S-131 Marine Harbour Infrastructure Database Project

VIPweb: S-131 Online Tool

Introductory Guide

ENC Center

National Taiwan Ocean University

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1 Introduction

1.1 The S-131 Project

S-131 Marine Harbour Infrastructure Database Project is the first project of the IHO-Singapore Innovation and Technology Lab.

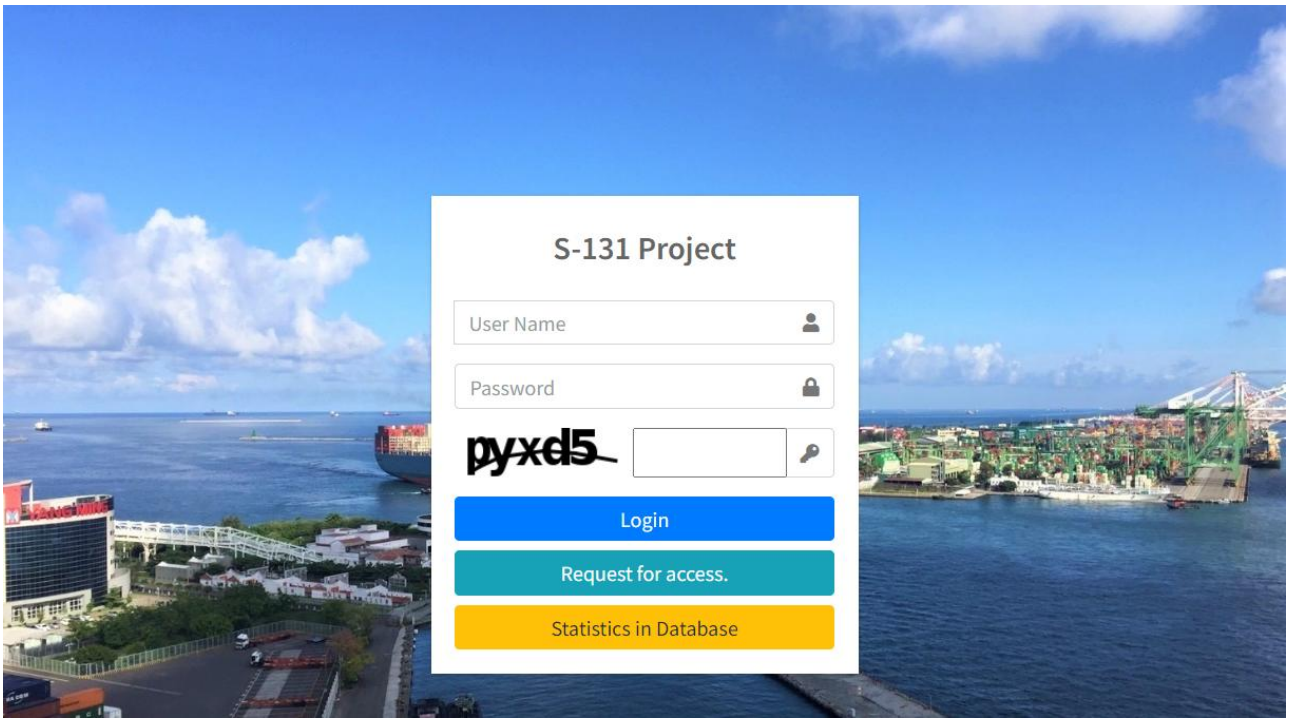
See https://iho.int/en/projects for further descriptions of this S-131 project.

Summary project objectives are as follows:

- **Create a S-131 database infrastructure and a database** that will improve the information exchange between harbours and hydrographic offices by acting as a neutral repository of harbour information.
- **Support the creation of S-131 (and S-101 ENC) products** that help ports and shipping to be compliant with IMO A.893(21): safe berth to berth navigation and IMO A.862(20): recommended contents of port information books.

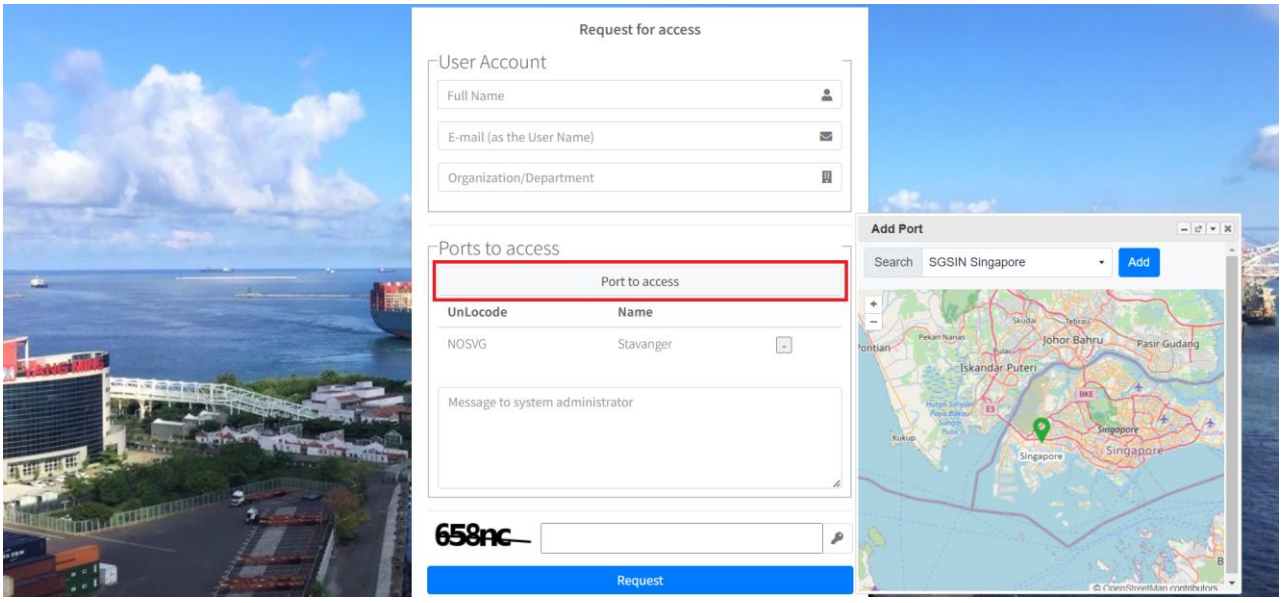
  Demonstrating that Hydrographic Offices and Port Authorities have worked together to discharge their collective SOLAS responsibilities as per Chapter V Regulation 9: Hydrographic Services.
- **Facilitate the exchange of information between harbours, HOs and port users** (e.g., mariners, shipping lines, trading floors) compliant with the S-101 and S-131 standards.

1.2 Login to the VIPweb (https://www.port-data.net/s131/)



VIPweb is the S-131 tool and system. VIP stands for Visible & Interoperable Port data.

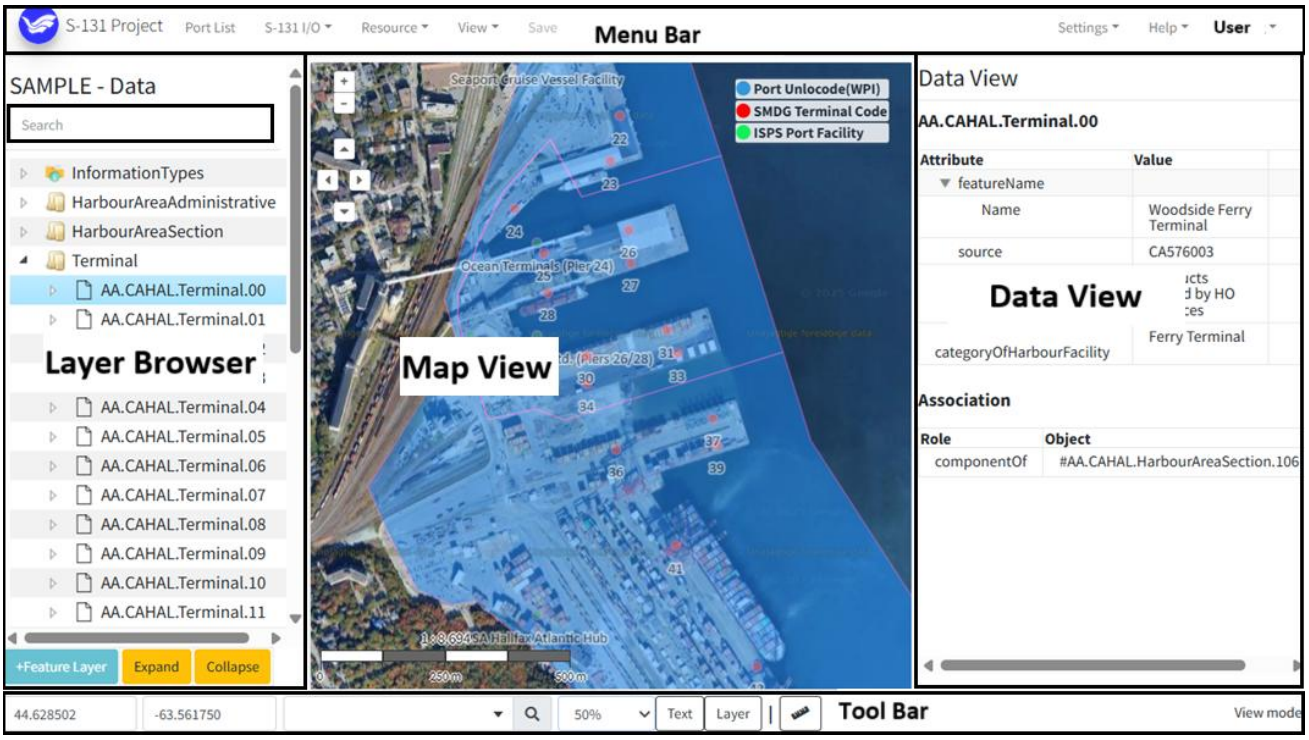
To access the system for the first time: **Request for access**



Step 1: Enter user account details, add ports (to the user's own list) and send **Request**.
Step 2: Forward the registration confirmation mail as instructed, for e-mail verification.
Step 3: Use the recevied details to login, then change the password via **settings** menu.

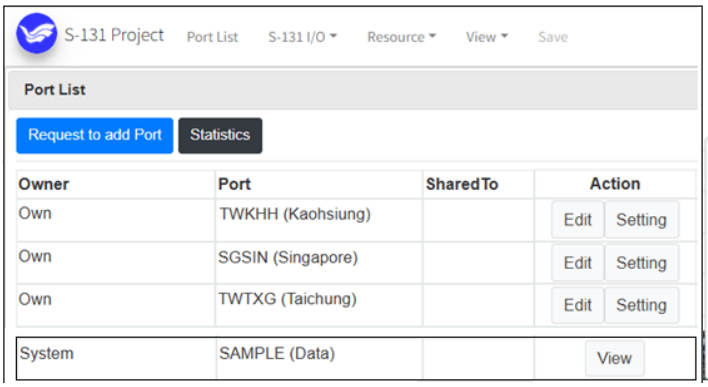
2 VIPweb User Interface - Overview

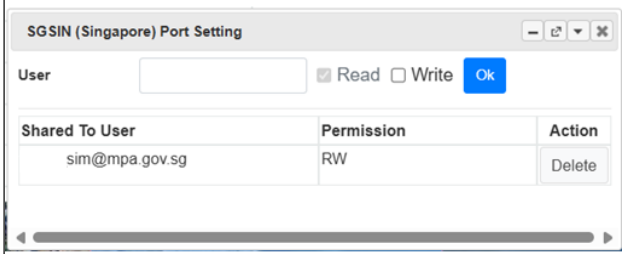
2.1 Graphical User Interface Layout



2.2 Menu Bar

2.2.1 Port List menu





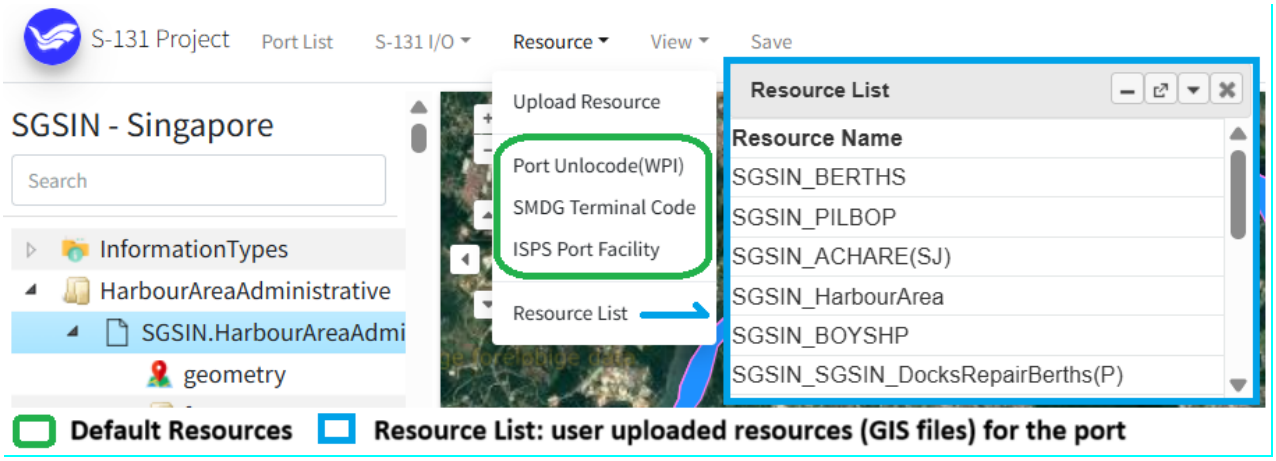
Port List provides the access to the port database owned by the user or shared by others to the user. **Statistics** count S-131 feature and information instances owned by the user.

Via the **Setting** action, the user may share his/her data to another registered S-131 user with Read/Write access right. The **Edit** action leads to the selected port for editing.

By deafult, SAMPLE data is available for familiarization with S-131 and the VIPweb tool. The user may **Request to add port**, in addition to those requested during registration.

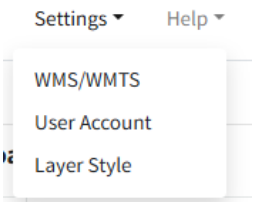
2.2.2 Resource menu

Resources are geospatial data for reference or use to create port data in S-131. Via **Resource** menu, the user may upload resources, view default resources provided by VIPweb, manage and use resources uploaded by the user for the port. See section 3 for details.

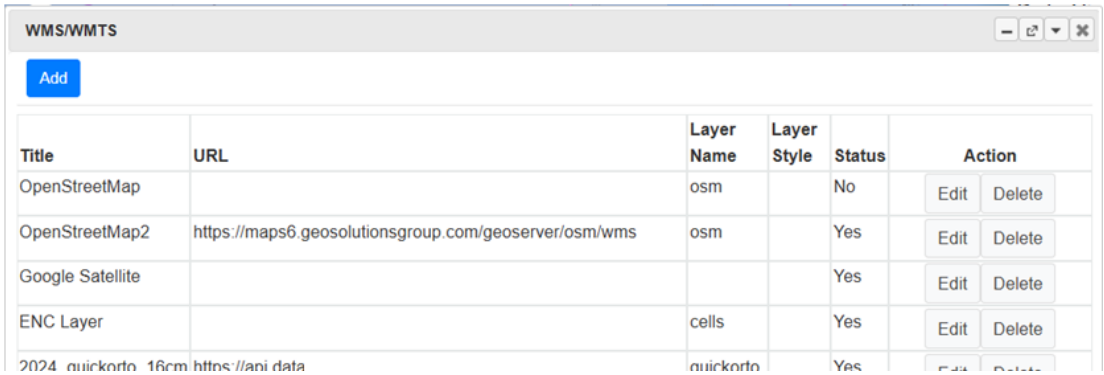


The recommended way of collaboration or data exchange is to share the port data with the other collaborating user account (via **Port List/Setting**), exchange data by **Upload Resource**, select the resource from the **Resource List**, set the feature/attribute mapping rules, then **Import to S-131 model**.

2.2.3 Settings menu – User Account, WMS/WMTS



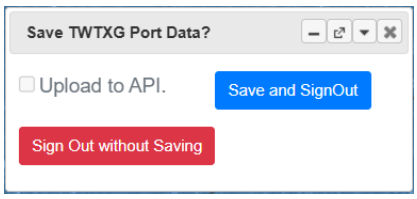
WMS/WMTS layers may be added or edited via **Settings**.



To set up additional layers, click **Add**, enter connection parameters, then **Connect**.

2.2.4 Save

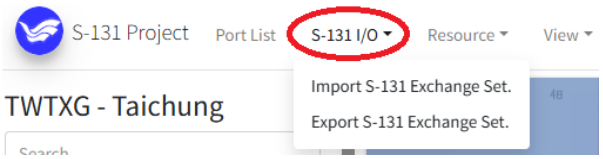
User's editing remains temporarily stored locally on the client side, even after **SUBMIT**. Be sure to click **SAVE** to save the work to S-131 database server. When signing out, user will be reminded to save.

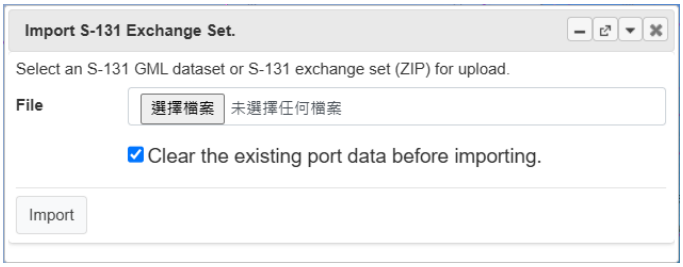


2.2.5 S-131 Import/Export

Created S-131 data, including relationships and support files (graphic, text, or html files) may be exported as an S-131 exchange set.

The user may also import S-131 dataset or exchange set into the system for viewing or further editing. The file to be imported may be an S-131 GML file or a zip file containing the S-131 GML and support files. Data to be imported must be compliant to S-131 data model.





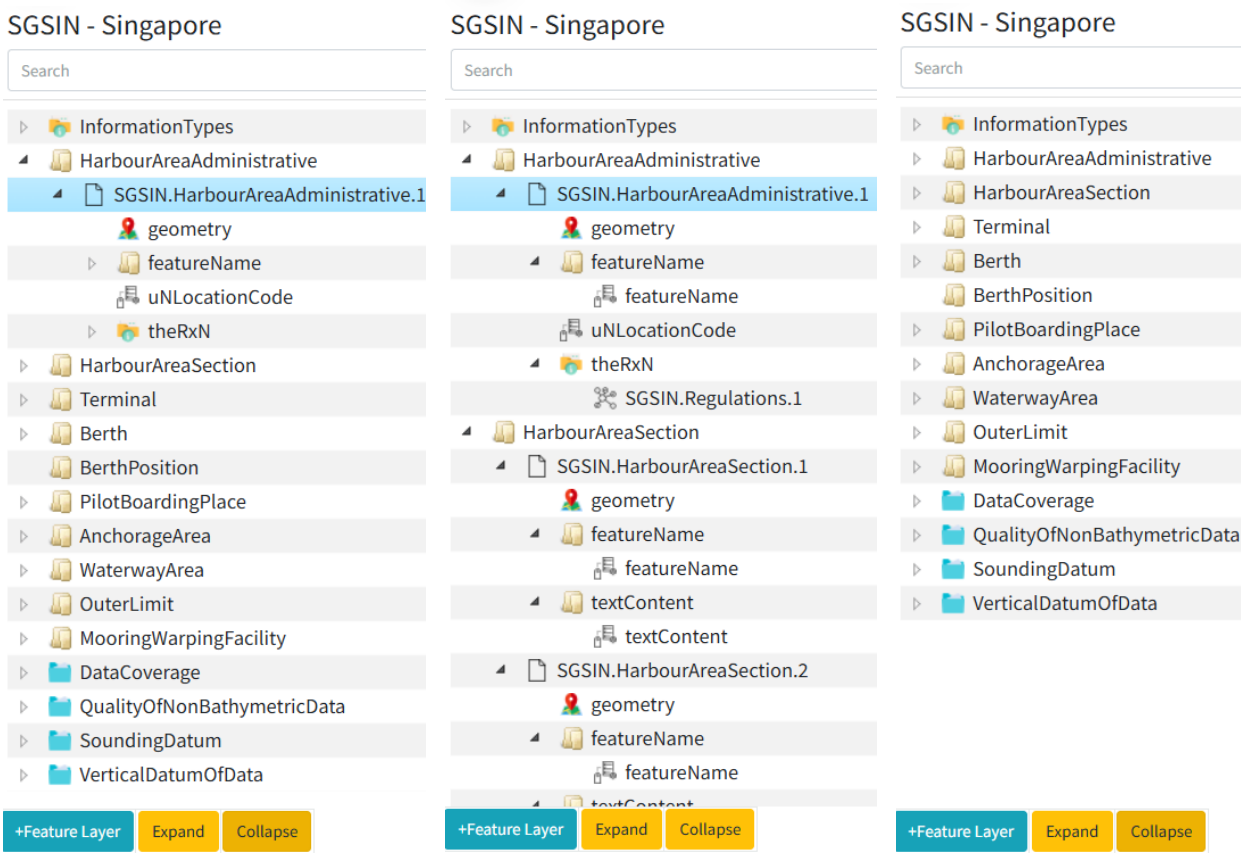
2.2.6 Help menu – User Guide and Feedback

User guide is provided under the **Help** menu. Any feedback is welcome to be sent to the NTOU project team via **Contact Us**.

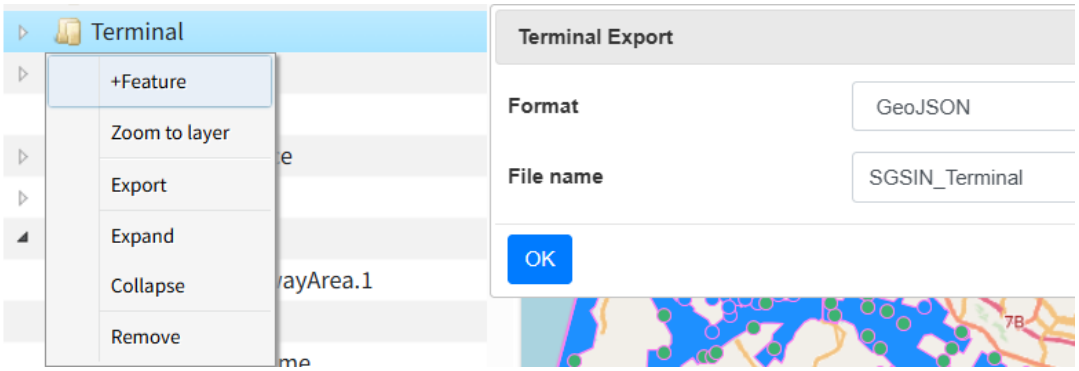
2.3 Layer Browser Panel

The Layer Browser is for browsing, searching, locating, editing port data. It is organized by types as layers. Top-level entries (folders) are listed for some key S-131 types by default. More S-131 layers may be added via **+FeatureLayer** button. The hierarchical entries in the panel are individually expandable. **Expand** and **Collapse** buttons work on all entries.

Right clicking on a specific entry leads to various functions applicable to that entry. **Layer Browser panel is where manual creation or editing of S-131 port data starts.**



Individual feature layer may be exported in GeoJSON format, or removed entirely.



2.4 Map View Panel

Map view is the canvas for visualizing and querying geospatial port data, as well as editing the geometries of the data.

Click on map to identify a feature on map. Geometry of the selected feature will be highlighted, with its attributes and associations shown in the Data View.

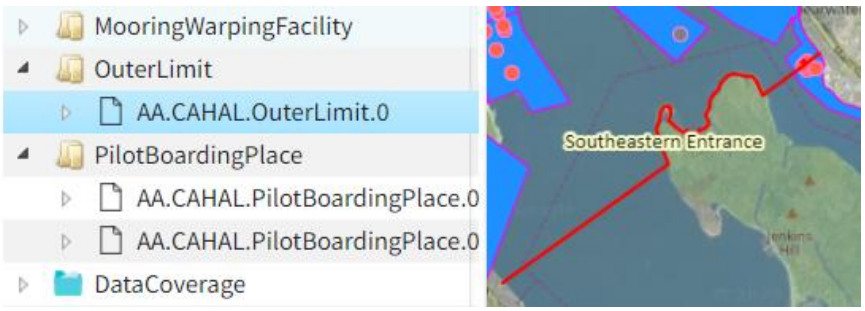
Attributes

Attribute	Value
featureName	
Name	Alderney Ferry Terminal
source	CA576003
sourceType	Products Issued by HO Services
categoryOfHarbourFacility	Ferry Terminal

Association

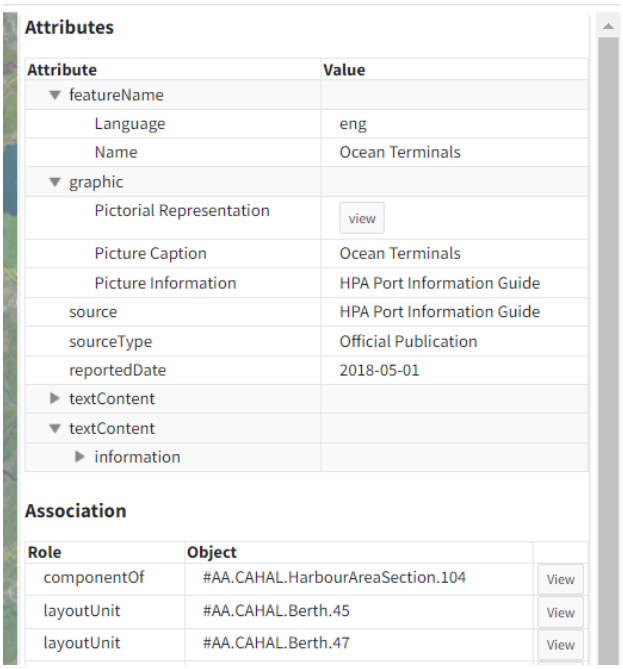
Role	Object	
componentOf	#AA.CAHAL.HarbourAreaSection.107	View

To locate a feature, select a feature from the Layer Browser. The Map View will zoom to the location of the feature, highlight the feature, and show the data in the Data View.



2.5 Data View Panel

Data View shows detailed data of the selected feature, including its attributes and associations to other features and/or informations.

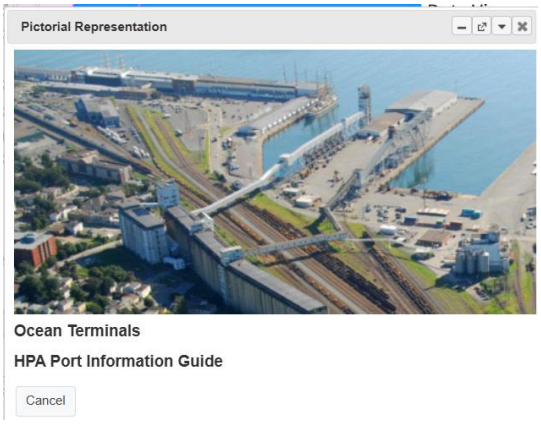


Attributes

Attribute	Value
featureName	
Language	eng
Name	Ocean Terminals
graphic	
Pictorial Representation	view
Picture Caption	Ocean Terminals
Picture Information	HPA Port Information Guide
source	HPA Port Information Guide
sourceType	Official Publication
reportedDate	2018-05-01
textContent	
textContent	
information	

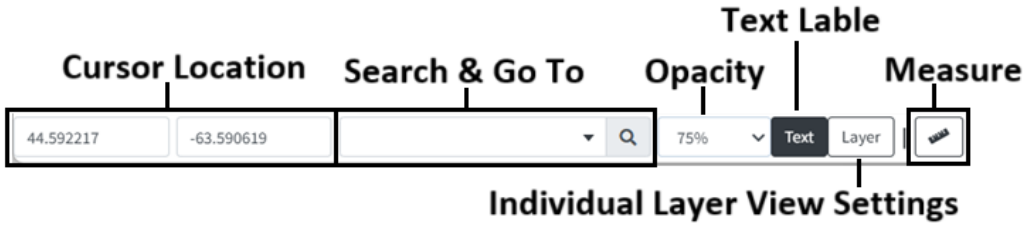
Association

Role	Object	
componentOf	#AA.CAHAL.HarbourAreaSection.104	View
layoutUnit	#AA.CAHAL.Berth.45	View
layoutUnit	#AA.CAHAL.Berth.47	View



2.6 Toolbar

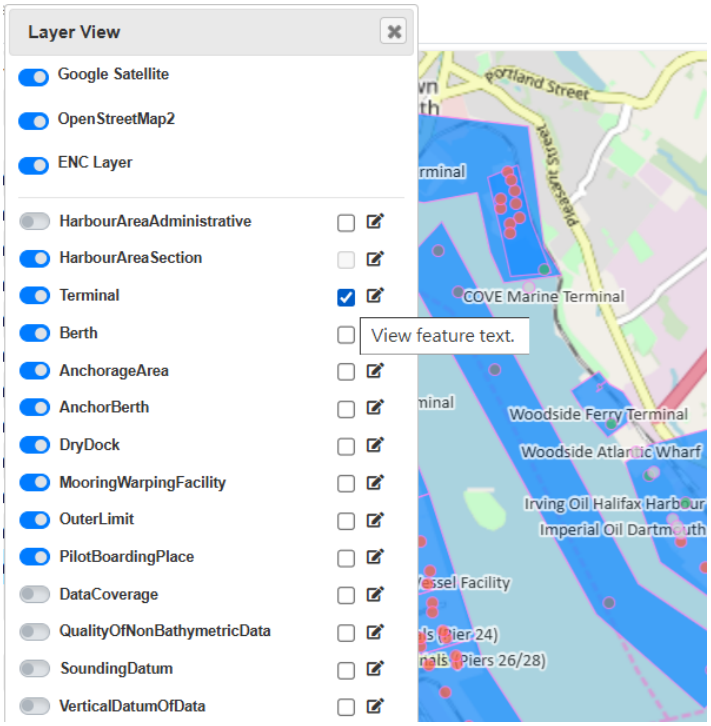
The toolbar contains map tools organized as show below:



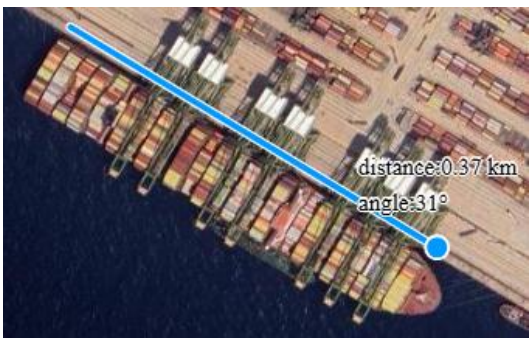
Opacity is selectable from 0% to 100% in 25% steps, and applied to all visible layers.

Text button toggled on/off text labels of all geographic features. Feature name is used for the text lable. For those without a feature name, feature type will be used instead.

Layer button opens the **Layer View** panel for setting the style and text display of individual feature layers. Some basic layer style setting options have been provided.



The  button activates the measuring function. Double left clicking ends each measurement. Displayed measurements are distance to the previous point and the angle relative to the horizontal line.

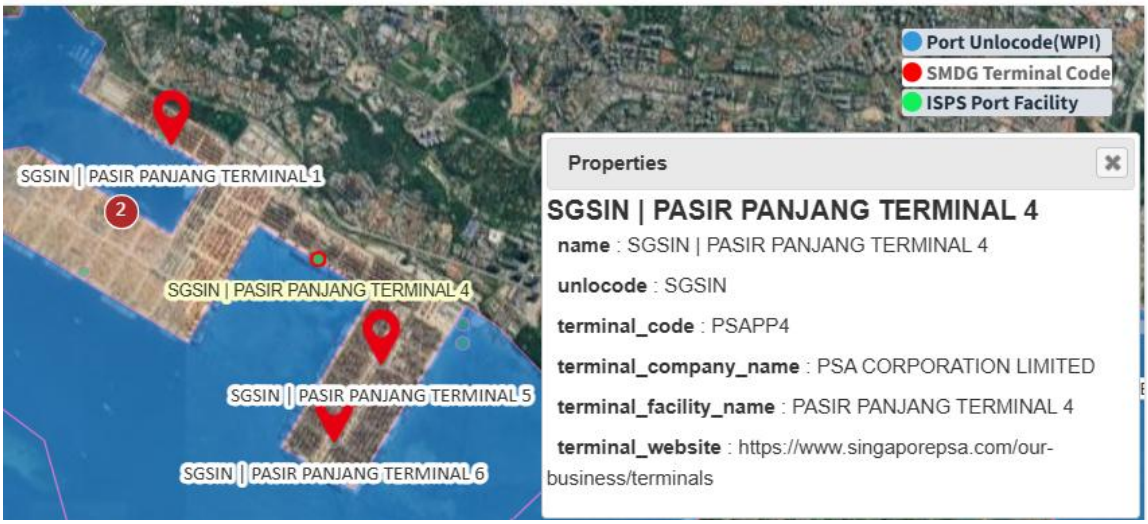


3 Utilization of Resources for S-131 Data Creation

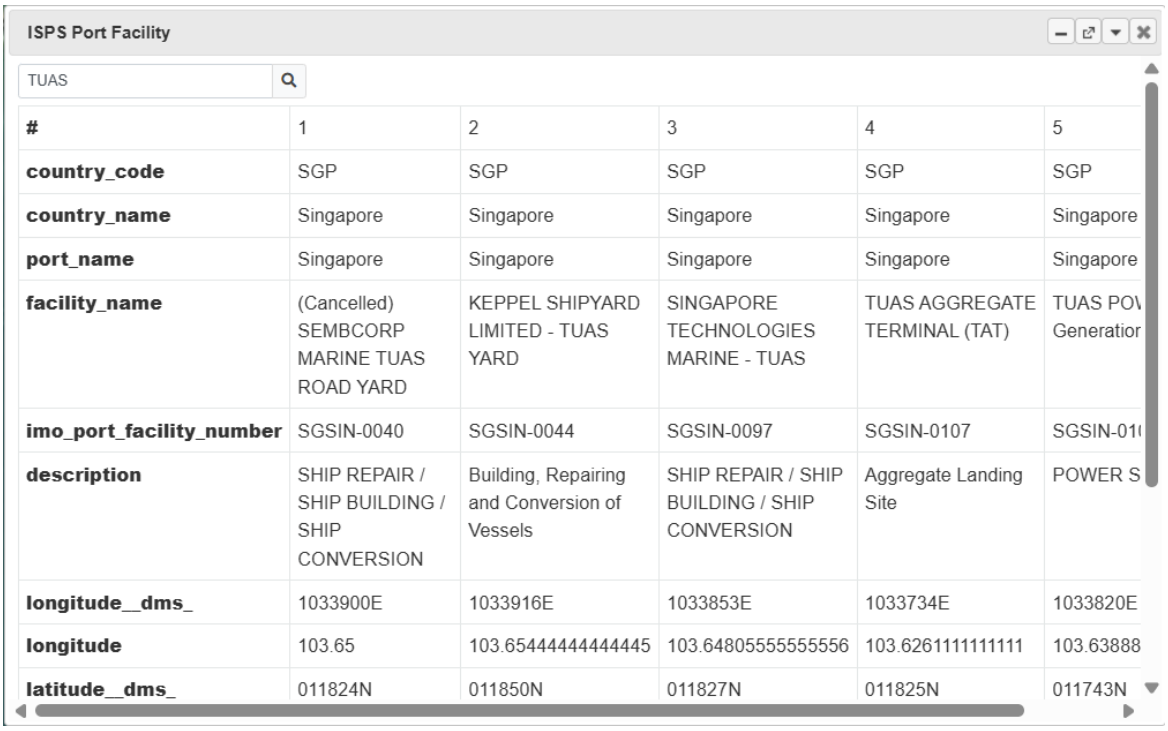
3.1 Default Port Data Resources

Default resource layers provided by the system include Port Unlocode, SMDG Terminal Code, and ISPS Port Facility. These data are extracted from various databases, including UNECE, WPI of NGA, SMDG, IMO GISIS, and compiled or merged by NTOU project team. Data quality, e.g., the location accuracy, is subject to the available source and process.

Legend button on the upper right corner of the Map View panel controls the display of the corresponding default resource layer. Only data matching the UN Location Code of the port will be loaded to user's client side. **Right click** on the map icon shows its properties.



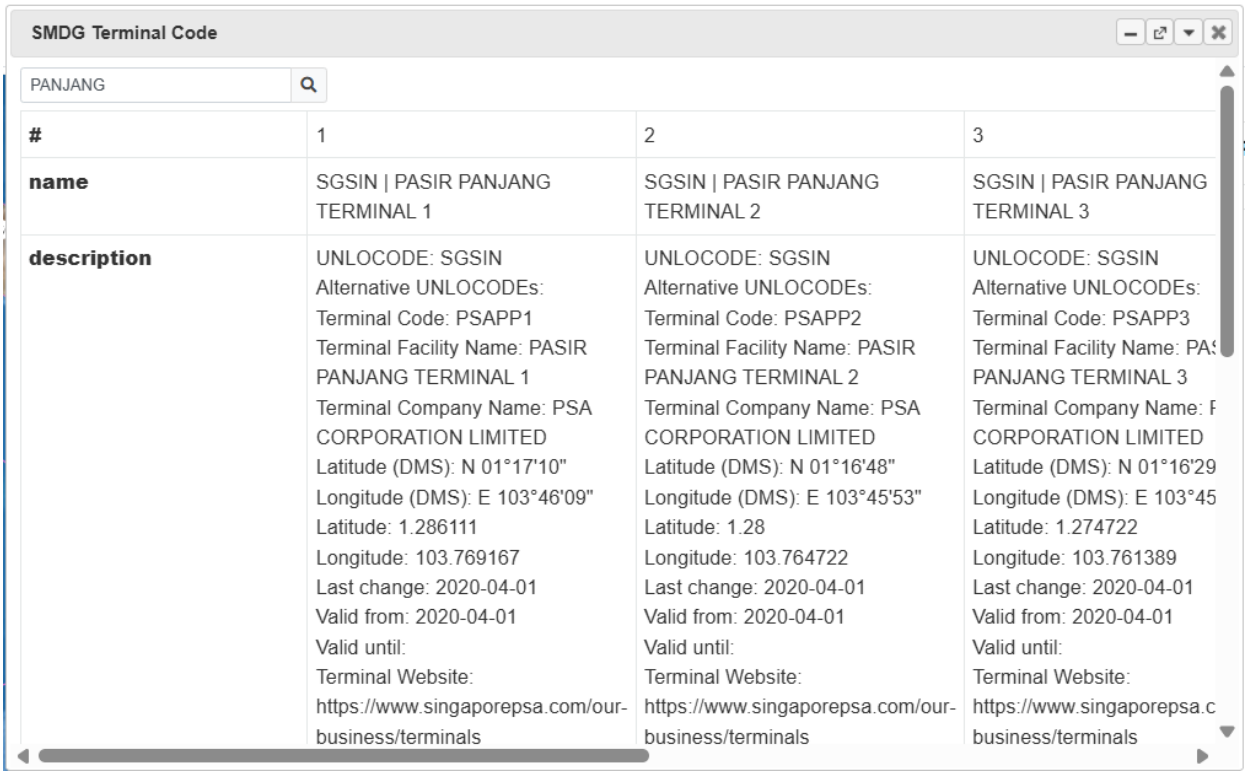
Via the **Resource** menu, each default resource may be listed in a searchable tabular view.



ISPS Port Facility

TUAS

#	1	2	3	4	5
country_code	SGP	SGP	SGP	SGP	SGP
country_name	Singapore	Singapore	Singapore	Singapore	Singapore
port_name	Singapore	Singapore	Singapore	Singapore	Singapore
facility_name	(Cancelled) SEMBCORP MARINE TUAS ROAD YARD	KEPPEL SHIPYARD LIMITED - TUAS YARD	SINGAPORE TECHNOLOGIES MARINE - TUAS	TUAS AGGREGATE TERMINAL (TAT)	TUAS POV Generatior
imo_port_facility_number	SGSIN-0040	SGSIN-0044	SGSIN-0097	SGSIN-0107	SGSIN-01(
description	SHIP REPAIR / SHIP BUILDING / SHIP CONVERSION	Building, Repairing and Conversion of Vessels	SHIP REPAIR / SHIP BUILDING / SHIP CONVERSION	Aggregate Landing Site	POWER S
longitude__dms_	1033900E	1033916E	1033853E	1033734E	1033820E
longitude	103.65	103.65444444444445	103.64805555555556	103.6261111111111	103.63888
latitude__dms_	011824N	011850N	011827N	011825N	011743N



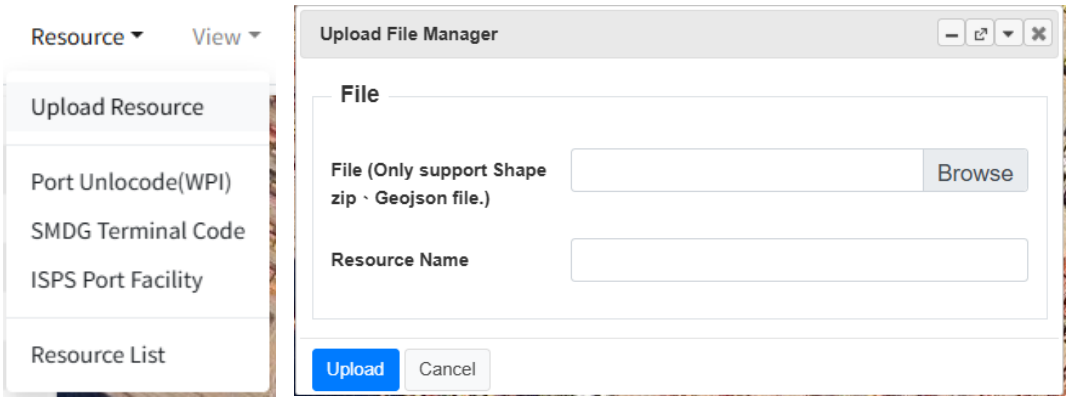
SMDG Terminal Code

PANJANG

#	1	2	3
name	SGSIN | PASIR PANJANG TERMINAL 1	SGSIN | PASIR PANJANG TERMINAL 2	SGSIN | PASIR PANJANG TERMINAL 3
description	UNLOCODE: SGSIN Alternative UNLOCODEs: Terminal Code: PSAPP1 Terminal Facility Name: PASIR PANJANG TERMINAL 1 Terminal Company Name: PSA CORPORATION LIMITED Latitude (DMS): N 01°17'10" Longitude (DMS): E 103°46'09" Latitude: 1.286111 Longitude: 103.769167 Last change: 2020-04-01 Valid from: 2020-04-01 Valid until: Terminal Website: https://www.singaporepsa.com/our-business/terminals	UNLOCODE: SGSIN Alternative UNLOCODEs: Terminal Code: PSAPP2 Terminal Facility Name: PASIR PANJANG TERMINAL 2 Terminal Company Name: PSA CORPORATION LIMITED Latitude (DMS): N 01°16'48" Longitude (DMS): E 103°45'53" Latitude: 1.28 Longitude: 103.764722 Last change: 2020-04-01 Valid from: 2020-04-01 Valid until: Terminal Website: https://www.singaporepsa.com/our-business/terminals	UNLOCODE: SGSIN Alternative UNLOCODEs: Terminal Code: PSAPP3 Terminal Facility Name: PAS PANJANG TERMINAL 3 Terminal Company Name: F CORPORATION LIMITED Latitude (DMS): N 01°16'29 Longitude (DMS): E 103°45 Latitude: 1.274722 Longitude: 103.761389 Last change: 2020-04-01 Valid from: 2020-04-01 Valid until: Terminal Website: https://www.singaporepsa.c business/terminals

3.2 Upload Resource as Source Data

View **Resource** menu, the user may choose to upload a Shape (zip) file or Geojson file to be used the resource. **Browse** to select the prepared GIS file, enter a name for the resource, then **Upload**. Shape files must be a ZIP file containing the SHP, DBF, PRJ, and SHX files.



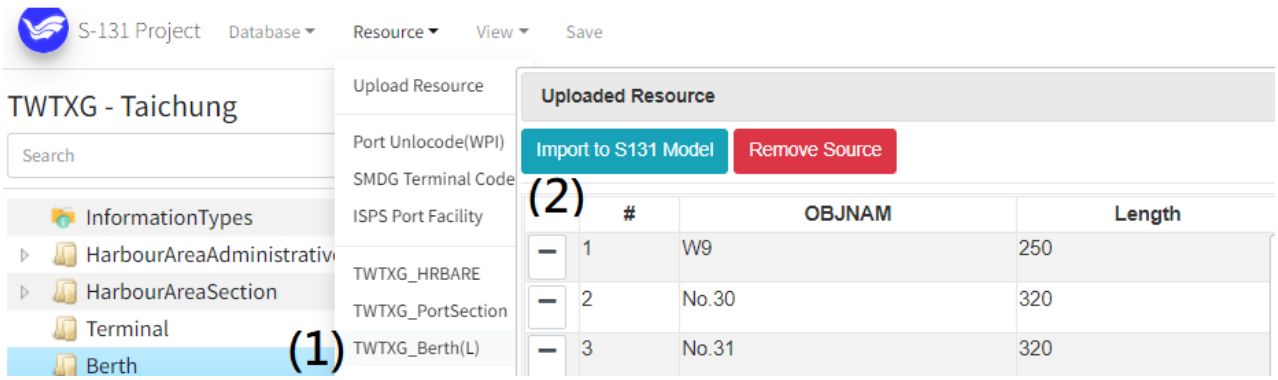
Uploaded resource will be listed in the **Resource List** under the Resource Menu. Select the resource from the **Resource List** to view data, import data into S-131 data model, manage or remove.

3.3 Import Source Data into S-131 Model via Mapping Rules

Follow the steps to set mapping rules, as shown below.

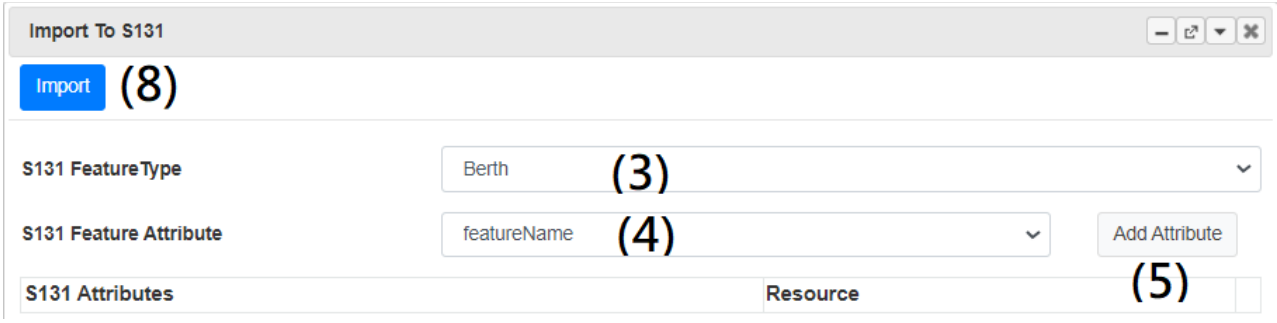
(1) Select uploaded resource

(2) **Import to S131 Model**



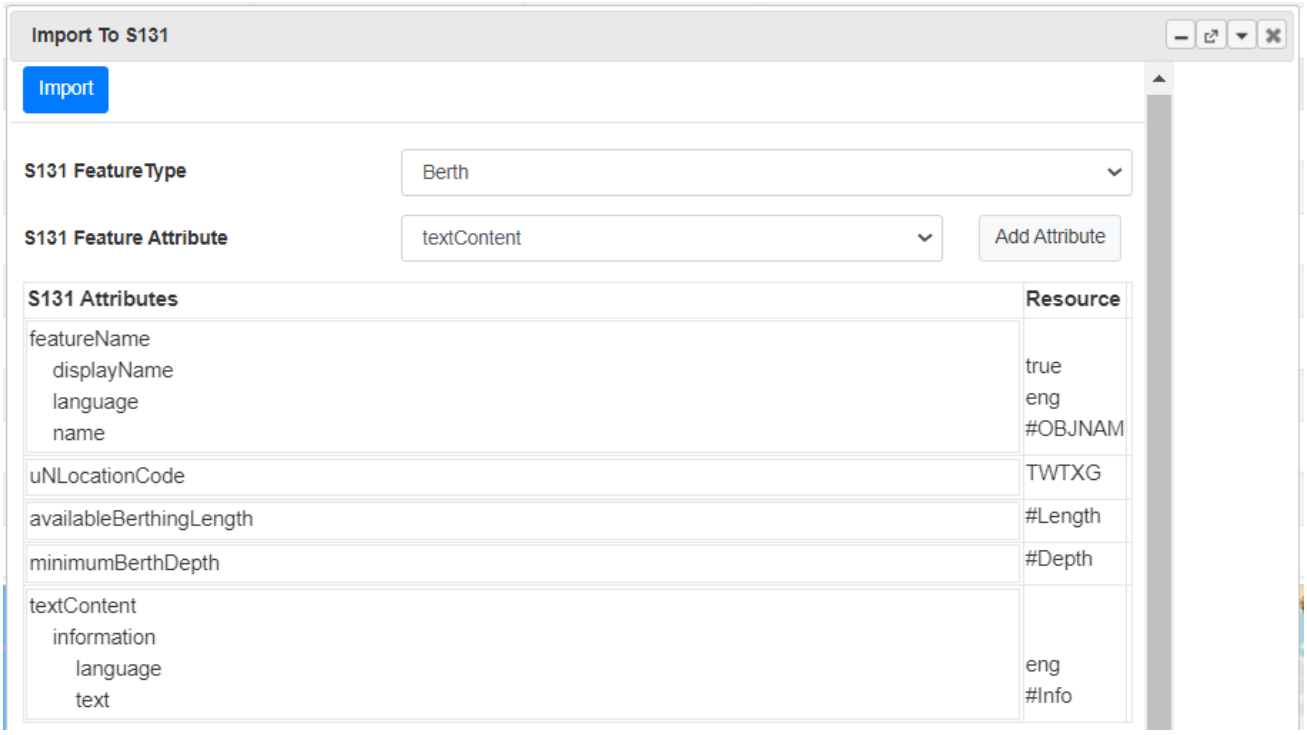
(3) Select **S131 Feature Type**

(4) Select **S131 Feature Attribute**, then (5) **Add attribute**



(6) Set the mapping rule, then (7) **Add Attribute Value Rule**

Repeat (4) to (7) as required, to add more rules, then (8) **Import**.



In this case, 66 Berth features are created based on the TWTXG_Berth(L) resource.