

NAUTIS Exercise Debriefing Save Save as Exercise: Istanbul

Logic

Zoom Group - Ungroup Untangle Undo - Redo

NODES

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 - And
 - Both
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 - Either
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 - Keep running
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 - Start
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- Objects
 - Area check
 - Blue sign
 - CPA/TCPA
 - Environment collision
 - Heading
 - Navigation light
 - Object
 - Parallel trainee
 - Rate of turn

OBJECTIVES

Time limit 00:00:00 hours : minutes : seconds

Passing score

Objective list	Score
Reach destination	6
On time	2
Correct speed	2

Timeline

Start Stop 0:00:00 0:06:00 0:12:00 0:18:00 0:24:00 0:30:00 0:36:00 0:42:00 0:48:00 0:54:00 1:00:00 1 h Mark Marks list

NAUTIS Version 3.10.0 release update

VSTEP

NEW FEATURES

1.1 Base features:

- Local Weather
 - NAUTIS now offers localized weather control, enabling users to specify custom weather conditions within any designated area of any shape or size, including cloudiness, rain, hail, and snow. These systems are also mobile, and able to move in any direction.



- Limitation: Local precipitation is currently not detectable on radar but will be included in NAUTIS 3.10.1.
- Refer to the manual for detailed limitations of this feature.
- Global hail precipitation type was added to the conditions window.
 - This will add global (hail) clutter to the radar.
 - Hail and rain got new sounds, where the sound inside the wheelhouse is distinct from the sound outside of it.

1.2 Other features

- When setting the velocity on a vessel through the property window, it now tries to match the drivetrain state (engine/propeller rpm) with the requested velocity.
- 4K Rendering resolution.
 - Nautis now supports 4K rendering which has been tested and validated during the most recent DNV audit in 2024.
 - Results are an image on the screen that is smoother.
 - A lot fewer aliasing problems (jittering visuals).
 - More details to become apparent, especially at a distance.
 - 4K Rendering may not be universally supported due to varying PC performance driving Outside Views.

1.3 API features

- Read-only entities: entities with the *Read-only* tag cannot be set using Set Components or Publish Components functions.
- Deck lights!
- Propulsion Indicator output added to API.

IMPROVEMENTS

2.1 Base improvements

- Sensors will now utilize analytical mode, calculating based on the vessel's physical body rather than derivatives, improving outputs for kinematically controlled vessels.
- Better support for AIS devices where more status variables can be adjusted.

2.2 Dynamics improvements

- The velocity feedback loop in Thrust Allocation (TA) enables precise tuning for counteracting velocities, enhancing sidestepping on ships like Tiger, CTV2, and Arie Visser.
- Steering pump configuration has been standardized into Seagoing and Inland configurations across all vessels with (the exception of bow/stern propulsions).
- NFU controls will now keep functioning when the control failure is enabled.
- 'Hinge Control Failure' was renamed to 'Telemotor failure.'
- Ship velocity - When setting the ship velocity as an instructor, now applies correctly without immediate slowing due to added mass.
- Standardized Propulsion Main checkbox across vessels for accurate kinematic calculations during drivetrain warmup.
- Configured IKController to match vessels' behavior, enhancing RouteFollowers' capabilities.
- Tuned default values for RouteFollower visuals based on Wind and Current influence, with Current Influence now significantly stronger on vessel rotation.
- Increased propulsion wash interaction strength for all vessels.
- Added functionality to Sync propulsion button on Instructor Conning screen to link bucket controls for Jet Propulsions.

2.3 Visuals

- Kelvin wakes now to support moving astern based on Velocity through the water.
- Improved sandstorm visuals
- Removed Haze render settings.
- Improved visual size of anchor chains.
- Added reflection to Hand- and Rocket Flares and increased the visual's size.
- Disabled the rendering of areas in the 3D view by default. This is due to the local weather feature where areas can get very large, obscuring the view & usability of the 3D view.

2.3 Performance

- Improved performance of visual clients by optimizing a lot of visual systems:
 - Exhaust particles
 - One-shot sounds
 - Blue sign
 - Bow splashes
 - Anchor sounds
 - Sound monitor
 - Bow split particles
 - Flag lines
 - Propeller Wakes
 - Visual dynamics nodes: Azimuth, Propeller, Rudder
 - Fenders
- Added configuration option to disable Sound for NAUTIS clients that should not be playing any sounds. This will remove the performance overhead the sound systems have.
- Added a monitoring system to certain sound systems to disable sound processing for sources too far away to be audible.
- Layout system is disabled for Link Clients
- Added a new render setting that allows for choosing between planar and simple reflections, where planar reflection will reflect the whole visual scene in the ocean, and simple reflection will only reflect the sky in the ocean.
 - This should save about 30-50% performance for the Reflection pass on CPU per render instance.
- Performance optimization results were gathered using a scenario in the Rotterdam environment which contained 5 Trainee vessels, 10 Route followers on the route, and 10 Static ships. Environment conditions were Bft 4, default visibility, and no precipitation. The recorded differences between 3.9.1 and 3.10.0 are:
 - Rotterdam 3.10 average FPS increase
 - Instructor station: 28%
 - Trainee station: 12%
 - Link clients: 14%
 - Server: 18%
 - All-in-all the comparison between 3.9 and 3.10 seems to lie in the outliers as 3.10 reported more consistent stable numbers compared to 3.9 where which was swinging much more between variable numbers. Especially server-side NAUTIS has gained quite a bit of stability.
- The performance between 3.10.0 and 3.9.1 was tested using a scenario in the Rotterdam environment which contained 5 Trainee vessels, 10 Route followers on the route, and 10 Static ships. Environment conditions were Bft 4, default visibility, and no precipitation.

2.4 Other improvements

- Instructor Chart
 - Improvements in selecting path nodes when the path only has 1 node.
 - No more double selection with the mouse up and down
 - Improvement of input handling order from chart layers
- Moved the ExtComm target's active parts to its section in the Networking UI for External Communication, cluttering the UI less with this information.
- Added hotkey for toggling between showing different FPS information on the screen. Default key: /

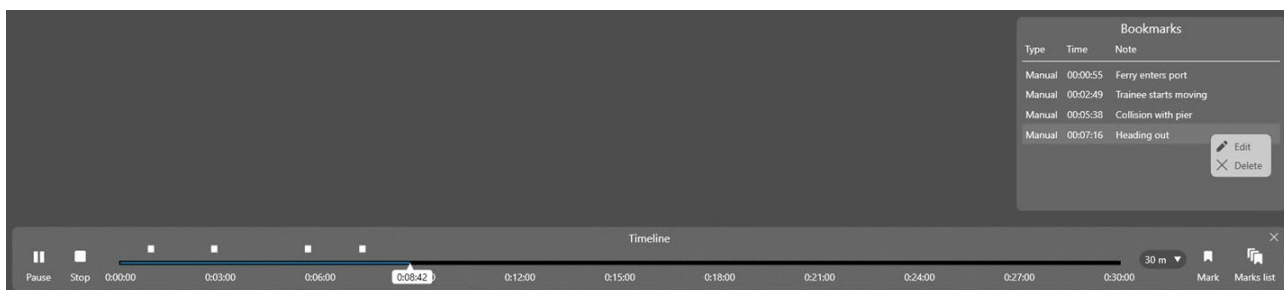
Instructor Station 2.0

3.1 Instructor Station

- File management: Scenarios can be created and loaded in the scenario manager; the scenarios can be saved during editing. An importer is added to convert existing scenarios to the new format. Recordings are saved when the exercise is completed.
- Exercise Control: The timeline shows the duration of the exercise and allows the instructor to start, pause and stop the exercise.



- Bookmarks: The instructor can add bookmarks to the timeline to highlight specific events during the exercise. A short note can be added to the bookmark. In the bookmarks list the instructor can edit and delete bookmarks.



- CPA/tCPA: This feature allows the instructor to view the CPA and tCPA of all vessels, all trainee vessels, or a specific vessel in the scenario. He can set the threshold for a warning about low CPA and tCPA values.

CPA/TCPA

Selected trainee vessel

All trainees

CPA (NM) T CPA (min:sec) Show 10 vessels

Alpha - Zonnedaal (Willem)	0.4	12:02	Rover White
Delta - Odysseus (Gerbrich)	0.9	04:43	Grutte Pier
Delta - Odysseus (Gerbrich)	4.2	06:08	Bravo - Argentino (Bengt)
Bravo - Argentino (Bengt)	10.5	10:52	Aetos 1
Alpha - Zonnedaal (Willem)	29.0	00:32	Delta - Odysseus (Gerbrich)
Delta - Odysseus (Gerbrich)	37.2	45:49	Argentino
Delta - Odysseus (Gerbrich)	59.8	24:05	Lytse Pier
Alpha - Zonnedaal (Willem)	60.4	39:13	Sigita
Bravo - Argentino (Bengt)	62.9	19:06	Aetos 2
Bravo - Argentino (Bengt)	117.6	52:29	Combistar

Warning if CPA is below 1 NM and T CPA is below 15 min

- Assessment: During an exercise, the instructor can score objectives. Automatic assessment can be done for objectives that are added to the logic of the scenario.
- Added a unit-type converter for C# frontends.

3.2 Logic Editor

- Automation: With this tool, the instructor can add automation to a scenario. For example, introduce an equipment failure after a certain amount of time has passed, or when a trainee sails into a pre-defined area.
- Automatic assessment: Objectives can be added to the scenario which can be assessed by the logic editor. For example: exceeding a speed limit in a certain area means the trainee failed to achieve an objective.

3.3 Debriefing Tool

- The debriefing tool is now part of the instructor station.
- The UI has been redesigned to match the instructor station design.
- Audio that is encapsulated in videos will now be played during debriefing.
- Bookmarks are visible in the timeline and can be added, removed, or edited in the debriefing tool.

3.4 WatchdogUI

- The 'Exercise' button is now optional per variation.
- Improved UI responsiveness.
- A huge number of stability and reliability improvements because of the AMF backend improvements below.

3.5 Amf2Api

- New C# #-based application to replace the Python-based AMFBridge. Supports many more NAUTIS API functions like new/load/save scenarios, start/stop recording, etc., as well as much more debug logging.
- Provides feedback through AMF shared memory pool of NAUTIS status, so other applications know when NAUTIS finishes tasks like loading a scenario.

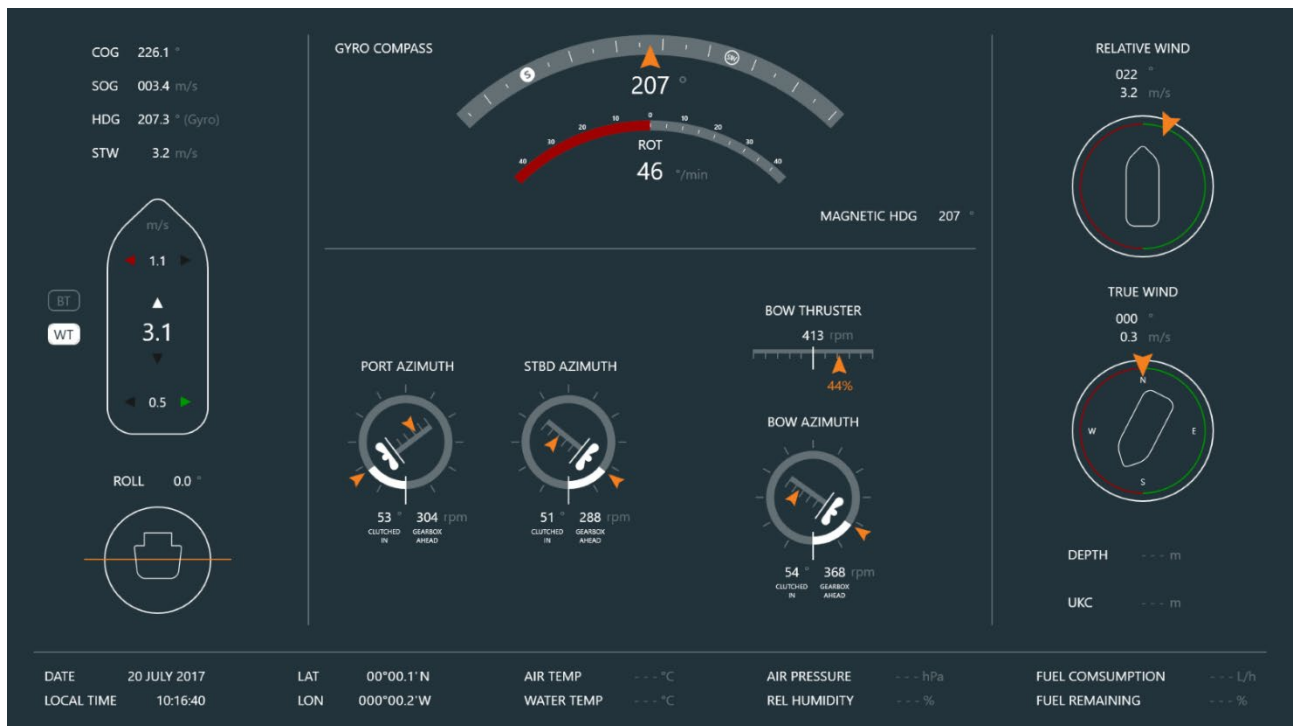
3.6 AMF

- Generally increased stability of AMF by better managing all sockets and connections. This resolves many rare issues like software not starting or stopping, reporting the wrong states in WatchdogUI, or WatchdogClient crashing.
- Added a configurable amount of retries if another AMFDevice does not respond, before marking it offline. This fixes an issue where the device would sometimes flicker offline for brief amounts of time in WatchdogUI.
- New functions added:
 - Added start/stop recording.
 - Added ResumeFromDebriefing
 - Create a scenario now to send the environment key.
 - Load scenario now supports absolute paths.
 - StartExercise now sends the session name along.
 - AMF calls will now always return a result, allowing applications to give feedback on when the requests have been processed.
 - SimulatorMode (create, train, record, or debrief) and UpdaterState (paused or running) are now available in the shared memory pool.
- Added an event listener class that responds to AMF calls and is easier to implement in our applications to add AMF support. Amf2Api and LogicEditor now use this for example.
- Made AMF more resilient to different input methods for paths. (forward or backslashes, trailing slashes, etc.)
- Process startup delays can now also be shorter than 1 second.

PANELS

4.1 Base improvements

- New conning design for standard solutions



- Steering pump panels have been redone to match the new steering pump usage in NAUTIS.
- The AIS panel will now show when communication is blocked.
- AIS panel can now be used to set destination and arrival date and time.
- AIS panel will now drop targets if they stop sending AIS for 1 minute.
- Added Morse Light control to standard new Navigation Lights panel.
- Added Manual control for Horn, Gong, and Bell on the new standard Sound panel.
- Added a new Auxiliary engine panel, separate from the steering pump panel.
- Added combinator curve to CPP tunnel gauge.
- Individual tabs on the JoystickTab panel can now be hidden.

4.2 CommsTrainer

- **Trainee:**
 - Navtex panel now shows the current UTC time, received from NMEA.
- **Instructor:**
 - Added a button to reload the prerecorded messages library.
 - Navtex message text field now also accepts newlines.

4.3 Bugfixes

- **Conning**
 - Fixed issue for Main Engine order
 - Fixed GYRO typo

➤ **AIS**

- Fixed true bearing calculations.

➤ **Other**

- Fixed anchor panel and camera panel for the St Petersburg vessel
- Fixed degrees text rotation on overhead display compass
- Fixed navlight panels for riverdrone ships
- Fixed a crash in the GPS panel in the routes list.

CONTENT

5.1 Vessels

➤ **Improvements:**

- **Tripoli**
 - Hatches variation will by default have wheelhouse and front mast down.
- **St. Petersburg (Tuning for DNV)**
 - Squat, wind effect & PMS adjustments.

BUG FIXES

➤ **Visuals**

- Fixed issue where Propeller visual wakes were not rendered on Link Clients

➤ **Dynamics**

- The BuoyancySolver is no longer called during session playback.
- Fixed an issue where the Pitch deceleration curve was not always used.
- Fixed issue where rudders/propulsions with a master/slave configuration could output the wrong ROR/TRC NMEA
- Fixed issue with bank effect when transitioning from an area with collision mesh to one without, causing large forces to be generated.

➤ **API**

- Fixed crashes: switching worlds, enabling API twice, and sending playback commands during server load.
- Dynamics sensor readings are now updated in API.
- SetExtComm Target in editors designates object as trainee vessel for API.
- Legacy API: fixed crash when spawning vessel with a variation.

➤ **Other**

- Fixed object smoothing during teleporting (e.g., using Gizmo or session playback).
- Fixed crash in Object Editor when teleporting ExtComm vessel for Radar protocols.
- Addressed a backward compatibility issue with the Decklights system.

- Resolved crash when editing NavMark center shape in Environment Editor.
- Fixed crash on loading with specific render settings.
- Addressed a crash when loading scenario with neighboring path nodes at the same location.
- Fixed Agx Wires issue when the session loaded through IS2.0.
- Ensured stockless anchors work properly, preventing upside-down placement.
- Fixed crash caused by offset failure in Geo Position modification.
- ControlStation reliably reconnects to NAUTIS API after connection loss.
- NMEA time output now compensates for leap seconds, causing a minute to have more than 60 seconds.
- Resolved issues from the 'auto-start recording on start exercise' setting on NAUTIS instances that shouldn't record.
- Fixed wind-angle readings exceeding 360 degrees for sensors.
- Ensured proper application of default states for Masts and Wheelhouse.

KNOWN ISSUES

- **Area Triggers** When creating an area in NAUTIS for triggering events through the Logic Editor a ship entering or touching the area would not always trigger. This happens when the center area where it was created is not inside the area itself.
 - Workaround would be to keep the position where the area was created inside the shape of the Area.
 - The issue will be resolved in Nautis 3.10.1
- **Powerlines** do not load on scenarios made in NAUTIS 3.8.0 or earlier.
 - Workaround would be to alter the scenario files:
 - Open the. scenario file which holds the environment that has power lines configured.
 - AntwerpenApproach
 - Boppard
 - Groningen
 - Harlingen
 - IJmuiden
 - IJzendoornhaaften
 - Mississippi
 - Nijmegen
 - Rotterdam
 - Schwelgern
 - Toledo
 - Find the following text `Scenarios::Header`

- Change the text to include the following:

```

<object name="Scenarios::Header" type="Scenarios::Header" key="13">
  <variables class="Scenarios::Header">
    <_envKey type="string">Rotterdam</_envKey>
    <_envOptionalLayers type="vector" valuetype="string">
      <item>NavMarks</item>
      <item>Locks</item>
      <item>Labels</item>
      <item>Powerlines</item>
    </_envOptionalLayers>
    <_envToActivated type="map" valuetype="string" keytype="string"/>
  </variables>
</object>

```

- **Ship resultant velocity discrepancy between NAUTIS sensor values real-time velocity** (as seen on outside view and ECDIS)
 - Workaround: Adjust NAUTIS server physics FPS to 30 or 20. Contact support if issues persist.
- **Issues when using the Gizmo to move a vessel on the outside view** that was opened as a separate window on the Instructor Station.
 - Workaround: Wait for Gizmo to recover at some point.
- **Switching from Day to Night results in a brief stall.**
 - Switching from Night to Day causes a small stall.
 - Avoid scenarios during night light transition, and split day and night training.
- **Only when using the API to switch from a scenario with an environment to a scenario without an environment, causes the Geo Positioning of the environment to be used still. This results in Ships being placed using Lat/Long will not be in the correct position.**
 - Investigation underway; resolution planned for future version. Not observed when loading scenarios in NAUTIS.