



NavTech

Planned Maintenance System

Installation, Updating, Editing & Document Handling Manual

For the Shore Main Computer and the Vessel Computer
Written for first-time users – no IT knowledge needed

Screens shown are real captures of NavTech using a demonstration vessel (MV OCEAN PIONEER) with sample data.

Sketches and command-window pictures are illustrations.

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Understanding NavTech

1. What NavTech is and how the pieces fit together

NavTech has **two programs**. Both are single files. You do not need a database, an installer or an internet connection on the ship.

Program	Where it runs	Who uses it	What it does
NavTech-PMS.html	Every vessel computer	Master, Chief Engineer, officers	The maintenance system itself: jobs, running hours, spares, provisions, defects, certificates, drydock, reports. Works fully offline.
navtech-shore-server.js	ONE shore main computer (office)	Superintendents, management, IT	Receives data from all ships, shows the whole fleet, and sends instructions back to ships.

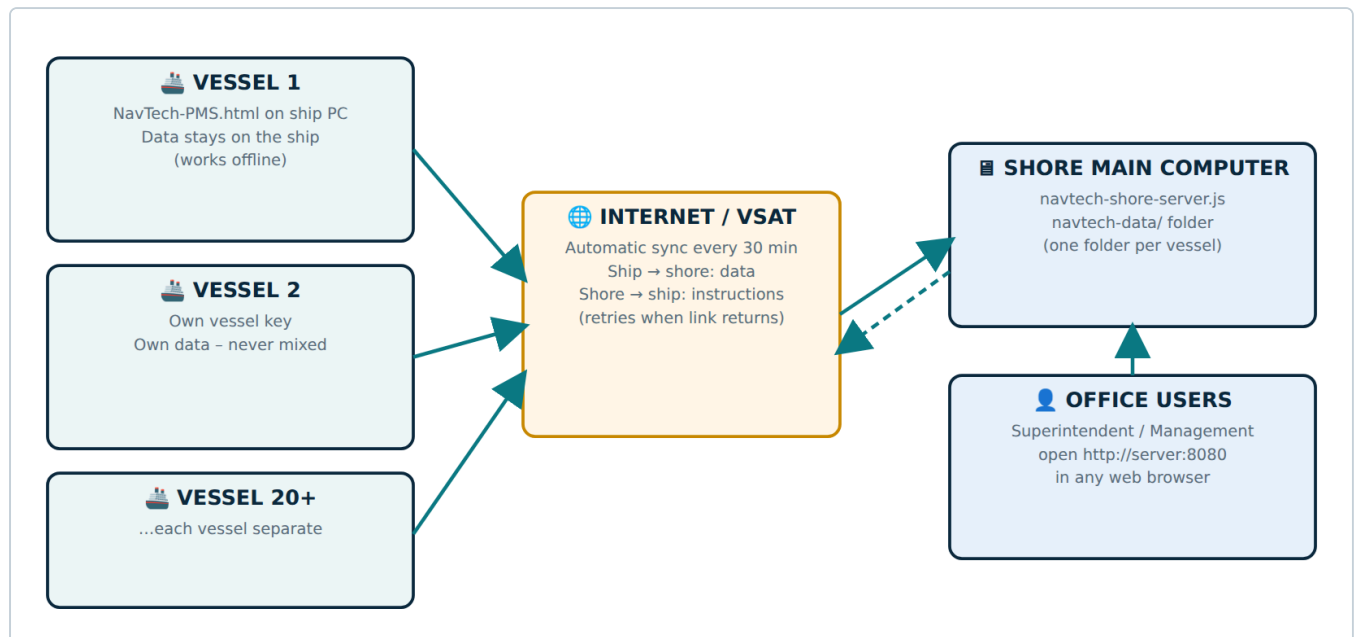


Figure 1. How the vessels, the internet and the shore computer are connected. Each ship keeps its own data and sends a copy to the shore automatically.

The ship works normally even if the link to shore is down. When the link is back, the ship sends its latest data and collects any instructions from shore. Each vessel is identified by three things so that two ships can **never be mixed up**:

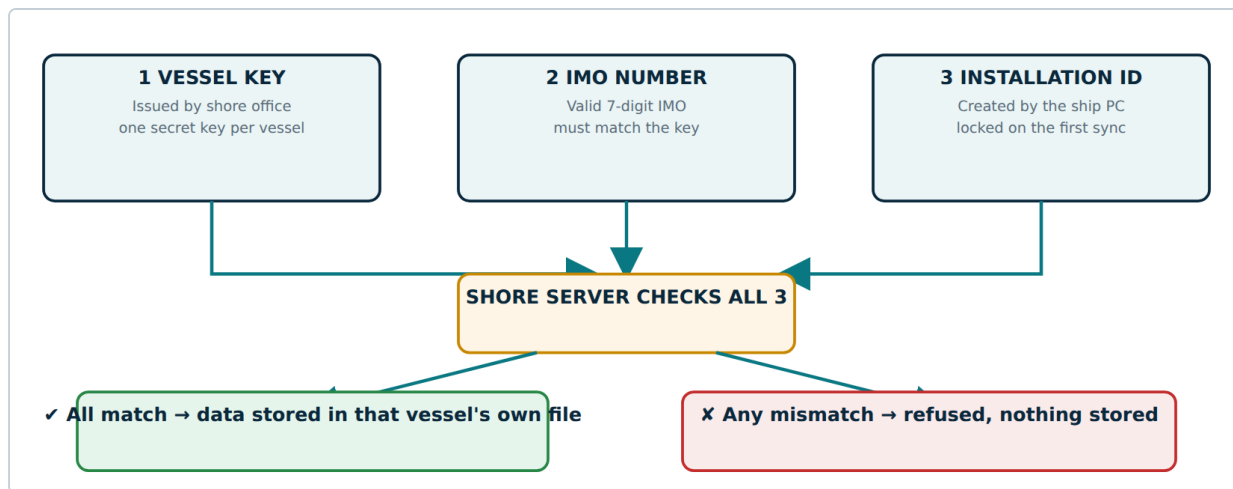


Figure 2. The three-way vessel check made by the shore server on every transfer.

2. Words used in this manual

Word	Meaning
Browser	Chrome, Edge or Firefox. NavTech on board is opened in a browser.
Node.js	A free program that runs the Shore Server. Installed once on the shore computer.
Command window	Windows: <i>Command Prompt</i> or <i>PowerShell</i> . Mac/Linux: <i>Terminal</i> . A black/white window where you type a command and press Enter.
Vessel key	A secret code made by the shore server for ONE vessel. The ship enters it once.
Sync	The automatic exchange of data between a ship and the shore server.
Backup	A saved copy of the data. The encrypted backup has the extension .nte and needs a password.
Admin / Officer / Shore	The three user roles on board (see section 26).

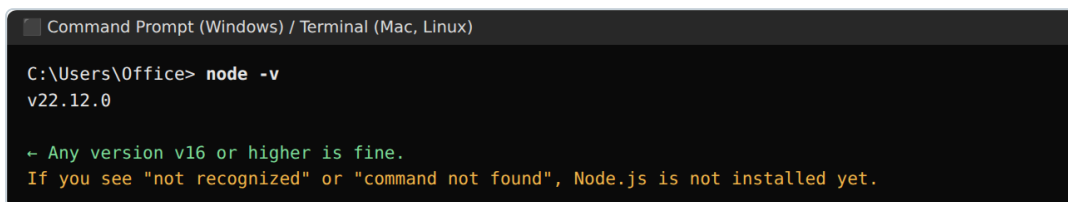
Shore Main Computer - installing the Shore Server

3. What you need

- One office computer (Windows, Mac or Linux) that can stay **switched on all the time**. A small server or a virtual machine is ideal.
- The file **navtech-shore-server.js**.
- Administrator rights on that computer (to install Node.js and open the firewall).
- A way for ships to reach it: a fixed address on the internet (see section 7). Involve your IT person for this step.

4. Install Node.js

1. Open a browser and go to **nodejs.org**. Download the **LTS** version for your system.
2. Run the downloaded installer (Windows/Mac). Keep clicking **Next** and accept the defaults. On Linux you may use your package manager instead.
3. Open a command window (Windows: press the Windows key, type **cmd**, press Enter).
4. Type **node -v** and press Enter. A version number such as v22.12.0 must appear (v16 or higher).



```
Command Prompt (Windows) / Terminal (Mac, Linux)

C:\Users\Office> node -v
v22.12.0

← Any version v16 or higher is fine.
If you see "not recognized" or "command not found", Node.js is not installed yet.
```

Figure 3. Checking that Node.js is installed.

5. Copy and start the server

1. Create a new folder, for example **C:\NavTechShore** (Mac/Linux: **/opt/navtech-shore**).
2. Copy **navtech-shore-server.js** into that folder. Do nothing else – the data folder is created by itself.
3. In the command window go to the folder: **cd C:\NavTechShore**
4. Start the server: **node navtech-shore-server.js**
5. On the **first run only** the window prints the **admin password**. Write it down now.

```
Command Prompt - C:\NavTechShore

C:\NavTechShore> node navtech-shore-server.js

*** FIRST RUN – shore login: admin / ee21067924e5 (change it under Admin) ***

← Write down the password. Leave this window open: closing it stops the server.
```

Figure 4. First start of the server. The password shown here is an example – yours will be different.

Important. Do not close this window yet: closing it stops the server. Section 8 shows how to make it start by itself.

Note. To use another port, start with **set PORT=9000 && node navtech-shore-server.js** (Windows Command Prompt) or **PORT=9000 node navtech-shore-server.js** (Mac/Linux). The default port is 8080.

6. First login and changing the password

1. On the shore computer open a browser and type **http://localhost:8080**.
2. Log in with user **admin** and the password from step 5.
3. Click **Admin** (top bar). Under **Users**, in the form *Add / reset user*, enter user name **admin**, your own new password (at least 8 characters), role **Admin**, vessels *, and click **Save**. This replaces the first-run password.

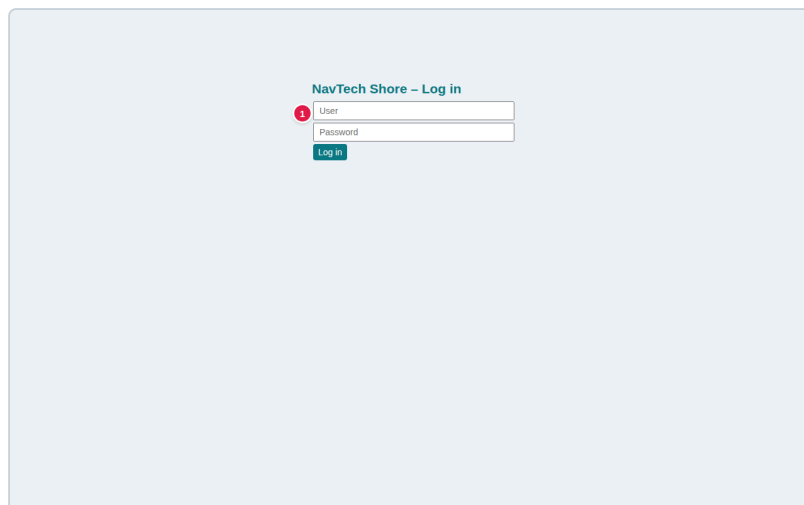


Figure 5. Shore server login page.

- 1 User name and password fields. Log in with **admin** the first time.

Tip. Logging in 8 times with a wrong password blocks that computer for 15 minutes. This protects the server from guessing.

7. Let the ships reach the server

The server is now running on the shore computer, but ships are on another network. Three things are needed:

1. **Allow the port through the firewall.** Windows (Command Prompt run as Administrator): see the command below. Linux: **sudo ufw allow 8080/tcp**. Mac: click *Allow* when the system asks.
2. **Find the computer's address.** Type **ipconfig** (Windows) or **ip a** (Linux). Inside the office network the address looks like 192.168.1.10. Test from another office computer: open **http://192.168.1.10:8080**.
3. **Make it reachable from the internet.** Ask IT to give the server a fixed public address (a cloud server, or a public IP with the office router forwarding port 8080 – or 443 when using HTTPS – to this computer). Ships will use this address, for example **https://navtech.yourcompany.com**.

```
Command Prompt - run as Administrator

C:\Windows\system32> netsh advfirewall firewall add rule name="NavTech Shore" dir=in action=allow
protocol=TCP localport=8080
Ok.

C:\Windows\system32> ipconfig
IPv4 Address. . . . . : 192.168.1.10 ← the address to use
```

Figure 6. Opening the firewall port and finding the address (Windows).

Important. Over the internet always use **HTTPS**. The server itself speaks plain HTTP, so put a free reverse proxy in front of it. The simplest is **Caddy**: after installing it, run **caddy reverse-proxy --from navtech.yourcompany.com --to localhost:8080**. Caddy obtains the certificate by itself (the domain must point to this computer and ports 80/443 must be open).

8. Keep the server running all the time

The easiest method on every system is **PM2**. It restarts the server after a crash or a computer restart.

```
Terminal - keep the server running automatically (all systems)

$ npm install -g pm2
$ cd /opt/navtech-shore      (or C:\NavTechShore on Windows)
$ pm2 start navtech-shore-server.js --name navtech
$ pm2 save
$ pm2 startup                (run the command it prints)

$ pm2 status                 → shows "navtech online"
$ pm2 logs navtech           → shows the server messages
```

Figure 7. Installing PM2 and starting NavTech as a permanent service.

Note. On Windows, **pm2 startup** does not work as on Linux. Use the free tool **pm2-windows-startup**, or create a *Task Scheduler* task that runs **node navtech-shore-server.js** in the NavTechShore folder when the computer starts. Your IT person can do this in a few minutes.

9. Register each vessel and give it a key

1. Log in and click **Admin**.

2. In **Register vessel** type the vessel's **IMO number** (7 digits – the server checks the IMO check digit) and the **vessel name**. Click **Register**.
3. The vessel appears in the table with its **vessel key** (a long code). Send this key to the ship by e-mail or phone. Each vessel has its own key.
4. The column **Bound to installation** says *Not yet* until the ship syncs for the first time. After that it says *Yes*: the key is locked to that one ship computer.

NavTech Shore – Fleet Office Fleet Admin admin (admin) · Log out

Administration

Vessels (6)

IMO	Name	Vessel key (give to ship)	Bound to installation	
9074729	MV OCEAN PIONEER	085c4a24f4aa3e02677157f1f75f72b4	Not yet	New key / unbind Remove
9123453	MT LANKA STAR	5b0af18f72716275980dcf5b13367d27	Not yet	New key / unbind Remove
9234111	MV INDIAN SPIRIT	9953663113ab9e30a42882fe60a9c594c	Not yet	New key / unbind Remove
9345673	MV GALLE TRADER	142d93cdc3ae882657a2d61d5cc24843	Not yet	New key / unbind Remove
9456123	MT SERENDIB GLORY	bb533c367ff82402d9caa1c23600b673	Not yet	New key / unbind Remove
9567817	MV PEARL OF ASIA	379c409faa5b196c8cb29a89d1240127	Not yet	New key / unbind Remove

Register vessel: IMO (7 digits) Vessel name Register

Users

User	Role	Vessels (IMO list or *)	
admin	admin	*	Delete

Add / reset user Username Password (8+) Superintendent (assigned vessels, can instruct) * Save

Backups: each vessel's last 30 snapshots are kept in navtech-data/bk/<IMO>/. Back up the navtech-data folder regularly.

Figure 8. The Admin page. Repeat the registration for every vessel in the fleet (20 or more).

- 1 IMO number field (and, next to it, the vessel name).
- 2 Form for adding users (section 10).
- 3 The vessel key. Give it only to the right ship.

Button	What it does
New key / unbind	Creates a new key and releases the vessel. Use this if the ship computer is replaced, or if a key was sent to the wrong person.
Remove	Deletes the vessel registration (stored data files remain on disk).

Important. If a ship reports *Identity mismatch*, a different computer is already using that vessel's key. Check you are sending the key to the correct ship; use **New key / unbind** only when you are sure.

10. Add superintendents and managers

1. Admin → **Add / reset user**.
2. Enter a user name and a password of at least 8 characters.

3. Choose the role (see table).
4. In **Vessels** type the IMO numbers this person looks after, separated by commas (for example **9074729,9123453**), or * for all vessels.
5. Click **Save**. To change a password, save the same user name again with the new password.

Role	Can see	Can do
Superintendent	Only the vessels assigned	View everything, approve requisitions, add jobs, change intervals
Management	All assigned vessels (use *)	View only
Admin	Everything	Everything, plus Admin page (vessels and users)

11. Using the fleet screens and sending instructions to a ship

3 NavTech Shore – Fleet Office Fleet Admin admin (admin) · Log out									
Fleet overview									
Vessel	IMO	Last sync	Overdue	Critical overdue	Due soon	Low stock	Open defects	Certs ≤90 d	Reqs to approve
1 MV OCEAN PIONEER	9074729	10/1/2026, 6:40:03 AM	9	6	8	12	2	6	0
MT LANKA STAR	9123453	10/1/2026, 5:40:03 AM	3	1	6	2	1	2	1
MV INDIAN SPIRIT	9234111	10/1/2026, 4:40:03 AM	7	2	9	1	2	1	0
MV GALLE TRADER	9345673	10/1/2026, 3:40:03 AM	1	0	4	0	0	0	0
MT SERENDIB GLORY	9456123	9/27/2026, 2:40:03 AM △ stale	5	1	8	3	1	3	2
MV PEARL OF ASIA	9567817	10/1/2026, 1:40:03 AM	0	0	2	1	0	1	0

Figure 9. The fleet overview. One row per vessel.

- 1 Click a vessel name to open its page.
- 2 Critical overdue jobs.
- 3 Red numbers need attention. "△ stale" means the ship has not synced for more than 2 days.

Open a vessel to see its particulars, overdue jobs, requisitions, defects, certificates, low stock and drydock projects.

 NavTech Shore – Fleet Office Fleet Admin admin (admin) · Log out	
MV OCEAN PIONEER – IMO 9074729 Last sync: 10/1/2026, 6:40:03 AM · Download latest data (JSON)	
Vessel particulars	
Item	Value
Vessel name	MV OCEAN PIONEER
IMO number (7 digits)	9074729
Vessel type	General Cargo
Flag	Sri Lanka
Port of registry	Colombo
Classification society	Lloyd's Register
Class number	LR-9074729
Gross tonnage	24,380
Net tonnage	11,900
Deadweight (t)	37,500
LOA (m)	189.9
Year built	2011
Builder / yard	Hyundai Mipo, Korea
Main engine maker / model	MAN B&W 6S50MC-C
Main engine power (kW) / RPM	9,480 kW / 127 rpm
Registered owner	Ocean Lines (Pvt) Ltd
Ship manager	Ocean Ship Management
Technical superintendent	Capt. A. Perera
Master	Capt. R. Silva

Figure 10. Top of a vessel page.

- 1 Vessel particulars, filled in on board.
- 2 Overdue and due-soon jobs.

Requisitions					
No.	Date	Items	Priority	Status	Action
REQ-20261001-0	2026-09-23	Fuel injector x6	Routine	Ordered MAN Energy Solutions	
REQ-20261001-1	2026-10-01	Fuel injector x10 Piston ring set x7 Cylinder head gasket x10 Lube oil filter element x14 Purifier O-ring kit x9 Bearing 6310 x8 Fuel filter cartridge x18 Rice (basmati) x130 Cooking oil x48 Chicken (frozen) x75 Fresh vegetables x80	Urgent	Draft	

Drydock & repair projects								
Project	Yard	Status	Dates	Items done	Estimate	Lowest tenders	Awarded	Actual
Special Survey & Drydock 2027	Colombo Dockyard PLC	Tendering	2027-01-29 -- 2027-02-23	0/16	240000.00 USD	227500.00	58000.00	0.00

Open defects				
Date	Component	Defect	Severity	
2026-09-27	Main Engine	Cylinder 4 exhaust valve leaking	Major	
2026-09-21	Fuel Oil Purifier	Purifier seal water leak	Minor	
2026-09-16	Auxiliary Diesel Generator No.1	Governor hunting at low load	Major	

Certificates & surveys		
Certificate	Expiry	Days left
Class – Certificate of Class	2026-10-21	20
MLC – Maritime Labour Certificate	2026-11-10	40
Class – Annual Survey	2026-11-15	45

Figure 11. Requisitions waiting for approval.

- 1 Requisition list.
- 2 **Approve** – the ship receives the approval at its next sync.
- 3 **Reject**.

Flag – minimum safe manning Document	2027-11-23	420
SOLAS – Cargo Ship Safety Radio	2028-02-13	500
Flag – Load Line Certificate	2028-02-13	500
Other – Bunker Convention (CLC) Certificate	2028-02-13	500
MARPOL – IOPP Certificate	2028-05-23	600
MARPOL – IAPP Certificate	2028-08-31	700
ISM – Document of Compliance (DOC)	2028-12-09	800

Low stock

Item	Stock	Minimum
Fuel injector	2 pcs	6
Piston ring set	-1 set	3
Cylinder head gasket	6 pcs	8
Lube oil filter element	6 pcs	10
Purifier O-ring kit	-1 kit	4
Bearing 6310	4 pcs	6
Fuel filter cartridge	6 pcs	12
Rice (basmati)	70 kg	100
Cooking oil	32 L	40
Chicken (frozen)	45 kg	60
Fresh vegetables	40 kg	60

Send instruction to vessel

Add job **2** Main Engine **3** Job title Interval H ☐ Critical Rank **Send**

Change inter **4** Main Engine – Fuel injectors overhaul New interval H **Send**

Pending (not yet received by vessel): 0

Figure 12. Instructions sent from shore to the ship.

- 1** Heading of the instruction area.
- 2** Add a job: choose the component (name must match the ship's component), type the job, interval, unit (H hours, D days, M months) and click **Send**.
- 3** Job title.
- 4** Change an interval: choose the job, type the new interval, click **Send**.

Note. Instructions wait on the server until the ship next connects. The page shows *Pending* until the ship has received them. A new job sent from shore shows on the ship marked as coming from Shore.

12. Shore backups

- Everything is in the folder **navtech-data** next to the server file. **Copy this whole folder** to an external drive or cloud storage regularly (weekly is recommended).
- The server also keeps the last 30 snapshots of each vessel in **navtech-data/bk/<IMO>/**. Each vessel page has a *Download latest data (JSON)* link.
- To restore the server on a new computer: install Node.js, copy the server file and the saved **navtech-data** folder together, and start it.

13. Updating the Shore Server

- Copy the whole **navtech-data** folder to a safe place (backup).
- Stop the server (press **Ctrl+C** in its window, or **pm2 stop navtech**).
- Replace **navtech-shore-server.js** with the new file. Do **not** touch the **navtech-data** folder.

4. Start the server again (**node navtech-shore-server.js** or **pm2 restart navtech**).
5. Log in and check that all vessels and users are still listed. Ships reconnect by themselves.

Vessel Computer - NavTech on board

14. Prepare the vessel computer and install NavTech

There is nothing to install. NavTech is a single file that opens in a browser.

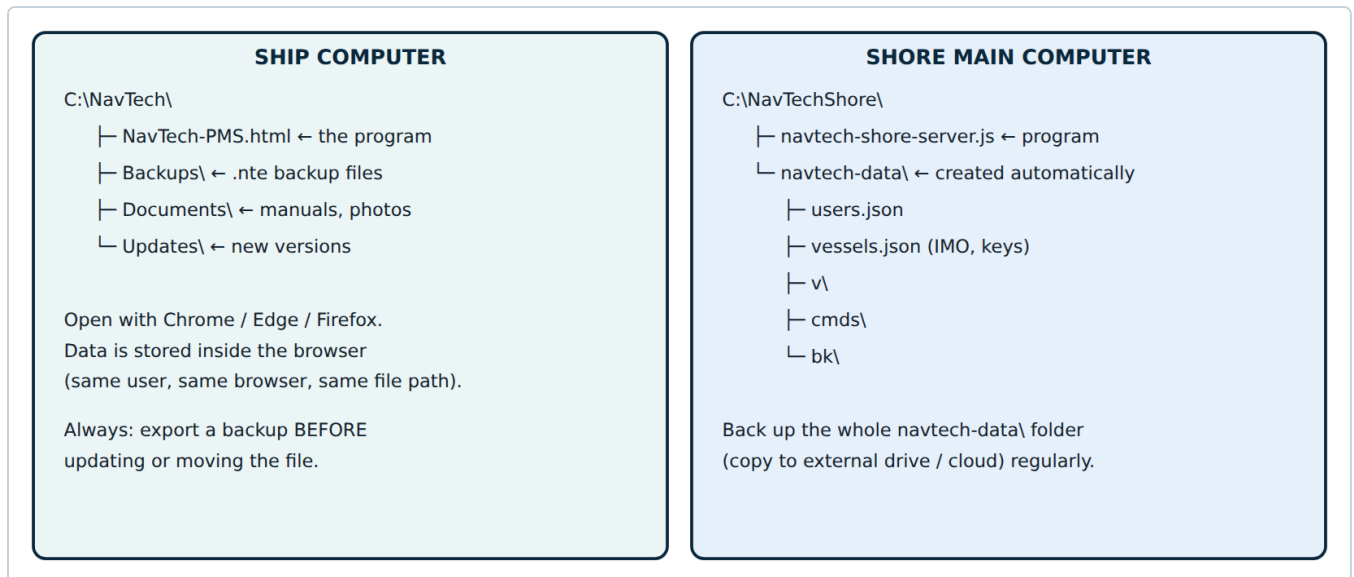


Figure 13. Recommended folders on the ship computer (left) and the shore computer (right).

1. Use one computer as the **main NavTech computer** (for example in the engine control room office).
2. Create the folder **C:\NavTech** with sub-folders **Backups**, **Documents** and **Updates** (Mac/Linux: a folder in your home directory).
3. Copy **NavTech-PMS.html** into **C:\NavTech**.
4. Double-click the file. It opens in the default browser. If it does not, right-click → Open with → Chrome / Edge / Firefox.
5. Make a shortcut on the Desktop to the file, so everyone opens it from the **same place**.

Important. NavTech stores its data **inside the browser** of that computer. Always open it with the same browser, the same Windows user and the same file location. Opening a copy from another folder or browser may show an empty NavTech. Your data is not lost – restore it from a backup (section 23).

15. First login and users

1. Choose the user **admin** and type the PIN **1234**. Click **Log in**.
2. Go to **Settings → Users**. Edit the admin user and set a new private PIN (4 or more digits).
3. Add a user for each person: **Officer** for Chief Engineer / officers who complete jobs, **Shore** for read-only visitors.

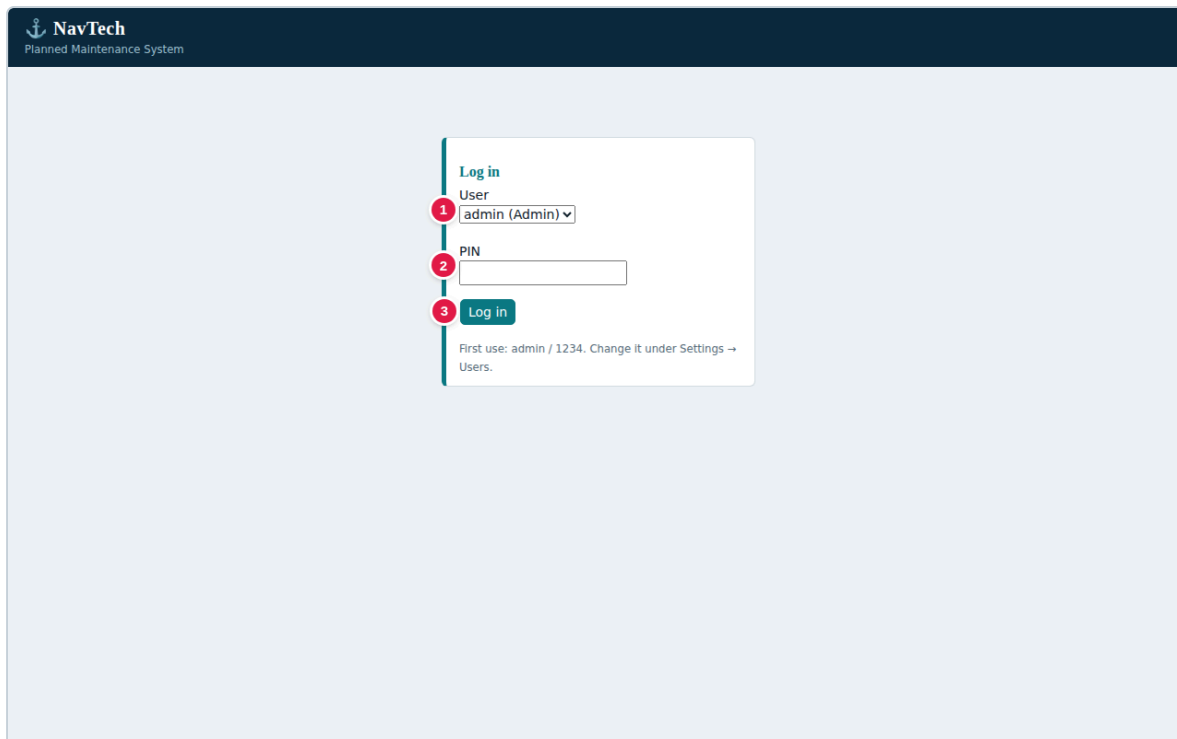


Figure 14. NavTech login screen.

- 1 User.
- 2 PIN. After 5 wrong tries the screen locks for one minute.
- 3 Log in.

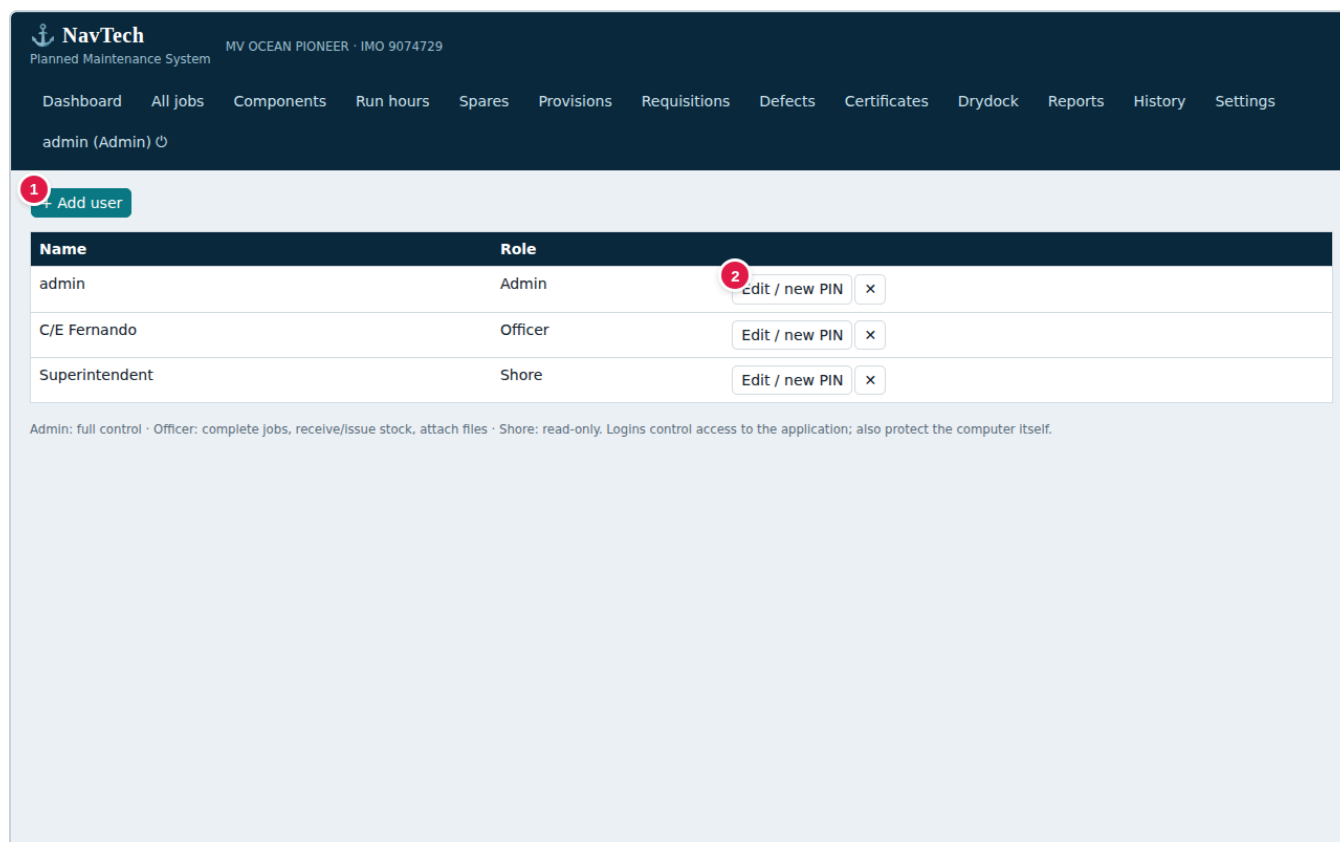


Figure 15. The Users page (Admin only).

- 1 Add a user.
- 2 Change the name, role or PIN of a user.

Note. The PIN protects use of NavTech. It does not encrypt the computer – keep the computer itself under normal password protection.

16. Enter the vessel details

1. Click **Settings**, then **Vessel details**.
2. Fill in the fields: name, **IMO number**, type, call sign, flag, class, tonnages, dimensions, builder, engines, owner, manager, DPA, superintendent, master, chief engineer, reporting currency and exchange rates.
3. Scroll to the bottom of the window and click **Save**. If the IMO number is wrong, NavTech refuses it.

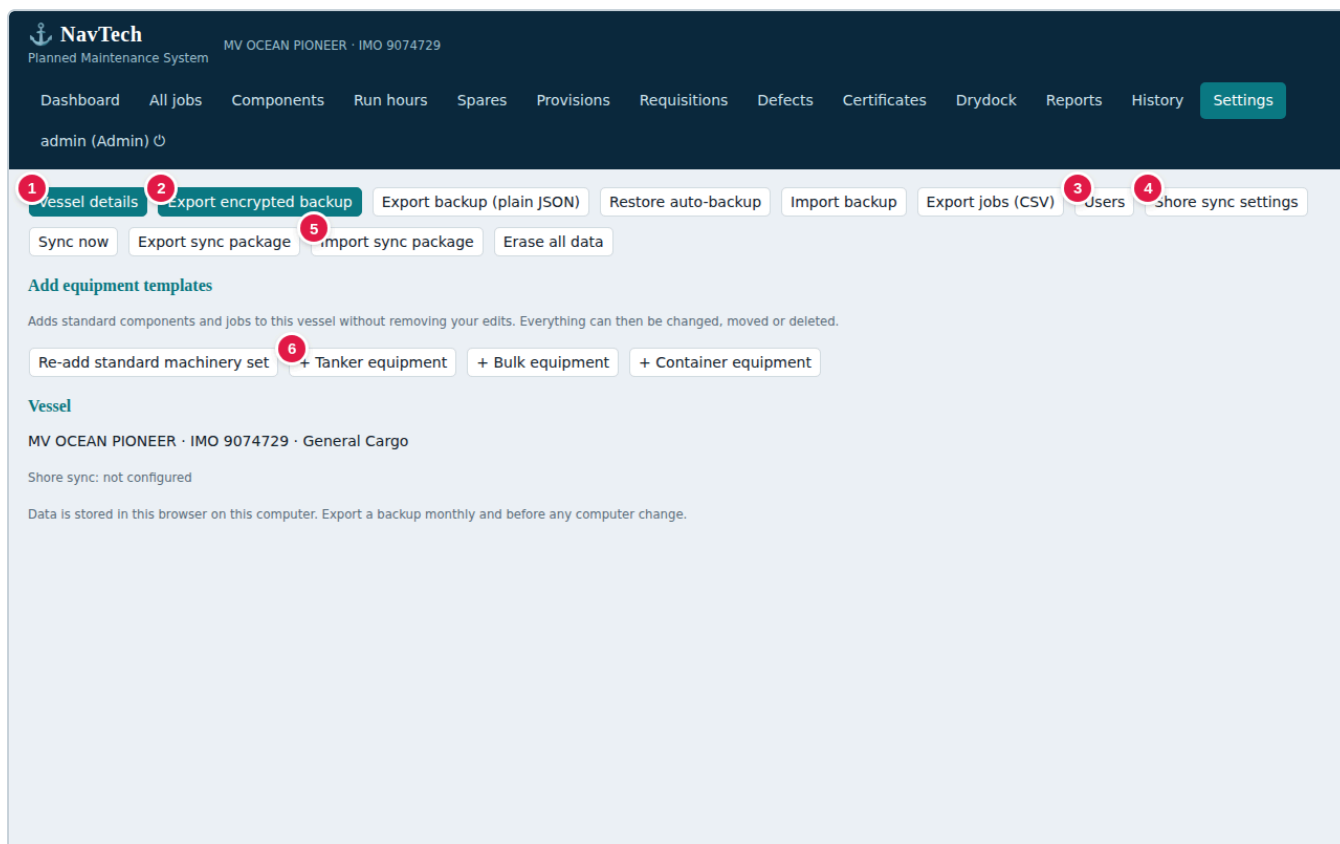


Figure 16. The Settings page.

1. Vessel details.
2. Export encrypted backup.
3. Users.
4. Shore sync settings.
5. Import sync package.
6. Equipment templates for Tanker, Bulk and Container vessels.

NavTech
Planned Maintenance System

MV OCEAN PIONEER · IMO 9074729

Dashboard All jobs Components Reports History Settings

admin (Admin) ⌵

Vessel details Export encrypted backup

Sync now Export sync package Import

Add equipment templates

Adds standard components and jobs to this vessel with

Re-add standard machinery set + Tanker

Vessel

MV OCEAN PIONEER · IMO 9074729 · General

Shore sync: not configured

Data is stored in this browser on this computer. Export

Vessel details

Vessel name
MV OCEAN PIONEER

IMO number (7 digits)
9074729

Vessel type
General Cargo

Call sign

MMSI

Flag
Sri Lanka

Port of registry
Colombo

Classification society
Lloyd's Register

Class number
LR-9074729

Gross tonnage
24,380

Net tonnage
11,900

Deadweight (t)
37,500

Figure 17. Vessel details window (scroll down for all fields).

Tip. Reporting currency and exchange rates are used for costs. Write rates like **EUR=1.10**, **LKR=0.0033** (value of one unit in your reporting currency).

17. Set up the maintenance plan (editing components and jobs)

NavTech starts with a standard set of machinery and jobs. **Make it match your ship.** Everything can be added, changed, moved or deleted.

Planned Maintenance System

MV OCEAN PIONEER · IMO 9074729

Dashboard

All jobs

Components

Run hours

Spares

Provisions

Requisitions

Defects

Certificates

Drydock

Reports

History

Settings

admin (Admin)

1 + Add component

Engine

Main Propulsion

2 Main Engine · 48210 h · 9 Jobs

3 + Job

4 Update hours

Files

5 Edit / move

6 Delete

Status	Component	Job	Interval	Last done	Due	Rank	
100 h over	Main Engine Engine > Main Propulsion	Cylinder liners, pistons & rings inspection	12000 H	36110 h	48110 h	C/E	Done Edit
180 h left	Main Engine Engine > Main Propulsion	Turbocharger overhaul	16000 H	32390 h	48390 h	2/E	Done Edit
1380 h left	Main Engine Engine > Main Propulsion	Crankcase & bearing inspection	16000 H	33590 h	49590 h	C/E	Done Edit
77 d left	Main Engine Engine > Main Propulsion	Governor, overspeed & safety trip test	3 M	2026-09-17	2026-12-17	2/E	Done Edit
81 d left	Main Engine Engine > Main Propulsion	Scavenge space inspection & drain	1 M	2026-11-21	2026-12-21	3/E	Done Edit
83 d left	Main Engine Engine > Main Propulsion	Lube oil analysis sample	3 M	2026-09-23	2026-12-23	3/E	Done Edit
1200 h left	Main Engine Engine > Main Propulsion	Fuel injectors overhaul	2000 H	47410 h	49410 h	2/E	Done Edit
1260 h left	Main Engine Engine > Main Propulsion	Exhaust valves overhaul	8000 H	41470 h	49470 h	C/E	Done Edit

Figure 18. The Components tab.

- + Add component** – new equipment (department, system, name, running hours).
- Click an equipment name to open its job list.
- + Job** – add a maintenance job.
- Update hours** – set the running hours.
- Edit / move** – rename or move to another system or department.
- Delete** – removes the equipment and its jobs (Admin only).

Adding or changing a job

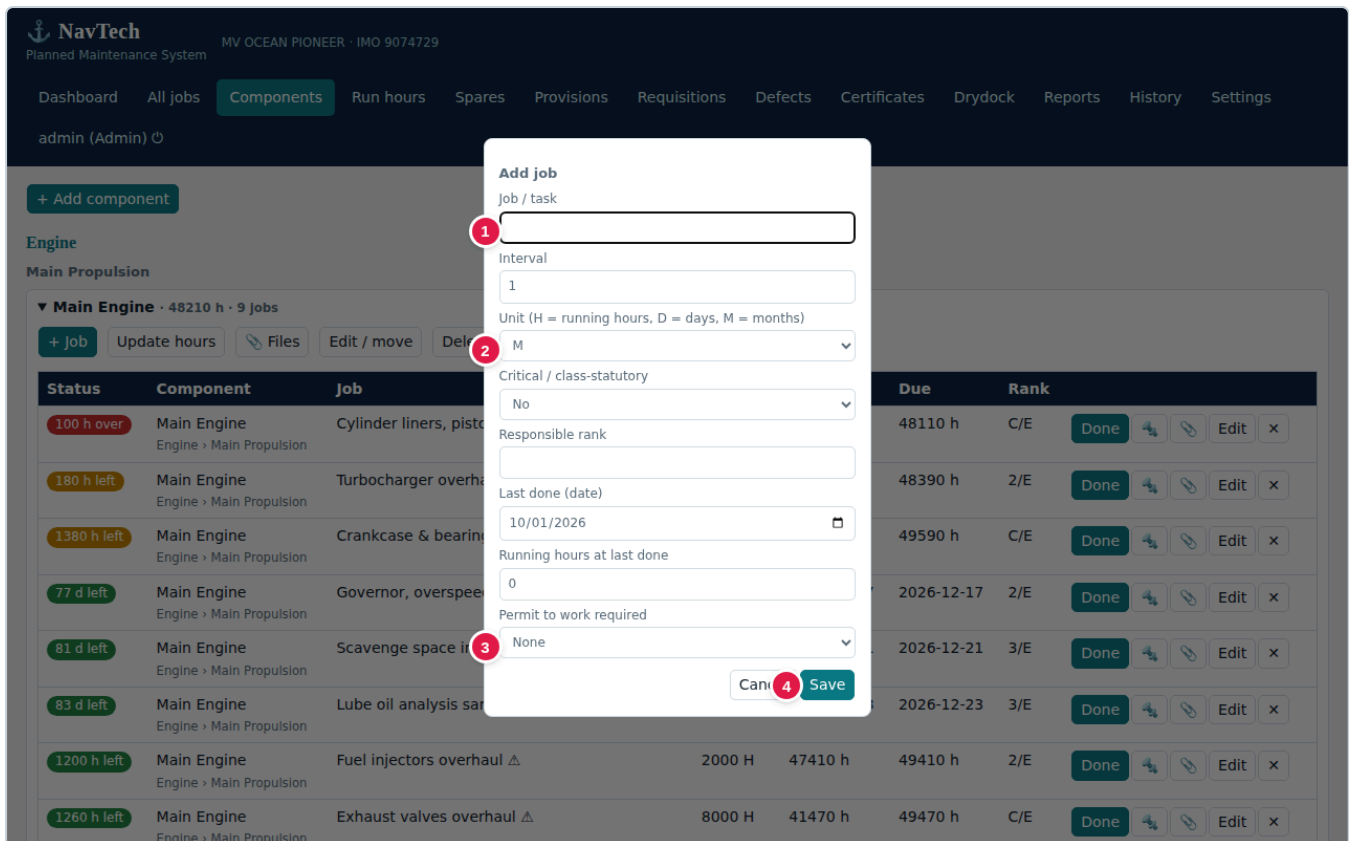


Figure 19. The job window.

- 1 Job title.
- 2 Interval unit: **H** running hours, **D** days, **M** months.
- 3 Permit to work: Hot work, Enclosed space, High voltage or Working aloft. A job with a permit cannot be completed without the permit details.
- 4 Save.

1. For each job set **Last done** (date) and **Running hours at last done**. Until you do this NavTech assumes the job was done today.
2. Mark **Critical** for class / statutory / safety-critical jobs.
3. Set the **Responsible rank** (2/E, C/O, ETO ...).
4. Delete jobs that do not apply with the × button in the job list.

Tip. Do the first set-up one department at a time (Engine, Electrical, Deck, Safety ...). Use the maker's manuals and your company SMS for the intervals – the starter intervals are typical values only.

18. Daily use: completing jobs and running hours

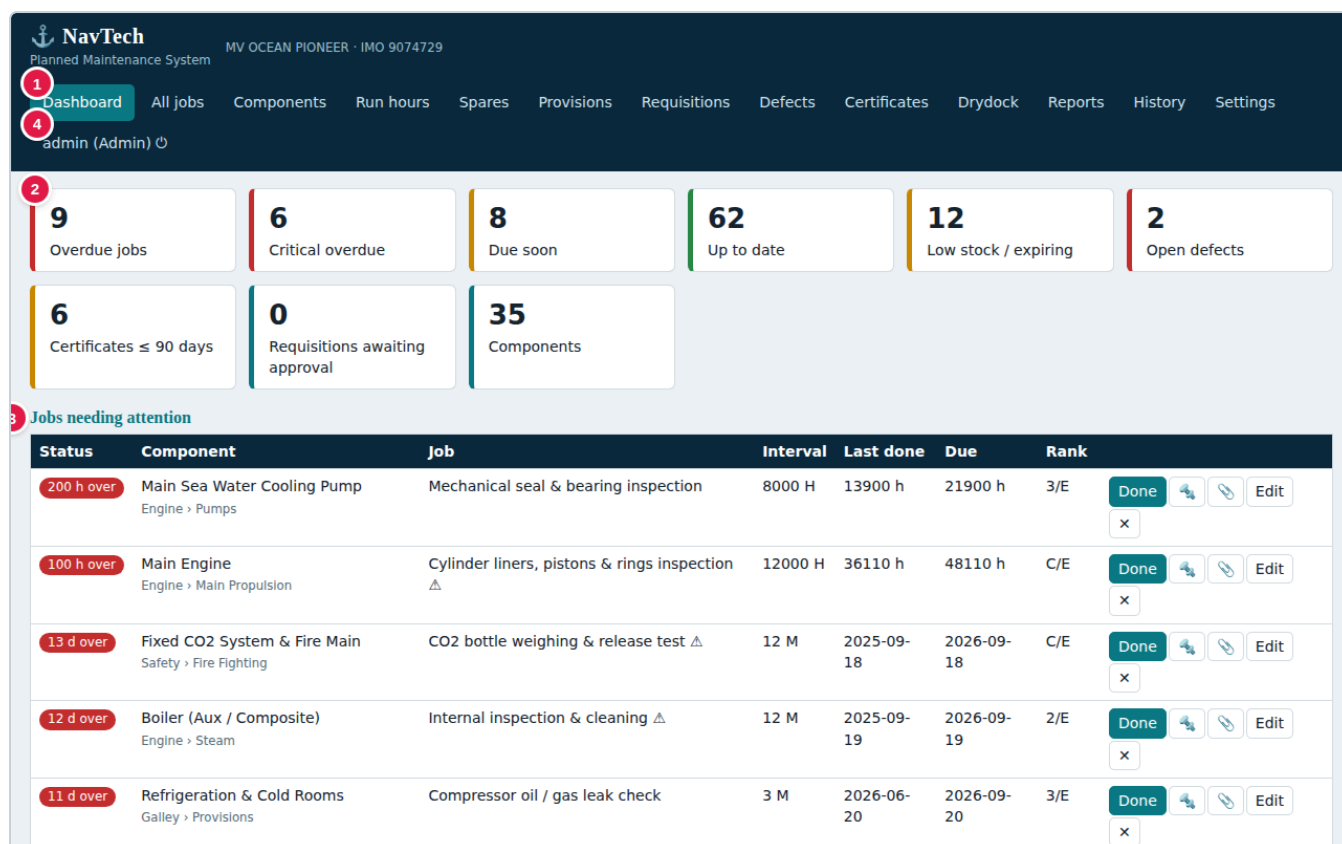


Figure 20. The Dashboard.

- 1 The tabs along the top.
- 2 Counters: overdue, critical overdue, due soon, low stock, open defects, certificates, requisitions.
- 3 Jobs needing attention.
- 4 Logged-in user (click to log out).

NavTech
Planned Maintenance System

MV OCEAN PIONEER · IMO 9074729

Dashboard All jobs Components Run hours Spares Provisions Requisitions Defects Certificates Drydock Reports History Settings

admin (Admin) ⌵

1 Search component or job 2 All departments Overdue Print

Status	Component	Job	Interval	Last done	Due	Rank	
200 h over	Main Sea Water Cooling Pump Engine · Pumps	Mechanical seal & bearing inspection	8000 H	13900 h	21900 h	3/E	3 Done 4 5 Edit
100 h over	Main Engine Engine · Main Propulsion	Cylinder liners, pistons & rings inspection ⚠	12000 H	36110 h	48110 h	C/E	Done Edit
13 d over	Fixed CO2 System & Fire Main Safety · Fire Fighting	CO2 bottle weighing & release test ⚠	12 M	2025-09-18	2026-09-18	C/E	Done Edit
12 d over	Boiler (Aux / Composite) Engine · Steam	Internal inspection & cleaning ⚠	12 M	2025-09-19	2026-09-19	2/E	Done Edit
11 d over	Refrigeration & Cold Rooms Galley · Provisions	Compressor oil / gas leak check	3 M	2026-06-20	2026-09-20	3/E	Done Edit
7 d over	Sewage Treatment Plant Engine · Machinery	Blower, dosing & discharge pump overhaul	6 M	2026-03-24	2026-09-24	4/E	Done Edit
6 d over	Batteries, UPS & Emergency Lighting Electrical · Power	Voltage / SG check & load test ⚠	3 M	2026-06-25	2026-09-25	ETO	Done Edit
4 d over	Ballast Tanks & Cargo Spaces Deck · Hull	Internal inspection ⚠	12 M	2025-09-27	2026-09-27	C/O	Done Edit

Figure 21. The All jobs tab. Search and filter, then complete jobs.

- 1 Search box (and the department and status filters beside it).
- 2 Status: red = overdue, orange = due soon, green = up to date.
- 3 **Done** – record that the job was completed.
- 4  – spare parts needed for this job.
- 5  – documents attached to this job.

Completing a job

1. Click **Done** on the job.
2. Check the date and the **running hours now**. Type who did the job and any remarks.
3. If spares were used, check the quantities (they are taken from stock).
4. If the job needs a permit to work: type the permit number, set all four checks to **Yes**, and type the responsible officer's name.
5. Click **Save**. The job is rescheduled and appears in **History**.

Complete: Fuel injectors overhaul

Date completed
10/01/2026

Running hours now
48210

Done by
admin

Remarks / defects

Permit no. (Hot work)

Isolation / lock-out tag-out done
No

Atmosphere tested, ventilation / fire watch in place
No

PPE and emergency equipment ready
No

Risk assessment reviewed, toolbox talk held
No

Responsible officer sign-off (name / rank)

Spare used: Fuel injector (in stock 2 pcs)
6

Cancel Save

Figure 22. Completing a job with spares and a permit to work.

- 1 Running hours now.
- 2 Spare used – quantity taken from stock.
- 3 Permit number.
- 4 Responsible officer sign-off.

Daily running hours


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Dashboard
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admin (Admin) 


1

10/01/2026


3

save all

Enter the hours each machine ran since the last entry. Leave blank if it did not run.

Component	Total hours	Last updated	Hours run
Main Engine Engine	48210		2
Auxiliary Diesel Generator No.1 Engine	29850		
Fuel Oil Purifier Engine	9800		
Lube Oil Purifier Engine	15200		
Main Air Compressor Engine	7300		
Main Sea Water Cooling Pump Engine	22100		
Bilge / Ballast / Fire Pumps Engine	6400		
Fresh Water Generator Engine	48210		

Figure 23. The Run hours tab.

- 1 Date.
- 2 Hours run today for each machine (leave blank if it did not run).
- 3 Save all.

Tip. Hours-based jobs become due according to these numbers. Entering them every day keeps the plan accurate.

19. Spares, provisions and requisitions

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admin (Admin)

1 Add spare part

Export CSV

Code	Item	Equipment	Location	Stock	Min					
PS-01	Purifier O-ring kit	Fuel Oil Purifier	Store A-6	2 kit	4	3 Receive	4 Issue	5 Count		Edit x
FT-12	Fuel filter cartridge	Main Engine	Store A-8	6 pcs	12	Receive	Issue	Count		Edit x
EV-6S50	Exhaust valve spindle	Main Engine	Store A-2	7 pcs	2	Receive	Issue	Count		Edit x
FI-6S50	Fuel injector	Main Engine	Store A-1	2 pcs	6	Receive	Issue	Count		Edit x
PR-6S50	Piston ring set	Main Engine	Store A-3	-1 set	3	Receive	Issue	Count		Edit x
BG-01	Bearing 6310	SKF	Store A-7	4 pcs	6	Receive	Issue	Count		Edit x
GK-ADG	Cylinder head gasket	Auxiliary Diesel Generator No.1	Store A-4	6 pcs	8	Receive	Issue	Count		Edit x
LF-ADG	Lube oil filter element	Auxiliary Diesel Generator No.1	Store A-5	6 pcs	10	Receive	Issue	Count		Edit x

Stock movements

Date	Item	Qty	Type	Reference	By
2026-10-01	Fuel injector	-10	Used in job	Fuel injectors overhaul – Main Engine	2/E
2026-10-01	Cylinder head gasket	-10	Used in job	ADG No.1 top overhaul	2/E
2026-10-01	Purifier O-ring kit	-3	Used in job	Purifier overhaul	2/E
2026-10-01	Piston ring set	-3	Used in job	Cyl. 3 piston overhaul	2/E

Figure 24. The Spares tab. The Provisions tab (galley stores) works the same way.

- 1 Add a spare part (code, name, linked equipment, location, minimum stock, price).
- 2 Red or orange stock = below the minimum.
- 3 **Receive** – new stock arrived.
- 4 **Issue** – stock used (outside a job).
- 5 **Count** – physical stock check; NavTech records the difference.

Receiving a delivery

1. Click **Receive** on the item.
2. Enter the date, quantity and the supplier / delivery note number. If the goods come in cases, enter the units per case. For provisions also enter the expiry date.
3. Click **Save**. Stock increases and the movement is listed under *Stock movements*.

Receive: Fuel injector

Date received
10/01/2026

Quantity received (pcs)
10

Units per pack/case (1 if none) - quantity is multiplied
1

Supplier / delivery note / PO no.

Cancel Save

Code	Item	Equipment	Location	Stock	Min
PS-01	Purifier O-ring kit	Fuel O			
FT-12	Fuel filter cartridge	Main E			
EV-6550	Exhaust valve spindle	Main E			
FI-6550	Fuel injector	Main E			
PR-6550	Piston ring set	Main E			
BG-01	Bearing 6310	SKF			
GK-ADG	Cylinder head gasket	Auxilia			
LF-ADG	Lube oil filter element	Auxilia			

Date	Item	Qty	Type	Reference	By
2026-10-01	Fuel injector	-10	Used in job	Fuel injectors overhaul - Main Engine	2/E
2026-10-01	Cylinder head gasket	-10	Used in job	ADG No.1 top overhaul	2/E
2026-10-01	Purifier O-ring kit	-3	Used in job	Purifier overhaul	2/E
2026-10-01	Piston ring set	-3	Used in job	Cyl. 3 piston overhaul	2/E

Figure 25. Receiving stock.

- 1 Quantity received.
- 2 Units per pack or case (the quantity is multiplied).
- 3 Supplier / delivery note / PO number.

Code	Item	Category	Location	Stock	Min	Expiry
	Eggs	Chill room	Chill room	28 tray	20	2026-10-20
	Fresh vegetables	Chill room	Chill room	40 kg	60	2026-10-08
	Cooking oil	Dry store	Dry store	32 L	40	2026-12-20
	Milk powder	Dry store	Dry store	28 kg	15	2027-02-10
	Rice (basmati)	Dry store	Dry store	70 kg	100	2027-03-01
	Wheat flour	Dry store	Dry store	150 kg	80	2027-01-15
	Chicken (frozen)	Freezer	Freezer	45 kg	60	2026-10-12
	Fish (frozen)	Freezer	Freezer	70 kg	50	2026-11-05

Date	Item	Qty	Type	Reference	By
2026-10-01	Rice (basmati)	-190	Issued	Daily meals	2/E
2026-10-01	Chicken (frozen)	-50	Issued	Daily meals	2/E
2026-10-01	Fresh vegetables	-45	Issued	Daily meals	2/E
2026-10-01	Eggs	-12	Issued	Daily meals	2/E

Figure 26. Provisions (galley stores) with stock, minimum levels and expiry dates.

Requisitions

1. Open **Requisitions** and click **Generate from low stock & short spares**. NavTech lists everything at or below minimum and the spares needed by jobs that are due.
2. Click **Edit qty** if you wish to change quantities (0 removes an item), then **Submit**.

3. The Master / Chief Engineer or the shore office **approves** it. Shore approval arrives automatically at the next sync.
4. When approved, click **Order** and enter supplier, currency and total.
5. When the goods arrive click **Receive**, check the quantities and Save. Stock is booked in directly.

The screenshot shows the NavTech Planned Maintenance System interface for MV OCEAN PIONEER (IMO 9074729). The 'Requisitions' tab is active. A button 'Generate from low stock & short spares' is highlighted with a red circle 1. Below is a table of requisitions:

No.	Date	Items	Priority	Status
REQ-20261001-0	2026-09-23	Fuel injector x6 pcs	Routine	Ordered MAN Energy Solutions 5700 USD
REQ-20261001-1	2026-10-01	Fuel injector x10 pcs Piston ring set x7 set Cylinder head gasket x10 pcs Lube oil filter element x14 pcs Purifier O-ring kit x9 kit Bearing 6310 x8 pcs Fuel filter cartridge x18 pcs Rice (basmati) x130 kg Cooking oil x48 L Chicken (frozen) x75 kg Fresh vegetables x80 kg	Urgent	Draft

Red circles 2, 3, and 4 highlight the status changes and action buttons: 2 points to the 'Draft' status, 3 points to the 'Submit' button, and 4 points to the 'Receive' button. The 'Submit' button is also labeled with a red circle 3.

Figure 27. Requisitions and their status.

- 1 Generate a new requisition.
- 2 Status: Draft → Submitted → Approved → Ordered → Received.
- 3 Submit for approval.
- 4 Receive the delivery.

20. Defects, certificates, drydock and reports

Defects and condition monitoring

NavTech

Planned Maintenance System

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Dashboard

All jobs

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Settings

admin (Admin) ⚙

1

Report defect

Date	Component	Defect	Severity	Status	
2026-09-16	Auxiliary Diesel Generator No.1	Governor hunting at low load	Major	Deferred	Close
2026-09-21	Fuel Oil Purifier	Purifier seal water leak Minor drip at bowl cover	Minor	Open	2 Raise job Defer Close
2026-09-27	Main Engine	Cylinder 4 exhaust valve leaking Exhaust temp +40°C vs other units	Major	Open	Raise job Defer Close

Condition monitoring

3

Add reading

Component	Parameter	Trend	Latest	At hours	Limit
Main Engine	Exhaust gas temp (°C)		452 2026-09-17	47910	480
Main Engine	Oil analysis - Fe ppm		38 2026-09-17	47910	60
Auxiliary Diesel Generator No.1	Vibration (mm/s)		3.4 2026-09-17	47910	4.5

Figure 28. The Defects tab with condition readings below.

- 1 Report a defect.
- 2 **Raise job** – creates a one-off job; the defect closes automatically when the job is done.
- 3 Add a reading (oil analysis, exhaust temperature, vibration, bearing temperature) with an alarm limit. The trend line shows the direction.

Certificates and surveys


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admin (Admin) ⌵

1 Add certificate
2 Add standard list (Admin)

Status	Category	Certificate / survey	Expiry	Authority		
3 0 d - CRITICAL (30)	Class	Certificate of Class	2026-10-21	Lloyd's Register	Edit	x
40 d - alert (60)	MLC	Maritime Labour Certificate	2026-11-10	Company / RO	Edit	x
45 d - alert (60)	Class	Annual Survey	2026-11-15	Lloyd's Register	Edit	x
60 d - alert (60)	MARPOL	ISPP Certificate	2026-11-30	Flag State - Sri Lanka	Edit	x
80 d - alert (90)	Class	Intermediate Survey	2026-12-20	Lloyd's Register	Edit	x
90 d - alert (90)	Flag	Tonnage Certificate	2026-12-30	Flag State - Sri Lanka	Edit	x
150 d	Class	Special Survey (5-yearly)	2027-02-28	Lloyd's Register	Edit	x
150 d	ISPS	International Ship Security Certificate	2027-02-28	Company / RO	Edit	x
200 d	Class	Drydocking Survey	2027-04-19	Lloyd's Register	Edit	x
200 d	Other	P&I Entry	2027-04-19	Company / RO	Edit	x
250 d	MARPOL	Ballast Water Management Certificate	2027-06-08	Flag State - Sri Lanka	Edit	x
260 d	Other	Radio Licence	2027-06-18	Company / RO	Edit	x
300 d	ISM	Safety Management Certificate (SMC)	2027-07-28	Company / RO	Edit	x

Figure 29. The Certificates tab.

- 1 Add a certificate or survey.
- 2 **Add standard list** (Admin) – creates the usual class, SOLAS, MARPOL, flag, ISM, ISPS and MLC entries. Then type each expiry date.
- 3 Alerts at 90, 60 and 30 days; red means 30 days or less, or expired.

Drydock and repair projects

NavTech
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MV OCEAN PIONEER · IMO 9074729

Dashboard
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Certificates
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Reports
History
Settings

admin (Admin)

1
New drydock / repair project

2
Special Survey & Drydock 2027 · Colombo Dockyard PLC · 2027-01-29 → 2027-02-23 · Tendering · 16 Items

3
Build list from defects, class & overdue items
4
+ Work item
5
Edit project
Spec / tender report
Delete

Totals in USD: Estimate **240000.00** · Lowest tenders **227500.00** · Awarded **58000.00** · Actual **0.00** · Variance (actual – awarded) **-58000.00**

Work item	Source	Estimate	Tenders	Awarded	Actual	Status		
Cylinder 4 exhaust valve leaking – Main Engine	Defect	0 USD	—		0	Open	+ Quote Progress	Award x
Purifier seal water leak – Fuel Oil Purifier	Defect	0 USD	—		0	Open	+ Quote Progress	Award x
Governor hunting at low load – Auxiliary Diesel Generator No.1	Defect	0 USD	—		0	Open	+ Quote Progress	Award x
Class: Certificate of Class	Class / statutory	0 USD	—		0	Open	+ Quote Progress	Award x
Class: Annual Survey	Class / statutory	0 USD	—		0	Open	+ Quote Progress	Award x
Class: Intermediate Survey	Class / statutory	0 USD	—		0	Open	+ Quote Progress	Award x
MARPOL: ISPP Certificate	Class / statutory	0 USD	—		0	Open	+ Quote Progress	Award x
Flag: Tonnage Certificate	Class / statutory	0 USD	—		0	Open	+ Quote Progress	Award x
Cylinder liners, pistons & rings inspection – Main Engine	Overdue job	0 USD	—		0	Open	+ Quote Progress	Award x
CO2 bottle weighing & release test – Fixed CO2 System & Fire Main	Overdue job	0 USD	—		0	Open	+ Quote Progress	Award x
Internal inspection & cleaning – Boiler (Aux / Composite)	Overdue job	0 USD	—		0	Open	+ Quote Progress	Award x
Voltage / SG check & load test – Batteries, UPS & Emergency Lighting	Overdue job	0 USD	—		0	Open	+ Quote Progress	Award x
Internal inspection – Ballast Tanks & Cargo Spaces	Overdue job	0 USD	—		0	Open	+ Quote Progress	Award x
Tail shaft survey / withdrawal – Shafting & Stern Tube	Overdue job	0 USD	—		0	Open	+ Quote Progress	Award x
Hull blasting & repainting (full)	Manual	180000 USD	Colombo Dockyard: 172000 USD Yard B Singapore: 160000 EUR Yard C Chennai: 169500 USD lowest		0	Open	+ Quote Progress	Award x
Tail shaft withdrawal & survey	Manual	60000 USD	Colombo Dockyard: 58000 USD lowest Yard B Singapore: 61500 EUR	Colombo Dockyard	0	Open	+ Quote Progress	Award x

Figure 30. A drydock project with tender comparison and cost tracking.

- 1 Start a new project (yard, dates).
- 2 **Build list** – collects open defects, class and statutory items due within 90 days, and overdue critical jobs.

- 3 + **Quote** – enter a yard's price (any currency).
- 4 **Award** – choose the winning yard (the lowest is suggested).
- 5 **Spec / tender report** – print or save as PDF / Excel.

1. Add an estimate to every item, collect quotes, award, then record the **actual cost** with **Progress**. The totals show estimate, lowest tenders, awarded, actual and the variance.

Reports

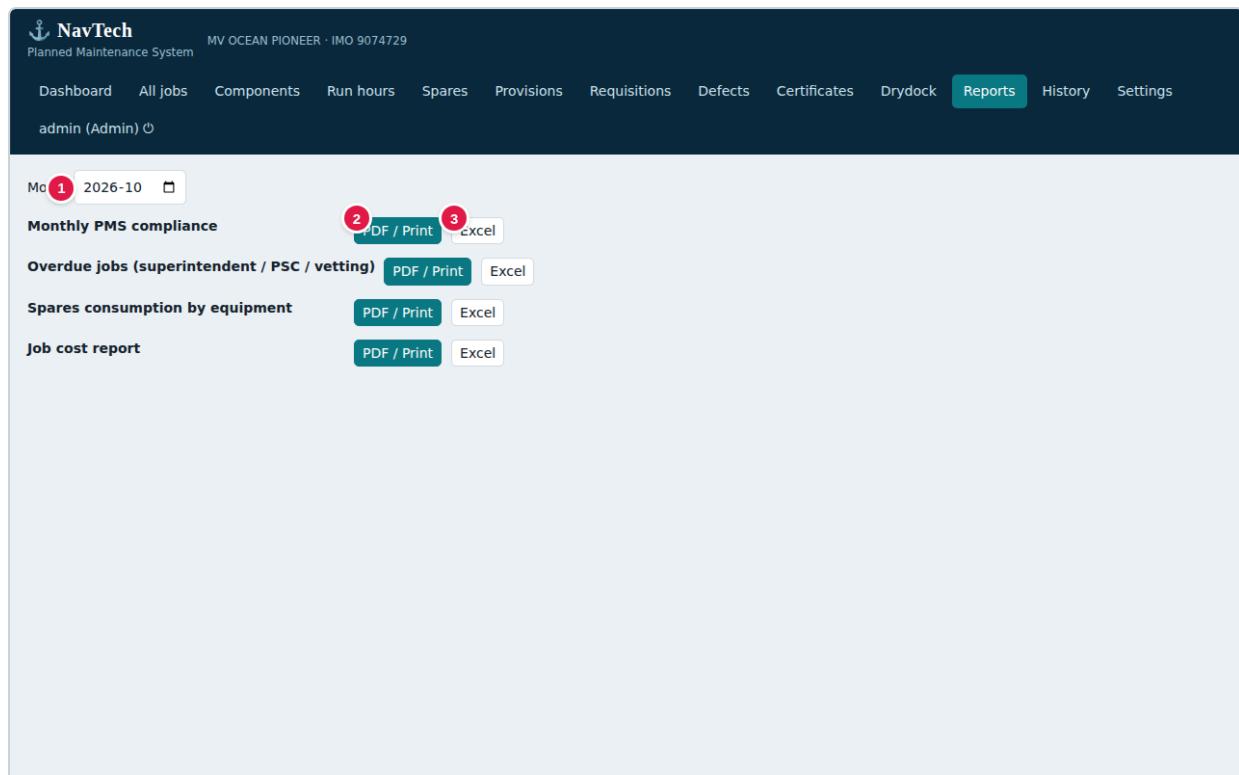


Figure 31. The Reports tab.

- 1 Choose the month.
- 2 **PDF / Print** – opens a printable page (choose "Save as PDF" in the print window).
- 3 **Excel** – downloads a file that opens in Excel.

Available reports: monthly PMS compliance, overdue jobs (for superintendents, PSC and vetting), spares consumption by equipment, and job cost.

21. Connect the ship to the shore

1. Make sure the vessel details contain the correct **IMO number** (it must be the same as the number registered ashore).
2. Open **Settings → Shore sync settings** (Admin).
3. Enter the **shore server address** given by the office (for example <https://navtech.yourcompany.com>) and the **vessel key**.
4. Set how often to sync (default 30 minutes). Click **Save**. NavTech tries to connect at once and shows a message.
5. Check on the shore fleet page that the vessel now appears with a recent time.

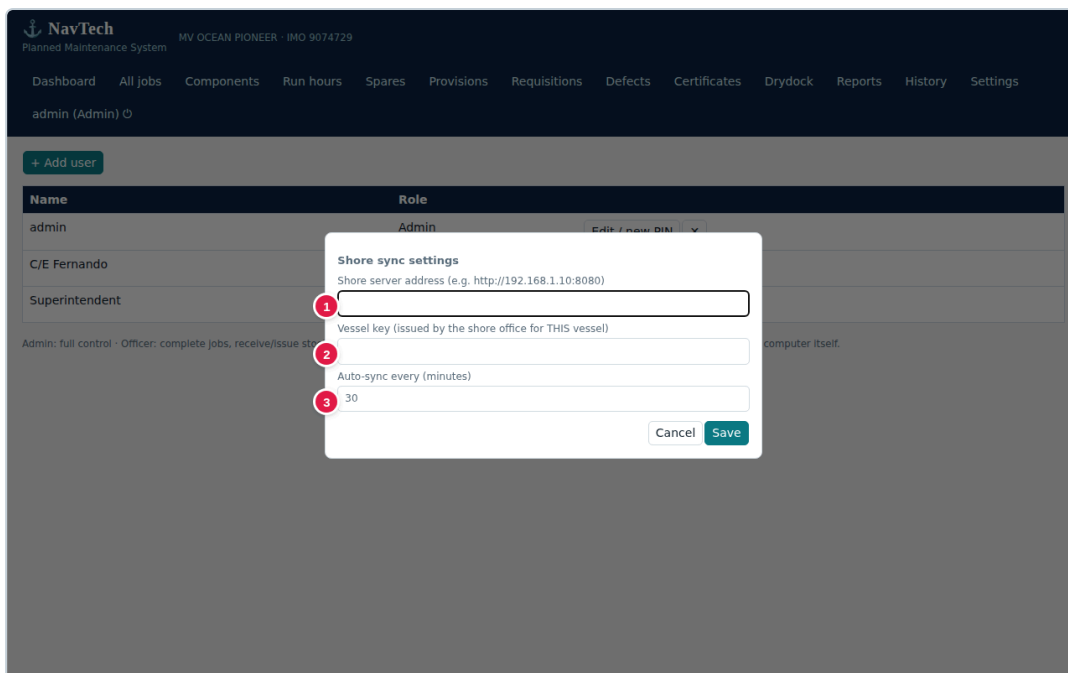


Figure 32. Shore sync settings.

- 1 Shore server address.
- 2 Vessel key (from the shore Admin page).
- 3 Sync interval in minutes.

Message on screen	What it means
Synced with shore. 0 instruction(s) received.	Everything is working.
Shore server not reachable...	No internet or wrong address. Data is safe on board; NavTech retries automatically.
Shore rejected this vessel: Unknown vessel key	The key was typed wrongly or has been replaced. Ask the office for the current key.
Shore rejected this vessel: IMO mismatch...	The IMO number in Vessel details is different from the one registered ashore.
Shore rejected this vessel: Identity mismatch...	Another computer already uses this key. Ask the office to <i>New key / unbind</i> if this is the correct ship computer.

Note. **Sync now** in Settings forces an immediate exchange. If two computers on board need the same data, use **Export sync package** on one and **Import sync package** on the other (a package is only accepted by the same vessel).

22. Uploading and attaching documents

Manuals, drawings, photos, certificates and reports can be attached to **equipment**, to a **job** or to a **spare part** using the  button.

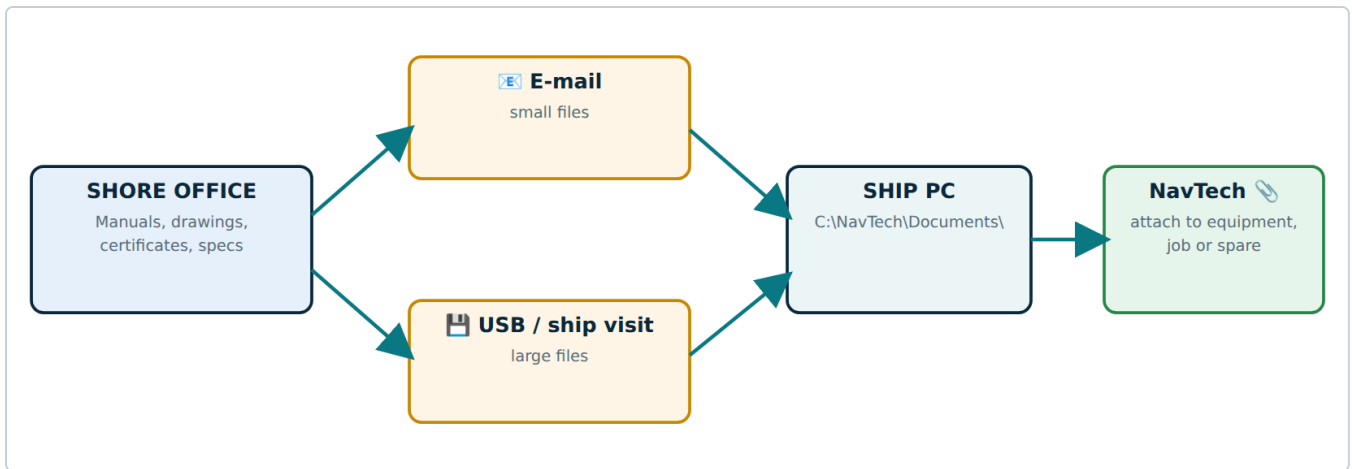


Figure 33. How documents reach the ship and get attached in NavTech.

Attaching a document

1. Put the file in **C:\NavTech\Documents** on the ship computer (copy from USB or save from the e-mail). Use clear names, for example **ME_Instruction_Manual_6S50MC-C.pdf**.
2. Click  next to the job, spare or equipment (on the Components tab open the equipment and use  **Files**).
3. Click **+ Attach file**, select one or more files and confirm.
4. The file name appears in the list. Click the name to open it. Use **x** to remove it.

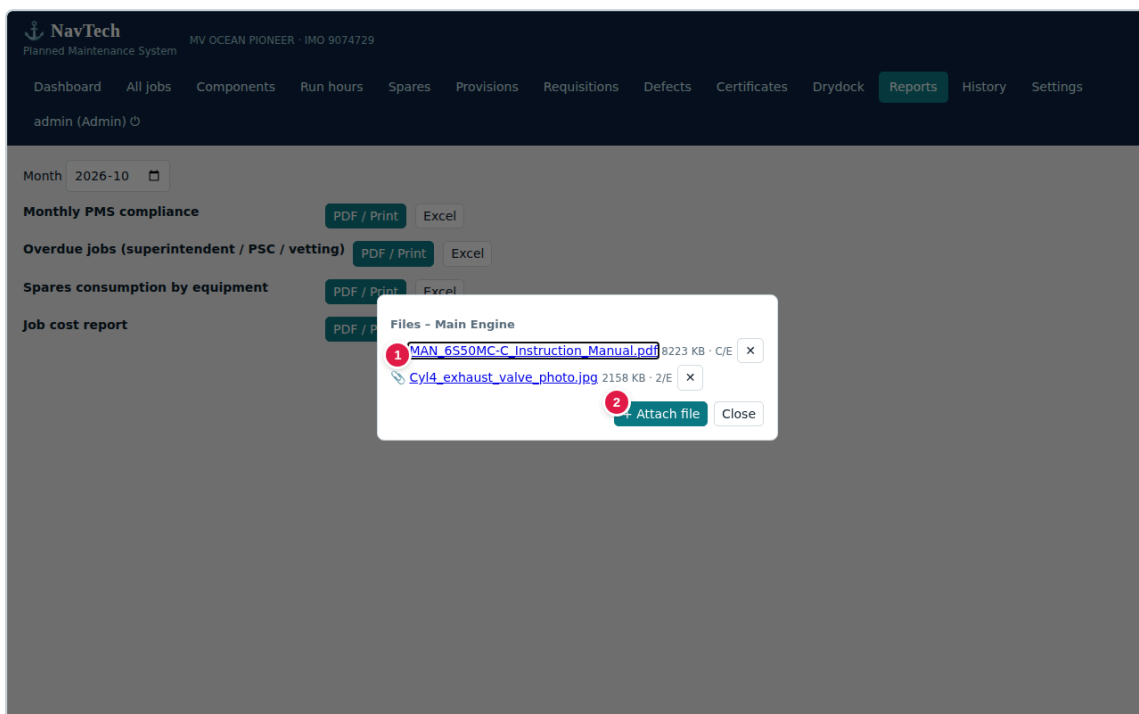


Figure 34. The attachment window for an equipment item.

- 1 Click a file name to open it.
- 2 Attach more files.

Important. Attached files are stored in the browser of that computer. They are **not** sent to the shore server and are **not** included in backups. Keep the original files in **C:\NavTech\Documents** and also on your normal backup. The current NavTech version does not push documents from shore to ship: the shore office sends them by e-mail, ship-mail or USB, and the ship attaches them as above.

Tip. Keep files under about 50 MB each. Very large files fill the browser storage; keep those in the Documents folder and attach only the PDF you really need.

23. Backups on board

1. Go to **Settings → Export encrypted backup**.
2. Type a password of at least 8 characters. **Write it down and keep it safe** – it cannot be recovered.
3. Save the downloaded **.nte** file into **C:\NavTech\Backups**, and copy it to a USB stick or e-mail it to the office.

Action	Where	When
Export encrypted backup	Settings	Monthly, and before every update
Restore from backup	Settings → Import backup (choose the .nte, type the password)	If the screen is empty or the computer was replaced
Restore auto-backup	Settings → Restore auto-backup	NavTech keeps up to 3 automatic copies in the browser (every 6 hours of use)
Sync to shore	Automatic	The shore server keeps timed copies of the data (not of the attached files)

Note. The plain JSON backup is not encrypted. Use it only when needed for transfers.

24. Updating NavTech to a new version

A new version is a new **NavTech-PMS.html** file. Your data and settings are carried over automatically.

1

Export encrypted backup

Settings → Export encrypted backup → save the .nte file to C:\NavTech\Backups\

2

Close all NavTech browser tabs

So the old version is not running while you replace the file

3

Copy the new NavTech-PMS.html over the old one

Same folder, same file name (keep the old one renamed NavTech-PMS-old.html)

4

Open the file and log in

Existing data is carried over and upgraded automatically

5

Check: vessel name, jobs, stock and history are all there

Dashboard numbers should match what you saw before updating

If the screen is EMPTY (new vessel, no data):

Settings → Import backup → choose the .nte (or .json) file from step 1 → enter the password. Nothing is lost.

Never delete the old backup until the new version has run correctly for a few days.

Figure 35. The update procedure in five steps.

1. Take an encrypted backup (section 23).
2. Close all NavTech browser windows.
3. Copy the new file to **C:\NavTech\Updates**. Rename the old file to **NavTech-PMS-old.html**, then copy the new file into **C:\NavTech** with the name **NavTech-PMS.html**.
4. Double-click the new file and log in. Check the vessel name, jobs, stock and history.
5. If the screen is empty, use **Settings → Import backup** with the backup from step 1.

Important. Never delete the backup until the new version has run correctly for several days. Update when the ship is not in the middle of closing a month, and tell the other officers so that they use the same file.

Note. After updating, new features (new tabs, new settings fields) appear automatically. New fields start empty and can be filled in at once.

Reference

25. Routine checklist

When	Who	What to do
Daily	Engineer on watch / 2/E	Run hours tab: enter hours run. Record any defect.
Weekly	Chief Engineer, Chief Officer	Check the dashboard: overdue and due-soon jobs, open defects. Complete jobs done. Check the sync (shore fleet page shows a recent time).
Monthly	Chief Engineer	Export encrypted backup. Print the PMS compliance and overdue reports. Count spares and provisions, generate a requisition.
Before port / PSC / vetting	Master, Chief Engineer	Check the Certificates tab (30/60/90 days). Print the overdue report.
Before drydock	Superintendent, C/E	Build the drydock list, collect quotes, award, track actual cost.
Weekly (shore)	Shore IT	Copy the navtech-data folder to external storage. Check that no vessel is marked stale.

26. Roles and what each can do

Function	Admin	Officer	Shore (read-only)
View all screens and reports	Yes	Yes	Yes
Complete jobs, enter run hours	Yes	Yes	No
Receive / issue / count stock; report defects; add readings	Yes	Yes	No
Attach documents	Yes	Yes	No
Approve requisitions on board	Yes	No	Yes
Add / edit / delete components, jobs, certificates, drydock	Yes	No	No
Users, vessel details, sync settings, restore, erase data	Yes	No	No

27. Troubleshooting

Problem	Likely cause	What to do
NavTech opens but looks empty	Opened from another folder, browser or Windows user	Open the shortcut from C:\NavTech with the usual browser. If still empty, Settings → Import backup.
Cannot log in	Wrong PIN or locked for one minute	Wait one minute and retry. If the admin PIN is lost, restore from a backup or ask for support.

Shore server window shows "node is not recognized"	Node.js not installed or window opened before installing	Install Node.js (section 4), open a new command window.
Server starts but the ships cannot connect	Firewall, wrong address or no internet route	Open the port (section 7); test with <code>http://server-address:8080</code> from another computer; ask IT to check port forwarding.
"Unknown vessel key"	Key typed wrongly or replaced	Copy the key again from the shore Admin page.
"IMO mismatch" or "Identity mismatch"	Wrong IMO or another computer is bound to the key	Correct the IMO in Vessel details; or Admin → New key / unbind when changing the ship computer.
A vessel is marked "stale"	No sync for 2 days	Check the ship's internet; ask the ship to press Sync now in Settings.
Shore instruction does not appear on the ship	Component name differs or ship has not synced	The component name must be exactly the ship's name. Wait for the next sync or press Sync now.
Attached file will not open	File removed or opened on a different computer	Attached files live only on the computer where they were added; attach the file again from the Documents folder.
Permit to work message appears when completing a job	Checks not all "Yes" or name missing	Fill in the permit number, set all four checks to Yes, and the officer's name.
Backup file will not open	Wrong password	The password cannot be recovered; use another backup.

Quick reference - commands

Task	Command
Check Node.js	<code>node -v</code>
Start server	<code>node navtech-shore-server.js</code>
Start on another port (Windows cmd)	<code>set PORT=9000 && node navtech-shore-server.js</code>
Start on another port (Mac/Linux)	<code>PORT=9000 node navtech-shore-server.js</code>
Open firewall (Windows, as Administrator)	<code>netsh advfirewall firewall add rule name="NavTech Shore" dir=in action=allow protocol=TCP localport=8080</code>
Open firewall (Linux)	<code>sudo ufw allow 8080/tcp</code>
Run permanently	<code>pm2 start navtech-shore-server.js --name navtech && pm2 save</code>
Restart / stop	<code>pm2 restart navtech / pm2 stop navtech</code>
HTTPS in front of the server	<code>caddy reverse-proxy --from navtech.yourcompany.com --to localhost:8080</code>

Default first logins: ship – **admin / 1234**; shore – **admin** and the password printed at the first start. Change both on first use.