From operations to digitalization: standardizing vessel schedules

DCSA

TOC Europe, June- 2024

The Digital Container Shipping Association (DCSA) is founded and supported by carriers to accelerate digitalisation in shipping

To shape the digital future of container shipping by **being the industry's collective voice, working towards alignment and standardisation**.

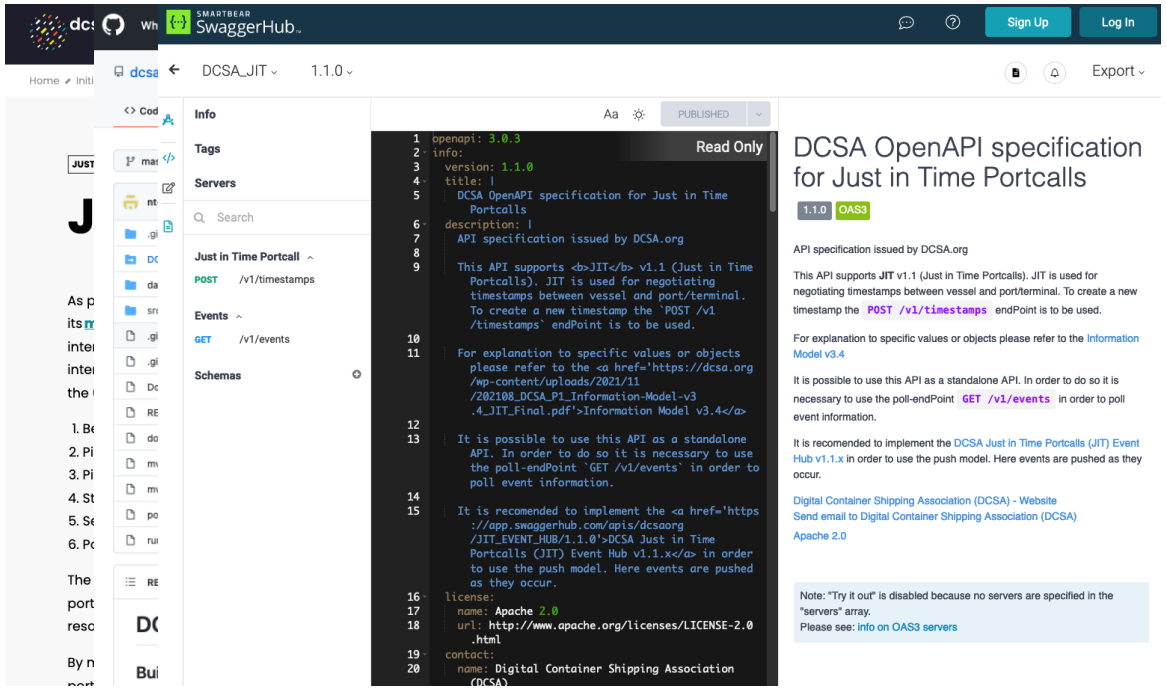
By **setting frameworks for effective, universally adoptable standards**, we can enable transparent, reliable, easy to use, secure and environmentally friendly container transportation services.

Members represent **70%** of global container trade

msc · MAERSK · CMA CGM · EVERGREEN · ONE Ocean Network Express · YANG MING · ZIM · Hapag-Lloyd · HMM

Non-profit founded in 2019	Vendor neutral, technology agnostic	Open source standards, free for everyone to use

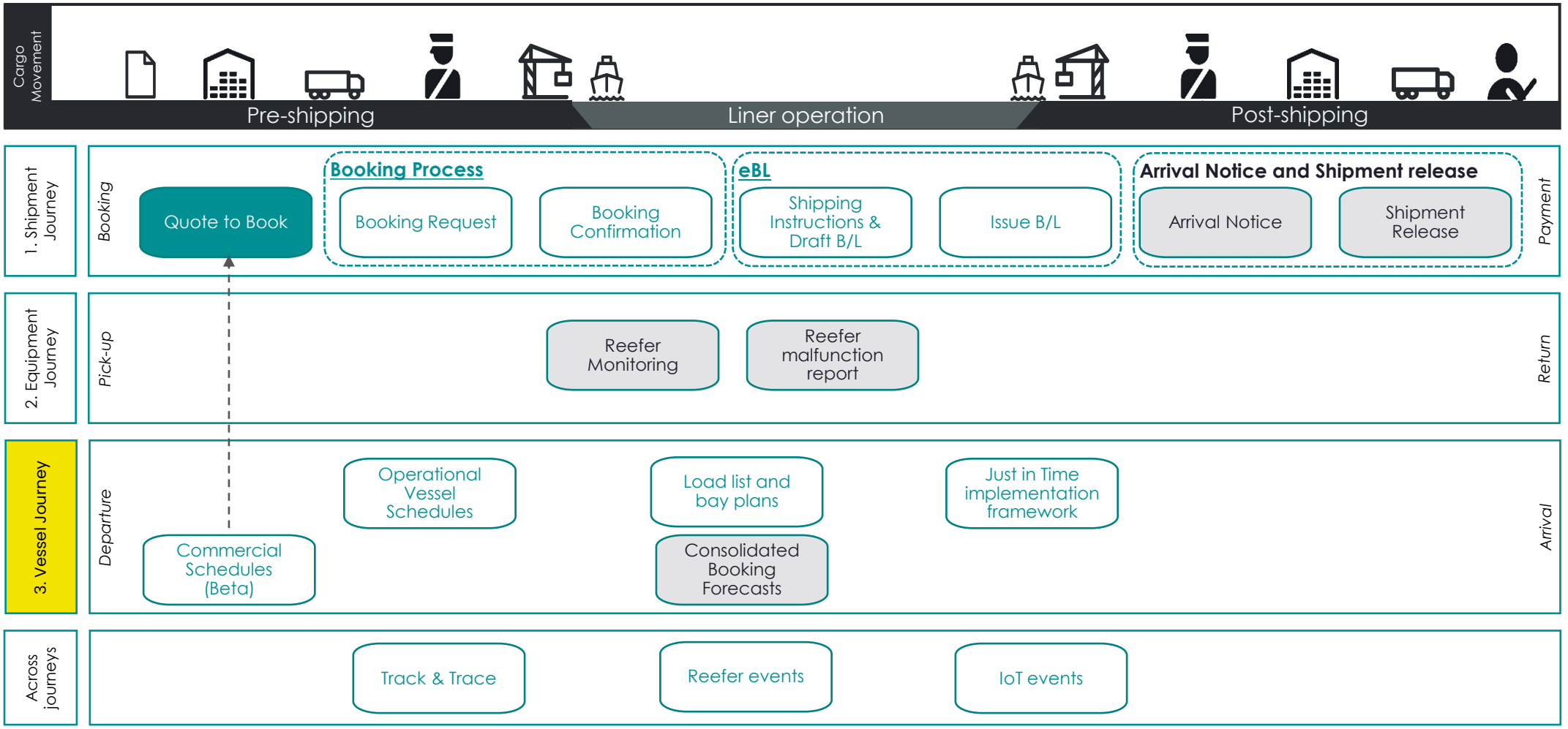
DCSA's publication provides industry stakeholders with a comprehensive set of documents and API developer help



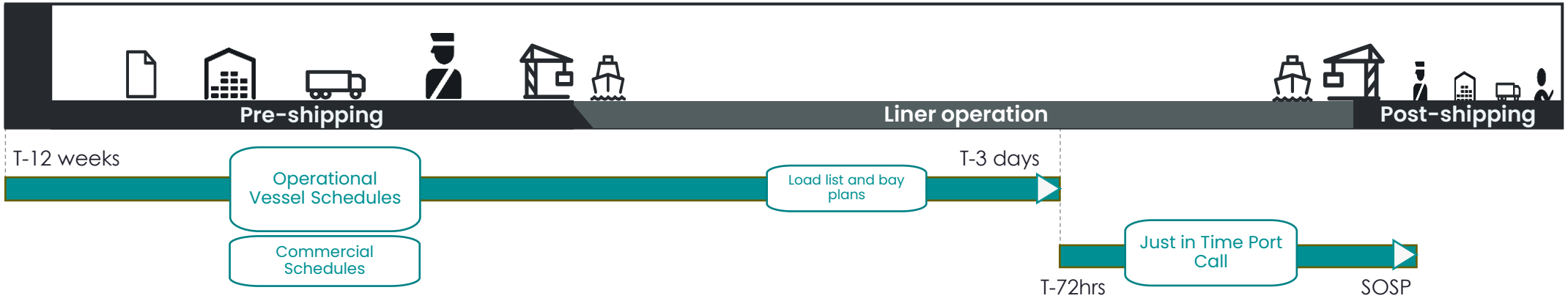
https://dcsa.org/standards/

01. Standards definitions / terminology (the language that is spoken)
02. The process model (when the information is distributed to whom)
03. Information model
04. Interface standards
05. API specifications (how the information is distributed)
06. Reference implementation
07. Sandbox for testing
08. Conformance checking

Current DCSA standards overview



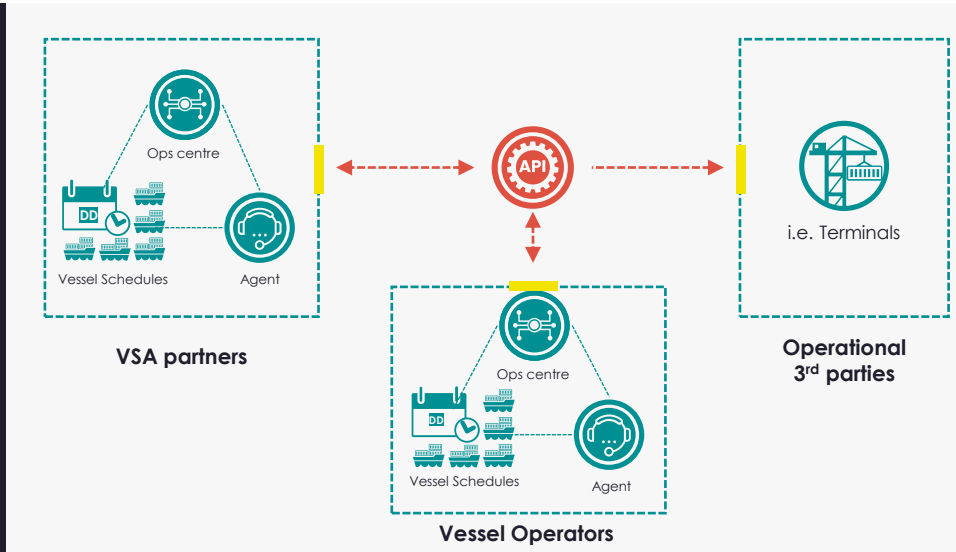
Vessel journey standards and description



Operational Vessel Schedules	Coherently sharing vessel schedules with operational partners (vessel sharing carriers and terminals). Includes USR-UVR
Load list and bay plans	Suggested timelines and formants to exchange LL/BP information. Currently based on EDIFACT standards (Load list, DG, Stowage, etc.)
Just in Time Port Call	Technical framework that provides the message format & API specs to exchange operational port call timestamps
Commercial Schedules	Coherently sharing Point to Point routing alternatives, Port (terminal) schedules, Vessel schedules between carriers and BCO, LSP, and SP.
Consolidated Booking Forecasts	Aims to standardize the sharing of forecasted loadings and discharges per port from VSA partners to vessel operators to improve port planning and capacity management of the vessel. Standard release on hold until carriers have testing capacity.

Schedules Standards:

OVS



Operational Vessel Schedules

Long Term Schedule & Regional/Coastal Schedule (Services, Vessels, Voyages, Port(terminals) calls.

- Deep-sea (interregional services)
- Intraregional & Feeder Services

Universal References

- Universal Service Reference
- Universal Voyage Reference
- Universal Port call Reference

Changes and Exceptions (i.e., Port Omission, Blank Sailing, Inducement, Phase In/Out, etc.)

Event types:

- Arrival (Planned, Estimated, Actual)
- Departure (Planned, Estimated, Actual)

Commercial Schedules (Beta)

Commercial schedules – point-to-point routings: provides the product offering of single or multiple estimated end-to-end route options for a shipment in the pre-booking phase. This includes point-to-point specification of all transport legs, estimated timings, estimated schedules, and interdependencies between transport legs.

Commercial schedules – port schedules: provide, for a required specific port and starting date, the set of all vessels arriving and departing from the port(terminal) with the corresponding estimated timestamps.

Commercial schedules – vessel schedules: provide, for a required specific service and/or voyage and/or vessel and/or location, the timetable of estimated departure and arrival times for each port call on the rotation of the vessel(s).

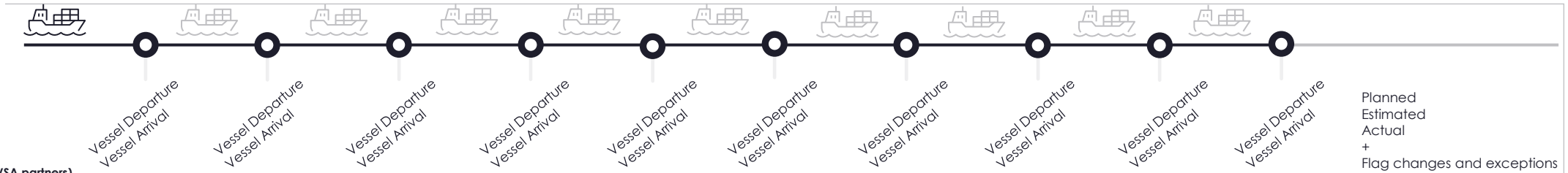
Picturization

Port 1 & Terminal 1 | Port 1 & Terminal 2 | Port 2 & Terminal 1 | Port 3 & Terminal 1 | Port 3 & Terminal 2 | Port 4 & Terminal 1 | Port 4 & Terminal 2 | Port 5 & Terminal 1 | Port 6 & Terminal 1 | Port 7 & Terminal 1

DCSA – Operational Vessel Schedules Standard

OVS 3.0

Service Code
Service Name
USR (agreed by VSA partners)
Voyage Number
Voyage Reference (agreed by VSA partners)
Vessel Operator SMDG Code



Planned
Estimated
Actual
+
Flag changes and exceptions
(Omission, Blank Sailing, etc.)

Key Elements

Event Type

- **Arrival:** At port terminal berth
- **Departure:** From port terminal berth

Event Classification

- **Planned:** Long term schedule
- **Estimated:** Coastal/Regional schedule
- **Actual:** actual timestamp

Changes & exceptions

- Port omission
- Cut & run
- Inducement / ad hoc call
- Port call swap (rotation change)
- Blank sailing
- Phase out/in
- Slide

Key Benefits

Increased Digitalization

Agreed semantics, data structure, and events means data have the same meaning regardless of the provider

Increased Efficiency

Easier and clearer communication within and between VSA partners and other operational partners (i.e. terminals) makes activities such as scheduling, berth and yard planning, customer and hinterland connectivity more efficient and reliable

Data driven optimization

Aligned, structure and high-quality data provides the necessary foundation for operational analysis and operations optimization

USR & UVR

USR

5.4.1 Format for Universal Service Reference

The Universal Service Reference (USR) as defined by DCSA is composed of the letters SR followed by 5 digits, followed by a checksum character from A to Z. A service reference can look like, for example, SR0000X.

SR	5 numeric digits (0...91)	1 check character (A...Z)

DCSA distributes IJSRs to DCSA members and non-members, ensuring that each IJSR is assigned only once and belongs to only one carrier. If a carrier runs out of available USRs because they have all been used in services. a new batch can be requested from DCSA.

UVR

5.5.1 Format for Universal Voyage Reference

The Universal Voyage Reference has been restricted to 5 digits to comply with US customs requirements:

Year YY	Sequence (0…9 & A…Z)	Bound (EWNSR)

- 2 digit identifier for the year (i.e., 23 = 2023)
- 2 alphanumeric characters for the sequence number of the voyage (i.e., 10 = 10, A0 = 100, etc)
  - See appendix for full table with logic for sequence numbers to cover from voyage 01 to 1295 in a year
- 1 character identifier for the direction/haul [import/export] (i.e., E = East)
  - E = East
  - W = West
  - N = North
  - S = South
  - R = Roundtrip

UVRs can be implemented in DCSA API or in EDI messages (SMDG to define segment).

EXAMPLE OF USR

Service	Carrier 1	Carrier 2	Carrier 3	USR
Asia - Europe	Carrier 1 Service Code **XX2**	Carrier 2 Service Code **YYYY2P**	Carrier 3 Service Code **Z3Z4Z**	**SR12345X** (Reference managed by Carrier 3)
Oceania - Asia	Carrier I Service Code **UY3**	Carrier 2 Service Code **IYOP22**		**SR54321W** (Reference managed by Carrier 1)

Asia - Europe	Carrier 1 Service Code **XX2**	Carrier 2 Service Code **YYYY2P**	Carrier 3 Service Code **Z3Z4Z**	**SR12345X** (Reference managed by Carrier 3)
Voyage	**Carrier 1**	**Carrier 2**	**Carrier 3**	**UVR**
Voyage N Operated Carrier	304E	04FENW1MA	V354E	**2304E**
Vessel	**IMO8712345**	IMO8712345	IMO8712345	IMO8712345

EXAMPLE OF A UVR

Data in the schedule standards

OVS

Basic structure

- Carrier service name 1
- Carrier service code 1
- Universal service reference 1
- **Vessel schedules**

Vessel 1 > Vessel Operator, Vessel IMO, Vessel Name, Call Sign

- **Transport calls (sequence of ports/terminals as they happen):**
  - Voyage Number (imp/exp), Universal Voyage Reference (imp/exp)
  - Port/Terminal: call reference, location & facility codes
  - Status: Changes and exceptions (i.e., Inducement)
    - **Event:**
      - Arrival Date Time (Planned, Estimated, Actual),
      - Departure Date Time (Planned, Estimated, Actual),
      - Delay Reasons and remarks

Vessel 2:...

Vessel N:...

- Carrier service name 2
- ...
- Carrier service name N
- ...

Commercial Schedules (Beta)

Point to Point

Basic structure

Option A*:

Place of receipt

- Facility type
- Location: UN, SMDG, Address
- Date Time

Place of delivery (idem)

Transit time (days)

Legs

- **Leg 1**
- Mode of transport (vessel, barge, rail, truck)
- Vessel Operator
- Vessel IMO Number
- Carrier Service Name
- Universal Service Reference
- Voyage Number/Voyage Reference
- Departure
  - Facility type
  - Location
  - Date time
- Arrival
  - Facility type
  - Location
  - Date time
- **Leg 2**
- **Leg 3**
- **Leg N**

Option B: ...

Option N: ...

*Information shared as per Carriers' available commercial offering for the requested place of receipt and place of delivery.

Port Terminal Schedule

Basic structure

- Location: Port, Terminal
- Schedules
  - **Carrier Service Name 1**
  - Carrier Service Code 1
  - Universal Service Reference 1
  - Vessel IMO Number
  - Vessel Name
  - Voyage Number/Voyage Reference
  - **Event:**
    - Arrival Date Time (Planned, Estimated, Actual), (latest available)
    - Departure Date Time (Planned, Estimated, Actual),
  - **Carrier Service Name 2**
  - Carrier Service Code 2
  - Universal Service Reference 2
  - .....
  - **Carrier Service Name N**
  - Carrier Service Code N
  - Universal Service Reference N
- Location: Port, Terminal M
- Schedules
  - Carrier Service Name X

Vessel Schedule

Basic structure

- Same as OVS without Delay reasons, remarks and Status.
- Focused on the latest available timestamps (planned, estimated, or actual)

What schedules can be obtained:

a) **Service & date range (optional):** Get all voyages within a service.

b) **Service & voyage (optional):** Get a specific voyage within a service.

c) **Service & IMO (optional) & date range (optional):** Get a specific vessel in a service and the voyages in which is involved

d) **IMO & date range (optional).:** a specific vessel and all the voyages in which is involved.

Implementation status for Operational Vessel Schedule (OVS) standard:

	OVS
CMA CGM	Ready / able to send
MAERSK	Ready / able to send & consume
msc	Developing, ready to test in Q3
Hapag-Lloyd	Published: Ready / able to send
EVERGREEN	Testing with YM
ONE	Developing
YANG MING	Testing with EMC
ZIM	Ready / able to consume
HMM	Developing

- DCSA has published **the final version of OVS standard** in January 2024
- While all DCSA members working on tech. implementation, DCSA works on a **subscription notifications mechanism**

Therefore ...

Call for action to terminal operators:

Please reach out to DCSA and /or DCSA members and discuss the **opportunity to consume OVS APIs directly from the shipping lines.**