Asset and Geospatial Information Branch
Survey and Mapping Section

LiDAR Portal
Data Upload Guideline
D23#476227

Contents

Document Control

Owner	Survey and Mapping Manager
Custodian	Senior Engineering Surveyor
TRIM Document Number	D23#476227
Issue Date	May 2023 (Rev 2)

Amendments

Revision Number	Revision Date	Description of Key Changes	Section / Page No.
2	May 2023	Initial Release	All
3	July 2023	Updated naming requirements	3.3
3	July 2023	Replaced 'Point Cloud Portal' with 'LiDAR Portal' to align with internal naming.	All

1   INTRODUCTION

The purpose of this document is to establish Main Roads requirements for delivery of point cloud data via the Main Roads LiDAR Portal, provided by Pointerra Ltd.

It should be noted that delivery of point cloud via the Main Roads LiDAR Portal is not mandatory and is generally targeted at projects carried out as part of the Network LiDAR Project (NLP). Point cloud and other deliverables can also be provided to Main Roads via established data transfer methods if preferable to the contractor.

1.1 SCOPE

This document will apply to all work related to point cloud that is procured by Main Roads WA.

Advice and further information on this delivery document can be obtained by contacting the Survey and Mapping Manager, Survey and Mapping section, Main Roads (Phone 138 138) or surveying@mainroads.wa.gov.au.

1.2   OWNERSHIP OF DATA

All materials and information as part of undertaking projects for Main Roads WA shall become the property of Main Roads WA. It shall not be used, copied or reproduced for any other purpose without the prior written approval by Main Roads WA.

1.3 REFERENCES AND RELATED DOCUMENTS

Document Number	Description
D12#434824	67-08-43 "Digital Ground Survey" Standard
D17#301448	Survey Report, MRWA template
D17#307405	Feature Codes, Digital Ground Surveys
D22#371770	MRWA "Geodetic Control Survey" Standard
D14#152062	MRWA Standard "D14#152062 Mobile Laser Scanning"
D15#321963	MRWA Standard "D15#321963 Survey Metadata Standard"
N.A.	MRWA Metadata Statement Form – Detail Ground Surveys
N.A.	MRWA Metadata Statement Form – Point Cloud
N.A.	MRWA Metadata Statement Forms – Underground Utilities
N.A.	MRWA Guideline "Digital Ground Surveys"
N.A.	MRWA Guideline "Data Lodgement"
D18#554805	67-08-121 "Underground Utilities Survey Standard"
D15#224538	MRWA Aerial LiDAR Data Delivery Document
	Landgate Standards and Guidelines
	Land Administration Act 1997

Main Road survey standards, guidelines and documents can be found by searching on the www.mainroads.wa.gov.au website.

1.4 DEFINITIONS

The following terms used in this procedure have the specific meanings indicated:

Term	Definition
Contractor	The party named in the contract to perform the Services
Local Project Zone	A local transverse Mercator projected coordinate system created by Main Roads WA to meet tolerances for building roads and bridges on the earths curved surface.
MLS	Mobile Laser Scan. A point cloud generated from a laser scanner attached to a moving vehicle.
MRWA/Main Roads	Main Roads Western Australia
NLP	Network LiDAR Project
PCP	Point Cloud Portal
Pointerra	Pointerra Ltd
SLK	Straight Line Kilometre

2   LIDAR PORTAL ACCESS

Main Roads currently offer two methods for suppliers and contractors to access the LiDAR Portal for upload purposes, as detailed below. The contractor's current arrangement with Pointerra Ltd, if any, will determine the method of access.

2.1 IN-APP TRANSFER

If the contractor has an active Pointerra Ltd account and sufficient data storage space, a point cloud project and any accompanying datasets can be transferred to the Main Roads environment using the Sharing functions within Pointerra. Instructions on how to do this can be found at the below links:

https://help.pointerra.io/articles/59461-sharing-a-collection-with-a-team-from-another-company
https://help.pointerra.io/articles/100082-how-to-move-a-point-cloud-between-companies

A Team ID is required to use the In-app Transfer, which can be provided by the Main Roads Survey and Mapping team. Contact the Survey and Mapping Project Manager for a Team ID.

For Main Roads to take ownership of a project, download rights need to be activated in the collection permissions:
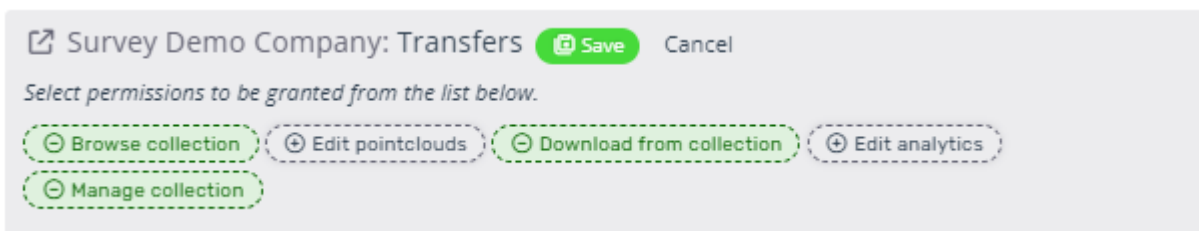
2.2 DIRECT UPLOAD

If the contractor does not have an active Pointerra Ltd account or does not have sufficient data storage space in their account, data can be uploaded directly into the Main Roads environment. This method requires an 'Upload Only' account to be created in the Main Roads environment that allows data upload into a collection with upload and viewing permissions only.

For an account to be created a name and email address need to be provided to the Main Roads Survey and Mapping team that is not associated with another Pointerra account or environment. An invitation to sign up to the Main Roads environment will be issued from the Main Roads account once the required information is provided.

Only the contractor's account and Main Roads accounts have access to the specific collection.

3 UPLOADING DATA

Basic instructions on how to upload data to the Main Roads LiDAR Portal can be found at the below link:

https://help.pointerra.io/articles/40492-uploading-point-cloud-data
https://help.pointerra.io/categories/7658-managing-project-datasets

When uploading data to the LiDAR Portal, the contractor must comply with the following requirements.

3.1 DATA FORMAT

3.1.1 Point Cloud

Generally, Main Roads require LAZ format for point cloud. If a specific format other than LAZ is required, this will be specified in the survey request document.

3.1.2 Datasets

Generally, Main Roads will require three types of datasets – imagery, tile index files and metadata statements.

- Imagery is generally 360° images generated from MLS imagery and is in JPEG format. 360° Imagery can be uploaded as ZIP file or as a folder and must include a CSV position and orientation file, details of which can be found at the below link.

  https://help.pointerra.io/articles/40192-uploading-panoramic-images-with-a-csv-metadata-file

- Tile index files are generally in DXF or shapefile format and should be added to a project as a Vector Dataset.

- Metadata statements are in PDF format and should be added to a project as a Document.

Note, index files and metadata statements can be provided via email or other methods of delivering survey data.

3.2 COORDINATE SYSTEM

The coordinate system of a project will be defined in the survey request document. Coordinate systems that are assigned a EPSG code will be pre-defined and selectable in the Pointerra database.

Where a Main Roads Local Project Zone is defined as the coordinate system of a project, a proj4 string may be required to correctly define the location of the project data. The proj4 string can be provided by the Main Roads Survey and Mapping team, if required.

It is very important that any datasets uploaded with the point cloud data is also correctly defined by a coordinate system. This is usually the same coordinate system as the point cloud and can be defined accordingly.

3.3 NAMING AND METADATA

File naming will be defined in the survey request document.

3.3.1 Project Name

When adding point cloud files in the Upload page, the name of the first point cloud file will auto-populate the Project Name. For most projects, this can be shortened to the Road Number and SLK Range only:

Example: **H015_1.2_41.90_MLS202207_PCG2020**   →   **H015_1.2_41.90**

The capture type, date and coordinate system will be populated and recorded in the project details so does not need to be recorded in the Project Name.

3.3.2 Metadata

These fields define the Project Details and should be entered as per below:

- Point Cloud Type - should be selected. In most cases this will be 'Mobile laser scan'.
- Classification Scheme - can be ignored.
- Date Acquired - should be filled in correctly. This is important in order to record the currency of the project data.
- Description – the name of the road should be entered here. Multiple roads can be entered, if applicable.
- Attribution / Copyright – can be ignored.
- Additional Metadata – contractor name and panel job number should be entered here on separate lines. Any additional information can also be entered here.
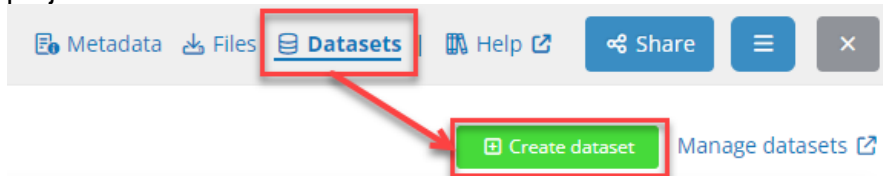
3.3.3 Datasets

If possible, it is preferred to add datasets to a point cloud project at time of upload/creation.

Datasets can be uploaded later using the 'Datasets' menu in the 3d viewer screen of a point cloud project:

When adding a 360° Imagery dataset to a project, only the fields indicated with red boxes below need to be populated:

- Naming of an imagery dataset should be as per the example. i.e.
  Road number_SLK Range_Descriptor_Zone
- Description – Name of road
- Date acquired – same as the point cloud data
- Image orientation information – the Main Roads Survey and Mapping team will provide this information prior to upload.
- Set the dataset to 'Viewable' when processing is complete
- Do **not** check the 'Email all dataset administrators' check box on any dataset upload forms

3.3.4 Destination Collection

This will be defined by the permissions available on the account being used.