Customer Product Release Summary
LFM Server 4.4.1.9
Release Date: 25/08/2017

This document outlines all changes made in the above release of LFM software.

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Superseded software version: LFM Server 4.4.1.6
LFM Software version numbers: X.X.X.X

First version field denotes general software series number.

Second version field is incremented to track major new feature implementation.

Third version field is incremented to track minor new feature implementation.

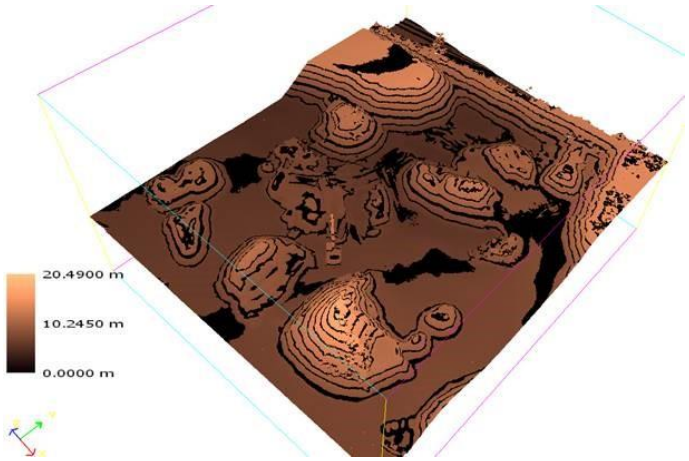
Final (fourth) version field is incremented to track error fixes.

PC minimum supported specification:

Processor	Intel Core 2 Duo
Operating System	Windows 7 Pro x64
Memory	(4x1024) 667Mhz DDR2 Dual Channel ECC
Graphics	NVidia Quadro FX 2000
Data Storage	500GB SATA [Operating System & local project storage – if required]
Network	1GB Ethernet Card

Enhancements for this Series:

Surface Gradient Visualisation



The introduction of Surface Gradient Visualisation delivers a powerful and customisable new visualisation feature to users of LFM Server. Driven by the volume management toolset, users are now able to easily and accurately identify variations in gradients irrespective of size, angle or elevation. Whether you are identifying the relief of expanse landscapes or the degradation of walls you can now create your own personal 'heat maps' based on your highly-accurate laser data. With a choice of colour scales and customisable contours this new user-definable feature offers yet another advanced visualisation for your projects.

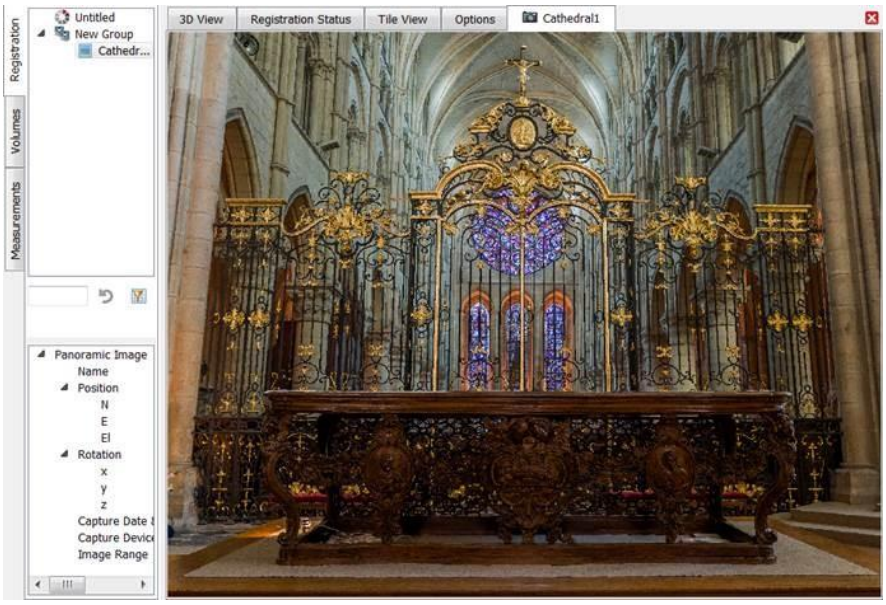
Please see https://youtu.be/Pw5IkZ0rUIA for a video of the new Surface Gradient Visualisation feature. You can also find more information about this feature in section 5.2.2 – *Colour by Distance* in the LFM Server Home Guide.

Structural Measurements

Critical to many of our customers is the ability to accurately identify and export structural dimensions for verifying against nominal geometry and use in CAD applications. By using our new structural fitting algorithm structural engineers are now able to work closer together on laser scan projects improving project collaboration and efficiency. The ability to refine section dimensions, position, & orientation ensures accuracy even where captured data might be insufficient, allowing engineers to make confident decisions.

Please see https://youtu.be/sXfbDp9snQ8 for a video of the new Structural Measurements feature. You can also find more information about this feature in section *4.7.1 – Measurement Tools* in the LFM Server Home Guide.

Panoramic Image Support



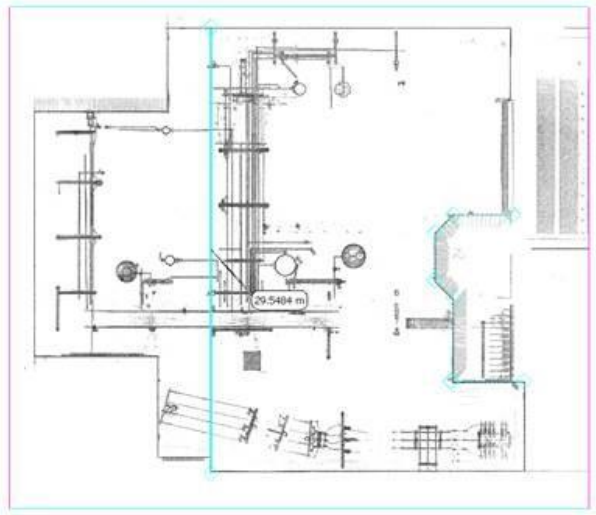
LFM have always strived to ensure our customers can use the tools most applicable to their businesses and projects to capture the existing environment. In keeping with this philosophy LFM Server now imports spherical panoramic images allowing you to very quickly capture high-resolution 3D imagery using a multitude of panoramic capture devices.

The LFM team have been working with our partner NCTech to integrate raw image data from their iSTAR camera allowing our customers with monochrome scanners to add colours their laser scans.

You can find more information about panoramic image import in section *1.4 – Importing Panoramic Photos* of the LFM Gateway Mode Data Preparation and Registration Guide.

You can find more information iSTAR colourisation in section *1.1 – Project Setup and Data Conversion Workflow* of the LFM Gateway Mode Data Preparation and Registration Guide.

Orthographic Measurement Improvements



A great feature for the rapid capture of 2-dimensional areas, this new capability allows users to simply slice through your data and quickly generate multiple 2D measurements with a handy 'snap-to-axis' functionality. Driven by our volume management tools this efficiently delivers accurate plan and elevation dimensions.

Please see https://youtu.be/5qmzt-qPcHI for a video of the Orthographic Measurement Improvements. You can also find more information about this feature in section *4.7.1 – Measurement Tools* in the LFM Server Home Guide.

Platform Updates:

Meta Data

LFM Server now stores capture device information, scan date and GPS location allowing users to identify pertinent information about their projects.

LAS Data

The LFM team have enhanced our support for .las data to support multiple coordinate systems.

Please see section *1.2 – Importing LAS (.las/.laz) Data* of the LFM Gateway Mode Data Preparation and Registration Guide.

Streamline Product License Installer

We have made it easier for you to get your hands on our amazing products. Please read the *License Request and Installation Guide* (https://goo.gl/XoXbaZ) to learn more.

ASCII / ReCAP Export

LFM Server now exports for these formats with an unlimited number of points.

Windows 10 Support

LFM Server now supports the Windows 10 operating system.

LFM NetView 4.2 Project Publishing

LFM Server is now able to publish projects in preparation for the upcoming release of LFM NetView 4.2 in which you will be able to consume multiple datasets and project hierarchies in LFM NetView.

New for LFM Server 4.4.1.9!

LFM Server 4.4.1.9 introduces support for AutoCAD 2018, Navisworks 2018 and Revit 2018.

Known Issues:

Internal Reference	*Description*
LFM-908	Imported .zgl objects appear in the incorrect position. Please use LFM Server 4.4.0.18 if you wish to work with .zgl objects until a fix is issued by LFM Software.
LFM-862	.tzf scans sometimes disappear from the Registration tab on scan conversion. Please use LFM Server 4.4.0.18 if you wish to convert .tzf scans until a fix is issued by LFM Software.
B3692	Importing an .lfm project file into another .lfm project file gives the wrong target positions resulting in red traffic lights for all targets. To get around this please update the scan headers in the source projects and add the updated .zfcs to a new project. This will result in one project containing all scans that are registered correctly.
B5195	LFM Server: Gateway Mode expects and supports the following variant of .ptx file: 20222 X size 8623 Y size 785.884915 534.863432 43.552212 Position -0.086158 -0.996281 0.000973 3x3 orientation 0.996280 -0.086159 -0.001912 0.001988 0.000805 0.999998 -0.086158 -0.996281 0.000973 0 Homogenous matrix of position and orientation 0.996280 -0.086159 -0.001912 0 0.001988 0.000805 0.999998 0 785.884915 534.863432 43.552212 1 0.000176 0.539844 -1.156689 0.056916 36 35 33 x,y,z, intensity(0.0 -> 1.0), r,g,b (8-bit) 0.000175 0.537848 -1.151469 0.056931 36 35 33 LFM are aware of some instances of .ptx files that do not match the format above. LFM will look to incorporate support for these variants as and when they become known. However, any variations on this format are susceptible to problems (including crashes or failure to convert). This includes failure to convert with the error *"Failed to create a .zfc file, Intensity and Image files PATH.int ! Disk Full?"*

General/Server Mode error fixes for this release: 4.4.1.9

Internal Reference	*Description*	*Solution*
LFM-1492	LFM Server crashes on double clicking second demolition volume from AutoCAD link	Fixed – LFM Server no longer crashes
LFM-1459	Using the “Show Points” button in the LFM Server toolbar inside Revit causes the LFM Server interface to flash until the loading of points into Revit is complete	Fixed – the LFM Server interface no longer flashes whilst completing the “Show Points” command from within Revit
LFM-1457	Some objects draw incorrectly in LFM Server when sent from Revit	Fixed – objects from Revit are now drawn correctly when displayed in LFM Server
LFM-1443	LFM Server crashes when publishing an LFM NetView project if the “HD textures” option is ticked in the publishing options form	Fixed – LFM Server no longer crashes
LFM-1420	If the user tries to close LFM Server when they have items in their workspace, a message will be displayed asking the user to confirm they wish to close the project. If the user selects “No” on this dialog, the 3D view becomes unresponsive	Fixed – if the user select “No” the project will remain open and the 3D view will stay responsive
LFM-1415	Viewing the Clash Screenshots twice on the same clash creates solid boxes around the clashed items in the 3D view	Fixed – solid boxes are no longer created around the clashes when viewing the Clash Screenshot twice for the same clash
LFM-1412	LFM Server crashes on pipe to plane measurements if the mouse cursor is left to hover for more than 10 seconds when selecting the plane.	Fixed – LFM Server no longer crashes
LFM-1395	LFM Server crashes during LFM NetView publishing if the project contains multiple (color and greyscale) datasets	Fixed – LFM Server no longer crashes
LFM-1296	Importing an .rvm file takes a long time (~1.5 hours for a 262MB .rvm file)	Fixed - the import time is greatly improved with the 262MB .rvm file now importing in less than a minute

LFM-1285	Importing Markups via a .csv file without positional information no longer makes the Markup names available in the Markup Editor	Fixed – The names of the Markups imported via a .csv file without positional information are now available in the Name dropdown box in the Markup Editor
LFM-1284	There is no feedback to the user when a .csv Markup file has been imported successfully	Fixed - a dialog with "Markup import successful" now appears on successfully importing a .csv Markup file
LFM-1257	Need a way to restore points in a dataset if the reference volumes have been lost	Fixed – there is now a “Restore All Points” button on the Utilities tab which will restore all the points in a project. Note that this button is only available when LFM Server is installed in Advanced Mode and cannot be undone
LFM-1242	PDMS link - Objects shown from Exact clashing remain in the LFM Server 3D view if the user then runs a Cell based clash	Fixed – the objects from Exact clashing in the LFM Server 3D view are cleared if the user runs a Cell based clash
LFM-1238	The background colour in SmartPlant Review is changed to black upon connection to LFM Server	Fixed – the background colour in SmartPlant Review is no longer changed upon connection to LFM Server
LFM-1232	Information associated with Markups (URLs, labels etc.) that don’t have positional information is not populated when assigning an existing Markup name to a newly created Markup	Fixed – When selecting an existing Markup name to a newly created Markup, the newly created Markup now inherits the information associated with the existing Markup (URLs, labels etc.)
LFM-1157	No hourglass on .xgl import	Fixed – an hourglass is now present when LFM Server is importing an .xgl file
LFM-1144	LFM Server does not tell the user which .int files it’s asking the user to locate if the .int files are not in the pngs folder when publishing an LFM NetView project. This can be confusing for the user if there are multiple datasets in a project	Fixed – LFM Server now tells the users which .int files it is asking the user to locate if it cannot find them during LFM NetView publishing
LFM-1134	Clicking the Help button on the LFM Server tool palette within SmartPlant Review doesn't open the LFM Server: SPR CAD Link help guide	Fixed – the LFM Server: SPR CAD Link help guide is now opened if the user clicks the Help button on the LFM Server tool palette within Smart Plant Review

LFM-1133	The Show Integrated BubbleView button in the SmartPlant Review link is out of place and has wrong icon	Fixed – the button is now in the correct place and has the correct icon. Note the tooltip is currently incorrect (LFM-1398). This will be addressed in a future release
LFM-1107	PDMS link – Clashes are not highlighted in BubbleView when opened from the “Highlight in BubbleView” button on the clash report	Fixed – clashes are now highlighted in yellow when opened from the “Highlight in BubbleView” button on the clash report
LFM-1075	Licence dialog issues: • Dialog doesn’t appear when the license has expired • User has to re-select the “I would like to install a license file” option after the dialog has been started with administrator permissions • After giving the dialog administrator permissions the dialog doesn’t show again if the license has expired	Fixed: • Dialog now appears if the license has expired • User no longer needs to re-select the “I would like to install a license file” option after the dialog has been started with admin permissions • Dialog shows after giving the dialog administrator permissions if the license has expired
LFM-1054	Showing objects from Revit 2017 in LFM Server does not work (no objects are displayed)	Fixed – objects from Revit 2017 can now be displayed in LFM Server
LFM-1021	PDMS link – clashed objects are not shown in the BubbleView unless the CAD OBJ button is pressed in the LFM Server 3D workspace controls bar	Fixed – clashes objects now display in the BubbleView without having to press the CAD OBJ button in the LFM Server 3D workspace controls bar
LFM-935	Point cloud data in Edge Mode is difficult to see when connected to Navisworks if the user changes the Edge Mode background colour to white in LFM Server	Fixed – as LFM Server is unable to control the background colour in Navisworks, the software now automatically changes the Edge Mode background colour to black if a refresh occurs in Navisworks
LFM-843	View clash screenshots doesn’t work (no clash screenshots are displayed)	Fixed – this option now successfully displayed the clash screenshots for the selected clash
LFM-461	Text in 3D View (UCS and scale bars in Ortho view) disappears after turning off HyperBubble	Fixed – text now remains in the 3D view after turning off HyperBubble

Gateway Mode error fixes for this release: 4.4.1.9

Internal Reference	*Description*	*Solution*
LFM-1489	Importing .fws files fails	Fixed - .fws files can now be successfully imported into LFM Server: Gateway Mode

General/Server Mode error fixes for previous release: 4.4.1.6

Internal Reference	*Description*	*Solution*
LFM-1151	In AutoCAD link “Locate Objects” option doesn't show the selected object in LFM Server.	The issue is fixed. Now user can find the selected object in LFM Server by using the “Locate Object” option in the AutoCAD link.
LFM-1147	Points clipped in helicopter flying mode in S3D. This occurred if S3D was connected to a project containing multiple datasets but not all datasets were loaded on connection. If the user then loaded other datasets via LFM Server, points in the subsequently loaded datasets would be clipped when using helicopter flying in S3D.	The issue is now fixed, no points are clipped if the user loads another dataset after the initial connection to S3D.
LFM-1131	Objects imported in LFM Server using .zgl format are scattered/misplaced.	The issue is fixed and objects imported using .zgl format in LFM Server are displayed now displayed correctly.
LFM-1129	Unable to load XGEOM into 3D view in PDMS 12.1 SP4 CAD link if the .lfd file extension in the MODID field is in capital letters.	The issue is fixed and now the user can load the XGEOM into the 3D view when the .lfd file extension in the MODID field is in capital letters.
LFM-1121	LFM Server displays measurement units on a new line in the measurement callout.	The issue is fixed and now LFM Server displays measurement units on the same line in the measurement callout.
LFM-1112	On bringing up the Markup details dialog, the typing cursor is placed in the Font field by default.	On bringing up the Markup details dialog, the typing cursor is now placed in the Name field by default meaning the user can start entering the Markup details straight away without having to click in the Name field.
LFM-1106	Middle mouse scroll/'Zoom Window' command in AutoCAD is actually zooming out rather than zooming in when connected to LFM Server	The issue is fixed and now Middle mouse scroll/'Zoom Window' command is working properly in the AutoCAD link while connected to LFM Server.
LFM-1068	Loading the .arx in AutoCAD Plant 3D 2017 SP1 crashes when the drawing contains objects from Autodesk Advanced Steel.	The issue is fixed and now loading the .arx in AutoCAD Plant 3D 2017 SP1 no longer crashes when the drawing contains objects from Autodesk Advanced Steel.

LFM-1067	AutoCAD Plant 3D 2017 crashes when trying to show objects in LFM Server.	The issue is fixed and now AutoCAD Plant 3D 2017 no longer crashes while trying to show objects in LFM Server.
LFM-1066	Selecting 'Show in BubbleView' from the Markup right click menu doesn't focus the markup in LFM Server BubbleView.	The issue is fixed and now user can see the 3D Markup properly in BubbleView while right clicking on Markup from 3D Markup workspace and selecting 'Show in BubbleView'.
LFM-1064	Only the first URL is displayed against a Markup in the 3D View/BubbleView, even if multiple URLs are available.	The issue is fixed and now all the URL's of a 3D Markup are displayed in the 3D View/BubbleView.
LFM-1016	While using "Colour By Distance" on a volume, contour intervals are restricted to below 100 meters.	The issue is fixed and now contour intervals are not restricted to below 100 meters.
LFM-965	MicroStation CAD link displays entire project clash list for volume based clash checking.	The issue is fixed and now the MicroStation CAD link displays volume based clashes rather than displaying clashes for entire project.
LFM-964	Points are not visible in Navisworks 2016 when set to Edge mode in LFM Server.	The issue is fixed and now points are properly visible in Navisworks 2016 when set to Edge mode in LFM Server.
LFM-951	Selecting Demolish> Highlight from the volume right click menu on a volume that has had Colour by Distance applied to it does not turn the points pink as expected.	The issue is fixed and now selecting Demolish> Highlight from the volume right click menu on a volume that has had Colour by Distance applied to it does turn the points pink as expected.
LFM-950	If a volume that has Colour by Distance applied is demolished, the volume is shown in its original colours when viewing demolished data, not in red.	Volumes that have Colour by Distance applied now show as red when they are demolished and the users selects to view demolished points.
LFM-944	Clicking on "Show Volumes" from LFM Server toolbar of Navisworks 2016 will open a new LFM Server Volumes window each time.	The issue is fixed and now only one LFM Server Volumes window is opened even if the "Show Volumes" button is pressed multiple times.
LFM-926	Contour options are overlapped in the LFM Server user interface when "Colour By Distance" option is activated.	The issue is fixed and now Contour options are displayed properly in LFM Server user interface when the "Colour By Distance" option is activated.

Gateway Mode error fixes for previous release: 4.4.1.6

Internal Reference	*Description*	*Solution*
LFM-1137	Screenshots of BubbleView's are blank when captured using "Screenshot" button in Utilities tab.	The issue is fixed and the user is now able to capture the screenshot of a BubbleView properly using "Screenshot" button in Utilities tab.
LFM-1050	Size estimation doesn't display correctly for large dataset generations. Recommendation to use "multi-PC generation" (which is no longer supported) appears for large dataset generations.	Size estimation for large dataset generations now displays correctly. Recommendation to use "multi-PC generation" no longer appears for large dataset generations.

General/Server Mode error fixes for previous release: 4.4.1.3

Internal Reference	*Description*	*Solution*
LFM-961	When loading Point Clouds the load becomes progressively slower.	Performance is improved. Now loading point clouds takes less time compared to previous versions.
B5523	Extended pipe diameter is returned to original position after reopening the project	The issue is fixed and extend pipe diameter is now retaining its position after reopening the project.
B5485	Demolition is not shown in HyperBubble if the demolition is performed before HyperBubble resources are created.	The issue is fixed and now demolition is shown in the HyperBubble if the demolition is performed before HyperBubble resources are created.
LFM-995	Object pre-processing for LFM NetView project publication does not automatically fill in the object file location.	The issue is fixed and now the object file location will be filled automatically when doing object pre-processing.
LFM-994	File size estimate on the LFM NetView publish dialog ignores the 'copy dataset' checkbox.	The issue is fixed and now the dataset size is displayed only when “Copy Dataset” checkbox is checked.
LFM-993	LFM NetView floorplan generation consumes RAM and takes a long time.	Performance is improved. Now LFM NetView floorplan generation takes less time to complete compared to previous versions.
LFM-992	LFM NetView project publishing does not produce an LFM file at the top level of the dataset directory.	The issue is fixed and now LFM NetView project publishing is working as expected.
LFM-986	Unable to do Remap XGEOM in PDMS CAD link without “Run Clashes” permission if User Control is enabled.	The issue is fixed and it is now possible to Remap XGEOMs in PDMS if the user does not have the “Run Clashes” permission if User Control is enabled.
LFM-984	Cannot see points in MicroStation when connected to LFM Server.	The issue is fixed and now the points are visible in MicroStation when connected to LFM Server.
LFM-982	Orthographic measurements are not snapping to an axis correctly when holding shift key.	The issue is fixed and now the user can snap the point correctly while measuring in X/Y axis by holding shift key in the Orthographic view.
LFM-1028	If a large dataset is loaded, importing a second smaller dataset displays points very thinly on the second dataset	Issue is resolved and the points on the second dataset now display as expected.

LFM-981	LFM Server does not store user specified file locations (e.g. for .int files). The user is asked every time where the files are if they are not in the default location.	LFM Server now stores the file location if the files are not in the default location. The user will only be asked once for the location of the files.
LFM-978	Error “BubbleView does not belong to a point cloud” while preprocessing Objects for NetView.	The issue is fixed and now user can pre-process the Object file for LFM NetView without any issues.
LFM-966	LFM Server interface still says “Connected to MicroStation” after the user has pressed the “Exit LFM Server Link” from within MicroStation.	The LFM Server interface now updates appropriately when the user exits the MicroStation CAD link
LFM-955	All entities (Volumes, Measurements, Benchmarks, Markups etc.) are moved from their original position if the user sets the “Store Data In” option to File based multi user.	The issue is fixed and all entities (Volumes, Measurements, Benchmarks, Markups etc.) retain their original position if the user sets the “Store Data In” option to File based multi user.
LFM-910	Running a clash check doesn’t produce any clashes if the user deletes the existing clash files from the Clashes folder.	The issue is fixed and new clashes are successfully created even if the user has deleted the existing clash files from the Clashes folder.
LFM-863	Ortho measurement crosshairs not visible when the background colour is white.	When the user has their background set to white, the measurement crosshair is now black in the Orthographic view. This means the user can see crosshairs on a white background while performing Orthographic measurements.
LFM-987	Cannot zoom in/out in structural measurements modification window.	Issue is resolved, the user can now zoom in/out in the structural modification window.
LFM-677	Error continuously occurs when trying to Remap XGEOM in PDMS if user control is enabled and the current user does not have the “Run Clashes” permission	Issue is resolved, the error only occurs once. After the user clicks “OK” on the message it is not displayed again.
LFM-1037	Error stating “System translation is missing” appear when running object pre-processing for LFM NetView project publishing.	Issue is resolved, this error no longer appears.

Gateway Mode error fixes for previous release: 4.4.1.3

Internal Reference	*Description*	*Solution*
LFM-1026	LFM Server crashes on import of LAS scans in Gateway Mode.	The issue is fixed and the user is now able to import any LAS scans in Gateway Mode.
LFM-973	For Dot Product (.dp) scans the Volumes, View and Measurements toolbars are greyed out.	The issue is fixed and now the Volumes, View and Measurements toolbars are available when using Dot Product (.dp) scans.

Product QA cycle:

The LFM Software development philosophy uses AGILE principles to ensure a high quality product which evolves to match customer requirements. Throughout the development cycle, test and evaluation is used to guide the process and minimise the final test overhead.

The final test process has three stages, and this document has been prepared after these have been completed. These stages are outlined below.

Individual Function Test

All LFM desktop functionality is examined for correct responses. Functions called from the Main Menubar, Main Toolbar, Modelling Toolbars, and Component Browser are tested in turn. This ensures that the functionality matches the design intent, and previously recorded errors have been fixed.

Destructive Test

This section of the test schedule is aimed at investigating to see if a software product exhibits proper behaviour when subjected to improper usage, or improper input. The tests are applied to different data samples, machines, and in a random manner to try to replicate 'real world' variations in user conditions.

Software Acceptance Tests

LFM Software concludes the LFM test cycle with a series of controlled examples aimed at simulating real life use situations. The finished models are QA checked against calibrated historical data, to ensure that the product maintains the previous output standard.