



**Coda Octopus**

Sound Underwater Intelligence



# Diver Augmented Vision Display (DAVD) Overview



Version 1.4.7.21

# DAVD Hardware

## Components of the DAVD

### What is the DAVD?

The Diver Augmented Vision Display (DAVD) is a complete end-to-end diver management solution incorporating critically a high-resolution see-through head-up display (HUD) embedded directly inside the diving helmet and an optional C500 Inspector system that allows for the creation of 3D models and scenes.

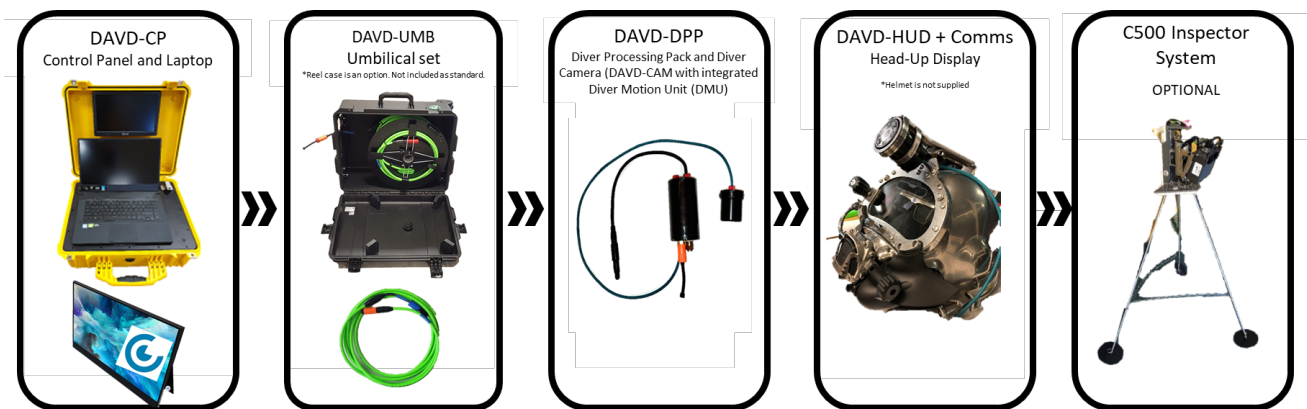
The HUD is controlled from the surface by the Dive Supervisor using the supplied 4G Underwater Survey Explorer - "DAVD Edition" software suite and he or she is able to control all information displayed to the diver including the ability to show real-time 3D imagery of the divers' environment in 1st or 3rd person perspective, regardless of the water visibility conditions facing the diver.

In addition to the provision of Scene Augmentation using a number of techniques such as real time Edge Detection of Camera Data including real time mosaicking of camera data, the dive supervisor is able to communicate seamlessly via real-time images, videos, technical drawing, text style messaging and step-by-step instructional sets. Effectively, the diver has complete on-demand access to all the technical data, know-how and support from the team on the surface to effect the best outcome of the mission. The integration of the diver head tracker and low-light HD Camera further allows complete understanding of the Divers motion, head orientation, and immediate real-time working scene. Replacement of the diver legacy communication with digital audio allows clearer audio, noise reduction and voice command assistance computer aided instruction.

The DAVD system can be used either in "rapid" deployment scenarios where minimal prior information is known or scanned, or in "Simulation and Planning" scenarios where a detailed prior 3D map of the scene is created with an optional C500 Inspector System and then annotated by the Diver and Supervisor. The latter scenario affords the greatest functionality and is particularly beneficial for repeat dives on a work site, such as a salvage operation, where data, information and spatial context can be built in real-time and incorporated into the mission for subsequent dives.



### Components of the DAVD



### Helmet Compatibility

The Head-Up Display (HUD) unit supplied directly compatible with standard Kirby Morgan® KM 37\*, KM 37 SS and KM 97 dive helmets\*\* through the use of a modified KM Face Port onto which the HUD unit is mounted and a modified KM Communications Module. The modified Face Port, Communications Module and spares, are supplied as part of the DAVD product.

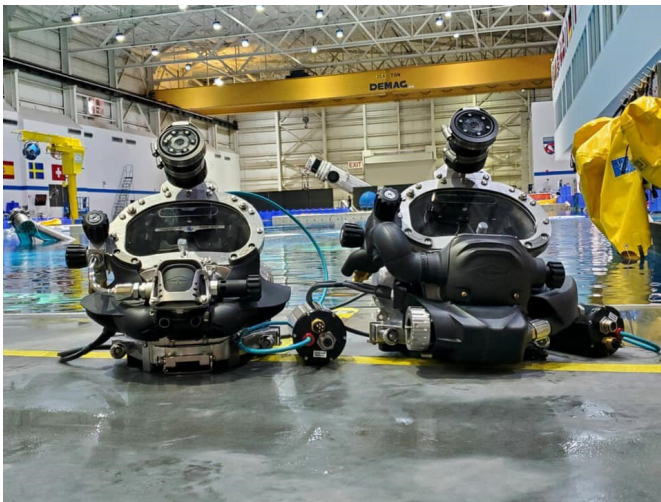
The DAVD product permits the simple and quick conversion of any standard KM 37, KM 37 SS or KM 97 dive helmet to a DAVD-Ready HUD helmet. Full face mask variants will be supported in Gen 3.

*\*The KM37 helmet, due to internal intolerances of the fiberglass shell require the new Navy approved compact Air Train Assembly to accommodate the HUD assembly. This is supplied as part of the DAVD product and is part of the class certified DAVD system. Ref: DL-545-016AB (Coda PN: HW0000766). No modifications are required in either the KM 37 SS or KM 97 helmet and are directly compatible with the HUD assembly.*

**\*\* Helmets are not supplied with the DAVD System.**

# DAVD Hardware

## How DAVD Changes the Market



### LOCATION

- When coupled with positional information, provide the **Location** of the Diver, the Diver Stage and Work Site and any **hazards** to the Diver and Supervisor in real-time.
- **Heading** information provided directly to the Diver, coupled with positional information or guided Supervisor controls, can **guide** a Diver directly on site.



### VISIBILITY

- Diver and Supervisor can share the same view of the DAVD-CAM - **augmenting** diver vision with EDGE Detection Capability and **enhancing** Supervisor awareness with real-time video display from Diver.
- Enhance the Diver experience with real-time Augmented and Mixed Reality scene **awareness**.



### COMMUNICATION

- **Digital Audio** communications provide crystal-clear conversation between the Diver and topside, directly through the topside laptop.
- Communicate with rapid **Text** messaging for instruction, guidance and acknowledgement
- **Digital Audio** and **Text** communications can be recorded for later review.



### SAFETY

- **Plan** dives ahead of time and prepare your divers for what to expect, where to go, and what to do.
- Hazards and obstacles can be clearly marked and sent to diver.
- Diver and Supervisor visually synchronized and can coordinate movement and tasks.
- **Monitor** dive statistics such as depth, bottom time, and time remaining in real-time.



### DATA

- Diver and Supervisor can share and access all project technical and visual data in real-time, including schematics, diagrams, images and even videos.
- The optional C500 Inspector can rapidly scan and identify a dive site.
- Data from the Inspector can generate real-time imagery of the site and divers on-site.
- 3D Models and Scenes can be created and used to plan future dives and work.

# How to Use DAVD

## Operational Scenarios

### Rapid Response and Rescue

The DAVD System provides real-time operations awareness both above and below an emergency

- Video from the DAVD-CAM provides real-time information to the Supervisor and augments to the Diver vision
- Digital and text communications ensure there are no mixups in a high pressure situation
- Real-time readout of dive time and depth allow the Diver to focus on diving while the Supervisor maintains ops
- Send pictures and images immediately to the diver upon request to assist in a search

### Subsea Maintenance

Identify and inspect critical infrastructure

- Shared data between above and below means a team of experts can work alongside a single diver
- Train on the operation ahead of time to prepare for any questions or snags
- Send on-the-fly imagery and information to the diver, responding to changing maintenance conditions

### Ship Husbandry

Complex and repetitive tasks made easy

- Train on your tasks and goals ahead of time, reducing time and effort
- Send technical diagrams and schemata in real-time to the diver upon request to validate
- Step by Step instructions with imagery and highlighted data to prevent out-of-order operations
- Reduce mistakes in repetitive tasks by always having your instructions in view
- Confirm operations with the DAVD-CAM prior to approving mission success

### Vessel/ AUV or ROV

Survey in advance of dive operations using the Echoscope<sup>4G</sup> C500 Inspector System

- Highest Resolution 3D scan with minimal shadows and optimum target illumination
- Completely Georeferenced dataset allowing instant augmentation with other spatial data (Sat imagery, Charts)
- Cover larger survey areas such as construction site or salvage operations

### Static Rotational Scan

Scan from a fixed location using the Echoscope<sup>4G</sup> C500 Inspector System

- Simple setup on barge, quay wall, tripod or fixed structure
- Create full circular 3D scan in under 10 seconds
- Data collected from a single viewpoint so some targets will remain in shadow
- 3D Scan configuration can be used to show Live Diver tracking and map updates

### Diver Hand Held

Live Scan of area in real-time using the Echoscope<sup>4G</sup> C500 Inspector System

- Simple setup with Diver benefiting from real-time Forward looking 3D data - 1st person perspective
- Challenging to create real-time maps as diver is moving unless accurate diver positioning is available
- Diver can swim with sonar to work location and then stand system nearby for live monitoring

# How to Use DAVD

## Dive Project Workflow

### 3D Area Scan

Three options for 3D Area Data Collection - Detailed Survey, Fixed Scan and Rapid Response

### Diver Simulator

Diver Simulator allows Diver and Supervisor to pre-plan routes and divers to feel comfortable with data and environment

### Scene Augmentation

3D scene can be augmented with 3D Models of known structure, targets and Geo hazards can be added with live measures

### Media Library

The project can be preloaded with Mission Instructions, Drawings Images and video to support the diver

### Live Dive

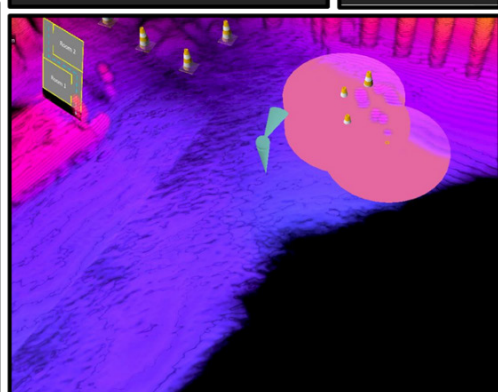
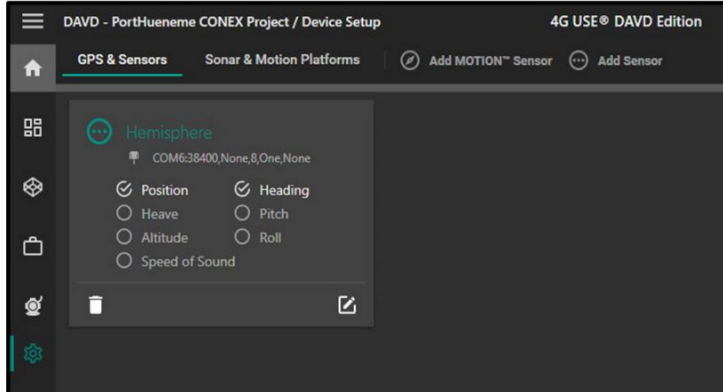
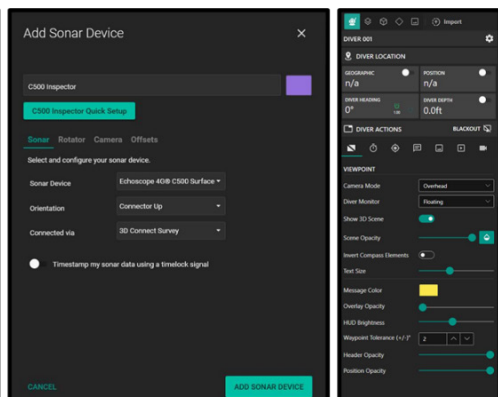
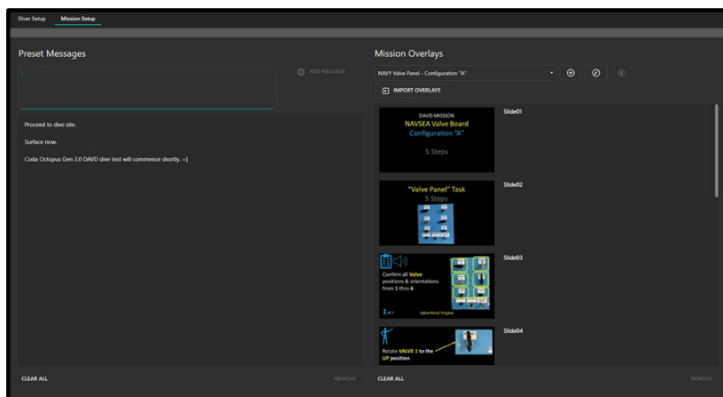
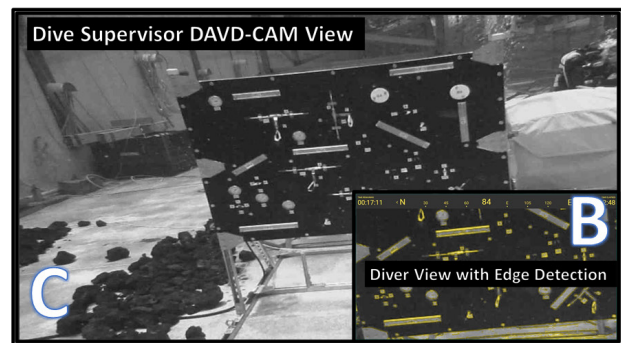
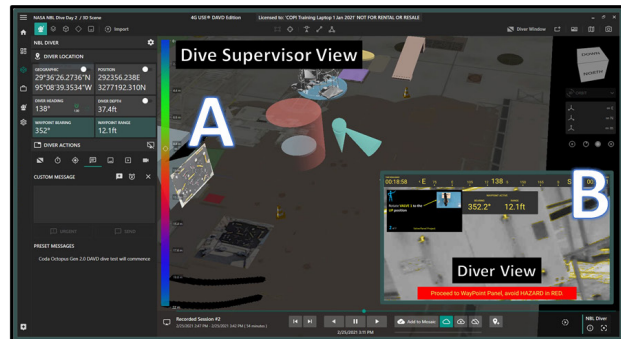
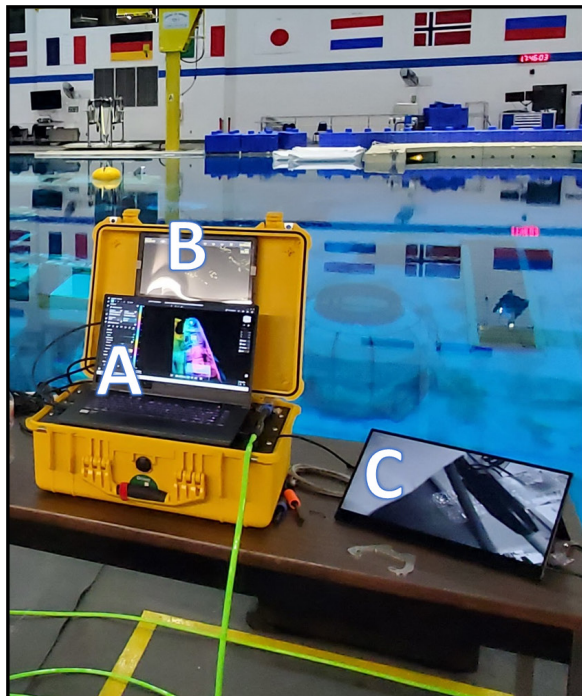
Full LIVE control of Diver visual environment and ability to send on-demand data, technical information and messaging

# 4G USE<sup>®</sup> DAVD Edition

## Top End Software Package

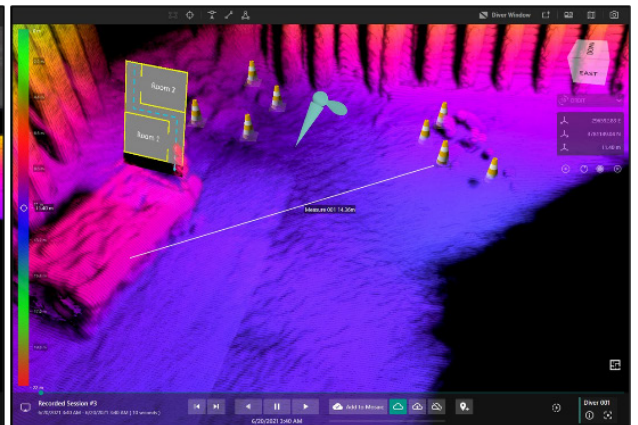
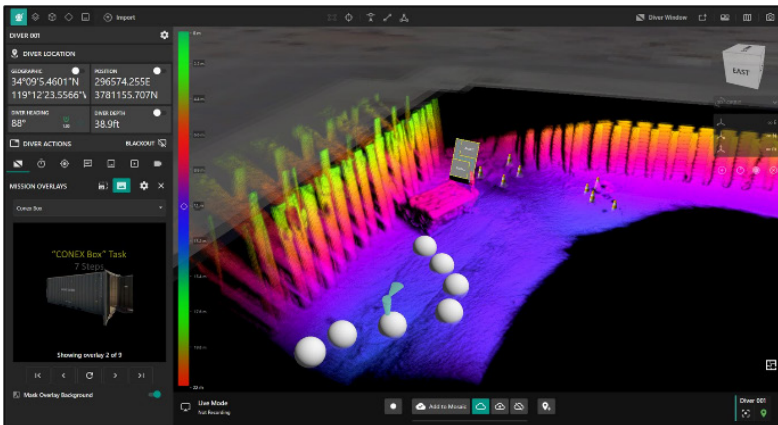
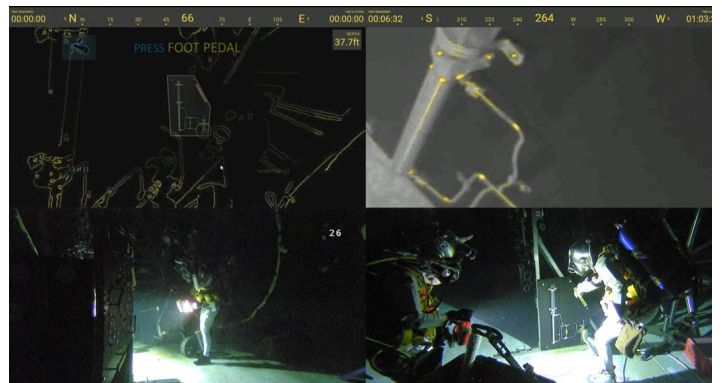
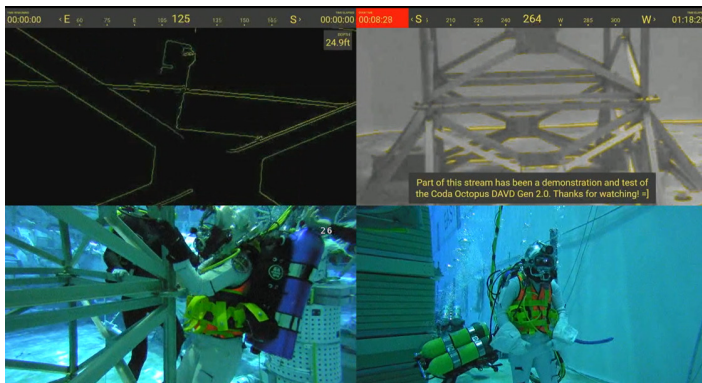
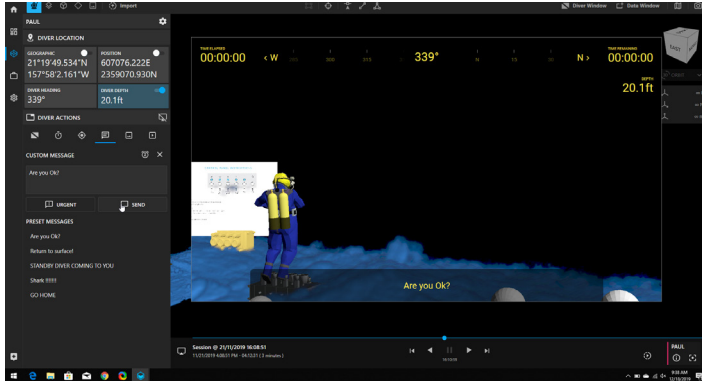
### What is the 4G USE DAVD Edition?

The DAVD System is operated from our top end software - 4G USE<sup>®</sup> DAVD Edition.



# 4G USE<sup>®</sup> DAVD Edition

## Top End Software Package

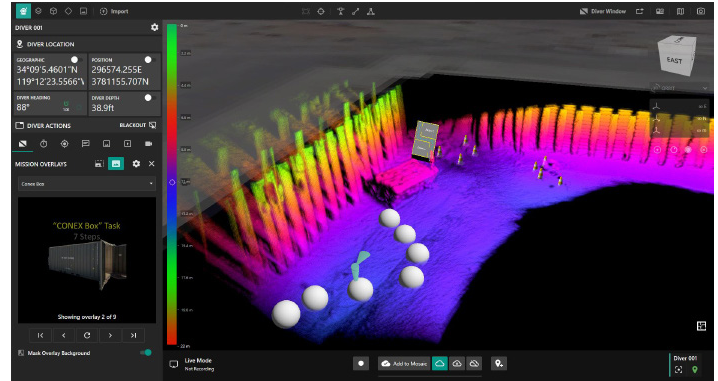


# DAVD Software Features

## 4G USE® DAVD Edition

### Simulation Mode

PLAN ahead for a dive in Simulation mode. This allows for access to all of the 4G USE DAVD Edition features available in Live mode, without requiring a full setup. In this mode, a Dive Supervisor can “fly” a diver model through a proposed dive site mosaic, view billboard images, and plan out the most appropriate paths for a diver to safely take. This fly-through of a scene ahead of time will ENHANCE diver safety and awareness during the dive.



### Live Mode

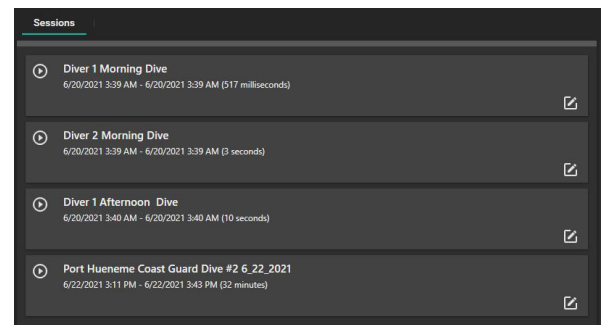
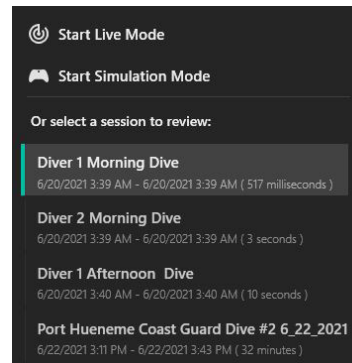
Live mode allows for the operation of the DAVD system in real-time. While in Live mode, you can access all of the features available to the DAVD system and send to the Diver Window and HUD. Additionally, Live mode presents the opportunity to collect and view data from the C500 Inspector in real-time.

PLAN ahead! Live mode allows for the creation of mosaics with the C500 Inspector. Scan your dive site ahead of time and gain valuable information on potential hazards and objects to be identified and avoided. This data can then be used to create a 3D Scene for a Diver to use.

REACT to changing situations and use the Inspector in Live mode to monitor dive operations and mission success. The Inspector data gives you a real-time acoustic video of dive operations and, using the ISAR, can rotate across the entirety of a dive site and monitor the diver in front of the Inspector.

### Dive Session Replays

4G USE DAVD Edition allows for the creation of multiple Sessions (Dives) within a single project. This allows you to ORGANIZE, maintain, and preserve Asset Manager libraries of images and models to use across MULTIPLE separate surveys and session projects. You can easily flip between these sessions to replay the data and review critical dive operations, while keeping individual notes for each session and an all-in-one library of survey events. You can flip into Live mode at any time to create a new session in the same Project.





# DAVD Software Features

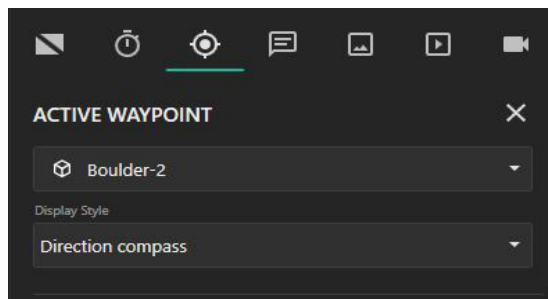
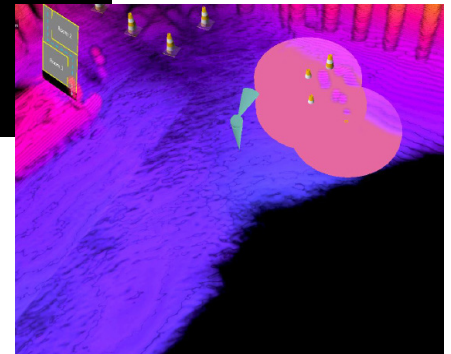
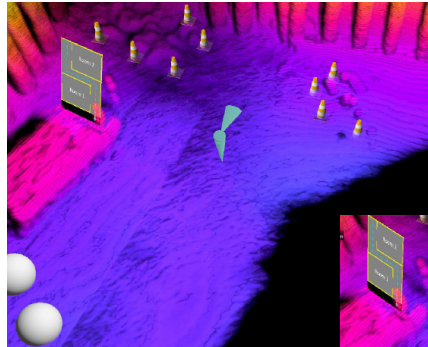
## 4G USE<sup>®</sup> DAVD Edition

### Hazard Avoidance

Assets inserted into the 3D Scene or Mosaic can be selectively added as a Hazard in 4G USE DAVD Edition. Hazard targets use the horizontal distance between a diver and a target designated as a Hazard to WARN the diver of proximity to a dangerous area. This allows the diver extra time to REACT, which can make all of the difference in a safety situation.

Without location information, an Xbox controller can be used to “fly” the diver model in approximate location and make the diver aware of potential hazards.

Coupled with positional information, the diver will be warned automatically when approaching a hazard in close proximity.



### Waypoint Navigation

Assets inserted into the 3D Scene or Mosaic can be selectively added as Waypoints in 4G USE DAVD Edition. Waypoint targets use the heading vector between the Diver model position and Waypoint position, along with horizontal distance, to GUIDE the diver to the target. Waypoints can be individually selected for step-by-step guidance through complex environments and tasks. Without location information, an Xbox controller can be used to “fly” the diver model in approximate location, using actual diver Heading to continue to target.

Coupled with positional information, the diver may guide himself from target to target with limited input from the Dive Supervisor.

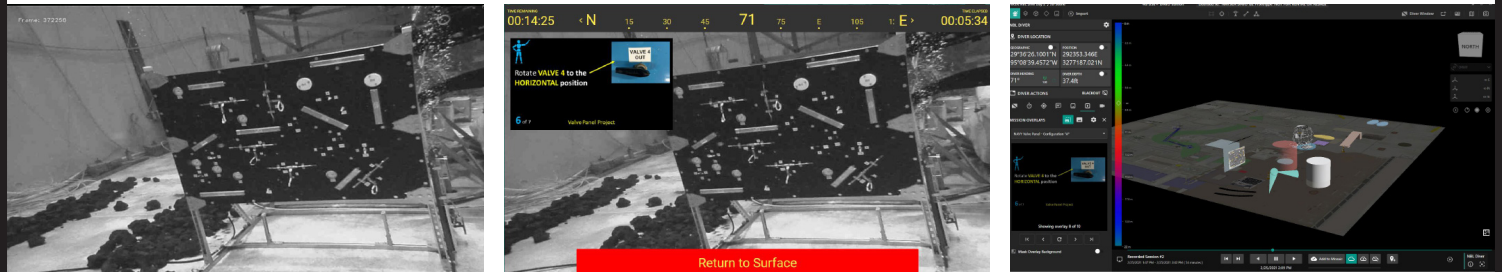
### Mission Overlays

4G USE DAVD Edition allows the import of formatted PowerPoint Slides and Images in sequential order as Overlay Slides. These Overlays can be used to guide a diver step-by-step through any series of tasks or complex mission scenarios by sending the imagery directly to the Diver Window and HUD.

A Dive Supervisor can collect the information and imagery necessary to complete a dive, such as technical diagrams, example images, or safety reminders, and upload to 4G USE DAVD Edition. Slides can be rearranged within the software or deleted as necessary. Multiple Missions can be pre-loaded into a project and selected individually when needed. After an initial run-through, the slides can be minimized to a corner of the screen while remaining completely legible.

# DAVD Software Features

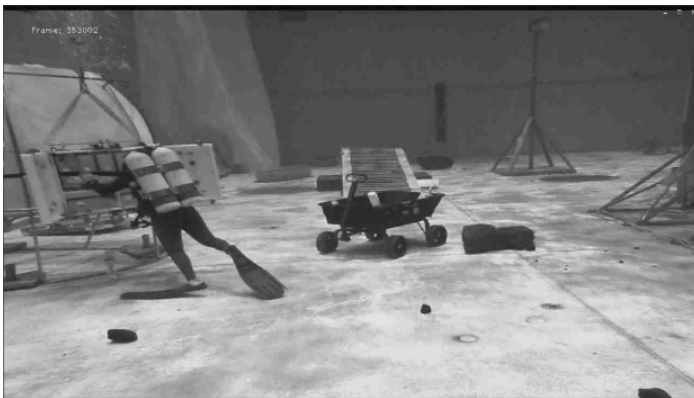
## 4G USE® DAVD Edition



### Multiple Windows

A Dive Supervisor requires as much information as possible to ensure a safe and successful dive. 4G USE DAVD Edition offers the ability to VIEW multiple windows of information simultaneously. 4G USE DAVD Edition can natively support the built-in Diver Window monitor and touch-screen 3rd monitor option, along with an optional 4th window to enlarge the Diver Window and HUD display. Using these, a Dive Supervisor can control the 3D Scene and DAVD Display on one screen, view the unaltered DAVD-CAM video on another, and see quickly and easily what is being sent to the diver at any time.

### DAVD-CAM Video



Video has often been used to allow the Dive Supervisor and topside personnel to observe what a diver is seeing in real-time. 4G USE DAVD Edition takes this to the next step by allowing the diver to see their own video. A high-definition and modern camera provides clear imagery that can be preferentially displayed to the diver when requested, providing a wide-angle view of the surroundings if needed and aiding in peripheral awareness that can be lost through the helmet view port.

Topside, the Dive Supervisor can always display this DAVD-CAM video on a separate third monitor, even when the diver is not viewing it. In this way, the Supervisor knows what their diver is looking at, and in high-definition.

4G USE DAVD Edition uses an advanced video processing algorithm to detect edges within a video and displaying these digitally. This feature can highlight hazards and objects in the water that are difficult to distinguish through marine snow and cloudy water. The program can then overlay these highlights in the Diver HUD to ENHANCE the diver's vision and operative capability.

DAVD-CAM video data is also recorded in 4G USE DAVD Edition and can be replayed at any time to review and PLAN future dives and ENHANCE safety.

### Chart View

The Chart in 4G USE DAVD Edition can not only be displayed in its own window, independent of other 3D Scene items, it can also be overlaid conveniently in the corner of the 3D Scene. Maps imported to 4G USE DAVD Edition will display on the Chart View and, while Navigation information is available, will automatically position the vessel in the correct location.

Display items on the Chart View can be controlled in the Scene Inspector menus, while items such as models, measures, and markers can be displayed to facilitate navigation. Once you find your target and identify your location and mark it, you'll never have trouble locating it again.

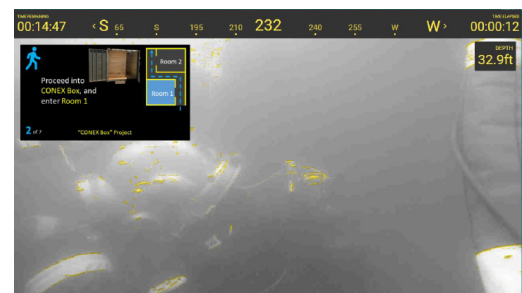
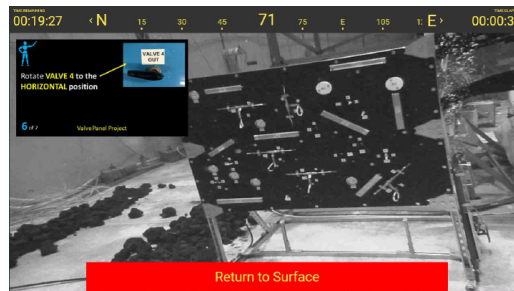
The Chart View can also be used to create a Mosaic quickly and easily. Simply click the "Define an Area" tool and drag across your desired export area. Then, use the newly created area in your Scene Inspector to make a mosaic or export the data.

# DAVD Software Features

## 4G USE® DAVD Edition

### Diver Window

Displayed on a separate monitor on the top of the DAVD Control Panel, the Diver Window allows the Dive Supervisor to visualize and confirm what the Diver is viewing in their HUD.



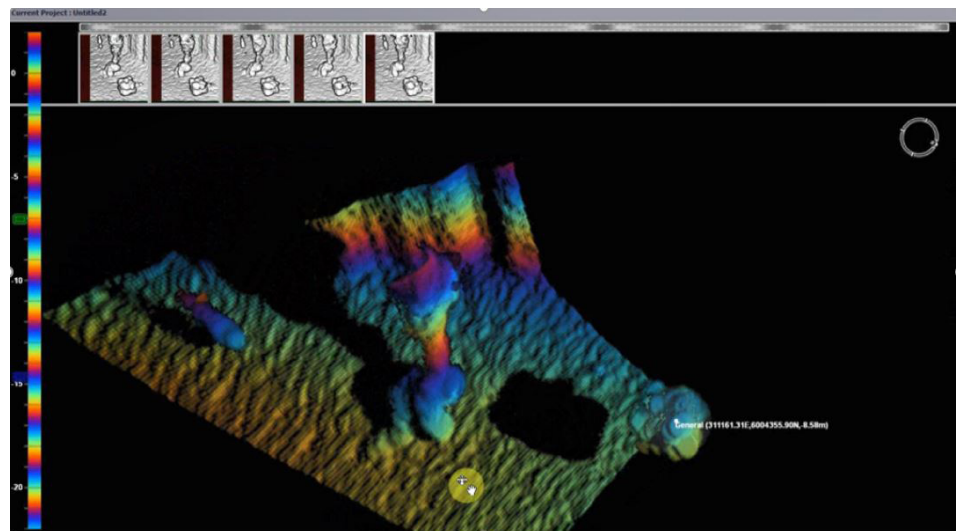
### 3D MATT

3D Multiple Automated Targeted Tracking (3D MATT) is a real-time multiple target tracker that uses the 3D data from our flagship real-time 3D volumetric sonar technology, the patented Echoscope series.

Using 3D MATT users are able to define a target to be tracked that is visible in the real-time 3D sonar data and through a set of specifically designed constraints. 3D MATT can accurately track targets in real-time and at the maximum Echoscope ping rate of 20 pings per second.

3D MATT is fully aligned with our real-time 3D sonar and any object that can be visualized by our sonar can be the subject of tracking by 3D MATT.

Some applications which can use 3D MATT include Cable Installation and Survey, Diver Tracking and Support and Vehicle Target Tracking.



# Diver Awareness

## With 4G USE® DAVD Edition

### Diver Heading

The Heading (Attitude) of the diver is provided by a sensor within the DAVD-CAM on the diver helmet. Updated in real-time, the Heading is used to guide the diver movements to a target, waypoint, or avoid a hazard. Featured in a minimal scrolling bar in the top of the diver HUD.

### Diver Depth

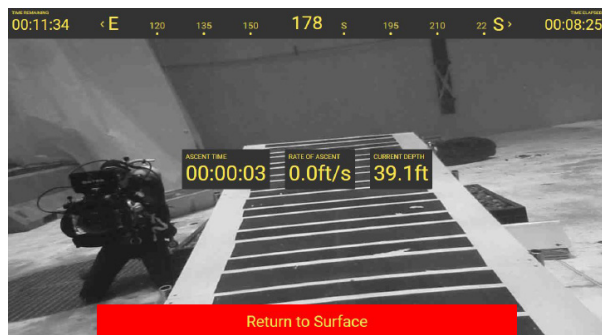
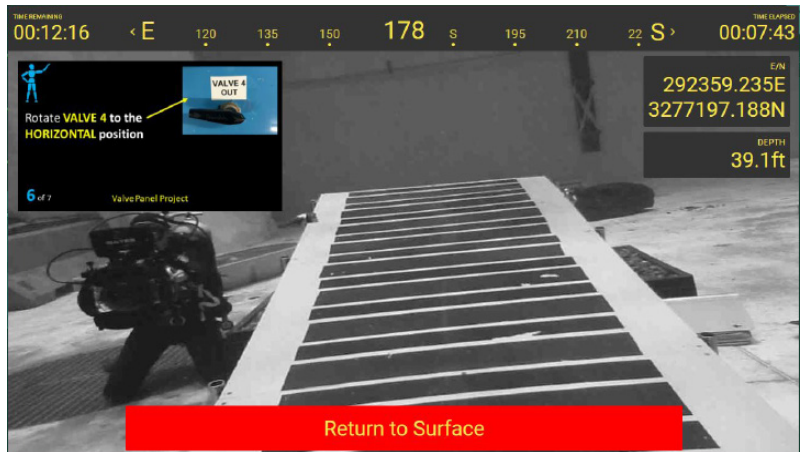
The depth of the diver is provided by a depth sensor within the DAVD-DPP and is displayed in real-time on the Diver Window and HUD. The depth is then used to calculate and display the diver ascent rate after leaving bottom, aiding in an appropriate speed to the surface.

### Diver Position

Using an X-box controller, the diver position can be simulated to “fly” the diver model through a 3D Scene or Mosaic. This can be done in Simulation mode to brief for an upcoming dive or provide a training, or can be used in Live mode to provide to the diver location-based information as needed on a dive site.

### Timers

Timing is everything on a dive. When laying out a dive plan ahead of time and with a known bottom time, you can use the timer feature to begin a countdown of bottom time from the moment the diver finishes their descent. Options to toggle the Elapsed Time and Time Remaining for display in the Diver Window and HUD are independently controlled.



### Ascent Rate

Using the built-in depth sensor, 4G USE DAVD Edition can display to the diver in real-time their rate of ascension to the surface. Coupled with awareness of their total bottom time and depth, a diver will have all of the information necessary to return to the surface safely.

### Edge Detection

Edge Detection is an advanced video processing algorithm that scans the video data and identifies areas of hard edges that can be distinguished from other surfaces around it. With this mode, the diver can see the video from the DAVD-CAM and also see the highlighted edges, making it easy to identify and REACT to potential hazards or mission targets, and to ENHANCE their view underwater.

# Diver Awareness

## With 4G USE® DAVD Edition

### Overlay Mode

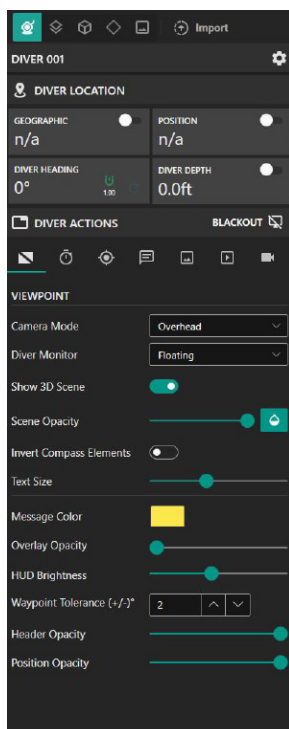
With proper alignment of the video data to the diver's vision, Edge Detection allows the diver to use their own eyes to see an object, while the Diver HUD highlights the object with bright colors to make it easier to see and manipulate.



### Mosaics

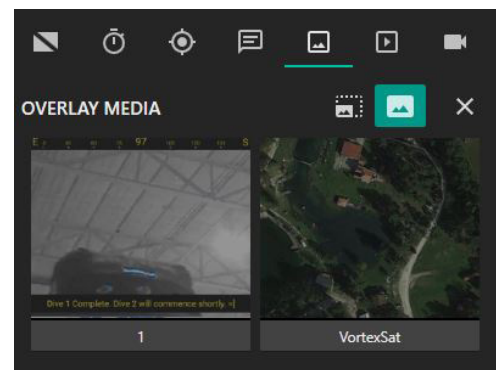
Coupled with a C500 Inspector system, 4G USE DAVD Edition allows for the creation of a series of pings known as mosaic. By dropping the Inspector in a centralized location and sweeping to Port and Starboard, a complete mosaic of the dive site can be created and displayed to the Diver Window and HUD.

Mosaics can be used to "fly" the diver through a proposed dive site, to provide the diver with context and information ahead of the dive. The Mosaic can be enhanced with Overlay Media and 3D Models to clearly illustrate hazard areas, dive objectives, and targets. This context can be critical in enhancing dive safety and awareness for the divers.



### Diver Menu

The centralized hub for controlling the characteristics of display items in the Diver Window and HUD.



### Overlay Media

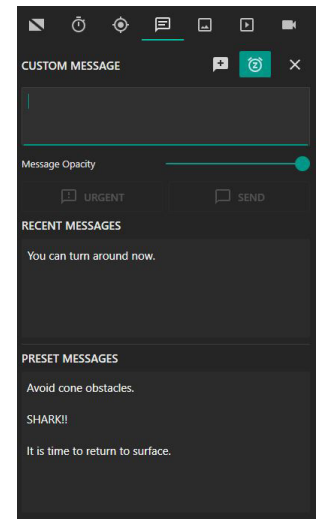
Overlay Media are single images of common file types that can be imported into 4G USE and sent to the Diver Window and HUD with a single click. PLAN ahead and import images that may be useful in aiding a diver objective or REACT in real-time to upload a new image for new situations.

# Dive Supervisor Controls/Tools

With 4G USE® DAVD Edition

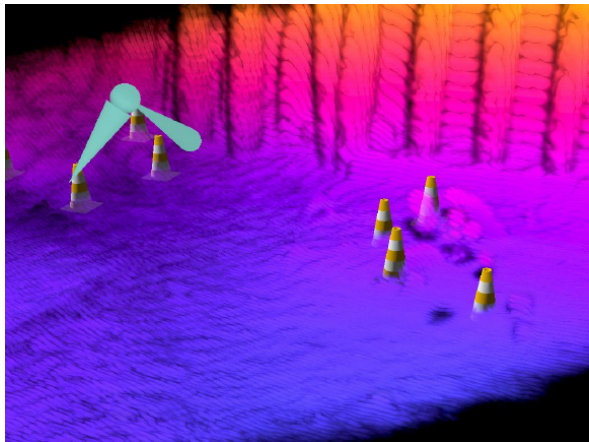
## Messages

Dive communications about complex tasks can be challenging with analog voice communications that make it hard to hear and understand the Diver and the Dive Supervisor. Miscommunications can be costly, and dangerous. 4G USE DAVD Edition comes with a built-in messaging system that mirrors a majority of popular messaging applications. PLAN ahead by preparing saved preset message ahead of your dive. These can then simply be double-clicked to send a clearly legible and understandable message to the bottom of the Diver Window and HUD. REACT to changing situations and you're your message manually, pressing Enter to send. HIGHLIGHT important or Urgent messages with the Urgent option to color the message RED and make more noticeable. Text communications leave no room for error when communicating with the diver.



## Scene Inspector

Dive Supervisors can use 4G USE DAVD Edition to PLAN their dive missions ahead of time. Using the Scene Inspector, they can manipulate all characteristics of their Assets, Mosaics, 3D Objects, Images, and any other item they've included in their 3D Scene. Here they can toggle ON/OFF the Waypoint feature for any model or item, the Hazard feature as well. The Scene Inspector gives you total control over the Project 3D Scene.



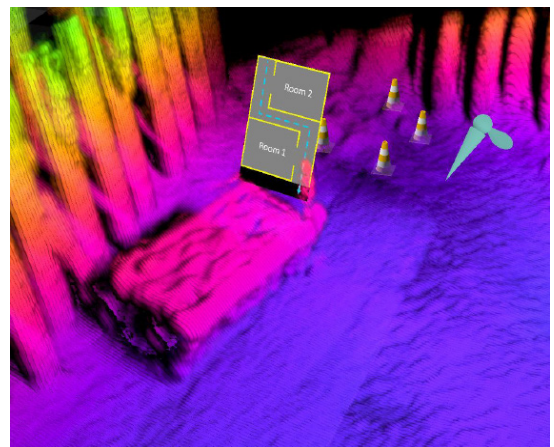
## 3D Models

When using a mosaic or map or other image item to PLAN and enact a dive mission, you can import customized 3D Models to your 3D Scene. Models can be used to represent important features or targets on the dive site and can also be used as Waypoint or Hazard objects to guide a diver around a site.

A series of Primitive models come pre-loaded with every project. Boxes, cylinders, pyramids, and many others can be inserted into the 3D Scene with a single click. These models can be used to mark areas of interest in an immediately and easily visible way. Model colors can be modified, names changed, and position within the 3D Scene can all be edited quickly for each model in the Scene Inspector menu. Volume Models created in CodaOctopus® Underwater Survey Explorer (USE) may also be imported into 4G USE DAVD Edition and used as a 3D Scene Asset.

## Images

Images of many commonly supported file types (.jpeg, .bmp, etc) can quickly be loaded into your Scene to quickly highlight and provide context to your data. Billboard mode allows the image to persistently face the user, even when rotating and moving about the scene. The images can later be moved manually in the scene if needed, and easily renamed and deleted. Make striking video playbacks of your data that use images and acoustic data to highlight what the client really needs to see.

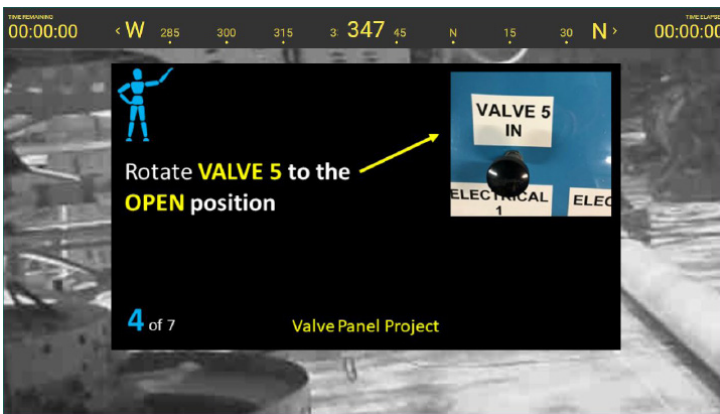
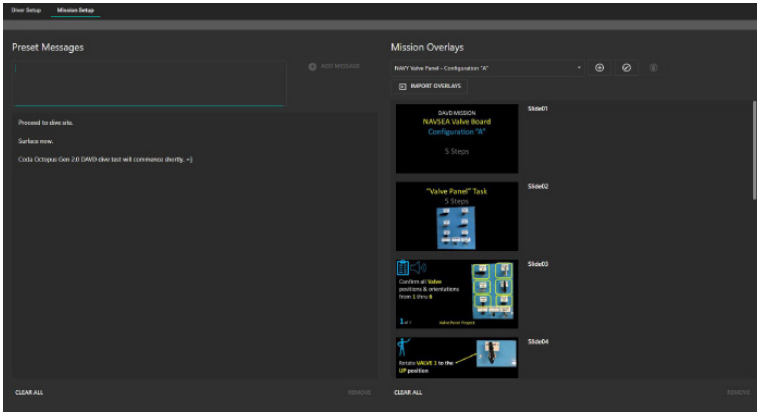


# Dive Supervisor Controls/Tools

With 4G USE® DAVD Edition

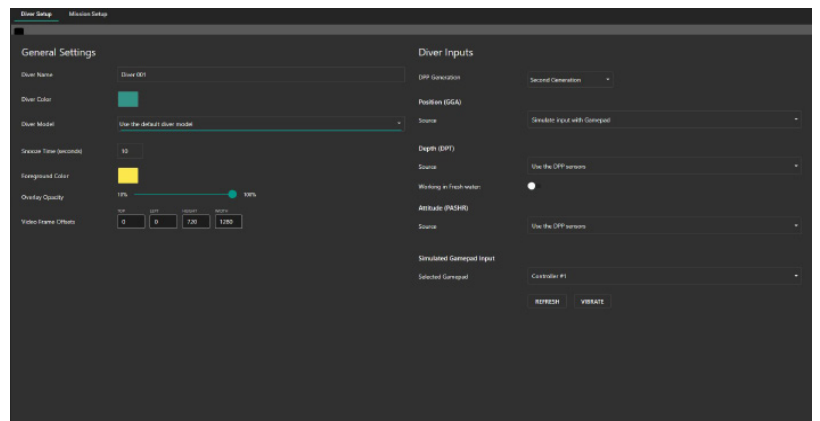
## Mission Setup

A menu that allows for PLANNING a mission ahead of the dive. The Mission Setup Menu allows you to generate and populate Preset Messages that can then be sent directly to a diver with a double-click. If you are aware of commonly used messages such as “Return to Surface” you can add these here and reduce your communication time. Additionally, here you can import and organize Mission Overlay Slides to send to the diver for mission prep and enactment.



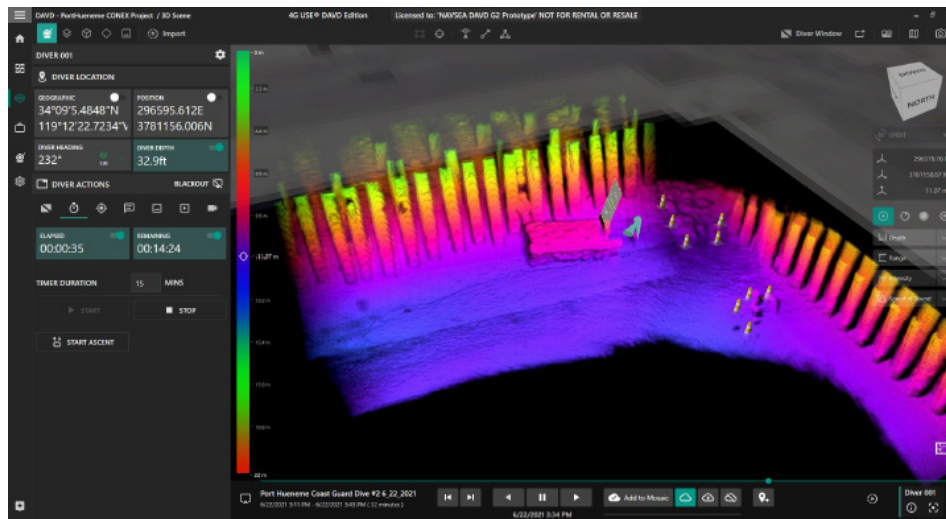
## Diver Setup

The Diver Setup Menu is how you tell 4G USE DAVD Edition to communicate with the sensors on the diver, and also the basic color and settings for the Diver HUD. Select the appropriate Generation of DAVD, and let the program know if you are using Position, Depth, and Attitude data from the DAVD Sensors.



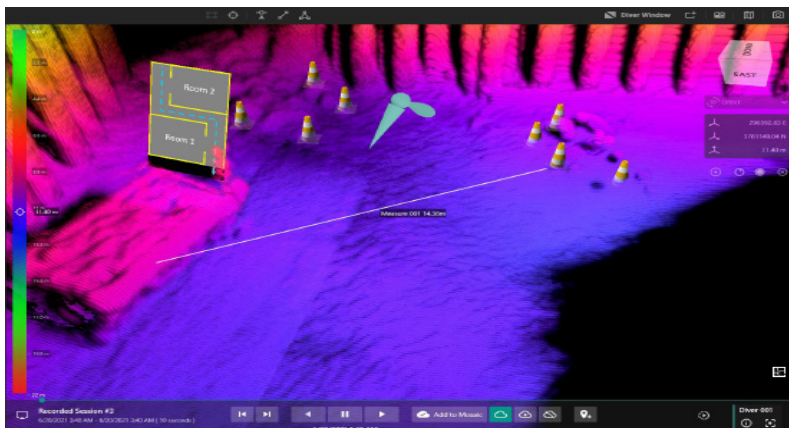
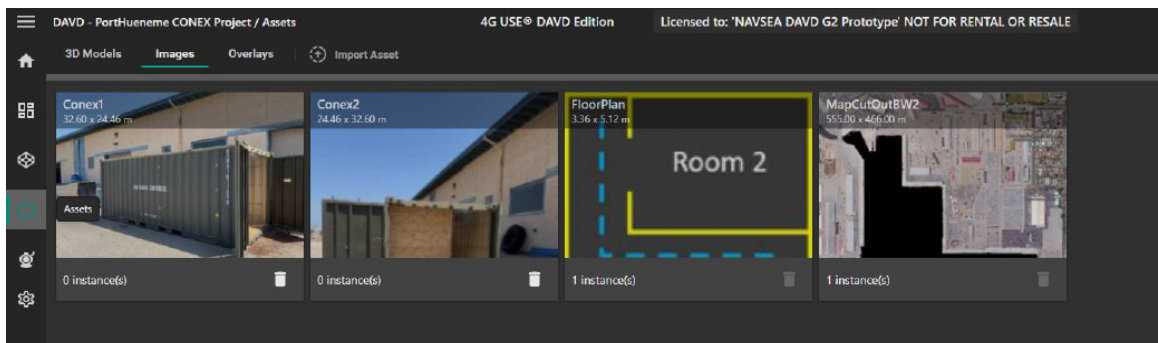
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## Asset Manager

Supported Image and 3D Model file types can be imported for an instant insertion into any 3D Scene. The Asset Manager is a quick-search library to organize and view your currently available and loaded assets. These assets are tied to each individual project and do not need to be re-imported when you open and close the project for different sessions, saving time and effort.



## One Click Measure and Point

In both Real-Time and Post-Processing, you can click a single button to take as many measures, points, and angles as necessary to complete your inspection or survey.



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### HUD Control

Physical attributes of the display items to the HUD and diver can be controlled independently within 4G USE DAVD Edition. Every diver has the opportunity to select their preferences for best visualization and ease-of-use, just like a cell phone.

### Opacity

Can select the opacity of the display items in the Diver Window and HUD. Divers can visualize their display items while still retaining vision and line of sight.

### Text Size

The text highlighting real-time information such as Depth and Heading, or contextual messages from the Dive Supervisor can be adjusted in size for clarity and legibility.

### Text Color

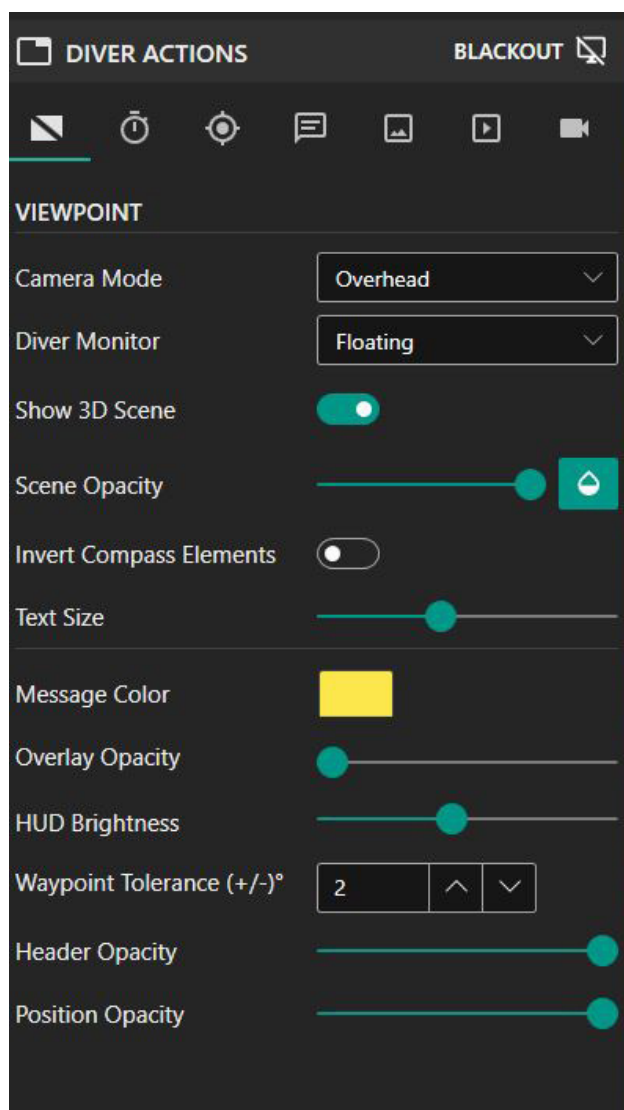
Shifting water conditions can result in the washing out of certain colors from the diver view. Extensive testing has found that Yellow works best in a majority of situations, however color can be adjusted according to diver preference and ease-of-use.

### Brightness

Deeper and murkier water often reduce the amount of ambient light levels. Display item brightness can therefore be adjusted as necessary to account for this and diver preference.

### Diver Blackout

Occasionally a need will arise to eliminate all display items from the Diver Window and HUD. The Diver Blackout option provides a one-click solution to HIDE from display all display items.



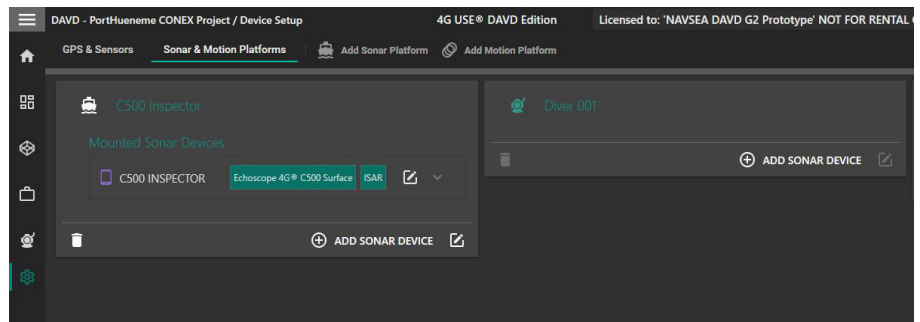
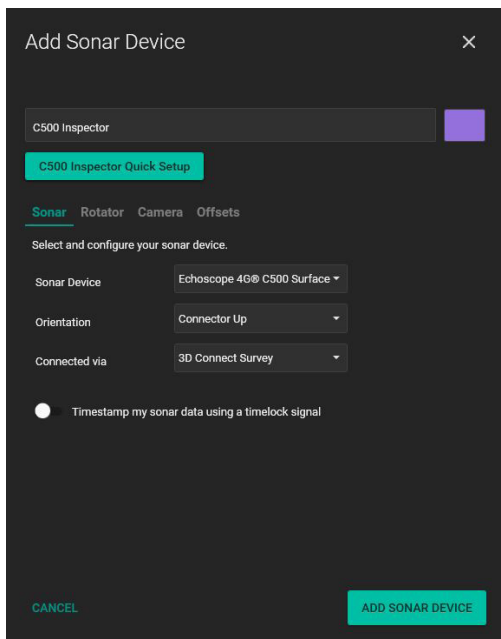
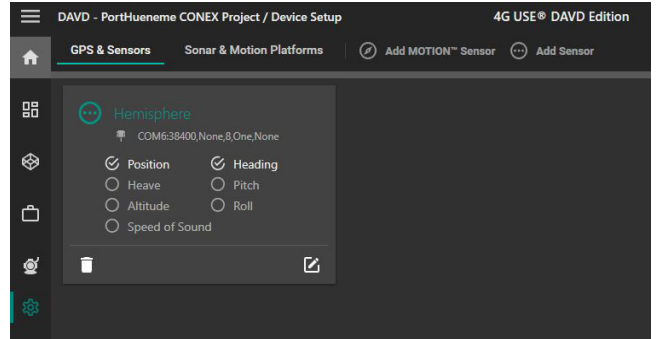
# DAVD Setup and Platform

## Using the Echoscope® C500 Inspector System

### GPS & Sensors

4G USE DAVD Edition can accept and intake Positional data from external sensors such as the Hemisphere GPS. This positional information can be used to provide a “seed” position for a diver before entering the water.

The Hemisphere GPS is also then used to calibrate the DAVD-DMU Heading prior to beginning a mission to ENHANCE Waypoint guidance and navigation.



### Sonar & Motion - C500 Inspector Setup

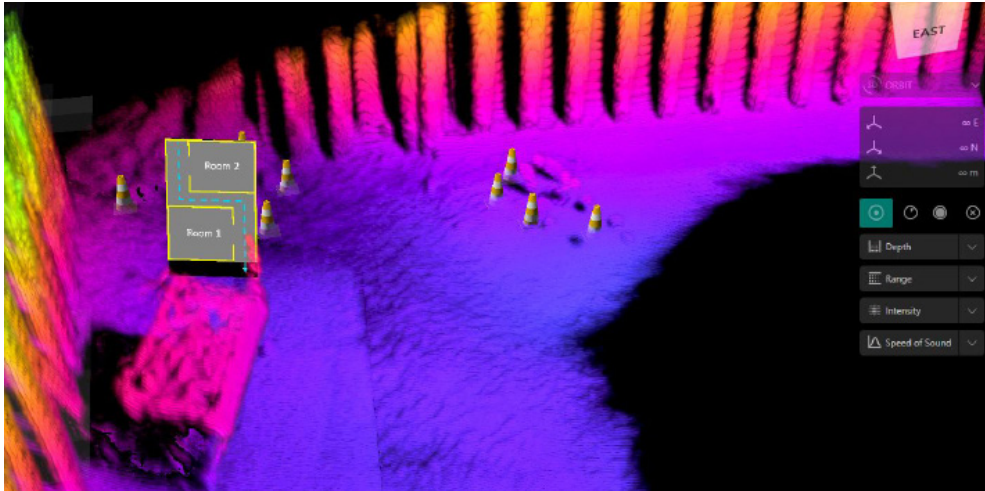
Setting up a C500 Inspector System in 4G USE DAVD Edition is as simple as one click in the Sonar & Motion Platforms Menu. This will automatically prepare the software to accept data from a C500 Inspector, either being hand carried by a diver, or independently used to monitor dive operations in Tripod or Hanging modes.

### Rotator Controls

With the use of our Integrated Single-Axis Rotator (ISAR) as part of the C500 Inspector, the project can be optimized. Control the orientation of the rotator to allow for the best view of the chosen target and ideal geometry for the Echoscope® image.

# DAVD Setup and Platform

## Using the Echoscope® C500 Inspector System

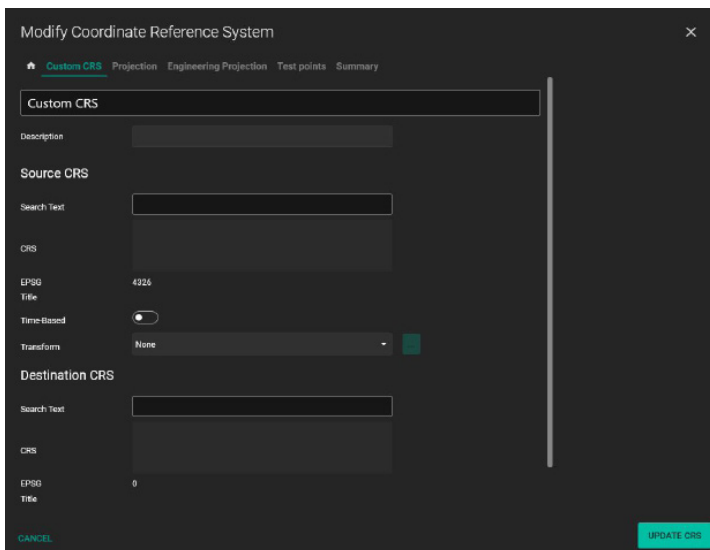


### Data Filters

Quick-Access data filters in the 3D Scene window allow for the independent control of masking filters for Depth, Range, and Intensity. Small drop-down menus within each allow you to specify the range of values that you would like to mask for each of the filters. These can then be turned on and off with a single click, saving time and effort during real-time operations and post-processing. Depth Filters can make it easier to ignore surface clutter such as wave aeration or prop wash, while Range can be used to exclude fish between your Echoscope and target when you are unable to adjust your minimum and maximum acoustic ranges. Intensity is used to filter out and remove weaker acoustic returns that may not be excluded by a threshold, a particularly important feature in MAX mode. It is important to note that Data Filtering options do not delete or remove data, only mask it.

### Speed of Sound

Adjust the Speed of Sound in water to match your current water conditions and ENHANCE the quality of your C500 Inspector Image.



### CRS and CRS Designer

4G USE DAVD Edition allows for the quick switching between the Geographic and Projected Coordinate Reference Systems as needed.

When using a more specific and uncommon CRS, a built-in designer allows you to build any CRS that may be required. Simply enter the EPSG code of your NAV data, enter the EPSG code that you would like the project to be in, and the Designer will automatically create your required conversion.

The designer then allows you to test these coordinates to help prepare your project.

# How To Access 4G USE®: DAVD Edition Software

4G USE DAVD Edition is available for outright purchase, daily rental, or added to an annual subscription package.

## PC Specifications for 4G USE® DAVD Edition

<b>Hardware Requirements revision date</b>	September 9, 2020
<b>Processor</b>	Intel® Core™ i7 Recommended
<b>RAM (Computer Memory)</b>	Minimum 8 GB Recommended
<b>Disk Space (Software)</b>	100MB for installation (approximately 3.0-3.5 GB per hour, dependent on ping rate)
<b>Disk Space (Data Storage)</b>	500 GB Recommended Data storage rate is typically up to 3.5 GB per hour (dependent on ping rate, UIS camera and charts and model data loaded)
<b>Graphics (Laptop/Desktop)</b>	nVidia® Geforce GTX 1060 or higher (Recommended) with 4GB RAM <i>NOTE: AMD Radeon™ GPUs is not supported.</i>
<b>Operating System</b>	Microsoft® Windows® 10.
<b>Ethernet (LIVE Operations)</b>	1 x 10/100/1000 Port Minimum 2 x 10/100/1000 Port Recommended
<b>DAVD Control Panel OFFERS</b>	2 x HDMI output from Laptop 1 x Ethernet Adaptor 2 x USB for Data/Power 1 x USB for Power ONLY

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