

# LFM Server



## Import laser scan data and interface with all major 3D CAD packages.

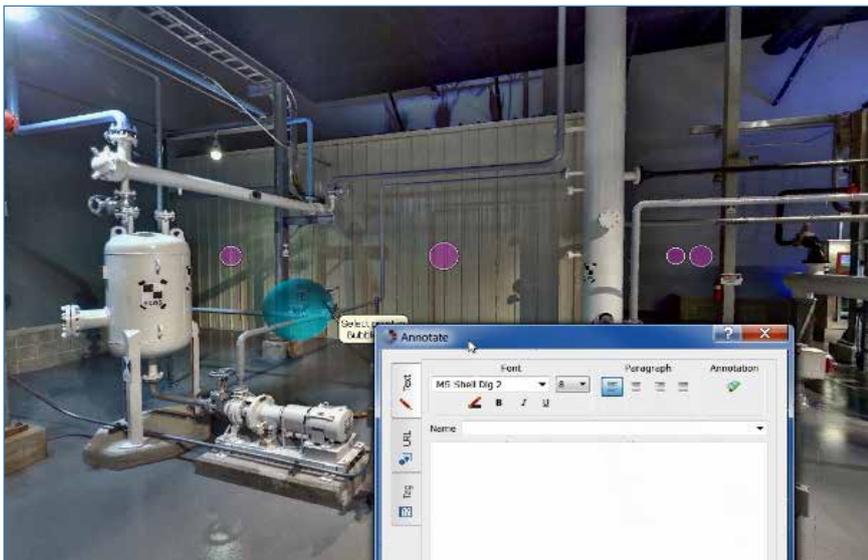
Data capture technologies are delivering ever-increasing efficiency and capabilities. As end-users strive to find more value from laser data for their businesses the consumption of this data continues to broaden.

No longer is the process of 'throwing away' data after every project an acceptable approach to successful utilisation. It is for this reason that LFM have created our vision to deliver a Trusted Living Pointcloud™ into which our unique tool set 'breathes life' to allow for evolution and growth of the as-is condition of an asset.

LFM Server™ sits at the core of this vision by providing the ability to continually refresh a laser scan dataset whilst simultaneously providing the foundation for data intelligence. LFM Server enables users to maximise the value of the rich information that laser scanning generates by facilitating delivery of the Trusted Living Pointcloud.

LFM Server, incorporating an array of functionality and features, represents the most advanced solution available for accessing pre-registered laser scan data and delivering it for the broadest consumption whether that be within engineering or construction CAD packages or within asset management applications.

Simple to use and offering unrivalled performance and functionality LFM Server offers neutrality with both laser scanning hardware and design packages. It can read unstructured data from various scanner types; not only terrestrial laser scanners but also hand-held, mobile or aerial scanners.



**New in LFM Server 4.3** is the ability to add intelligence to laser scan data using attributes, tags and URL links directly within the BubbleView™

## Business Benefits

### Trusted Living Pointcloud

Maximise the value of laser scanning within your organisation by 'breathing life' into your laser scan data and maintaining an 'as-is' dataset

### Open on the input

LFM Server can read a wide variety of 3D data capture formats

### Open on the output

LFM Server interfaces seamlessly with all leading 3D CAD systems

### Unlimited Datasets

InfiniteCore™ technology enables project datasets of unlimited size and by providing a centralised dataset we can offer unlimited concurrent access.

### Increased Productivity

The intuitive 360° BubbleView makes it easy to verify clashes, review laser scan data, or simply become familiar with the site

### Clash-free Design

Accurate, detailed 'as-is' information minimises the business risks of revamp projects

### Business Flexibility

Import scans from a wide variety of scanner types and data formats into a single dataset

# Key Features

LFM Server enables the creation and management of unlimited point cloud datasets from a wide variety of laser scanners, and can link to all the leading 3D CAD systems.

## New LFM Server features

### Fast-Tagging & Intuitive Mark-Up

Adding intelligence to an asset has never been so easy with simple 'locate and tag' functionality. Simply navigate to the area or item you are interested in, select it and start adding intelligence. Input URL's (links to data, websites or documents) and attributes within the BubbleView or import .CSV files for the addition of multiple entries.

### Increased Interoperability

LFM Server now supports Trimble .TZF, FARO .FWS, Dot Product .DP file formats and links to Bentley ConstructSim, Intergraph Smart3D 2014 and the Autodesk 2015 suite. LFM Server also outputs to Autodesk ReCap.

### Enhanced measurement tools

LFM Server now includes pipe centre to point, pipe centre to pipe centre, dynamic cutting planes in the BubbleView and user-defined origins as well as providing the ability to use US Survey Feet measurements.

### File-based, multi-user capabilities

Allow a small number of users to write to the database file concurrently for saving measurements, volumes, demolition and mark-ups.

### LFM NetView project creation

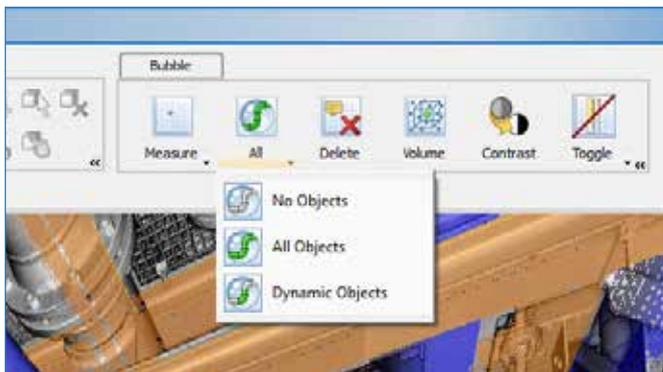
### Increased Volume Selection BubbleView

#### BubbleView interface

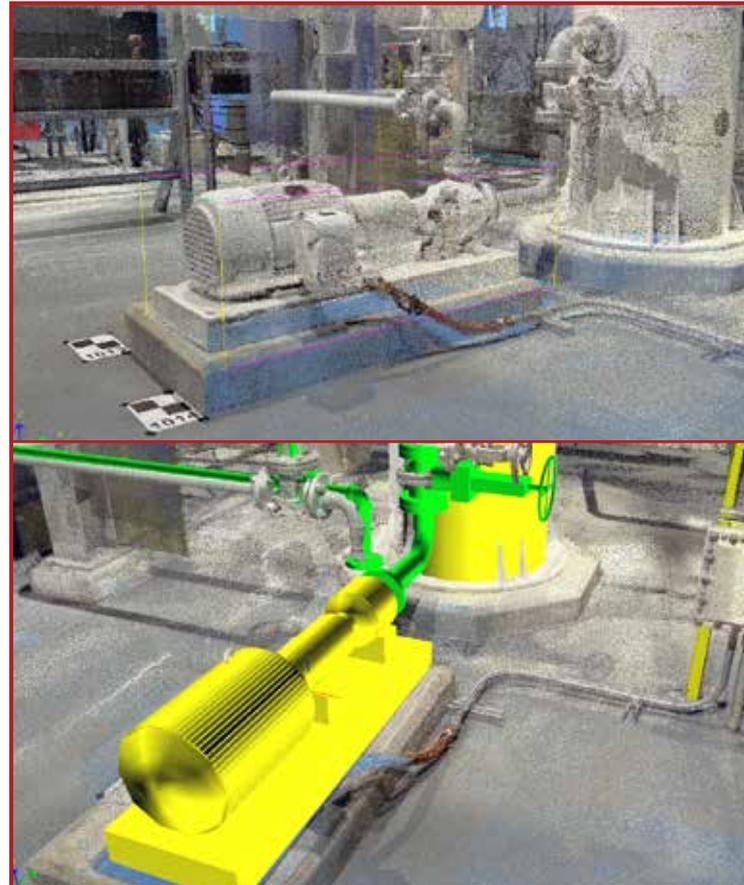
BubbleViews are extremely versatile. They provide a realistic visual representation of the scanned site and a range of practical functions such as volume selections and pipe diameter measurements.

#### Dynamic BubbleViews

BubbleViews can be 'hot spotted' to add intelligence



Dynamic Objects will only appear in the BubbleView when selected by users.



As part of LFM's vision of delivering a Trusted Living Pointcloud LFM Server allows for the

to the laser scan data. With information derived from a 3D model, users can configure which objects provide what information. Additionally, the 'Dynamic Objects' option enables users to display the objects they wish to see, by hovering the mouse over a particular area.

#### Coloured point clouds and coloured BubbleView

In addition to traditional greyscale images, LFM Server also supports laser scan data in colour. This coloured data is reflected in both the point cloud and the BubbleView, further enhancing this realistic viewing mode.

#### Neighbouring scan site map

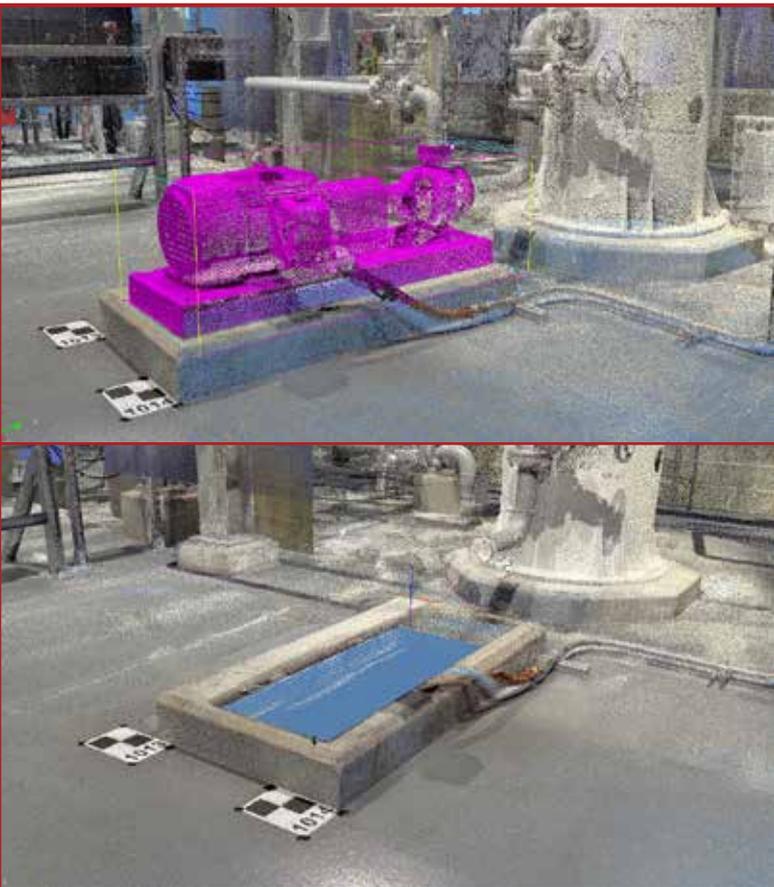
Each BubbleView maps the exact location of nearby scans. A single mouse click will switch into a neighbouring BubbleView.

#### Inter-BubbleView measurement

Multiple BubbleViews can be displayed, either in tiled view or as floating images. Users can measure accurately over very large distances across a site covered by many BubbleViews.

#### Quick-detach feature

A BubbleView can be rapidly detached from the tiled interface for use in a CAD system, or it can be directly launched from the CAD system. Once a BubbleView is detached, an integrated drop-down toolbar is available, which can be permanently pinned.



demolition of data as well as CAD connectivity.

#### ■ Ability to read objects

LFM Server enables users to import and save CAD objects in an LFM Server project. 3D models created in LFM Modeller™ or other systems can therefore be reviewed offline directly in the LFM Server environment.

#### ■ Volume selection

A high-resolution volume of scan coordinates can be rapidly retrieved using a simple and intuitive dynamic stretching box. Users can spawn off new regions, enabling multiple volumes to be quickly defined. Each volume can be morphed, manipulated and swivelled into a variety of shapes. Complex volumes can be selected regardless of their position in 3D space.

LFM Server also enables selection of a volume directly from the BubbleView. This avoids the risk of selecting an incorrect point in the background, ensuring correct volume selection. Volumes can be stored in the project file for easy retrieval.

#### ■ Automatic clash detection

A powerful, efficient and reliable clash detection module displays every interference between a proposed 3D design and the as-built laser scan data.

A user can selectively clash check the whole site, defined volumes or individual objects. Clashes can be reviewed within the 3D point cloud window or using the LFM BubbleView interface. A powerful clash reporting tool supports project quality assurance.

#### ■ Integrated data

LFM Server is datacentric, associating all measurements, benchmarks, tie-points and so on with the project file. This can be file- or database-driven.

#### ■ Powerful Manage tab

The Manage window offers extensive data management capabilities. For example, the Objects browser enables users to rapidly locate objects in the point cloud, see which BubbleViews are already loaded, or even get information about each item displayed in the 3D view.

Unrivalled CAD connectivity



#### ■ Pipe tie-ins

By enabling the creation of pipe tie-ins, LFM Server enables more efficient design processes. The can be simply passed through to, or created directly in the linked CAD drawing.

#### ■ Read multiple laser scan formats

Data can be imported from all the major laser scanner systems, providing flexibility in the choice of scanner or service provider and enabling multiple scans from different hardware to be integrated.

#### ■ Non-structured data capability

Data can be captured from a variety of terrestrial, mobile, hand-held or aerial 3D scanners, and consolidated in a single LFM dataset.

#### ■ InfiniteCore technology

InfiniteCore technology enables an unlimited number of registered laser scans to be stored in a single dataset. Access speed is maintained and individual laser scans remain intact and available for rapid retrieval. The LFM Server dataset seamlessly integrates the InfiniteCore scan/point cloud data and the high-resolution panoramic BubbleViews. This provides an unrivalled user experience and productive use of the data.

#### ■ Unrivalled CAD connectivity

Optional CAD-Link modules enable seamless interfacing with 3D modelling solutions provided by AVEVA, Autodesk, Intergraph and Bentley.

# Optional Modes

A recent evolution of LFM's product portfolio has resulted in a number of LFM products being pulled onto the same platform under the guise of our flagship product LFM Server. Licensing options for these product features are still as robust as ever but our customers are now able to benefit from a more standardised operation and user interface.

Stemming from this evolution is the optional LFM Server operating modes which also deliver powerful additional capabilities. The LFM Operating Modes can be used individually in a stand-alone fashion (for example, LFM Gateway™ is ideal for basic point cloud processing) but, when used in combination, enable a completely integrated workflow.

## ■ LFM Gateway Mode™

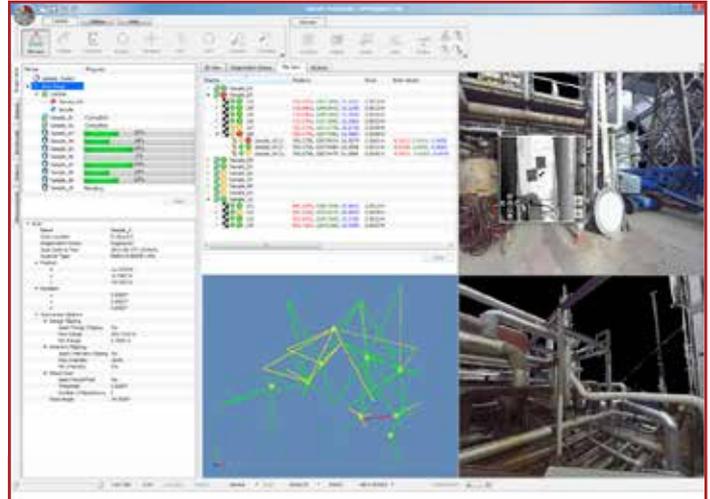
The most open laser scanning software available, LFM's connectivity can be extended from terrestrial 3D laser scanners to import other 3D data formats from mobile, hand-held or aerial scanners.

LFM Gateway also enables data export in open, industry standard formats.

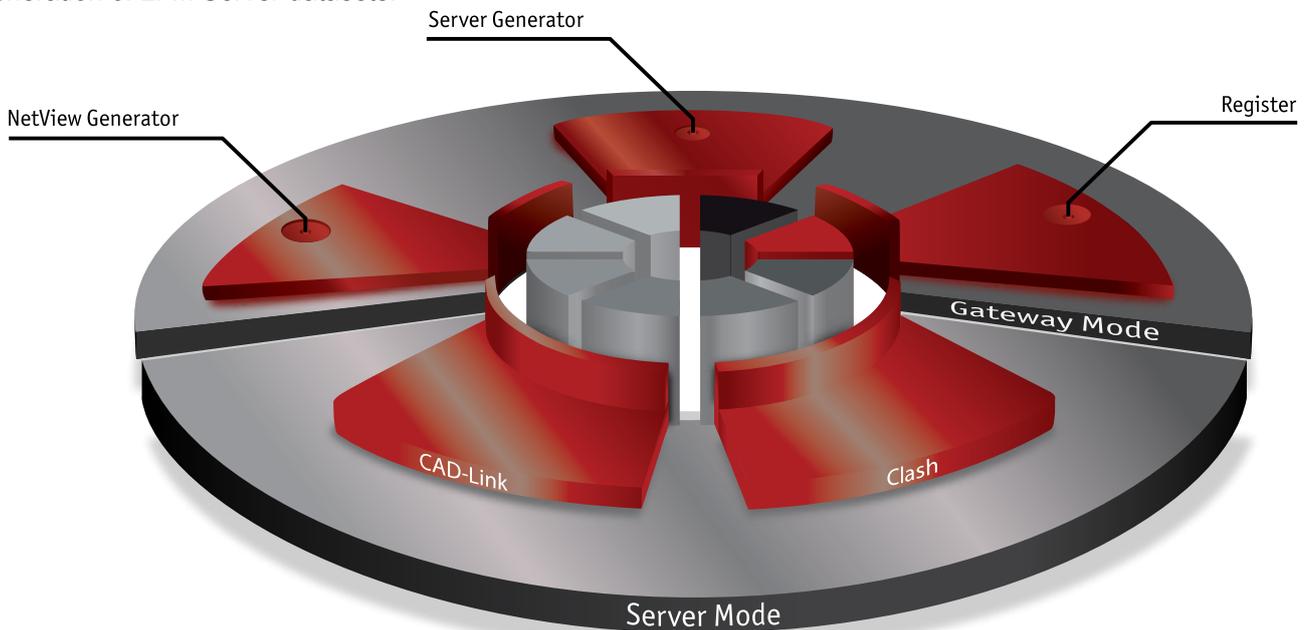
## ■ LFM Register™

Within the same interface, raw data from individual scan positions can be integrated into a fully coordinated framework faster and more efficiently than with any other system. Data registered using LFM is verified by our powerful QA tools and can be exported and used with downstream packages from other laser scanning software vendors.

A single LFM Server-based product, this enables seamless creation of LFM NetView™ projects and generation of LFM Server datasets.



LFM Gateway Mode delivers the verification for the Trusted Living Pointcloud



## LFM Server Generator™

This creates InfiniteCore datasets for use in LFM Server and AVEVA Everything3D™. Registered scans can be taken from any registration tool to create added-value datasets that are widely used throughout industry. An updated user interface, with enhanced user assistance, reporting and licensing makes the process simple and intuitive.

## LFM NetView Generator™

This organises and creates LFM NetView projects.

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