

# Leica Geosystems Release Notes

**Product** Leica Cyclone 9.1.5  
**Date** 15 November 2016  
**From** Bill Wallace, Senior TLS Software Product Manager

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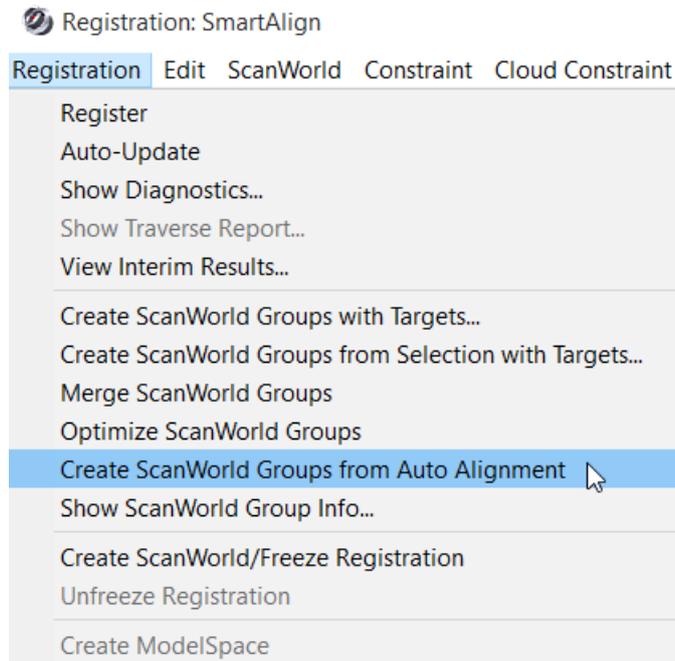
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## What's New

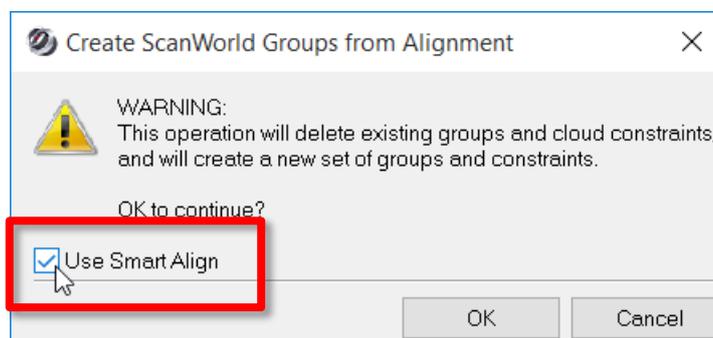
### *Auto-Align Scans with Previously Imported Scan Data*

With Cyclone 9.1.5 a user can now perform an Auto-Align with scan data that has already be imported.

1. Create a new or open an existing registration.



2. From the top menu go to **Registration | Create ScanWorld Groups from Auto Alignment**
3. A dialog will appear asking if you wish to use SmartAlign. Click the check box if want to use SmartAlign. You can run Auto Align without Smart Align by not checking the box. (More on SmartAlign in the next section.)



4. If the check box **Use SmartAlign** was checked the SmartAlign window will open with the setups that were in the registration. (More on SmartAlign in the next section.)

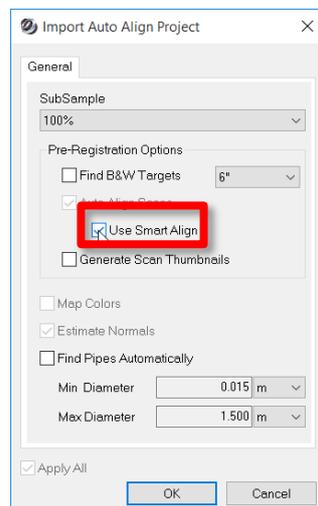
5. If the check box to Use SmartAlign was not checked, then Auto Align will run on all setups as normal.

## SmartAlign

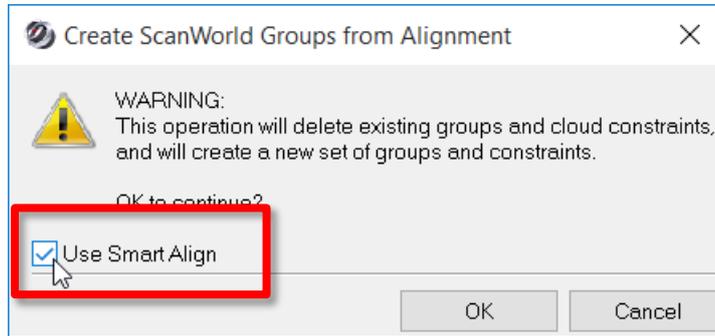
This new tool allows the user to pre-stage the Auto Alignment process via placement of known positions on a map (which is a user imported image). The user then creates links between scan positions by any one or combination of (i) manually created links, (ii) adding links by time, and/or (iii) adding links by distance. Pre-staging the setups to create known links greatly improves the time and quality of the Auto-Align Scans process. SmartAlign is available as an option to Auto-Align at both the data import stage as well as the post-import, Registration stage.



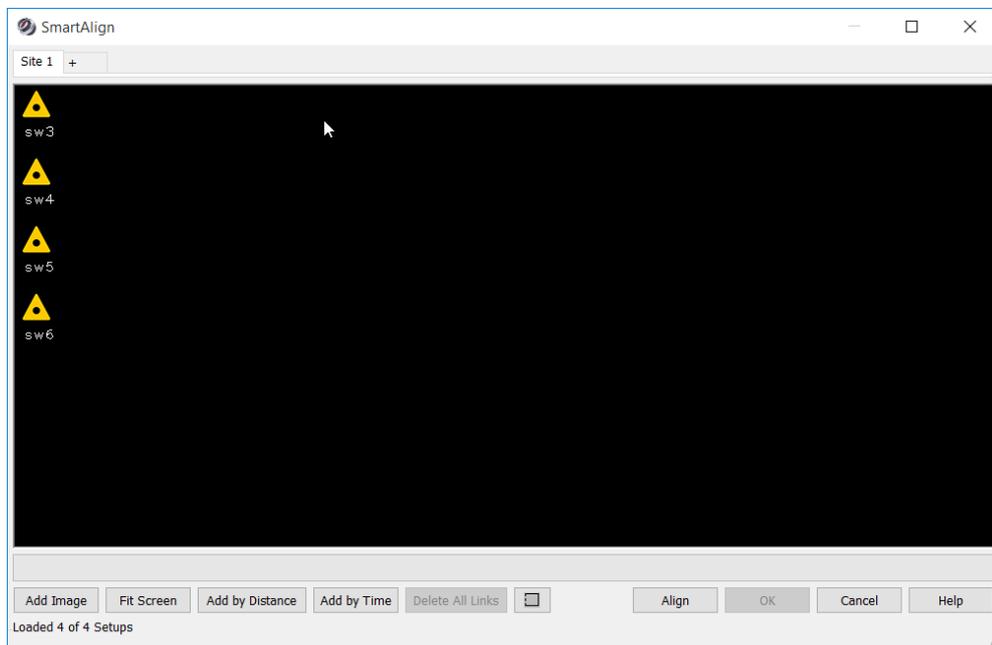
1. To use SmartAlign, begin a regular import of scan data and then select the **Auto Align Scans** option in the import dialog and then select **Use SmartAlign**.



Or, if in a Registration, after choosing **Create ScanWorld Groups from Auto Alignment** from the top **Registration** menu,

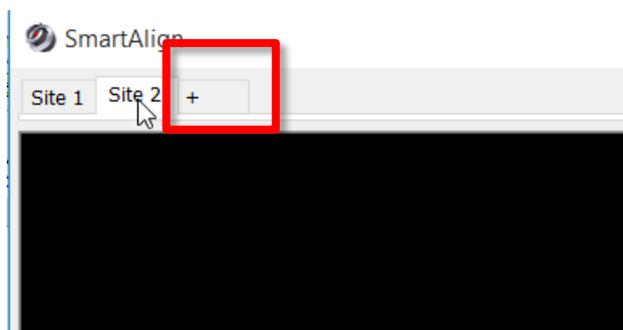


2. The scan data will go through the normal import process; at the end of import, the SmartAlign dialog will appear. In the following example, four (4) scans were imported for SmartAlign:

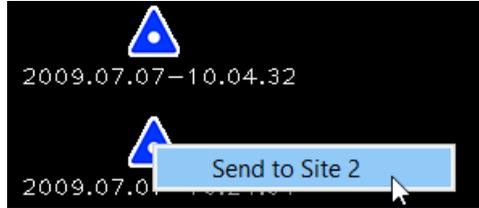


3. (Optional) At this point you can add another Site by clicking the + sign on the tab bar at the top. Adding another Site will allow you to transfer setups to another area. You may want to do this if you need Auto Align to consider groups of setups separately. For example, all setups on Floor 1 go into Site 1 and all setups on Floor 2 go into Site 2.

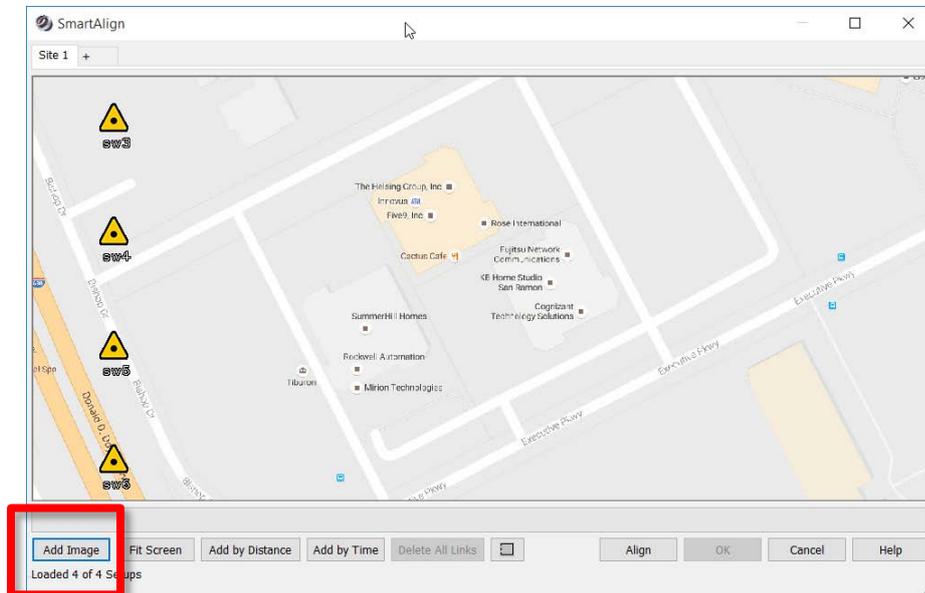
- a. To create another Site simply click on the + sign in the Tab area at the top.



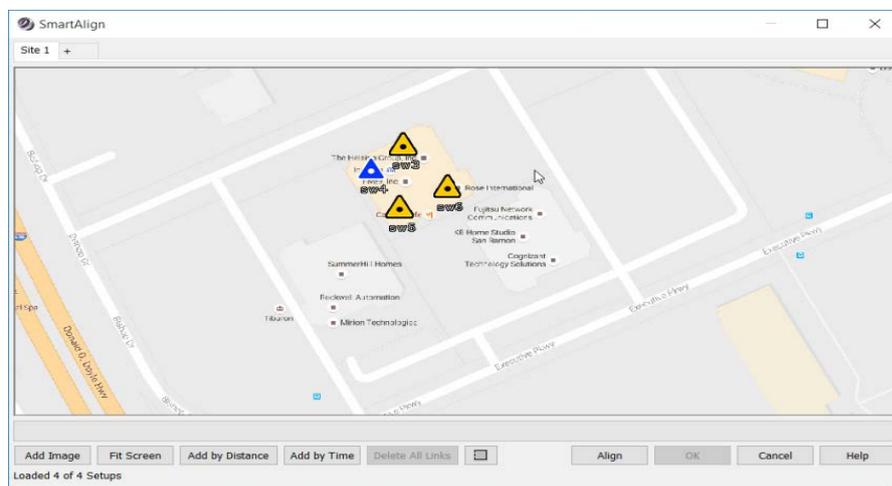
- b. To move setups to another site select the setup icons with a single left mouse click; hold the control key to multi-select other setups. You can also use the selection fence by clicking the  button at the bottom of the window. After you have a group of selected setups, right click. You will see options to send the setups to a particular Site. Click the desired Site and the setups will move to the selected Site.



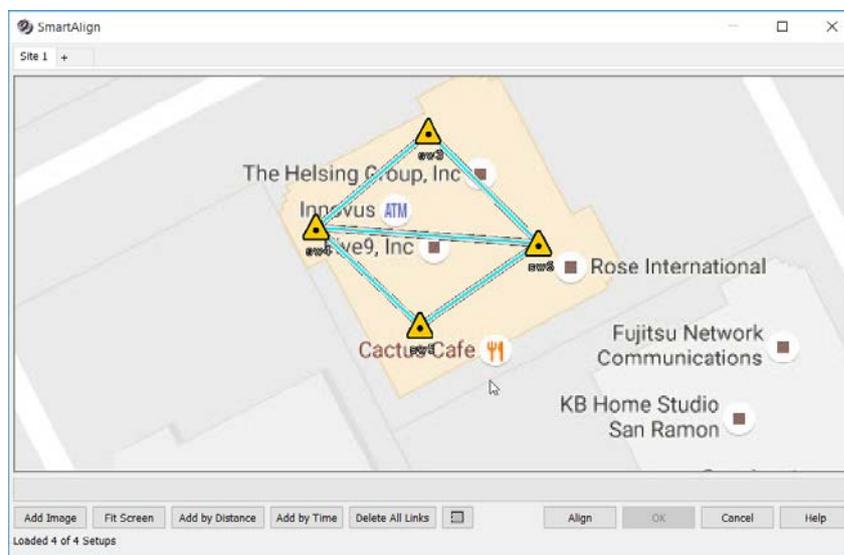
4. Next select the **Add Image** button to add a background image to the dialog. Browse for an image and click OK to view image in SmartAlign dialog:



5. Move the setup icons to their relative positions on the map. Using a single left mouse click and hold, drag the icons. Field notes works great for this part!



6. Next, add links between setups. *Adding links will allow Auto Align to only consider the links added, thereby saving a great deal of time.* You have multiple options for adding the links:
  - a. Drag one icon over another then back to the original position. A link will appear between them.
  - b. Click the **Add by Time** button. This will add links by the time stamp on the scanner file. This is a great way to add links according to the time if scans were captured in a sequential and chronological way.
  - c. Click the **Add by Distance** button. This will add links based on pixel spacing between the icons on the map.



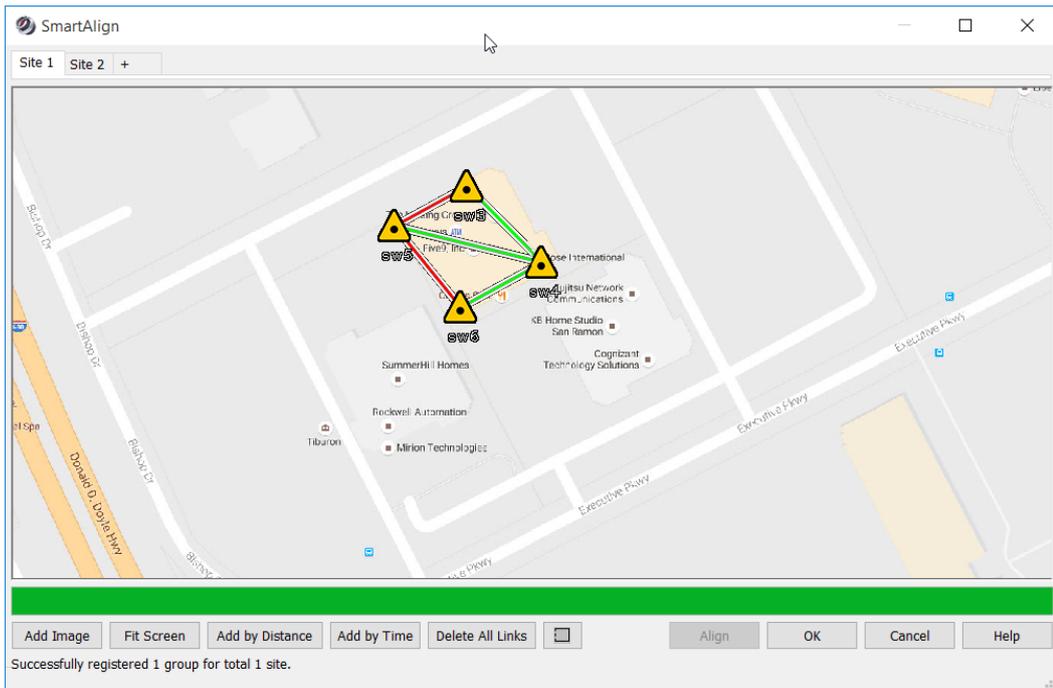
***Note: Any setups not linked will be compared to every other setup. It is recommended to put all setups not containing links to another Site.***

7. You can edit links by deleting them; simply left click to select the link and then press the keyboard delete key.
8. When all links are established, click the **Align** button to begin the Auto Align process.
9. During the Auto Align process links will turn red while they are being analysed.
10. At the end of the Auto Align process the links will turn colors based on the status of the link:
  - a. Green = Good link. Link will be used to form the group.
  - b. Yellow = Good link, but not necessary to form a group. You may decide to add this link latter in the registration process.
  - c. Red = Bad link. Link will not be used to form the group.

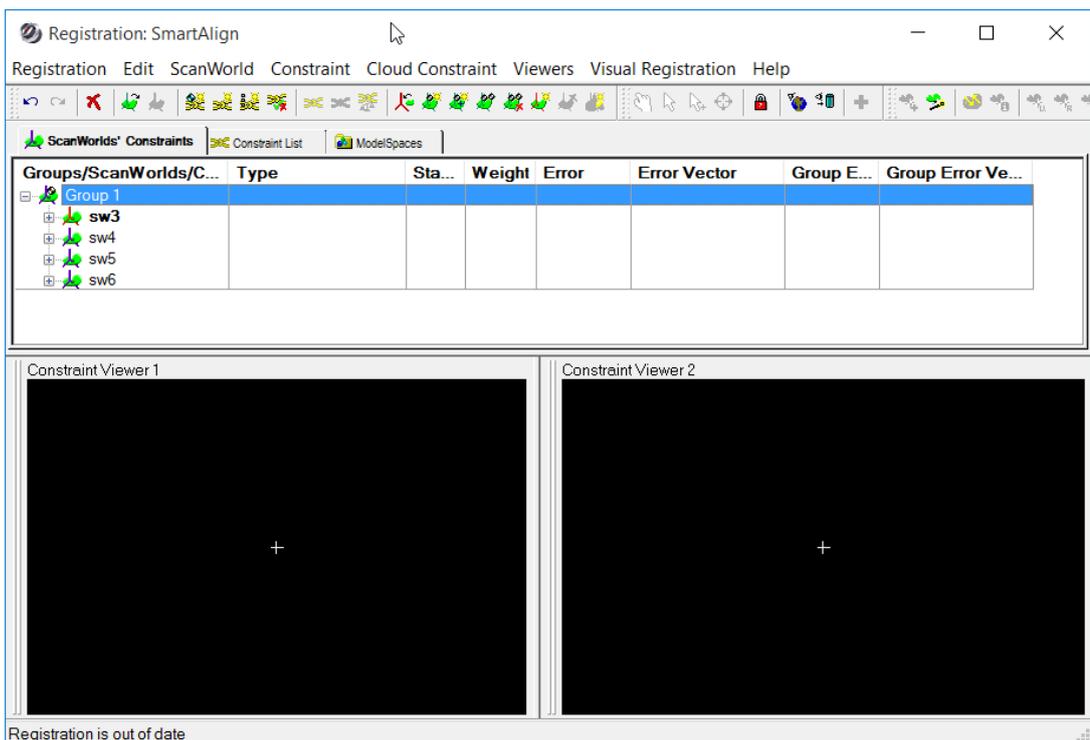
- At this stage, you can edit the links again by deleting them and creating new links in order to try the Align process again until you get to a desirable result.

**Note:** You can have more than one group in one site if Auto Align finds more than one group in a particular site.

- In the below example, Auto Align found 3 green (good) links and 2 red (bad) links. However the green links are enough in this situation to form a group as the green links connect all the setups in this site. You do not need to delete red links when you are ready to accept the results and continue with the Auto Align process.



- Click the OK button to finish the process. In this example, one group was formed and a registration was created with the grouped setups in one group.



14. You can then continue with the completion of the registration as normal.

### ***Import of Pegasus Flight Trajectory and Images***

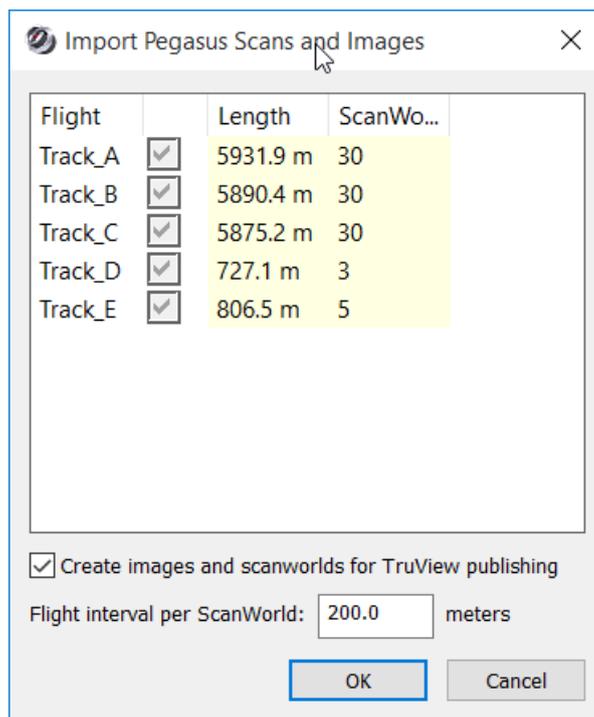
Cyclone now supports the import of flight trajectory paths and images with Pegasus scan data. Virtual ScanWorld locations can be created at a user selectable interval. Once imported, Cyclone will create (i) a ScanWorld with one point cloud for the whole path, and (ii) a Registration ScanWorld that contains individual ScanWorlds and their corresponding images at the user-defined interval. For example, if a Pegasus path is 1000m long and the user chose to create a ScanWorld position every 100m along the path, 10 virtual ScanWorlds will be created with the Registration ScanWorld. Each one will have the scan points and images of that position. Virtual ScanWorlds at the selectable intervals allows for the publication of TruViews from Pegasus data after import.

***Note: The only way to view images from Pegasus data is to create scan positions during import.***

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The following example illustrates the workflow of importing Pegasus data, setting an interval along a trajectory path, and creating ScanWorlds with images.

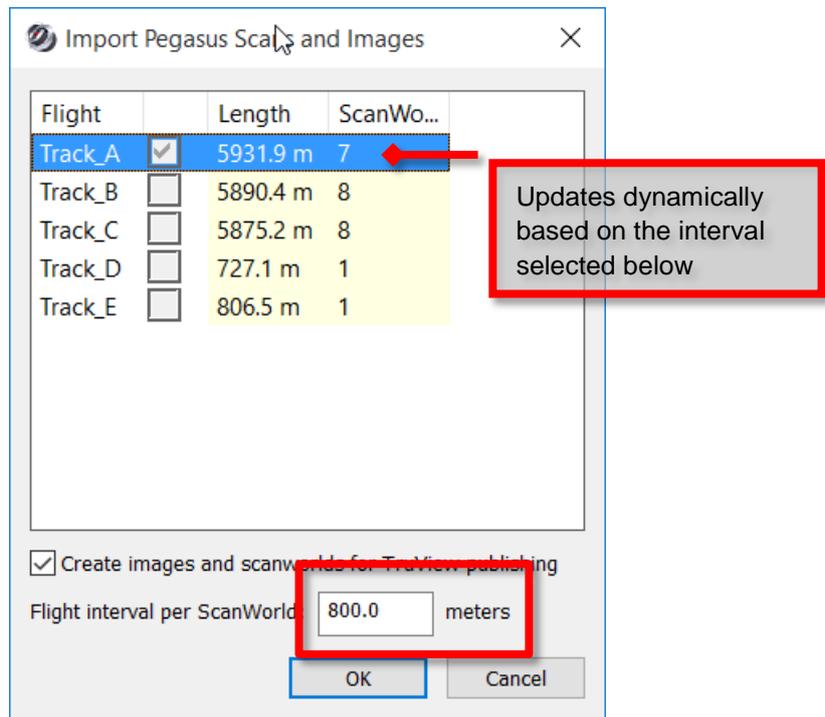
1. Select a Cyclone database and click on **File | Import Pegasus Project**.
2. Select a Pegasus project data folder and click OK.
3. You will see a dialog appear with import options:



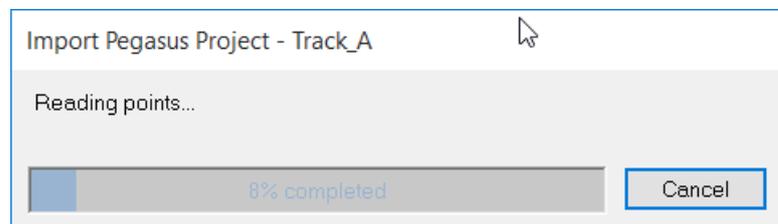
4. In this case there are 5 tracks available for import. All tracks that remain checked when clicking OK will be imported.

**Note: If the user only wishes to view the point data without images then the option to Create Images and ScanWorlds for TruView publishing need not be checked as this adds time to the import.**

5. Checking the **Create images and ScanWorlds for TruView publishing** check box will create a Registration ScanWorld containing the number of ScanWorlds derived by the user's input in the **Flight interval per ScanWorld** area in the dialog. In this example, the user only imports the first track and sets the interval to 800m, which will produce seven (7) ScanWorlds. The number listed in the ScanWorlds column will live-update depending on the interval distance set in the dialogue.

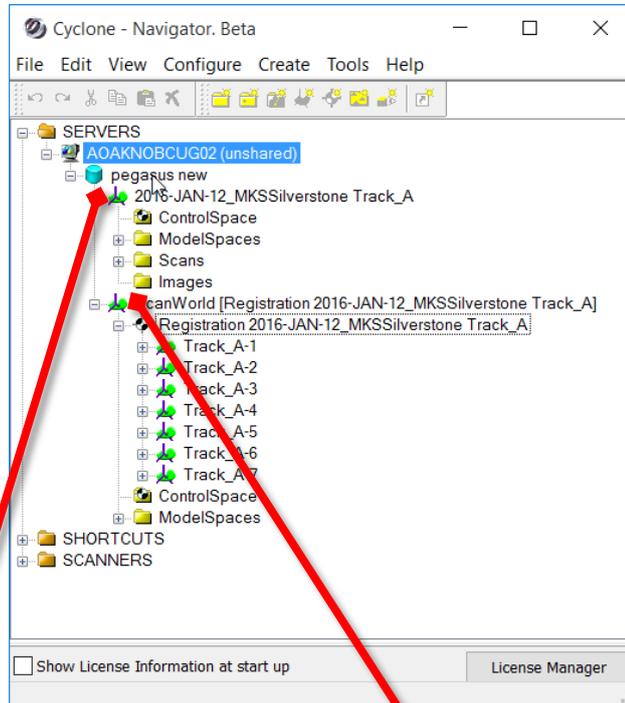


6. After clicking OK, the import process begins:



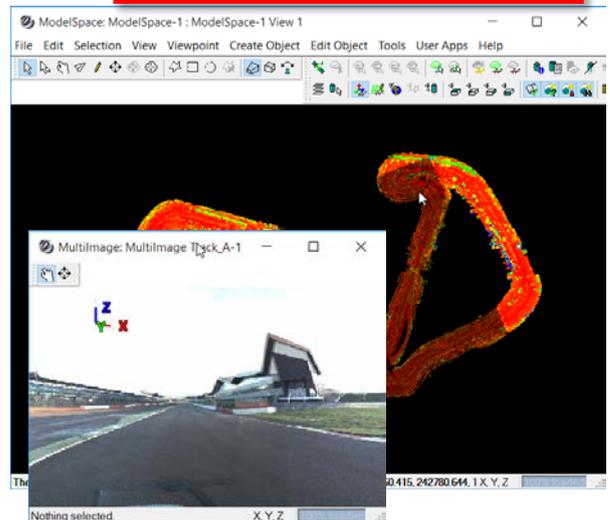
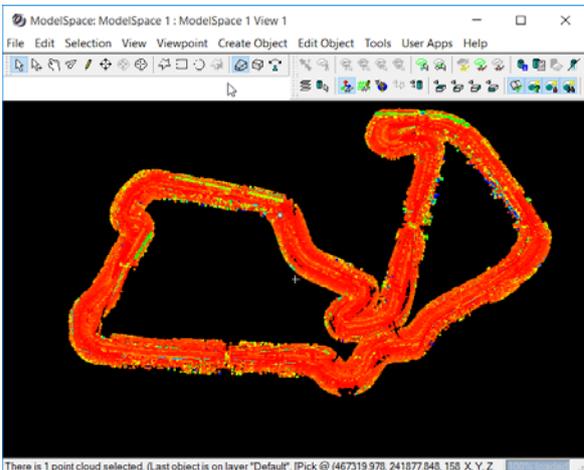
7. When the import completes, there will be two (2) ScanWorlds created:
  - a. One ScanWorld comprised of one, singular scan of the entire Track

- b. One Registration ScanWorld containing the virtual ScanWorlds and their respective images (if selected for import)



Contains single scan for entire flight track with no images.

Contains a registration of scanworlds with images for TruView publishing



## ***Auto-Align Panoramic Images Now Supports Nodal Ninja Workflows***

The Command **Import Panoramic Images** has been enhanced to support Nodal Ninja images.

1. Open a Cyclone database and click on the top project containing the ScanWorld that you wish to add images too.
2. Right click and go to **Import Panoramic Images**.
3. Select the folder that contains the panoramic images from the Nodal Ninja external camera workflow.
4. Proceed with import and alignment as normal.

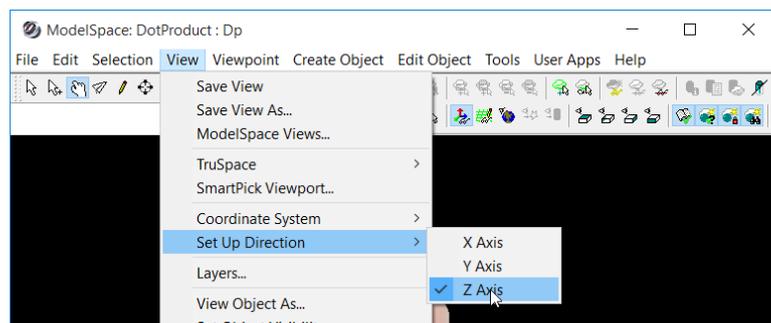
## ***Visual Alignment Now Supports DotProduct Data***

DotProduct data can now be brought into Visual Alignment and registered with other datasets.

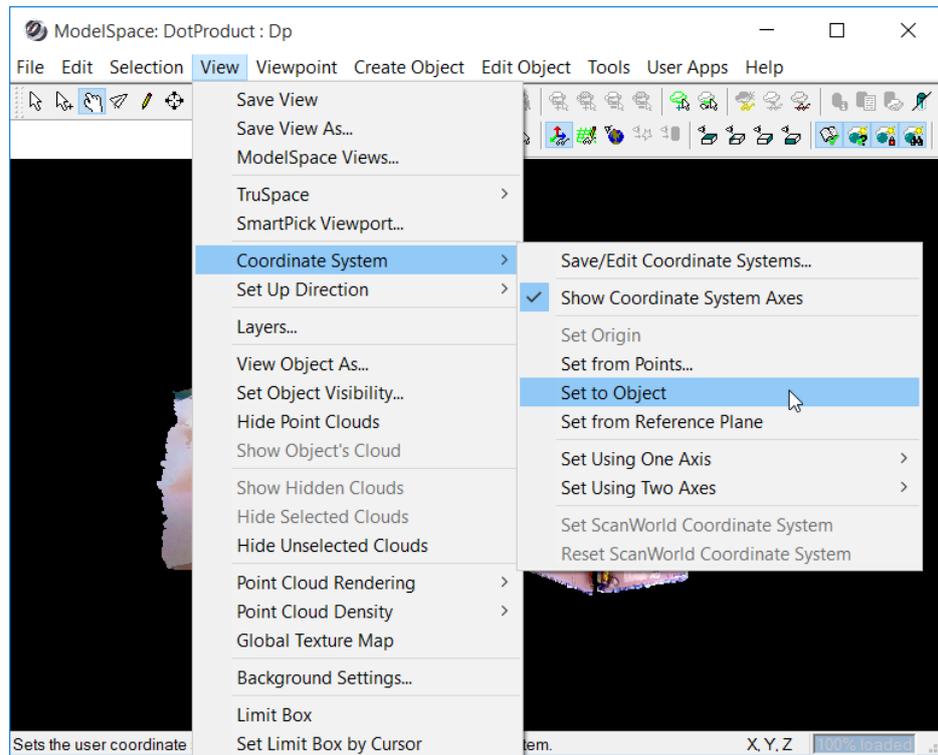
1. Add the DotProduct ScanWorld along with another ScanWorld to a registration.
2. Select both ScanWorlds and then from the top menu in the registration window choose **Open with Visual Alignment**.
3. Proceed with Visual Alignment as normal.

***Note: DotProduct data may not have the correct UP direction set when imported into Cyclone. Check that the Z axis is along a vertical surface. Visual Alignment works on data where the Z axis is perpendicular to gravity. If the Z axis is not perpendicular to gravity for the DotProduct ScanWorld, follow the below instructions.***

1. Open a ModelSpace and check if the up direction is set properly by selecting the **Top View** from the Cyclone menu. If the data is in Plan view and is correctly orientated then it will work in Visual Alignment.
2. If the data is not in plan view when **Top View** is selected then check that the up direction is set properly to Z up from the **View | Set Up Direction | Z Axis** menu.



3. If the Z axis is set, but the dataset is still not in plan view, you will need to manually set an up direction using one of the coordinate systems tools under **View | Coordinate System** (for example, set from points, set to object, etc.).

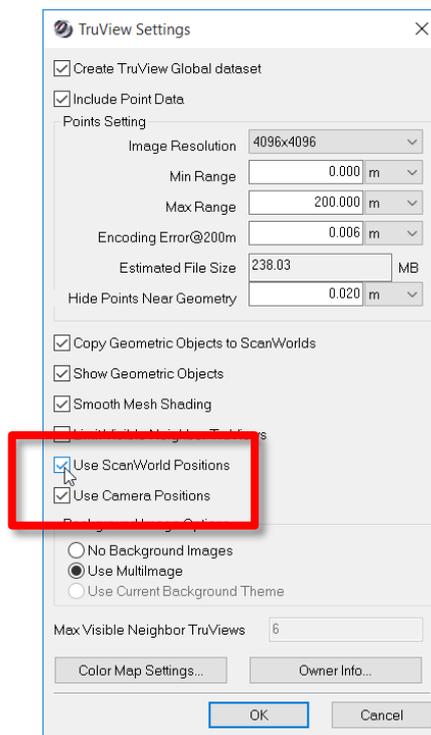


4. Once set, use the command **View | Coordinate System | Set ScanWorld Coordinate System** to promote the defined coordinate system to the ScanWorld level. This will allow Visual Alignment to present the data properly.

### ***Publish TruViews with both User Created Camera Positions and ScanWorld Positions***

Cyclone now supports the publishing of TruViews with both user inserted camera positions and ScanWorld positions at the same time / into the same dataset. (Previously, the user had to choose to publish with either user created camera positions OR ScanWorlds positions.)

1. Open a Cyclone Modelspace with both user created camera positions and ScanWorld positions.
2. Got to **File | Publish Site Map...**
3. Go to the TruView Settings dialog and select the options: **Use ScanWorld Position** and **Use Camera Positions**:

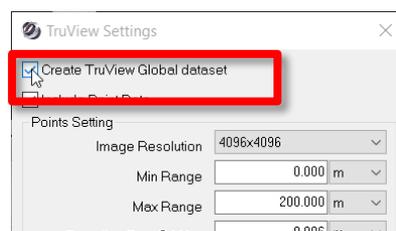


4. Click OK to publish the TruView dataset with both camera and ScanWorld positions.

### ***Publish Directly to TruView Global (TVG) Format***

Cyclone now supports the direct publishing of TruView Global data without the need for Leica's Pack & Go software utility.

1. From the Cyclone ModelSpace go to **File | Publish Site Map...**
2. In the TruView Setting dialog click the check box: **Create TruView Global dataset**



3. The \*.tvj file (TruView Global file) will be published to the same folder that was selected for the TruView publish.

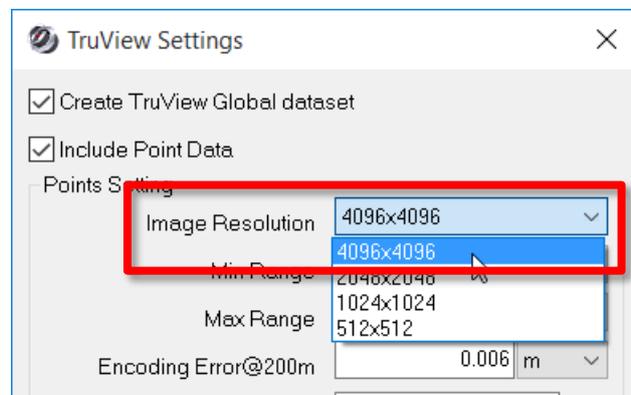
**Note: The traditional TruView dataset will also be published. Additionally, this works similar to Pack & Go and will harvest any files associated with GeoTags for inclusion in the TVG file.**

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### **TruView Publishing Now Supports 4K Images**

Cyclone now supports 4096x4096 resolution images and can publish the 4K images out to TruView data sets for use with TruView Global. TruView Classic does not officially support 4K images.

1. Select a ScanWorld or ScanWorlds that have 4096 resolution multi-images.
2. Select the new 4096x4096 images resolution in the publishing options:



3. Publish the TruViews and share via TruView Global.

### **3D Mouse Support (from 3Dconnexion)**

Cyclone now supports the use of a 3D mouse from manufacturer 3DConnexion. The wired SpaceNavigator and SpaceNavigator for Notebooks 3D mice, and the wireless SpaceMouse Wireless 3D mouse are officially supported. Please go to <http://www.3dconnexion.com/> for details.

The 3D mouse works in conjunction with a traditional mouse in Cyclone.

## New Fly Mode

In the ModelSpace view there is a new navigation mode called Fly Mode:



1. Click the Fly Mode icon to activate.
2. Hold down the left mouse button to fly forward.
3. Hold the right mouse button down to fly backward
4. Use the mouse wheel to control the speed of flight.

## Cyclone Now Supports Versions 1.2, 1.3, and 1.4 of LAS Scan Format for Import

New LAS version details:

- LAS 1.2 supports data format 0-3
- LAS 1.3 supports data format 0-5
- LAS 1.4 supports data format 0-10

## Bug Fixes

- *Speed increase for image blending during P40 import*
- *Fixed a bug where sending data to JetStream failed when image files were missing*
- *Fixed a bug where Cyclone crashes with trimming patches*
- *Fixed a bug where Cyclone failed to publish meshes to TruView*
- *Fixed a bug where Cyclone failed to Pack & Go GeoTags*
- *Fixed a bug where point clouds in either ModelSpace View or TruSpace could not be selected when a target is present*
- *Fixed a bug where Project URL was not correctly written to the published TruView metadata*
- *Fixed a bug where Cyclone froze when quickly browsing images in pano viewer (an integration of the Cyclone 9.1.4 Hotfix)*
- *Fixed a bug where arrow keys worked improperly when moving User Viewpoints*
- *Fixed a bug that published the wrong multi-images to TruView when the user has added another multi-image to the dataset*
- *Fixed a bug in Fit to Cloud's Sphere Target tool where the sphere was not always accurately fitting to the sphere points*
- *Fixed a bug where publishing data with large extents (e.g., an extensive roadway) failed to display the proper density in JetStream*
- *Fixed a bug where some iSTAR imagery failed to align properly with the point cloud data*
- *Fixed a bug where when publishing TruViews, the setting: "Hide Points Near Geometry" did not work*
- *Fixed a bug where gradient background image was ignored when publishing to TruView for data that had external camera images*

- **Fixed a bug where some imported LAS files failed to properly display RGB values**

## **Leica Cyclone 9.1.5 Compatibility and Upgrades**

### **Windows 32-bit Support**

Cyclone 9.1.5 no longer supports a 32-bit operating system.

### **Cyclone Database Management Recommendation**

To avoid possible database inconsistencies or corruption while moving or copying databases, we recommend the following:

- Locate each *.imp* file in its own folder
- When copying, moving or backing up databases, copy/move/back up the complete database folder, including the *.imp* file, **eventlog** folder and files, and **recovery** folder and files
- The **eventlog** records administrative events and critical errors
- The **recovery** file keeps databases consistent, avoiding data corruption that may happen in rare situations
- When adding databases to Cyclone, a warning dialog is displayed if a database's recovery folder cannot be found when it is added to the database server. Push the **More Info** button for more information.

### **Upgrading to Cyclone 9.1.5 from Cyclone 6.0.x – 9.1.4**

You must have Administrator-level privileges on your workstation to correctly install Leica Cyclone software.

Run the Cyclone 9.1.5 InstallShield and follow the directions in the InstallShield Wizard to proceed with the installation. Please heed the warning message about compatibility of earlier version databases.

All users with a valid license(s) for Cyclone 9.1.x or later can run this new version with no new license required. All users with a currently valid CCP or with CCP which was valid as late as 25 May 2015 can receive a new license to run this version.

### **Compatibility with Cyclone 9.1.5 AND Cyclone 8.1.3 or Earlier Versions**

Cyclone 9.1.5 databases are *NOT* backward compatible with previous Cyclone versions 8.1.3 and earlier. Databases that are updated using this version of Cyclone cannot then be used with earlier versions. If you need to work with your data in older versions of Cyclone, you should make an archive copy of your database(s) prior to upgrading. Since it can take some time to update and optimize Cyclone databases, we recommend that you optimize your databases overnight, particularly when multiple databases are involved.

## **Known Issues**

### **4K Imagery with Classic TruView and Internet Explorer**

The classic TruView plugin for Internet Explorer does not officially support 4K imagery. To take advantage of 4K imagery, we recommend TruView Global.