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How cargo moves through a port: terminals, parties and charges

Port management models, the parties in a port, the steps an export and an import container take through the terminal, port and terminal charges, the CPPI and Türkiye's ports

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Online interactive version: **https://ozgurkonakci.com/en/guide/ports-and-terminals/**

SHORT ANSWER

A port is the whole area where ships berth safely and cargo changes hands between land and sea; a terminal is the business inside it that serves a particular type of cargo. The World Bank's Port Reform Toolkit defines four management models: the public service port, the tool port, the landlord port and the private service port. The landlord model is the most common worldwide: infrastructure stays with a public port authority and a private operator runs the terminal under a long-term concession. In a container terminal, an export box enters through the gate, waits in the yard and is loaded by a ship-to-shore crane; an import box follows the same path in reverse. The terminal charges the shipping line for handling, and the line passes this on to the cargo side as THC; storage charges accrue while the cargo stays in the terminal.

Ports, terminals and the services they provide

In everyday speech we just say "the port", but to follow what happens to cargo you need to separate two ideas:

- **Port:** The whole area, with breakwaters, channels, anchorages and quays, where ships enter and leave safely. The World Bank's Port Reform Toolkit groups port assets into three classes: general infrastructure (breakwaters, channels, turning basins), terminals and quays, and superstructure and equipment.
- **Terminal:** A business inside the port that serves a particular type of cargo. It has its own yard, cranes, gate and tariff. One port can contain several terminals run by different operators.

Port services fall into two main groups, and port courses usually teach them under these two headings:

Services to ships	Services to cargo
Pilotage, towage	Loading onto and discharging from the ship (handling)
Mooring and tie-up	Stacking and storage in the yard
Vessel traffic management, channel and basin maintenance (dredging)	Receipt and delivery, container stuffing and stripping

Services to ships	Services to cargo
Ship chandlering, ship repair	Value-added work: assembly, packaging, quality control

The shipowner (through its agent) usually pays for services to ships. The cost of services to cargo reaches the cargo side either directly or through the freight rate. This split is also the basis of the "who pays whom?" question in the charges section.

Types of terminal

Terminal	Cargo	How it works
Container	Any cargo in standard containers	Handles units one by one with ship-to-shore (STS) cranes, yard equipment and a gate system
Dry bulk	Grain, coal, ore	Most specialise in a single commodity
Liquid bulk	Oil, oil products, natural gas	Handling techniques differ from dry bulk, so separate terminals are needed
General cargo (breakbulk)	Steel, machinery, project cargo, palletised goods	Handled piece by piece without containers; see **Project cargo and out-of-gauge loads**
Ro-Ro	Trailers, trucks, cars	Vehicles roll on and off the ship over a ramp on their own wheels

How are ports managed? Four models

The World Bank's Port Reform Toolkit (2nd edition, 2007) defines four basic models according to how roles are split between the public and private sectors:

Model	Infrastructure	Superstructure and equipment	Cargo handling
Public service port	Public	Public	Public
Tool port	Public	Public	Private companies
Landlord port	Public port authority	Private operator	Private operator
Private service port	Private	Private	Private

- In a **public service port** the port authority provides almost every service, and most staff are civil servants. Academic sources note that this model is becoming less common.
- A **tool port** is often a transitional stage towards the landlord model: the cranes belong to the public side, the handling work to private companies.
- In a **landlord port** the authority keeps the land and basic infrastructure and hands the terminal to a private operator under a long-term concession or lease. *Port Economics, Management and Policy* calls it "the dominant port governance model worldwide".
- In a **private service port** the public role is limited to regulation and services such as customs and pilotage.

Alongside these four, the **corporatised port** is also mentioned: the authority runs like a company with the public sector as majority shareholder, and in practice works much like a landlord port.

What does it change for the cargo owner? The model determines who sends the invoice. In a landlord port, the authority collects ship and infrastructure charges while the terminal operator collects handling and storage charges. Two terminals in the same port can have different tariffs, free time and operating rules.

The parties in a port

Many organisations play a part as a container passes through a port. The general map of trade and transport parties is in **The parties in trade and logistics**; here we focus on the port-side roles.

Party	Role in the port	In Türkiye
Port authority	Plans and develops infrastructure, leases land, collects port dues	Depends on how the facility is owned and operated
Harbour master's office	Regulates ship movements, berthing, pilotage and towage rules; oversees navigational safety	Liman başkanlığı, under the Ministry of Transport and Infrastructure; issues berthing permits and port clearance certificates under the Ports Regulation
Terminal operator	Loading, discharging, stacking and storage; collects storage and handling charges	Operator of the coastal facility (kıyı tesisi)
Shipping agent	Represents the shipowner in port: notifies the ship's arrival, handles port formalities, issues bills of lading and delivery orders	Gemi acentesi
Customs	Summary declarations, customs declarations, document checks and examination; releases the goods	Customs offices under the Ministry of Trade
Freight forwarder	Organises the transport for the cargo owner and coordinates documents and the land leg	Taşıma işleri organizatörü
Customs broker	Lodges the customs declaration for the declarant and follows the formalities	A professional licensed by the Ministry of Trade

One word, two meanings: "ordino". In Turkish commercial practice, "ordino" is the delivery order you get from the agent to collect an import container. In the Ports Regulation, however, "ordino" is the **permit the harbour master's office issues** for a ship to be admitted to a coastal facility or anchorage; a ship cannot berth without it. When talking to an agent in Türkiye, it helps to be clear which one is meant.

Security: the ISPS Code

The International Ship and Port Facility Security (ISPS) Code came into effect on **1 July 2004** under SOLAS chapter XI-2. It provides for three security levels, a security assessment of each port facility carried out under the government's authority and a security plan based on it, a port facility security officer (PFSO) at each facility, and a ship security officer (SSO) on each ship. This is the basis for the identity and vehicle checks at the terminal gate. You can see in **Freight quotations and surcharges** how this cost can appear in a quote as a separate ISPS surcharge.

The container's path through the terminal

A container terminal has four main parts: the **quay** where ships berth, the **apron** under the cranes, the **yard** (CY) where containers wait temporarily, and the **gate**, the entry and exit point on the land side. Ship-to-shore (STS) cranes load and discharge the ship; equipment such as RTGs, straddle carriers and reach stackers work the yard. Some terminals also have a rail connection.

The tables below summarise a typical FCL export and import in Türkiye from the terminal's point of view. Dates and cut-offs are covered in **The container shipment timeline** and the clocks in **Demurrage, detention and storage**.

Export

Step	Who?	Document or record	Watch out for
1. Booking	Forwarder or exporter, shipping line	Booking confirmation	The cut-offs are on the confirmation
2. Empty pick-up and stuffing	Haulier, exporter	Container and seal numbers	For loading rules see **Container packing and weight distribution**
3. Customs declaration	Customs broker	Export declaration	Goods description and HS code must match the shipping instructions
4. Gate-in at the terminal	Haulier, terminal	Gate record, appointment	A box that arrives before the stack date or after the CY cut-off runs into trouble
5. Waiting in the yard	Terminal	Yard position, VGM submission	A container without a VGM is not loaded (SOLAS)
6. Loading	Terminal, ship	Stowage plan (bay plan)	To read the slot on board see **How to read a container's position on board: bay, row and tier**
7. Departure	Agent, harbour master's office	Port clearance certificate, bill of lading	A shipped-on-board bill of lading is issued after the cargo is loaded

Import

Step	Who?	Document or record	Watch out for
1. Entry summary declaration	Carrier (or its representative)	Summary declaration	For containers, at least 24 hours before loading at the port of loading
2. Arrival and berthing	Agent, harbour master's office	Arrival notification, berthing permit	The carrier sends the arrival notification to customs without delay when the ship arrives
3. Discharge	Terminal	Discharge record	Demurrage and storage clocks usually start here
4. Arrival notice and payment	Agent, consignee	Arrival notice, invoice	Freight (if collect) and local charges are paid

Step	Who?	Document or record	Watch out for
5. B/L surrender and delivery order	Consignee or forwarder, agent	Original B/L or telex release, delivery order	See **The bill of lading**
6. Customs declaration and checks	Customs broker, customs	Declaration; document check or examination if required	The goods are in temporary storage meanwhile
7. Terminal payments and appointment	Consignee or forwarder, terminal	Terminal invoice, collection appointment	Tariff items and payment rules vary by terminal
8. Gate-out	Haulier, terminal	Gate-out record	Demurrage stops, detention starts
9. Empty return	Haulier	Empty depot receipt	Detention stops

How is a customs check chosen? The WTO Trade Facilitation Agreement (Art. 7.4) asks customs to target controls through risk management: not every declaration is examined, and a document check or physical examination is called for according to risk analysis. Article 7.1 of the same agreement asks that documents can be lodged and processed before the goods arrive. Paperwork prepared before the ship arrives directly cuts the days spent in the terminal.

Two separate clocks. The terminal's free time is a commercial clock. The customs time limit is separate: under Article 46 of Türkiye's Customs Law No. 4458, goods arriving by sea must be assigned a customs-approved treatment or use within 45 days of the summary declaration. More on this in the dwell time section of **Warehousing and inventory management**.

Who pays whom?

There are two separate billing streams in a port: those for the **ship** and those for the **cargo**. Following the port pricing framework in *Port Economics, Management and Policy*:

Item	Who collects?	From whom?	How it reaches the cargo owner
Port dues (ship dues based on tonnage, cargo dues per tonne)	Port authority	Ship dues from the shipowner; who pays cargo dues varies by port	Within the freight rate or as a separate item
Pilotage, towage, mooring	The public body, port authority or private company providing the service	Shipowner (through the agent)	Within the freight rate
Terminal handling (loading and discharging)	Terminal operator	Shipping line	As THC: OTHC at origin, DTHC at destination
Storage	Terminal operator	Cargo interests, per the tariff	Per day after free time
Demurrage and detention	Shipping line	Cargo interests	Per day once free time is exceeded
Documentation, delivery order and seal fees	Shipping line or its agent	Cargo interests	As local charges

The practical takeaway: for container cargo, the cargo owner usually does not pay the terminal directly for handling; the terminal charges the shipping line, and the line passes it on through THC. Storage, on the other hand, depends on how long the cargo stays in the terminal and concerns the cargo side directly.

What the items stand for and how they are split between seller and buyer are covered in **Freight quotations and surcharges**; the clocks in **Demurrage, detention and storage**. Time in port for chartered ships is a separate calculation: **Chartering, laytime and vessel demurrage**.

How is port performance measured?

Two different things are measured in a port, and they are often confused: the time the **ship** spends in port and the time the **cargo** waits in the terminal.

The ship's time: the CPPI. The World Bank and S&P Global Market Intelligence have published the Container Port Performance Index (CPPI) every year since the first edition came out in 2021. The 2024 edition, released in September 2025, covers 403 ports. The index uses the time from a container ship's arrival at the anchorage or pilot station to its departure from the berth, and splits it in two:

- **Port-to-berth time:** From arrival at the port limits or anchorage until the ship is all fast at the berth. Waiting builds up here.
- **Berth hours:** From all lines fast to all lines released. Handling speed shows up here.

The report stresses that the index aims to show where improvement is happening rather than to rank ports against each other, and that a longer stay does not always mean poor performance. Scores fell slightly in 2024 because of Red Sea rerouting and reduced Panama Canal transits.

UNCTAD's indicators. According to UNCTAD's *Review of Maritime Transport 2025*, using Clarksons Research data:

- The median time in port for container ships reached **0.8 days (about 19 hours)** by the end of 2024, reversing the earlier downward trend.
- Average waiting time at anchorage for container ships in December 2024 was **6.4 hours** in developed countries and **10.9 hours** in developing countries (5.2 and 10.2 hours in December 2023).

The cargo's time: dwell time. The time from discharge to leaving through the terminal gate is a separate indicator and is not part of the CPPI. How it is measured and how to shorten it are covered in **Warehousing and inventory management**.

Both matter to the cargo owner: a ship waiting in port pushes back the delivery date, and a container waiting in the terminal grows the storage and demurrage bill.

Ports in Türkiye: the 2025 figures

In Türkiye, ship traffic and navigational safety are the responsibility of the **harbour master's offices** under the Ministry of Transport and Infrastructure, while customs formalities for the cargo are handled by **customs offices** under the Ministry of Trade. Ports, piers and quays are referred to in legislation as **coastal facilities** (kıyı

tesisi). The ministry publishes handling statistics by harbour master's region; one region can contain several coastal facilities.

According to the 2025 statistics bulletin published by the ministry's Directorate General of Maritime Affairs on 2 February 2026:

Indicator (2025)	Value	Change vs 2024
Total cargo handled	553,268,303 tonnes	+4.0%
Containers handled	13,996,579 TEU	+3.5%
Liquid bulk	169.7 million tonnes	+4.6%
Dry bulk	160.9 million tonnes	+5.7%
Containerised cargo	144.3 million tonnes	+0.7%
General cargo	65.8 million tonnes	+6.0%
Ro-Ro	12.4 million tonnes	+4.7%

- **Direction:** 74.9% of tonnage was international, 12.6% cabotage and 12.5% transit. In international traffic, outbound cargo (leaving for other countries) was 142.8 million tonnes and inbound cargo 271.6 million tonnes (the Ministry bulletin's own categories, which are not the same as export and import statistics).
- **Top regions by tonnage:** Aliağa, Kocaeli, İskenderun, Tekirdağ and Ceyhan. Aliağa ranked first with 89.5 million tonnes.
- **Top regions by containers (TEU):** Ambarlı, Kocaeli, Tekirdağ, Mersin and Aliağa. Ambarlı ranked first with 3,428,048 TEU. The top five regions together handled 11,744,017 TEU, or 83.9% of container handling.
- **Transit containers:** 2,717,699 TEU, 19.4% of the total.

The figures are updated monthly, and current bulletins are published on the Directorate General of Maritime Affairs website (last checked: November 2026). Rules such as compulsory pilotage and notification periods have been amended many times in the Ports Regulation; for official procedures, check the current text on mevzuat.gov.tr.

Where to go next in the guide

- Dates and cut-offs: **The container shipment timeline**
- The clocks that run in the terminal: **Demurrage, detention and storage**
- Terminal dwell time and counting storage days: **Warehousing and inventory management** (dwell time section)
- THC and local charges: **Freight quotations and surcharges**
- Customs declarations and procedures: **HS codes and customs procedures in Türkiye**
- Delivery and the delivery order: **The bill of lading**
- The wider map of companies around the port: **The parties in trade and logistics**

Which courses cover this topic?

Port and terminal management is taught as a stand-alone course in logistics, foreign trade and maritime programmes in Türkiye and abroad. In the curricula we reviewed, it is the main subject of 55 courses across 38 programmes at 34 institutions. A few examples:

- Bandırma Onyedi Eylül University — International Trade and Logistics (bachelor's) — Port Management (UTL4207)
- Aydın Adnan Menderes University — International Logistics and Transportation (bachelor's) — Port & Terminal Management (ULT313)
- Bursa Uludağ University, Gemlik Asım Kocabıyık Vocational School — Foreign Trade (associate degree) — Port Management and Operations (LJTCS010)
- Solent University (Southampton) — BSc (Hons) Shipping and Port Management — Port and Terminal Management
- Massachusetts Maritime Academy — International Maritime Business (bachelor's) — Port & Terminal Operations Management (MT3252)

Test yourself

1. In a port, the land and quays belong to the public port authority, and the private company running the terminal under a 30-year concession has brought in the cranes and yard equipment. Which management model is this? *(Answer: A landlord port.)*
2. Your import container sat in the terminal for 9 days because of a customs examination. Which two charges can run on the same days, and who are they paid to? *(Answer: Demurrage to the shipping line if free time is exceeded, and storage to the terminal operator.)*
3. Who does a container terminal charge for discharging a ship, and how does that cost reach the cargo owner? *(Answer: It charges the shipping line, which passes it on to the cargo side as DTHC at destination.)*
4. A port has a good CPPI score, yet importers complain that they can only collect their containers late. Is that a contradiction? *(Answer: No. The CPPI measures the time the ship spends in port; the time the container waits in the terminal (dwell time) is a separate indicator.)*

Frequently asked questions

What is the difference between a port and a terminal?

A port is the whole area, with its breakwaters, channels, anchorages and quays, where ships enter and leave safely. A terminal is a business inside the port that serves one type of cargo (containers, bulk, Ro-Ro, general cargo) and has its own yard, equipment and tariff. One port can contain several terminals run by different operators.

What is a landlord port?

It is one of the four port management models defined in the World Bank's Port Reform Toolkit. The public port authority keeps the land and basic infrastructure and hands terminals to private operators under long-term concessions or leases; the operator brings the cranes and yard equipment. Academic sources describe it as the dominant port governance model worldwide.

Who pays THC?

A container terminal charges the shipping line for handling. The line passes this cost on to the cargo side through the freight rate and the terminal handling charge (THC): OTHC at origin and DTHC at destination. Which of these falls on the seller and which on the buyer is set by the Incoterms rule and the sales contract.

What does a harbour master's office do in Türkiye?

Harbour master's offices (liman başkanlıkları) are maritime administrations under the Ministry of Transport and Infrastructure. Under the Ports Regulation they regulate ship movements in the port area, berthing and anchoring, and pilotage and towage rules, and they issue the berthing permit (which the regulation calls 'ordino') and the port clearance certificate. Customs formalities for the cargo are handled by customs offices under the Ministry of Trade.

What does the CPPI measure?

The Container Port Performance Index (CPPI), published by the World Bank and S&P Global Market Intelligence, measures the time container ships spend in port: from arrival at the anchorage or pilot station to departure from the berth. It does not measure how long containers wait in the terminal (dwell time). The 2024 edition covers 403 ports and was published in September 2025.

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