S-131 Marine Harbour Infrastructure Database Project

VIPweb: S-131 Online Tool

Introductory Guide

ENC Center

National Taiwan Ocean University April 2025

Table of Contents

1 Introduction1
1.1 The S-131 Project1
1.2 Login to the VIPweb (https://www.port-data.net/s131/)2
2 VIPweb User Interface - Overview
2.1 Graphical User Interface Layout
2.2 Menu Bar
2.2.1 Port List menu
2.2.2 Resource menu
2.2.3 Settings menu – User Account, WMS/WMTS4
2.2.4 Save
2.2.5 S-131 Import/Export5
2.2.6 Help menu – User Guide and Feedback5
2.3 Layer Browser Panel5
2.4 Map View Panel6
2.5 Data View Panel7
2.6 Toolbar
3 Utilization of Resources for S-131 Data Creation9
3.1 Default Port Data Resources9
3.2 Upload Resource as Source Data10
3.3 Import Source Data into S-131 Model via Mapping Rules 11

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/)

Bene	S-131 Proje	ect	
A ALLEN	User Name	•	
	Password		
	pyxd5_	P	
	Login		
	Request for acce	ess.	
	Statistics in Data	base	

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

		Request for access			
	User Account				
	Full Name		±		
	E-mail (as the User	Name}			1
	Organization/Depar	rtment	Ш		
				Add Port	- 0 - 8
and the second second second second	Ports to access	5		Search SGSIN Singapore	- Add
-		Port to access			
	UnLocode	Name		+ suda tebrau	
Canolina and an and an	NOSVG	Stavanger	-	Pontian Pekan Nanas Pulai. Johor Bah Iskandar Puteri	Pasir Gudang
	Message to system a	administrator		Note Server De Singeore	Singapore +
			h		
	658nc-		P	A	
		Request			© OnenStreetMan contributors

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 received 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

S-131 Proje	ect Port List S-131 I/O - Reso	urce 👻 View 👻	Save					
Port List								
Request to add P	Port Statistics				SGSIN (Singapore) Port Set	ting	- 2 - 8	
Owner	Port	SharedTo	A	ction				
Own	TWKHH (Kaohsiung)		Edit	Setting	User	Read 🗌 Write Ok		
Own	SGSIN (Singapore)		Edit	Setting	Shared To User	Permission	Action	
Own	TWTXG (Taichung)		Edit	Setting	sim@mpa.gov.sg	RW	Delete	
System	SAMPLE (Data)			√iew			•	

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

	Settings 🕶	Help 🔻	
	WMS/WMTS		
	User Account		
)é	Layer Style		WMS/WMTS layers may be added or edited via Settings

WMS/WMTS						- 27
Add						
Title	URL	Layer Name	Layer Style	Status	A	ction
OpenStreetMap		osm		No	Edit	Delete
OpenStreetMap2	https://maps6.geosolutionsgroup.com/geoserver/osm/wms	osm		Yes	Edit	Delete
Google Satellite				Yes	Edit	Delete
ENC Layer		cells		Yes	Edit	Delete
2024 auickorto 16a	m https://api.data	quickorto		Yes		Delete

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.

SGSIN - Singapore	SGSIN - Singapore	SGSIN - Singapore				
Search	Search	Search				
InformationTypes	InformationTypes	InformationTypes				
 IarbourAreaAdministrative 	 In ArbourAreaAdministrative 	HarbourAreaAdministrative				
SGSIN.HarbourAreaAdministrative.1	SGSIN.HarbourAreaAdministrative.1	HarbourAreaSection				
🤱 geometry	🤱 geometry	Image: Joint State St				
Image: Participation of the second	🔺 🛺 featureName	Berth				
🗟 uNLocationCode	🗟 featureName	Image: BerthPosition				
🖻 😽 theRxN	🖧 uNLocationCode	PilotBoardingPlace				
HarbourAreaSection	🔺 🍖 theRxN	AnchorageArea				
Image: Joint State St	😤 SGSIN.Regulations.1	VaterwayArea				
Image:	 Interpretation 	III OuterLimit				
Image: BerthPosition	SGSIN.HarbourAreaSection.1	MooringWarpingFacility				
PilotBoardingPlace	🧟 geometry	DataCoverage				
AnchorageArea	🔺 🛄 featureName	QualityOfNonBathymetricData				
MaterwayArea	🖧 featureName	🖻 🎽 SoundingDatum				
DuterLimit	 Interview Interview Int	VerticalDatumOfData				
MooringWarpingFacility	🖧 textContent					
DataCoverage	SGSIN.HarbourAreaSection.2					
QualityOfNonBathymetricData	🤱 geometry					
SoundingDatum	🔺 🛺 featureName					
VerticalDatumOfData	🗟 featureName					
+Feature Layer Expand Collapse	+Feature Layer Expand Collapse	+Feature Layer Expand Collapse				

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

Þ	🖉 Terminal			Terminal Export					
⊳		+Feature		Format	CoolSON				
N		Zoom to layer		Format	Geojaon				
		Export	e	File name	SGSIN_Terminal				
4		Expand		ОК					
		Collapse	/ayArea.1						
		Remove	me		7B				

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	
	▼ featureNar	ne		
	Name		Alderney Ferry Termin	al
	source		CA576003	
	sourceTyp	e	Products Issued by HC Services)
	categoryOfHarl	ourFacility	Ferry Terminal	
	Association	n		
and and a second second	Role	Object		
Halla	componentOf	#AA.CAHAL.H	arbourAreaSection.107	View
Marker				

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.

Attribute		Value			
▼ featureName					
Language	2	eng			
Name		Ocean Terminals			
▼ graphic					
Pictorial	Representation	view			
Picture C	aption	Ocean Terminals			
Picture In	formation	HPA Port Information G	iuide		
source		HPA Port Information G	HPA Port Information Guide		
sourceType		Official Publication	Official Publication		
reportedDate	2	2018-05-01			
▶ textContent					
▼ textContent					
informati	on				
Association					
Role	Object				
componentOf	#AA.CAHAL.H	arbourAreaSection.104	View		
layoutUnit	#AA.CAHAL.Be	erth.45	View		
lavoutUnit	#AA CAHAL BA	arth 47	View		



Cancel

2.6 Toolbar

The toolbar contains map tools organized as show below:

				Text	Lable
Cursor	Location	Search & Go To	0	Opacity	Measure
44.592217	-63.590619]	Q	75% ~	Text Layer
		Individu	ual	Layer Vie	ew Settings

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.

Layer View		×					
Google Satellite			vn entlands	treet			
OpenStreetMap2			th	Tr. 1			
ENC Layer			rminal				
HarbourAreaAdmin	nistrative	ľ		and .			
HarbourAreaSection	on 🗌	ľ					
🔵 Terminal		ľ	COVE Marine	Terminal			
Berth		View	feature text.				
AnchorageArea		ľ	•				
AnchorBerth		ľ	ninal Woods	side Ferry Terminal			
DryDock		ľ	Woo	dside Atlantic Wharf			
MooringWarpingFa	acility	ľ					
OuterLimit		ľ	urvin Im	perial Oil Dartmouth			
PilotBoardingPlace	e 🗌	ľ					
DataCoverage		ľ	essel Facility				
QualityOfNonBath	ymetricData	ľ	ls Nier 24)				
SoundingDatum		ľ	nals Piers 26/28)				
VerticalDatumOfDa	ata 🗌	ľ		1			
Layer Style Setting / Termina	ı						- c ³ • X
Fill			Point		Text		1
Color :			Color :		Color :		
Border Color :			Border Color :		Border Color :		
Border Width : 1			Border Width :	1	Border Width :	3	
			Radius :	4	isDisplay :	True	~
					Font Size :	12	
Update							

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					- 2 - 8
TUAS	2				
#	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 PO\ 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
longitudedms_	1033900E	1033916E	1033853E	1033734E	1033820E
longitude	103.65	103.6544444444445	103.64805555555556	103.6261111111111	103.63888
latitudedms_	011824N	011850N	011827N	011825N	011743N

SMDG Terminal Code			- 27 - X
PANJANG	Q		
#	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 ntril: 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

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.

Resource View	Upload File Manager	- 2 - *
Upload Resource	File	
Port Unlocode(WPI) SMDG Terminal Code ISPS Port Facility	File (Only support Shape zip < Geojson file.) Resource Name	Browse
Resource List	Upload Cancel	

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

NTXG - Taichung	Upload Resource	Up	loaded Re	source		
Search	Port Unlocode(WPI)	Imp	ort to S131	Model Remove Source		
The second second second	SMDG Terminal Code	(2) "	OBINAM		ongth
Information types	ISPS Port Facility	-	1		250	lengui
HarbourAreaAdministrativ	TWTXG_HRBARE		1	VV9	250	
I HarbourAreaSection	TWTXG PortSection	-	2	No.30	320	
Terminal	-					
ierninat (1)	TWTXG Berth(L)		3	No.31	320	
Berth (1)	TWTXG_Berth(L)	-	3	No.31	320	
) Select S131 Feature	TWTXG_Berth(L)	-	3	No.31	320	
) Select S131 Feature) Select S131 Feature	TWTXG_Berth(L) re Type re Attribute	– , th	³ en (5)	No.31 Add attribute	320	
Berth (1)) Select S131 Feature) Select S131 Feature Import To S131	TWTXG_Berth(L) re Type re Attribute	– , th	³ en (5)	No.31 Add attribute	320	- 2* -
Berth (1)) Select S131 Feature) Select S131 Feature port To S131 (R)	TWTXG_Berth(L) re Type re Attribute	–	³ en (5)	No.31 Add attribute	320	- 2 -
Berth (1)) Select S131 Feature) Select S131 Feature mport To S131 (mport (8)) 131 Feature Type	TWTXG_Berth(L) re Type re Attribute	, th	³ en (5)	No.31 Add attribute	320	- 27 -
Berth (1) Berth (1) B) Select S131 Feature S) Select S131 Feature Import To S131 Import (8) S131 Feature Type	TWTXG_Berth(L) re Type re Attribute	, th	³ en (5) (3	No.31 Add attribute	320	- e ^z -

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

S131 Attribute			- 27 - 38
Add Attribute Value Rule (7)			
S131 Attributes featureName		Resource Column	Default Value
displayName			
language	(6)	~	eng 🗸
name		OBJNAM 🗸	

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

Import To \$131		
Import		
S131 Feature Type	Berth	~
S131 Feature Attribute	textContent 🗸	Add Attribute
S131 Attributes		Resource
featureName displayName language name		true eng #OBJNAM
uNLocationCode		TWTXG
availableBerthingLength		#Length
minimumBerthDepth		#Depth
textContent information language		eng #Info

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

