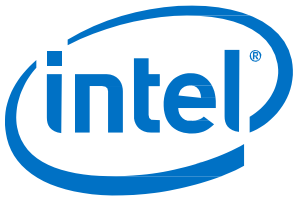
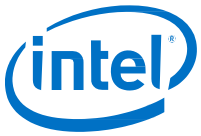


Intel® Insight Platform

User Manual

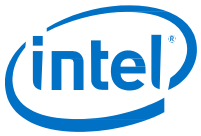
Rev. 002

July 2019



1 Revision History

Revision Number	Description	Date
001	Initial Release	October 2018
002	First Revised Release	January 2019



2 Contents

3 Copyright

4 User Manual

This manual provides a detailed description of all functions in the Intel® Insight Platform.

Intel® Insight Platform

Thank you for choosing the Intel® Insight Platform.

The Intel Insight Platform is a data-management platform based on a cloud architecture. It is focused on aerial imagery obtained with drones. It enables customers to upload and process their drone projects and share or download the results, as well as doing task management based on a smart annotation tool.

The Intel Insight Platform is designed to help optimize (1) geotagged data storage, (2) 2D & 3D model processing, and (3) 2D & 3D inspection projects. For each project, several different outputs and analytics are available.

Capitalized terms used without definition in this manual refer to functions and features within the Intel Insight Platform.

Any reference to users or you in this document assumes authorization by the authorized account manager.

Nothing in this manual changes the terms and conditions of any Intel Insight Platform access agreement or the terms of use applicable to the Intel Insight Platform.

4.1 Features

The Intel Insight Platform supports the following features:

4.1.1 Pre-check

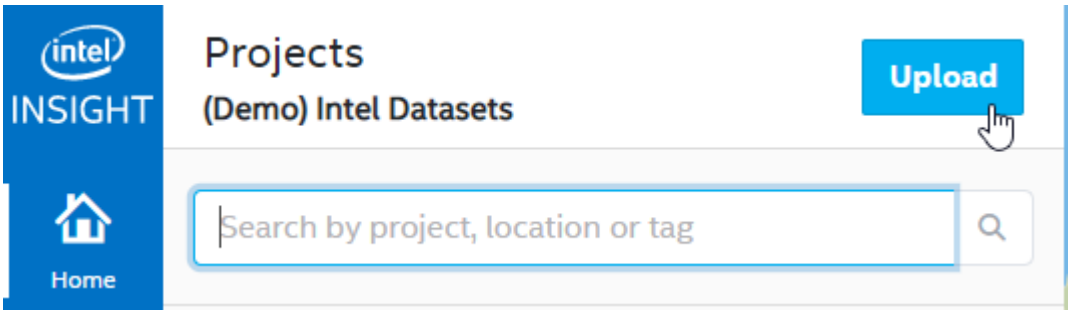
Prior to processing images uploaded by the user into the Intel Insight Platform, the platform gives the user a pre-visualization of their uploaded data set. This pre-visualization is like a rough sketch of the inspection surface with the photos organized and placed with respect to their proximity and orientation to one another based on location data. This pre-check feature allows you to confirm that the operation went as planned before uploading the photos to the Intel Insight Platform for processing.

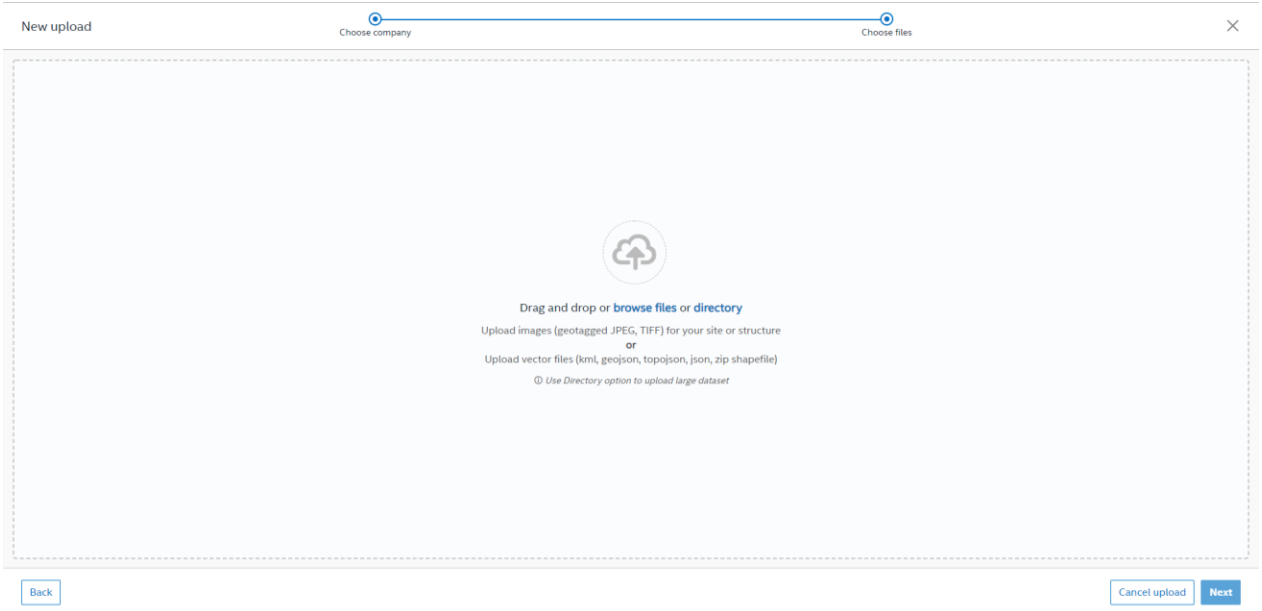
4.1.2 Upload

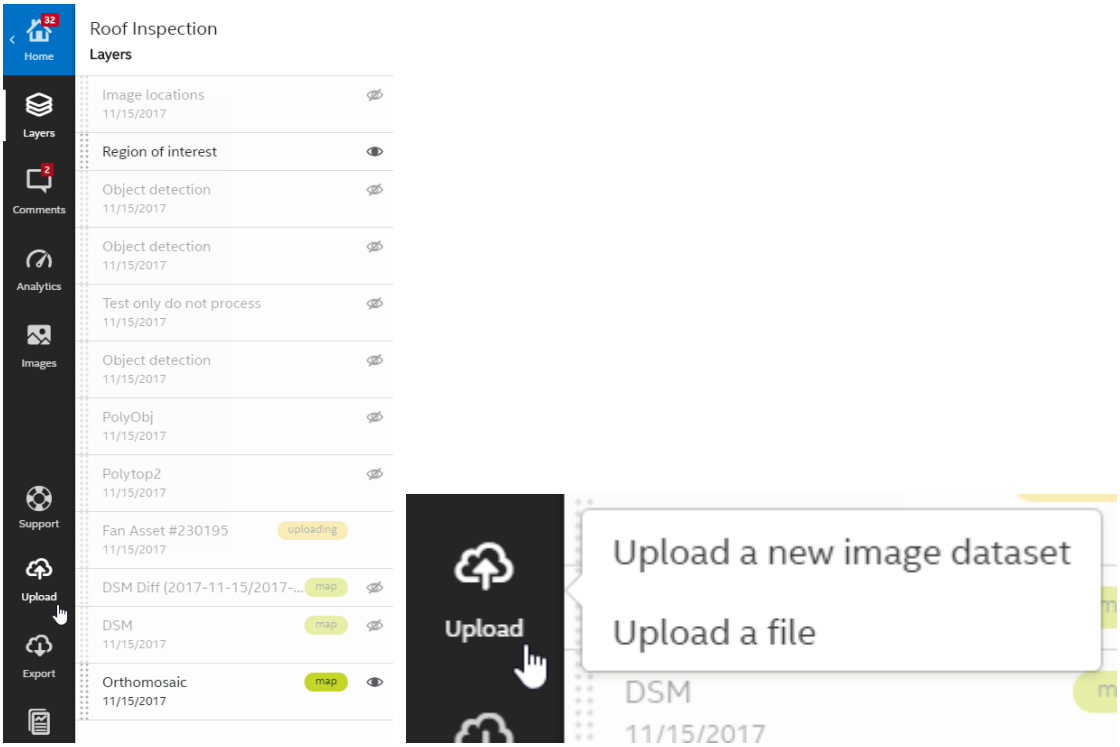
The Intel Insight Platform allows the user to upload:

- Image data sets to generate 2D & 3D models. The user can upload the images into a Gallery or store for later use;
- reference files to be attached to a mission of a project or as a reference file shared across all missions of a project;
- Ground Control Points (GCPs) to be added to projects before or after uploading, prior to processing;
- Geotagged raster files (.tif) and previously computed orthophotos;
- 3D point clouds (.las);
- mesh files (.obj) with optional textures (.mtl, .jpg).

When uploading a mesh, you will be prompted to provide an offset. This offset is needed in case the mesh you are uploading was generated in a local coordinate system. It represents the offset between this local coordinate system and the coordinate system of the project. It is an output of the photogrammetry tool used to generate the mesh.


intel
INSIGHT
Home
Projects
(Demo) Intel Datasets
Upload
Search by project, location or tag


New upload
Choose company
Choose files
Drag and drop or browse files or directory
Upload images (geotagged JPEG, TIFF) for your site or structure
or
Upload vector files (kml, geojson, topojson, json, zip shapefile)
Use Directory option to upload large dataset
Back
Cancel upload
Next



4.1.3 2D and 3D Models

After the photos are processed in the cloud, they are delivered as a 2D Orthomosaic, Digital Surface Model (DSM), point cloud or 3D model positioned in a global map.

4.1.4 Geolocation

GCPs are ground targets with known high resolution GPS locations that can improve the localization of data. The user can insert and tag GCPs in images using the marking tool during the upload process to be included during photogrammetry processing.

4.1.5 Annotations and Layers

Annotations including points, lines or polygons can be added to orthomosaics, images, models, or point clouds and used to perform tasks such as measurements, or to describe inspection findings.

In the Intel Insight Platform map, models, annotations and results are treated as layers that can be added, shown, reordered, or hidden.

4.1.6 Measurement

Measurement functions including point, length, area and volume calculation (such as the volume of a stockpile) are available.

4.1.7 Inspections

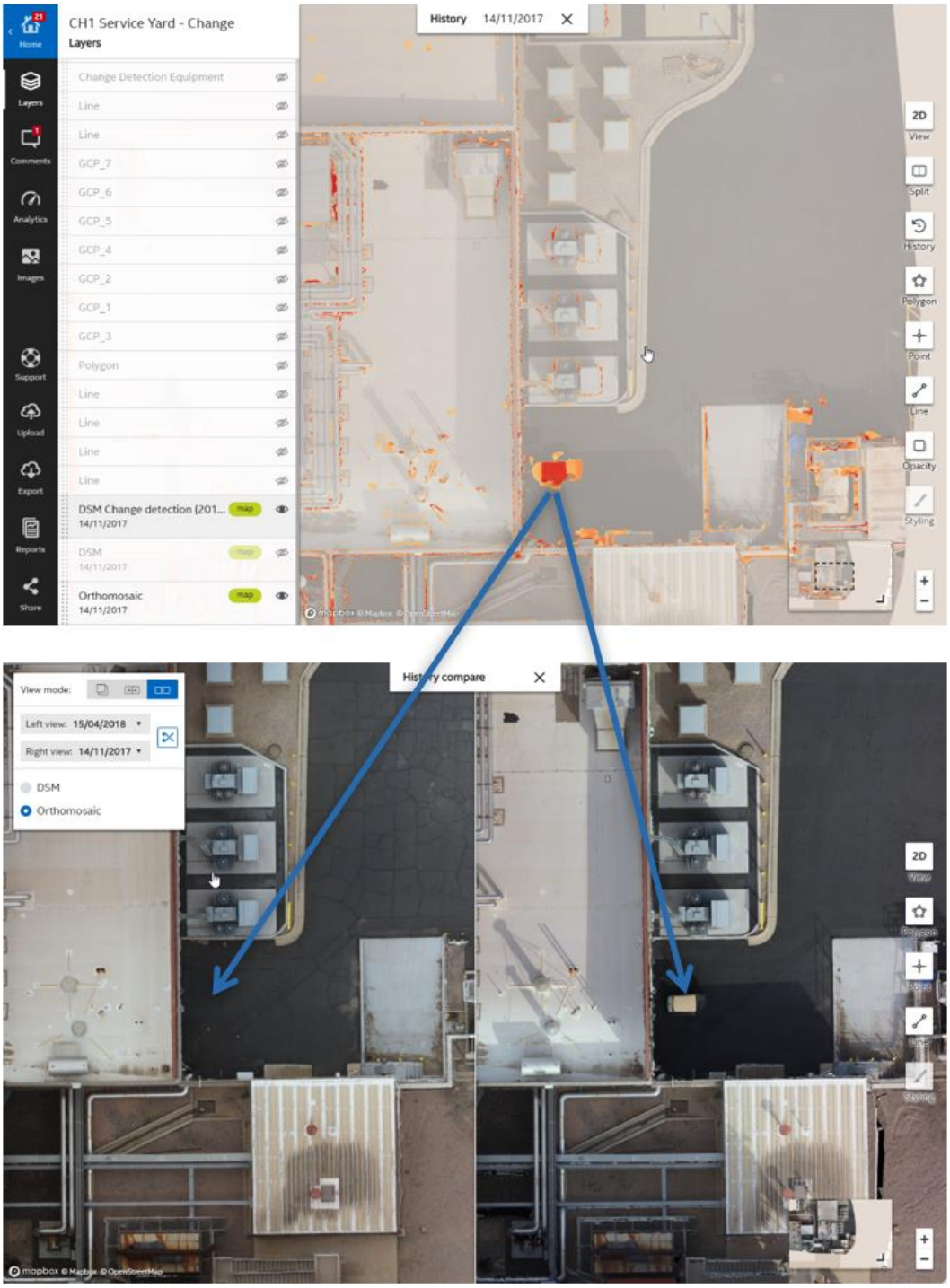
The Intel Insight Platform provides several ways to carry out inspections. The Gallery allows the direct viewing of all images, while 2D and 3D Proximity filters, coupled with History and side by side Split screen tools, allow the user to focus their attention on specific images relevant to their task.

Annotations can be added to images, on 2D and 3D models, and in the map to locate and describe inspection findings. Reports can be generated to aggregate and publish your work.

4.1.8 Change Detection (History compare)

Once more than one dataset has been processed in the Intel Insight Platform, tools such as the History view, and analytics such as DSM change detection, allow for the direct comparison of assets through time.

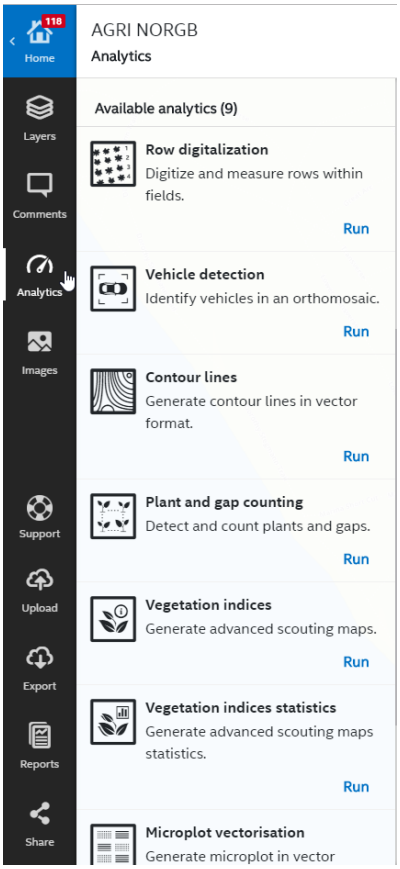
In addition to the user interface features designed to help you compare datasets visually, you can automatically compare two DSMs to generate a 'heat map' that automatically highlights areas of change. This analytic can be launched from the Analytics menu, and requires that the data from the two flights already be uploaded and processed. Note that the accuracy of this feature will be substantially improved by using GCPs.

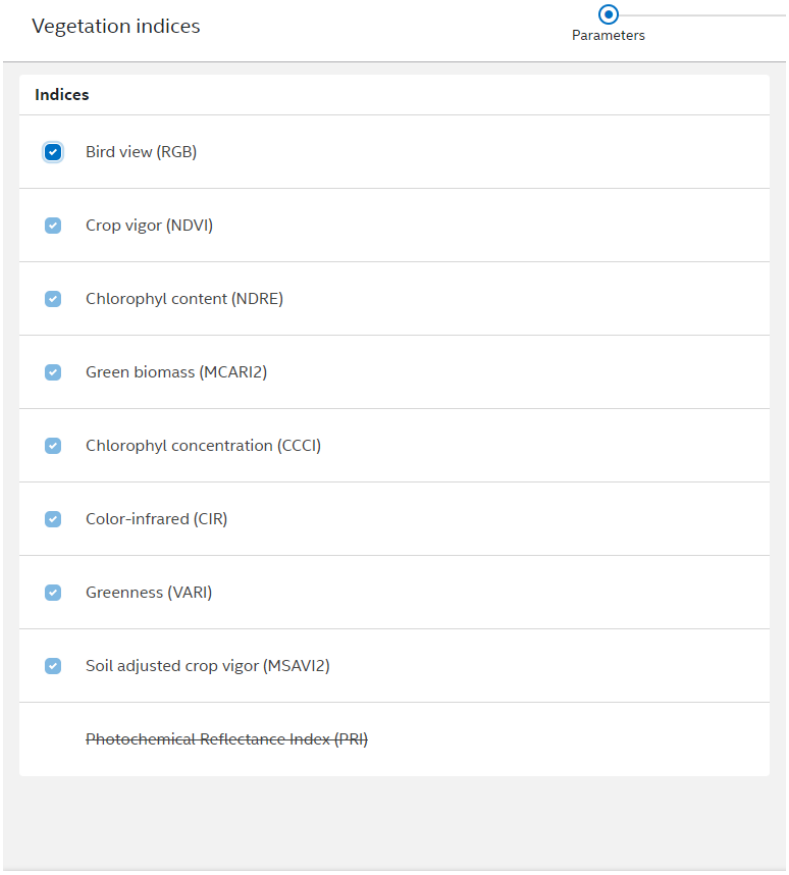


4.1.9 Analytics

Analyze your flight data with special tools and methods such as: , DSM, DSM Change Detection, Contours, Agricultural indices, and more. The list of analytics is constantly evolving.

4.1.9.1 Agriculture Analytics





4.1.9.1.1 Vegetation Height

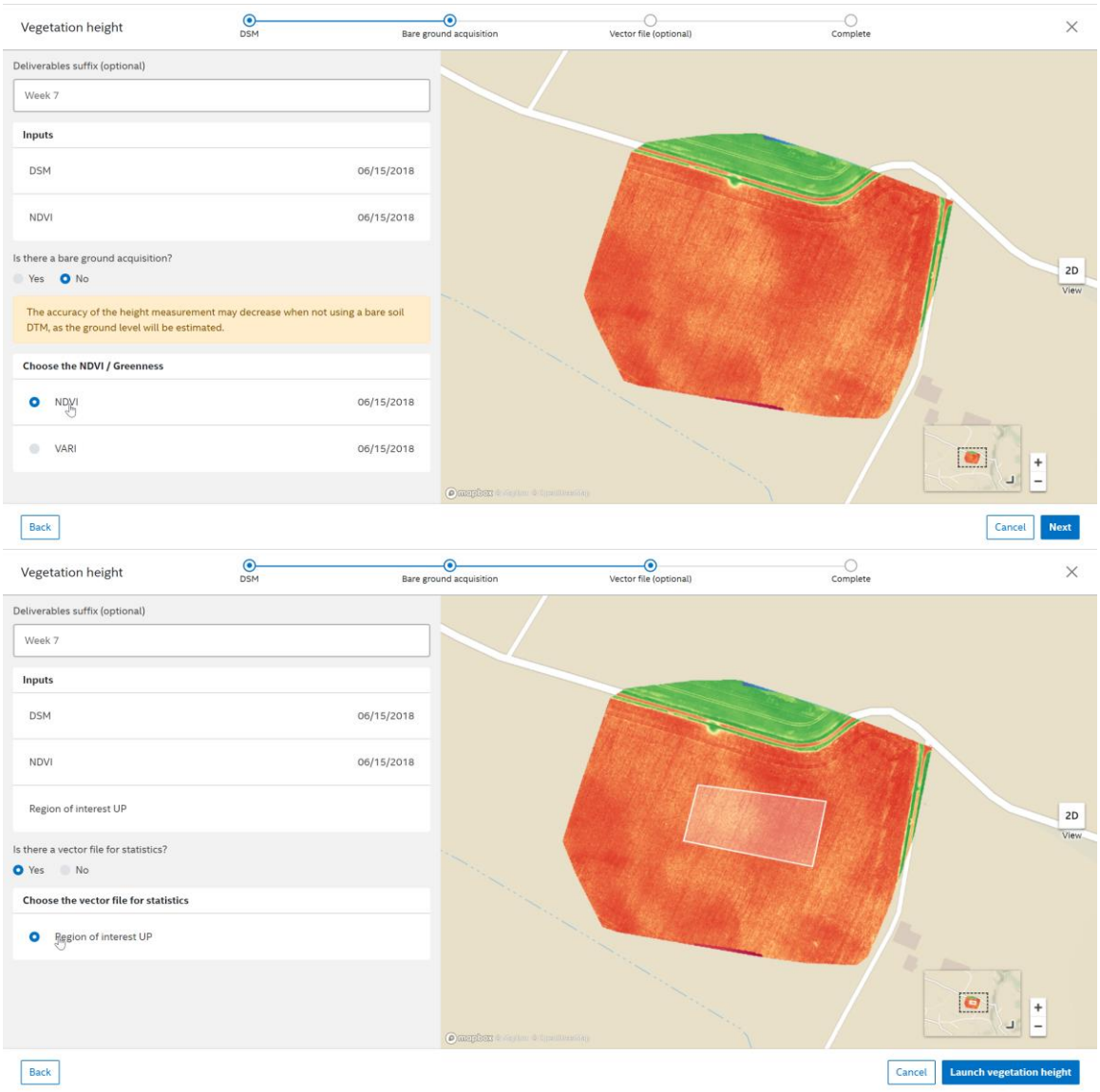
The **Vegetation height** analytic allows the user to calculate the height of a crop in two ways:

- Measure the height of a crop versus a dataset taken of the bare earth before growth commenced (or an incremental baseline);
- Attempt to measure the height of a crop by detecting the height of the earth around the field (may not succeed, and may be less accurate).

This analytic is accessible for multispectral datasets that have been processed. The analytic can be launched from the **Analytics** menu within the project.

Once selected, the user has the option to:

- Add an identifying suffix (*Deliverables suffix*) to the generated calculation;
- Choose to measure the crops versus an existing dataset or by estimating the ground level;
- Define a specific area of interest by choosing an uploaded polygon vector file (GeoJSON) that will be used for the computation.

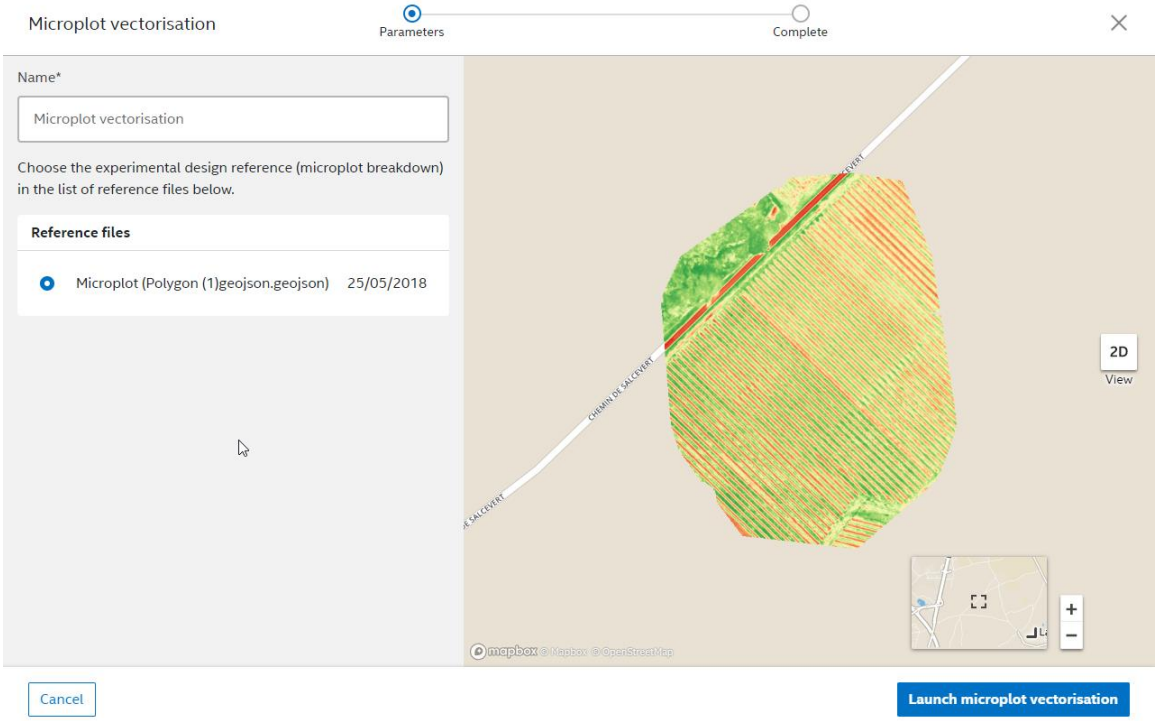


When completed, the results will be provided in the following formats:

- A vegetation height raster named “Vegetation height”, or “Vegetation height (suffix)” if a suffix has been entered. Export format: TIF file
- If the statistics option has been selected, the vegetation height statistics vector named “Vegetation height statistics”, or “Vegetation height statistics (suffix)” if a suffix has been entered. Export format: GeoJSON file

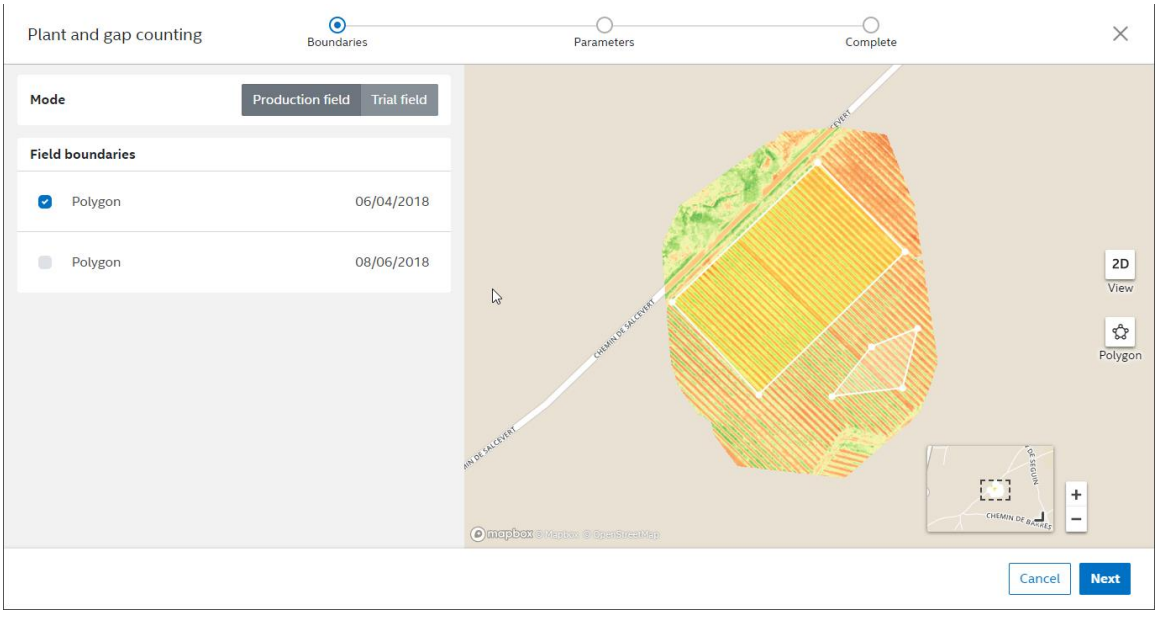
4.1.9.1.2 Microplot Vectorization

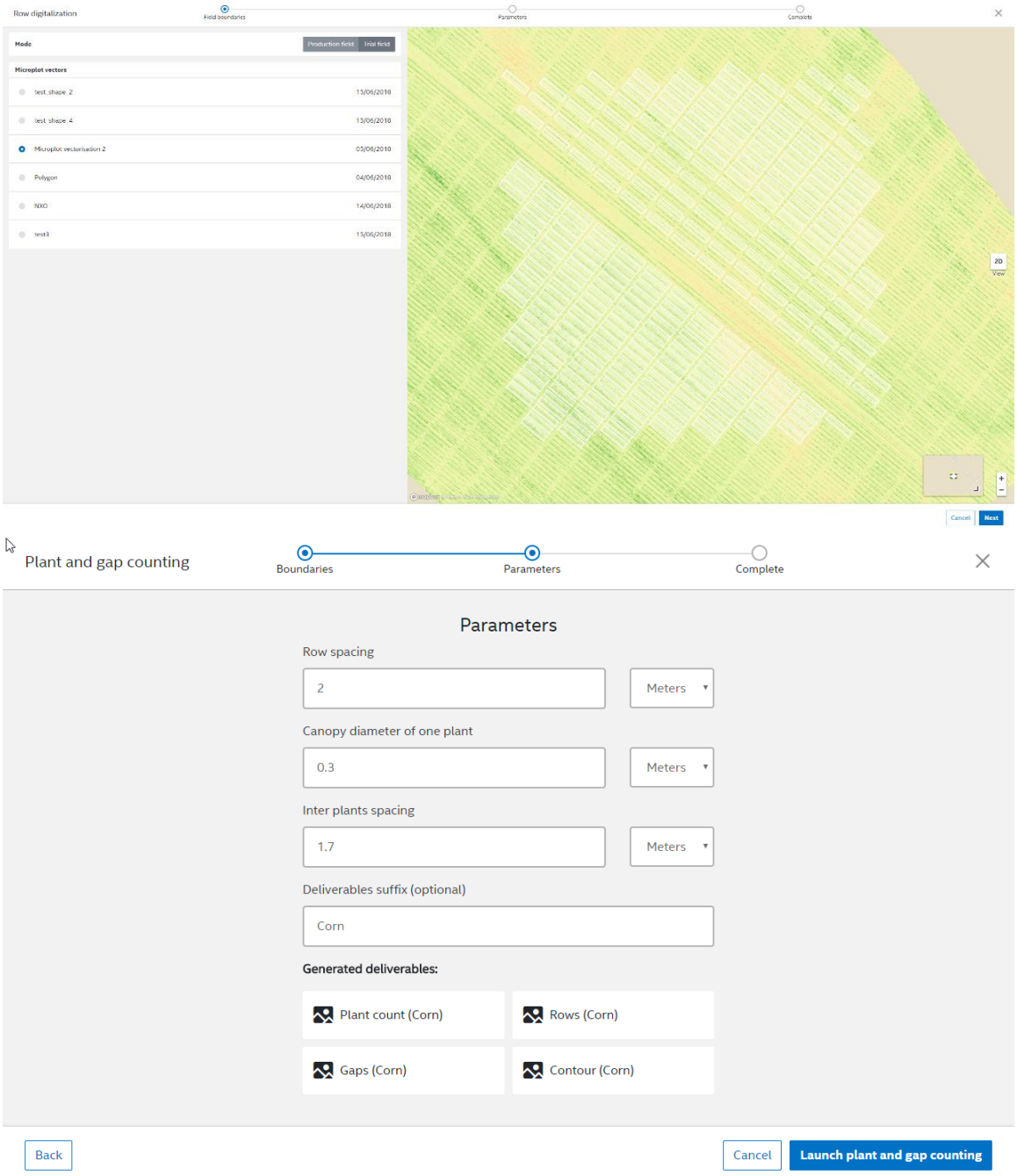
Microplot Vectorization is the creation of segments (vectors) around microplot in agriculture.



4.1.9.1.3 Row detection, and plant & gap counting

Trial fields and production fields are organized in different ways depending on size, rows, etc. To run plant and gap counting, first select your mode of analysis, production or trial. Then select the field boundaries for a production field or microplot boundaries for trial fields. Last, enter the row spacing (row spacing should be fixed), the canopy diameter (that is, the size of the plant seen from above) and the interplant spacing.



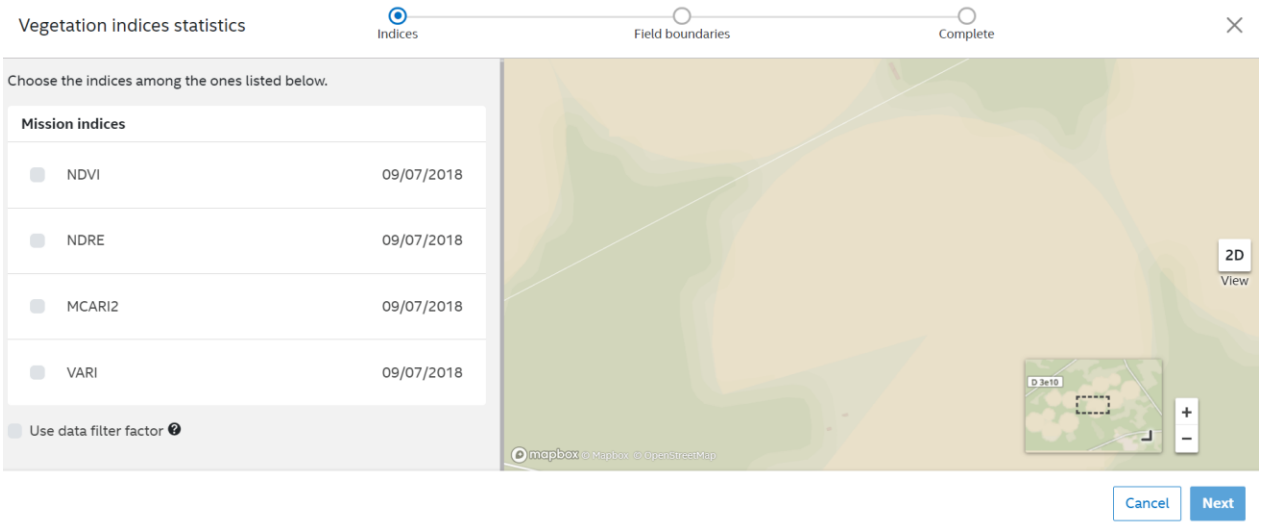


4.1.9.1.4 Vegetation indices statistics analytic

To generate statistics of any vegetation indices that have been processed in the Intel Insight Platform within a vector in the field, first select the indices, and then select the vector on which you need statistics. Among the result of the outputs, you will get:

- Count: number of pixels taken into account in the calculation;
- Maximum, minimum, mean, mode, variance, and standard deviation values of the indices within the vector.

The output is exportable in GeoJSON or CSV format.



4.1.9.1.5 Greenness

Greenness is a vegetation index used to estimate the fraction of vegetation in the map when no multispectral data are available. This index is known by its scientific name of VARI and is derived from the red, green and blue spectral bands.

4.1.9.1.6 Reflectance calibration panels

Reflectance calibration panels can be used for multispectral missions. To use reflectance calibration panels, you must upload the images into a gallery and then run the photogrammetry separately once uploading is complete.

4.1.9.1.7 MSAVI2 index

The Soil Adjusted Crop Vigor index (MSAVI2) requires the camera to have NIR and red bands. The goal of the MSAVI2 index, is to minimize the effect of soil influences on the canopy reflectance. It is particularly useful for early crop stages or orchards and vineyards.

4.1.9.1.8 Photochemical Reflectance Index (PRI) with M4C-PRI camera

The Photochemical Reflectance Index (PRI) can be calculated. PRI measures plant responses to stress, and can be used to assess vegetation health. This index is available for multispectral projects, and can be found under **Vegetation indices** in the **Analytics** menu.

4.1.10 Data Export

All layers can be exported in different formats supporting further evaluations.

4.1.11 Team Management

The Intel Insight Platform supports your team with collaboration features like user management and usage monitoring. Users can insert descriptions and comments to layers and images, directly tagging and notifying their colleagues to draw their attention to a specific annotation or object. You can generate reports and share the results of your work.

4.2 Getting started

Learn how to get started with the Intel Insight Platform. This section provides a description of basic concepts and a how-to section with typical workflows.

4.2.1 Definition of concepts

4.2.1.1 Project

The Intel Insight Platform is an asset-centric platform that allows the user to geo-locate multiple projects at the same location. A single asset may have multiple projects relating to activities such as roof inspections, or new construction activities. A Project is defined by the user to aggregate together a group of related Missions. Examples of an asset include: a windmill, a pipeline part, a corn field, a quarry, a telecom tower, and so on.

Uploading datasets of the same asset gathered at different times to the same project allows users to monitor, to detect defects, to measure differences and, therefore, to manage the asset.

4.2.1.2 Mission

Each project can contain different datasets, or “Missions”, uploaded during project creation or at a later date. These datasets are typically used to group together a collection of related images, models, and reference files that are associated with a particular date and time called a Mission Date or Flight Date.

4.2.1.3 Orthomosaic

An orthomosaic is a detailed, accurate photo representation of an area, created out of the uploaded photos that have been stitched together and geometrically corrected ("ortho-rectified").

4.2.1.4 Viewpoints

The project view contains two main viewpoints, 2D and 3D, that can be navigated using the mouse. Specialized modes like Split screen (2D and 3D) and History compare (2D only) can be turned on for inspection and comparison tasks.

The 2D viewpoint is the default for all projects. In it, the project location is shown on a base map, along with any associated orthomosaic, DSM, annotations, layers or image locations.

The 3D viewpoint displays models (such as point clouds and meshes) and annotations in a 3D environment, without any reference base map.

4.2.1.5 Files and Reference Files

Files of almost any type can be uploaded to the platform. These can be uploaded and attached to a specific mission, or they can be uploaded as a reference file to span the whole project. Some file types, such as vector files like the KML or GEOJSON file formats, will be treated as layers; others will be stored and accessed from the Export view. A new project can be started by uploading a reference file. This can be useful in circumstances where image data does not yet exist for the project, yet the user wishes to start planning and attaching files and annotations. To do so, a reference file of type KML, GEOJSON, TOPOJSON, JSON, or ZIP (Shapefile) must be uploaded.

4.2.1.6 2D Annotations

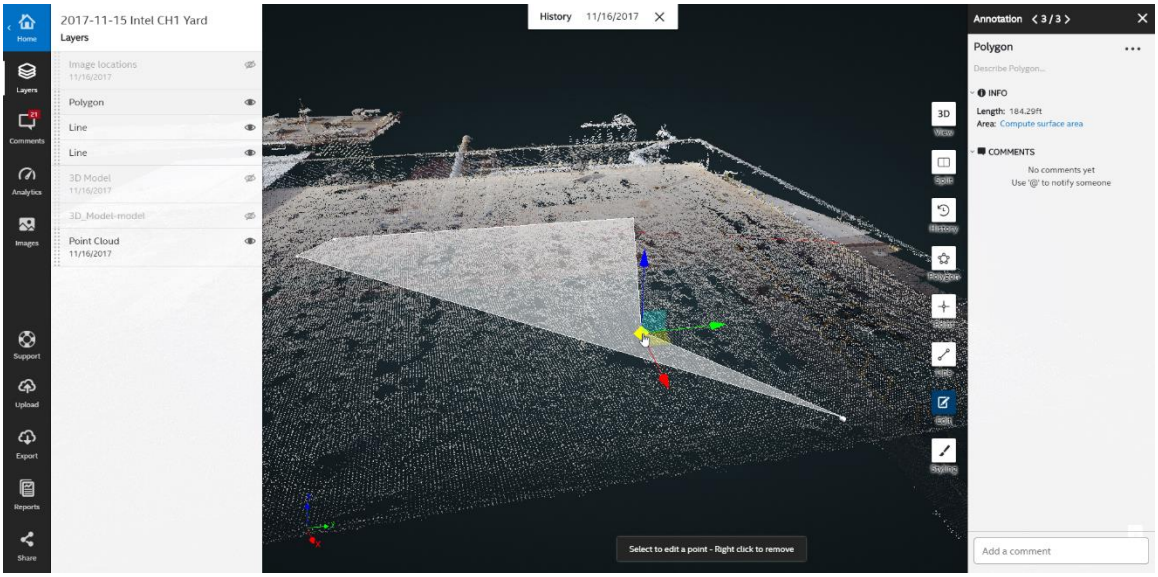
An annotation can be generated by clicking on the desired tool: polygon, point or line, and selecting the desired area on an image or a map position. The annotation can be named, given a description, or given a searchable tag.

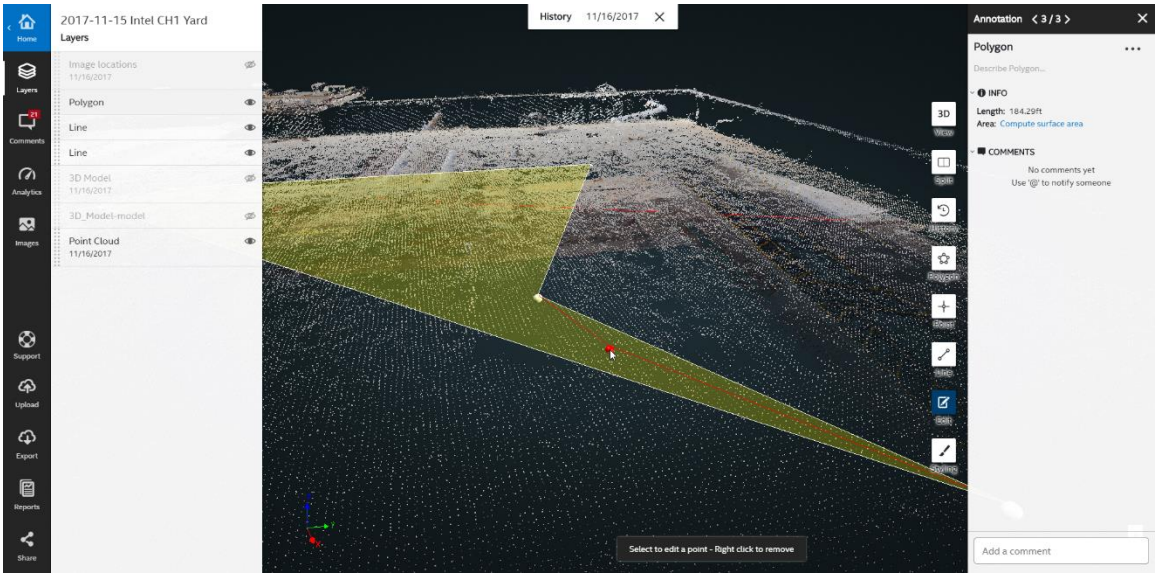
4.2.1.6.1 3D Annotations

Annotations can be made in the 3D view by using the polygon, point or line tools.

To edit an annotation, click on it, and then select the **Edit** tool from the right menu bar. The following operations are possible:

- Select the arrows to move the point along a vector;
- Hover close to a line to add a mid-point;
- Use right click to delete a point;
- The size of the ball indicates whether the selected point is near or far.





4.2.1.7 Accounts, Team Management and User Roles

The Intel Insight Platform is centered on assets rather than companies. Each account is an organized collection of assets, and has a team associated with it, however the members of the team do not need to belong to the same organization. At the same time, an individual user is not solely bound to be a member of one account. In this way, the Intel Insight Platform allows for complex collaborations between colleagues, contractors, consultants and others from different companies, working together on specific projects either indefinitely or for a particular period of time. Access is controlled by the manager at the project level, so that selective access can be managed.

Different levels of access are provided through different user roles. A high level overview of the access levels of each user role is provided below.

Activity	Viewer (Shared Link)	Operator	Contributor	User	Manager
Project visibility	One project, all history	Default at creation: None	Default at creation: None	Default at creation: All	Default at creation: All
View historical maps	X	X	X	X	X
Upload images		X		X	X
Upload GCPs		X		X	X
Launch photogrammetry				X	X
View 2D	X	X	X	X	X
View 3D			X	X	X
Use tools & make annotations			X	X	X
Run analytics				X	X
Export results				X	X
Manage roles and users					X
View account usage					X
Raise support request		X	X	X	X

4.2.2 How to Start

4.2.2.1 How to Manage a Typical Maintenance Project

To demonstrate the recommended workflow to perform inspections with the Intel Insight Platform, this section presents a typical maintenance management project.

Maintenance management can be done in the following steps:

1. Data acquisition.
2. Upload images to the project and launch photogrammetry.
3. Use the 2D and 3D models, the Split screen view mode, and the Proximity filter to spot new defects and check the quality of recent fixes with Annotations.
4. Tag your colleagues in a comment to let them decide the criticality of the defects found or check the quality of the recent fixes.
5. Generate a report and send it to the operations team.

4.3 Login

Open the Intel Insight Platform portal in your browser. The main page can be accessed at http://insightplatform.intel.com

Once the page is loaded, the login screen is displayed.

Enter your login credentials in the corresponding fields and submit your entry.

Forgot password?

Use the **Forgot password?** link to reset your password.

Privacy
Use this link to read the **Intel Privacy Notice**.

Cookies
Use this link to read the **Intel Cookies Notice**.

Contact
Use this link if you need assistance with logging into the Intel Insight Platform and the Forgot password option did not help.

Version Number (x.x.x)
This is the current version number of the Intel Insight Platform.

4.4 The Home Screen

This section contains a detailed description of the Home Screen including:

- Main menu
- Project panel
- Main map view

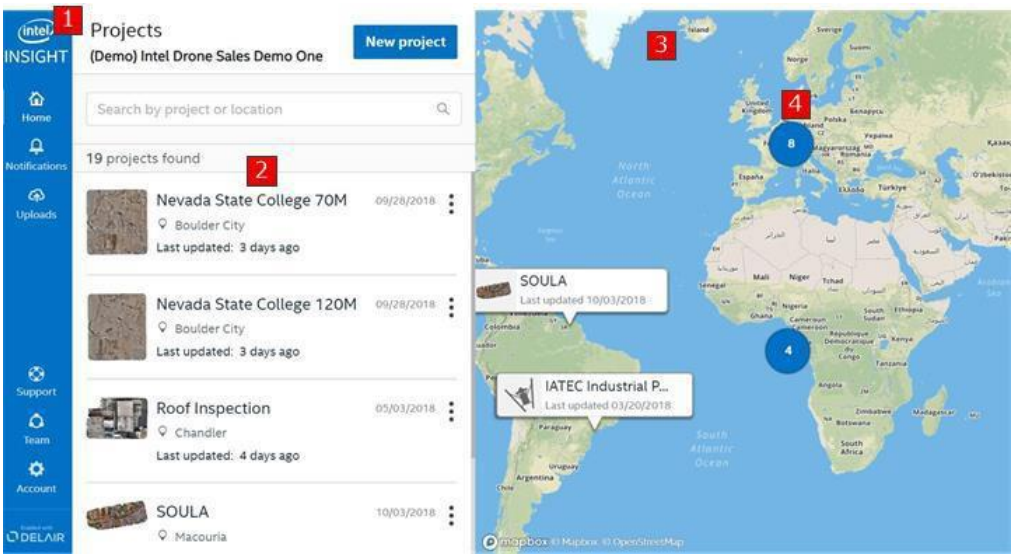
On the left side you will find the main menu, which allows you to navigate to the key aspects, notifications, accounts, and settings within the Intel Insight Platform. What the user is able to see is governed by the User Role they have. For example, a Contributor is not able to see the Team menu item.

A list of projects is shown next to the main menu in a panel.

To the right of the project panel, you will see a map displaying all projects geographically.

Home Page

Item	Description
1	Main menu on the left side
2	Project panel next to main menu
3	Main map view with project count on map
4	Number of Projects on the map

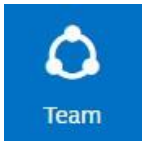


4.4.1 The Main menu

The main menu has several icons as shown in the following table.

Main Menu icons

Icon	Description
	**Home** The Home button returns the user to the home screen. From the home screen, a project can be opened or edited.
	**Notifications** The Notifications icon displays any new notifications (comments; products such as photogrammetry), and when clicked, opens the Notifications panel that provides additional information and permits the user to navigate directly to the relevant project.

	**Support** The Support button opens a menu with support options: • a link to the online Knowledge Base; • a form to create and email a new support request.
	**Team** This icon is visible for **Manager** role only. This button opens a menu with team options to change company information, access the user management and usage monitoring.
	**Account** This button opens a menu with options to edit the user profile, change the password and logout.

4.4.2 Project panel

On the Home Page, the list of projects is visible next to the main menu and displays information about the individual projects. Using the search bar, projects can be found via project name, location or key tags.

4.4.2.1 Find a project

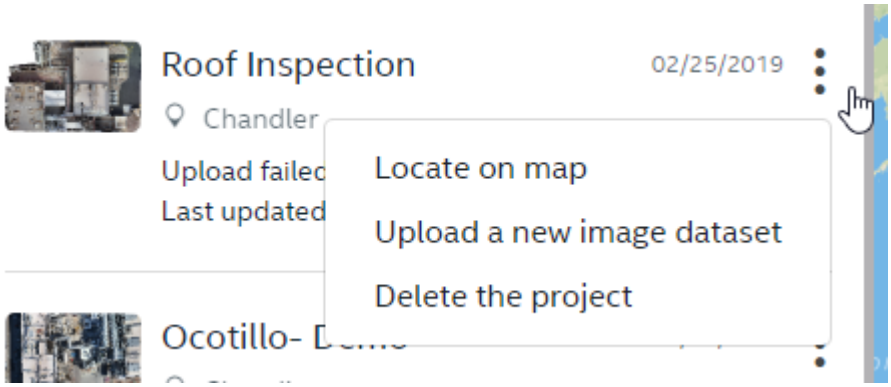
To filter the project list, use the **Search by project, location, or tag** search bar. Insert any part of the project name, location or key tag to see a list of related projects.

Project Details

Item	Description
1	Company name (only visible if your user account is registered to more than one company)
2	Search bar
3	Preview of the project's last orthomosaic
4	Project name
5	Project location
6	Elapsed time since last update. Move mouse over text for detailed view
7	Project creation date
8	Project actions submenu

The project actions submenu includes:

- **Locate on map** - Centers the map on the project location;
- **Upload new image data set** - Opens the project creation assistant to add a new image data set taken from a new flight to the project;
- **Delete the project** - Deletes the whole project.



4.4.2.2 Open a project

To open a project, click on the project entry in the list. Once a project is opened, the project menu is displayed on the left side.

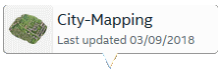
4.4.3 Main map view

The main map view shows a world map with all projects. You can use the map to find your project at its location.

Use the map
Drag the map with the left mouse button.

Use the **mouse wheel** or two fingers on a **trackpad** to **zoom in/out** of the map. The mouse cursor must be on the map.

Zoom/Open Projects

	**Project groups:** If several projects are grouped in one location, they are grouped into a single icon. Zoom into the map to select a single project or select the project from the list. Click on grouped projects to center the map on the project location and zoom into the map.
	**Projects** can be accessed directly from this view: **Click on a project** entry on the map to **open** the project.

4.5 Projects

The Intel Insight Platform allows the user to geo-locate multiple projects at the same location. A single asset may have multiple projects relating to activities such as roof inspections, or new construction activities. A project is defined by the user to aggregate together a group of related missions.

Location
Projects are tied to a specific location. This location is established during the project creation phase, either by uploading geolocated images or by uploading a geolocated reference file such as a KML vector, or shape file.

Images
Many workflows in the platform rely on images, or models generated from images, that are uploaded to the website. The images need to have GPS locations stored in their Exchangeable Image File Format (EXIF) metadata. The images need to have a similar size and the same format and must be from the same area.

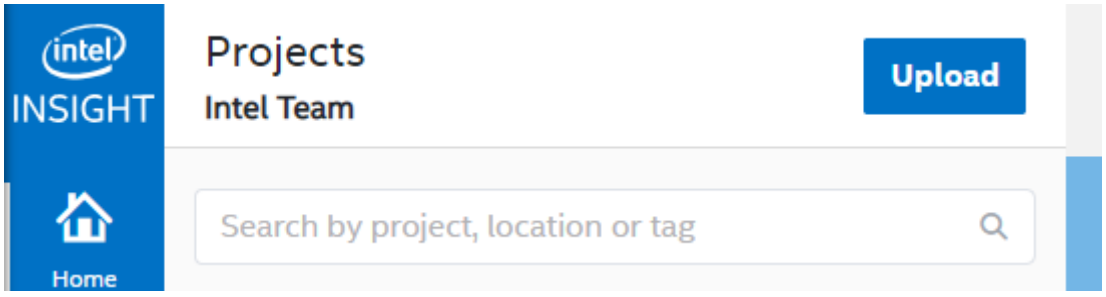
Both RGB and multispectral images are supported. For multispectral camera support, see the online **Knowledge Base** for camera compatibility information.

Data sets

Each project can have multiple image datasets, such as from different flights.
Uploading datasets of the same asset gathered at different times to the same project, allows users to monitor, to detect defects, to measure differences and, therefore, to manage its asset.

4.6 Create a new project

In the Home page click on the **Upload** button to create a new project or add a new dataset to an existing project.



There are two main workflows for creating a project –

1. **Upload images** creates a project and provides for the upload of image files in the next step, which can then be stored in a gallery for later use, or processed immediately into models.
2. **Upload reference file** creates an empty project by uploading a vector file.

When the upload button is selected, the process starts with the following two steps:

- **Choose company** – In the case where a user is an authorized member of multiple accounts, they can choose which company the upload relates to. Note that this step is not displayed if the user is not an authorized member of multiple accounts.
- **Choose files** - Locate the files on your local PC and name the project or add files to an existing project.

The Intel Insight Platform will automatically recognize the file type uploaded and will suggest an upload workflow based on images, or reference files.

With the **Upload images** workflow, every project creation follows these steps:

- **Choose company** – In the case where a user is an authorized member of multiple accounts, they can choose which company the upload relates to. Note that this step is not displayed if the user is not an authorized member of multiple accounts.
- **Choose files** - Locate the files on your local PC and name the project or add files to an existing project.
- **Upload options –** Choose whether to create a new project, or add the images to an existing project. Choose who has access to the project.
- **Processing options** - Customize the processing area, quality and speed; add Ground Control Points; and select the Coordinate Reference System (CRS).
- **Launch upload** - Upload of the files.

With the **Upload a vector file** workflow, every project creation follows these steps:

- **Choose company** – In the case where a user is an authorized member of multiple accounts, they can choose which company the upload relates to. Note that this step is not displayed if the user is not an authorized member of multiple accounts.
- **Choose files** - Locate the file(s) on your local PC and name the project or add files to an existing project.
- **Options –** Choose whether to create a new project, or add the images to an existing project. Choose

who has access to the project.

- **Launch upload** - Upload of the files.

4.6.1 Upload images workflow

4.6.1.1 Choose company

In the case where a user is an authorized member of multiple accounts, they can choose which company the upload relates to. A list of all authorized accounts is provided for the user to choose from.

4.6.1.2 Choose Files

In this step, the user is given the option of either uploading images or uploading vector files. To do so, the user can drag and drop, browse files, or browse to a directory. For large datasets, the directory option should be used.

Select image files

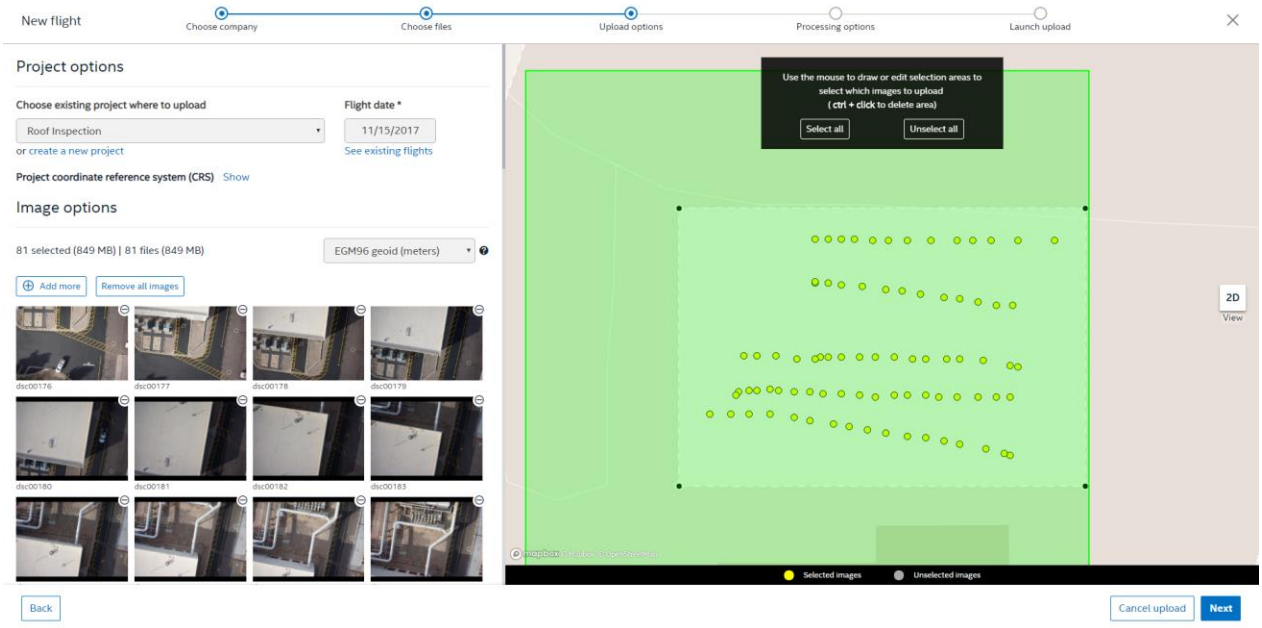
Drag the image files from your local file viewer to the browser window or select the **Browse files** or **directory** links to open a file selection dialogue.

A minimum of five images are needed, either in .JPG or .TIFF format. All images need to have GPS locations stored in the EXIF metadata.

The coherence of images in a data set is important: They should have the same size, resolution, and format.

4.6.1.3 Upload options

As soon as images are selected, the screen advances to the **Upload** options menu. It is arranged with the map and image preview area on the right, and additional project options on the left.



Project options

The first option allows the user to choose which project the images will be attached to.

The uploaded images can be:

- Used to create a new project; or
- Attached to an existing project.

At the same, the **Flight date** can be overridden. Thus, several flights can be handled in one project but still be viewed independently.

If a new project is to be created, then the user can choose whether or not to make the project accessible to all users in the current account, or just to the uploading user and managers. If the images are to be added to an existing project, then the project access rights have already been determined. Note that these access settings can be adjusted at a later time.

Image options

As soon as the images are selected, the EXIF metadata is analyzed and the image locations are shown on the map. You can change between 2D or 3D view in the map.

At the same time, the images are shown on the left-hand side.

The user can set the reference used for the altitude/height information recorded in the images metadata using the drop-down menu.

The user can add additional images, or remove all or individual images.

Map preview

The locations of the images to be uploaded are shown in the map preview screen on the right hand side.

If the images are to be attached to an existing project, then the existing project boundaries are shown with a green polygon.

To include or exclude images, the polygon drawn around the images can be edited. The corner points can be dragged with the left mouse button.
To create a new polygon, click with the left mouse button outside of the polygon to set a new starting point. Create all the corners for the desired shape. Double-click to finish the current polygon.

The polygon can be used to crop the resulting model to the selected area. This can be set in the **Processing options** menu.

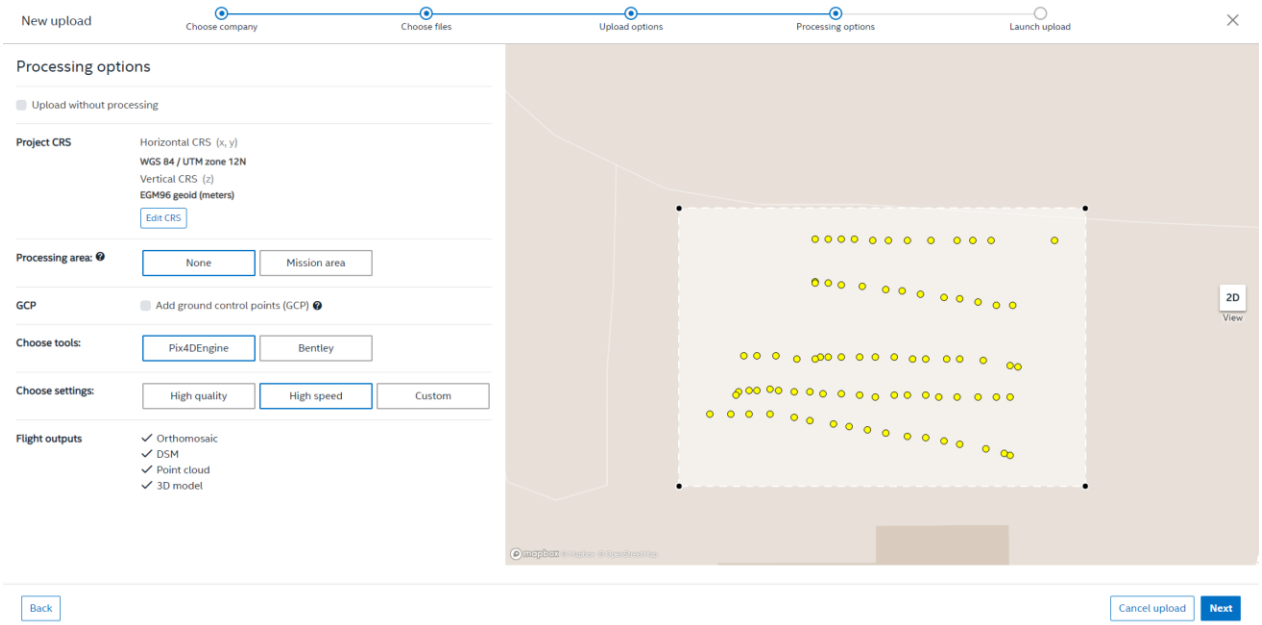
By holding the Ctrl-key and left-clicking, the current selection is deleted.

Images that are selected are marked yellow in the map view, while unselected images are marked white. In the image preview, unselected images are grayed out.

If all desired images are selected, click **Next**.

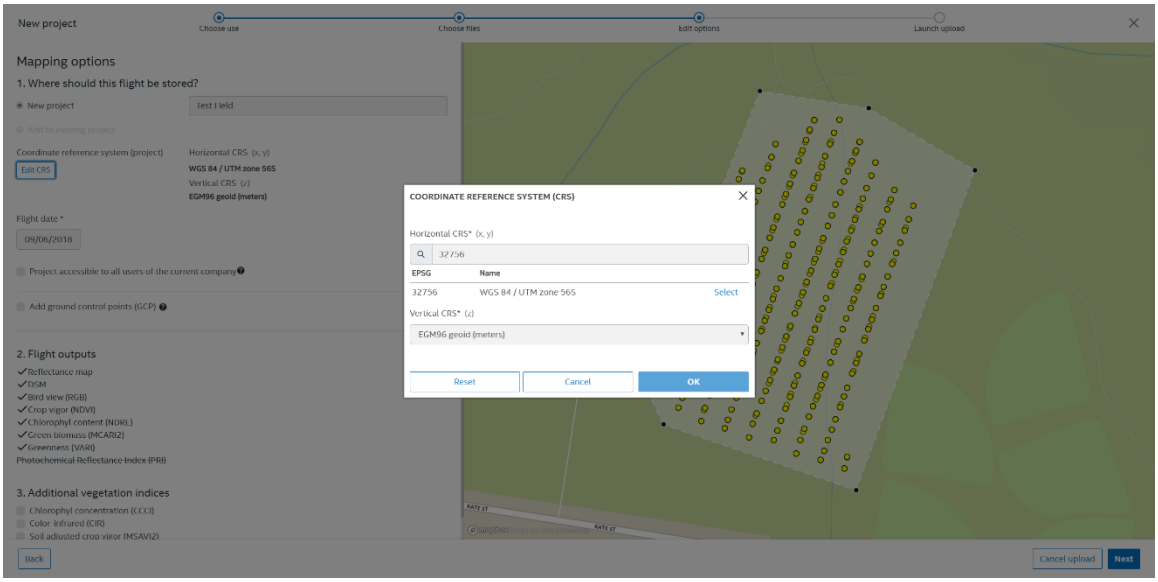
4.6.1.4 Processing options

If the user is creating a new project, then the following options are available.



The user can choose to **Upload without processing**. This uploads the images and stores them into a gallery. Processing can be launched at a later date from the analytics menu in a project.

The **Coordinate Reference System** (CRS) can be defined when creating a project. To help improve the consistency of data throughout the project (from one mission to another), the CRS is linked to the project (i.e. the CRS used for the first mission carries over to all subsequent flights). At any point in time, the user can view the CRS settings for the project by clicking on the orthomosaic, which will reveal the information in the right-hand side panel.



4.6.1.4.1 Add Ground Control Points (GCPs)

By selecting the **Add Ground Control Points** link, an area is shown where you can upload your GCP file (in CSV format). Add a file with the GCPs of your mission.

By default, the Intel Insight Platform uses **EPSG: 4326** (also known as World Geodetic System (WGS) 1984, or WGS

84). It is the same reference coordinate system used by most GPS.

For the format of the CSV file, use the following structure:

GCP_name, x, y, z, [optional x accuracy], [optional y accuracy];

Use x, y, z as per the project coordinate reference system (e.g.: longitude, latitude, altitude for EPSG: 4326).

4.6.1.4.2 Set processing options

Note that if you chose **Upload without processing**, no processing options will be available.

Choose a photogrammetry engine for model generation:

- **Bentley*:** Fast and efficient point cloud processing tool from Bentley* Systems. The outputs are a Point cloud and a 3D model.
  For processing with Bentley*, no custom processing options or quality settings are available.)
- **Pix4Dengine:** Specialist for photorealistic 3D models from drone images. The outputs are an Orthomosaic, a DSM, a point cloud and a 3D model. Choose between different quality settings for processing with Pix4Dengine:
  - **High quality** - For higher quality results, with a longer processing time.
  - **High speed** - For faster processing with reduced quality.
  - **Custom** - Define custom processing parameters (see the following table):

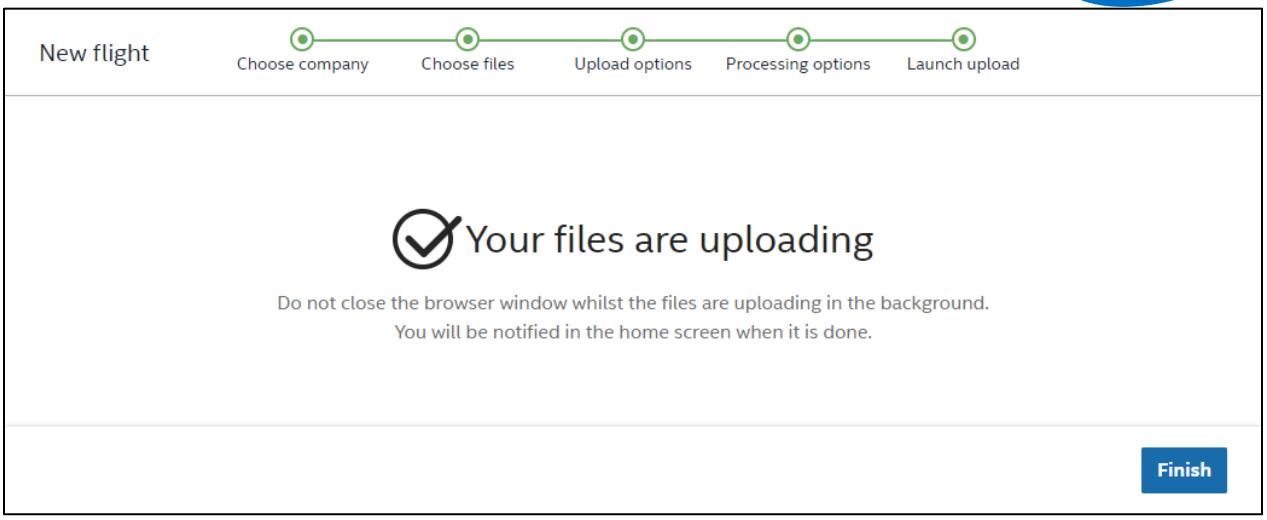
Custom Options for Pix4Dengine tool

Parameter Name	Values	Description
Keypoints image scale	• 0.125 • 0.25 • 0.5 • 1 • 2	Defines which size of image is used for creating tie points. Lower scales will allow projects to map faster, but with lower accuracy. Examples: 1 = Original Image size: 1000x2000 pixels 2 = Double Image size: 2000x4000 pixels 0.5 = divided by 2, Image size: 500x1000 pixels
Calibration method	• Standard • Precise Geolocation and Orientation	Defines the calibration method used. Choose **Precise Geolocation and Orientation** if the project should be optimized with very accurate image geolocations and orientation (e.g. PPK or RTK with IMU data). This calibration method requires all images to be geolocated and oriented.

Point cloud image scale	• Original Image size • Half Image size • Quarter Image size • Eighth Image size	Defines the scale of the images at which additional 3D points are computed. **1 (Original Image size, Slow):** The original image size is used to compute additional 3D points. More points are computed than with half image scale, especially in areas where features can be easily matched (such as cities, rocks). This option may require longer processing time and usually it does not significantly improve the results. **1/2 (Half Image size, Default):** Half size images are used to compute additional 3D points. This is the recommended image scale. **1/4 (Quarter Image size, Fast):** Quarter size images are used to compute additional 3D points. Fewer points are computed than with the half image scale. However, more points are computed in areas with features that cannot easily be matched such as vegetation areas. This scale is recommended for projects with vegetation. **1/8 (Eighth Image size, Tolerant):** Eighth size images are used to compute additional 3D points. Fewer points are computed than with the half or quarter image scale. However, more points are computed in areas with features that cannot easily be matched such as vegetation areas. This scale is recommended for projects with dense vegetation.
Point cloud density	• Optimal • High • Low	Defines the density of the point cloud (based on the pixel density of the original images) The **Optimal** setting produces a medium density, balancing speed of processing with density of point cloud. The **High** setting produces a denser point cloud but computing time will increase. The **Low** setting produces the point cloud faster, with less dense clouds.
DSM method	• Inverse Distance Weighting • Triangulation	Selects an interpolation method for creating surfaces. Interpolation allows the user to cover gaps so that there are no holes in the resulting raster surface. **Inverse Distance Weighting:** This algorithm is used to interpolate between points and is recommended for buildings. **Triangulation:** This triangulation algorithm is based on Delaunay triangulation. This method is recommended for flat areas (agriculture fields) and stockpiles.
Orthomosaic resolution	Enter value and unit, e.g.: • 1 GSD • 2 cm/pixel • 0.5 inch/pixel	Defines the resolution of the orthomosaic output, based on a default of 1 GSD = 2cm/pixel. E.g. choose 4 GSD to get a resolution of 8 cm/pixel. *Tip:* The resulting resolution cannot improve on the original images - thus only choose lower resolutions than in the source images.
Mesh resolution	• Low • Medium • High	Defines the level of detail of the resulting mesh. Note that this will also have an impact on file size, and thus the time taken to load the model.

4.6.1.5 **Launch upload**

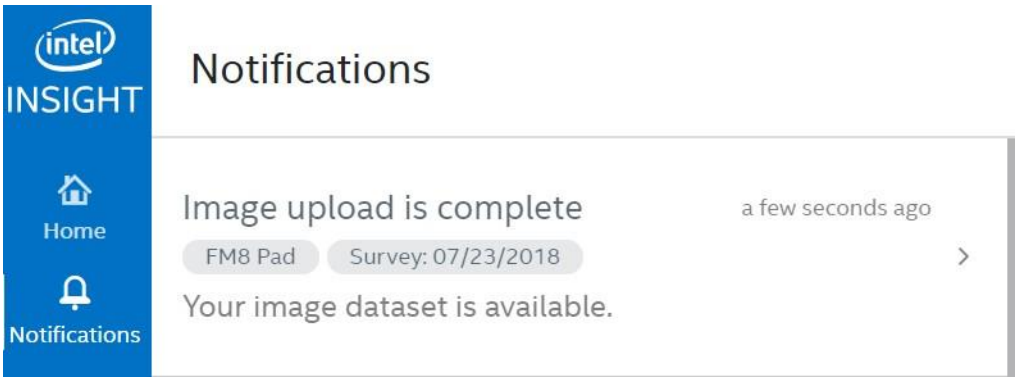
Once all the selections are made, the project is created and the upload starts.



Click the **Finish** button to return to the home screen while your images are being uploaded.

In the Home page's Projects list, the uploading's percentage status will be shown below the new project name until the upload is completed.

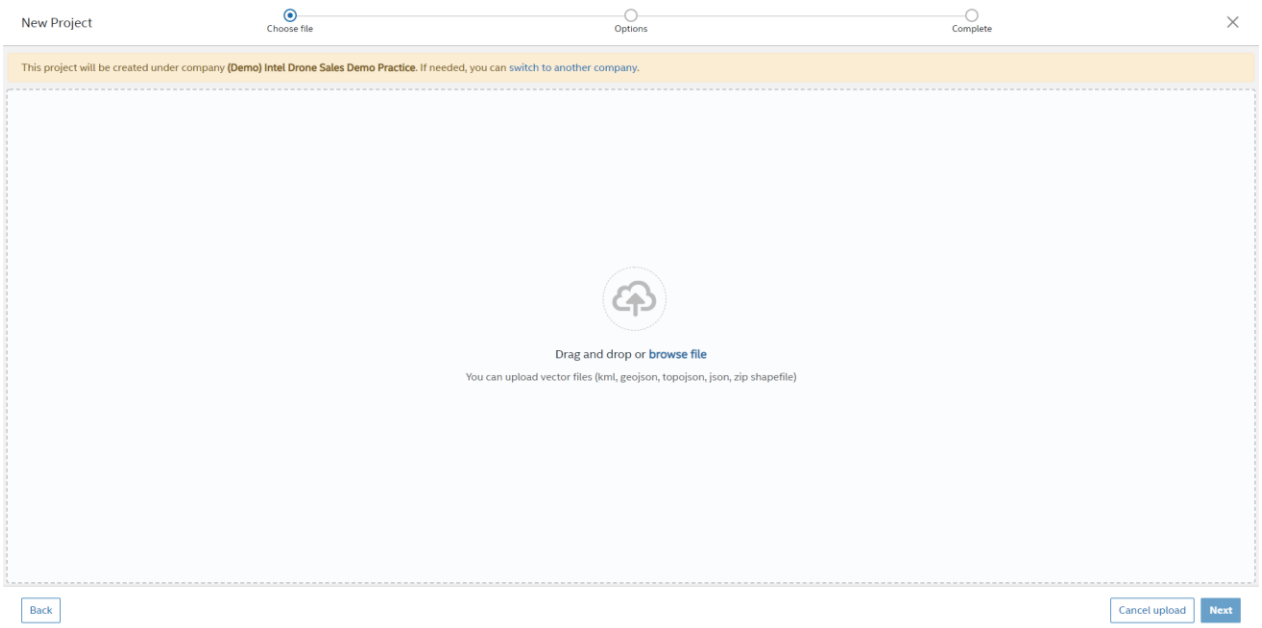
In the **Updates** list, a notification occurs when the upload is completed.



4.6.2 Upload reference file workflow

With the **Upload reference file** option, an empty project is created by uploading a vector file (such as a KML exported from Google Earth). It is used to define an area (for example for a pilot who is supposed to fly over that area). Photos from the flight can be added later.

4.6.2.1 Choose company



In the case where a user is an authorized member of multiple accounts, they can choose which company the upload relates to by selecting **switch to another company**. A list of all authorized accounts is provided for the user to choose from.

4.6.2.2 Choose File

In this step, the user is given the option of either uploading KML, GEOJSON, TOPOJSON, JSON, or a zipped Shapefile. To do so, the user can drag and drop, or browse files.

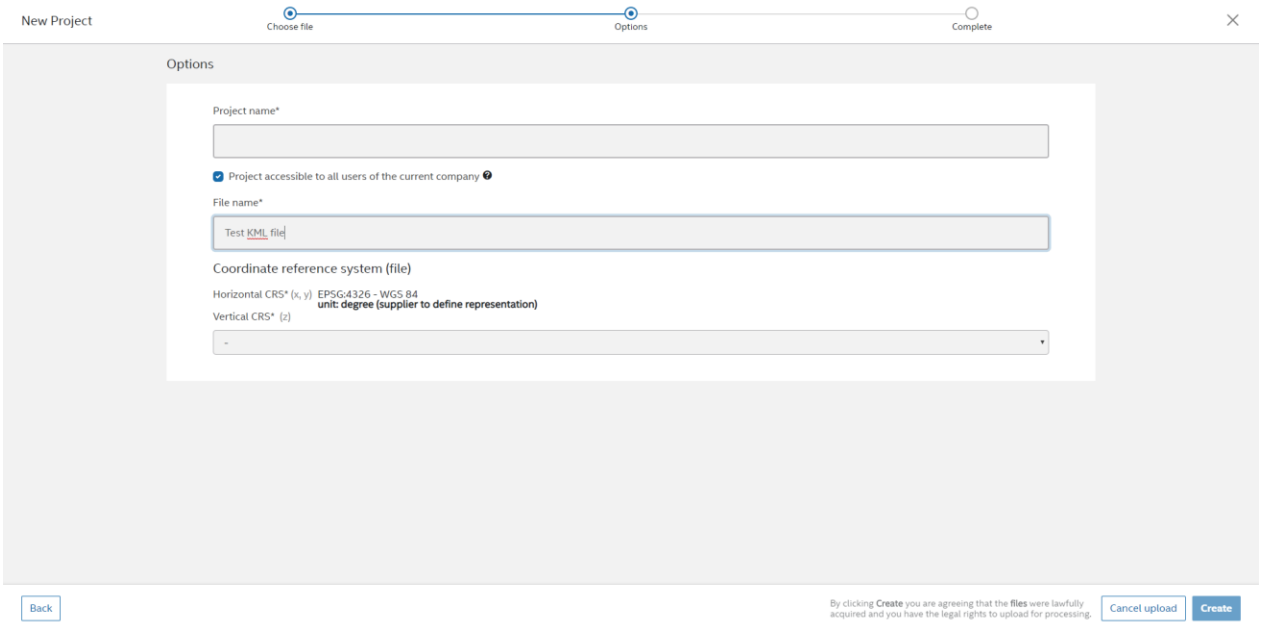
4.6.2.3 Options

The user can set a name for the project.

The user can choose whether or not to make the project accessible to all users in the current account, or just to the uploading user and managers. Note that these access settings can be adjusted at a later time.

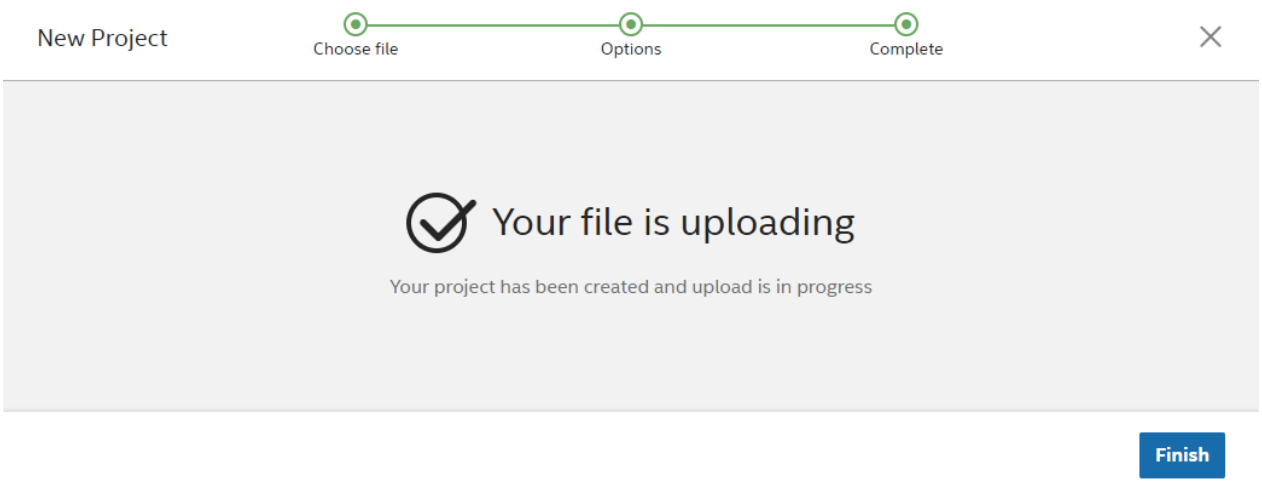
The file name (the name shown in the layer) can be edited.

The **Coordinate Reference System** can be defined when creating a project. To help improve analytic consistency throughout the project (from one mission to another), the CRS is linked to the project (i.e. the CRS used for the first mission carries over to all subsequent flights). At any point in time, the user can view the CRS settings for the project by clicking on the orthomosaic, which will reveal the information in the right-hand side panel.



4.6.2.4 Launch upload

Once all the selections are made, the project is created and the upload starts.



Click the **Finish** button to return to the home screen while your images are being uploaded.

In the Home page's Projects list, the uploading's percentage status will be shown below the new project name until the upload is completed.

In the **Updates** list, a notification occurs when the upload is completed.

4.7 Working with projects

The Intel Insight Platform Home page shows a searchable list of all of your company's existing projects. Projects relate to the locations where a mission took place, so you can select your project in the world map also.

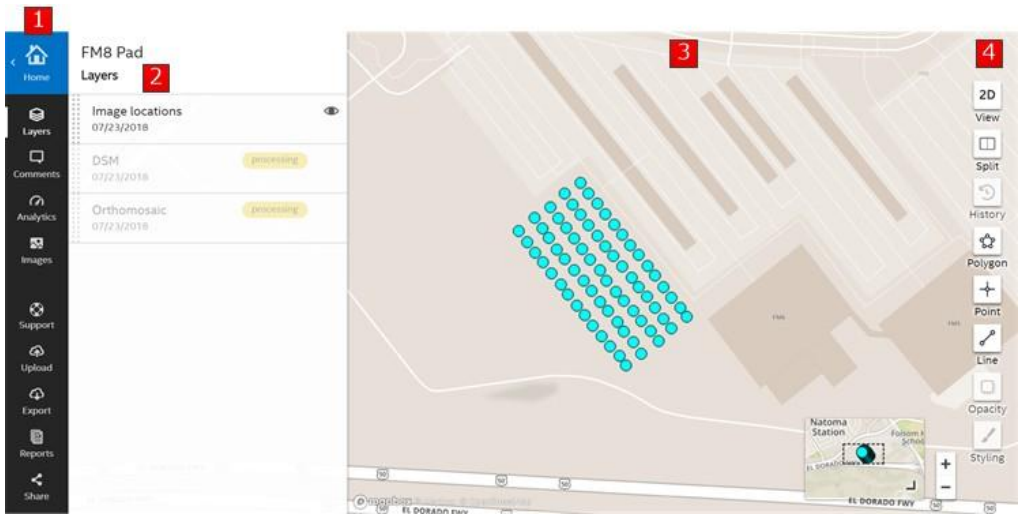
When a project is selected from the Home page, it opens the Project view.

4.7.1.1.1 Project view

With a project opened, the project view shows four areas.

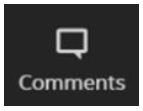
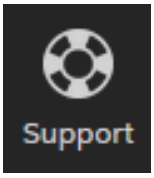
Project View

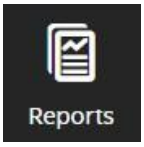
Item	Description
1	Project menu on the left side
2	Layers list with layers and annotations in the project.
3	Map area with map/annotations options on the right side
4	Details pane on the right side. It shows the properties of the project (with a click on project name) or the selected layer.



Project Menu

Icon	Description
	**Home** Navigates back to the main menu in home page. A red number indicates that new updates are available. Updates are notifications about successful uploads, processing or new comments.
	**Layers** Opens/closes the **Layers** list. The different layers can be sorted and toggled between hidden and visible. See Working with Layers for more information.

	**Comments** Shows comments from all users in the project team. Indicates when new comments are available.
	**Analytics** Shows available analytics for the project.
	**Images** Displays the images of this project divided by different flights.
	**Support** Opens the online knowledge base or creates a new support request.
	**Upload** Uploads new flights for this project or uploads a reference file.
continued...	

Icon	Description
	**Export** Shows a selection list to export project data: Annotations, DSM, orthomosaics, point clouds, 3D models, or reference files.
	**Reports** Shows the report list of this project. New reports can be created.
	**Share** Opens a dialogue to share this project with others, so the use can send and manage links.

Project Elements and Functions: Every project has several elements like layers, comments, reports, and so on. These elements can be used to work on the project. Layers, comments and analytics have a direct impact on the map view. Other elements like images or reports open a different menu, not showing the map.

In addition, the project menu offers project-related functions like photo upload, data export and sharing.

Project Actions, Info, and Units: With a click on the project name, a details pane on the right side shows information about the opened project and allows changes to project settings.

Project Actions, Info, and Units

Item	Description
1	Project actions: Rename or delete project
2	Project Info
3	Units
4	Comments list
5	Tags

Rename a project: To change the name of the project, select **Rename** project actions (1).

4.7.1.1.2 Show project information

The **INFO** area (2) shows project properties: location, creation info, and number of surveys.

Tip: To get more information about surveys (such as date of upload, number of photos) refer to Image Management.

4.7.1.1.3 Change project units

To set the measuring units for lengths, areas, and volumes, select the desired units in **UNITS** area (3).

4.7.1.1.4 Delete a project

Select **Delete project** in project actions (1). After a confirmation message, you can delete the project.

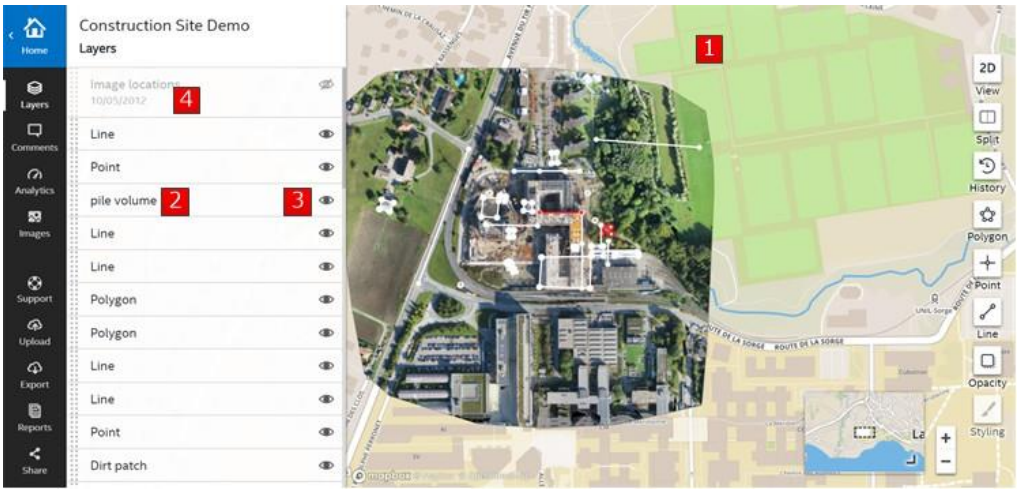
4.7.1.2 Layers

Layers are used to enhance visibility and display more information on the map. The default map shows the project

location on a normal map. With the help of layers the visibility for several elements can be toggled on/off and the order can be changed

Layer Details

Item	Description
1	Drag and drop here to change the order in the map view
2	Layer name
3	Toggle layer visibility in map
4	Date of flight



Not all elements are present for all layers, but sorting and visibility toggling is generally available.

For more information on layer types and handling refer, to Working with Layers.

4.7.1.3 Comments

In a project, users can add text notes as **comments**. Each comment is related to an element: certain layer, annotation, or image in the project. Every layer type can be commented.

Comments can be directed to a recipient. They can be used to explain project elements and also to create instructions for other team members.

4.7.1.3.1 Comments list

Comments in the project are shown in the Comments list. Only the newest comment per layer is shown.

Comments list

Item	Description
1	Related element - Can be the project, an image, a layer or an annotation.
2	Time of comment creation
3	Author of the comment
4	Comment text

Show all comments of an element

If an existing comment is selected by a mouse-click, the map view will center on the layer element belonging to this comment. The details pane for this layer element will open and all comments will be visible as a conversation.

4.7.1.3.2 Add a Comment

Once an element (layer, annotation or image) is selected, a comment can be added in the **Add a comment** field in the details pane on the right side.

Comments can mention another team member by using @ followed by the user's name.

4.7.1.4 Analytics

The **Analytics** list shows generated and available analytics for the project. You can show the results or run new analytics.
Analytics

Item	Description
1	List of generated analytics
2	Available analytics
3	Name and short description of analytics
4	Status of the analytics: available: Analytics are generated, results are available

Tip: The list of analytics is constantly evolving. Thus, the list in the illustration above may be outdated at some time. Check the online knowledge base (using the **Support** menu icon) for the latest list of analytics and documentation available.

Not every analytic is available for every project.

Running an analytic may take several hours to process.

Tip: For an unprocessed data set (meaning one for which the user selected **Upload without processing** during project creation), you can still start **Photogrammetry** analytics from this section. Just select which computations you want, such as orthomosaic or 3D model, and the processing will start.

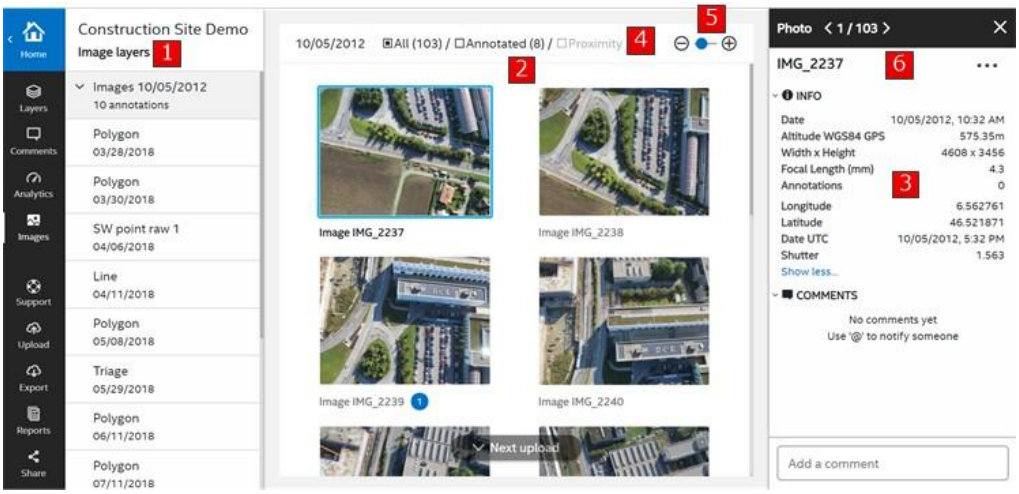
4.7.1.5 Images

All images stored in a project can be displayed in a gallery.

The gallery is structured in different flights or uploaded data sets. Individual images can be downloaded or viewed in full resolution. Annotations to individual images can be added.

Image Details

Item	Description
1	Image layers list: Shows all uploaded data sets, sorted from most recent to oldest.
2	Image gallery: Shows a thumbnail and the file name for each image. Each image can be downloaded or opened in the image viewer.
3	Content menu: Displays further information like image resolution, focal length of the camera and GPS
4	Filter options: All / Annotated / Proximity
5	Slider for thumbnail size
6	Photo details screen seen after selecting an image



4.8 Open or download an image

Buttons appear for each image at mouse over:

With the **Open image viewer** button the Single Image Viewer opens with the selected image.

With the **Download** button the image can be downloaded.

4.8.1.1.1 Show annotations in images

If images are annotated, the annotations are listed in the **Image layers** list below the data set.

A filter option can be selected to show only the annotated subset. Images with annotations appear with a blue circle.

4.8.1.1.2 Work with map and images

To locate images in a map and to work with map and images side by side, see Image Management.

4.8.1.2 Support

With a click on the **Support** symbol in the project menu, a menu provides support options:

- a link to the online knowledge base;
- a contact form to email a new support request.

4.8.1.3 Upload

A first upload must be done during the creation of a new project. This can be a reference file defining the area or a set of images. Further uploads can follow. Each upload will be stored as a separate data set.

By uploading data on the same project over time, you can observe and measure changes.

The user can choose to either **Upload a new image dataset** or **Upload a file**.

4.8.1.3.1 Uploading a new image data set

Click on the **Upload** symbol in project menu. In the appearing menu, select **Upload a new image dataset**. The project creation assistant opens. Follow the prompts to upload your new image dataset. For more information, refer to Creating a New Project.

4.8.1.3.2 Uploading a file

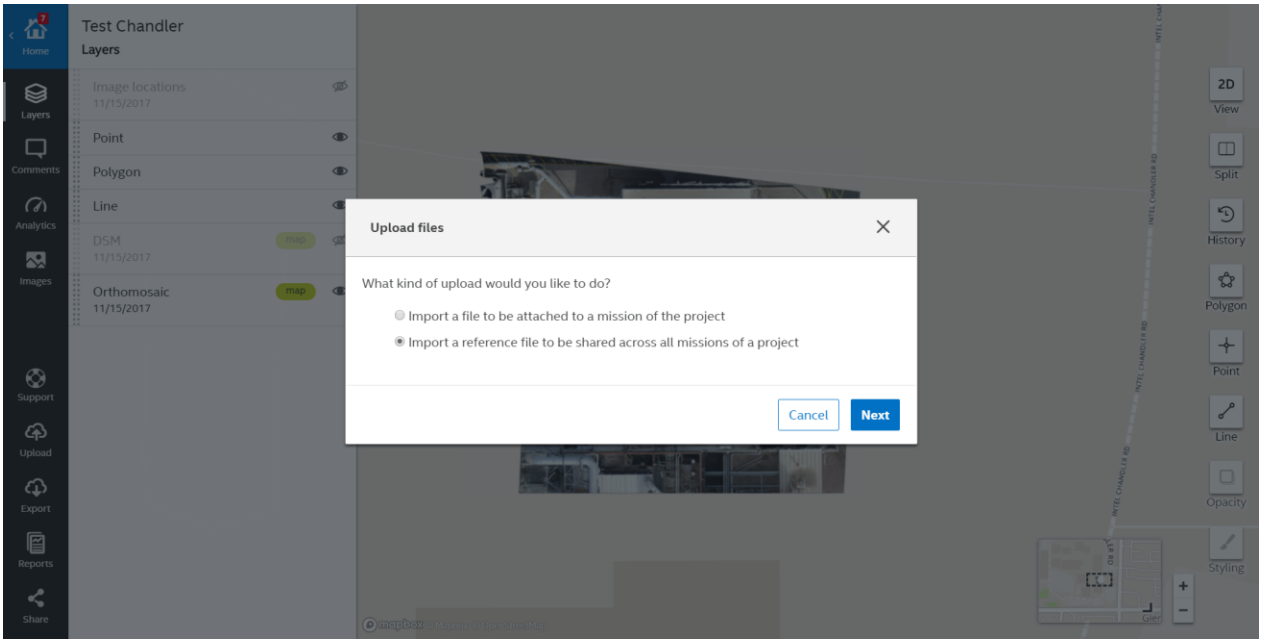
The Intel Insight Platform allows the user to attach almost any type of file to a project.

Click on the **Upload** symbol in the project menu. In the appearing menu, select **Upload a file**. A dialog box opens up, offering the user two choices, which determine how the file is attached to the project. Follow the prompts to either:

- Import a file to be attached to a mission of the project;
- Import a reference file to be shared across all missions of a project.

Once uploaded, the following files will be displayed as layers in either the 2D or 3D viewpoint, as applicable. All other files will be attached and viewed via the **Export** menu.

- raster files (*.TIF)
- vector files (*.KML, *.GEOJSON, *.TOPOJSON, *.JSON, *.ZIP Shapefile)
- point cloud (*.LAS)
- mesh/3D model (*.OBJ)

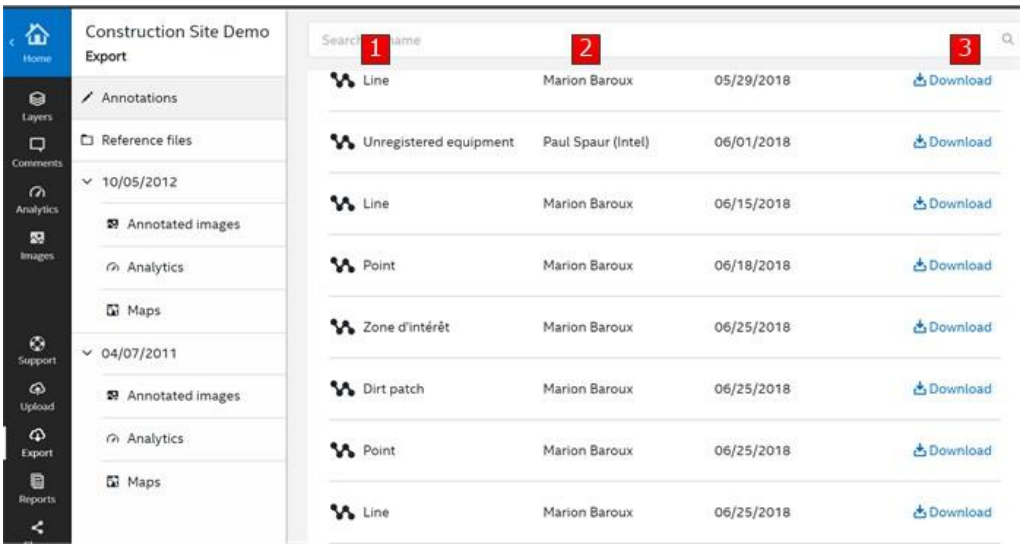


4.8.1.4 Export

All images, annotations, processed maps, models, and uploaded files can be exported from a project and downloaded as files.

Export

Item	Description
1	The **Export** list shows element types that can be exported.
2	List of the users that created the reports.
3	**Download** links: Click on the link to start the download.



Click on the **Export** symbol in the project menu on the left.

In the **Export** list, choose the data type to export: Annotations, Reference files, Image data sets, or maps (shown under individual dates). The available project data of the type you chose will be shown on the right side.

Click the **Download** link to download the files you want to export.

Export Formats

Export	Format/Files	Description
ANNOTATIONS	• GEOJSON files	GEOJSON is an open standard format designed for representing simple geographical features, along with their non-spatial attributes, to exchange data with various other software.
IMAGES	• JPG Image file	Annotated image in full resolution (without annotation layer)
CONTOUR LINES	• SHP • GEOJSON • KML	Contour lines in different file formats (Shapefile, maptiles, and so on) to use in GIS, CAD, mapping or other software.
ORTHOMOSAIC	• png Preview image • .tif GeoTIFF	2D model (map) made by blending several orthophotos. Color balanced to be visually pleasing.
DSM	• .png Preview image • .tif GeoTIFF • Raster DSM	2.5D model of the mapped area that contains (X,Y,Z) information, but no color information. For definition of 2.5D, see Glossary.
POINT CLOUD	• .las LAS file storing 3-dimensional point cloud data	Set of 3D points that reconstruct the model. The X,Y,Z position and the color information is stored for each point.
3D MODEL	• .obj OBJ file storing 3-dimensional geometric information	Representation of the shape of the model that consists of vertices, edges, faces, and the texture from the images that is projected on it. It is useful to present and visualize the
OTHER	• Other file types uploaded by the user	Files that are not treated specially by the Intel Insight Platform will be made available to download directly as-is.

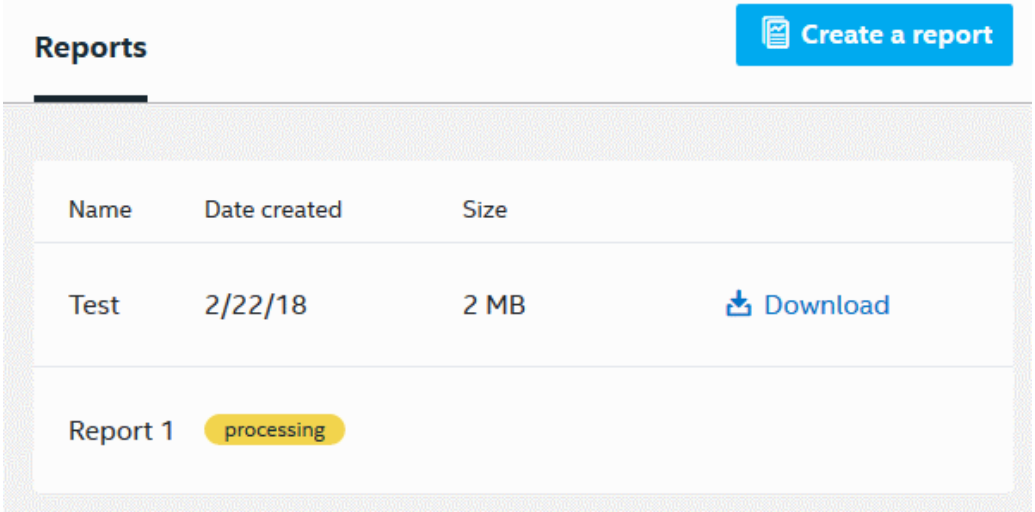
4.8.1.5 Reports

In a project, reports can be generated. A report is a list of selected annotations.

A report contains a title page and a list of the selected annotations. For each annotation, the name, description, the position, and a location image will be automatically inserted in the report.

A report can be downloaded as PDF file.

All created reports are displayed in the **Reports** list.



\ Reports list with a generated report which can be downloaded and a processing report. See Generating Reports for more information.

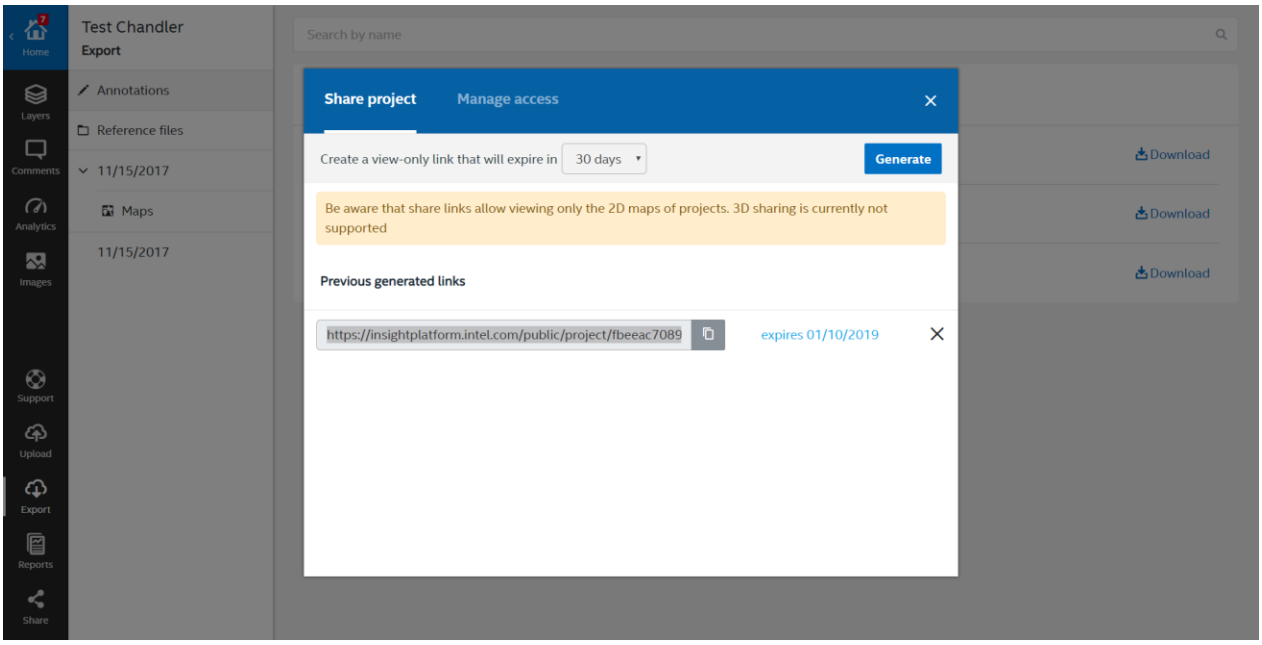
4.8.2 Share

Use **Share** functions to manage user access to the project, or to generate a time-limited view-only link to 2D models.

The recipients of the link do not need to have an Intel Insight Platform account. They will not be able to edit or delete the project, but may view all existing layers.

Important: Be aware that shared links allow viewing only of the 2D maps of projects!

Access using shared links has some restrictions: only 2D view is available, there is no export function, and comments are not displayed.



Create a link

1. Create a link to this project;
2. Set the expiration date for this link and click on **Generate** button. The link is view only.

Delete a link

Links can be deleted, which revokes access immediately.

1. Navigate to **Previous generated links** to view the list of active links;
2. Click on the delete icon (**X**) to remove the active link to be deleted.

By navigating to **Manage access**, authorized users can select who can and cannot access a particular project.

4.8.3 The Map View

This section provides a detailed description of the map view of the Intel Insight Platform.

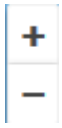
Depending on the kind of output that was selected, the 2D map view can be changed to show a 3D environment containing 3D models or point clouds.

The map can be navigated using the mouse. The map functions change according to which layer or menu is active.

Map icons

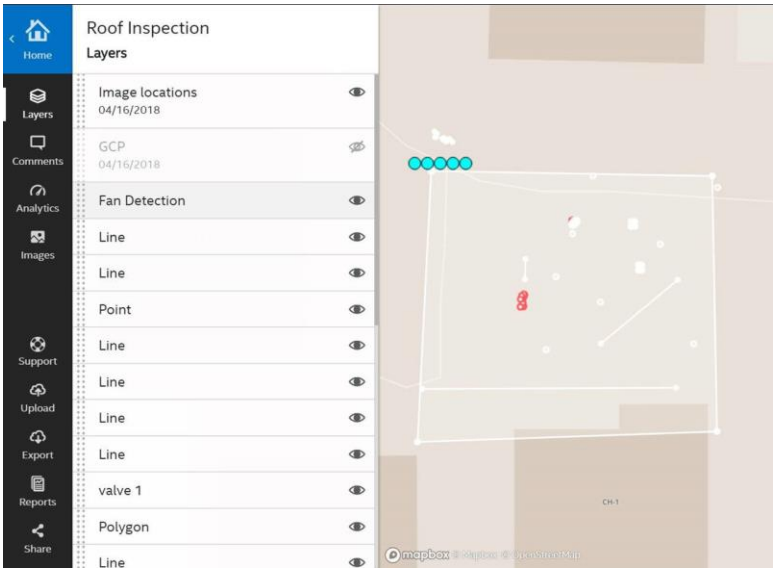
Icon	Description
	Change the view mode. Depending on the project, 2D or 3D view modes are available. Set map base layer to default map, satellite map, or none.

	Switch between two views: Wide map view or split view with two areas: image gallery left and map in the right area.

Icon	Description
	Access to previous data sets. Compare different flight dates, see History Compare. This function is only enabled if two or more datasets have been uploaded.
	Add a polygon annotation and edit it.
	Add a point annotation and edit this point.
	Add a line annotation and edit it.
	Edit the selected annotation.   Choose to edit the selected annotation or move it. This icon is only visible if annotation layer is selected.
	Change the transparency for the currently selected map layer, with a range from0% to 100%.
	Change color of currently selected annotation layer. Only visible if annotation layer is selected.
	The overview map shows the current map position in the wider area. It shows all annotations and layers. Move the marked section (black rectangle) with the mouse to move the current map view over the wider area. The overview map can be collapsed to increase the field of view.
	Zoom map in and out.

4.8.3.1 2D View Mode

When a project is opened, the default view mode is 2D. With several options, the view can be configured to visualize different elements on the map.



4.8.3.1.1 Layers and Annotations

Different layers can be toggled visible/hidden and the layer order can be changed. The transparency for single layers may be reduced or increased using the **Opacity** button.

For more information about the project layers and annotations, refer to Working with Layers.

4.8.3.1.2 Base map

Changing the base map allows you to view the current project either on a map, on top of satellite images, or on its own without underlying imagery.

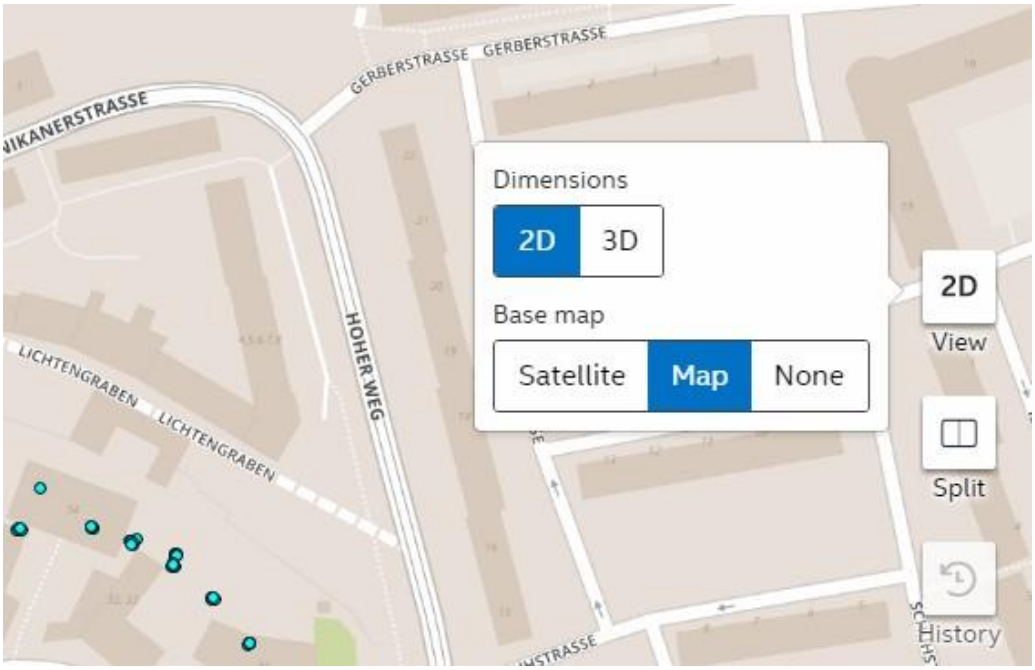
4.8.3.1.3 Navigate in 2D map

Use the **left mouse button** to drag the map and navigate. Use the **mouse wheel** to zoom in or out. On touchscreens, **two fingers** can be used to rotate the map.

Tip: In the lower right corner of the map, a small **overview map** is shown. To move the current map over the wider area, you can move the black rectangle in the small overview map.

4.8.3.1.4 Change view mode or base map

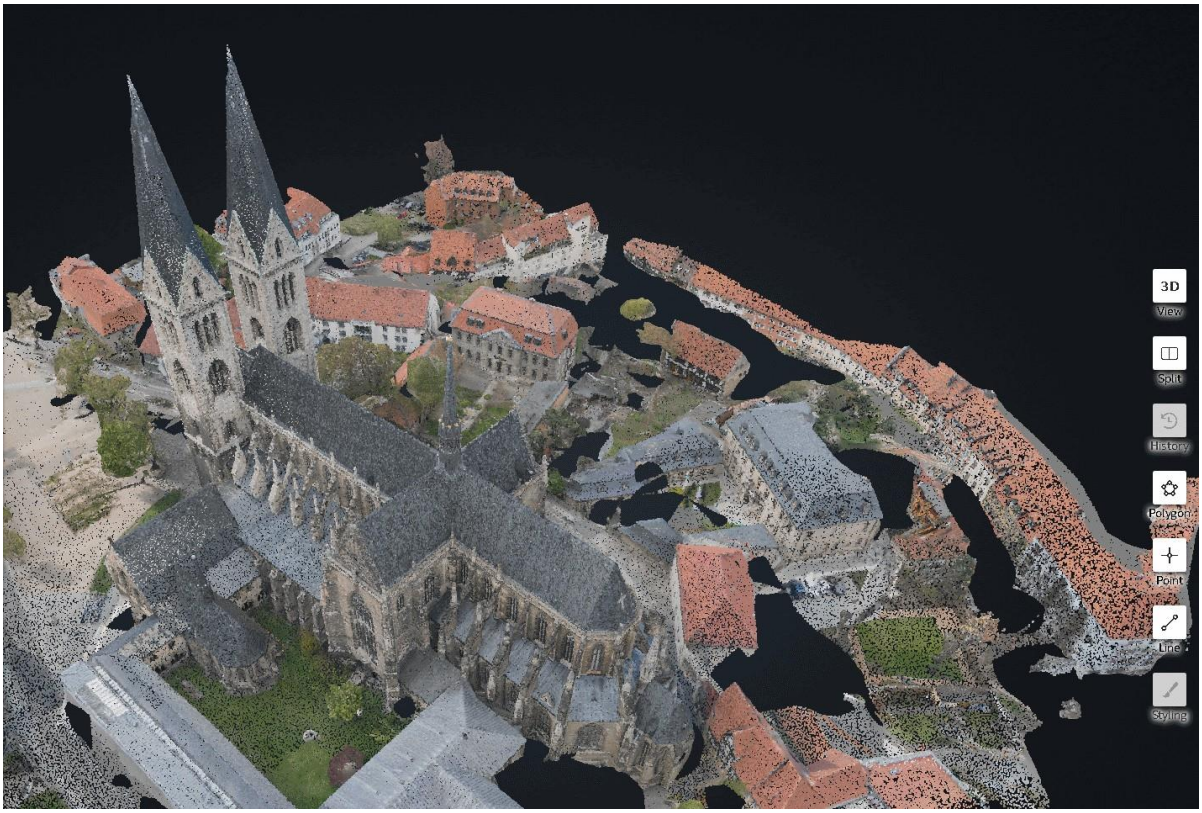
To change the base map or switch to 3D view mode, click on **View** icon.



1. **2D/3D:** Choose between 2D or 3D viewer.
2. **Satellite/Map/None:** Change the base map for 2D view mode.

4.8.3.2 3D View Mode

If a point cloud or a 3D model is available, the viewer can switch to a 3D view.



Change view mode or base map

To change the base map or switch to 3D view mode, click on **View** icon and select **3D**.

4.8.3.2.1 Navigate in 3D map

Left mouse button to move: To navigate in the 3D mode, left-click on the model/point cloud to move the model/point cloud. The mouse cursor changes to a small ball icon when clicked onto the model/point cloud.

Right mouse button to rotate: Right-click on the model/point cloud to rotate the view.

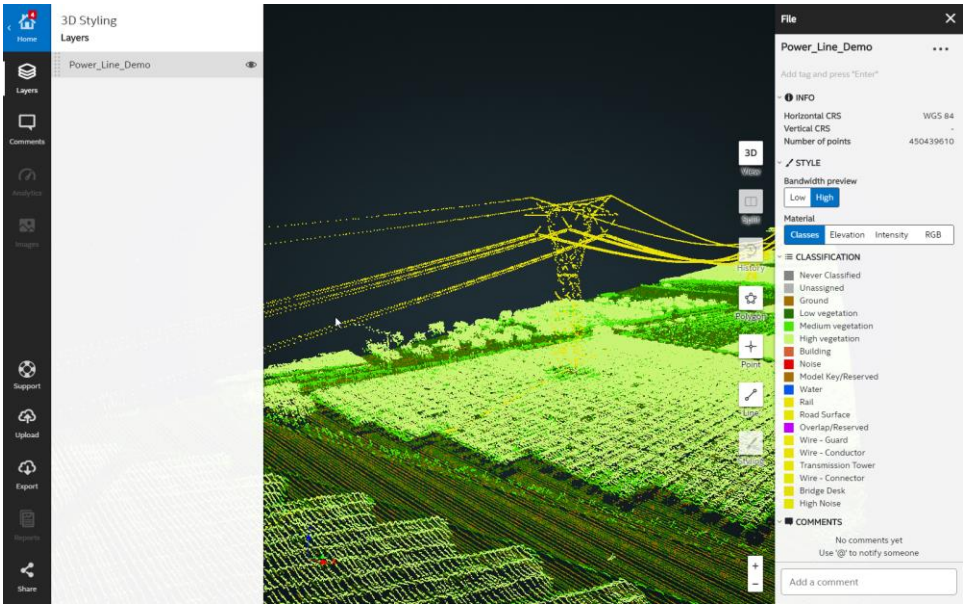
Mouse wheel to zoom: The mouse wheel is used to zoom in/out of the model.

4.8.3.2.2 Layers and Annotations

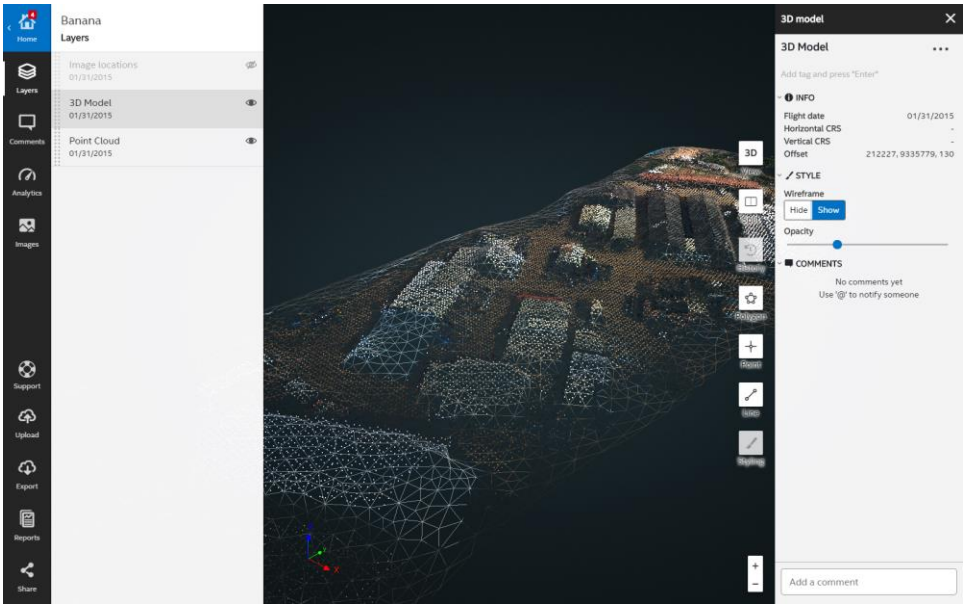
Different layers can be toggled visible/hidden and the layer order can be changed. For more information about the project layers and annotations, refer to Working with Layers.

4.8.3.2.3 Intensity and Classes

By selecting the layer in the 3D view, additional visualization and style options can be accessed in the right-hand information panel. Intensity and Classes views can be found in addition to the existing Elevation and RGB options.



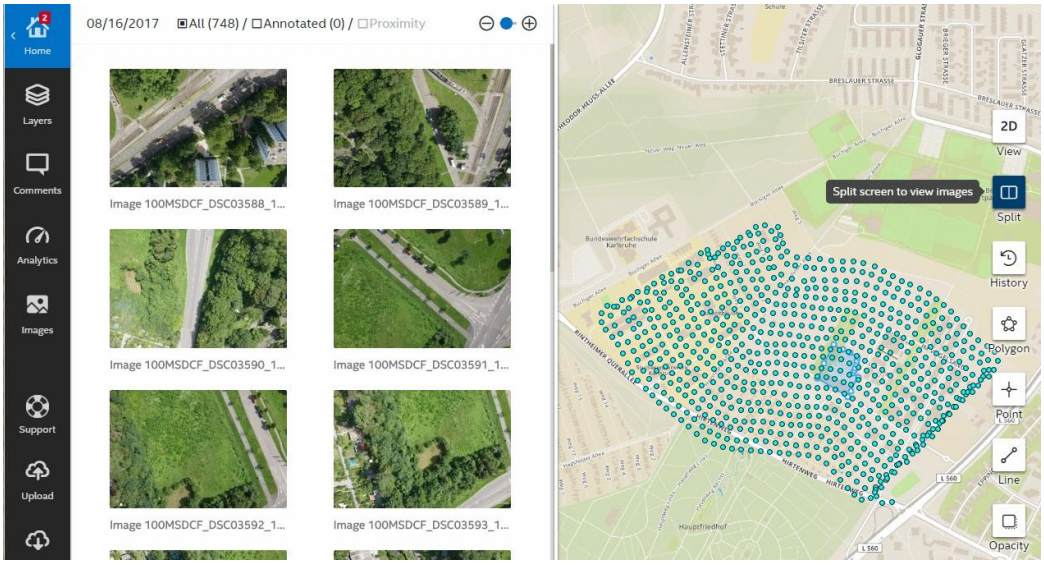
The style options for meshes include an opacity control that is useful in comparing multiple meshes and point clouds.



4.8.3.3 Split View Mode

In the split view, the image gallery is visible on the left side, while the map view on the right side remains. In this view mode, you can click on a point on the map to activate the proximity filtering.

The proximity filtering filters all images and shows only those that contain the chosen point.



4.8.3.4 History Compare Mode

To compare several data sets taken at different times, activate the **History** view mode and launch a comparison.

For more information, refer to **History Compare**.

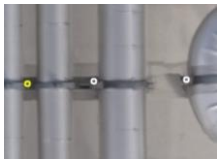
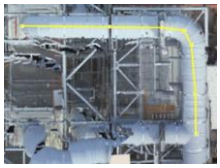
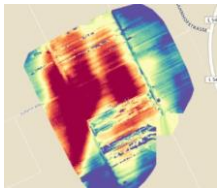
4.8.4 Working with Layers

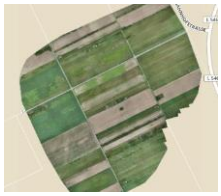
This section contains a detailed description of the different layers and their context. Layers are used to display different kinds of information onto the map. They can be orthomosaics, surface models, contour lines, annotations, image locations, and so on. For every type of layer, a special details pane with more information is available upon opening. For every layer, comments can be created.

4.8.4.1 Layer Types

There are several types of layers as shown in the following table.

Layer Types

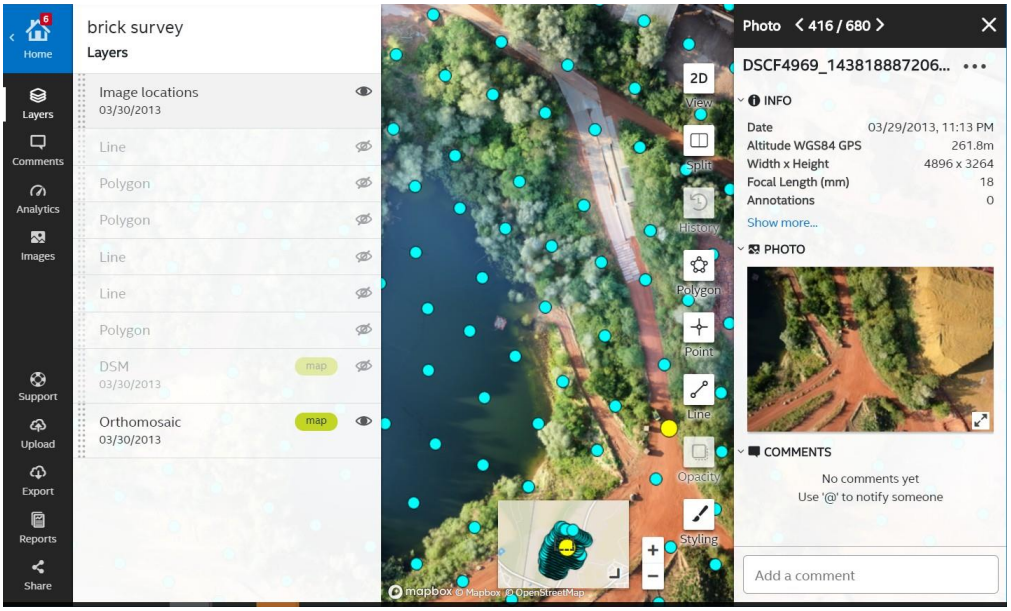
Example	Layer Type	Information in Details Pane
	**Image locations** Shows the GPS locations of all images for this flight on the map. Image locations are derived from EXIF metadata. See Image Locations.	• Uploader account • Number of images uploaded • Camera model • Width and height of image in pixels • Focal length in mm • F-number: Focal ratio
	**Polygon** Annotation in polygonal shape See Annotations.	• Area of polygon coverage • Volume (for 3D volume computation, e.g. stockpiles) • Description
	**Point** annotation Single point annotation See Annotations.	• GPS location of annotation point in Longitude & Latitude • Description
	**Line** annotation See Annotations.	• Length of annotation line • Elevation profile • Description
	**DSM** Digital Surface Model derived from the processing.	• Flight date • CRS (Coordinate Reference System): Projection in EPSG code • GSD (Ground Sampling Distance) • Style settings (color range)

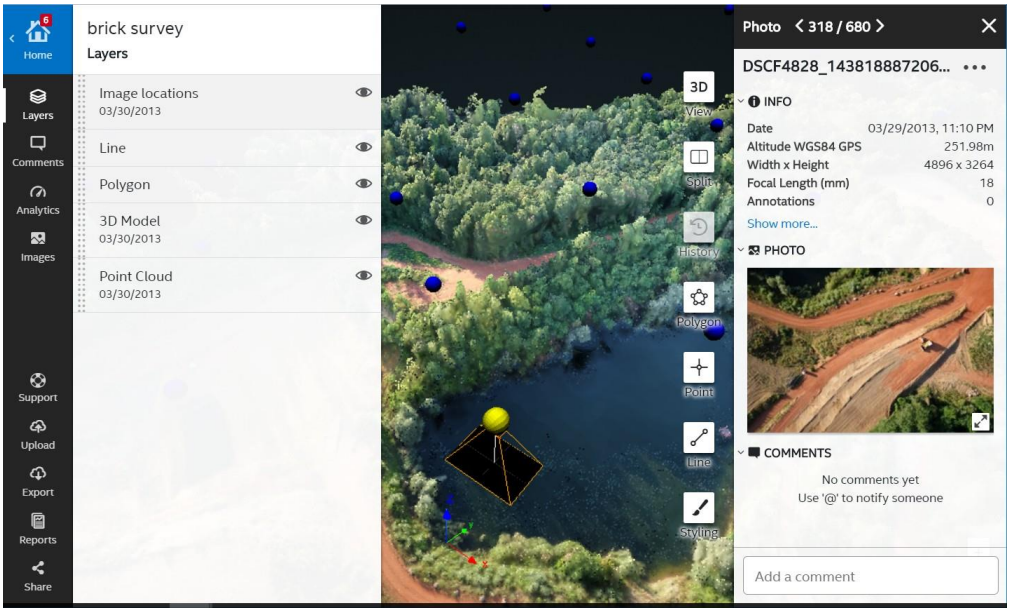
	**Orthomosaic** A photo representation of an area, created out of the uploaded photos that have been stitched together and geometrically corrected ("orthorectified").	• Flight date • CRS: Projection in EPSG code • GSD (Ground Sampling Distance)
	**Contour Lines** analytics Lines drawn on the map that joins points of equal height.	• Flight date • CRS: Projection in EPSG code

4.8.4.2 Image Locations

An image location layer shows the position and GPS location of all single images of a flight on the map. In 2D view, all images are shown as light blue circles in the map.

The location data are derived from EXIF metadata.





4.8.4.3 Show image information

To see more information about an image, select the light blue circle (in 2D view) or the blue point (in 3D view). The image information pane will show:

- Number of images uploaded
- Uploader account
- Camera model
- Width x Height of image in pixels
- Focal length (mm)
- Focal ratio (f-number)

Under the information pane, comments are displayed.

4.8.4.4 Annotations

4.8.4.4.1 Create an annotation

To create a new annotation on your map, open the project and select the type of annotation you want.

For **Polygon**, use the left mouse button to set the corner-points of the polygon. Double-click when the shape is finished.

For **Point**, click once on the location where you want to add the annotation.

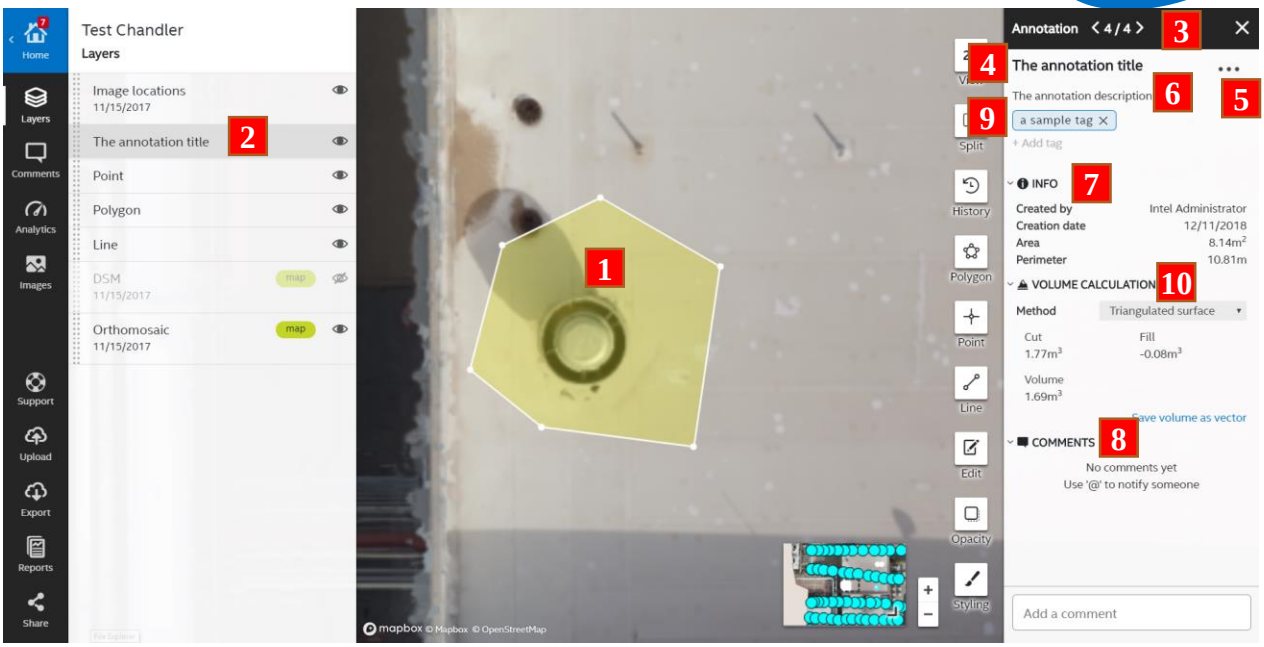
For **Line**, set the starting point of the line and click for every next point. Double-click on the last point to end the line.

4.8.4.4.2 Annotation details pane

Once the annotation is created, a details pane opens automatically. Use it to rename, describe, or add tags or comments to the annotations.

Annotation Details for Polygons

Item	Description
1	Annotation shape in map
2	Layer type, here: **Polygon**
3	Layer number
4	Annotation name
5	Annotation submenu. The submenu allows the following actions: **Rename** **Edit description** **Delete the annotation**
6	Annotation description. This description is used in reports.
7	**INFO** area Calculated area and additional functionality for this annotation type, here: **Compute volume**
8	**COMMENTS** list
9	Searchable tag
10	Additional information area – e.g. volume calculations for polygons; elevation profiles for lines



4.8.4.5 Rename and describe an annotation

Open the annotation submenu (5) and select **Rename** or **Edit the description** in the menu.

4.8.4.5.1 Delete an annotation

Open the annotation submenu (5) and select **Delete** in the menu.

4.8.4.5.2 Use inspection functions

In **INFO** area of details pane (7), more functions are available, depending on the annotation type.

For polygons, volume and perimeter can be calculated. Click on the **Compute volume** link to get volume, cut and fill. The following methods are available:

Name	Method
Lowest point	The reference surface for the base of the calculated volume is a horizontal plane fixed at the vertical height of the lowest vertex.
Triangulated surface	The reference surface for the base of the calculated volume is generated by forming triangles connecting all vertices.
Best fit plane	A flat plane which fits the set of selected vertexes is calculated using a least squares method.
Z value	The reference surface for the base of the calculated volume is a horizontal plane fixed at the vertical height specified by the user

4.8.4.6 Layer Comments

You can add comments to every layer element.

4.8.4.6.1 Add a comment to a layer or an annotation

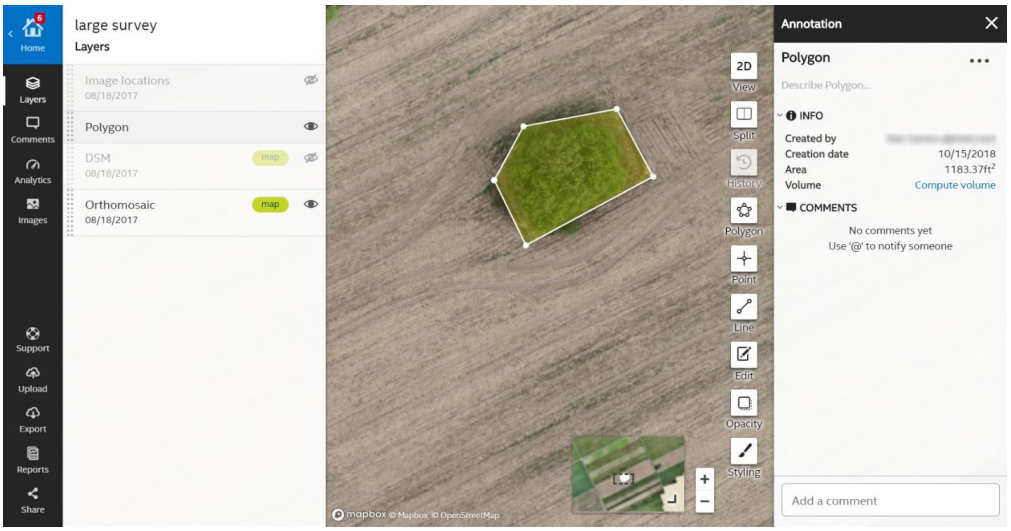
To add a comment to a project element, open the **Layers** list. Select the Layer / annotation that needs commenting

and write the comment in the comment field in the details pane on the right side.

Once a comment is saved, it cannot be changed.

Comments will not be shown in the reports.

4.8.4.6.2 Annotation Details



4.8.4.6.3 Adding a comment

Write in the **Add a comment** box and press the **Send** button to save your comment.

To address the comment to a user insert an **@** character first, followed by the username.

Tip: After inserting the **@**, a list of possible user names appears. You can choose the recipient from the list.

4.8.4.6.4 View list of comments

All comments for a project, including the layer comments, are listed in the **Comments** list. Open this list with a click on the **Comments** symbol in the project menu on the left side. See Comments.

4.8.4.7 History Compare

The History map function provides access to data sets of previous flights. You can select a data set that should be used in the map.

To compare several data sets taken at different times, you can launch a comparison.
History

Item	Description
1	Data set selection
2	Data sets to compare selection
3	Start History compare

4.8.4.8 Select a data set

Select a data set by date (1). The current map shows the selected data set instantly.

4.8.4.8.1 Launch history compare

Select both data sets (2) and click **Launch** button (3). The **History compare** view is shown.

4.8.4.8.2 History Compare in Overlay View Mode

Item	Description
1	History compare view
2	View mode selection: overlay side by side
3	Top/bottom or left / right data set selection and swap button
4	DSM
5	Top view opacity slider in overlay view mode

In all view modes the normal map navigation applies, including zoom in or out or moving the map.

4.8.4.8.3 Compare with overlay view

Click on **Overlay** view mode.
In this view mode, both data sets are shown on top of each other.

Use the **Top view opacity** slider (5) to adjust the opacity of the data set in the top. Use the swap button (3) to switch top and bottom data sets.

4.8.4.8.4 Compare with slider view mode

Click on **slider** view mode.
Shows both data sets in one map. With a slider dividing the map vertically, move the slider to show one data set on the left side of the slider, and the other data set on the right side.

Use the slider to drag the left/right data set over the map.

4.8.4.8.5 Compare with side by side view mode

Click on **side by side** view mode.
A split map view shows both data sets side by side. Map moves and zoom are synchronized.

4.8.4.8.6 Exit History compare

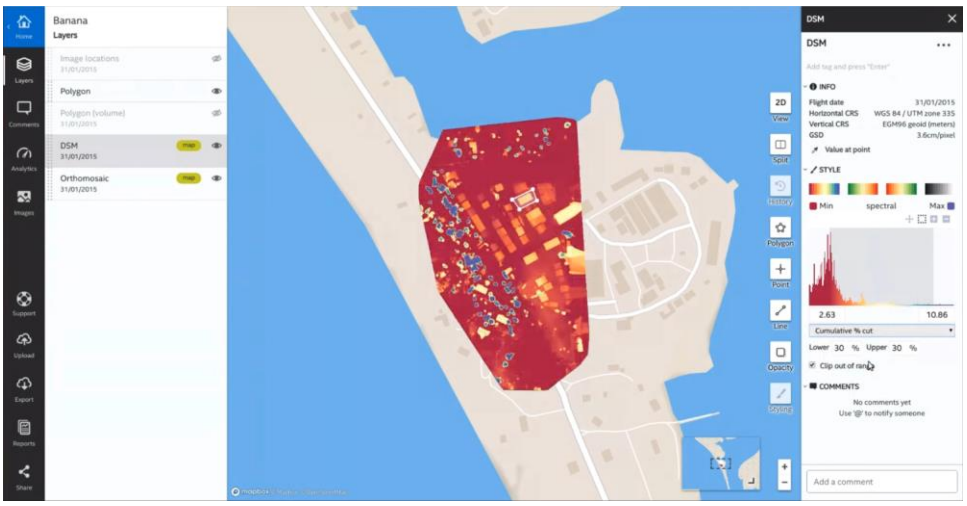
To exit the comparison mode, click on the **X** next to **History compare** on top of the screen.

4.8.4.9 Style properties for raster layers

Several raster layers such as DSM and multispectral indices have additional tools to change the style properties. These include:

- the implementation of the histogram;
- modification of the color gradient selection;
- a choice of intervals;

- an eyedropper to get raster values at a given point (without needing to create an annotation).



4.8.5 Image Management

The uploaded image sets are used to show **Orthomosaic** maps. In map view, the image locations can be shown. Images can be localized using map view or searched in an image gallery. In a split view, map and images can be viewed side by side.

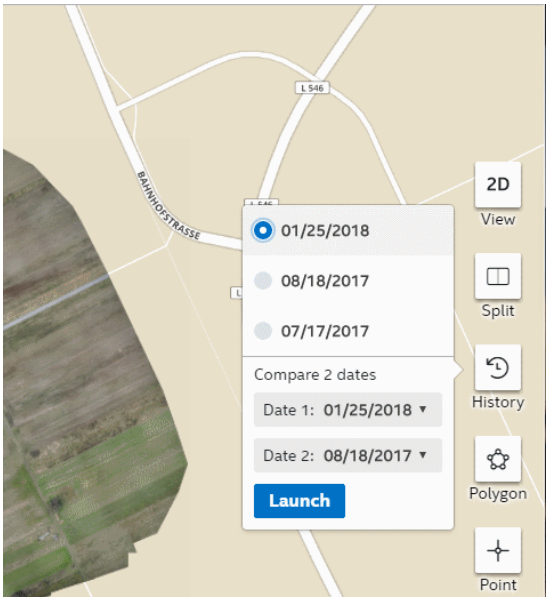
4.8.5.1 Select image set in map

A project can contain some image sets. To select an image set for the current map,

use the 

History function in map view. The available image sets are shown by date. Select an image set.

4.8.5.2 Selection of Image Sets



Show image locations in map.

To see image locations in map, set the **Image locations** layer to visible.

4.8.5.3 Show Image Locations

Show photo and properties

To open the right details pane with information about an image, click at an image location in the map. The details pane shows file name, thumbnail, date, resolution, and more.

4.8.5.4 Show map and image gallery side by side

To split the screen in image gallery and map side by side, use the 

Split

function in map view.

4.8.5.5 Show all images around a location in map (proximity filtering)

To show images around a location in the map, use the **Split** view and click at the desired point in the map. Images around this location will be selected in the map and shown in the image gallery.

4.8.5.6 Show image gallery

The **Images** view shows all images stored in a project.

The image gallery is structured in the different image layers/data sets. Individual images can be downloaded or viewed in full resolution. Annotations to individual images can be added.

For more details in the **Images** view/the gallery, refer to Images.

4.8.5.7 Open image in Single Image Viewer

With the **Open image viewer** button the Single Image Viewer opens with the selected image. The button appears for every image when the mouse is hovered over it.

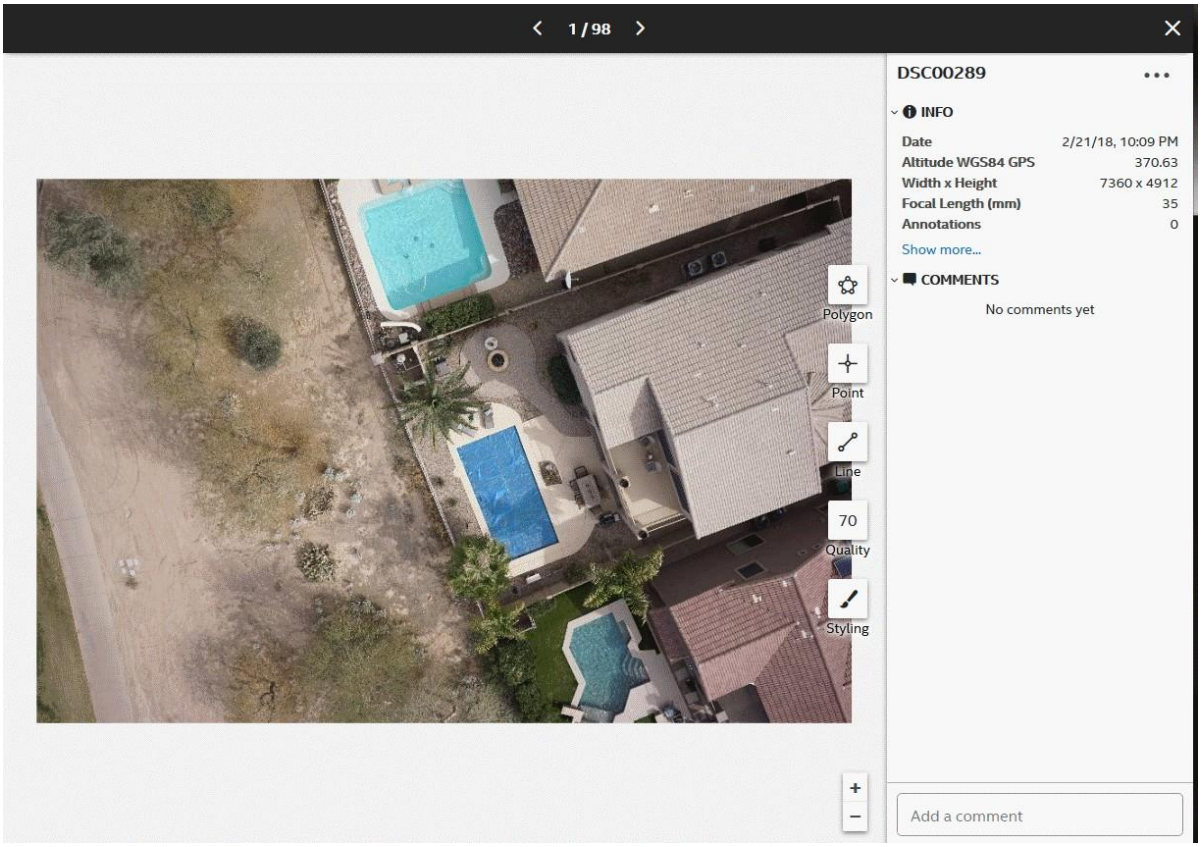
4.8.5.8 Downloading images

With the **Download** button the image can be downloaded. The button appears for every image with mouse over.

4.8.5.9 Add annotations in images

See Adding an Annotation for an Image.

4.8.5.10 Single Image Viewer



The viewer shows a single image, the properties of the image and added comments. You can add annotations to the image (polygons, points, or lines).

4.8.5.10.1 Buttons

Polygon, Point, Line: Once the full image is loaded, annotations can be entered in the same way they are added to image layers. See Adding an Annotation for an Image for more information.

Quality: This slider allows you to set the compression ratio for the images:

The images can be compressed from 10% (lowest quality) to 100% (best quality). Higher quality images require longer loading times.

Styling: Change the color of the selected annotation.

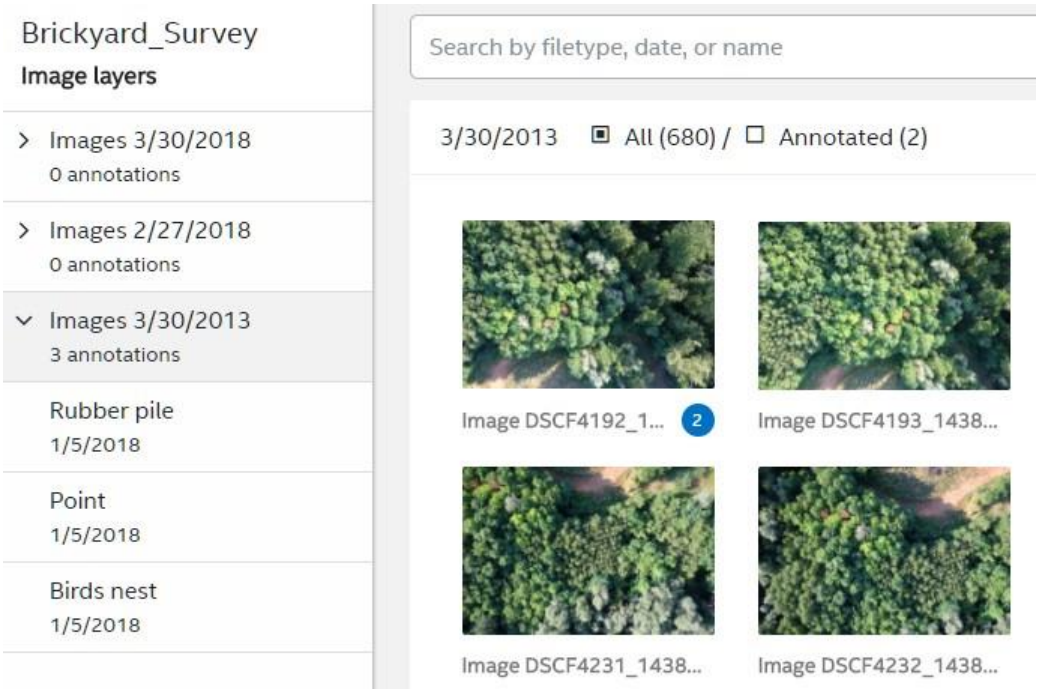
4.8.5.10.2 Adding an Annotation for an Image

For every set of images, the number of existing annotations is written under the flight date. The list can be filtered to just show images already containing an annotation.
These images contain the number of their annotations in a blue circle next to the file name.

In **Single image** viewer annotations can be added.

1. Search and select the image you want to annotate. Hover the mouse over the selected image. Choose **Open image viewer** to show a full resolution view of this image.
2. Once the image viewer is opened, create the annotation as described in Annotations.

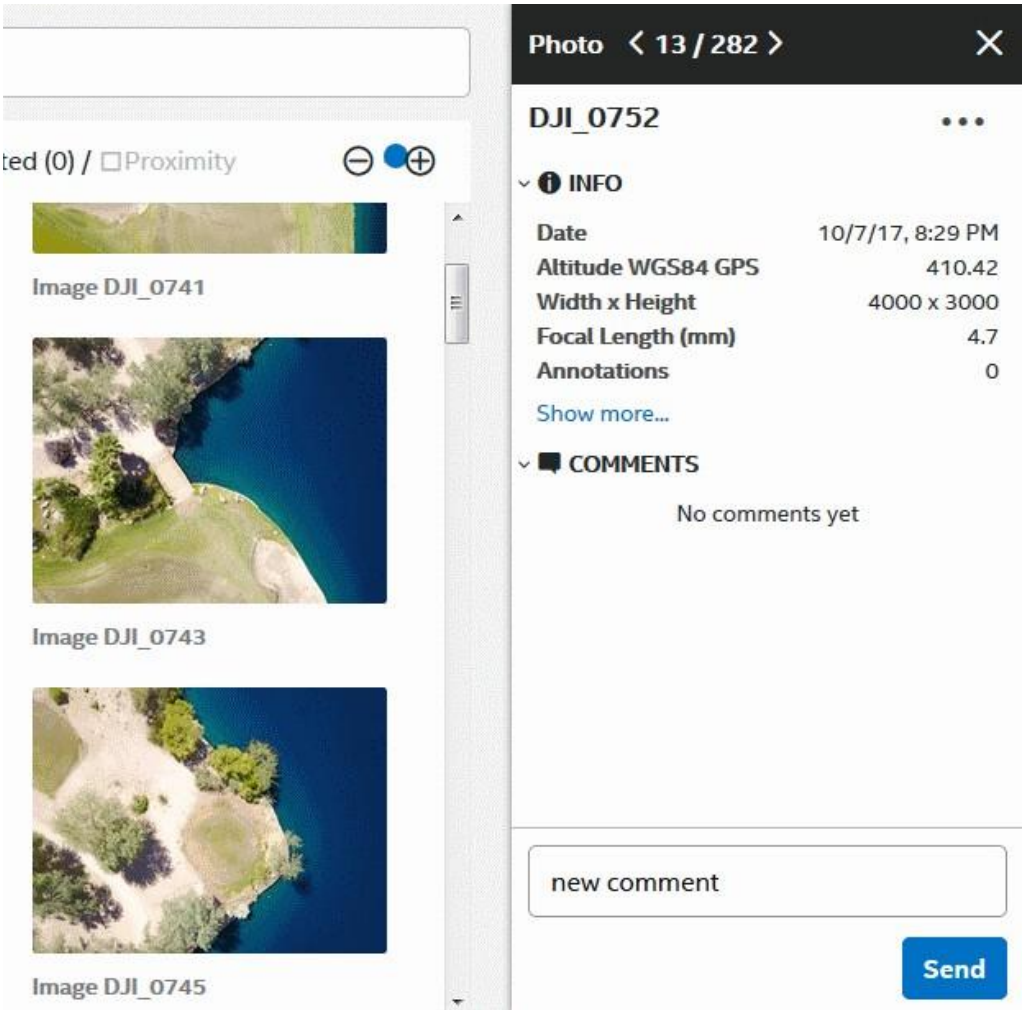
Image annotations are NOT visible in the layer view of this project; only in the image list.



4.8.5.10.3 Add a comment to an image

Every image can have comments added to it. To add a comment to an image, open the **Images** view. Select the image that needs commenting and write the comment into the comment field in the details pane on the right side. Once a comment is saved, it cannot be changed.

Comments will not be shown in the reports.



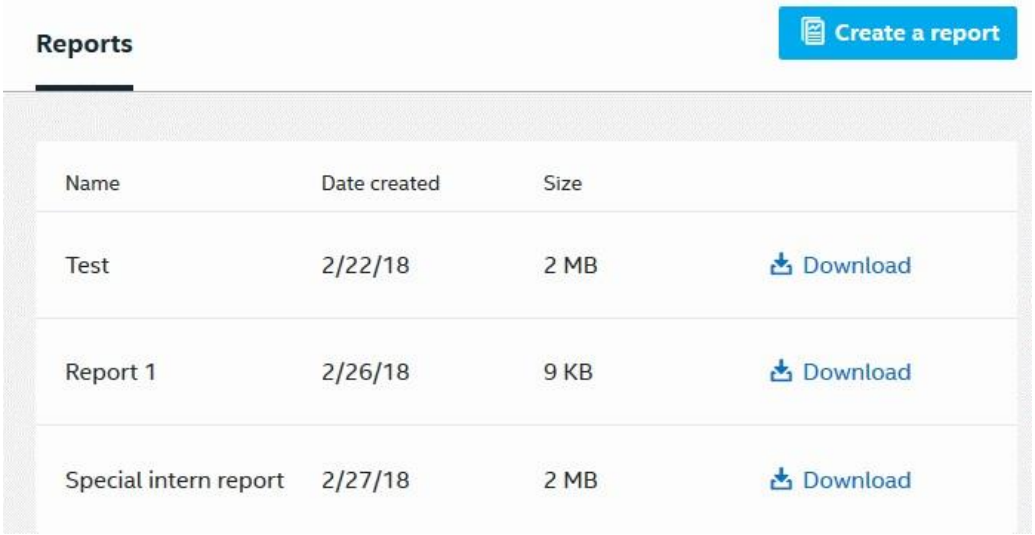
Add a comment to an image: Write in the Add a comment box and press the Send button to save your comment. To address the comment to a user, insert an **@** character first, followed by the username.

Tip: After inserting the **@**, a list of possible user names appears. You can choose the recipient from the list.

All comments for a project, including the layer comments, are listed in the **Comments** list. Open this list with a click on the **Comments** symbol in the project menu on the left side. See Comments.

4.8.6 Generating Reports

For lists of selected annotations, reports can be generated. All reports of this project are listed in the **Reports** list.



4.8.6.1 Create a report

To create a report, select **Reports** in the project menu and click the **Create a report** button. A report can be created in three steps:

1. Annotations - A list shows all annotations in your project. Select the desired annotations (or click the select all annotations link). Click Next >.
2. Context page - A list of used maps is shown. Select a map to display on the report. Click Next >.
3. Template configuration. Insert a title for the report. Edit the contact information, if necessary. Click the **Create** button.

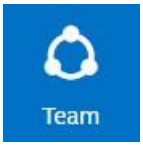
The report will be generated. In the Reports list, the created report is shown with a **processing** notification. When the report generation is finished, the size of the report in MB and a **Download** link is shown.

4.8.6.2 Open a report

To open a report, click on the **Download** link. The PDF file can be directly opened or saved. After save, you find the file in the **Downloads** list of your Browser.

4.9 Team Management

Use team management to administrate access rights and all user profiles. This function is available to users in the manager role only.



A click on the Team symbol opens a menu with the following options:

My company: Edit your company name, address, and options (such as currency).

User management: See list of users; create new users; and change user access to different projects.

Usage monitoring: View the activities on the Intel Insight Platform.

4.9.1.1 My Company

Modify your company profile. You can edit your company name, postal address, currency, and industry vertical.

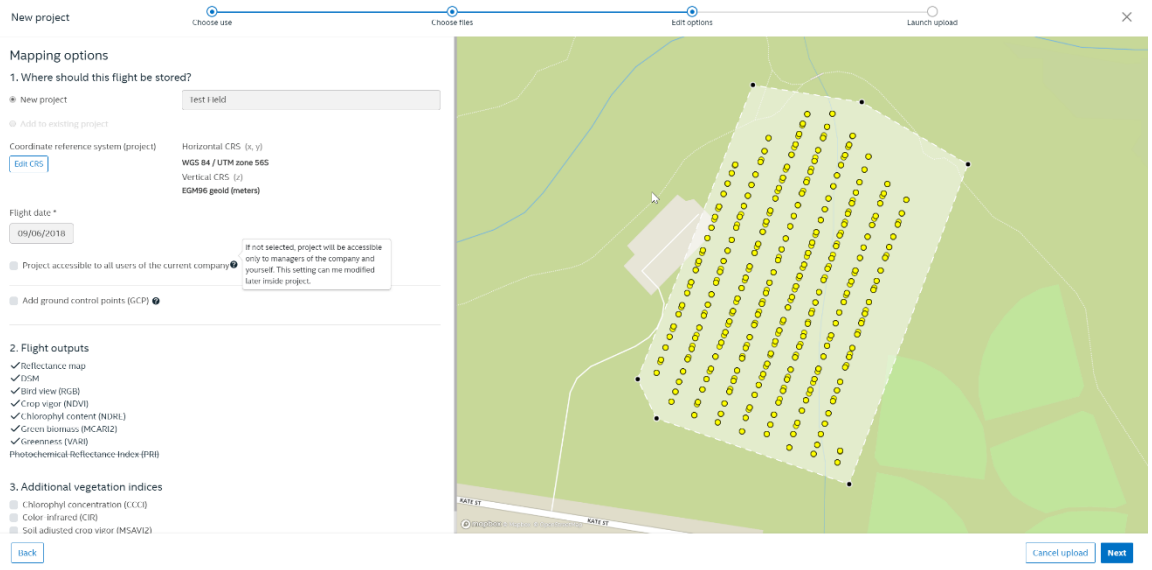
4.9.1.2 User Management

With user management, a list of all users within the company can be maintained. Users can be assigned to roles. A high level overview of the access levels of each user role is provided below.

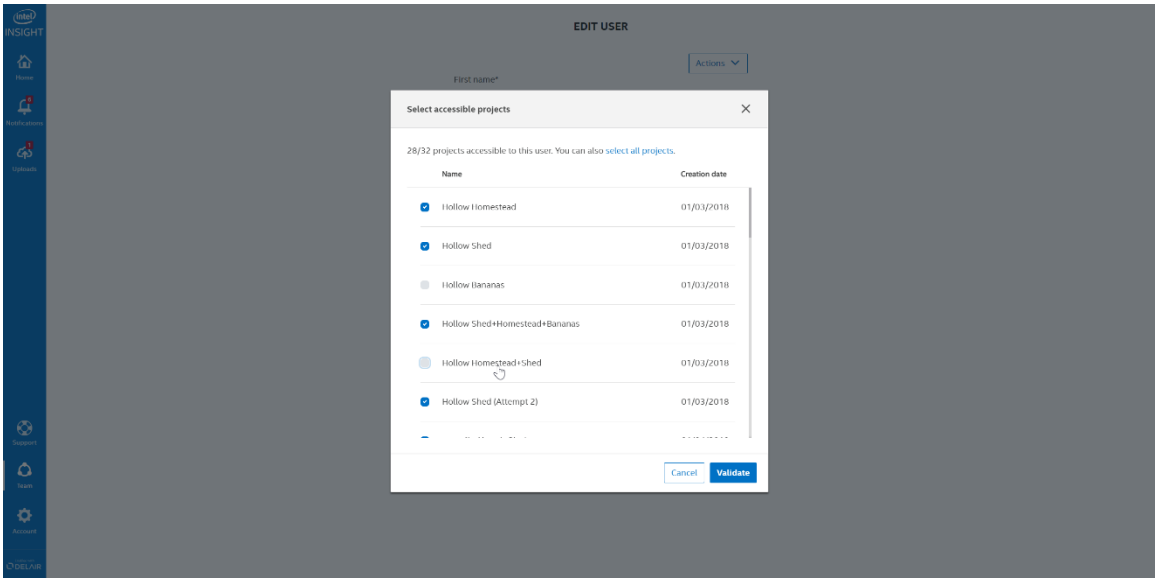
Activity	Viewer (Shared Link)	Operator	Contributor	User	Manager
Project visibility	One project, all history	Default at creation: None	Default at creation: None	Default at creation: All	Default at creation: All
View historical maps	X	X	X	X	X
Upload images		X		X	X
Upload GCPs		X		X	X
Launch photogrammetry				X	X
View 2D	X	X	X	X	X
View 3D			X	X	X
Use tools & make annotations			X	X	X
Run analytics				X	X
Export results				X	X
Manage roles and users					X
View account usage					X
Raise support request		X	X	X	X

4.9.1.3 Restrict access to specific projects

Teams and project sharing allow control over access to specific projects. Managers can control which projects are viewable/accessible by each individual operator, user and contributor, while continuing to permit Managers to view all projects. These attributes can be set during the project creation, or by editing the user from the **Team -> User management** menu on the left.



How to edit access from the project creation menu



How to edit user access from the user management menu

4.9.1.3.1 Add user

To create a new user for the Intel Insight Platform:

1. In home page, open **Team > User management** to see a list of all users.
2. To add a new user, click on **Create user** and fill in name, email address, and user role. The user will receive an email with instructions on how to set a password.

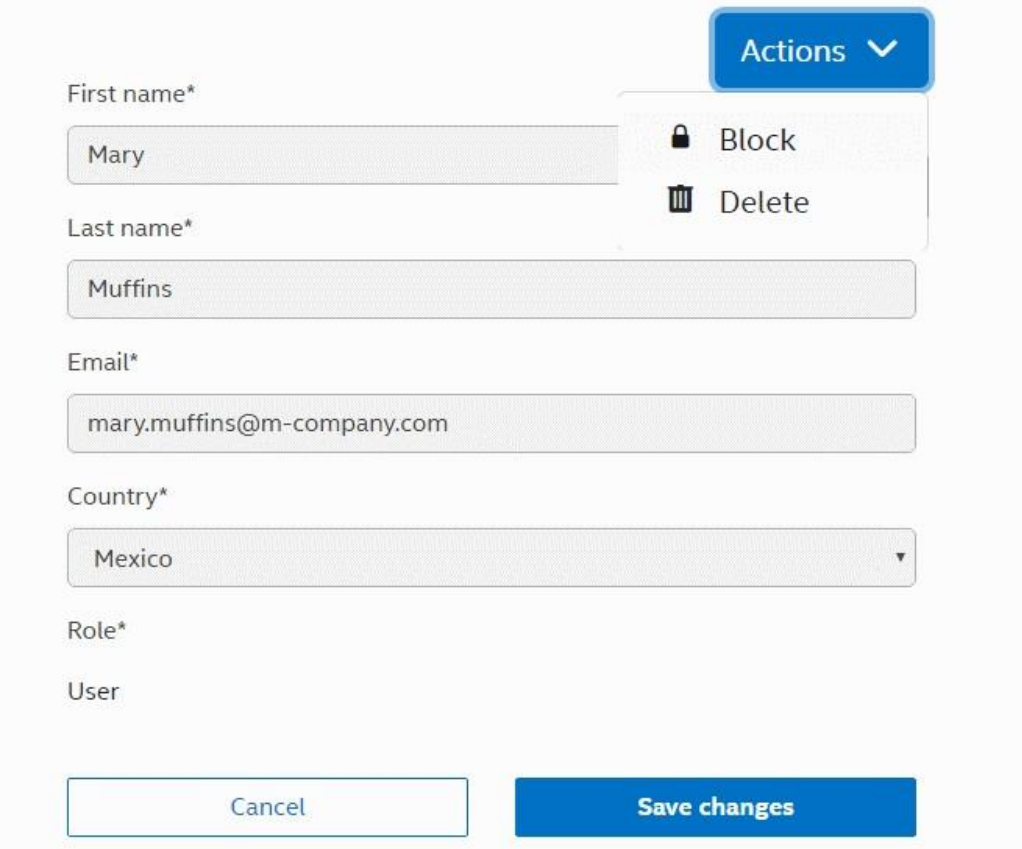
4.9.1.3.2 Allocate roles

Four roles can be assigned:

- **Operator:** An operator can upload data. This role is suitable for individuals such as drone pilots who only need limited access to the Intel Insight Platform.
- **User:** Normal Intel Insight Platform user. The user has access to all functions except team management.
- **Manager:** Like **User** role, but with team management function.
- **Contributor:** This role has been created to allow limited access to individual projects for collaborators who wish to view models, make basic measurements, and contribute to conversations without being able to create new projects, launch photogrammetry or run analytics. Contributors are fully authenticated with an email and password.

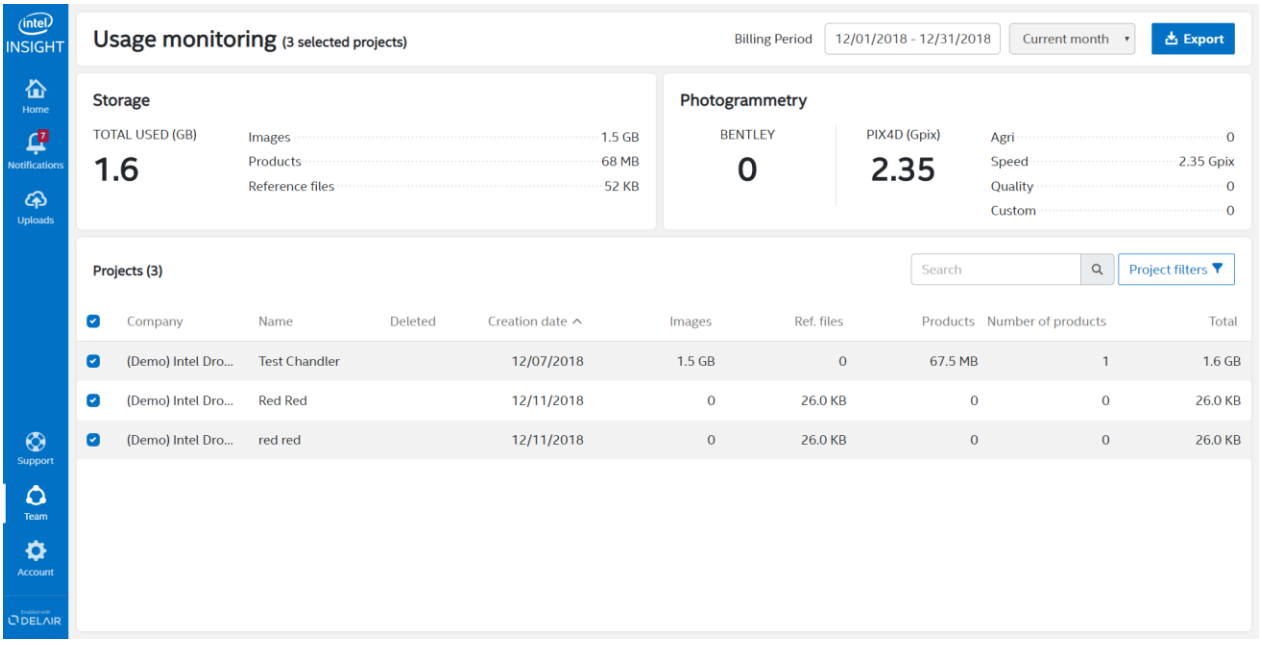
4.9.1.3.3 Edit, block or delete user

1. To edit an existing user, search for the username in the search bar and select the user.
2. To block or delete a user, select **Actions > Block** (maintain user data, but block access) or **Delete**.



4.9.2 Usage monitoring

Opens the usage monitoring screen. Filter for industries and select projects to view statistics, such as total number of images, analytics, deliverables, quality, and size of storage for these projects. The output can be configured to show different groups, including **Industry**, **Company**, **Project**, **Analytic**, **Deliverable**, **Product**, and **Quality**. Each group shows different variables.



4.10 Account Management

Use account management to view and adjust user profile settings.

To access account management, click **Account** on the home page.

4.10.1 Edit My Profile

Change your profile settings. You can edit the first name, last name, and email address associated with your profile.

4.10.2 Change My Password

Changes your password.

4.10.3 Switch Company

Switch between different company accounts with which you are registered. You get access to the projects of the selected company.

4.10.4 Logout

Ends the current session and logs the user out of the Intel Insight Platform. All processing tasks will continue but active image uploads are canceled.

4.11 Ground Control Points (GCPs)

This section describes the Ground Control Points (GCPs) on the Intel Insight Platform.

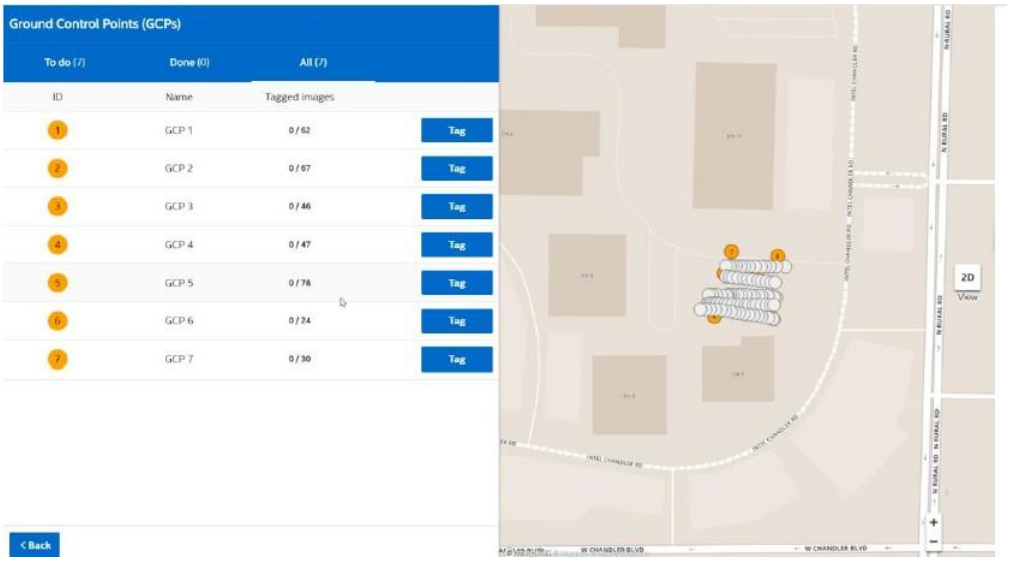
4.11.1 GCPs Manually Tagged by User

Users can establish their own ground control points using a tagging system. This is either done during the upload phase, or by first uploading the images into the gallery, and then launching the photogrammetry process from the **Analytics** menu. Users can pause and resume the tagging process, which saves their progress automatically for later.

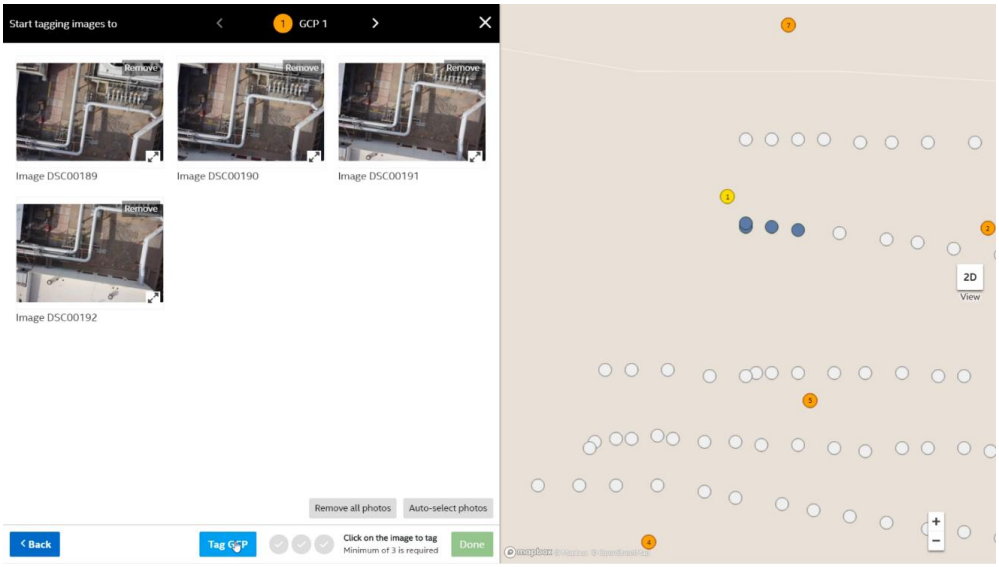
As an example, during the upload phase, GCPs can be added in the **Processing options** menu.

Once the GCPs have been uploaded, and the coordinate reference system selected, then the tagging process can be launched by clicking **Next**.

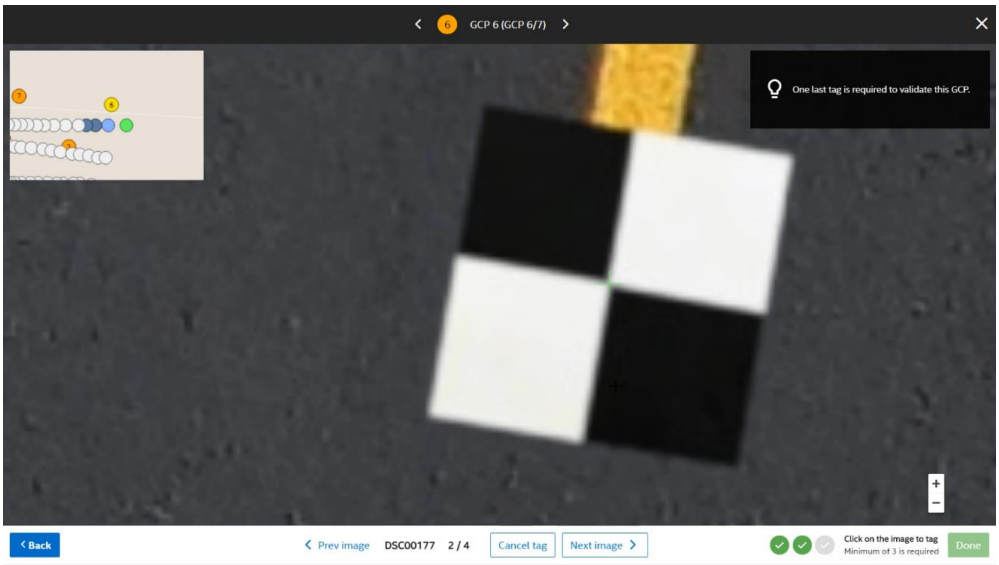
The GCP tagging interface will load. Click Tag to start identifying the photos relevant to each GCP.



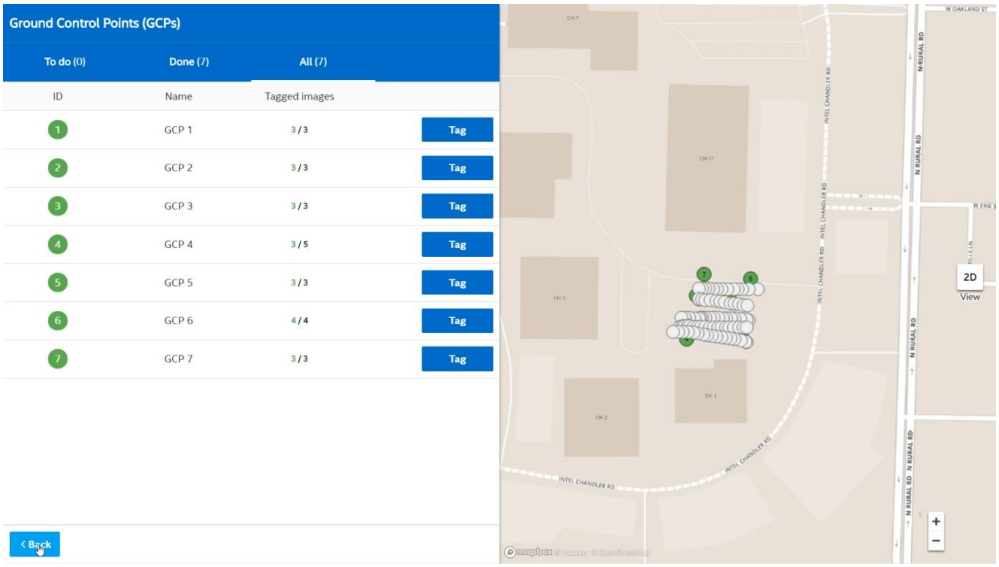
A minimum of 3 photos are required to be tagged for each GCP. Once you have selected the associated subset of images, click **Tag GCP** to start the tagging process.

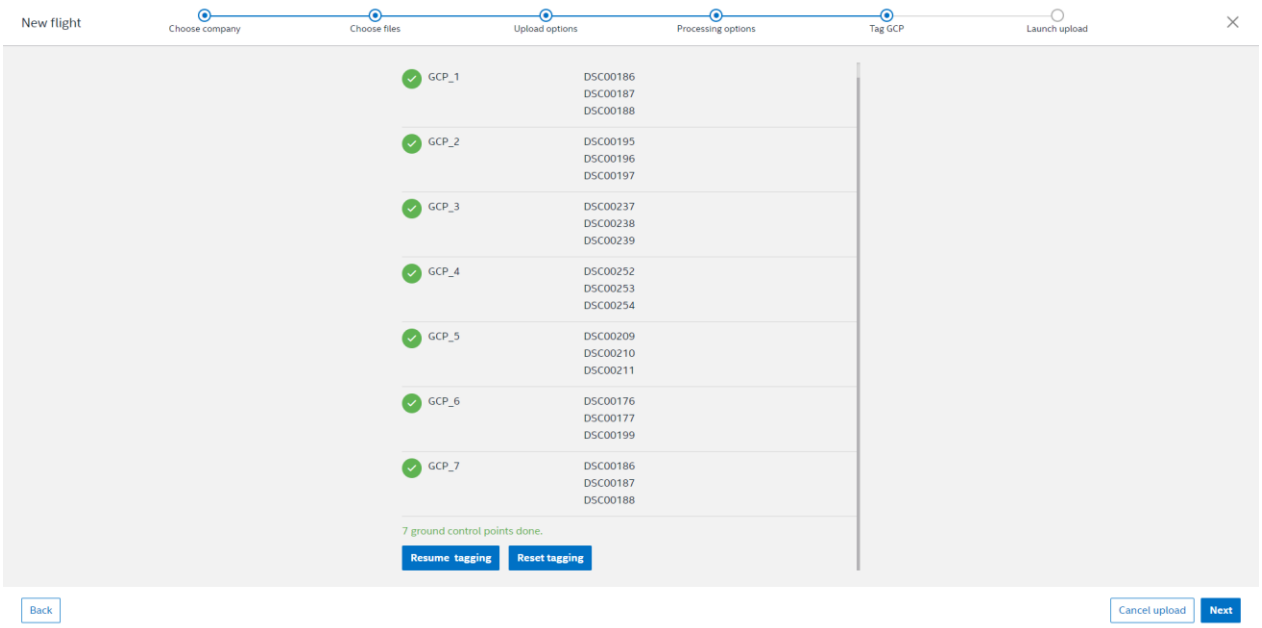


Identify the center point of each GCP before advancing through the images using Next image. Once a minimum of 3 images have been tagged, click **Done** to confirm the tags for this GCP. Then navigate to the next GCP using the buttons at the top.



Once all GCPs have been tagged and confirmed, use the **Back** button to exit the process to the launch menu.





The process will be launched. The user can continue to do other activities while the processing continues in the background.

4.12 Glossary

2.5D: 2D model (map) where the altitude is encoded in the pixel value. Each color corresponds to a given range of elevations.

3D Mesh: A polygonal structure made up of intersecting lines, creating triangles. A texture made from images is applied over the structure to add surface details to the model.

AGL: Above Ground Level.

Analytics: An algorithm, tool, or action that can be applied on a data set, to yield an answer to a question.

Annotation: A note of explanation added to an image or map. It can be added as a named point, line, or polygon to the map.

Check Point (CP): Point with known coordinates; it is useful for assessing the accuracy of the project. Unlike a GCP, the Check Point's coordinates are not used for the photogrammetry process.

Contour lines: Contour lines are lines connecting points of equal elevation. They are useful because they allow you to better understand the shape of the land surface (the topography) on a map. The Elevation Interval of a contour map is the difference in elevation between adjacent contour lines.

CRS: Coordinate Reference System: A coordinate based system used to locate geographical entities. CRS defines a specific map projection.

DSM: A Digital Surface Model is a visual representation of the surface of an area that includes all natural and built features.

EXIF Metadata: Exchangeable Image File Format metadata: Technical metadata embedded by digital cameras into image file formats (JPEG/TIFF). The main feature of EXIF metadata is to provide camera information for each image file, at the point of capture. Depending on the camera used, EXIF metadata can include: hardware information, time, date, GPS location, camera orientation, and more.

FoV: Field of View.

GCP: Ground Control Point. Reference point with measured coordinates. Used to geo- reference the project.

GEOJSON: an open standard format designed for representing simple geographical features, along with their non-spatial attributes, to easily exchange data with various other software programs.

GSD: Ground Sampling Distance is the distance between two consecutive pixel centers as measured on the ground. The bigger the value of an image GSD, the lower is the spatial resolution and less the visible details. The GSD is related to the flight height: the higher the altitude of the flight, the bigger the GSD value.

Example: A GSD of 5 cm means that the distance from one pixel center to the next adjacent pixel center is 5 cm, and therefore one pixel in the image represents 5 linear cm on the ground, and the area of each pixel is 25 square cm (5*5).

A GSD of 10 m means that one pixel in the image represents linearly 10 m on the ground, with an area of 100 square meters.

Note: Even when flying at a constant height, the images of a project may not have the same GSD. This is due to terrain elevation differences and changes in the angle of the camera while shooting. Since the orthomosaic is created using the 3D point cloud and the camera positions, an average GSD will be computed and used.

IMU: Inertial Measurement Unit. A set of sensors (accelerometers, gyroscopes and magnetometers) that are used to maneuver an unmanned aerial vehicle.

NDVI: Normalized Difference Vegetation Index. A commonly used spectral index which uses image data from multispectral sensors that include: red, green, near Infrared and red edge bands. NDVI data is typically used by agronomists and plant scientists to understand the health of plants, based upon how much light is reflected.

Orthomosaic: 2D model (map) made by blending several orthophotos. Color balanced to be visually pleasing.

Orthophoto: A geometrically corrected aerial photograph such that the scale is uniform to measure true distances. An orthophoto is designed to be an accurate representation of the Earth's surface, having been adjusted for topographic relief, lens distortion, and camera tilt.

Point Cloud: A set of data points in a coordinate system, representing the external surface of an object. For example, a three dimensional system will have X, Y, Z data points.

PPK: Post-Processed Kinematics. PPK is a type of positioning system that utilizes the global navigation satellite system (GNSS), such as GPS, GLONASS or others. Instead of using one reading from a GPS receiver, PPK uses differential receivers in multiple locations to improve positional accuracy by calculating offsets and making corrections. The processing of the location data, takes place after the collection, and not in real time.

RTK: Real Time Kinematics. This technology is similar to PPK, but requires a real time connection between satellite receivers, typically via radio.

Textured Mesh: 3D model (mesh) made of triangles and having color information (texture). Color balanced to be visually pleasing.

UAV: An unmanned aerial vehicle, commonly known as a drone.