



DTN^o

Vessel Insights API

Explore the various datasets that
this powerful solutions can deliver.





- Event Data
- Event Facts
- Bunker Data
- Observed Weather
- Weather Analysis
- Previous Event Data
- Calculated Average Weather
- Calculated Bunker Data



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Event Data

Main data response

Event Data	Comment	Explanation	Units
imo: String		IMO number of the ship for which data is returned.	
eventId: String		Unique reference ID to an event. An event is either an AIS track point or a Noon report.	
eventType: String		Noon or AIS track point.	
location: Location		Latitude and longitude of the AIS or Noon event.	
eventDate: AWSDatetime		Time when AIS or Noon report was generated in UTC format.	
insertDate: AWSDatetime		Time when AIS or Noon report was inserted into Vessel Insights API in UTC format.	
updatedAt: AWSDatetime		For now, its same as insertDate.	
customerId: Int	For Noon events only	Customer ID in Salesforce.	
sourceType: String	For Noon events only	Not in use yet.	
noonSource: String	For Noon events only	ID of the Noon report in the Position Log API (for internal use only).	
sog: String	For Noon events only	Not in use yet.	
draft: Draft	For Noon events only	Reported draft taken from Noon report (draft fwd, aft, and current).	meters
bunkerData: BunkerData	For Noon events only	Reported bunker data taken from Noon reports, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo). This is a nested array of data. The specification is in the bunker data table.	
observedWeather: ObservedWeather	For Noon events only	Reported weather data by the vessel in Noon reports. This is a nested array of data. The specification is in the observed weather table.	
cargo: String	For Noon events only	The reported amount of cargo in tons being transported by the vessel, taken from Noon reports.	metric tons (MT)
observedDistance: Float	For Noon events only	Reported distance the vessel has traveled between this Noon and the last Noon taken from Noon reports.	nautical miles (nm)
steamingTime: Float	For Noon events only	Reported time taken from Noon reports. Customers can have different definitions of steaming time.	hours
stoppedTime: String	For Noon events only	Not in use yet.	
charterPartySpeed: String	For Noon events only	Reported CP/ordered speed in Noon report.	knots
facts: EventFacts		Analysis data from AIS and Noon events. The specification is in the Event Facts table.	

- Event Data
- Event Facts
- Bunker Data
- Observed Weather
- Weather Analysis
- Previous Event Data
- Calculated Average Weather
- Calculated Bunker Data

Event Facts

Calculated/derived data

Event Data	Comment	Explanation	Units
factsType: String		String identifying the fact type: AIS event facts or Noon event facts.	
weatherAnalysis: WeatherAnalysis		Spot weather data from the DTN hindcast weather model for the location and time of the AIS or Noon event. This data is added every hour for the AIS events. For Noon events, this data is only added if the previous Noon event was more than 1 hour ago. This is a nested array of data. The specification is in the Weather Analysis table.	
distance: Float		"For AIS events, this is the distance traveled from the previous AIS track point calculated using rhumbline calculation. For Noon events, this is the distance traveled from the previous Noon event calculated using rhumbline calculations on the final AIS track."	nautical miles (nm)
calculatedSog: Float		"For AIS events, this is the speed over ground calculated by dividing the distance (traveled from the previous AIS track point calculated using rhumbline calculation) with the time difference between the two AIS events. For Noon events, this is the average speed over ground calculated by dividing the distance (traveled from the previous Noon event calculated using rhumbline calculations on the final AIS track) with the time difference between the two Noon events."	knots
course: Float		"For AIS events, this is the course from the previous AIS track point calculated using rhumbline calculation. For Noon events, this is the average course from the previous Noon event calculated using the weighted average method on the final AIS track from the previous Noon to this Noon position."	clock-wise degrees from true north
cx: Float		"For AIS events, this is the impact of ocean currents on ship speed, calculated using current data (speed and direction) and the ship's course. For Noon events, this is calculated using the weighted average of Cx on the final AIS track from the previous Noon to this Noon position. Results are displayed in Min - Avg - Max format. Positive value of Cx means: the current is opposing the ship's speed."	knots
wx: Float		"For AIS events, this is the impact of weather (wind, waves, and swell) on the ship's speed calculated using weather data, ship's course, and digital twin models. For Noon events, this is calculated using the weighted average of weather on the final AIS track from the previous Noon to this Noon position. Results are displayed in Min - Avg - Max format. Positive value of Wx means: the weather is opposing the ship's speed."	knots
calculated PerfSpeed: Float		"Performance speed is the set speed or the ordered speed by the captain. It is the same as calm water speed. For AIS events, this is calculated as SOG + Cx + Wx. For Noon events, this is calculated using the weighted average of performance speed on the final AIS track from the previous Noon to this Noon position. Results are displayed in Min - Avg - Max format."	knots
timeDifference: Float		"For AIS events, this is the time passed since the previous AIS event. For Noon events, this is the time passed since the previous noon event."	hours
calculated Fuel ConsumptionME: Float	For AIS events only	This is the calculated main engine fuel consumption between this and the previous AIS track point. It's calculated using the digital twin model and the performance speed. The calculation assumes that only heavy fuel oil (HFO) is used during this period.	metric tons (MT)
calculated CO2EmissionsME: Float	For AIS events only	This is the calculated CO2 emissions from the main engine between this and the previous AIS track point. It's calculated using the digital twin model, performance speed, and HFO emission factor, as specified by IMO. The calculation assumes that only heavy fuel oil (HFO) is used during this period.	metric tons (MT)
previous EventData: Previous Event Data		"For AIS events, this provides information about the previous AIS event. \For Noon events, this provides information about the previous Noon event. The information about the previous event is a nested array of data. The specification is in the previous event data table."	
calculated Bunker Data: [Calculated BunkerData]	For Noon events only	Bunker usage and analysis data is split by the available bunker types. This is a nested array of data. The specification is in the calculated bunker data table.	
calculated Avg Weather: CalculatedAvgWeather	For Noon events only	Weighted average of all weather (wind, wave, swell, current) elements on the final AIS track from the previous Noon to this Noon position. Results are displayed in Min - Avg - Max format. This is a nested array of data. The specification is in the calculated average weather table.	

- Event Data
- Event Facts
- **Bunker Data**
- Observed Weather
- Weather Analysis
- Previous Event Data
- Calculated Average Weather
- Calculated Bunker Data

Bunker Data

Reported bunker data in noon report split by the available bunker types

Bunker Data	Explanation	Units
rob: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
bunkered: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
boiler: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
mainEngine: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
tankHeating: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
holdTankWashing: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
auxEngines: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)
other: BunkerDataValues	The reported data in the Noon report, split by the available bunker types (hfo, mgouls, hfols, bio, hfouls, mgo).	metric tons (MT)

- Event Data
- Event Facts
- Bunker Data
- **Observed Weather**
- Weather Analysis
- Previous Event Data
- Calculated Average Weather
- Calculated Bunker Data

Observed Weather

Reported weather data in noon report

Observed Weather	Explanation	Units
seaHeight: Float	The reported wave height in the Noon report.	meters
swellDirection: Int	The reported swell direction in the Noon report (nautical convention).	degrees
currentDirection: Int	The reported current direction in the Noon report (nautical convention).	degrees
pressure: Float	The reported pressure in the Noon report.	hPa
currentSpeed: Float	The reported current speed in the Noon report.	knots
windSpeed: Int	The reported wind speed at 10 meters in the Noon report.	knots
wellHeight: Float	The reported swell height in the Noon report.	meters
windDirection: Int	The reported wind direction at 10 meters in the Noon report (nautical convention).	degrees



- Event Data
- Event Facts
- Bunker Data
- Observed Weather
- **Weather Analysis**
- Previous Event Data
- Calculated Average Weather
- Calculated Bunker Data

Weather Analysis

Spot weather data from the DTN hindcast weather model for the location and time of the AIS or noon event

Weather Analysis	Explanation	Units
windSpeed10m: Float	The speed of the wind at 10 meters above sea level, averaged over 10 minutes.	knots
windDirection10m: Float	The direction from which the wind is blowing at 10 meters above sea level.	degrees
seaWaveHeight: Float	Significant height of the wind waves.	meters
seaWavePeriod: Float	Mean period of the wind waves.	seconds
swellHeight: Float	Significant height of the swell waves.	meters
swellDirection: Float	The mean direction from which swell waves are coming.	degrees
swellPeriod: Float	Mean period of swell waves.	seconds
significantWaveHeight: Float	The total significant wave height, i.e. of all waves.	meters
currentSpeed: Float	The mean speed with which water is moving at sea surface level .	knots
currentDirection: Float	The mean direction into which water is moving at sea surface level.	degrees

- Event Data
- Event Facts
- Bunker Data
- Observed Weather
- Weather Analysis
- Previous Event Data
- Calculated Average Weather
- Calculated Bunker Data

Previous Event Data

This provides information about previous AIS or noon event

Previous Event Data	Explanation	Units
location: Location;	Latitude and longitude of the previous AIS or Noon event.	
eventId: String;	Unique reference ID of the previous AIS or Noon event.	
eventDate: DateTime;	Time when the previous AIS or Noon report was generated in UTC format.	
eventType: String;	Noon or AIS track point.	
noonSource: String;	ID of the previous Noon report in the Position Log API (for internal use only). Only returned For Noon events.	



- Event Data
- Event Facts
- Bunker Data
- **Observed Weather**
- Weather Analysis
- Previous Event Data
- **Calculated Average Weather**
- Calculated Bunker Data

Calculated Average Weather

Weighted average of all weather elements on final AIS track between two Noon reports

Calculated Average Weather	Explanation	Units
windSpeed10m: Float	The average Noon-to-Noon speed of the wind at 10 meters above sea level, averaged over 10 minutes.	knots
windDirection10m: Float	The average Noon-to-Noon direction from which the wind is blowing at 10 meters above sea level.	degrees
seaWaveHeight: Float	The average Noon-to-Noon significant height of the wind waves.	meters
seaWavePeriod: Float	The average Noon-to-Noon mean period of the wind waves.	seconds
swellHeight: Float	The average Noon-to-Noon significant height of the swell waves.	meters
swellDirection: Float	The average Noon-to-Noon direction from which swell waves are coming.	degrees
swellPeriod: Float	The average Noon-to-Noon mean period of swell waves.	seconds
significantWaveHeight: Float	The average Noon-to-Noon total significant wave height of all waves.	meters
currentSpeed: Float	The average Noon-to-Noon mean speed with which water is moving at sea surface level.	knots
currentDirection: Float	The average Noon-to-Noon mean direction into which water is moving at sea surface level.	degrees

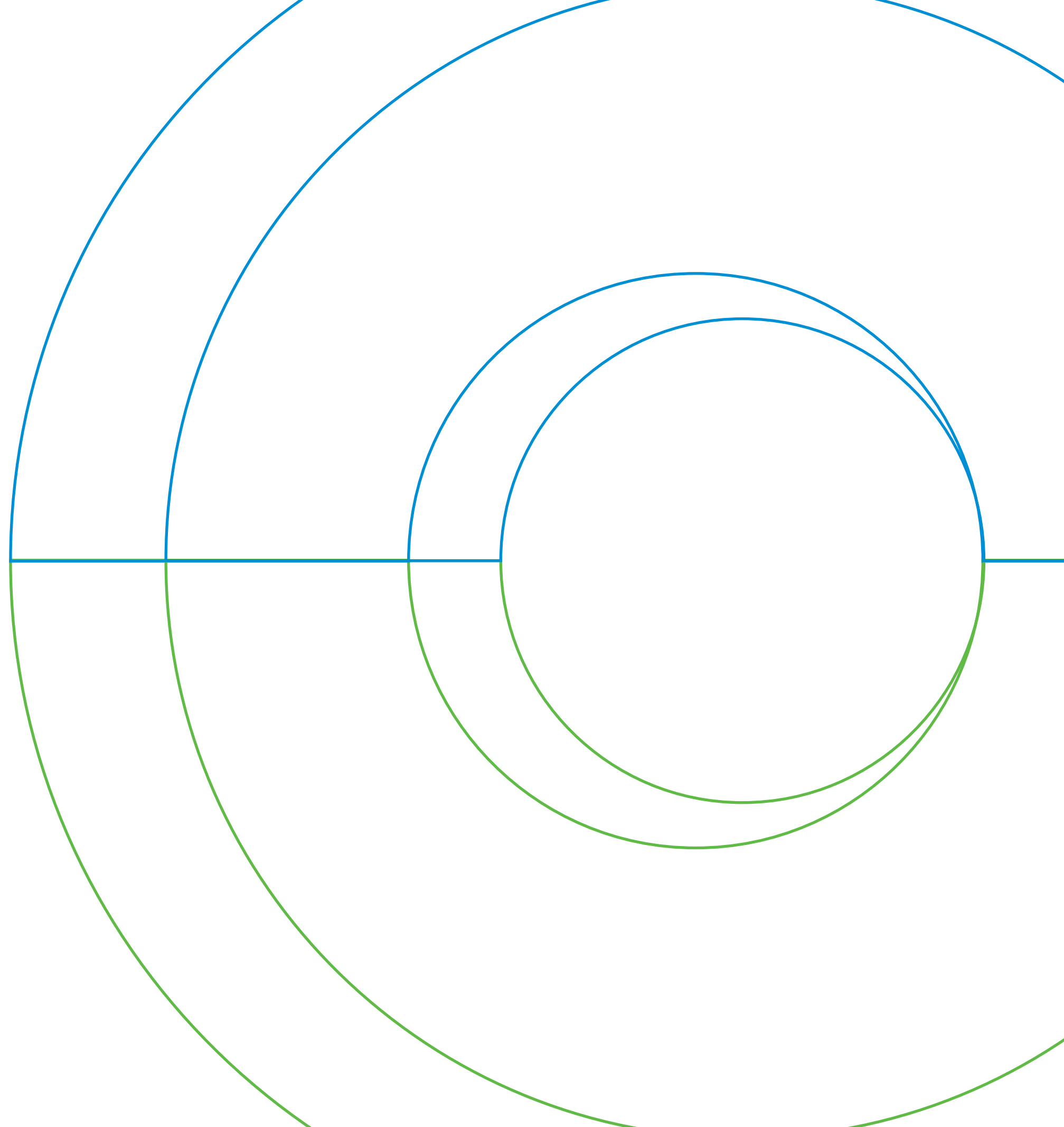


- Event Data
- Event Facts
- Bunker Data
- Observed Weather
- Weather Analysis
- Previous Event Data
- Calculated Average Weather
- **Calculated Bunker Data**

Calculated Bunker Data

Bunker usage and analysis data between two Noon reports split by the available bunker types

Calculated Bunker Data	Explanation	Units
bunkerType: String	The type of bunker being analyzed (HFO, HFOLS, HFOULS, MGO, etc.)	
bunkered: Float	The amount of the bunker added to the ship between the Noon reports; reported data coming from the Noon report.	metric tons (MT)
co2Emission: Float	Fuel consumption * emission factor. Every bunker type has a fixed emission factor.	metric tons (MT)
co2PerMile: Float	Co2 emissions * 1000/Distance in nm.	kg of CO2/mile
consumption: Float	The amount of the bunker consumed between the Noon reports.	metric tons (MT)
energyEfficiencyOperationalIndicator: Float	EEOI = CO2 emission * 1000000/(distance in nm * cargo in tons).	grams of CO2/ (tonne-mile)
rob: Float	The remaining tons of this type of bunker on board, reported data coming from the Noon report.	metric tons (MT)
usagePer24Hours: Float	Fuel consumption*24/(time difference between the Noon reports).	metric tons (MT)
usagePerMile: Float	Fuel consumption/distance between the Noon reports.	metric tons (MT)/ mile
usagePerTonnagePerMile: Float	Fuel consumption/(distance in nm * cargo in tons).	metric tons (MT)/ (tonne-mile)



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