. Architectonical drawings, **plans**, **cross sections**, **high resolution orthophotos** can be extracted.

Main users: Architects | Engineers | Archaeologists | Surveyors and professionals in the fields of cultural heritage | Museums | Restorers

Results: Cross sections | CAD drawings | High resolution orthophotos | Photorealistic 3D models | Areas & Volumes | Contour lines | Fly-through Videos

Fully compatible with all the main laser scanner data formats



JRC 3D Reconstructor PHOTO

The solution for users who already use a third parties software package for the scan alignment process and meshing but desire to calibrate and project full resolution images and create photo-realistic 3D models and orthophotos. It offers the same model analysis and output functions (high resolution orthophoto) as in the *JRC 3D Reconstructor HERITAGE/ARCHITECTURAL* (meshing and alignment excluded).

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System Requirements

Operative System: Windows XP SP2 | Windows Vista | Windows 7 | Windows 8 | 64 bit and 32 bit versions

Graphics cards: NVIDIA GeForce FX or later

Recommended: At least 4GB RAM | NVIDIA GeForce 500 with at least 1GB

RecLinkAPP: available from *Scene 5.0*

Marketing Notes

Software languages: English | Italian

Licensing system: All the software are furnished with a single PC software license, upgradable to the USB dongle key

Demo version: 30 days evaluation | all functions available | saving locked | apply for it on the Gexcel Download web page (www.gexcel.it)

Technical details and purchase: contact the Gexcel sales department at sales@gexcel.it