

SeaVision



Operator Course

Student Guide

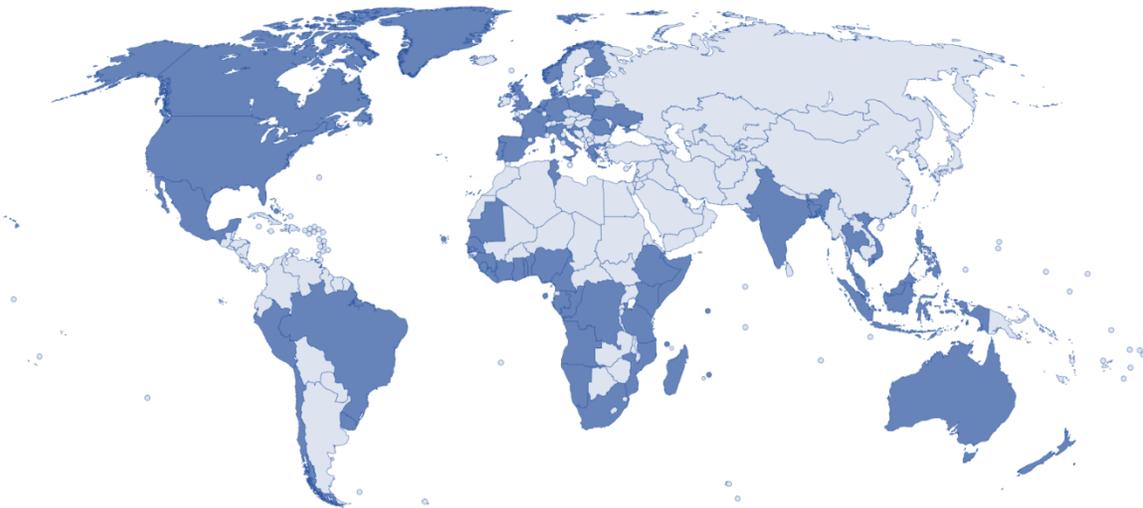
Important Note: This training material provides hands-on courseware developed for NIWC (Pacific). The information herein provides simulated real-world capabilities of SeaVision.

July 2020



SeaVision Operator Course

Index	Course Mission Statement SeaVision Course of Instruction	
Unit 1	Lesson 1.1 Lesson 1.2 Lesson 1.3 Lesson 1.4 Lesson 1.5 IIS	JS 1.4 Account Creation AIS Hardware Demo
Unit 2	Lesson 2.1 Lesson 2.2	JS 2.2 Configure Map Options JS 2.3 Configure Dashboard JS 2.4 Time Machine
Unit 3		JS 3.1 Scenario Inject Job Sheets Scenario 1 – IUU Fishing Scenario 2 – Search and Rescue Scenario 3 – Illegal Smuggling JS 3.2 Final Presentation



Course Mission Statement

This course is designed to teach the knowledge and skills needed to perform basic user operations using the SeaVision application in an operational environment. Upon completion, students will be able to:

- Search, save, and automatically run large amounts of data and see where a vessel or groups of vessels have been or are going. See position and movement information for thousands of ships around the world, filter data by vessel characteristics, and perform advanced vessel searches. Calculate the distance of an object, location, or vessel from one or more points.
- Set automated analytics, such as Alerts and Rules, based upon user-created criteria. Monitor Exclusive Economic Zone (EEZ) transits, port visits, port callings.
- Receive emails and notifications about vessels that match user-created criteria. Chat with other users and send direct messages. Share objects of interest and user-created searches, shapes, alerts, rules, notes, and vessel list with others in their group (persona) and/or community.



SeaVision Operator Course of Instruction

Lesson	Day	Presentation Activity	Contact Hours
	Monday	Classroom Welcome and Admin	
Unit 1.0		SeaVision Introduction	
Lesson 1.1		SeaVision Overview	
Lesson 1.2		MDA Overview	
Lesson 1.3		SeaVision Data Sources	
Lesson 1.4		SeaVision Communities and Account Creation	
Lesson 1.5		SeaVision Data Fusion	
IIS 1.0		AIS Hardware Demo	
JS 1.4		Complete Job Sheet 1.4	
	Tuesday		
		Knowledge Check Unit 1.0/Review	
Unit 2.0		SeaVision Operations	
Lesson 2.1		Introduction to SeaVision Interface	
Lesson 2.2		Configure the SeaVision Interface	
	Wednesday		
Lesson 2.2		Configure the SeaVision Interface (cont.)	
JS 2.2		Complete Job Sheet 2.2	
	Thursday		
JS 2.3		Complete Job Sheet 2.3	
JS 2.4		Complete Job Sheet 2.4	
		Knowledge Check Unit 2.0/Review	
Unit 3.0		Apply SeaVision Tools in Practical Applications	
JS 3.1		Complete Scenario Job Sheet 3.1 (Instructor-Led Injects)	
	Friday		
JS 3.2		Student Scenario Presentation 1 (Self-paced Injects)	
		Final Review	
		Graduation Ceremony	
		Course total	40



SeaVision Overview

Lesson 1.1

07/01/2020

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Lesson 1.1 Learning Objectives

Upon successful completion of this lesson, the student will be able to:

- Identify the capabilities and functionality of the SeaVision application
- Understand the SeaVision role in supporting Maritime Domain Awareness (MDA)
- Understand current SeaVision training plans and support provided by Naval Information Warfare Center, Pacific (NIWC) Technical Assistance Field Team (TAFT)





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SeaVision

- A web-based maritime situational awareness tool
- Geographic presentation of a common maritime picture
- Track/Analyze vessel locations and movements
- Share user-defined data sets
- Correlate tracks using multiple data sources



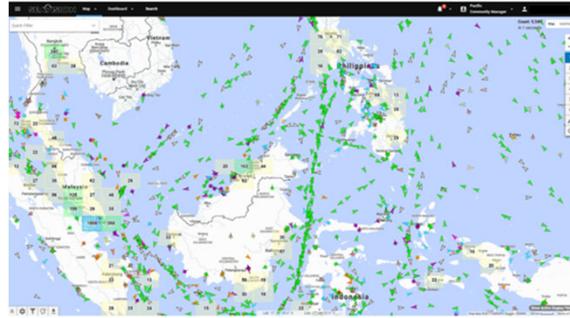

3DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- SeaVision provides users with the ability to view and track information about vessels in both near real-time and historical contexts with advanced filtering and search capabilities.
- Share advanced searches, rules, alerts, shapes, and vessel lists with other users within their Community and Persona
- Query large amounts of data and see where a vessel has been and/or its expected destination
- Allow users to import and export data products, layers, shapes, etc. in/out of the system
- Monitor Exclusive Economic Zone (EEZ) transits and port visits



SeaVision

- Owned by the U.S. Government and used by all U.S. Navy Fleets
- Managed by the U.S. Department of Transportation (DOT) Volpe Center
- Funded by the U.S. Department of the Navy (DON) and DOT



4

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- Geographic presentation of a common maritime picture and the ability to develop a user-defined operational picture
- Provide users the ability to develop a standardized set of user-defined queries and automated business rules to integrate and correlate data.



Maritime Safety and Security Information System (MSSIS)

- Developed by DOT Volpe's Center in 2006 for U.S. Navy Sixth Fleet
- Low-cost, unclassified, near real-time network of Automatic Identification System (AIS) data
- Countries employing MSSIS can share and receive AIS and RADAR data

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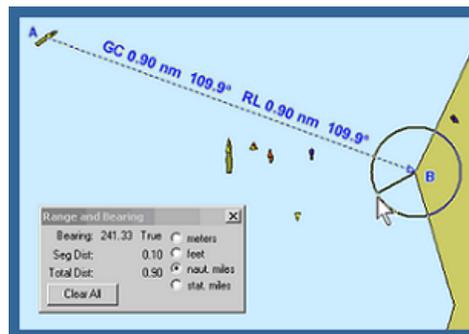
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- The Maritime Safety and Security Information System (MSSIS) is a freely shared, unclassified, near real-time data collection and distribution network. Its member countries share data from Automatic Identification Systems (AIS).
- With frequently enhanced system capabilities and a continuously growing MSSIS community, government organizations can capitalize on the services of MSSIS to improve and maintain Maritime Domain Awareness (MDA).



SeaVision

- Developed by Volpe in 2011 for U.S. Naval Forces Africa (NAVAF)
- An internet-based Google Maps program
- Leverages the data and capabilities of MSSIS and TV32



VOPLE TV32 Display



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SeaVision Uses Multiple Data Sources

- Automated Identification System (AIS) ← MSSIS Network
- Fairplay by Information Handling Service (IHS) Markit ← Maritime Database
- Coastal RADAR ← Organic RADAR
- Satellite Synthetic Aperture RADAR (SAT-SAR) ← Imagery
- Visual Infrared Imaging Radiometer Suite (VIIRS) ← Manmade Lights

7

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- AIS is a system allowing vessels to automatically report their position and navigational information as well as receive other vessels' positions within range.
- Fairplay by Information Handling Service (IHS) Markit is a repository for IMO ship registry data.
- Coastal RADAR provides dynamic target data to the SeaVision system.
- Satellite Synthetic Aperture RADAR (SAT-SAR) is a form of RADAR which is used to create images of objects. These images can be either two-dimensional or three-dimensional representations of the object. SAT-SAR uses the motion of the RADAR antenna over a targeted region to provide finer spatial resolution.
- VIIRS Ship Detections is the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA) Visible Infrared Imaging Radiometer Suite that collects global data nightly. The VIIRS day/night band was designed to detect clouds at night using moonlight making it possible to detect lit fishing boats by the light they emit at night.



Maritime Domain Awareness (MDA)

- MDA: the effective understanding of anything associated with the maritime domain that could impact security, safety, economy, or the environment
- SeaVision: a web-based maritime situational awareness tool that enables users to view and share a broad array of maritime information to improve maritime operations



8

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- Safety
 - Search and Rescue, Accidents at Sea
 - Navies, Coast Guard, Port Authority
- Security
 - Terrorism, Robbery, Piracy, Human Trafficking, Illegal cargo
 - Coast Guard, Port Authority, Maritime Police
- Economic
 - Illegal, Unreported, and Unregulated (IUU) fishing
 - Customs, Fisheries
- Environment
 - Oil Spill, Illegal Dumping
 - Environmental Agencies



SeaVision Technical Assistance Field Team (TAFT)

- Collection of NIWC scientists, engineers, and technicians supporting the Maritime Security Initiative
- Establishment, sustainment, and data integration for partner nations' Regional Maritime Picture (RMP)
- Improvement of maritime security, domain awareness, and information sharing capabilities between Southeast Asian partner countries near the South China Sea

9

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- Establish partner nations' Regional Maritime Picture (RMP)
- Operationalize SeaVision RMP via mobile training
- Optimization of existing systems to improve maritime data availability and its integration with RMP
- Mentoring to partner nations' personnel to maximize usability of existing systems and RMP
- Maritime exercise support



Customizable SeaVision User Courses of Instruction (COIs)

- SV Operator COI: familiarization with the SeaVision system, tools, and use in maritime operations
- SV Analyst COI: use SeaVision system for MDA with practical applications
- SV Executive COI: provide an operational overview of SeaVision tools and capabilities
- SV Train the Trainer: provide courseware and instructional techniques to future trainers

10

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- Location: customer site of choice
- Audience: Operators/Analysts/Executives
- Classroom requirements: projector, internet connectivity, computer, and email for all participants
- All courses offer:
 - Guided and independent practice exercises
 - Responses to maritime scenarios
 - Real-world case studies, MDA data analysis, and decision making
 - Report generation and presentation practice
 - Low student to instructor ratio to maximize learning results



SeaVision TAFT Contact Information

Naval Information Warfare Center PACIFIC
53560 Hull Street
San Diego, CA 92152-5001
Phone: 619-553-5261

<https://seavision.volpe.dot.gov/>



SeaVision Overview Summary

- SeaVision is a web-based maritime situational awareness tool
- Supports Host MDA mission
- Data Sources:
 - Automated Identification System (AIS)
 - Fairplay by Information Handling Service (IHS) Markit
 - Coastal RADAR
 - Satellite Synthetic Aperture RADAR (SAT-SAR)
 - Visual Infrared Imaging Radiometer Suite (VIIRS)



Questions?





Maritime Domain Awareness

Lesson 1.2

07/01/2020

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Lesson 1.2 Learning Objectives

Upon successful completion of this lesson, the student will be able to:

- Define the Maritime Domain and Maritime Domain Awareness (MDA)
 - Goals
 - Data/Information sharing challenges
- Identify the following elements of MDA:
 - Threats
 - Stakeholders
 - Vessels and other objects
 - Vessel classification
- Understand the threats and challenges facing your local maritime area



Maritime Domain Awareness

- All areas and things on or adjacent related to the following:
 - Sea
 - Ocean
 - Other Navigable Waterway
- To include all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances



3

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- The maritime domain is defined as all areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances.



Maritime Domain Awareness

- The effective understanding of anything associated with the maritime domain that could impact:
 - Security
 - Safety
 - Economy
 - Environment



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- Maritime Domain Awareness (MDA) is defined by the International Maritime Organization (IMO) as the effective understanding of anything associated with the maritime domain that could impact security, safety, an economy, or the environment.



Elements of MDA – Threats

- Security
 - Piracy
 - Armed Robbery
 - Terrorism
- Safety
 - Smuggling Drugs/Weapons/People
 - Search and Rescue
 - Accidents at Sea
- Economic
 - Illegal, Unreported, and Unregulated (IUU) Fishing
- Environmental
 - Oil Spills
 - Illegal Dumping



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Elements of MDA – Possible Stakeholders Include

- Navies and/or Coast Guards
- Fisheries
- Ports and Harbor (i.e. Port Authority)
- Maritime Rescue Coordination Centers (MRCC)
- Maritime Police
- Environmental Protection Agencies
- National Security Agencies
- Departments of Justice
- Energy Agencies and/or Petroleum Non-Government Organizations (NGOs)
- Drug Enforcement Agencies
- Others



Elements of MDA – Objects on Water

- Large vessels (> 300GT)
 - Cargo (Bulk, Container, Hazardous)
 - Tankers (Chemical, Oil, Other)
 - Military, Cruise ships
 - Assigned an International Maritime Organization (IMO) Number
- Medium vessels
 - Fishing (Trawlers, Longliners, Motherships, Tuna)
 - Passenger ships
 - Patrol vessels





Elements of MDA – Objects on Water

- Small vessels

- Wooden canoes
- Fiberglass boats
- Speed boats
- Sail boats
- Dhows



- Others

- Oil rigs
- Buoys
- Debris (sunken ships, reefs, rocks, etc.)





Elements of Maritime Domain – Details of Objects

- Owner (flag country, registry, etc.)
- Crew (nationality, criminal records, etc.)
- Cargo (hazardous, illegal, weapons, drugs)
- History (high-risk vessels, detained previously, previous inspections)
- Current activity (fishing, transport, etc.)
- Current and historical position (vessel tracks, ports visited)
- Dynamic information (speed, heading)



MDA – Importance of Information Sharing

- Approximately 80% of global trade is moved via maritime transportation
- Threats to economy, security, and safety from the maritime environment
 - Maritime terrorism threats
 - Piracy and armed robbery attacks



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MDA – Importance of Information Sharing

- Issues which begin in one country often affect another
- One country may lack resources to maintain MDA
- Sharing information and ensuring all nations have effective MDA is critical
- Regional partnerships provide benefits of good MDA to all participants





Discussion - MDA Challenges/Threats to Your Country

- Specific MDA challenges
 - Port security
 - IUU fishing
 - Piracy/Armed Robbery
 - Small boats
 - Illegal Smuggling
 - Others?
- What are some approaches used to address these challenges?
 - More effective port/high security zone monitoring
 - Increased use of transponders on vessels
 - Increased data sharing between agencies and regions
 - More effective/frequent patrols



SeaVision Maritime Domain Awareness Summary

- Maritime Domain Awareness
 - The effective understanding of anything associated with the maritime domain that could impact security, safety, an economy, or the environment
- Sharing information
 - Ensuring all nations have effective MDA is critical



Questions?





SeaVision Data Sources

Lesson 1.3

07/01/2020

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Lesson 1.3 Learning Objectives

Upon successful completion of this lesson, the student will be able to:

- Identify the capabilities and information provided from the following SeaVision data sources:
 - Automatic Identification System (AIS)
 - Fairplay by Information Handling Service (IHS) Markit
 - Coastal RADAR
 - Satellite Synthetic Aperture RADAR (SAT-SAR)
 - Visible Infrared Imaging Radiometer Suite (VIIRS)



SeaVision Data Sources

- SeaVision integrates multiple government and commercial data sources to aid in developing a Regional Maritime Picture (RMP)
 - Maritime Safety & Security Information System (MSSIS)
 - Terrestrial AIS
 - Satellite AIS
 - Fairplay by Information Handling Service (IHS) Markit
 - World Registry of Ships (WROS) Data
 - Vessel Details
 - Coastal RADAR
 - Satellite Synthetic Aperture RADAR (SAT-SAR)
 - Visible Infrared Imaging Radiometer Suite (VIIRS)

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- Maritime Safety and Security Information System (MSSIS): developed by Department of Transportation (DOT) Volpe Center. MSSIS is a freely shared, unclassified, near-real time data collection and distribution network. MSSIS promotes collaboration and data sharing amongst international participants through sharing of Automatic Identification System (AIS) position reports.
- Learn more about MSSIS here: <https://mssis.volpe.dot.gov/Main/>



Automatic Identification System (AIS)

- AIS
 - Transmitted over marine VHF radio frequencies
 - AIS is a system allowing vessels to automatically report their position and navigational information as well as receive other vessels positions within range
- Terrestrial AIS
 - AIS base station is located at a coastal ground site
 - Allows for real-time AIS data collection
 - Allows you to connect to the MSSIS network via the internet
 - Data is free with purchase of AIS receiver/antenna/GPS
- Satellite AIS
 - Collected by low earth orbit satellites
 - Requires a downlink station
 - Latencies and sparsity in AIS tracks
 - Data must be purchased

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- The primary intent of Automatic Identification Systems (AIS) is to aid in the avoidance of vessel collisions by providing positional data (latitude and longitude) and attributes (such as speed, name, size, type, etc.) of equipped vessels. AIS plays an increasingly important role in enhancing the Maritime Domain Awareness of many countries around the world. AIS allows the automatic exchange of real-time vessel movement data, including static and voyage-related information, between ships or between ships and shore stations.
- Key Types of AIS Data Include:
 - Vessel Name / Vessel Type
 - International Maritime Organization (IMO) Number
 - Maritime Mobile Service Identity (MMSI) Number
 - Vessel Call Sign
 - Length, Beam, Draft
 - Ship Position (Latitude & Longitude)
 - Speed Over Ground (SOG) / Course Over Ground (COG)
 - Heading / Rate of Turn (ROT)
 - Estimated Time of Arrival



Fairplay by Information Handling Service (IHS) Markit

- Fairplay is a repository for IMO ship registry data.
 - Registration
 - Crew
 - Inspections
 - Port History

The screenshot displays the IHS Markit Fairplay interface for the vessel 'As Penelope'. On the left, a list of vessel details is shown, including source, time, age, position, speed, heading, course, MMSI, IMO Number, flag, call sign, ship type, length, beam, draft, navigation status, mood, destination, and ETA. A map below the details shows the vessel's current position. On the right, a search bar is visible with MMSI and IMO Number fields, and a 'FIND' button. Below the search bar, a 'REGISTRATION' table lists key information:

REGISTRATION	
Fairplay Sid	75128
Name	As Penelope
Imo Number	9294537
Call Sign	D5RB3
Mmsi	636092863
Flag	Liberia
Operator	MCC Transport Singapore Pte

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- IHS/Fairplay: SeaVision integrates World Registry of Ships (WROS) data with incoming positional reports to provide extensive vessel information to the user via Vessel Details.
- <https://ihsmarkit.com/index.html/>
- The data is searchable and used as criteria in user-defined Rules. This dataset is the basis for the automatically calculated safety and security risk scores in Warnings.



Coastal RADAR

- RADAR tracks are sourced from a SeaVision participant nation's shore-based sea RADAR network
- Tracks may be correlated with AIS position reports for individual vessels



6

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- Coastal RADAR: RADAR tracks are sourced from a SeaVision participant nation's shore-based sea RADAR network. RADAR tracks may be correlated with AIS positional reports for individual vessels.



Terrestrial AIS/Coastal RADAR

- Hardware Requirements
 - Computer workstation
 - GPS antenna
 - RADAR outputting TTM messages (optional)
 - Internet Connection
 - AIS RX base station
- Software Requirements
 - Volpe's TV32
 - Stunnel
 - Windows OS



Upload AIS and RADAR data into MSSIS Network

Step 1: Local AIS base station receives regional AIS

Step 2: AIS base station outputs AIVDM messages for display in TV32

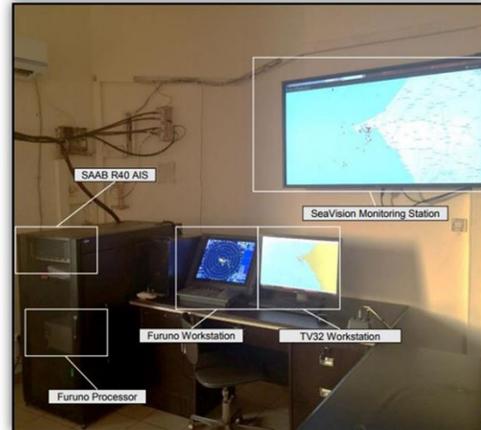
Step 3: TV32 routes AIVDM messages to MSSIS Server

Step 4: Agency, Interagency, Regional, and Global partners access AIS via SeaVision

Optional RADAR Configuration

RADAR outputs TTM messages to TV 32

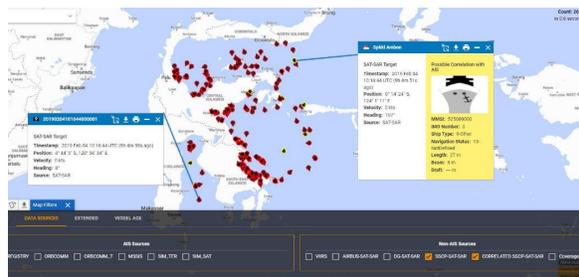
Coastal Surveillance Site Example





Satellite Synthetic Aperture RADAR (SAT-SAR)

- Benefits
 - Very large coverage area
 - Works in all weather, day or night
 - Well suited for ship detection
 - Can see through clouds
- Limitations
 - Lower resolution than electro-optical images
 - Doesn't look like a picture
 - Ships required to have a reflective surface
 - Delays and infrequent coverage
- Results
 - Ships are detected in image and displayed as position report in SeaVision.



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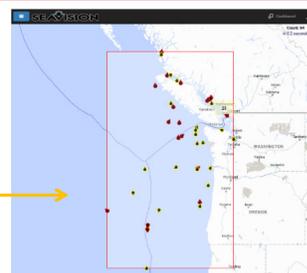
- Synthetic-Aperture RADAR (SAR) is a form of RADAR that is used to create two-dimensional images or three-dimensional reconstructions of objects.
- Satellites with Synthetic Aperture RADAR (SAT-SAR) orbit the Earth in a sun-synchronous, polar orbit and data acquisitions can be made day or night, independent of cloud coverage.
- SeaVision displays satellite imagery data provided by the Naval Research Laboratory (NRL) and can correlate this data with AIS positional reports.



AIS/RADAR/SAT-SAR Fusion

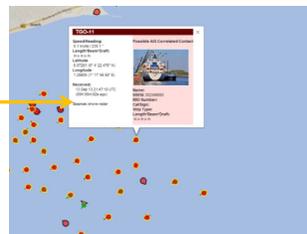
- SeaVision correlates Coastal RADAR and SAT-SAR with AIS
- Confirmed identification of RADAR/SAT-SAR ship detection

Fused SAR with AIS



Ship Detections from SAR Image

Fused RADAR with AIS

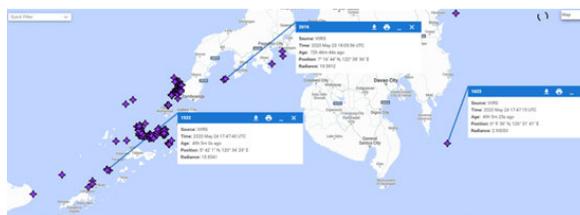


Coastal RADAR Detections



Visible Infrared Imaging Radiometer Suite (VIIRS)

- VIIRS primary mission is weather. However, an algorithm was developed for reporting the locations of boats based on satellite sensing of electric lighting



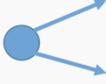
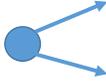
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- Visible Infrared Imaging Radiometer Suite (VIIRS): A joint National Aeronautics and Space Administration (NASA) and National Oceanic and Atmospheric Administration (NOAA) project that provides nighttime imagery of man-made light sources emanating from ships and other man-made sources at sea.
- Learn more about VIIRS here:
 - <https://viirsland.gsfc.nasa.gov/index.html>



SeaVision Data Sources

Data Source	Range	Delay into SeaVision
AIS 	Terrestrial	20-40 NM
	Satellite	Footprint of Satellite
RADAR 	Coastal/Vessel	20-60 NM
	SAT-SAR	Footprint Of Satellite
VIIRS 	Footprint of Satellite	24 Hours

12

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SeaVision Data Sources Summary

- Automated Identification System (AIS)
 - Terrestrial and Satellite
- Information Handling Service (IHS) Markit
 - Fairplay
- Coastal RADAR
 - Correlated with Terrestrial AIS
- Satellite Synthetic Aperture RADAR (SAT-SAR)
 - Correlated with AIS
- Visual Infrared Imaging Radiometer Suite (VIIRS)



Questions?





SeaVision Communities and Account Creation

Lesson 1.4

07/01/2020

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Lesson 1.4 Learning Objectives

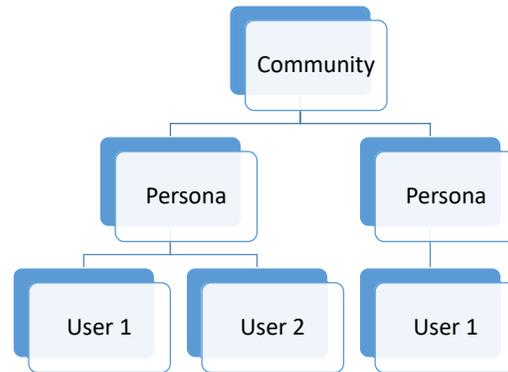
Upon successful completion of this lesson, the student will be able to:

- Identify SeaVision Communities and Personas as they relate to the user profile
- Identify what SeaVision data and objects can be accessed and shared across Communities and Personas
- Determine the requirements to request a SeaVision account



SeaVision Communities

- Users, Personas, and Communities are all managed by a Community Manager
- Users can belong to more than one Community and to multiple Personas within each community
- Users can request to join other Communities, but the Community Manager must review and approve each request



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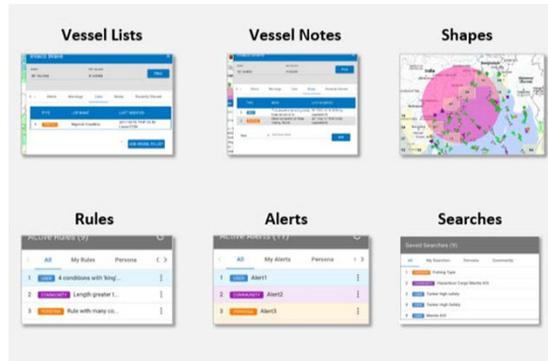
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- Every person with a SeaVision account is a SeaVision user
- Users are managed by one or more Community Managers
- Every user is assigned by their Community Manager to one or more Personas
- Access to a Persona gives users access to data and shared items that are only available within that Persona
- All users within a Persona can share freely without Community Manager approval
- All Personas and their users are part of a Community
- Communities are managed by Community Managers who review/approve/disapprove items
- Ask your instructor for more information on the Community and Persona that applies to your area of interest



SeaVision Communities

- Sharing leads to collaboration and understanding within Communities and Personas
- Users can share:
 - Vessel Lists/Notes
 - Shapes
 - Rules/Alerts
 - Searches
- Users have full control in choosing how they share their data



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- Users can choose to share Shapes, Searches, Rules, Alerts, Vessel Lists, and Vessel Notes with other users:
 - Only data that has been shared within a user's Persona or Community can be viewed by other users. Permission for others to edit is controlled by the originator
 - Shared with own Persona, visible to all users within that Persona
 - Shared with own community, must be approved by the Community Manager
 - Users who request to share items within the Community receive notifications when the Community Manager has approved/rejected the sharing request



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SeaVision Account Creation

5

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- SeaVision Access Requirements:
 - A computer with a working internet connection and web browser (Chrome recommended)
 - An active, reliable, and easily accessible email address
 - A government maritime-focused career or a government sponsor with a maritime-focused mission





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SeaVision Account Creation



SEA VISION
UNITED STATES DEPARTMENT OF TRANSPORTATION

Request a New Account

Your Email Address *

Student@your_email.com

GO BACKREGISTER

Please Validate Your Email Address

New Account Request

Hi,

Someone requested a new SeaVision account using this email address. To complete the new account creation process using this email address, just click this button:

Validate Email

Or follow this link: <https://seavision.volpe.dot.gov/newaccountrequest/6c8982074a67be0e97c617ac0e127f3467a77fa62be175066239cee2f4caecb>

This link will expire in 24 hours.

If you didn't make this request, simply delete this email.

Thank you,
SeaVision Support Team

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- Request a new account through Community Manager
- Confirm identity
- Validate email
- Complete a New Account Request with personal information
- Submit a request to the Community Manager



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SeaVision Account Creation

Request Successfully Sent!

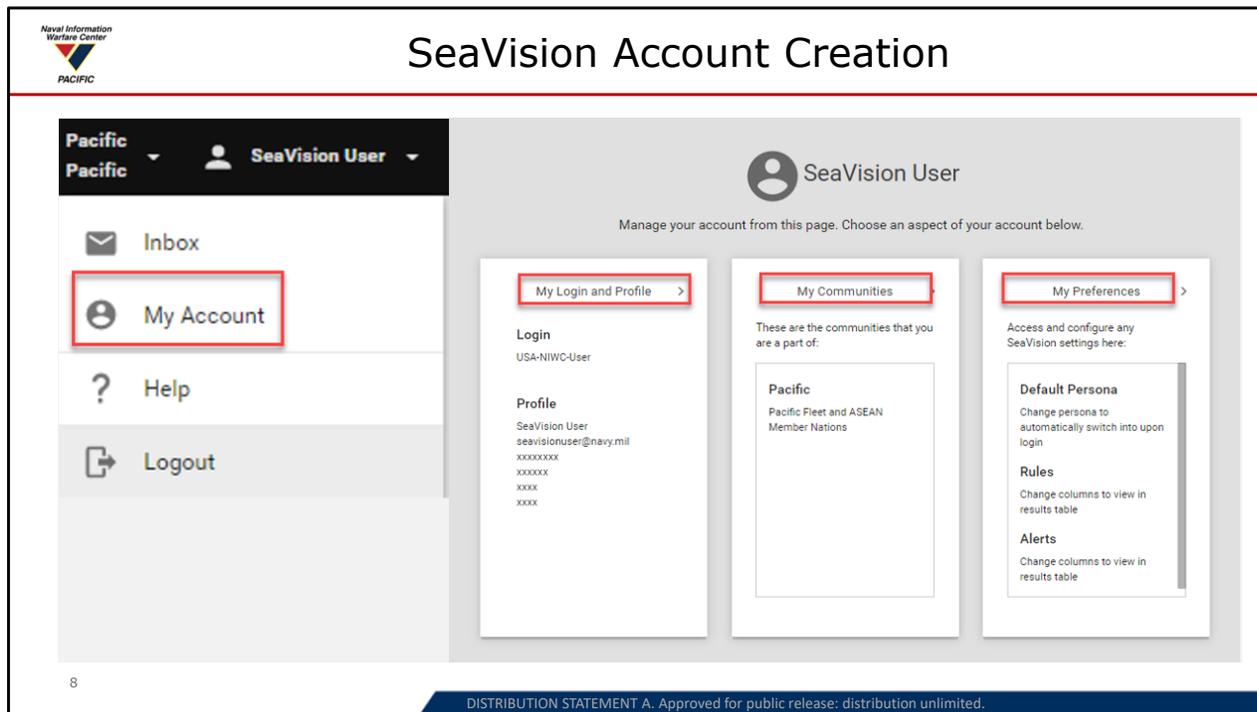
Once a Community Manager approves your request, you will receive an email confirmation.

[GO TO SEAVISION HOME](#)

7

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- Receive approval email with login information from Community Manager
- Users Log in to their new SeaVision account



- My Login and Profile
 - Edit Username
 - Edit Password
 - Setup Multi-factor Authentication
 - Edit Profile
- My Communities
 - Verify and request to join a Community
- My Preferences
 - Default Persona
 - Rules Settings
 - Alerts Settings
 - Lists Settings



SeaVision Account Management Summary

- **SeaVision Communities:**
 - SeaVision user management is set using Communities and Personas
 - Users can share various lists and objects within SeaVision
- **SeaVision Account Creation:**
 - A computer with a working internet connection and web browser (Chrome recommended)
 - An active, reliable, and easily accessible email address
 - A government maritime-focused career or a government sponsor with a maritime-focused mission



Questions?





Data Fusion

Lesson 1.5

07/01/2020

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Lesson 1.5 Learning Objectives

Upon successful completion of this lesson, the student will be able to:

- Identify maritime vessel references outside of SeaVision
- Understand how SeaVision tools coupled with external references can be used to provide a more accurate maritime picture
- Identify cases when data sources could be deemed unreliable (AIS Data Validation)





External Maritime References

- Global Fishing Watch
- International Maritime Organization
- Marine Traffic

Ever Calm Download Print Close

Source: LONG RANGE AIS
Time: 2020 Jun 22 10:44:20 UTC
Age: 5h 8m 10s ago
Position: 17° 25' 12" N, 111° 22' 41" E
Speed: 16 kts
Heading: 28°
Course: 28°
MMSI: 355537000
IMO Number: 9866598
Flag: Panama
Call Sign: H30A
Ship Type: 7-Cargo
Length: 171 m
Beam: 28 m
Draft: 9.3 m
Navigation Status: 0-Underway(Engine)
Destination: Hkhkg
ETA: 06/23 @ 10:00 UTC


 History Trail 
 DR Vector
[Vessel Details](#)
[Add Vessel to List](#)
  

3

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- These are supplemental websites that an operator may use to help define the regional maritime picture. More data sources coupled with SeaVision tools can provide a more detailed view of the maritime environment.
- These three sites are the most used by SeaVision operators and there are other various sites that the operator can search for to aid in data fusion.
- Some sites offer free readily available public data; others may require a paid subscription.



Global Fishing Watch

- Global Fishing Watch promotes ocean sustainability through greater transparency
- Visualize, track, and share data about global fishing activity in near real-time and for free
- <https://globalfishingwatch.org/>



4

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Global Fishing Watch is an independent, international, non-profit organization originally set up through a collaboration between three partners: Oceana, an international organization dedicated to protecting and restoring the ocean; Sky Truth, experts in using satellite technology to protect the environment; and Google, who provide the tools for processing big data.
- Datasets and Code: advanced data analytics and code sets may be downloaded and compared to SeaVision track history for a more in-depth analysis. (This will be covered in the SeaVision Analyst Course of Instruction).



International Maritime Organization (IMO)

- United Nations specialized agency with responsibility for:
 - Safety and security of shipping
 - Prevention of marine and atmospheric pollution by ship
 - <http://www.imo.org/EN/Pages/Default.aspx>



5

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- The IMO created a level playing-field so that ship operators cannot address their financial issues by simply cutting corners and compromising on safety, security, and environmental performance. This approach also encourages innovation and efficiency.
- Maritime Knowledge Center (MKC) Current Awareness Bulletin (CAB):
 - The aim of the MKC CAB is to provide a monthly digest of news and publications focusing on subjects and themes related to the work of the IMO. Each CAB presents headlines from the previous month.
- Various topics and documents on Marine safety and Maritime security.



Marine Traffic

- Provides free, near real-time information to the public regarding vessels' positions and movements
 - Ports
 - Traffic
 - Voyage details
- Displays most countries around the world along with a series of related services
- <https://www.marinetraffic.com>



6

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Marine Traffic
 - Vessel Information Basics
 - Use the Marine Traffic tools to explore past and updated vessel positions
 - Access the progress of any vessel's voyage and explore port calls all over the world



AIS Review

- Autonomous tracking system for the exchange of navigational information between AIS-equipped terminals
- Identifies and locates vessels and provides an aid to navigation
 - Enables vessels to "see" each other more clearly in all conditions
 - Aid to search and rescue
 - Aid to maritime security

7

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Class A – mandated for all vessels 300 gross tons (GT) and above engaged on international voyages as well as all passenger ships
- Class B – provides limited functionality and intended for non-Safety of Life at Sea (SOLAS) vessels. Primarily used for vessels such as pleasure craft



AIS Considerations

- The IMO requires AIS use by all vessels >500GT, for any vessel >300GT that is on an "international voyage," and for all passenger vessels
- Large fishing vessels are assigned a unique Maritime Mobile Service Identity (MMSI) number
 - Some vessels use a number that is not assigned to them
 - Multiple vessels simultaneously broadcasting the same MMSI number make them indistinguishable from one another without closer inspection
 - Vessels can also manipulate their GPS location by tampering with the system ("spoofing")

8

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- Ship spoofing - where an AIS message is broadcast giving details of a non-existent ship including its identity, location, and cargo type. For example, spoofing a ship of one nation into the territorial waters of a hostile nation, leading that nation to take countermeasures.
- Aid-to-navigation spoofing - where details of a fake aid-to-navigation, such as a buoy warning of hidden shoals, are broadcast to force a ship to change its course. This might be done to force a vessel into a region where it can be hijacked.
- Collision spoofing - collision avoidance is one of the primary uses of AIS. By providing spoofed details of a vessel on a collision course, an attacker can force the captain of a ship to change course to avoid the anticipated collision.
- AIS-SART spoofing - search and rescue is another of the primary uses of AIS. This attack works by generating a spoofed Search and Rescue Transponder (SART) signal, which gives details of a vessel or person in distress.
- AIS hijacking - it is also possible to override signals being sent by vessels by broadcasting a higher-power signal at the same time and frequency. The attacker can then change some details of the original message, for example to suggest that the vessel has a nuclear cargo in an area where such cargoes are illegal.



AIS Considerations Cont.

- The accuracy of AIS information received is only as good as the accuracy of the AIS information transmitted
- Overreliance on AIS can cause complacency on the part of the watch stander
- Users must be aware that erroneous information might be transmitted by the AIS from another ship
- Not all ships are fitted with AIS
- AIS might be switched off by a certain vessel, thereby negating any information that might have been received



AIS Data Validation

- General Situational Awareness
 - Track Coverage vs Time
 - AIS Considerations
 - Dark
 - Errors (not Spoofing)
- SeaVision Tools
 - Vessel History
 - Port call History
 - Vessel Details
 - Time Machine and Playback
- External References
 - IMO Map
 - Global Fishing Watch
 - Marine Traffic

The screenshot displays the SeaVision interface for vessel 'Sheng Le C'. The top window shows real-time AIS data, and the bottom window shows a detailed registration table.

REGISTRATION	
Fileflag ID	37508
Name	Sheng Le C
IMO Number	9124146
Call Sign	H9GJ
MMSI	371778000
Flag	Panama
Operator	Guangzhou Seaway International
Subtype	Bulk Carrier
Gross Tonnage	18108



Data Fusion Summary

- External References
 - International Maritime Organization
 - Global Fishing Watch
 - Marine Traffic
- AIS Validity
 - Errors
 - Manipulation
 - Spoofing
- Data Validation
 - Use situation awareness
 - Use SeaVision tools
 - Not every case is intentional



Questions?





Automatic Information System (AIS) Demo

Instructor Information Sheet 1.0

07/01/2020

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AIS Hardware Demo Learning Objectives

Upon successful completion of this lesson, the student will be able to:

- Become familiar with hardware components of a commercial AIS system
- Receive hands-on experience operating AIS units on the following topics:
 - Comparing the different types of AIS hardware
 - Transmitting and receiving AIS data
 - Configuring AIS settings
 - Visualizing AIS data

2

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Instructor objectives for this demo, below are a list of topics for the instructor to cover:

- Comparison of AIS hardware
 - Transceiver/transponder vs receive-only
 - Functionality of Class A vs Class B vs receiver
- AIS position report from a vessel
 - Dynamic vs Static messages and their frequency of transmission
- Different AIS applications
 - AIS onboard vessel
 - AIS on land stations
- Displaying AIS position reports
 - Using map-based software (AMEC AIS viewing software)
 - Using SeaVision
- AIS hardware built-in protective features from unauthorized changes



History of AIS Hardware

- AIS was originally developed by the International Maritime Organization (IMO) as a standard which would help vessels to avoid collisions
- In 2000, the IMO made Class A AIS hardware mandatory for large vessels
- AIS systems, including Satellite AIS receiver systems, are becoming an essential tool for Maritime Domain Awareness (MDA) efforts

3

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- Initially designed in 1990s purely for collision avoidance
- AIS hardware is seen as a complement to the vessel's RADAR system.
- Class B hardware is designed for smaller vessels that are not part of the mandatory Class A requirement category.
- Class B is a voluntary position reporting system that is gaining wider acceptance among recreational vessels.



AIS Hardware Components – Class A

Class A Transceiver Hardware

- VHF Antenna
- GPS antenna (for Transmitting)
- Electric power (12 VDC or 100-240 VAC when used with a power supply)

4

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- Class A is a required self-reporting hardware equipment for all large vessels (>300 gross tons) and all passenger vessels. The requirement is to have 1 Class A AIS unit per vessel. Transmission output power is 12 Watts. It's a commercially available item made by many manufactures of marine electronics.
 - Note the minimum required connections



AIS Hardware Components – Class B

Class B Transceiver Hardware

- VHF Antenna
- GPS antenna (for Transmitting)
- Electric power (12 VDC or 100-240 VAC when used with a power supply)

5

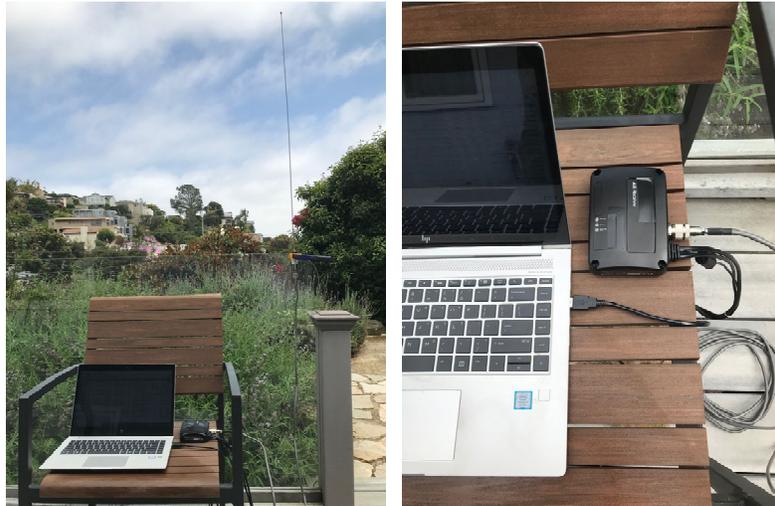
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Class B is a lower-cost, low-power basic functionality AIS transceiver. Output power is 2 Watts. The unit has no target display capability (display function possible via software apps on a PC, tablet, or a mobile device).
 - Note the minimum required connections



AIS Hardware Components – Receiver Only

- AIS receiver
- Personal computing device
- VHF antenna
- Electric power
 - (12 VDC or USB power)



6

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- Receivers (those that receive only and do not transmit) are very simple to set up and are typically installed at coastal sites for vessel tracking. An external device (PC, tablet, or smartphone) is needed to visualize the data.
- Build your own sensor site in under 10 min
- An AIS receiver + PC + VHF antenna = Coastal Monitoring station



AIS Hardware Setup

Class Requirements

- Sufficient space
 - Preferred outdoor and open sky
- Outlets for electrical power
- Separate students into teams
 - 2 teams for Class A AIS transponder
 - 2 teams for AIS receiver
 - Rotate teams so everyone gets hands-on experience on transponder and receiver

Hardware Requirements

- 2 sets AIS Class A
 - Transponder
 - AC power kit
 - GPS antenna + cable
 - VHF antenna + cable
- 2 sets AIS receiver
 - Receiver
 - AC power kit
 - Laptop + USB cable (connect to receiver)
- Optional – 1 Set AIS Class B

7

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- This Demo can be done in a regular classroom environment, but it is best when conducted in an outdoor, open-sky environment due to VHF transmissions and required GPS reception. If done indoors, place GPS and VHF antennas outside a window. VHF antennas should be placed physically apart and not touch the VHF antenna from another unit.
- **IMPORTANT** – During hardware setup, the power cable to the AIS transponder unit should always be connected last (after making VHF antenna connections). During hardware teardown, the power cable should always be removed first. In Short: the power cable should be the last in and the first out.
- **IMPORTANT** – **Class A AIS transponders should be manually adjusted to low-power mode upon power up.** This can be done in the settings menu on the device (the process will vary per manufacturer). The display will show 1W for low-power mode and 12W for normal operation mode. **To minimize RF exposure, the VHF antenna of the transponder must be vertically separated from the operators/audience.**



AIS Transponder Student Team Activities

1. Connect, power up, and become familiar with unit setup.
2. Monitor other nearby vessels.
3. Configure AIS settings:
 - MMSI
 - Vessel Name
 - Call Sign
 - Vessel Type
 - Destination
 - Navigational Status
4. Verify the transponder is sending position reports.
5. Use AIS transponder's interface to send text message to another transponder.
6. (Optional) If located near an AIS sensor site, verify the data transmitted from the transponder appears in SeaVision.
7. (Optional) Can you explain the information flow from transponder to SeaVision?

8

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- When the training location is near a coast/port (~12 miles), the devices will receive AIS messages. Have students select one of the vessels and inspect the AIS data.
- If the AIS demo is conducted in a location far from the coast/port, the Class A transponders will detect each other if you have 2 units for the demonstration.
- Have students change the identity of the Class A units (MMSI, name, type, etc.) and see how long it takes for the receiver and the other Class A to receive the update.



AIS Receiver Student Team Activities

1. Looking at vessels received by the device, what information is available?
2. What are the differences between dynamic and static position reports?
3. Without talking to the transmitter team, identify the following information from their transponder:
 - MMSI
 - Vessel Name
 - Call Sign
 - Vessel Type
 - Destination
4. Use an AIS receiver to select 3 real vessels and identify:
 - MMSI
 - Vessel Name
 - Vessel Type
 - Destination
5. For the same 3 vessels, use SeaVision to identify:
 - IMO number
 - Last 2 port calls
 - Registered owner and Operator
 - Display a 15-day history trail

9

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- In the AMEC software used for viewing AIS positions, information such as names/IMO/call sign/etc. will be blank until a static message is transmitted by the vessel. It usually takes around 5 minutes to receive a static message.



AIS Hardware Demo Summary

- AIS Hardware Setup
 - Vessel-based AIS transponder and configuring essential information
 - Coastal monitoring station for local vessel monitoring and tracking
- AIS Operation
 - Identify nearby vessels in near real-time
 - Identify vessel information change
 - Understand how AIS information is collected and displayed in SeaVision
 - Understand the importance of information sharing



Questions?





SeaVision Operator

Unit 1 Review

07/01/2020

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.



SeaVision Overview Summary

- Web-based maritime situational awareness tool
- Supports Host MDA mission
- Data Sources:
 - Automated Identification System (AIS)
 - Fairplay by Information Handling Service (IHS) Markit
 - Coastal RADAR
 - Satellite Synthetic Aperture RADAR (SAT-SAR)
 - Visual Infrared Imaging Radiometer Suite (VIIRS)



SeaVision Maritime Domain Awareness Summary

- Maritime Domain Awareness
 - The effective understanding of anything associated with the maritime domain that could impact security, safety, an economy, or the environment
- Sharing information
 - Ensuring all nations have effective MDA is critical



SeaVision Data Sources Summary

- Automated Identification System (AIS)
 - Terrestrial and Satellite
- Fairplay by Information Handling Service (IHS) Markit
- Coastal RADAR
 - Correlated with Terrestrial AIS
- Satellite Synthetic Aperture RADAR (SAT-SAR)
 - Correlated with AIS
- Visual Infrared Imaging Radiometer Suite (VIIRS)



SeaVision Account Management Summary

- **SeaVision Communities:**
 - SeaVision user management is set using Communities and Personas
 - Users can share various lists and objects within SeaVision
- **SeaVision Account Creation:**
 - A computer with a working internet connection and web browser (Chrome recommended)
 - An active, reliable, and easily accessible email address
 - A government maritime-focused career or a government sponsor with a maritime-focused mission



Data Fusion Summary

- External References
 - International Maritime Organization
 - Global Fishing Watch
 - Marine Traffic
- AIS Validity
 - Errors
 - Manipulation
 - Spoofing
- Data Validation
 - Use situation awareness
 - Use SeaVision tools
 - Not every case is intentional



Questions?





Introduction to SeaVision Interface

Lesson 2.1

07/01/2020

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Lesson 2.1 Objectives

Upon successful completion of this lesson, the student will be able to:

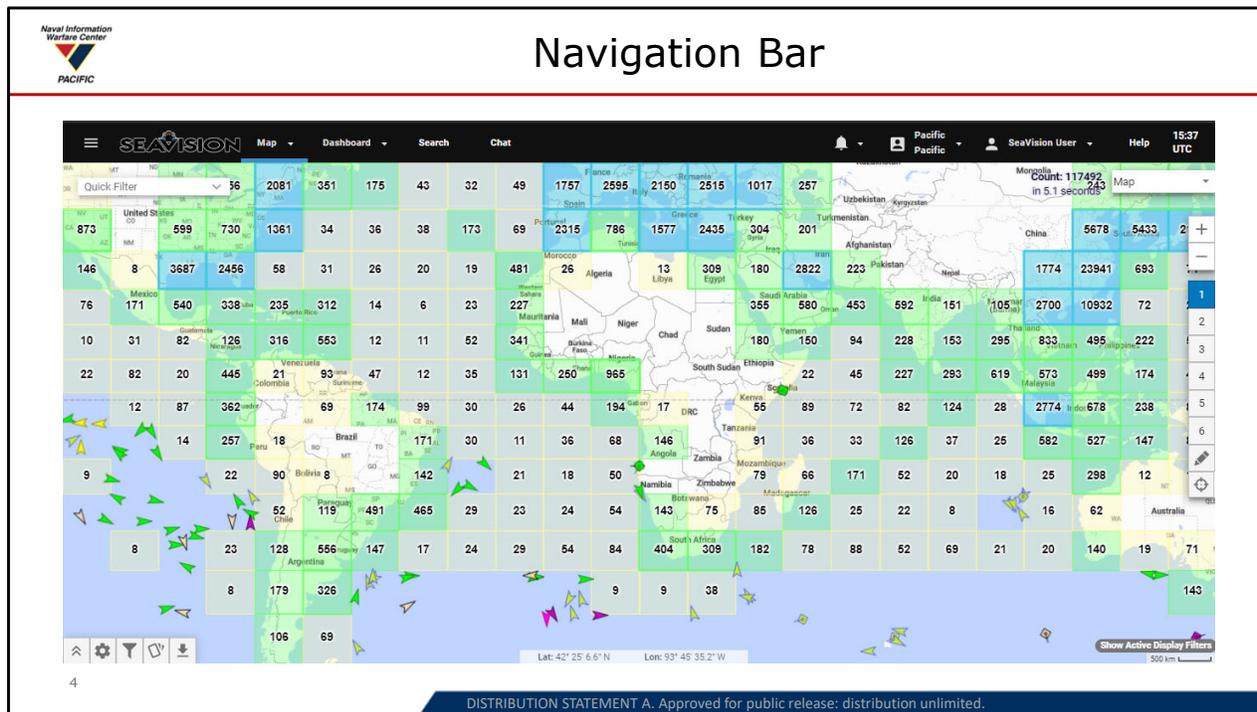
- Identify the major areas and navigation of the interface to include:
 - Navigation Bar
 - Main Menu
 - (MY LAYERS, STATIC LAYERS, MAP TOOLS)
 - Map (drop-down list)
 - Dashboard
 - (Rules, Alerts, Warnings, Vessel Lists)
 - Search
 - Chat
 - Notifications
 - Communities/Personas
 - My Account
 - Map Background
 - (Display icons, colors, vessel density)



Lesson 2.1 Objectives Cont.

Upon successful completion of this lesson, the student will be able to:

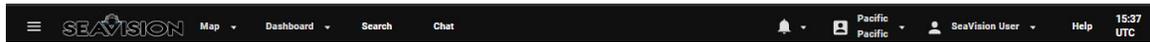
- Identify the major areas and navigation of the interface to include:
 - Map Display Types
 - Custom Map Views
 - Create Custom Map Views
 - Zoom
 - Jump To
 - Show/Hide Active Filter
 - Latitude & Longitude
 - Map Options
 - Map Settings
 - Map Filters
 - Baseball Card Settings
 - Export Vessels
 - Quick Filter



- The menu button toggles open/close the left-side menu
- The drop-down options for both the Map and the Dashboard
- The Search feature allows users to perform searches that can be saved, shared, and display results on the map
- The Chat link opens SeaVision Chat in a separate chat window
- The Notifications bell is for user's Rules, Alerts, and Request Inbox
- The Request Inbox notification shows when a user's Community Manager has acted on their request
- The Switch Persona drop-down allows users with multiple personas to switch between them
- The User drop-down is where users can update their password, set their preferences, etc.
- The Help button offers solutions to common issues and a link to the SeaVision User Guide
- The UTC clock provides a quick reference for the current Coordinated Universal Time (UTC) time



Navigation Bar



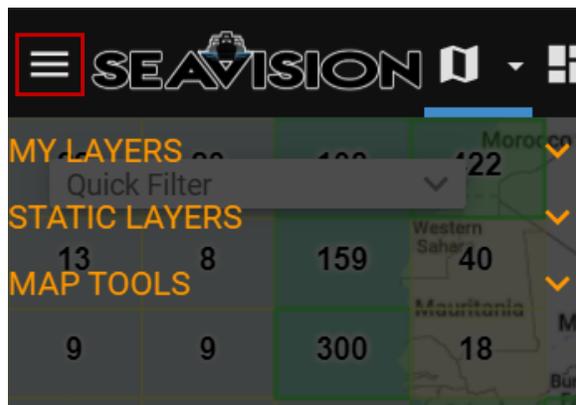
The SeaVision navigation bar is viewable from both the Map and the Dashboard views and contains the following:

- Main Menu
- SeaVision logo
- Map and Dashboard controls
- Search feature
- Chat feature
- Notifications
- Switch Persona
- User controls (password, preferences)
- Help
- Coordinated Universal Time (UTC) clock



Main Menu

- Provides custom displays and options for SeaVision:
 - MY LAYERS
 - User defined shapes
 - Add Custom Layer
 - STATIC LAYERS
 - Custom Map Attributes
 - MAP TOOLS
 - Distance Tool
 - Manual Report
 - Time Machine





Naval Information Warfare Center PACIFIC

MY LAYERS

- Selecting the edit tool activates the Shapes Manager

7

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- Shapes enable users to select and highlight a region of interest to track vessel activity
- Supported shape types include marker, polyline, polygon, circle, and rectangle
- A user-defined shape can be used to designate a geospatial area for Searches, Rules, and/or Alerts



Naval Information Warfare Center
PACIFIC

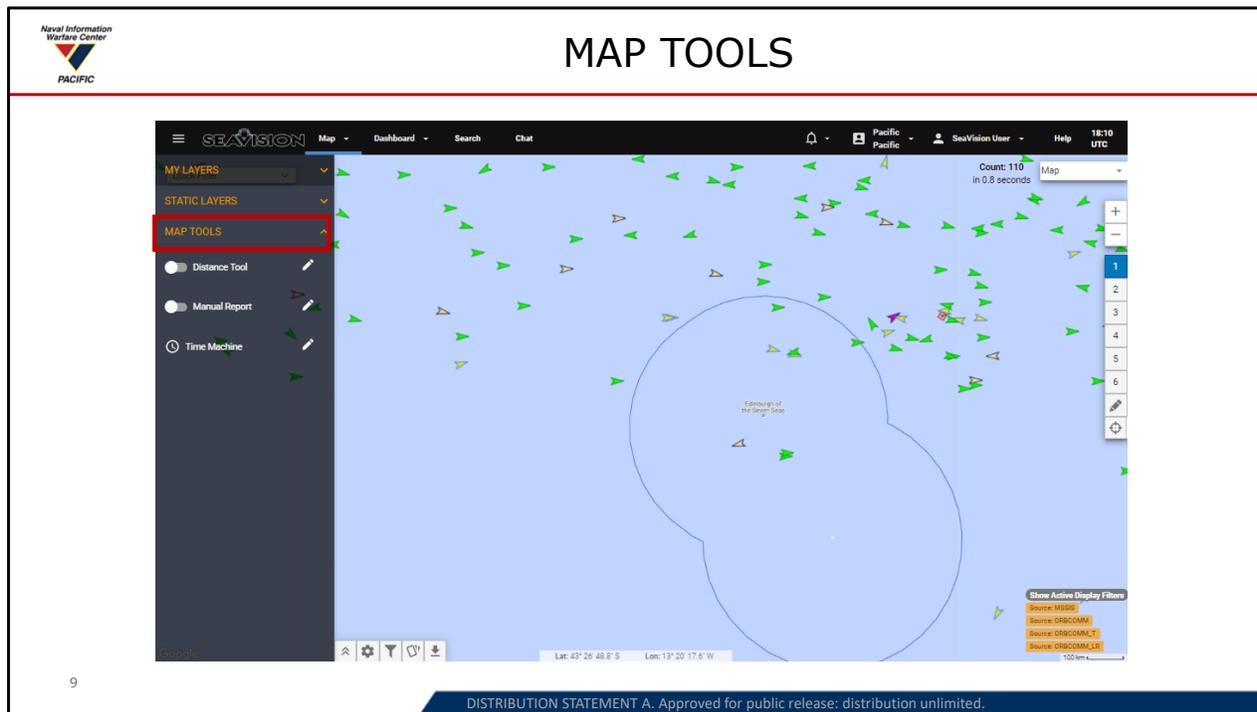
STATIC LAYERS

The screenshot displays the SeaVision interface. On the left, a 'STATIC LAYERS' menu is highlighted with a red box, listing various map attributes that can be toggled on or off. The main map area shows a blue ocean with numerous green and yellow vessel tracks. A large blue circular area is overlaid on the map, labeled 'Edge of the Search Area'. The top navigation bar includes 'Map', 'Dashboard', 'Search', and 'Chat'. The bottom status bar shows coordinates: 'Lat: 42° 57' 59.2" S Lon: 14° 44' 40.1" W'. A 'Count: 110 in 1.1 seconds' indicator is visible in the top right corner. A 'Show Active Display Filters' panel is located in the bottom right corner, listing sources: 'Source: MSLB', 'Source: ORBCOMM', 'Source: ORBCOMM_1', and 'Source: ORBCOMM_2'. A scale bar for 100 km is also present.

8

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- Static Layers allow users to toggle on/off map attributes

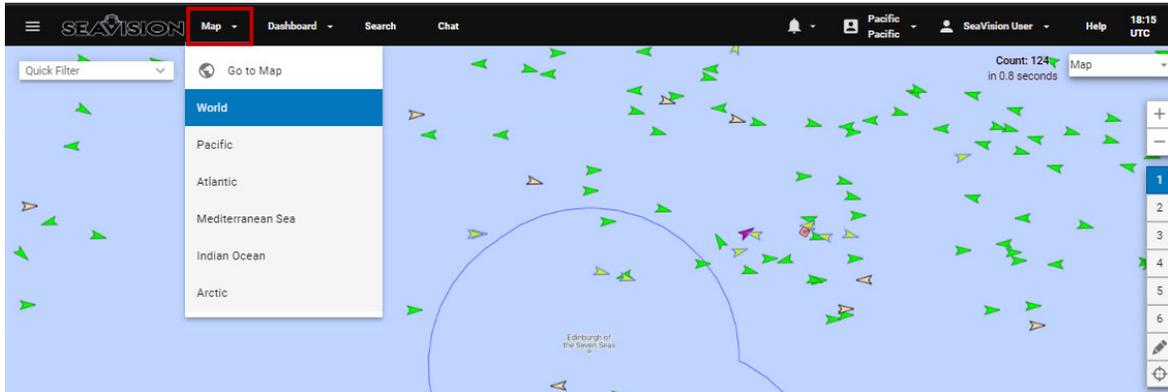


- Map Tools provides a series of tools to aid in tracking and search activities
 - This tab includes:
 - Distance Tool - add a Rhumb Line or Great Circle to an area of interest
 - Manual Report - add a vessel or incident to the map
 - Time Machine - shows all vessels' last known positions in a 4 hour window prior to a user selected date and date and time



Map

- A drop-down list of a user's saved map views



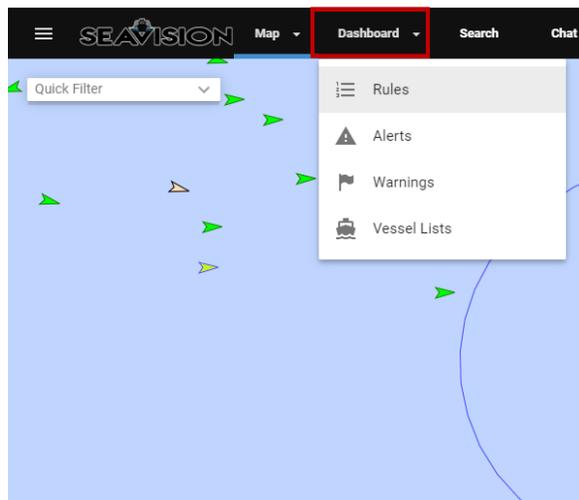
10

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.



Dashboard

- Rules
- Alerts
- Warnings
- Vessel Lists



12

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- The + allows users to create new Rules
- All active Rules are listed in the first column in the Active Rules window
- The center column shows a summary of the active rule highlighted in the first column
- At the top of the column are the options to edit the rule, run the rule, and share the rule
- Below that are the conditions of the rule as well as the schedule for when SeaVision will run the rule
- In the third column are the vessel results for the rule
- Users have the options to export the vessel results, save the results as a list, map the results, or adjust the settings for the results section



13

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- The + allows users to create new Alerts
- Active alerts are listed in the first column under Active Alerts
- The center column shows a summary of the active alert, highlighted in the first column
- At the top of the column are the options to edit the alert or share the alert
- Below that are the conditions of the alert
- In the third column are the vessel results for the alert
- Users have the options to export the vessel results, save the results as a list, map the results, or adjust the settings for the results section



Warnings

Warnings

Overview

Vessel Counts by Rating

VIEW...	SAFE...	SAFE...	SAFE...	SECU...	SECU...	SECU...
1 World	21772	92282	94767	101353	89079	18389
2 Pacific	8559	34417	31536	39069	30888	4555
3 Medit...	3768	18439	23820	20162	22287	3578
4 Arctic	1021	12749	7839	3616	17432	561
5 Indian...	8773	37717	41655	45264	34927	7954
6 Atlantic	14931	54134	59002	62364	50479	15224

World

Safety and Security Ratings

Safety Ratings

Vessel Highlights

Top 5 Safety Scores

	IMO N...	MMSI	SAFET...	SAFET...	SECU...	SECU...
1	7615012	677041...	3382	H	0	L
2	8121020	371177...	3313	H	3	L
3	7223041	677030...	3282	H	17	H
4	8003943	271055...	3265	H	7	M
5	7396654	671208...	3095	H	2	L

Top 5 Security Scores

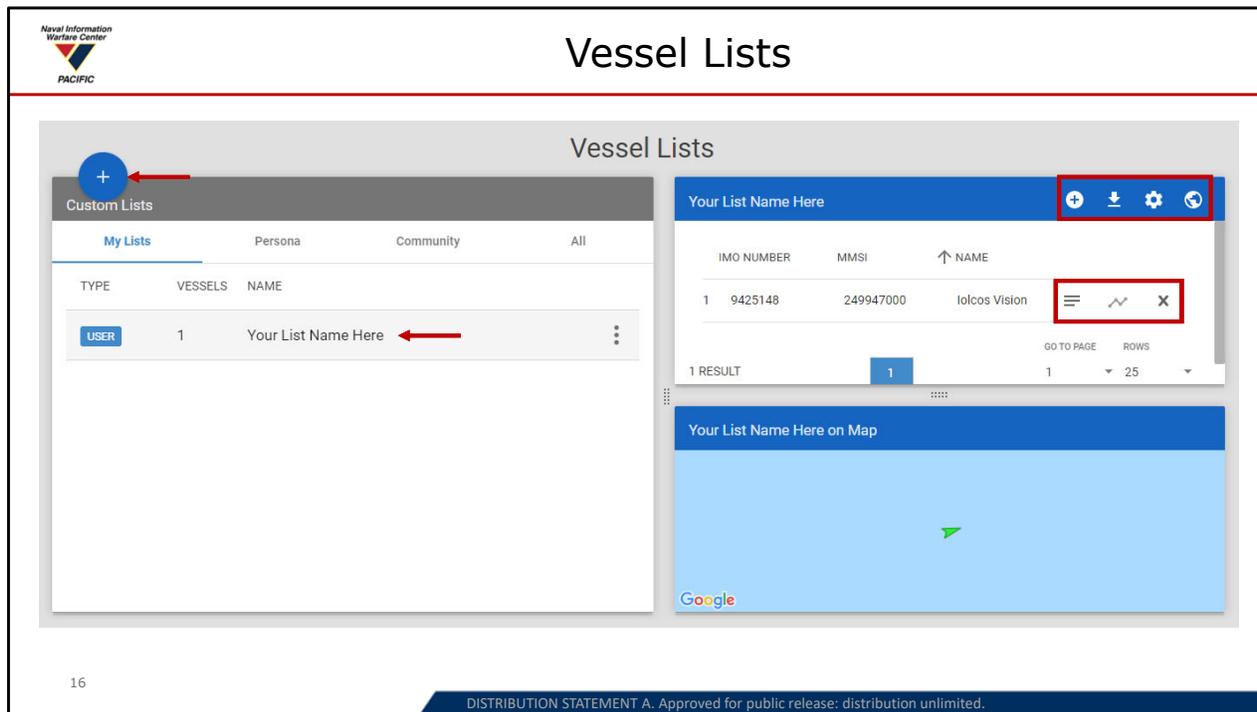
	IMO N...	MMSI	SAFET...	SAFET...	SECU...	SECU...
1	9404819	636015...	1	L	17	H
2	9239848	319099...	17	H	17	H
3	9005065	567573...	6	L	17	H

Warnings Cont.

The screenshot displays the SeaVision interface with the following elements:

- STATIC LAYERS:** A sidebar menu where the 'Warnings' layer is selected and highlighted with a red box.
- Vessel Details Panel:** A pop-up window for the vessel 'lolcos Vision' showing details such as Source (SATELLITE AIS), Time (2020 Jun 17 18:36:56 UTC), Age (0h 20m 29s ago), Position (36° 6' 59" S, 17° 11' 37" W), Speed (11.3 kts), Heading (90°), Course (88°), MMSI (249947000), IMO Number (9425148), Flag (Malta), Call Sign (9HA2091), Ship Type (7-Cargo), Length (229 m), Beam (36 m), Draft (13.6 m), Navigation Status (0-Underway(Engine)), Destination (Singapore), and ETA (07/10 @ 12:00 UTC). A red box highlights the warning icon (a yellow triangle with a red exclamation mark) on the vessel's baseball card.
- Warning Details Panel:** A detailed view of the vessel's safety status, including a 'SAFETY' section with a 'Safety Score and Rating' of 6 (Low) and a 'Flag State - Safety' score of 0.

- Warnings can be selected as a Static Layer that highlights vessels with a color coordinating with the vessel's warning status
- Users can view the warning details of a vessel by selecting the Warnings icon, a flag, on the vessel's baseball card



- The + allows users to create new Vessel Lists
- The lists a user has created will be listed under My Lists
- Selecting a Vessel List from My Lists will trigger the list to be displayed in the window on the right of the screen as well as be mapped in the map view within the Vessel Lists window
- From the list view, users have the option to add vessels to the list, download the vessel list, adjust the settings of the list columns, or map the vessels on the main SeaVision map
- Additionally, the user has the options to add notes to each vessel on the list, activate history trails for each vessel on the list, or delete the vessel from the list





Search

Search
✕

Manage ▾

Choose How To Evaluate Your Conditions

Vessels must meet all conditions

Vessels can meet any condition

Set Up Your Conditions

Vessel Type is 00 - Unknown ✕

ADD CONDITION

Choose The Time Period To Evaluate

Vessel Age 1 hr No Maximum

Done!

SEARCH

Search Results (146606 total vessels)

EXPORT ▾
SAVE AS LIST
MAP RESULTS

FLAG	VESSEL NAME	↑ MMSI	IMO NUMBER	LATITUDE	LONGITUDE
1	888-2	100000002	0	37.958928	120.408387
2	Hi Flyer	100000014	0	43.517433	-65.735215
3	02305 Zhao	100000002	0	20.6782	108.58739
4	Zhexiangyu0313...	100000021	0	29.226507	121.951267
5	Zhexiangyu7611...	100000022	0	28.571488	122.640795
6	60129-8	100000024	0	26.283098	120.265325
7	Biao02589-2	100000027	0	26.1763	120.249047
8	Zhedingyu06208...	100000028	0	29.869722	122.370575
9	Zhe Pu Yu 68827...	100000029	0	29.195962	121.941533
10	Zhexiangyu7611...	100000030	0	28.50321	122.632655
11	Qiu-07	100000031	0	38.525047	120.506772
12	Sudongtaiyu009...	100000032	0	32.563313	121.039932

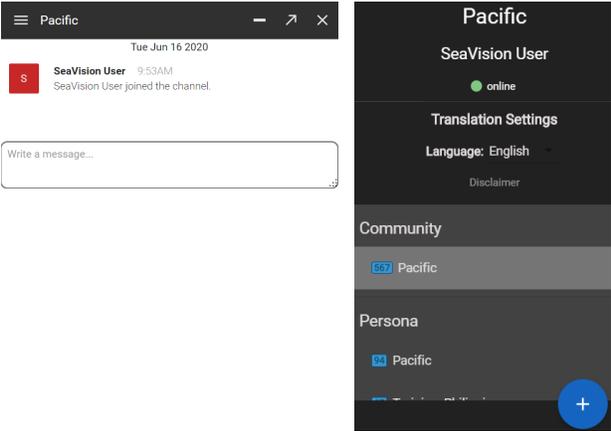
17
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.





Chat

- Chat Channels
- Community
- Persona
- Direct Messages



18

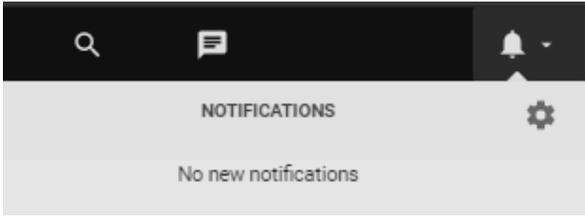
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.





Notifications

- The Notifications icon is a bell
- Selecting the bell opens the notification window
- Notifications can pertain to Alerts or Rules



19

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- Numbers appear in a red bubble by the bell when there are new or unviewed notifications



- Users can quickly change the persona they are in by utilizing the drop-down menu
- Users can change their default persona from My Preferences within the My Account portion of their profile





User Profile

Pacific Pacific
SeaVision User

- Inbox
- My Account
- Help
- Logout

My Login and Profile >

Login
USA-NIWC-User

Profile
SeaVision User
seavisionuser@navy.mil
xxxxxxx
xxxxxx
xxxx
xxxx

My Communities >

These are the communities that you are a part of:

Pacific
Pacific Fleet and ASEAN
Member Nations

My Preferences >

Access and configure any SeaVision settings here:

Default Persona
Change persona to automatically switch into upon login

Rules
Change columns to view in results table

Alerts
Change columns to view in results table

21
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User Profile: My Login and My Profile

My Login

Username
USA-NIWC-User [EDIT USERNAME](#)

Password
***** [EDIT PASSWORD](#)

[SETUP MULTI-FACTOR AUTHENTICATION](#)

[MANAGE API KEYS](#)

My Profile

[EDIT PROFILE](#)

First Name: SeaVision Last Name: User

Email (*unverified): seavisionuser@navy.mil [SEND VERIFICATION EMAIL](#)

Country Calling Code: +1 Phone: xxxxxxxx

Address: xxxxxx

Agency: xxxx Organization: xxxx Org (Abbr): NIWC

Nationality: United States Of America





My Communities

My Communities

Community
Pacific

Join a
Community
+

Pacific

Pacific Fleet and ASEAN Member Nations

Total Users

704

Inactive Users

173

EMAIL LIST

Personas

Community Manager	AOs: 1	EEZs: 1	Users: 26
Airbus SATSAR	AOs: 1	EEZs: 1	Users: 7
Australia	AOs: 1	EEZs: 1	Users: 49

23

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Help Desk

SEAVISION Map Dashboard Search Chat Pacific Pacific SeaVision User Help 15:37 UTC

Help Desk

Frequently Asked Questions

1. How do I join a new Community?
2. How do I change my default Persona after logging in?
3. Why are no vessels showing up on the map?
4. Why do I get an error message when trying to toggle on a history trail?
5. Is there a quick way to remove all history trails on map?

How do I join a new Community?

1. Go to *My Account > Communities > Join a Community*
2. Select a Community from the list of Communities available.
3. To begin, click on the quick link: [Join A Community](#)

How do I change my default Persona after logging in?

24

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Vessel Count and Map Type

Count: 14613
in 2.7 seconds

Dark Simple

Vintage

Midnight

Gray

Map

Satellite

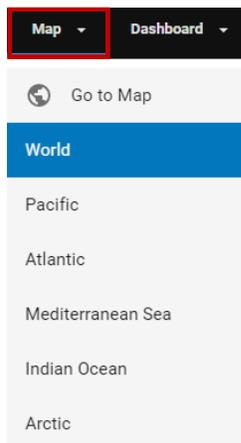
Hybrid

Terrain



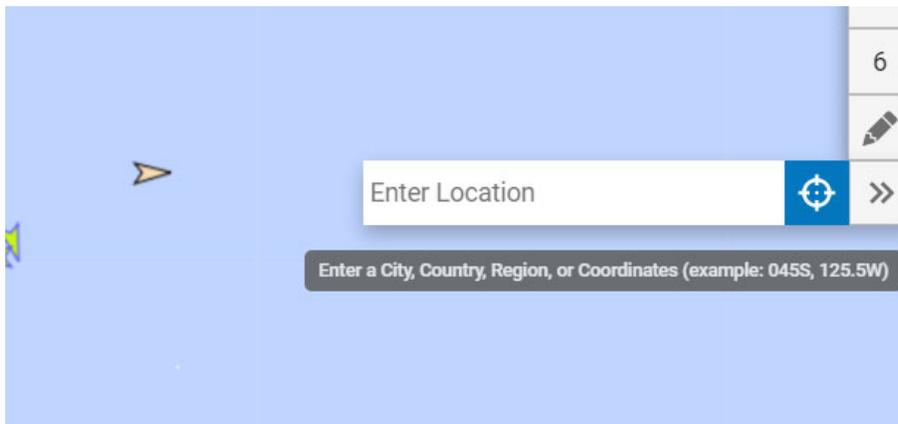
Map View-Custom Views

- Custom Views
 - Create a custom view with map details and save to a preset number
 - 6 custom user-created map views
 - Edit view
- Map drop-down lists available custom views
- Zoom Functions





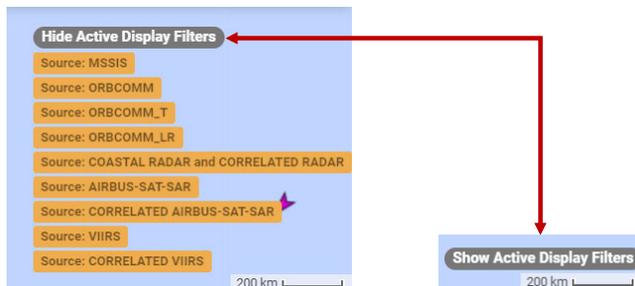
Jump to Location





Show/Hide Active Filters

- Display Filter Toggle
 - Short listing of active filters





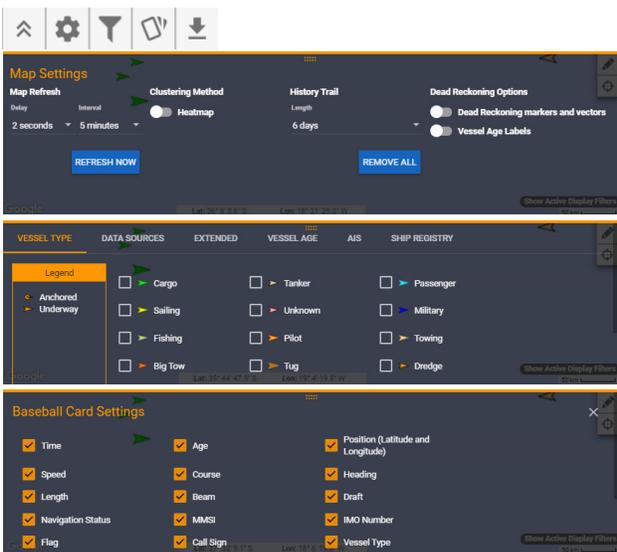
Latitude and Longitude





Map Options

- Map Settings
 - Map Refresh
 - History Trail
 - Dead Reckoning Options
- Map Filters
- Baseball Card Settings
- Export Vessels



31
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Map Refresh
 - Refresh Delay - adjusts the time between pan movements before reloading the page
 - Users can choose from 0 to 10 seconds
 - Refresh Interval - updates the current locations of all vessels on the Map display
 - The rate can be set between 1 or 10 minutes
- History Trail - Display vessels' last reported positions from 1 to 90 days
- Dead Reckoning (DR) Options - DR vectors provide a visual overlay on the map to display where a ship may be based on the dead reckoning calculation considering the time elapsed from a vessel's last reported position, heading, and speed



Map Filters

- Vessel Type
- Data Sources
- Extended

32

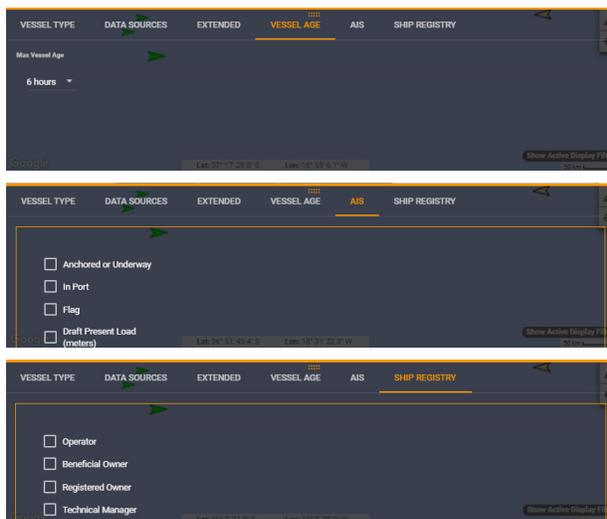
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- The Vessel Filters tab lists a variety of vessel-related filters within SeaVision
- Users can run multiple filters simultaneously and can show vessels that match select criteria, user-defined rules and/or alerts, and saved custom vessels
 - This tab includes:
 - Filter by Vessel Type: an icon key that lets users select the types of vessels that they wish to see on the Map, as the display defaults to showing all vessel types
 - Data Sources: toggle on/off Data Sources
 - Extended: allows filters to be set by Vessel List, Rules, Alerts, Warning Scores, and/or Anomalies



Map Filters Cont.

- Vessel Age
- AIS
- Ship Registry



33

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- Vessel Age: changing this affects the age of vessel reports displayed
 - The most recent report will be shown for each vessel from vessel age selected to current time
- AIS: allows users to filter vessels based off AIS fields
- Ship Registry: allows users to filter vessels based off Ship Registry information



Naval Information Warfare Center
PACIFIC

Baseball Card Settings

- Select/Deselect Items
- History Trail
- DR Vector
- Vessel Details
- Add Vessel to Lists
- Download or Print Information

Baseball Card Settings

<input checked="" type="checkbox"/> Time	<input checked="" type="checkbox"/> Age	<input checked="" type="checkbox"/> Position (latitude and longitude)
<input checked="" type="checkbox"/> Speed	<input checked="" type="checkbox"/> Course	<input checked="" type="checkbox"/> Heading
<input checked="" type="checkbox"/> Length	<input checked="" type="checkbox"/> Beam	<input checked="" type="checkbox"/> Draft
<input checked="" type="checkbox"/> Navigation Status	<input checked="" type="checkbox"/> MMSI	<input checked="" type="checkbox"/> IMO Number
<input checked="" type="checkbox"/> Flag	<input checked="" type="checkbox"/> Call Sign	<input checked="" type="checkbox"/> Vessel Type

loloco Vision

Source: SATELLITE AIS
Time: 2020 Jun 16 22:06:56 UTC
Age: 0h 9m 18s ago
Position: 36° 28' 10" S, 21° 59' 46" W
Speed: 11.6 kts
Heading: 86°
Course: 86°
MMSI: 249947000
IMO Number: 9425148
Flag: Malta
Call Sign: 9HA2091
Ship Type: 7-Cargo
Length: 229 m
Beam: 36 m
Draft: 13.6 m
Navigation Status: 0-Underway(Engine)
Destination: Singapore
ETA: 07/10 @ 12:00 UTC

History Trail
DR Vector
Vessel Details
Add Vessel to List

34

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- Baseball Card
 - The pop-up display of vessel attributes can be customized in Baseball Card Settings
 - Toggle on/off Individual History Trail or DR Vector
 - Vessel Details provides a more in-depth report of known vessel attributes and the ability to export vessel data
 - Add Vessel to List allows user to add the vessel to an existing or a new vessel list
 - Alerts/Rules Indicates if a Vessel meets pre-established alerts or rules
 - The Warning Details icon displays warning details





Export Vessels

- Export the vessels in the screen view as a KML formatted file

Opening lists-export-vessel-list-2019-09-17_09-18.kml

You have chosen to open:

 **lists-export-vessel-list-2019-09-17_09-18.kml**
which is: XML Document (650 bytes)
from: blob:

What should Firefox do with this file?

Open with Office XML Handler (default)

Save File

Do this automatically for files like this from now on.

35

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- A KML file stores geographic modeling information in XML format
- Includes points, lines, polygons, and images
- KML files are used to identify and label locations, create different camera angles, overlay textures, and add HTML content
- Google earth is a common application that uses KML files



Naval Information Warfare Center
PACIFIC

Quick Filter

Quick Filter

Filter on these field types:

- MMSI
- IMO Number
- Vessel Name
- Destination

Edinburgh of the Seven Seas

36

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Introduction to SeaVision Interface Summary

- Identify the major areas and navigation of the interface to include:
 - Navigation Bar
 - Main Menu
 - Map (Quick List)
 - Dashboard
 - Search
 - Chat
 - Notifications
 - Communities/Personas
 - My Account
 - Map Background
 - Map Display Types
 - Custom Map Views
 - Show/Hide Active Filter
 - Latitude & Longitude
 - Map Options
 - Quick Filter



Questions?





Configure the SeaVision Interface

Lesson 2.2

07/01/2020

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Lesson 2.2 Learning Objectives

Upon successful completion of this lesson, the student will be able to:

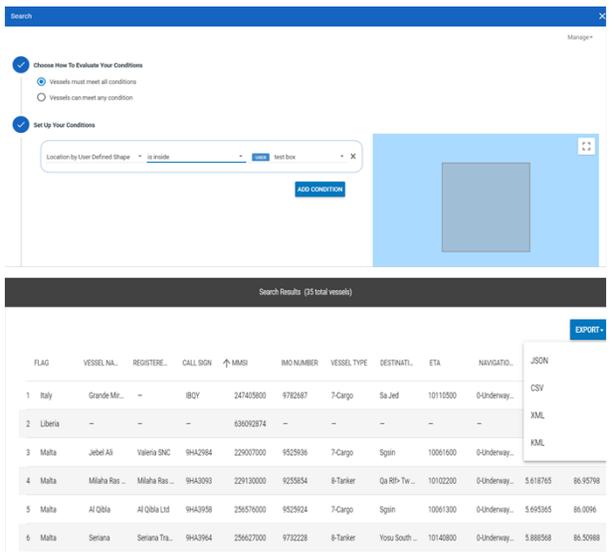
- Identify and configure the user interface to meet operational requirements
 - Searches
 - Chat/Messages
 - Map Menu (MY LAYERS - SHAPES, STATIC LAYERS, and MAP TOOLS)
 - Map Options (Map type, Custom views, Map Settings, Map Filters, Baseball Card Settings, and Exporting Vessels)
 - Dashboard (Rules, Alerts, Warnings, and Vessel Lists)





Search

- Searches provide the ability to execute a custom vessel query
- Searches can be saved and shared
- Results can be viewed on the map, exported, or saved to a vessel list



FLAG	VESSEL NA.	REGISTRE.	CALL SIGN	↑ IMO#	IMO NUMBER	VESSEL TYPE	DESTINATI.	ETA	NAVIGATIO.	EXPORT	
1	Italy	Grande M...	--	IBOY	247405800	9782687	7-Cargo	Sa Jed	10110500	0-Underway...	JSON CSV XML KML
2	Liberia	--	--	--	636092874	--	--	--	--	--	
3	Malta	Jebel Al	Valeria SNC	9HA2984	22907000	952936	7-Cargo	Spinn	10061600	0-Underway...	
4	Malta	Milaha Ras ...	Milaha Ras ...	9HA3093	22913000	925854	8-Tanker	Qa Rf- Tw ...	10102200	0-Underway...	5.618765 86.95798
5	Malta	Al Qbla	Al Qbla Ltd	9HA3938	22657600	952924	7-Cargo	Spinn	10061300	0-Underway...	5.695265 86.0096
6	Malta	Seriana	Seriana Tra...	9HA3964	22662700	972228	8-Tanker	You South ...	10140800	0-Underway...	5.888568 85.50988

3
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- Users are able to configure Search settings (Columns, Data Sources) before running a search
- Users can select which data sets the Search will be run against



Naval Information Warfare Center
PACIFIC

Search Cont.

Search Manage

Choose How To Evaluate Your Conditions

- Vessels must meet all conditions
- Vessels can meet any condition

Set Up Your Conditions

Vessel Type is 4X - High Speed Craft (HSC) X

ADD CONDITION



Choose The Time Period To Evaluate

Vessel Age 6 hrs No Maximum

Done!

SEARCH

4

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- A search in SeaVision may be specific enough to return one vessel or general enough to result in multiple matches
- Configure Searches:
 - Choose How to Evaluate Your Condition
 - Vessels must meet all conditions
 - Vessel can meet any condition
 - Set Up Your Conditions
 - Choose The Time Period to Evaluate
 - 1-24 hours
 - 1-30 days
 - No Maximum



Configure Chat Channels

- Community Channel
- Persona Channels
- Direct Message (DM) Channels

Chat Window Indicators

- Online Status Indicator
- User Count Indicator
- Unread Messages Indicator

The screenshot displays a chat window for the 'Pacific' community. It shows a message from 'SeaVision User' at 9:53AM stating 'SeaVision User joined the channel.' Below the message is a text input field labeled 'Write a message...'. To the right, a settings menu is visible, including 'Translation Settings' (Language: English), 'Disclaimer', and sections for 'Community' (with 57 users) and 'Persona' (with 1 user). A blue plus button is at the bottom right of the settings menu.

5

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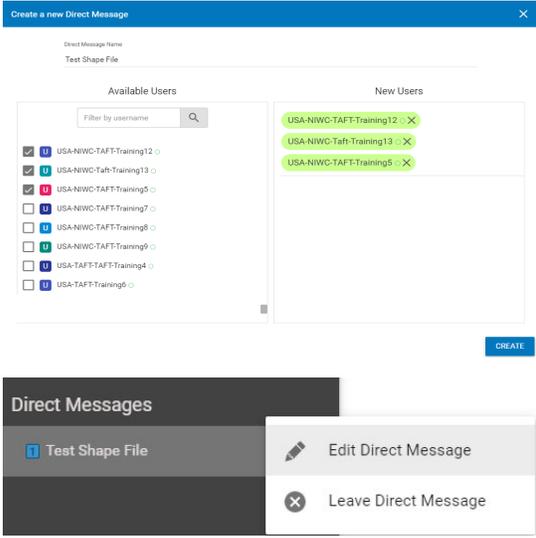
- Chat provides the ability to collaborate with other SeaVision users in a community and a persona. Channels are used to organize conversations across the community. Each community contains three types of channels:
 - **Community Channels:** Open to everyone in a community. When users are added to a community, they are automatically added to the Community Channel. When messages are posted in the Community Channel, they are visible to everyone in that community.
 - **Persona Channels:** For topics relevant to a persona and only visible to members of that persona. When users are added to a persona, they are automatically added to the corresponding Persona Channel.
 - **Direct Message (DM) Channels:** Private conversations among two or more people and only visible to members of the Direct Message. Any member of a Direct Message can add additional members. Members can choose to leave a Direct Message group at any time, but only SeaVision Admins can remove other members.





Messages

- Create a new Direct Message
 - Direct Message Name
 - Available Users
 - Create
- Direct Messages
 - Edit Direct Message
 - Leave Direct Message



6

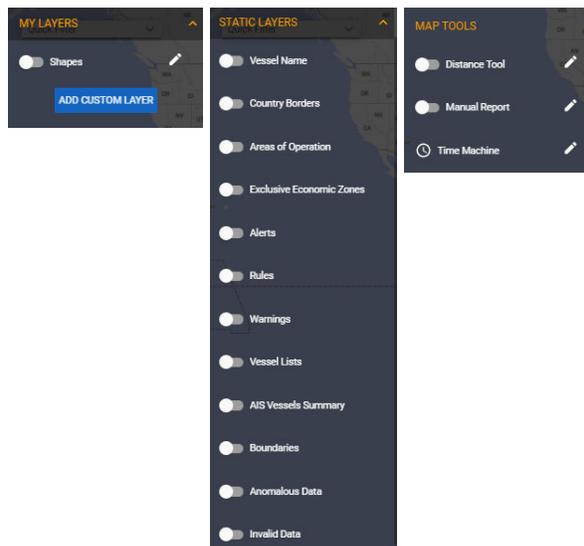
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Sending messages and replying to messages are important ways to keep conversations active within Chat



Map Menu (MY LAYERS, STATIC LAYERS, MAP TOOLS)

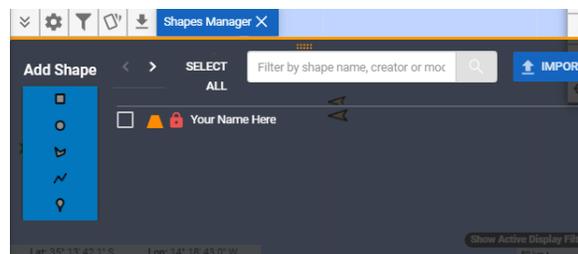
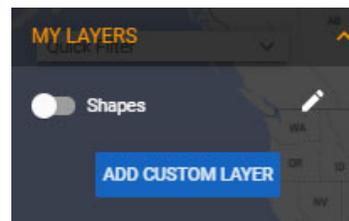
- MY LAYERS
 - Shapes
- STATIC LAYERS
 - Display various overlays on a map for quick visual reference
- MAP TOOLS
 - Distance Tool
 - Manual Report
 - Time Machine





User-Defined Shapes

- Shapes enable you to select and highlight a region of interest to track vessel activity
- User-defined shapes designate a geospatial area for Searches, Rules, and/or Alerts
- Supported Shape types include rectangle, circle, polygon, polyline, and marker



8

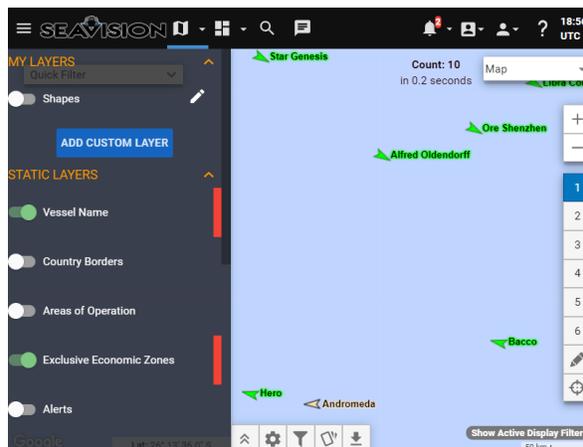
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- User-defined Shapes can be shared to a Persona or Community
 - SeaVision supports exporting and importing shapes in KML, JSON, and CSV formats
- Additionally, users can add Shape notes, which may also be shared to a Persona or Community



STATIC LAYERS

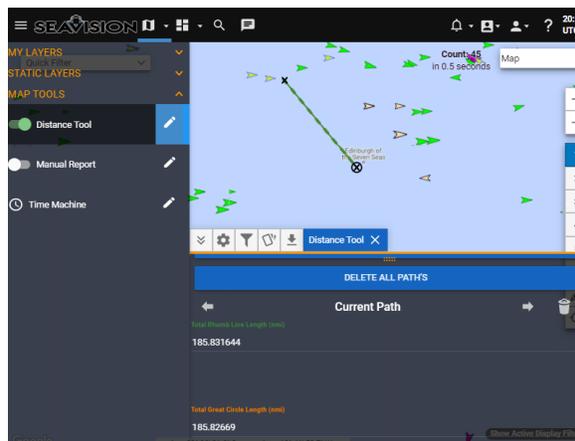
- Customizable Map View
- Display Map Overlays - Toggle On/Off





MAP TOOLS

- Distance Tool
 - Users can create a Rhumb Line (RL) or Great Circle (GC) to measure the distance between two or more points



10

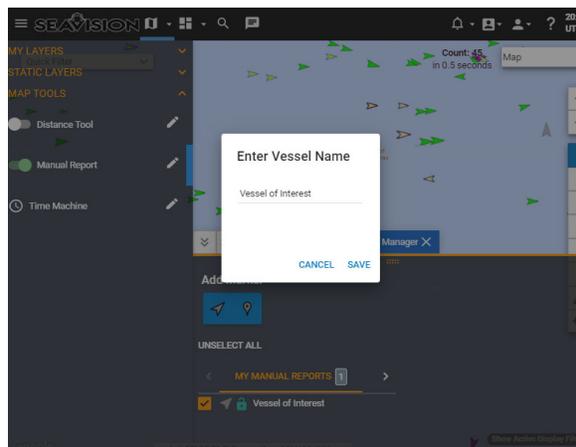
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Perform time and distance calculations
- Create single or multi-segment lines
- Attach line segments to any vessel icon on the SeaVision map
- Edit individual line segments



MAP TOOLS

- Manual Report
 - Report the location of a vessel or incident to display on the map



11

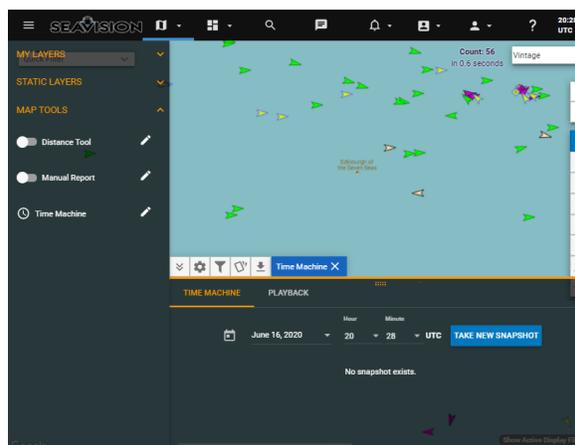
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- For both vessels and incidents, users must specify the date/time and position for the marker to be displayed on the map
- Specify heading, course, speed, and enable the marker to update based on dead reckoning
- Share to a Persona or Community
- Add notes to the manual report which may also be shared to a Persona or Community



MAP TOOLS

- TIME MACHINE
 - Snapshot of all AIS traffic for a specific date and time

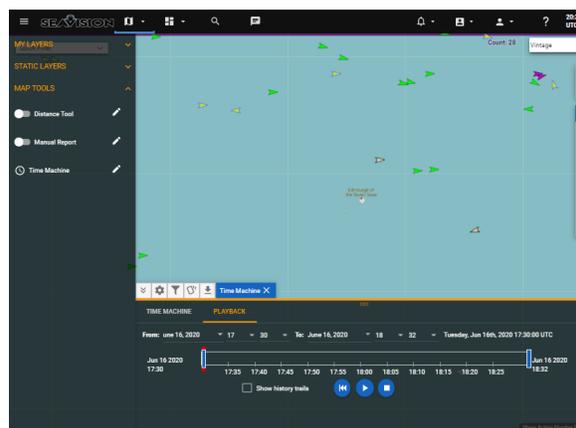


- A snapshot of all AIS traffic for specific date and time in UTC
- Data is available for up to one year prior to the current date and includes the previous 4 hours from the time selected



MAP TOOLS

- **PLAYBACK**
 - Animated playback of vessel's historical positions and movements over time



13

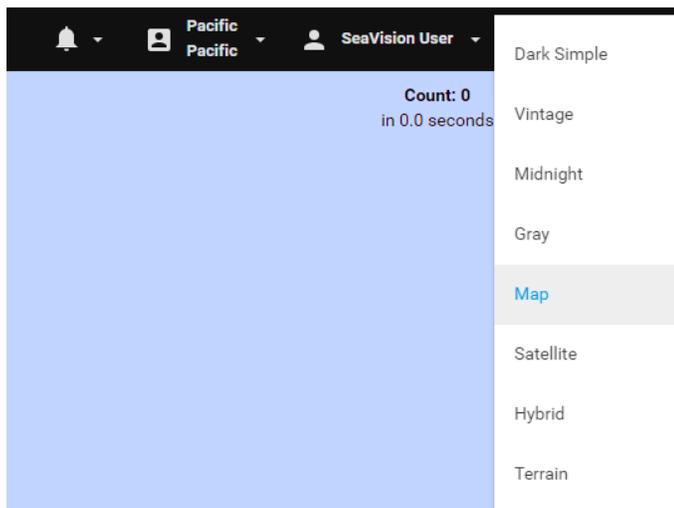
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- SeaVision **PLAYBACK** gives users the ability to view an animated playback of historical vessel positions over a period between 1 hour and 30 days
- Users are given the ability to scroll through selected time periods to view and analyze vessel data of the selected geographic area
- SeaVision **PLAYBACK** data is available for up to one year prior to the current date and can be used in conjunction with vessel filters, quick filters, and extended map filters



Map Types

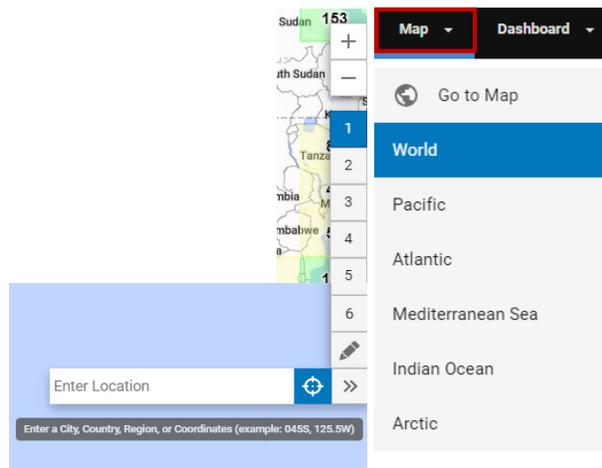
- Map Types
 - Dark Simple
 - Vintage
 - Midnight
 - Gray
 - Map (Default)
 - Satellite
 - Hybrid
 - Terrain





Custom Views and Jump to Location

- Custom Views
 - Six custom views may be set
 - Filters/zoom level saved
 - Quick access using Go To Map
- Jump to Location
 - Cities/Ports
 - Countries
 - Regions
 - Coordinates





Naval Information Warfare Center
PACIFIC

Map Options

- Map Settings
 - Map Refresh
 - History Trail
 - Dead Reckoning
- Map Filters
- Baseball Card Settings
- Export Vessels

16

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- Map Settings

- Map Refresh

- Delay: adjust the time between pan movements before reloading the page from 0 to 10 seconds
 - Interval: update the current locations of all vessels on the Map display. The rate can be set from 1 to 10 minutes

- History Trail Length

- Change the amount of time (1 to 90 days) of viewable historical vessel track data that is displayed on the Map

- Dead Reckoning

- A vessel's estimated position based on last AIS position, course, and speed

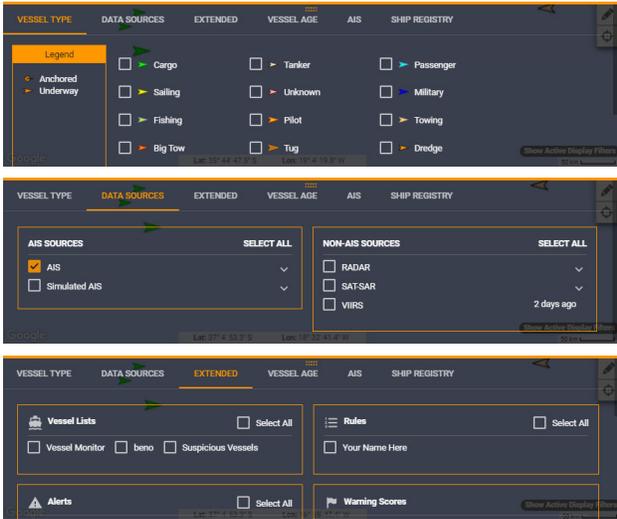




Naval Information Warfare Center
PACIFIC

Map Filters

- VESSEL TYPE
- DATA SOURCES
- EXTENDED



17

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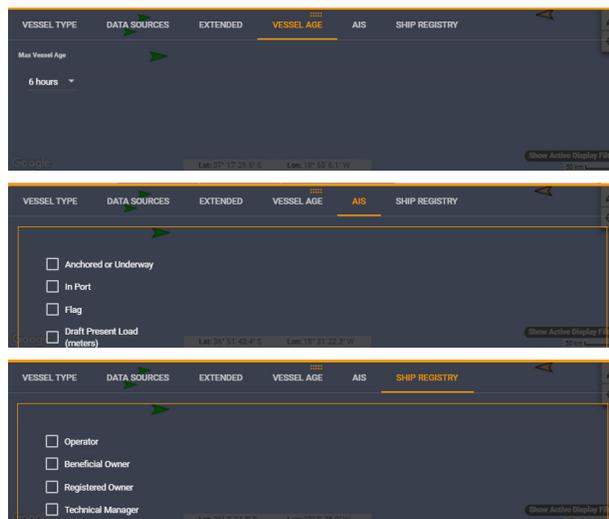
- Map Filters

- The Vessel Filters tab lists a variety of vessel-related filters within SeaVision, as well as several overlays that can be displayed on the Map. Users can run multiple filters simultaneously and can show vessels that match select criterion, user-defined rules and/or alerts, and saved "custom" vessels. This tab includes:
 - Filter by Vessel Type: an icon key that lets users select the types of vessels that they wish to see on the Map, as it defaults to showing all types
 - Data Sources: toggle on/off Data Sources
 - Extended: allows filters to be set by Vessel List, Rules, Alerts, Warning Scores, and Anomalies



Map Filters Cont.

- VESSEL AGE
- AIS
- SHIP REGISTRY



18

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- Vessel Age: changing this affects the age of vessel reports displayed. The most recent report will be shown for each vessel from vessel age selected to current time
- AIS: this setting allows users to filter vessels based off AIS fields
- Ship Registry: this field allows users to filter vessels based off ship registry information



Baseball Card Settings

- Select/Deselect Items
- History Trail
- DR Vector
- Vessel Details
- Add Vessel to Lists
- Download or Print Information

The screenshot displays the 'Baseball Card Settings' window, which is a grid of checkboxes for various vessel data fields. All fields are checked, including Time, Age, Position (Latitude and Longitude), Speed, Course, Heading, Length, Beam, Draft, Navigation Status, MMSI, IMO Number, Flag, and Call Sign, and Vessel Type. Below this is the 'loloco Vision' window showing a vessel's data card. The data card includes a small image of the vessel and a list of details: Source: SATELLITE AIS, Time: 2020 Jun 16 22:06:56 UTC, Age: 0h 9m 18s ago, Position: 36° 28' 10" S, 211° 59' 46" W, Speed: 11.6 kts, Heading: 86°, Course: 86°, MMSI: 249947000, IMO Number: 9425148, Flag: Malta, Call Sign: 9HA2091, Ship Type: 7-Cargo, Length: 229 m, Beam: 36 m, Draft: 13.6 m, Navigation Status: 0-Underway(Engine), Destination: Singapore, ETA: 07/10 @ 12:00 UTC. A red box highlights the 'History Trail', 'DR Vector', 'Vessel Details', and 'Add Vessel to List' options on the right side of the data card.





Export Vessels

- Export the vessels in the screen view as a KML formatted file

Opening lists-export-vessel-list-2019-09-17_09-18.kml

You have chosen to open:

 **lists-export-vessel-list-2019-09-17_09-18.kml**
which is: XML Document (650 bytes)
from: blob:

What should Firefox do with this file?

Open with Office XML Handler (default)

Save File

Do this automatically for files like this from now on.

OK Cancel

20

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- A KML file stores geographic modeling information in XML format. It includes points, lines, polygons, and images. KML files are used to identify and label locations, create different camera angles, overlay textures, and add HTML content
- Google earth is a common application that uses KML files



Rules Dashboard

- Rules are user-created vessel searches, configured to run on a schedule
- The analytics tab provides a graph displaying the number of vessels matching user's Rule over time

MMSI	VESSEL NAME	DATE TIME GROUP
1 100000000	Y806 Navy Tug	241840Z,JUN20
2 100000001	Tara Lee	241716Z,JUN20
3 100000012	9v	241732Z,JUN20
4 100003961	M/Tug Iligan Bay	241845Z,JUN20
5 100021665	Tanua122	241839Z,JUN20
6 100021674	Tanua121	241839Z,JUN20
7 100021685	Tanua119	241837Z,JUN20
8 100021709	Tanua117	241845Z,JUN20
9 100021969	Tanua118	241847Z,JUN20
10 1002	Ancon	241844Z,JUN20
11 100896954	Changlong5	241659Z,JUN20
12 100900000	Hoem Ais Test Ship	241730Z,JUN20
13 100920027	Jgjm Ais Test Ship	241838Z,JUN20

21

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- Rules query the same data set as the map's detailed Search; however, Rules are run in the background and a user can assign scores (weight) to them
- Rules dashboard allows you to add new rules, run rules, export results from the rules, map the results of your rules, manage rules, as well as view a table of all vessels matching your rules
- Can edit, disable, enable, renew (before or after the 30-day expiration), and delete rules



Creating a New Rule

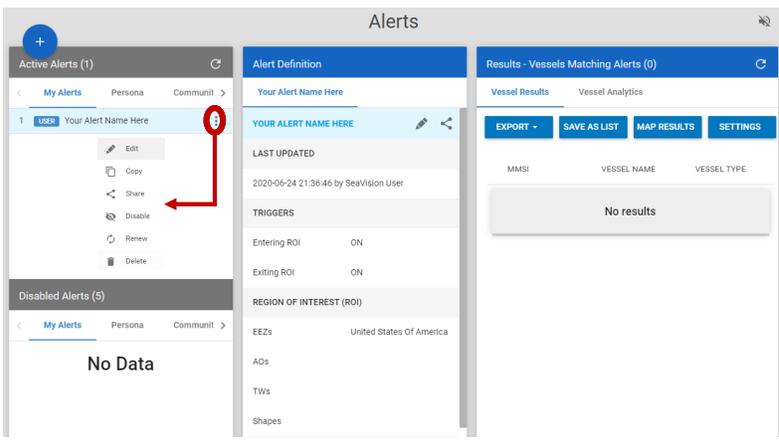
- Conditions can be evaluated so that the results meet:
 - All conditions
 - Any condition
 - In this option, conditions can be weighted individually to reflect emphasis on some over others
- Users can choose for Rules to be evaluated:
 - Daily
 - Every 12 hours
 - Every 6 hours
 - Every 3 hours
 - Every 2 hours





Alerts Dashboard

- Alerts track and analyze vessel activities in real time
- Alerts are run against terrestrial and satellite AIS data feeds



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- The analytics tab provides a graph displaying the number of vessels matching user's Alerts over time



Creating a New Alert

- Alert triggers can be based off a Region of Interest or an AIS Field Change
- Alerts can be configured to include additional vessel filters in the results
- Alerts can be sent to alert subscribers, just the user, or not at all

24

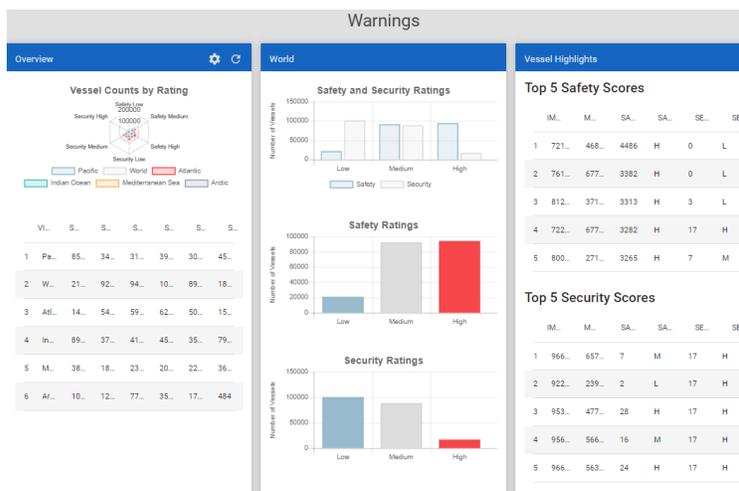
DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

- Alerts can be triggered by:
 - a vessel only entering, only exiting, or entering and exiting a region of Interest
 - Regions of Interest can be defined by Area of Operations (AO), Economic Exclusion Zones (EEZ), Territorial Waters (TW), or user-defined Shapes
 - An AIS Field Change in:
 - Name
 - IMO Number
 - Vessel Type
 - Call Sign
 - Length
 - Beam
- Users can receive emails with matching alerts to an email address or email distribution list



Warnings Dashboard

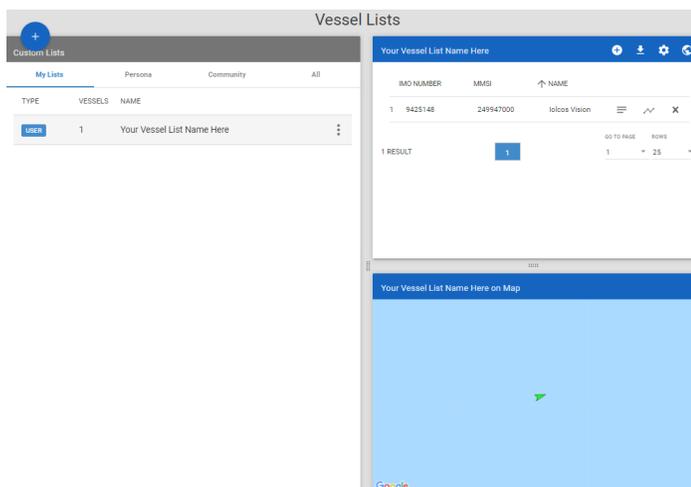
- Overview
 - Vessel Counts by Rating
 - Custom map views populate automatically
 - Warnings Scores are refreshed every 24 hours
- Safety and Security Ratings
 - Low, Medium, or High
- Vessel Highlights
 - Top 5 Safety Scores
 - Top 5 Security Scores





Vessel Lists Dashboard

- Create custom lists by Maritime Mobile Service Identity (MMSI) or International Maritime Organization (IMO) numbers
- Vessel Lists can be used as additional filters for:
 - Rules
 - Searches



26

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- Users can use Vessel Lists to save ships they are interested in tracking or reviewing
- Users can create multiple lists and add vessels to a list by MMSI or IMO number
- Vessel Lists can also be used as an additional filter criteria for user-defined Searches or Rules



Creating Vessel Lists

- Results of a Search, Rule, or Alert can be saved as a new vessel list
- May be added to a list from the vessel Baseball Card
- May be added by manually entering the MMSI number or IMO number via the add vessel button on the Vessel List Dashboard

Search Results (15492 total vessels)

EXPORT - SAVE AS LIST MAP RESULTS

FLA...	VE...	RE...	CA...	↑ MM...	IM...	VE...	DE...	ETA	NA...	LAT...	LO...	AGE	TIM...
1	Pan...	Dai...	Oce...	3FD...	200...	881...	-	-	-	99	199	1h1...	202...
2	Pan...	Yu...	Cyg...	3EF...	200...	881...	-	-	-	99	199	1h1...	202...

Your Vessel List Name Here

IMO NUMBER	MMSI	↑ NAME
1	9425148	249947000 lolcos Vision

1 RESULT

GO TO PAGE ROWS
1 25

lolcos Vision

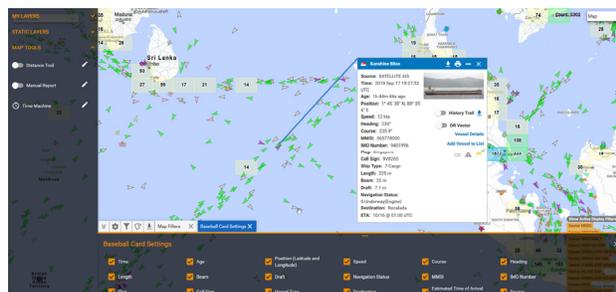
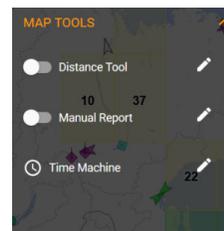
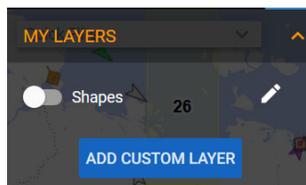
Source: SATELLITE AIS
Time: 2020 May 13 01:29:32 UTC
Age: 0h 15m 24s ago
Position: 0° 49' 9" N, 3° 56' 5" W
Speed: 10.7 kts
Heading: 76°
Course: 80°
MMSI: 371233000
IMO Number: 9166211
Flag: Panama
Call Sign: 3FLD
Ship Type: 7-Cargo
Length: 177 m
Beam: 29 m
Draft: 8 m
Navigation Status: 0-Underway(Engine)
Destination: Cm Dia
ETA: 05/16 @ 16:00 UTC

Add Vessel to List



User Interface Configuration Summary

- Searches
- Chat/Messages
- Map Menu (MY LAYERS, STATIC LAYERS, and MAP TOOLS)
- Map Options (Map Settings, Map Filters, Baseball Card Settings, Exporting Vessels)
- Dashboard (Rules, Alerts, Warnings, and Vessel Lists)





Questions?





SeaVision Operator

Unit 2 Review

07/01/2020

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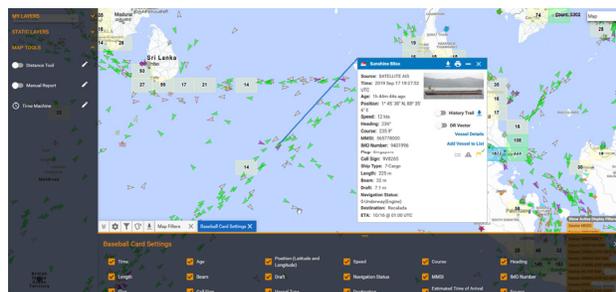
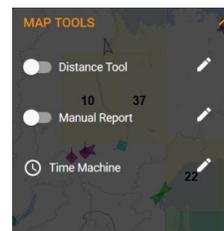
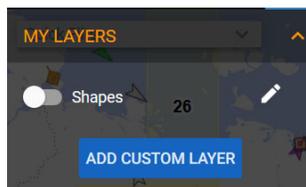
Introduction to SeaVision Interface Summary

- Identify the major areas and navigation of the interface to include:
 - Navigation Bar
 - Main Menu
 - Map (Quick List)
 - Dashboard
 - Search
 - Chat
 - Notifications
 - Communities/Personas
 - My Account
 - Map Background
 - Map Display Types
 - Custom Map Views
 - Show/Hide Active Filter
 - Latitude & Longitude
 - Map Options
 - Quick Filter



User Interface Configuration Summary

- Searches
- Chat/Messages
- Map Menu (MY LAYERS, STATIC LAYERS, and MAP TOOLS)
- Map Options (Map Settings, Map Filters, Baseball Card Settings, Exporting Vessels)
- Dashboard (Rules, Alerts, Warnings, and Vessel Lists)





Questions?



SeaVision



Operator Course

Knowledge Check Unit 1

Important Note: This training material provides hands-on courseware developed for NIWC (Pacific). The information herein provides simulated real-world capabilities of SeaVision.

July 2020



Knowledge Check Unit 1

This knowledge check will help the student better understand their grasp of the key learning objectives presented so far. Students are encouraged to refer to their notes and the SeaVision application.

The following objectives are included in this knowledge check:

- 1.1 SeaVision Overview
- 1.2 Introduction to Maritime Awareness
- 1.3 SeaVision Data Sources
- 1.4 SeaVision Communities and Account Creation
- 1.5 Data Fusion

Instructions

Students may record their answers in a text file on their pc/laptop. Upon completion, the instructor will review all the correct answers to the knowledge check.

1. What term is defined as all areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances?
2. What unclassified network provides near real-time AIS data to the SeaVision application?
3. What is the average delay for AIS data?
Terrestrial: _____
Satellite: _____



4. What SeaVision data source is used as the criteria and data set for the automated safety and security scores?

5. What SeaVision data source has the following benefits and limitations?

Benefits	Limitations
Very Large Coverage Area	Lower Resolution than Electro-Optical Images
Works in all weather conditions	Not picture quality
Well suited for ship detection	Ship must have reflected surfaces
Able to "see" through clouds	Time delay and infrequent coverage

6. Visible Infrared Imaging Radiometer Suite (VIIRS) is able to detect vessels based on satellite sensing of electric lighting; What was the primary mission it was developed for?

7. What is the average delay for VIIRS data into SeaVision?

8. SeaVision operators can share advanced searches, rules, alerts, shapes, and vessel list within their community and persona. Circle the correct answer. True or False

9. Which organization provides a unique 7-digit number for the enhancement of maritime safety, pollution prevention, and the prevention of maritime fraud?

10. When AIS manipulation is suspected, what are some considerations the operator should investigate before deciding it is intentional spoofing?

SeaVision



Operator Course

Knowledge Check Unit 2

Important Note: This training material provides hands-on courseware developed for NIWC (Pacific). The information herein provides simulated real-world capabilities of SeaVision.

July 2020



Knowledge Check Unit 2

This knowledge check will help the student better understand their grasp of the key learning objectives presented so far. Students are encouraged to refer to their notes and the SeaVision application.

The following objectives are included in this knowledge check:

- 2.1 Introduction to SeaVision User Interface
- 2.2 Configure the SeaVision User interface

Instructions

Students may record their answers in a text file on their pc/laptop. Upon completion, the instructor will review all the correct answers to the knowledge check.

1. All ships have a warning score? True or False
2. Is a Vessel's MMSI number a unique identifier? Yes or No
3. What SeaVision tool will send you an email alert when a ship enters a specific area?
4. What is the maximum number of days for displaying a vessel's history trail?
5. The SeaVision map is not displaying any vessels/tracks; What two menu options should you verify on the user interface?
6. What SeaVision tool is used to enter a custom vessel of interest on the map?
7. List five of the 10 static layers that are available to the operator for display.



8. Under what menu heading can you find the Distance Tool, Manual Report, and Time Machine?

9. Which map setting provides a visual overlay on the map to display where **all** vessels may be based on the dead reckoning calculation considering the time elapsed from the vessels last reported position, heading, and speed?

10. Vessel Lists can also be used as an additional filter criteria on a user-defined Search. True or False

SeaVision



Operator Course

Operator Job Sheets

Important Note: This training material provides hands-on courseware developed for NIWC (Pacific). The information herein provides simulated real-world capabilities of SeaVision.

July 2020

Prerequisites

To start, you must have the following to gain access to SeaVision:

- **A computer with a working internet connection and web browser (Chrome recommended).**
- **An active email address that you can access without issue.**
- **A government maritime-focused career or a government sponsor with a maritime-focused mission.**

Introduction

Now that you understand what SeaVision is, what it looks like, what it can do, and how to share information:

Request an account and verify your email address

- Go to the SeaVision homepage at <https://seavision.volpe.dot.gov> to request an account. The SeaVision software disclaimer displays. Read and accept the terms and conditions.
- On the SeaVision login screen, click Request New Account. A display appears, enter your active email address.
- Enter a current, professional (preferably from a governmental entity) email address for yourself and then click Register.
- Complete the captcha. The screen will prompt you to *Check your email for further instructions*. You will receive a registration email from “SeaVision Bot” with a link to verify your email address.
- Click the link to continue the account request process. (Note: if you do not see the email in your inbox, check your SPAM folder).
- Fill in the New Account Request form with your profile information, requested community, and POC information in the Referral Section. Once complete, click Send Request to submit your Account Request.
The request will go directly to the Community Manager for approval. (Note: Visit the Communities page <https://info.seavision.volpe.dot.gov/communities> for more information on Communities in SeaVision.)
- Once a Community Manager approves your request, you will receive an email confirmation with your login credentials.

Changing your password, information, and preferences

After a successful login, though not required, you can:

- Change your password to ensure password integrity and prevent unauthorized access.
- Verify or update your contact information.
- Change your SeaVision *Rules* and *Alerts* results table preferences.
- You can perform all these actions within the My Account section of the **User** drop-down located in the black navigation bar.
- Additionally, the *My Communities* > table allows you to see which community or communities you belong to, as well as request access to other communities. This table also gives you a brief description of each assigned community’s mission, as well as the number of users within your community.



- To change your password, click Edit Password. Changing your username is accomplished similarly by selecting Edit Username. To edit your personal information, including your email address and contact information, click Edit Profile.

Optional Multi-factor authentication

The *optional* Multi-Factor Authentication (MFA) is a simple best practice that adds an extra layer of protection on top of your username and password. With MFA enabled, when you sign in to your SeaVision account, you will be prompted for username and password (the first factor—what you know), as well as for an authentication code from your MFA device (the second factor—what you have). Combined, these multiple factors provide increased security for your SeaVision account.

- To activate the extra account security with Multi-Factor Authentication (MFA), you will need to install a multifactor app such as Google Authenticator.
- Google Authenticator is the preferred MFA app because it is free and widely available on Android, iOS/Apple, BlackBerry, Windows mobile devices, and other third-party APIs/Apps. Google Authenticator is a multifactor app for mobile devices that generates timed codes used during the 2-step verification process.
- To use Google Authenticator, install the Google Authenticator application on your mobile device.
- Once you have a multifactor app installed, click *Setup Multi-Factor Authentication* button.
- You will now see a QR Code needed to activate MFA.
- Use the Google Authenticator app to scan the QR code.
- When the Google Authenticator app displays a 6-digit passcode, enter it in the QR Code field and click Submit.
- You will see the button is now *Update Multi-Factor Authentication* indicating the setup was successful. (Note: if you still see the *Setup Multi-Factor Authentication* something went wrong. Go back to step 2 and repeat the steps to setup.)
- Finally, to disable MFA on your account, click *Update Multi-Factor Authentication*, enter the QR Code and click *Submit*.

Change your username

- You can change your SeaVision username by clicking on **My Account** from the User Menu drop-down.
- This takes you to the **Manage Account** display, which is a landing page to get to manage your profile, community membership, and other user preferences.
- Click on the left-most panel **My Login and Profile**.
- Click **Edit Username**.
- Enter the new **username** you will use at login and click **Update Username**.
- When prompted to log off and log back in, click the **Ok, Log Off Now!** button.
- You have now successfully changed your username and can use it when you log back in.
- For functional accounts, it is important to notify the other users of that functional account when the username is changed. While it is still possible to login using email as username, the old username will no longer work

Configure Searches

The Search feature provides the ability to execute an ad-hoc query. Searches can be saved and shared. The results can be exported, viewed on the map, or saved to a vessel list.

- Navigate to Search from the Navigation Bar, under Manage, select Settings.
- Choose your Columns and Data Sources to filter the results.
- At the Search dialog, setup your conditions and period to evaluate.
- View the search results. Save the results as a list as: *Student(yourlastname)*
- In the Search dialog, enter the search criteria for the custom list you just created.
- Export or Save the list.

Configure Chat

Chat provides the ability to collaborate with other SeaVision users in your community and persona. Each community contains three types of channels: a Community Channel, Persona Channels, and Direct Messages.

- Navigate to Chat from the Navigation Bar.
- Select a persona where your other classmates have access. Send a message to a few fellow students.
- Create a new Direct Message. Enter a Direct Message name and select other classmates from the list and click or select Create.
- Type a message, add an available file, and click send.

Configure Map Menu (My Layers, Static Layers, Map Tools)

- In My Layers, create a rectangle shape near Pattaya City, Thailand. Name it Pattaya.
- Change the shape properties color to yellow. From here you can download the shape, save it, or share it to your persona or community.
- Under Static Layers, select three random layers.
- Select Map Tools. Using the distance tool, create a map path between two random ships.
- Select Manual Report. Create a new ship and add notes. Add SOG and COG to view Dead Reckoning. Create an incident marker on the map and give it the name: Oil spill.
- Select Time Machine. Navigate to a map view of interest. Use the timeline controls to playback the vessel movement that occurred from the start to end time.

Configure Map Options

- Open Map Options. Select five random vessel types.
- Under Data Sources, select both AIS and Non-AIS sources.
- Under Extended, select the vessel list you previously created.

Configure Map Settings

- Open Map Settings. Configure the Map Refresh to 2 seconds, 5-minute intervals, with a 5 day-length history trail.

Configure Baseball Card Settings

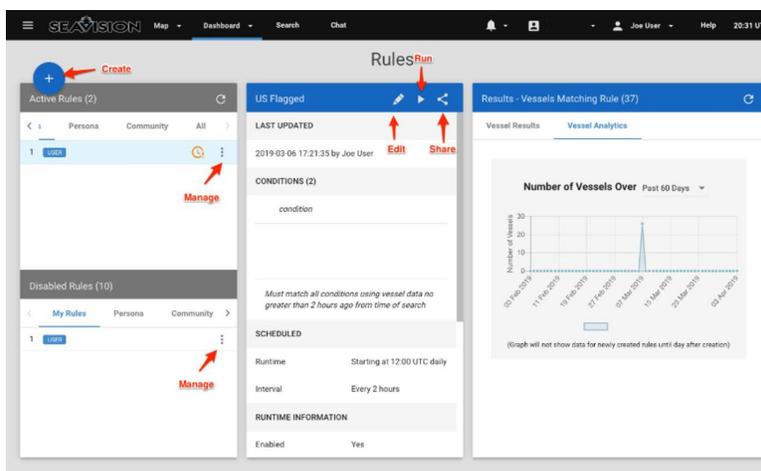
- Open Baseball Card Settings. Select/deselect the information that you wish to see displayed on the baseball card. Select a vessel shape to view the results.

Configure Rule settings

Within the Rules Dashboard you can create new rules, edit existing rules, run a rule on demand, and manage active and expiring rules.

Rule results are displayed in the table in the right panel. Settings allow you to choose columns to display in the results table. You can map the results of your rule, save results to a vessel list for tracking, and/or view the number of vessels matching your rules over time via the Vessel Analytics tab.

SeaVision supports exporting rule results to a KML, XML, JSON, or CSV file. Rules can also be shared to a Persona or Community.



- From the Navigation Bar, click Dashboard and select Rules.
- Create a new rule and name it *Student(yourlastname)Rule*. Choose your conditions and the evaluation time and interval.
- Run the Rule and view the results. Export, save, share, or view your results.

Configure Alert settings

Alerts are notifications set up for all vessels entering or exiting a region of interest. Alerts are run against near real-time data sources, i.e. terrestrial and satellite AIS data feeds.

- From the Navigation Bar, click Dashboard and select Alerts.
- Create a new Alert and name it *Student(yourlastname)Alert*. Choose your triggers, Region of Interest (ROI), type of vessels to match, and notification preferences. Turn on the Audio notification.
- View your vessel results Analytics.
- Share this Alert with other users in your persona.
- Export, save, share, or view your results.



Download/Share/Display Vessel List

Vessel Lists enable you to keep track of ships you are interested in tracking or reviewing. You can create multiple lists and add vessels to a list by MMSI or IMO. The results of a Search, Rule or Alert can be saved as a new list. Vessel Lists can also be used as additional filter criteria for a user-defined Search or Rule.

Column settings allow you to choose columns to display when viewing vessel lists. Clicking on a row in the vessel list opens the vessel details. You can also turn on history trails for an entire list or individual vessels in a list. The mini map displays an overview of current vessel positions on the map.

SeaVision supports exporting the list to a KML, XML, JSON, or CSV file. Vessel lists can be shared to a Persona or Community. Additionally, you can add, and view vessel notes which may also be shared to a Persona or Community.

- Create a new Vessel list and name it as: *Student(yourlastname)*
- Select MMSI or IMO from the list and enter a list of MMSI or IMO numbers. Multiple entries must be separated by a comma.
- View your selected ships on the map.
- Add additional vessels if needed.
- Select / deselect other attributes as required from the List Settings.
- Share your custom list with anyone in your persona.
- Export your custom list as a KML file.

Configure Time Machine and Playback

SeaVision Playback provides the ability to view animated playback of historical vessel positions over a period between one hour and 30 days. Users are given the ability to scroll through selected time periods to view and analyze vessel data of the selected geographic area. SeaVision Playback data is available for up to one year prior to the current date, and can be used in conjunction with vessel filters, quick filters, and extended map filters.

- From the Navigation Bar, click Menu and then Map Tools. Enable Time Machine.
- Zoom in on the map to select Fetch Playback Data for this Area.
- Show history trails of the vessels displayed on the map.
- From the Playback tab, adjust the slider controls for a 6-hr. window. Use the blue scrubber bars along the timeline to adjust the playback time.
- From the Time Machine tab, take a snapshot of the current map.

Configure Manual Report

Manual Reports allow you to report the location of a **vessel** or **incident** to display on the map. For both **vessels** and **incidents**, you must specify the date/time and position for the marker to be displayed on the map. On a **vessel** Manual Report, you can also specify **heading**, **course**, and **speed** and enable the marker to update as time progresses based on dead reckoning.

Manual Reports can be **shared** to a **Persona** or **Community**. Additionally, you can add **notes** to the manual report which may also be shared to a **Persona** or **Community**.

- From the Navigation Bar, click Menu and then Map Tools. Enable Manual Report.
- Create a Manual Report for a vessel. Place it on the map, then give it a name. It will be listed in Manual Reports Manager.
- Edit the Manual Report by clicking on the Report name. View Properties and zoom in on the marker.
- Edit the Properties and change the following:
 - Latitude and Longitude
 - Heading
 - Course Over Ground
 - Speed Over Ground
- Set Date/Time to 2 days and 7 hours earlier.
- Enable DR Position on a Manual Report by selecting the DR Position toggle.
- Adjust the map to see the DR Position for 2 days (48 hrs.). This is the DR Staleout Age.
- Change the DR Staleout Age to 1 day.
- Change the Speed Over Ground to 10 knots.
- Share the Report with Anyone in your Persona and Community.

Prerequisites

Completion of Operators Course Unit 1 and Unit 2.

Introduction

Have the students perform each task listed in the order they are presented.

Operator Course Injects – Scenario 1 – IUU Fishing

Inject Sequence	Time	From	To	Content	Expected response	Product to be Produced	Notes
1.1	09:15	PHL Fisheries	NCWC	We have identified possible IUU fishing activity taking place 50-60 nautical miles due West of Manila.	Information is logged. Region of interest is drawn on SV Map. Identify all vessels in this region.	Screenshot showing all potential fishing vessels in the general area.	SV Map tools, vessel search by type
1.2	09:30	Local fishing vessel	NCWC	Report from local Fishing Vessel that they have seen a suspicious vessel with foreign flag heading North near latitude 14°, 39'N, longitude 119°, 40'E	Information is logged.	Manual position report in SV for suspicious fishing vessel including time of report, Lat/Lon.	SV Map tools
1.3	09:45	Local merchant vessel	NCWC	Report from a merchant vessel that they have seen a suspicious vessel matching previous description near 14°, 34'N, longitude 119°, 47'E. Additional information is that vessel is ~50m in length, blue and white, appears to be long liner. Name on vessel is Wen Teng No. 688	Information logged, plot newly reported position in SV	Produce manual position report with all info, continue to perform DR.	SV Map tools
1.4	10:30	PHL Fisheries	NCWC	No new information available. Please provide updated possible location of suspect vessel and share with fisheries	Identify updated region of interest (potential region of suspect vessel location).	Draw the ROI - circular region of where the suspect vessel might be now using prior position report, time passed and speed/heading of the suspect vessel in previous report ("region of uncertainty").	SV Map tools



1.5	10:45	PHL Fisheries	PHL Air Force	Request MPA support to investigate IUU fishing activity.	Develop MPA plan including time to area, time to complete patrol.	Produce a screenshot showing the region of interest and available law enforcement vessels in that region. Add those vessels to your custom vessel list	SV Map tools, vessel search
1.6	11:30	PHL Air Force	NCWC	MPA visually observed suspect vessel engaged in rendezvous with another large vessel near position lat 14 46, long 33 31E, larger vessel is ~150m vessel, name Lafayette, both heading North/Northwest	Update manual position reports, do research on new vessel	Produce screen shot showing new manual positions, any info on new vessel	
1.7	13:00	PHL Fisheries	NCWC	Request for a Maritime patrol boat to interdict and board suspect IUU fishing vessel	Develop patrol vessel operation/boarding of vessel.	Produce screen shot showing time to arrive, operational plan to interdict vessel.	SV Map tools. Data sharing
1.8	13:15	Local fishing vessel X	NCWC	Received information that the fishing vessel captain and several crew have escaped on another vessel. Vessel is flagged in Panama and has destination Jingtang.	Information is logged.	Perform search to find vessel	SV Map tools
1.9	13:30	Coast Guard	NCWC	Both vessels boarded. Approximately 2,000 tons of pirated fish found onboard worth \$12M	Log details, patrol boat name, time of departure, crew size etc.	Complete scenario	SV Maps



Operator Course Injects – Scenario 2 – Search and Rescue

Inject Sequence	Time	From	To	Content	Expected response	Product to be Produced	Notes
2.1	09:00			National weather service: Tropical Storm is quickly approaching Philippines SAR area. Center of the storm is currently at lat 13.33 N, 128.39 E, heading W/NW. Sustained winds of 30m/s, moving W/NW at 35 km/hr., radius of 100km	Information is logged. Center of adverse weather conditions is drawn on SV Map. Identify all vessels in this region.	Screen shot showing the potential storm region at the moment. Identify all potential vessels in the area. Add vessels to the custom vessel list.	SV Map tools
2.2	09:15			National Weather Service: Second weather report received. Typhoon warning is issued. Center of the storm is forecast to be at Lat 20° 19' N /Lon 123° 30' E at 0900 tomorrow, affected region is anywhere within 120 km radius of the center. Storm expected to strengthen to category 5 within the next 24 hours.	Information is logged.	Screen shot showing the updated location of the region affected by the storm. Identify all potential vessels in the area. Add vessels to the custom vessel list.	SV Map tools
2.3	09:30			Report received that vessel carrying hazardous cargo may be in the future effected area. Request to identify and inform all vessels carrying hazardous cargo to immediately maneuver around storm area or transit to port.	Information is logged	Search for hazardous cargo vessels is performed in the area. Screen shot showing hazardous cargo vessels in the area is produced.	Search tools
2.4	09:45			Updated weather report received. The storm is currently centered at 19°, 47'N, 121°, 9'E, moving North/North East with wind speeds of 130 kts. Storm front is currently 120km wide.	Information is logged.	Draw region showing the potential path of the storm. Identify all vessels in the path of the storm, add to custom vessels list.	SV Map tools
2.5	10:00			Distress call received. Merchant vessel with call sign of 3FBB3 has experienced mechanical breakdown and is requesting assistance/ evacuation. The vessel is reporting loss of one engine, and minimal engine capability on second engine. Locate the vessel, identify size of crew for rescue vessel request.	Information is logged, rescue team is alerted to be on standby	Plot the position of the vessel in distress in SV. What is distance and time to deploy patrol aircraft, helicopter, patrol boat to the vessel in case that search and rescue mission is deployed?	SV Map tools
2.6	10:15			This is Merchant Vessel Mighty Gloria, currently at 20.2N, 122.1E. We were hit by lightning, our electrical systems sustained damage. We are taking on water and require immediate assistance. We also have a fire onboard and are starting to capsizes. Are there any vessels in the area capable of providing immediate assistance and take the crew aboard?	Information is updated	Vessel's position is updated in SV. All vessels in the area are screened for ability to provide help to the vessel in distress. How to identify vessel's contact information?	SV Map tools, search tools



PACIFIC



Job Sheet

SeaVision Operator Course

3.1 Scenario Injects

2.7	11:15	1 hour later: Coast Guard Administration (CGA): This is CGA Taiwan. May we offer assistance with "Atayal Star" or "Mighty Gloria". Requesting for updated possible positions of the Atayal Star and Mighty Gloria to correctly vector rescue vessels. Please provide area of possible locations for each vessel. Wind is 100 knots, wind direction is North. Take wind speed and direction into account. Draw search areas.	Draw "region of uncertainty" of where the vessel might be at this moment	Screenshot showing the "region of uncertainty"	SV Map tools
2.8	11:30	All crew aboard Atayal Star and Mighty Gloria have been rescued!			
2.9	11:45	Weather service reports that the storm has moved out of the area. Forecast for tomorrow is sunny and calm.	Log the details of the weather report	None	

Operator Course Injects – Scenario 3 – Illegal Smuggling

Inject Sequence	Time	From	To	Content	Expected response	Product to be Produced	Notes
3.1	13:30			We have information that a possible Illegal smuggling vessel has destination port of Port Klang.	Information is logged. Search is performed. All vessels matching criteria added to Custom Vessel List.	Screenshot showing all vessels in the reported area.	SV Map tools
3.2	13:35			Received a report from local pleasure craft spotting a large vessel with flag of Panama that a received suspicious package from another small boat. Large Vessel is rusty and falling apart. Conduct an appropriate search and look for vessels with High Safety score. Once a vessel is identified, research its violations history.	Perform the search in the area for vessels of type "bulk carrier"	Screenshot showing all vessels of type "bulk carrier" in the region.	Search tool
3.3	13:45			Report from a local vessel indicates they saw a suspicious vessel on June 24 conducting small boat transfers when the vessel was departing from Port Dumai Indonesia	Information is logged.	Manual position report in SV for suspicious vessel including time of report, Lat/Lon.	SV Map tools
3.4	14:00			Request a report of all High-Safety score vessels with the last Port of Call from Dumai Indonesia. Produce a spreadsheet in csv format.	Add all vessels in region matching description to custom vessel lists, add notes and share with group.		SV Map tools, Data sharing



3.5	14:05	Request monitoring and immediate notification of all vessels entering/exiting the Port Klang.	Set up automated alert for this case of suspected Illegal Smuggling to show all vessels entering/exiting ROI	Alerts set/Receive notifications	Automated Alerts
		Additional Information, The Vessel of Interest picked up containers of drugs in HALDIA PORT, India approximately 2 weeks ago. Identify the vessel's name and MMSI.			
3.6	14:15	Request for Maritime Patrol Aircraft (MPA) support to obtain VID of suspect vessel.	Contact aerial support authority	Share the ROI with the group/Aerial support authority	SV Map tools
3.7	15:15	Suspect vessel matching the description from the cargo vessel report is sighted at lat 2° 24' 19" N , lon 101° 42' 44" E June 26 at 04:35:20	Information is logged. Updated position is shown on SV Map	Screenshot showing suspected vessel updated position and other vessels in the area. Vessels in the area are added to the custom vessel list.	SV Map tools
3.8	15:30	Request VBSS Team board vessel and perform inspection.	Search for military or law enforcement vessels in the region.	Screenshot showing available patrol boats in the area	Search tool
3.9	15:45	Asia Aspara has been boarded. Suspicious bananas found. Approximately 300 tons of drugs found on board.			SV Map tools

Introduction

Have the students perform each task listed in the order they are presented.

Task - Custom views

- Use Jump to Location and edit Custom Views 1,2 and 3 using the areas:
 - Malaysia
 - Penang
 - Sabah
- Turn on AIS data sources, change the Max Vessel Age on Map Filters to 1 day and observe the vessel traffic through your Areas.

Task - Shapes

- Draw a circle with a 20 nautical mile radius centered on Port Klang (Lat/Long 14° 11' 46.4064" N 49° 59' 22.8444" E). Under the Map Filters, set the vessel age to 1 day (24 hours).
- Within your shape, perform the following 3 searches, using the condition Location by User Defined Shapes is inside Port Klang. Set the Time Period to Evaluate 7-Days:
 - Vessel type is Cargo. Map the results and see where the vessels are today.
 - Vessels Security Rating is High. Add these vessels to a vessel list "High Security Vessel"
 - Flag is Iran or Hong Kong. Export the results to CSV file.

Task - Manual reports

- Your agency received a report today at 10:00 am (local time) from a patrol vessel located at 2.74604 N, 103.94E. They observed a vessel conducting suspicious activity 8 nautical miles away with bearing of 070 degrees. Approximate speed is 5 knots and heading and Course over Ground 10 degrees.
- Plot the current suspect vessel position.
- Your operations center received a report today at 08:00 am (local time) from a local fishing vessel of a suspicious cargo vessel dumping waste into the ocean near 6.18558 N, 99.5806 E. Suspect vessel was reported to be black in color, about 160 m in length, heading North-West with speed of about 5 knots.
- Create a manual report for the suspect vessel.

Task - Advanced Searches

- Find all vessels that have high Safety score inside Malaysia's EEZ. You are only interested in MMSI, Flag, Destination, and Vessel name – export the results containing these fields only to Excel. Are any of these vessels bound for Malaysia ports?
- Find vessels bound for Malaysia, whose flag is NOT Malaysian. Map the results. Select 3 vessels of choice and inspect their history trails.

Task - Rules

- Create the following rules to run twice a day (every 12 hours):
- Vessel type is unknown AND speed is less than 7 knots
- Vessel Flag is Taiwan OR Speed is greater than 15 knots OR Vessel Type is Law Enforcement. Assign various weights to the conditions and run the rule.
- Create your own rule with 3 criteria where vessel can meet ANY condition. Assign the weights and run the rule.

Task - Alerts

- Use the shapes tool to draw a Region of Interest for your team. Set up Alerts to monitor:
- All vessels entering/exiting your ROI.
- All foreign vessels of type Unknown entering your ROI.
- Some vessels will not trigger an alert. Why?

Task - Filters

- Use filters to display military and law enforcement vessels in Indonesia's EEZ.
- Use filters to find vessels whose MMSI number starts with 412 in Makassar Strait.
- Use filters to find various vessels in your team's Region of Interest.

Task - Vessel Lists

- Create an empty vessel list. As a team, find 5 vessels of interest, add them to the new list you just created, adding a note for each vessel why it is important to track it.
- Run an advanced search with multiple criteria (your team can select the criteria of interest), add the search results to the same list from above.
- Share the list within your persona.

Task - Historical Data

- Display vessels in your Region of Interest with vessel age labels. Discuss the meaning.
- Select 3 vessels of interest in your region and inspect the vessel details: Port History and EEZ history.
- Change the history trail length to 90 days in Map Settings. For the 3 vessels you selected in the list above, turn on and inspect the history trails. How can this information be useful in your operations?