



ABB Ability™ Fleetguard Enterprise Description

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Table of contents



TAP ON THE TEXT TO GO TO THE CHAPTER

- 3 List of Tables
- 4 List of Figures
- 5 Document overview
- 6 Management Summary
- 7 FGE benefits
- 7 Target users and applications
- 8 FGE features and functionality
- 9 FGE unique capabilities
- 9 Business sector availability

10 Use Cases

- 11 FGE customization
- 12 Tracking, monitoring, and analysis in the Dashboard module
 - 12 Track and monitor your fleet, vessels, and voyages using default widgets
 - 13 Monitor and analyze your fleet performance using custom widgets
- 20 Tracking and monitoring in the Fleet module
- 21 Tracking and monitoring in the Maps module
 - 22 Select a map type
 - 22 Configure information layers
 - 24 Track vessels
 - 25 Play back weather forecasts
- 25 Tracking and monitoring in the Fleetgroups module
 - 26 Configure a fleetgroup
 - 27 Manage Fleetgroups
- 27 Tracking and monitoring in the Vessels module
 - 28 Configure a vessel
 - 29 Manage vessels

- 30 Tracking and monitoring in the Voyages module
 - 30 Configure a voyage
 - 32 Manage alerts
- 34 Analysis
 - 35 Configure an analysis template
 - 36 Create benchmarks
- 36 Route calculation and optimization in the Route Advice module
- 38 Ordering voyages and reports in the Order module
 - 39 Order a voyage
 - 40 Order a Post-Voyage Analysis Report (PVAR)

41 Reference Topics

- 42 EasyNoon reporting
 - 42 EasyNoon overview
 - 43 EasyNoon benefits
 - 43 EasyNoon flow
 - 46 Voyage-checking process
 - 47 EasyNoon fields and validation rules
- 51 Routing and monitoring services
- 52 EU MRV compliance
 - 52 Fleetguard as a Service "MRV Compliance Package"
 - 53 EU MRV functionalities
- 55 Routeguard API
- 56 Nautical MeteoBase

57 Platform Description

List of Tables

- **Table 2–1.** Target users and applications
- **Table 2–2.** FGE features and functionalities
- **Table 3–1.** Roles and default modules
- **Table 3–2.** Actions performed to configure a Table widget
- **Table 3–3.** Actions performed to configure a Chart widget
- **Table 3–4.** Actions performed to configure a Gauge widget
- **Table 3–5.** Fleet overview actions
- **Table 3–6.** Information layers and features
- 26 Table 3–7. Fleetgroup-level actions
- 28 Table 3–8. Vessel-level actions
- 29 Table 3–8. Vessel-level actions
- 31 Table 3–9. Voyage-level actions
- 33 Table 3–10. Alert types
- **Table 3–11.** Actions performed to configure an analysis template
- **Table 3–12.** Parameters configured to create Route Advice
- **Table 3–13.** Parameters configured to create an order
- **Table 4–1.** High-level overview of EasyNoon reporting (Standard)
- **Table 4–2.** High-level overview of EasyNoon reporting (Company-assisted)
- **Table 4–3.** FGE alerts to incoming vessel positions

- **Table 4–4.** Sanity checks applied to incoming vessel positions
- **Table 4–5.** Fields and validation rules on the EasyNoon report
- **Table 4–6.** Routeguard routing and monitoring services
- **Table 4–7.** Fleetguard routing and monitoring services
- **Table 4–8.** Regional and global weather models
- 59 Table 5–1. FGE technical details

List of Figures

- **Figure 3–1.** Dashboard module
- **Figure 3–2.** Create Widget screen showing predefined table widgets
- **Figure 3–3.** Table widget example
- **Figure 3–4.** Create Widget screen showing predefined chart widgets
- **Figure 3–5.** Chart widget example (legend hidden)
- **Figure 3–6.** Chart widget example (legend shown)
- **Figure 3–7.** Create Widget screen showing predefined gauge widgets
- **Figure 3–8.** Gauge widget example
- **Figure 3–9.** FleetOverview widget (ungrouped)
- **Figure 3–10.** FleetOverview widget (grouped by Ownership)
- **Figure 3–11.** Fleet module
- 21 Figure 3–12. Map module
- **Figure 3–13.** Part of the map in the Map module showing Total Wavelength Sea (m) in the area mode and Wind (kts) in the grid mode
- **Figure 3–14.** Vessel pop-up in the Maps module
- 25 Figure 3–16. Fleetgroups module
- **Figure 3–15.** Weather-forecast player and forecast timestamp
- 27 Figure 3–17. Vessels module
- 30 Figure 3–18. Voyages module
- **Figure 3–19.** Alerts widget in the Dashboard module

- **Figure 3–20.** Alerts tab in the Voyages module
- **Figure 3–21.** Alert window with alert details and alert-related action items.
- 34 Figure 3–22. Analysis module
- **Figure 4–1.** EasyNoon flow
- **Figure 4–2.** Report Types flow



Document overview

This document has been designed with the intent of creating a single, comprehensive and reliable source of information about ABB Ability[™] Fleetguard – Vessel and weather monitoring (Fleetguard) Enterprise (FGE). The reader can refer to this product description for:

- A management summary with a general marketing description that can be incorporated into pitches, provided in response to customer information requests, added to campaign materials, and so on.
- A functional description of the most common use cases that gives a nuanced understanding of the value the product delivers to its end users.
- Reference topics that describe topics relevant to the operation of FGE.
- A meteorological description of the weather model/ weather-related data background that explains the scientific foundation that enables all products, including FGE, to deliver on their promises.
- A high-level technical description that defines the system requirements, technology stack, availability and support, and backup.

Management Summary

Marine weather is the most influential driver of fleet planning, fleet execution, fleet performance and fleet analysis. It influences high-stakes decisions around ship chartering, voyage planning, voyage execution, ship maintenance and legal claims. Key is balancing control of fleet utilization with individual vessel performance while keeping an overview of all moving parts.

What's in this section:

- FGE benefits,
- Target users and applications,
- FGE features and functionality,
- FGE unique capabilities,
- Business sector availability.

FGE benefits

FGE enables fleet operators and performance managers to improve fleet performance and utilization by applying aggregated weather data and routing insights to fleet decision making.

- Improve fleet performance:
- Analyze fleet performance.
- Drill down to vessel performance.
- Gain insights into trends, past performance, and benchmarks.

- Improve fleet utilization:
 - Support decision-making for day-to-day vessel operations, planning, and performance using planned routes, weather forecasts, delays, damage risk, and claim risk.
- Increase vessel, crew, and cargo safety:
 - Manage information on fleet alerting and safety decision-making.

Target users and applications

FGE supports all stakeholders involved in fleet performance and utilization.

For details, see Table 2-1.

Table 2–1. Target users and applications

| Target users | Applications | | | | | |
|--|---|--|--|--|--|--|
| Target users Fleet operators and managers Performance managers | Maximize fleet performance and utilization. | | | | | |
| | Access planned routes, delays, damage risk, claim risk. | | | | | |
| | Optimize the cost of day-to-day vessel operations, planning, and performance. | | | | | |
| | Secure vessel, crew and cargo safety. | | | | | |
| | Manage information for decision making on total fleet, fleet alerting, direct overall insights. | | | | | |
| Performance | Monitor and report, including MRV. | | | | | |
| managers | Analyze fleet performance. | | | | | |
| | Gain insight into trends, past performance, and benchmarks. | | | | | |

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FGE features and functionality

FGE enables fleet operators and performance managers to improve fleet performance and utilization by applying aggregated weather data and routing insights to fleet decision making. FGE offers the following features and functionalities as listed in Table 2–2.

Table 2–2. FGE features and functionalities

| Feature | Functionality |
|--|---|
| Operator dashboard | Access the operator's dashboard with maps, KPIs, and alerts. |
| | Customize the user interface using the configuration for your fleetgroup and the information you care about most. |
| Performance | Customize to support different roles and responsibilities. |
| dashboard | Access up-to-date performance for all vessels, calculated on normalized data to ensure comparability. |
| Extensive map view | Combine weather forecasts, tracks, and routes in a single overview. |
| Good and all-weather performance analysis | Incorporate weather data and models, including weather and current factors, slip analysis, SOG, STW, and more. |
| Vessel (group) view | Zoom in from an entire fleet to groups of vessels. |
| | Drill down to the individual ship level where your attention is needed and take appropriate actions. |
| Vessel trend and | Access cleaned-up data. |
| benchmark analysis | Select, filter, then combine and compare to gain insights on vessel performance over time. |
| Voyage calculations/ optimization | Create route options based on time, cost, or fuel constraints, either with or without a given ETA. |
| MRV reporting | Clean and validate data to comply with European MRV regulations. |
| | Filter 'European' voyages to provide compliance reporting and evidence in government-approved format. |
| Onboard reporting | Prevent duplication of reporting using the Easy Noon reporting tool if ships already report via Veslink. |



FGE unique capabilities

Fleetguard builds on decades of experience in fleet monitoring, weather forecasting, and severe weather routing. With Fleetguard users access the following unique capabilities:

- Fleet management as a service. The Fleetguard services take care of correct ship-toshore reporting, data processing, handling of faulty data, calculating performance and raising alerts and warnings, both towards the ship and the operator. Users can focus on data results rather than (incorrect) data.
- **Customizable**. Adjust the system interface to meet the needs of different roles, from the fleet operations manager to the vessel performance manager.
- SPOS9 unique capabilities. Benefit from SPOS9 unique features, such as Nautical MeteoBase, ship profile library, routing network, and variable-speed routing. All of these features are also implemented in Fleetguard.
- Fleetguard API. Access all Fleetguard data and processes via the API. Integrate customerowned and third-party (ERP) systems to directly access, create, modify, and request data and processes.

Business sector availability

Leading shipping and charter companies, such as Klaveness, Geogas, and Helios LPG put their trust in us. Contact us to learn more about how we help these prestigious organizations safely and economically manage their fleet.





Use Cases

This section provides a comprehensive description of FGE modules via use cases related to the tracking and monitoring of your fleet, vessels, and voyages, analysis of your fleet utilization and performance, and route calculation and optimization.

For details on reference topics, such as EasyNoon reporting, The routing and monitoring services, and EU MRV compliance, see **<u>Reference Topics</u>**.

FGE customization

FGE enables you to customize your application experience by allowing you to:

- Set a role.
- Choose modules to display.

You can set either of the following roles provided with a preconfigured combination of modules. If necessary, you can add or remove modules according to your specific needs. Note that Route Advice Module can only be ordered for an additional fee.

Table 3-1. Roles and default modules

| Role | Default Modules |
|---------------------|---|
| Ship Owner Operator | Dashboard, FleetGroups, Create and Edit Voyages, Customize Dashboard, Map, Create and Edit Ships. |
| Chartering Operator | Dashboard, FleetGroups, Customize Dashboard, Map, Analysis Module. |
| Pool Operator | Dashboard, FleetGroups, Create and Edit Voyages, Customize Dashboard, Map, Create and Edit Ships, Analysis Module, Customize EasyNoon. |
| Commercial Operator | Dashboard, Create and Edit Voyages, Routing Module, Benchmark Module, Customize Dashboard, Create and Edit Ships, Analysis Module. |
| Performance Manager | Dashboard, FleetGroups, Benchmark Module, Customize Dashboard, Analysis Module. |
| Manager | Dashboard, FleetGroups, Benchmark Module, Customize Dashboard, Map, Analysis Module, Customize EasyNoon. |





Tracking, monitoring, and analysis in the Dashboard module

The Dashboard module in FGE provides a quick overview of all information relevant to your fleet, vessels, and voyages via default and custom widgets.



Track and monitor your fleet, vessels, and voyages using default widgets

The Dashboard module in FGE enables you to track and monitor your fleet, vessels, and voyages using default widgets.

The default widgets include the following:

- Alerts that provides an overview of alerts generated, for example, when a vessel reported a delay in ETA, or is too close to a hurricane, and enables you to view alert details, provide your comment, and act on alerts.
- Map that provides a quick-glance view of your fleet on a map selected in the Maps module.

- · Fleet Overview that provides key information about your fleet, such as ship name, delta ETA, CP time gain, good weather speed, HFO, and MDO.
- Voyage Status that enables you to access the voyages list.
- Favorite Voyages that shows voyages you recently viewed in the Voyages module. If you want to further investigate one of the listed voyages, click on the voyage to open it in the **Voyages** module.

You can also create custom widgets. For details, see Monitor and analyze your fleet performance using custom widgets.

Figure 3–1.

Monitor and analyze your fleet performance using custom widgets

In addition to the default widgets, the Dashboard module in FGE enables you to create custom widgets. With custom widgets, you can create your own:

- Tables. For details, see Table widget.
- Charts. For details, see <u>Chart widget</u>.
- Gauges. For details, see <u>Gauge widget</u>.
- FleetOverviews. For details, see <u>FleetOver-</u> view widget.

Table widget

The Dashboard module in FGE enables you to create table widgets. When creating a widget, you can either select a table with predefined columns and groupings or create your own table. Selection can be made from the predefined table widgets shown in the screenshot.

Note

The predefined table widget can be customized to your specific needs.

Create Widget ? Total distance sailed between start date-end date, per vessel type (or all) O Total fuel between start date-end date, per vessel type (or all), per fuel type and per fuel consumer O Total fuel between start date-end date, per vessel type (or all), per fuel type used Ο Total CO2 between start date-end date, per vessel type (or all), per fuel type O Total days at sea between start date - end date, per vessel type O Total days in port between start date - end date, per vessel type Nr of days in certain weather conditions (Good weather days) Nr of days in certain weather conditions (Total DSS) O Nr of days in certain weather conditions (Wind BFT) Other PREVIOUS CLOSE NEXT

When none of the available predefined table widgets meet your needs, you can modify an existing predefined table widget or configure your own table widget using a wizard. For details, see Table 3–2.

Figure 3–2. Create Widget screen showing predefined table widgets





Table 3–2. Actions performed to configure a Table widget

| On the screen | Do this | Note |
|--------------------------------|--|---|
| Analysis parameters, period | Select the widget name. Toggle Analysis for period if you want to set a period for your analysis. Select either of the following checkboxes depending on what you want to analyze: Analyze Voyage Summaries. Analyze Voyage Details. To define a random period, select From Date and To Date. OR To set a dates interval, in the Dates interval template, select one of the available periods. In the Analysis type, select an analysis type: All weather analysis. Good weather. Bad weather. | You can set a period using exact dates or choose one of the predefined options, such as yesterday, last 7 days, year to date, and so on. When selected, each period gets an explanation displayed on the right. |
| Ships | Select ships using one of the available options: All ships. Specific ships. Specific fleetgroups. Search for ships. | |
| Voyages | Select voyages of the ships that you selected on the Ships screen. | |
| Columns and Groupings | Select columns that you want your table widget to display. Choose your groupings from the available list that is based on the columns that you added. | Predefined table s already have columns and groupings selected for you. |

A table widget looks as shown in the screenshot.

Figure 3–3. Table widget example

| Table W | idget | | | | | | 6 |
|-------------|---------------------------|-------|----|-------------|--------|----|-------------------|
| 5 | Shiptype | Ŧ | τ. | Distance | Voyage | ĻΨ | Dept. Time |
| Date Jan | e-Time (UTC 2018 05:18 |): 14 | | Sum: 0.00 | | | 14 Jan 2018 05:18 |
| Date Jan | e-Time (UTC 2018 06:30 |): 14 | | Sum: 8.60 | | | 14 Jan 2018 05:18 |
| Date Jan | e-Time (UTC 2018 06:30 |): 15 | | Sum: 323.00 | | | 14 Jan 2018 05:18 |
| Date Jan | e-Time (UTC 2018 06:30 |): 16 | | Sum: 315.10 | | | 14 Jan 2018 05:18 |
| Date Jan | e-Time (UTC 2018 06:30 |): 17 | | Sum: 294.70 | | | 14 Jan 2018 05:18 |
| Date | e-Time (UTC |): 18 | | Sum: 298.00 | | | 14 Jan 2018 05:18 |

Because the widget space is limited, you may not see the entire table. To see the parts hidden from view, use the scroll bars. Some tables may also rely on pagination to present the available data.

Additionally, you can use filters in the column headers to configure a specific view of the table.

Chart widget

You can create chart widgets on the Dashboard module. When creating a widget, you can either select a chart with predefined values for the x and y axes or create your own chart. Select from any of the predefined chart widgets shown in the screenshot.

Note

The predefined chart widget can be customized to meet your specific needs.



| Crea | ite Widget | ? |
|------|--|------|
| 0 | Time series for Total distance sailed between start date-end date, per vessel type | |
| 0 | Time series for Total fuel between start date-end date, per vessel type, per fuel type and per fuel consumer | |
| 0 | Time series for Total fuel between start date-end date, per vessel type, per fuel type used | |
| 0 | Time series for Total CO2 between start date-end date, per vessel type, per fuel type | |
| ۲ | Other | |
| | CLOSE PREVIOUS | NEXT |

When none of the available predefined chart widgets meet your needs, you can modify an existing predefined chart widget or configure your own chart widget using a wizard. For details, see Table 3–3.

| On the screen | Do this | Note |
|-----------------------------------|--|---|
| Analysis parameters, period | Select the widget name. Toggle Analysis for period if you want to set a period for your analysis. Select either of the following checkboxes depending on what you want to analyze: Analyze Voyage Summaries. Analyze Voyage Details. To define a random period, select From Date and To Date. OR To set a dates interval, in the Dates interval template, select one of the available periods. In the Analysis type, select an analysis type: All weather analysis. Good weather. Bad weather. | You can set a period using exact dates or choose one of the predefined options, such as yesterday, last 7 days, year to date, and so on. When selected, each period gets an explanation displayed on the right. |
| Ships | Select ships using one of the available options: All ships. Specific ships. Specific fleetgroups. Search for ships. | |
| Voyages | Select voyages of the ships that you selected on the Ships screen. | |
| Axis, grouping, and chart type | Select Y-axis. Select Cumulative if you want to have the values for the selected period added up. Select X-axis. Select a grouping. Select a chart type: Line. Area. Spline. Spline. Scatter. Bar. | Predefined charts already have all these values predefined. |

Table 3–3. Actions performed to configure a Chart widget

A chart widget may look as shown in the screenshot below.





Selecting the **Show legend** checkbox displays the legend for the chart.





Gauge widget

You can create gauge widgets on the Dashboard module. A gauge widget is a tool to measure distance, fuel consumption, and other values. A gauge has a minimum and a maximum value, and colored sectors.

When creating a gauge widget, you can select a predefined gauge or create your own gauge.

Currently, you can select from any of the predefined gauge widgets shown in the screenshot.

Note: the predefined gauge widget can be customized to your specific needs.

Figure 3–7. Create Widget screen showing predefined gauge widgets

| Create Widget | | | ? |
|---|-------|----------|------|
| O Total distance sailed between start date-end date, per vessel type (or all) | | | |
| O Total fuel between start date-end date, per vessel type (or all), per fuel type and per fuel consumer | | | |
| O Total CO2 between start date-end date, per vessel type (or all), per fuel type and per fuel consumer | | | |
| O Total fuel between start date-end date, per vessel type (or all), per fuel type used | | | |
| O Total time gain/loss between start date-end date | | | |
| • Other | | | |
| | CLOSE | PREVIOUS | NEXT |

When none of the available predefined gauge widgets meet your needs, you can modify a predefined gauge widget or configure your own gauge widget using a wizard. For details, see Table 3–4.







Table 3-4. Actions performed to configure a Gauge widget

| On the screen | Do this | Note |
|---|---|---|
| Analysis parameters, period | Select the widget name. Toggle Analysis for period if you want to set a period for your analysis. Select either of the following checkboxes depending on what you want to analyze: Analyze Voyage Summaries. Analyze Voyage Details. To define a random period, select From Date and To Date. OR To set a dates interval, in the Dates interval template, select one of the available periods. In the Analysis type, select an analysis type: All weather analysis. Good weather. Bad weather. | You can set a period using exact dates or choose one of the predefined options, such as yesterday, last 7 days, year to date, and so on. When selected, each period gets an explanation displayed on the right. |
| Value range, data source, group, sectors on gauge | Select a value range. By default, it is 0 to 100. Choose a data source for which you create your gauge. Select a group. Select units of measure. Make sure it is aligned with the selected data source. For example, if you select Distance as your data source, then the units of measure must be distance-related (nautical miles or other). Add up to three color-coded sectors on your gauge. Select the Calculate Automatically checkbox if you want the system to calculate the minimum and maximum values. After the system calculates the minimum and maximum values, you can add up to three color-coded sectors. | |
| Ships | Select ships using one of the available options: All ships. Specific ships. Specific fleetgroups. Search for ships. | |
| Voyages | Select voyages of the ships that you selected on the Ships screen. | |

A gauge widget may look as shown in the screenshot below.





Figure 3–9. FleetOverview widget (ungrouped)

| New Widge | t | | | | 60 |
|--------------|---|-------------------|-------------|--------------------|--------|
| Ship Name | Ŧ | Voyage type | Ownership | Departure T | ETD |
| Aeolia | | RouteGuard + PVAR | CharteredIn | ZONA COMUN | 11 Sep |
| Agios Sostis | | RouteGuard + PVAR | Owned | | 04 Sep |
| Agri Grande | | RouteGuard + PVAR | Owned | FUJAIRAH | 20 Jul |
| Agri Warrior | | RouteGuard + PVAR | CharteredIn | | 29 Jul |
| Aiantas | | RouteGuard + PVAR | 0 | | 29 Jul |
| Ajax | | RouteGuard + PVAR | Owned | | 18 Au |
| Akra | | RouteGuard + PVAR | Owned | | 25 Au |
| Alcor | | RouteGuard + PVAR | Owned | QINGDAO | 21 Au |
| Amadeus | | RouteGuard + PVAR | Owned | MACHONG | 13 Au |

Figure 3–10. FleetOverview widget (grouped by Ownership)

| = | Ē | FleetOverview Widget | , Grouped by Ownersh | nip | Γ | • |
|---|---|----------------------|-----------------------|--------------------|-------------------|---|
| | | Ship Name 🛛 🔻 | Voyage type | Departure T | ETD | т |
| | Þ | Ownership: Chartere | edIn | | | |
| | Þ | Ownership: 0 | | | | |
| | • | Ownership: Owned | (Continues on the nex | t page) | | |
| | | Agios Sostis | RouteGuard + PVAR | | 04 Sep 2018 00:00 | 2 |
| | | Agri Grande | RouteGuard + PVAR | FUJAIRAH | 20 Jul 2018 22:00 | 2 |
| | | Ajax | RouteGuard + PVAR | | 18 Aug 2018 00:00 | 0 |
| | | Akra | RouteGuard + PVAR | | 25 Aug 2018 18:00 | 0 |
| | | Alcor | RouteGuard + PVAR | QINGDAO | 21 Aug 2018 23:00 | 1 |
| | | Amadeus | RouteGuard + PVAR | MACHONG | 13 Aug 2018 12:00 | 0 |

FleetOverview widget

You can create a FleetOverview widget on the Dashboard module. A FleetOverview widget provides an overview of your fleet based on a custom selection of columns and a custom grouping.

To create one, provide the following details:

- Name of your widget.
- Columns that you want your overview to display. Columns added are displayed in the Values section.
- Grouping. If necessary, select a group to group your data by any of the parameters you added in Columns.
- The screenshots below show an ungrouped overview and an overview grouped by Ownership.



The Fleet module in FGE provides a fully-customizable tabular overview of your fleet displaying the most important and latest information about your fleet based on data reported by the vessels. The screenshot below shows overview data filtered by Status.

| leet overview | | | | | | | | | | | 5 | Show map 🔊 |
|--|--------------------------------|------------|-------------|-------------------|---------------|-------------------|-------------|----------------------|-------------|---------------|--------------------|--------------|
| St Carled Dearley New Dearley Control Carley Control - + | | | | | | | | | | | | |
| Select | Stlett. • > Saturi 17 0 8 @ Q. | | | | | | | | | Search | | |
| Alerts & Warnings | Ship Name | Fleetgroup | Actions | Voyage type | Departure T | ETD | Destination | Time of Arrival (UTC | Delta ETA | † CP Time +/- | All Wx Perf. Speed | Tot. distanc |
| | Q | Q | | Q | Q | | Q | | | | | |
| * Status: Arrived | | | | | | | | | | | | |
| | Antares | IDUK1 | ~ 🛇 🖌 🏯 🖬 📋 | RouteGuard + PVAR | GANGAVARAM | 10 Aug 2018 07:30 | | 31 Aug 2018 21:40 | 1d 7h 11m | 13h | 11.22 | 5,603 |
| | Kaley | IDUK1 | ~ 🛇 🖌 🏯 🖬 📋 | RouteGuard + PVAR | SHIMIZU | 28 Jul 2018 12:00 | | 29 Aug 2018 15:15 | 11d 15h 44m | Oh | 9.81 | 4,614. |
| | Nefeli | IDUK1 | ~ 🛇 🖌 🏯 🖽 🗂 | RouteGuard + PVAR | VANCOUVER (CA | 05 Aug 2018 00:00 | | 31 Aug 2018 00:10 | Od | Oh | 0.00 | 0. |
| | Johnny P | IDUK1 | ~ 🛇 🖌 🏯 🗂 🗂 | RouteGuard + PVAR | PORT KELANG | 28 Jul 2018 09:00 | | 01 Sep 2018 13:07 | 4d 13h 14m | Oh | 11.00 | 8,947.6 |
| > Status: At Sea | | | | | | | | | | | | |
| > Status: Ended | | | | | | | | | | | | |
| Status: Enroute | | | | | | | | | | | | |
| Status: In Port | | | | | | | | | | | | |
| Status: Monitoring | | | | | | | | | | | | |

Table 3–5. lists actions you can perform on the overview and overview data.

| То | Do this | Note |
|----------------------------|--|--|
| Create an overview | Add an additional tab by clicking the plus icon at the top. | Multiple overviews are useful when you want to have quick access to multiple preconfigured data sets that display different parameters and/or are grouped differently. Each overview is created with a preselected set of columns grouped by Status. |
| Define an overview name | Click the pen icon next to the default (New Overview) name and type a name. | Defining a unique name may help you understand what each overview contains without having to open it. You can move or remove all columns other than the Alerts and Actions columns. In the Column Chooser list, grayed-out columns mean that none of your vessels have reported any data for these columns. |
| Select columns | Click the Column Chooser icon and select any columns by dragging and dropping them onto the overview. | You can group table data by multiple grouping parameters. After you add a grouping parameter, each grouping parameter added next becomes nested within the previous grouping parameter. This enables the narrowing of available data down to very specific data sets. For example, if you filter your fleet by Status, and then by Fleetgroup, and, finally, by Voyage Type, you can see the Voyage Type of each vessel in the Fleetgroup filtered by Status. |
| Group table data | Option 1: Select a grouping type from the drop-down list on the table toolbar. Option 2: Drag the column header by which you want to group table data to the table toolbar. | FGE supports exporting data to Excel. |
| Export table data | Click the Export all data icon and select where you want to save the exported data. | |
| Search in table data | In the Search field, type a key word. | |

Table 3–5. Fleet overview actions

Figure 3–11. Fleet module



Overview data is fully integrated into other FGE modules via the **Actions** column. From this column you can select one of the following actions for a selected vessel:

- Access route advice.
- View voyage on the map (not available for the voyages in the Arrived and Ended statuses).
- View and Edit (the degree of editing voyages is dependent on the service taken) the voyage.
- View and Edit the ship.
- Perform analysis actions.
- Download an intermediate/draft/final PVAR (Post Voyage Analysis Report) report.

Tracking and monitoring in the Maps module

The Maps module is your access point to weather forecasts, fleet positions, routes and tracks, and sea charts.

The Maps module in FGE enables you to perform the following actions:

- Select one of the three maps available:
- OSM based on the openstreetmap.org source.
- Bing based on the bing.com source.
- Sea Charts (TX97) based on the transas.com source.
- Track vessels on the map.
- View vessel details.

- Track cyclones.
- Access other FGE modules (for example, Route Advice or Voyages).
- Track weather and navigation conditions by applying one or more of the available information layers.
- Play back weather forecasts.
- Measure distance on the map (rhumbline and great circle, in nmi and km).
- Calculate travel time for the measured distance.

The screenshot below shows a Sea Charts map with vessels and cyclone paths.



Figure 3–12. Map module



Select a map type

FGE provides three maps to choose from:

- OSM (source: openstreetmap.org). The OSM map is in the local language. It is useful for orientation on land around the globe.
- Bing (source: bing.com). The Bing map is in English. It is useful for orientation on land around the globe.
- Sea charts (TX97) (source: transas.com/ products/TX-97). Sea charts are useful when planning a voyage, checking the backtrack, or in urgent situations.

On all maps, before any information layers are applied, you can see the following:

- Vessels as they are positioned according to the latest noon report, with vessel names in the labels.
- Cyclones, including the path they have travelled and the color-coded level of severity.

Configure information layers

FGE provides the following information layers that can be added to the map:

• Weather.

• Navigation. You can activate and configure multiple information layers using area, grid, line,

and points. Note that for area, grid, and

line information layers, you can additionally configure transparency and labels.

The screenshot below shows a map with Total Wavelength Sea (m) shown in the area mode, and Wind (kts) shown in the grid mode.

Figure 3–13. Part of the map in the Map module showing Total Wavelength Sea (m) in the area mode and Wind (kts) in the grid mode



Table 3-6. lists the information layers grouped under general information icons in FGE, and the features available for each layer.

Table 3–6. Information layers and features

| Information | | Features | | | | | | | |
|---------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|---------------------|--|--|--|--|--|
| lcon | Layer | Area | Grid | Line | Points | | | | |
| WEATHER | | | | | | | | | |
| Wind | Total Waveheight Sea (m) | Yes, + Transparency and Labels | Yes | No | No | | | | |
| | Wind Sea (m) | Yes, + Transparency and Labels | Yes, + Transparency and Labels | No | No | | | | |
| | Wind Sea (s) | Yes, + Transparency and Labels | Yes | No | No | | | | |
| | Wave Swell (m) | Yes, + Transparency and Labels | Yes, + Transparency and Labels | No | No | | | | |
| | Wave Swell (s) | Yes, + Transparency and Labels | Yes | No | No | | | | |
| Pressure | Pressure (hPa) | No | Yes | Yes, + Transparency | No | | | | |
| | HPA 500 (m) | No | No | Yes, + Transparency | No | | | | |
| Wind | Wind | Yes, + Transparency and Labels | Yes | No | No | | | | |
| Current | Current | Yes, + Transparency and Labels | Yes, + Transparency and Labels | No | No | | | | |
| Precipitation | Precipitation | Yes, + Transparency and Labels | No | No | No | | | | |
| Visibility | Visibility | Yes, + Transparency and Labels | No | No | No | | | | |
| lce | Ice Concentration | Yes, + Transparency | No | No | No | | | | |
| | Iceberg Line Northern Hemisphere | No | No | Yes, + Transparency | No | | | | |
| | Icebergs Southern Hemisphere | No | No | Yes, + Transparency | No | | | | |
| Temperature | Water Temperature | Yes, + Transparency and Labels | No | No | No | | | | |
| | Air Temperature | Yes, + Transparency and Labels | No | No | No | | | | |
| Fronts | Fronts | No | No | Yes, + Transparency | No | | | | |
| NAVIGATION | | | | | | | | | |
| Load Lines | Load Lines | Yes, + Transparency and Labels | No | No | No | | | | |
| | SECA Zones | Yes, + Transparency and Labels | No | No | | | | | |
| War Zones ¹ | War Zones | Yes, + Transparency | No | No | No | | | | |
| Piracy | High Risk Area JWLA / 022 | Yes, + Transparency | No | No | No | | | | |
| | High Risk Area BMP4 | Yes, + Transparency | No | No | No | | | | |
| | Piracy | No | No | No | Yes² | | | | |
| Points of interest ³ | Points of Interest | No | No | No | Yes, + Transparency for user's points | | | | |
| Sea Charts Base Layer | Sea Charts Base Layer | Yes, + Transparency | No | No | No | | | | |

You can download a full list of hull war, piracy, and related perils as a PDF file made available by the <u>Joint War Committee</u>.
 Points show where pirate attacks have occurred. You can configure a period for which you want to show the piracy points, ranging from last week to last years.

3. You can create your own points.



Track vessels

Maps provide a view of all vessels or vessels that belong to one or more active fleetgroups.

Vessels on the map are shown:

- Using name labels. If necessary, these can be hidden. To hide name labels, on the Map menu, select the Legend icon, and then clear the Vessels Name checkbox.
- Using a color-coded vessel icon to show that it belongs to a particular vessel type.
 For a list of vessel color codes, on the Map menu, select the Legend icon.
- × Name: Pedhoulas Merchant 9279800 IMO: Callsion: C4JL2 Status: At Sea Ship type: Bulk Carrier Panamax New Position Source: AIS 12° 59' 22' S 35° 00' 13' W Lat/Lon: Time: 31 Aug 2018 00:43 Time passed: 14 hours 192.75° Course over ground: Speed over ground: 9.94 Performance Good Wx Perf. Speed: 10.34 CPTime Gain: 6h 258h Good Wx Time: HFO: 0.00 MDO: 0.00 £ p \sim

• Displaying a conspicuous active alert (if any) to make sure that you don't miss a vessel that is, for example, off track or is too close to a hurricane.

By pointing to a vessel, you can find its position displayed as a latitude and a longitude in the lower right corner of the map screen.

To display more vessel details, select the vessel icon. The pop-up window that appears displays additional information.



From the pop-up window, you can perform the following actions:

- View ship details in the Vessels module in FGE. For details, see <u>Tracking and</u> <u>monitoring in the Vessels module</u>.
- Show/hide voyage track and route advice to view the backtrack and further track advice for this voyage on the map.
- View voyage details to view the voyage in the Voyages module in FGE. For details, see <u>Tracking and monitoring in the Voyages module</u>.
- Calculate Route Advice. For details, see <u>Route calculation and optimiza-</u> tion in the Route Advice module.

— Figure 3–14. Vessel pop-up in the

Maps module



Play back weather forecasts

Weather forecasts are updated at 6-hour intervals. The latest update timestamp is shown in the lower left corner of the map screen.

To see how the weather is forecasted to evolve over the next 15 days, use the built-in player in the lower left corner of the map screen.

Figure 3–15. Weatherforecast player and forecast timestamp



Tracking and monitoring in the Fleetgroups module

The Fleetgroups module in FGE helps you focus on only the part of the fleet you are responsible for, or interested in.

The Fleetgroups module in FGE enables you to do the following:

- · Group vessels into fleetgroups based on whatever attribute is important to you. The same vessel can be a member of multiple fleetgroups.
- View all available fleetgroups.
- Add fleetgroups to Active Fleetgroups.
- Filter out any fleetgroups that do not belong to your Active Fleetgroups.
- · Access each fleetgroup displayed.
- · Configure an existing or a new fleetgroup.

| — Figure 3–16. | Fleetgroups | Show map | NEW |
|--------------------|--------------------------|----------|-----|
| Fleetgroups module | | | ^ |
| | Actions Hame Description | | |
| | / 🖥 🖾 AK52 | | |
| | | | |
| | 🗡 🖥 🔛 DALI | | |
| | | | |
| | Senz | | |



Configure a fleetgroup

In the Fleetgroups module, you can configure an existing or a new fleetgroup. The data that you provide cascades down to all vessels in the fleetgroup. Table 3–7. lists the actions you can perform on the fleetgroup level.

Table 3–7. Fleetgroup-level actions

| On the tab | Do this | Note |
|-----------------------|--|--|
| General info | Type the FleetGroup name (max 32).Type a description (max 2000). | |
| Add/remove vessels | Select the checkboxes for ships that you want to add to the fleetgroup. Search for ships that you want to add. To refine your search, you can use the following rules (in any combination needed): Contains, Does not contain, Starts with, Ends with, Equals, Does not equal. | The ships that you add appear in the Ships in group list on this tab. |
| Restrictions | Configure restrictions, such as: Predefined restrictions. You can toggle any predefined restrictions from the available list. These include, for example, SECA areas, INL areas, and other specific restrictions, such as Antarctic iceberg limit. General restrictions. You can toggle Vertex and Ice Concentration. Custom restrictions. You can draw a restriction on the map as an area, a line, or a circle. Import/Export restrictions. You can import or export the restrictions from or to any of the ships added to the fleetgroup. | |
| Limits | Configure limits that apply to the fleetgroup. Configure weather limits. You can define values for the weather limits, and select the Avoid or Warn check box, as well as choose the severity level (to be used in the alerts): Critical, Major, Moderate, Low. Configure warning limits. You can define values for warning limits, select the Warn checkbox if you want to be warned of exceeding them, and choose the severity level (to be used in the alerts): Critical, Major, Moderate, Low. Import/export limits. You can import or export the limits from or to any of the ships added to the fleetgroup. | Note that when you select Avoid , the route for the ship must be calculated excluding the Avoid weather limit. |
| Reports configuration | Define EasyNoon reports configuration. You can select the parameters to include in the EasyNoon report, define which ones are mandatory, and set the minimum and/or maximum values where needed. | |





Manage Fleetgroups

You can manage your fleetgroups in the following ways:

- Add any of the configured fleetgroups to your active fleetgroups. When you do so, you can filter out all vessels that do not belong to your active fleetgroups on the map and fleet overviews.
- Edit any fleetgroup. For details, see <u>Configure a fleetgroup</u>.

- Subscribe to fleetgroups. After you subscribe to a fleetgroup, you start receiving fleetgroup alerts via email-based on your settings for receiving alerts (User Settings).
- Delete a fleetgroup that you no longer need. Note that deleting a fleetgroup does not delete any vessels that it contains.

Tracking and monitoring in the Vessels module

The Vessels module in FGE provides a paginated table that enables you to do the following:

- Perform the following actions on each vessel:
 - Access Route Advice.
 - Edit a vessel.
 - View vessel on the map.
 - Copy a vessel.
 - Delete a vessel.
 - Choose an analysis action.
 - Add ship to a fleetgroup.

- View vessel details, such as:
 - IMO.
- Name.
- Ownership.
- Customer Name.
- Last Noon.
- Position.

| _ |
|----------------|
| Figure 3–17. |
| Vessels module |



Configure a vessel

In the Vessels module, you can configure an existing or a new vessel. Table 3–8. lists the actions you can perform at the vessel level.

Table 3–8. Vessel-level actions

| On the tab | Do this | Note |
|--------------------|---|---|
| Ship info | Type an existing IMO ID. Add your ship to one or more existing fleetgroups. | |
| General info | Select a country. Type a short name (max 32). Select a ship type. Type a callsign (max 32). InmarsatC number (max 32) Select an ownership type: Owned. Chartered in. Chartered out. | This tab also displays IMO and ship name prepopulated with the values you provided on the Ship info tab. |
| Characteristics | Provide your ship characteristics, such as: • Speed in calm water (kts) (max 99). • Length overall (m) (max 600). • Beam (m) (max 100). • Block coefficient (%) (max 100). • Gross tonnage (mT) (max 99999). • Net tonnage (mT) (max 99999). • Displacement (mT) (max 99999). • Deadweight (mT) (max 99999). • Under Keel Clearance (max 99). • Vessel daily cost (\$) (max 900000). • Cost HFO (\$/mT) (max 900000). • Cost Low Sulphur fuel (\$/mT) (max 900000). • Comments. | Note that providing valid values in the vessel characteristics is important for EU MRV compliance. |
| Restrictions | Configure restrictions, such as: Predefined restrictions. You can toggle any predefined restrictions from the available list. These include, for example, SECA areas, INL areas, and some other specific restrictions, such as Antarctic iceberg limit. General restrictions. You can toggle Vertex and Ice Concentration. Custom restrictions. You can draw a restriction on the map as an area, a line, or a circle. Import/Export restrictions. You can import or export the restrictions from or to any of the fleetgroups your vessel is added to | |
| Communication | Provide means of communication, such as: MMSI number. Ship email. Email for Daily Performance Indicator (DPI). Email for Post Voyage Analysis Reports (PVAR). Inmarsat-C pollings per day (max 4). (Restricted due to costs involved) Frequency of AIS pollings per day (max 24). Reporting format, such as EasyNoon, SPOS, Veslink and Danaos | |
| Limits | Configure limits that apply to your vessel: Weather limits. You can define values for the weather limits, and select the Avoid or Warn check box, as well as choose the severity level (to be used in the alerts): Critical, Major, Moderate, Low. Warning limits. You can define values for the warning limits, select the Warn checkbox if you want to be warned of exceeding them, and choose the severity level (to be used in the alerts): Critical, Major, Moderate, Low. Import/export limits. You can import or export the limits from or to any of the fleetgroups your vessel is added to. | Any limits that you apply here override the limits configured at the fleetgroup-level. |
| Speed/fuel profile | Apply an existing speed/fuel profile or create a new one. | |
| Voyages | View voyage details: • Voyage name. • Ship name. • Status. • Ended date. • Actions: • View voyage on map. - Edit voyage. - Analyze voyage. | |

Table 3–8. Vessel-level actions

| On the tab | Do this | Note | |
|-----------------------------|--|---|--|
| Charter party conditions | View and edit charter party conditions: • Charter Party Conditions. • General Details. • Bunker Conditions. • Bunker matrix. | | |
| Reports configuration | View, edit, or import a reports configuration. You can to include in the EasyNoon report, define which ones a set the minimum and/or maximum values where need existing EasyNoon configuration from a fleetgroup yo | select the parameters .re mandatory, and ed, or import an ur ship is added to. | |
| Benchmarks | Create a benchmark for analysis purposes. For details, see <u>Create benchmarks</u> . | | |



Manage vessels

You can manage your vessels in the following ways:

- Access Route advice.
- Edit a vessel. For details, see Configure a vessel.
- View vessel on the map. This shows your vessel on the map with a pop-up window that contains the vessel details. For details, see <u>Track vessels</u>.
- Copy a vessel. This can be used as an easy way to create a new ship based on the configuration of a 'sister' vessel that has almost identical details. In a copied vessel, you will only need to update the IMO, name, and email.
- Delete a vessel. Note that after you delete a vessel, you lose all vessel data, including voyage details.
- Choose an analysis action.
- Add a ship to a fleetgroup.

Related use cases:

- <u>Configure a vessel</u>.
- Track vessels.



The Voyages module in FGE provides a voyage overview that enables you to do the following:

- Perform a search in voyages or in ships.
- Filter the list of voyages as needed by using tags mapped to voyage statuses.
- Perform the following actions on a voyage:
 - Access Route advice.
 - View a voyage on the map (not available for voyages in the Arrived and Ended statuses).
 - Delete a voyage.
 - Choose an analysis action.
 - Download a PVAR (Post-Voyage Analysis Report).

- View ship-related information:
 - ID.
 - Voyage Name.
 - Ship Name.
- Departure.
- Destination.
- Status.
- Service.
- ETD.
- ETA (UTC).
- Last Noon.
- View total voyages. The total shows the number of voyages in the current filtered configuration.
- Go to other pages using paginated links.
- View recently opened voyages. Note that these voyages are also displayed in the favorite voyages widget in the Dashboard module.

| Voyages | | | | | | | | | | s | how map | Auto refresh | |
|---------------------------------|----------|--|-------------------------|-----------------|------------------|--------|-------------------------|--------------------|-------------------|-------------------|---------|--------------|--|
| Voyages list | | | | | | | | | | | | | |
| 🗘 Search vo | /age | Search ship | | 0 | ۶× | | | | | | | | |
| Rquested Scheduled Enroute | Suspens | ded (In port) On hold Arrived Ended | Cancelled Monitoring | Monitoring on | hold PVAR Cre | ated | | | | | | | |
| Actions | 1 D | Voyage Name | Ship Name | Departure | Destination | Status | Service | ETD | ETA(UTC) | Last Noon | | | |
| ~ © 🖌 🗉 🛄 📋 | 64177 | - Port Giles | Lemessos Queen | FREMANTLE | Port Giles | Ended | FleetGuard Service | 14 May 2018 09:42 | 20 Jun 2018 07:00 | 4 Jun 2018 19:42 | | | |
| ~ © 🖊 🗉 🛍 🗂 | 3862 | 1-2 Portland - Mobile (ballast) (*) | Amis Ace | | | Ended | RouteGuard + PVAR | 19 Sep 2014 22:00 | | | | | |
| ~ © 🖌 🗉 🛍 🗂 | 41809 | 1/2 Ghent - Port Kamsar (B) | Sakizaya Champion | Ghent | Port Kamsar | Ended | RouteGuard + PVAR | 30 Mar 2017 00:00 | 9 Apr 2017 19:15 | 9 Apr 2017 19:00 | | | |
| ~ © 🖌 🗉 🛄 📋 | 2689 | 15L Vancouver - Rizhao (*) | Salandi | | | Ended | RouteGuard + PVAR | 20 Oct 2013 00:00 | | | | | |
| ~ 🛇 🖌 🗉 🛄 🗂 | 3863 | 2-2 Mobile - San Nicolas (laden) (*) | Amis Ace | | | Ended | RouteGuard + PVAR | 8 Oct 2014 17:00 | | | | | |
| ~ © 🖌 🗉 📋 | 41810 | 2/2 Port Kamsar - Longkou (L) | Sakizaya Champion | | | Ended | RouteGuard + PVAR | 16 Apr 2017 11:00 | 25 May 2017 22:33 | 25 May 2017 21:18 | | | |
| ~ © 🖌 🖬 📋 | 76967 | 2018-07-24 - 2018-08-06 | Pedhoulas Fighter | XINGANG | LONGKOU | Ended | FleetGuard Service | 24 Jul 2018 09:55 | 6 Aug 2018 13:30 | 6 Aug 2018 22:00 | | | |
| ~ 🛇 🖌 🗉 🛄 📋 | 78326 | 2018-08-08 - 2018-08-09 | Calhoun | DHAMRA | | Ended | FleetGuard Service | 8 Aug 2018 05:30 | 9 Aug 2018 17:15 | 9 Aug 2018 19:15 | | | |
| ~ © 🖌 🗉 🛄 📋 | 79978 | 2018-08-22 - 2018-08-31 | Kypros Sea | SHIBUSHI | | Ended | FleetGuard Service | 22 Aug 2018 03:00 | 31 Aug 2018 21:24 | 31 Aug 2018 03:00 | | | |
| ~ © 🖌 🗉 🗋 | 56925 | Abbot Point - Bandar Imam Khomeini (L) 2/2 | Amis Wisdom II | | | Ended | RouteGuard + PVAR | 24 Dec 2017 08:00 | 20 Jan 2018 08:14 | 20 Jan 2018 07:30 | | | |
| otal voyages: 473 | | | | | | | | IK K 1 | 2345 | 48 > >1 | | | |
| Brisbane - Mejillones 2/2 (L) 😣 | Brisbane | - Yantai - Qinhuangdao 2/2 (L) ጰ Casablar | ica - Lazaro Cardenas 😣 | Itaqui - Singap | oore - Kaohsiung | Chorn | omorsk - Rotterdam (L.) | S Taman - Veracruz | Progreso 😣 | | | | |

Configure a voyage

In the Voyages module, you can configure a voyage. Table 3–9. lists actions you can perform at voyage level.

Figure 3–18. Voyages module



| On the tab | Do this | Note |
|-------------------------------|--|---|
| Ship info | • Choose an existing ship OR • Create a new ship. For details, see Configure a vessel. | |
| Voyage type | Choose a voyage type4. | When you choose voyage type, you effectively select one of the routing and monitoring services. For details, see <u>The routing and monitoring services</u> . |
| Voyage name | Configure the following items: • Voyage name (max 255). • Speed in calm water (1–99). • Departure port. • Destination port. • Voyage includes EU port call (MRV). • Calculation type. • ETD Time. • Vessel daily cost (\$) (max 900000). • Cost HFO (\$/mT) (max 900000). • Cost Low Sulphur fuel (\$/mT) (max 900000). • Optimization type. • Service (as selected in Voyage Type). • Port monitoring. | |
| Restrictions | Edit the restrictions, if allowed by the voyage type. | If, according to the voyage type, we are in charge of changing restrictions, the user can view restrictions but is unable to edit them. |
| Charter party conditions | Configure charter party conditions. | |
| Alerts | This tab shows alerts for an active voyage. For details, see <u>Manage alerts</u> . | |
| Communication | Configure the following items: • Ship emails. • Email Route Advice. • Email Operator. • AIS Polling (max 24). • Inmarsat C polling. (Restricted due to costs involved). | |
| Limits | Weather and warning limits that need to be checked during the voyage. Note that depending on the service these are editable or disabled for editing (in which case the FleetGroup limits apply for that voyage). | |
| Speed/fuel model | This tab shows speed/fuel models configured for the vessel. For details, see <u>Configure a vessel</u> . | |
| Products | For a saved voyage, select and download any of the following products created for the voyage: • PVAR (Post-Voyage Analysis Report). • DPI (Daily Performance Indicator Report). • RouteAdvice. • InitialRouteAdvice ⁵ . | PVARs can be ordered in the Order module. For details, see <u>Order a Post-Voyage</u> <u>Analysis Report (PVAR)</u> . DPIs can be optionally ordered as part of all Routeguard routing and Fleetguard monitoring services other than Routeguard Basic. |
| Position log | For a saved voyage: • View the position log. • Configure the displayed columns using the column chooser. • Filter the displayed information using the built-in filters in the column headers. | |
| Send report configurations | Select one of the available report configurations: • EasyNoon. • SPOS. • Veslink. • Select one of the available report configurations: • EasyNoon. • SPOS. • Veslink. • Other. • Simple text. • SPOS Noon (requires SPOS 9). • Easy Noon zipped. • Danaos. | For details on EasyNoon reporting, see <u>EasyNoon reporting</u> . |
| Comments | Add a comment. View the existing comments. Apply filters to see: Your comments only. General comments. Route advice comments. Fleetguard general comments. | You can apply multiple filters at the same time. |

Voyage types displayed depend on the voyage types assigned to the customer according to the customer's contract. When configuring a voyage in FGE, you can only choose from contracted voyage types. You can order a missing voyage type in the Order module.
 Initial Route Advice (IRA) is provided prior to the ETD, when the choice of a route matters most and the Master or Operator can provide their

preferences. Route Advices (RA) follow the IRA until circumstances (such as changing weather forecasts) lead to the need to change the RA.



Manage alerts

FGE generates alerts in response to exceeded limits or violated restrictions as configured per fleetgroup, per vessel, or per voyage.

You can access alerts in the following ways:

- In the Maps module: From the Alert icon displayed on top of the affected vessel.
- In the Dashboard module: From the Alerts widget, provided that it has been added to the Widgets display.

Figure 3–19. Alerts widget in the Dashboard module



• In the Voyages module: From the Alerts tab in an affected voyage.

Figure 3–20. Alerts tab in the Voyages module

| ļ | -gservice - IOLC | OS CON 🥜 | | | | | | | |
|---|------------------------|----------------|--------------|-------------------|-----------------|---------------|------------------|-----------------|------------------|
| | SHIP INFO VOYAGE T | PE GENERAL INF | O RESTRICTIO | NS CHARTER PARTY | CONDITIONS | ALERTS | COMMUNICATION | LIMITS | SPEED/FUEL MODEL |
| 1 | Alerts | | | | | | | | |
| | Alert Time | Latitude | Longitude | Ship | Voyage | | Alert Type | | |
| | O 2018-09-17T06:01:03Z | 20°10'47"N | 108°20'58"E | loicos Confidence | Fgservice - IOI | LCOS CONFIDEN | CE WeatherAround | ICurrentPositio | Alert Critical |
| | | | | | | | | | |

FGE enables you to view alert details and act on alerts. When you select an alert, you have the following options:

- View the name of the affected vessel.
- View the alert type. For alert types, see Table 3–10.
- View alert severity, ranging from Critical to Low, and modify it as needed.
- View the alert description.
- View vessel position details:
 - Date/time [utc].
 - Latitude.

- Longitude.
- Wind [dir(kn)].
- Sea [m(s)].
- Swell [m(s)].
- Current [dir(kts)].
- Add and save a note.
- Write and send an email to the master.
- Show the vessel affected by the alert condition on the map.
- Open the voyage affected by the alert.
- Move the alert to archive.
- Close the alert.

Figure 3–21. Alert window with alert details and alertrelated action items.

Kaley | WeatherAroundCurrentPositionAlert Critical Distance to TS limit has been exceeded 1 times with a closest point of approach of [270.9 nm]. Min. distance to TS: [300 nm] Date/time [utc] Latitude Longitude Wind [dir(kn)] Sea [m(s)] Swell [m(s)] Current [dir(kts)] 4 Sep 2018 01:05 PM 35°00'51"N 138°29'46"E 202 (19) 3.5 (9) 4.5 (15) 154 Note MAIL TO SHIP SHOW ON MAP OPEN VOYAGE ARCHIVE CLOSE

Table 3–10. lists alert types with descriptions.

Table 3–10. Alert types

| Alert Type | Description |
|--|--|
| WeatherAroundCurrentPositionAlert | Weather alert |
| WeatherAlongTheRouteAlert | Weather alert along the route |
| RestrictionAlert | Restriction alert |
| OffTrack | Off-track alert |
| DistanceSpeedNoon | Calculates the average speed between the noon reports |
| DistanceSpeedAll | Calculates the average speed between the last 2 position reports |
| DestinationChanged | Sets an alert when the captain reports a different location |
| EtaChanged | Sets an alert when position log ETA is more than initial ETA date time (default 12 hours) |
| DailyBunkerConsumptionTresholdExceeded | Sets an alert when the daily consumption of one or more of the bunkers exceeds X% the value defined in the active CP (default 115%) |
| LastNoonOverdue | Sets an alert when the last noon position is overdue (by default 30h since last noon was reported) |
| EcaChanged | Sets an alert when crossing the ECA border |
| SequenceCheck | Sets an alert when the sequence of the positions is not ok |
| RoBConsumedMismatch | Sets an alert when the consumed valued mismatches with the ROB |
| PositionLogDateTimeMismatch | Sets an alert when the DateTime of processing PositionLog does not correspond to current date (e.g. in the future) |
| MonitoringEnded | A monitoring voyage related to this position has ended |

Analysis

For analysis purposes, FGE provides analysis templates, benchmarks, and some widgets.

The Analysis module in FGE provides an analysis template overview,enabling you to do the following:

- Search the available templates by name.
- Display either or both of the template types by selecting either or both of the following checkboxes:
 - Analyze Voyage Summaries where you receive summarized data for completed voyages.
 - Analyze Voyage Details where you receive all details from a specific voyage.

- Perform the following actions on each template:
 - Execute opens the template, allowing you to execute it or update it, as required.
- Copy allows you to copy a template.
 This is useful when you want to make changes to a shared template.
- Delete allows you to delete a template.
- Share allows you to share a template with other users.
- View template-related information, such as:
 - Template ID in the system.
 - Template name.
 - Templates shared with you.
 - Period you set for the template.
- Template 'updated' timestamp.
- View recently opened templates shown as tags.

| Figure 3–22. |
|-----------------|
| Analysis module |

| Analysis | | | | | | NEW |
|-------------------------|----------------------------------|---|------------------------------|----------------------------|------------------|-----|
| Template list | | | | | | ^ |
| <u> </u> | Search by name | | Analyse Voyage Summaries 🛛 🗸 | • Analyse Voyage Details 🔽 | | |
| Actions | ID | Template | Shared | Period | Updated | |
| ▶ 🗋 🖬 😕 | 433 | All weather performance per vessel | | 2017-09-11 - 2018-09-11 | 2017-01-13 18:29 | |
| ▶ 🗍 🖻 😕 | 432 | Performance per voyage per vessel in good | and bad weather | 2017-09-11 - 2018-09-11 | 2016-09-13 16:15 | |
| ▶ 🗋 🖬 😕 | 431 | Performance per voyage per vessel | | 2017-09-11 - 2018-09-11 | 2016-09-15 13:32 | |
| ▶ 🗋 🖬 😕 | 430 | Performance per voyage per vessel group | | 2017-09-11 - 2018-09-11 | 2016-09-13 16:02 | |
| ▶ 🗍 🖬 😕 | 658 | Amis vsis YTD perform | | 2018-01-01 - 2018-09-11 | 2017-09-09 17:02 | |
| All weather performance | e per vessel ⊗ 🛛 Amis vsis YTD p | perform 😵 | | | | |



Configure an analysis template

An analysis template is a tool that enables you to analyze voyage details or summaries on good weather, bad weather, and all-weather days, for a defined period.

In the Analysis module, you can configure an analysis template. You can do the following with a configured analysis template:

- Reuse it for other voyages.
- Analyze one specific voyage (for example, from the Fleet overview by selecting Choose analysis action → Choose template).
- Share the template with other users.

Table 3–11. lists actions you should perform to configure an analysis template.

Table 3-11. Actions performed to configure an analysis template

| On the tab | Do this | Note | |
|-------------------|---|----------|--|
| Report conditions | Toggle Analysis for period if you want to set a period for your analysis. Select either of the following checkboxes depending on what you want to analyze: Analyze Voyage Summaries. Analyze Voyage Details. To define a random period, select From Date and To Date. OR To set a dates interval, in the Dates interval template, select one of the available periods. In the Analysis type, select an analysis type: All weather analysis. God weather. Bad weather | | |
| Ships | Select ships using one of the available options: • All ships. • Specific ships. • Specific fleetgroups. • Search for ships. | | |
| Voyages | Select voyages of the ships selected on the Ships tab. | | |
| Results | If you have selected Analyze Voyage Details, you can: See all voyages for the ships you selected and for the time range you defined. Customize the table as needed (remove, rearrange, or add columns). Group data as needed (for example, by ship) – choose your own groupings, or predefined groupings, or add multiple groupings. See a quick summary of good weather, bad weather, and all weather day Export the data to Excel. If you have selected Analyze Voyage Summaries, you can: See summarized data on all voyages for the ships you selected and for th time range you defined. Customize the table as needed (remove, rearrange, or add columns). Group data as needed (for example, by ship) – choose your own groupings, or predefined groupings, or add multiple groupings. Export data to Excel. | s. ne | |



Benchmarks in FGE are graphs that show ideal dependency between two parameters of the vessel's performance.

In Analysis module, you can create your own benchmark and use it in comparison with the vessel's actual data. You can also print it or save it as an image file.

To create a benchmark, follow these steps:

- 1. Navigate to Benchmarks (for example, from a Vessels list).
- 2. Click Add New.
- 3. Select a value for the x axis, for example, performance speed (Perf.Spd), and for the y axis, for example, main engine HFO consumption.
- 4. Add valid points to your graph.
- 5. Save your benchmark.

Access your benchmarks:

- From the analysis template for the vessel (you can apply a benchmark to any ship you have access to in FGE).
- From the vessel (you can apply the benchmark only to the selected vessel).

Route calculation and optimization in the Route Advice module⁶

The Route Advice module in FGE allows you to create Route Advice for a specific voyage, based on an optimum route calculated and taking into account the ship characteristics and the forecasted weather conditions and/ or climatic averages. Routes calculated can be based on instructed speed, instructed RPM, or instructed ETA, and can be optimized on speed range, LayCan, fuel, cost, or time. The Route Advice module includes the following:

- Weather synopsis relevant for the remaining part of the voyage or all of the voyage, as the case may be.
- 2. Comment.

Table 3–12. lists the parameters that should be configured to create Route Advice.

Table 3–12. Parameters configured to create Route Advice

| Parameter | Action | Note |
|--|--|--|
| Select ship | Select the ship you want to create Route Advice for. If necessary, edit the selected vessel. For details, see <u>Configure a vessel</u> . | The system loads all voyages available for the selected vessel. |
| Select a voyage | Select the voyage for which you want to create/update Route Advice. | The voyage should be in the Enroute, Monitoring, or at Sea status. |
| Calculation type | Select any of the available calculation types: • Instructed speed. • Instructed RPM. • Instructed ETA. • Optimize on speed (range). • Optimize on LayCan. | Options available for calculating the route depend on the calculation type you selected. The only exception is ETD Time, this is required regardless of the selected calculation type. |
| Calculation type > Instructed speed | Configure the following: Instructed speed values and/or speed ranges. ETD Time. Vessel and fuel costs. Optimization type, which determines how your route will be optimized: Time. Calculates the speeds that get you to your destination the quickest. Fuel. Calculates the necessary speeds to arrive at your destination on time and with the lowest fuel consumption possible. Cost. Provides variable-speed routing to produce the necessary speed ranges to achieve the lowest possible costs. | When you have configured the options driven by the Instructed speed calculation type, remember to click the UPDATE VOYAGE button to save your configuration. |
| Calculation type > Instructed RPM | Configure the following: Instructed RPM value. This can be set in the range of to 5000. ETD Time. Vessel and fuel costs. Optimization type, which determines how your route will be optimized: Time. Calculates the speeds that get you to your destination the quickest. Fuel. Calculates the necessary speeds to arrive at your destination on time and with the lowest fuel consumption possible. Cost. Provides variable-speed routing to produce the necessary speed ranges to achieve the lowest possible costs. | When you have configured the options driven by the Instructed speed calculation type, remember to click the UPDATE VOYAGE button to save your configuration. |
| Calculation type > Instructed ETA | Configure the following: • Instructed ETA. • Speed range. Add one or more speed ranges. • ETD Time. • Vessel and fuel costs. • Optimization type, which determines how your route will be optimized: • Fuel. Calculates the necessary speeds to arrive at your destination on time and with the lowest fuel consumption possible. • Cost. Provides variable-speed routing to produce the necessary speed ranges to achieve the lowest possible costs | When you have configured the options driven by the Instructed speed calculation type, remember to click the UPDATE VOYAGE button to save your configuration. |
| Calculation type > Optimize on speed (range) | Configure the following: Speed range. Add one or more speed ranges. ETD Time. Vessel and fuel costs. Optimization type, which determines how your route will be optimized: Time. Calculates the speeds that get you to your destination the quickest. Fuel. Calculates the necessary speeds to arrive at your destination on time and with the lowest fuel consumption possible. Cost. Provides variable-speed routing to produce the necessary speed ranges to achieve the lowest possible costs. | When you have configured the options driven by the Instructed speed calculation type, remember to click the UPDATE VOYAGE button to save your configuration. |
| Calculation type > Optimize on LayCan | Configure the following: Speed range. Add one or more speed ranges. Start LayTime. Configure the earliest date the vessel is required by the charterer. Cancelling. Configure the latest date for the commencement of the charter, when the charterers have the option of canceling the charter. ETD Time. Vessel and fuel costs. Optimization type, which determines how your route will be optimized: Fuel. Calculates the necessary speeds to arrive at your destination on time and with the lowest fuel consumption possible. Cost. Provides variable-speed routing to produce the necessary speed ranges to achieve the lowest possible costs. | LayCan is an abbreviation for the "Laydays and Canceling" clause in a charter party. When you have configured the options driven by the Instructed speed calculation type, remember to click the UPDATE VOYAGE button to save your configuration. |
| Waypoints | Depending on your voyage type and status, you can view or modify the waypoints, for example, add or delete waypoints. | |
| Last point | Select how you want to calculate the route: • From last known position. • From last Noon Report. • For entire Route Template. | |

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| Parameter | Action | Note |
|-------------------|---|---|
| Route options | Select one of the available route options to calculate your route: Get shortest route port to port. This option calculates the shortest distance without taking the weather effects into account. Weather optimized route. This option optimizes the route taking the ship model and the weather into account. Get climatic weather route. This option can be used when you plan to have a voyage beyond the 15-day forecast period. Get planned route. | FGE shows route calculation statuses as follows: Calculation in queue. This shows how many route calculations are in progress. Calculated routes. This shows the total number of calculated routes. Routes with errors. This shows the number of calculated routes with an error. |
| Route calculation | Delete all or any of the calculated routes. Compare the calculated routes on: Track-related parameters. Weather-related parameters. Cost-related parameters. | |
| Action buttons | Viewpoints table that shows all calculated points at four-hour intervals, the dates, latitude/longitude, warning limits exceeded, SOG, wind, waves, sea, swell, current). You can add parameters using the column chooser. Graph button that enables you to compare and evaluate your route based on a variety of parameters, for example, wind, SOG, and so on. | |

When you are happy with the route, you can create a Route Advice and then save it as a PDF file, download it or send it to the vessel.

Ordering voyages and reports in the Order module

The Order module in FGE enables you to order voyages and Post-Voyage Analysis reports. For details, see <u>Order a voy-</u> age and <u>Order a Post-Voyage Analysis Report (PVAR)</u>.



Order a voyage

The Order module in FGE enables you to create orders for voyages. We receive created orders and provides routing and monitoring services according to the selected voyage type. • To create an order, configure the parameters available on the Order Form page on the Select Ship and Voyage Type tabs.

Table 3–13. lists the parameters that should be configured to create an order.

| Parameter | Action | Note |
|----------------------------------|--|---|
| SELECT SHIP TAB | | |
| Select Ship | Select a vessel you want to create an order for. If necessary, edit the selected vessel or create a new one. For details, see <u>Configure a vessel</u> . | |
| VOYAGE TYPE TAB | | |
| Ballast Voyage / Laden Voyage | Select Ballast Voyage and/or Laden Voyage. The fields that you fill out under each voyage are identical. | You can select one or both. |
| Voyage Type | Select a Voyage Type to define the routing and monitoring service you get. Currently the following voyage types are available: • Routeguard Basic. • Routeguard. • Routeguard + PVAR. • Routeguard SpeedGuard Service. • Fleetguard Standard. • Fleetguard Service. • Fleetguard Service. • Fleetguard Service (+ PVARs). • Fleetguard Service (one off + PVAR). | If a voyage type has an icon that looks like an exclamation mark in a red circle, this means the voyage type is not in your contract. |
| Calculation type | This parameter is configured in the same way as for Route Advice. For details, see <u>Calculation type in Table 3–12.</u> <u>Parameters configured to create Route Advice</u> . | |
| Operator email | Provide the operator's email. | |
| Comment | Type your comment, if necessary. | |
| Waypoints | Add waypoints by using either of the following methods: • Type the waypoint name and the country name. • Select a port from the available list. | The first waypoint is the point of departure, and the last one – the point of arrival. |
| Voyage C/P details | Provide your voyage charter-party details, such as: • Speed (kts) and allowance (%). • HFO (Mt) and allowance (%). • MGO (LS) (Mt) and allowance (%). • Wind (bft). • Seastate (DSS). | |

Table 3-13. Parameters configured to create an order

After you configure the parameters, you can submit your order. What happens next depends on whether or not the voyage type you selected is in your contract:

- The voyage type is not in your contract. Upon submitting the order, you get a notification that we will contact you for verification. However, you will not be able to add more details to the ordered voyage.
- The voyage type is in your contract. You can submit your order and immediately, if wished, edit the ordered voyage as required. For details on editing a voyage, see <u>Configure a voyage</u>.



Order a Post-Voyage Analysis Report (PVAR)

FGE enables you to order a PVAR for a specific voyage. A PVAR contains the following items:

- Management summary:
 - Voyage details.
 - SECA C/P summary.
 - C/P summary.
- C/P speed and consumption (C/P SECA):
 - C/P details.
 - Speed analysis.
 - MDO bunker evaluation.
- C/P speed and consumption (C/P):
 - C/P details.
 - Speed analysis.
 - HFO bunker evaluation.
 - MDO bunker evaluation.

- Wind analysis:
 - Number of hours of wind.
 - Relative bearing wind force (Beaufort scale).
 - Total significant wind.
- Wave analysis:
- Number of hours of wave height.
- Relative bearing wave height (meters).
- Total significant wave height.
- Passage details presented as a voyage chart and a table. The table lists details related to the following:
 - Track.
- Weather.
- Bunkers.
- Vessel observed weather.

FLEETGUARD ENTERPRISE DESCRIPTION

Reference Topics

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This section provides reference information on EasyNoon reporting. For details on FGE use cases covering a broad range of tracking, monitoring, analysis, and route calculation and optimization functions, see <u>Use Cases</u>.



Noon reports (normally sent daily at noon, hence the name) contain a standardized set of data relevant to a vessel, including:

- Voyage details.
- · Position details.
- Observed weather details.
- Bunker condition details.

The information can be used to:

- Track the vessel's position.
- Create route advices.

- Assess the performance of the vessel and compare it to benchmarks, for example, by analyzing:
- Consumption of oil.
- Total weight of the cargo.
- Distance traveled from the previous port.
- Distance to the next port.
- Time taken to complete the passage.
- Time spent at the port.
- And many others.

We facilitate the registration and delivery of this and other related information via the EasyNoon application.

EasyNoon overview

The EasyNoon application enables you to do the following:

- Create either an easy-to-use HTML form or a SPOS configuration file to capture all details relevant to a voyage.
- Make sure that the report contains all required values and passes built-in checks as formulated in the validation rules. For details, see <u>EasyNoon fields and validation rules</u>.
- Send it to the email or, if the user has an incompatible email client, save as text (for the HTML form) or JSON file (for the SPOS configuration file).



EasyNoon benefits

EasyNoon offers the following benefits:

- Support of older browser versions, compatible with the ECMA-262 ECMAScript Language Specification 5th Edition.
- Capture vessel and voyage-relevant data on 80+ fields.
- Configure reporting data with the option to leave out unnecessary parameters (with assistance or using the EasyNoon reports configuration feature in FGE).
- Reuse specific values of the previous EasyNoon reports automatically, such as departure or destination port.
- Automatic validation of noon report data before submission, using the built-in validation

rules to make sure that physically impossible data or apparently wrong data is not reported. For details, see <u>Table 4–5. Fields and</u> validation rules on the EasyNoon report.

Verified and approved data enables accurate Route Advices that are normally sent back to the ship within 2 hours of receiving the noon report (only for routing services. For details, see <u>EasyNoon flow</u>).

With EasyNoon reporting, all involved parties enjoy a smooth reporting process:

• Masters spend less time on reporting and make fewer mistakes due to the built-in validation.

EasyNoon flow

The EasyNoon flow depends on the routing and monitoring services that the customer has on their contract.

Roughly, two categories of routing and monitoring services are available: Standard and Company-assisted.

With Standard services, the customer performs the EasyNoon configuration steps in FGE at their discretion and is fully responsible for managing voyage reporting, data-checking, and follow-up on alerts. With Company-assisted services, we perform the EasyNoon configuration steps in FGE or the internal application ArmorHead and takesresponsibility for managing voyage reporting, datachecking, follow-up on alerts and escalating issues to the operator/customer.

For Standard services, a high-level overview of EasyNoon reporting is described in the table below.

Table 4–1. High-level overview of EasyNoon reporting (Standard)

| No | Where | Who | Step | Result |
|----|---|----------|--|--|
| 1 | FGE | Customer | Select a vessel and configure EasyNoon reporting parameters. Uncheck the param- eters you do not want to be reported or make any parameters optional or required. Unchecked parameters will be hidden from the EasyNoon report form sent to Master. | Configured EasyNoon report that can be selected and sent to Master in the Voyages section in FGE. |
| 2 | FGE | Customer | Select a ship voyage with the configured EasyNoon report and send it to Master as an HTML form or a SPOS configuration file. | EasyNoon report sent. |
| 3 | EasyNoon form or SPOS (for SPOS configuration file) | Master | Fill out and submit the EasyNoon report. See <u>EasyNoon fields and validation rules</u> . | Submitted EasyNoon report received into FGE. Position log updated in the Voyage module in FGE. Changed position of the vessel shown on the map in FGE. |
| 4 | FGE | Customer | Validates the EasyNoon report by relying on the customer's internal processes. | Position log in FGE updated. Vessel position on the map in FGE updated. |

For Company-assisted services, a high-level overview of EasyNoon reporting is described in the table below.

Table 4–2. High-level overview of EasyNoon reporting (Company-assisted)

| No | Where | Who | Step | Result |
|----|---|--------|--|--|
| 1 | FGE or ArmorHead | MG | Select a vessel and configure EasyNoon reporting parameters. Uncheck the param- eters you do not want to be reported or make any parameters optional or required. Unchecked parameters will be hidden from the EasyNoon report form sent to Master. | Configured EasyNoon report that can be selected and sent to Master in the Voyages section in FGE. |
| 2 | FGE or ArmorHead | MG | Select a ship voyage with the configured EasyNoon report and send it to Master as an HTML form or a SPOS configuration file. | EasyNoon report sent. |
| 3 | EasyNoon form or SPOS (for SPOS configuration file) | Master | Fill out and submit the EasyNoon report. See <u>EasyNoon fields and validation rules</u> . | Submitted EasyNoon report received into FGE. Position log updated in the Voyage module in FGE. Changed position of the vessel shown on the map in FGE. |
| 4 | ArmorHead | MG | Validate the EasyNoon report. See <u>voyage-checking process</u> . | Position log in FGE and ArmorHead updated. Vessel position on the map in FGE updated. Voyage details in ArmorHead updated. |



When subscribed to the Company-assisted services, the following EasyNoon flow applies.

- The EasyNoon report is configured and sent to Master as an HTML form or a SPOS configuration file.
- 2. Master completes and emails the EasyNoon report as an HTML file or SPOS noon update:
 - a) If the completed EasyNoon report passes the built-in sanity checks, it is emailed.
 - b) If not, Master corrects the incorrect values and resubmits the report.
- A dedicated program reads the mailbox, converts the received report into a file, and saves it under \\shippingservice\Data\ PositionUpdates\Armorhead. The original report (email) is saved to the database.
- PositionUpdateService reads the directory with the file:
 - a) If the positionlog file is recognized, it is saved in the Processed folder.

- b) If the positionlog file is not recognized⁷, it is saved in the Failed folder under the date the file comes in. Files in the unknown format are further saved in the Unknown folder. Furthermore, failed files are sent to the weather room mailbox for appropriate action.
- c) The positionlog file enters the DB via the API and is placed in a queue listened to by AlertingWorker.
- 5. AlertingWorker checks the positionlog file⁸:
 - a) If no issues are found, the file is approved.
 - b) If issues are found, an alert is generated for the file. The weather room checks the data manually and contacts Master if necessary⁹.
- 6. Based on the verified and approved reported data:
 - a) Routeguard team creates updated Route Advices within two hours (not measured).
- Fleetguard Customer Service Analysts updates the backtrack in FGE every 84 hours (measured) or within 24 hours during business days after an alert is generated by Alerting system.



^{7.} This can happen, if Master edits the EasyNoon report file within the email and then sends the edited report.

^{8.} Checks include historic checks, comparing the current position to the previous noon, and so on.

^{9.} Obvious mistakes are corrected, such as a typo in the destination port. When, however, clarification is needed for the wrong location or wrong consumption reported, Master is contacted.



— Figure 4–1. EasyNoon flow



Voyage-checking process

Voyage data is checked by applying alerts and sanity checks to incoming vessel positions from noon reports.

This process is run every time the position of a vessel becomes available in the Routeguard system. Sanity checks are run on any noon report that enters the system, even if there is no value set. If no value is set, a default value is used.

Alerts are generated every 24 hours (or whenever an EasyNoon report is received into Armorhead). These alerts are given priority in our way of working in relation to monitoring vessels. Alongside alerts, Customer Service Analysts pro-actively check every monitored voyage at certain agreed intervals and look after routed voyages every day:

- Performance data based on speed and fuel (and reporting by the vessel itself): Especially to catch Charter Party analysis results that are incorrect or inconsistent, often due to other fuel types reported in ECA passages.
- Check backtracks of vessels (based on positions of the vessel), adding positions where needed to match observed distances and/or fill gaps in the sailed route.
- In port monitoring, for checking the reporting sequence and timely updates. (Note that In port most of the voyage alerts are not checked).



In general, when anything is incorrect or inconsistent with any report, action is taken. Correcting data might take longer if verification with the vessel is needed.

Table 4–3. FGE alerts to incoming vessel positions

| Alert | Description | Limit allowance value |
|---|--|--|
| ETA changed | Checks the last known ETA against the ETA available on the position that is being processed. If the ETA is off by more than the set limit, an alert is generated. | Number of hours. |
| Off track If the timestamp of the position being processed exceeds the ETD of the voyage and the position type is not berthing or unberthing. The location of the position is checked against the route based on previously given advice. When the position deviates by more than the set limit, an alert is generated. | | Nautical miles off-track. |
| Destination changed | Checks the last known destination against the destination available on the position that is being processed. If the destination is different, an alert is generated. | None. |
| ECA changed Checks if the ECA state of the previous position and the position being processed is different (the position is inside an ECA zone or not). If this is the case, an alert is generated. | | None. |
| Daily consumption Checks the consumption between the previous noon report (or start of sea passage) and the position being processed against the threshold set in the charter party conditions of the active voyage. This is done for all bunker types. If any exceed the threshold, an alert is generated. | | Percentage of allowed overconsumption. |
| RoB consumed mismatch Checks the calculated consumption between the previous noon report and the position being processed against the reported consumption values on the position. If any specific bunker type is off by more than 0.1, an alert is generated. | | 0.1 mT. |
| Restrictions | Checks if the track between the previous position and the position being processed crosses any restriction zones in the domain set of restrictions. | Domain set of restrictions. |
| Weather around position | Checks the weather at the position being processed and 8 additional calculated positions in a circle around the position at a distance of 100nm. If any set weather limit is exceeded, an alert is generated. (hurricane limits are always checked). | There are limits available for all weather values in the system. |
| Weather along the route | The above described limit is used for all positions in the route that was part of the last advice sent to the vessel. Up until 9 days into the future (the available forecast data). | There are limits available for all weather values in the system. |
| Noon report overdue | If a noon report (except the 1st position report) is overdue for X hours (to be defined either Customer for Customer-managed services), an alert is triggered. Customer acts on the alert (depending on the services). | |

Table 4–4. Sanity checks applied to incoming vessel positions

| Sanity check | Description | Allowance value |
|-----------------------|---|---|
| Distance speed | Checks the calculated speed between the position being processed and a previous position at least 1 hour in the past against the speed on the last generated advice at that approximate position. | Percentage of allowed speed deviation. (50% default). |
| Distance speed noon | Checks the calculated speed between the position being processed and the previous noon report against the speed on the last generated advice at that approximate position. | Percentage of allowed speed deviation (50% default). |
| Sequence of positions | Checks if all types of positions of the current voyage are still in the right sequences (SOSP, EOSP, Berthing, Unberthing, SOSP). If not, an alert is generated. | None. |

EasyNoon fields and validation rules

Table 4–5. lists all fields available on the EasyNoon report, indicating required and optional fields, and provides the validation rules.

Table 4–5. Fields and validation rules on the EasyNoon report

| Field | Required (Y/N) | Validation rules |
|---|----------------|--|
| VOYAGE | | |
| From | Yes | Error, if no value or more than 30 characters. Warning, if Departure port changed compared to previous report. If changed, start Sea Passage report. |
| то | Yes | Error, if no value or more than 30 characters. Warning, if Destination port changed compared to previous report. If changed, start Sea Passage report. |
| ETA | No | Error, if the time is before the current time. |
| ETA local time | No | No rule |
| Voyage No. | No | Warning, if the voyage number changed compared to previous report. |
| Leg No | No | Warning, if the leg number changed compared to previous report. |
| POSITION | | |
| Туре | Yes | Warning, if the following possible flows are not observed: Start of Sea Voyage → Position Update OR End of Sea Passage. Position Update (at sea / in port) → Position Update OR Start of Sea Voyage OR END of Sea Passage OR Berthing OR Unberthing. End of Sea Voyage → Position Update OR Start of Sea Voyage OR Berthing Berthing → Position Update OR Unberthing. Unberthing → Position Update OR Start of Sea Voyage. See Figure 4–2. Report Types flow |
| Sailing in | Yes | None |
| Date | Yes | Error, if the time format is not observed. |
| Lat | | Error, if the following rules are not observed: • Degrees: only numbers possible and not more than 90 (90 only possible if minutes and seconds are 0) • Minutes: only numbers possible and not more than 59 • Seconds: only numbers possible and not more than 59 • N or S |
| Lon | Yes | Error, if the following rules are not observed: • Degrees: only numbers possible and not more than 180 (180 only possible if minutes and seconds are 0) • Minutes: only numbers possible and not more than 59 • Seconds: only numbers possible and not more than 59 • E or W |
| OBSERVED WEATHE | R | |
| Observed wind (direction and force) | No | Error, if the following rules are not observed: • No negative values. • Max 3 numbers. |
| Observed windsea | No | Error, if the following rules are not observed: • No negative values. • Max 2 numbers. |
| Observed swell | No | Error, if the following rule is not observed: • No negative values. • Max 2 numbers. |
| Observed current | No | No rule. |
| BUNKER CONDITION | 1 | |
| Main engine | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Auxiliary engine | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Boiler | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Hold/tank washing | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Tankheating | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Other | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Bunkered | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Remaining | Yes | Error, if the following rule is not observed: • Only numbers are possible. • Warning, if the following rule is not observed: • Quantity previous report – above consumers + bunkered should equal the filled value. |
| Fresh water consumption tank cleaning | No | Error, if the following rule is not observed: • Only numbers are possible. |

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| Field | Required (Y/N) | Validation rules |
|---------------------------------------|----------------|--|
| Fresh water consumption domestic | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Fresh water ROB tank cleaning | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Fresh water ROB domestic | No | Error, if the following rule is not observed: • Only numbers are possible. |
| Fresh water production | No | Error, if the following rule is not observed: • Only numbers are possible. |
| VOYAGE INFORMATIO | N | |
| Speed combination | No | Only numbers. This field can also be populated from the CP conditions on the vessel level. Note: The value provided in this field is required if we need to: • Benchmark the vessel's performance. • Compare fuel consumption in a certain fuel-speed combination. |
| Cruising instructions | No | Only numbers. |
| Condition | No | Only numbers. |
| Steaming time | No | Only numbers. |
| Stopped time | No | Only numbers. |
| Time at anchor outside port limits | No | Only numbers. |
| Miles to go | No | Only numbers. |
| Distance since SSP | No | Only numbers. |
| Distance | No | Only numbers. Note: This value is used to verify the calculated distance that is further used to correct the back-track. |
| Avg. speed made good | No | Only numbers. |
| Avg. obs. speed | No | Only numbers. |
| (Log) distance | No | Only numbers. |
| Avg. log speed | No | Only numbers. |
| Main engine revolutions counter | No | Only numbers. |
| Average RPM | No | Only numbers. |
| Propeller pitch | No | Only numbers. |
| Main engine load | No | Only numbers. |
| Main engine Kwhrs | No | Only numbers. |
| Average BHP | No | Only numbers. |
| Shaft torque | No | Only numbers. |
| Engine distance | No | Only numbers. |
| Slip | No | Only numbers. |
| Cylinder oil consumption | No | Only numbers. |
| System oil consumption (ME) | No | Only numbers. |
| Cargo | No | Only numbers. |
| # TEU on deck | No | Only numbers. |
| Ballast water | No | Only numbers. |
| Fwd draft | No | Warning, if max value over 30 meters. |
| Aft draft | No | Warning, if max value over 30 meters. |
| GM | No | Only numbers. |
| Bilge water ROB | No | Only numbers. |
| Sludge produced | No | Only numbers. |
| Sludge incinerated | No | Only numbers. |
| Sludge ROB | No | Only numbers. |
| Incinerator hours | No | Only numbers. |
| Boiler hours | No | Only numbers. |
| FW generator hours | No | Only numbers. |
| Shaft generator Hours | No | Only numbers. |
| Shaft generator KWhrs | No | Only numbers. |
| Reefer plugs in use | No | Only numbers. |
| Generator 1 hours | No | Only numbers. |
| Generator 2 hours | No | Only numbers. |
| Generator 3 hours | No | Only numbers. |

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| Field | Required (Y/N) | Validation rules |
|-------------------------------|----------------|------------------|
| Generator 4 hours | No | Only numbers. |
| Generator 1 KWhrs | No | Only numbers. |
| Generator 2 KWhrs | No | Only numbers. |
| Generator 3 KWhrs | No | Only numbers. |
| Generator 4 KWhrs | No | Only numbers. |
| AE1 System oil consumption | No | Only numbers. |
| AE2 System oil consumption | No | Only numbers. |
| AE3 System oil consumption | No | Only numbers. |
| AE4 System oil consumption | No | Only numbers. |

Figure 4–2. lists the flow for the report types.



Legend:

Start of Sea Passage (start of voyage):

Select after leaving the first departure port of your voyage. (Time when full away on passage).

Start of Sea Passage (voyage continuation):

Select after departing an intermediate port, or any other occasion when your sea passage is (temporarily) suspended (e.g. Dardanelles Strait, Suez Canal, Panama Canal etc.) or when full away on passage again after drifting.

Position Update (at sea / in port):

Select for your regular noon reports at sea and in port, as well as when starting fuel change-over procedures when entering/exiting an ECA or when fuel changeover is completed.

End of Sea Passage (end of voyage):

Select when arriving at your destination. Mostly at the time you start to slow down.

End of Sea Passage (voyage continuation):

Select when arriving at an intermediate port, or any occasion when your sea passage will be (temporarily) suspended (e.g. Dardanelles Strait, Suez Canal, Panama Canal etc.) or when you start drifting.

Berthing:

Select when berthing in port. (Time of all lines fast).

Unberthing:

Select when unberthing in port. (Time of all lines clear).



Routing and monitoring services

Routeguard routing and Fleetguard monitoring services are provided for voyages and ships, as listed in Table 4–6. and Table 4–7.

Table 4–6. Routeguard routing and monitoring services

| Routeguard Basic | Routeguard | Routeguard + PVAR | Routeguard SpeedGuard Service |
|--|--|---|---|
| Standard daily routing service that includes: • Intake, initial, and daily updates. • Sat-AIS tracking. • Basic data checks. | Ship daily routing service that includes: Intake, initial, and daily updates. (Sat-)AIS tracking. Basic data checks. Daily ship performance updates. Data and back-track checking and correction. (Optional) Daily Performance Indicator (DPI) report. | Ship daily routing service: Intake, initial, and daily updates. (Sat-)AIS tracking. Basic data checks. Daily ship performance updates. Data and back-track checking and correction. Post Voyage Analysis Report (PVAR) that can be used in claims handling. (Optional) Daily Performance Indicator (DPI) report. | Ship daily routing service: Intake, initial, and daily updates. (Sat-)AIS tracking. Basic data checks. Daily ship performance updates. Data and back-track checking and correction. Post Voyage Analysis Report (PVAR) that can be used in claims handling. Post Voyage Savings report. (Optional) Speed optimization¹⁰. (Optional) Daily Performance Indicator (DPI) report. |

10. Based on the possible speed range of a vessel as provided by Customer, multiple scenarios for a vessel with the total voyage cost calculated are run for each scenario. Customer then selects the scenario that best meets their specific needs, and we use the selected scenario to create an initial Route Advice and provide routing.

Table 4–7. Fleetguard routing and monitoring services

| Fleetguard Standard | Fleetguard Service | Fleetguard Service (+PVARs) | Fleetguard Service (one off + PVAR) |
|--|--|--|---|
| Ship monitoring on a subscription basis that includes: Access to all data and all actions on Fleetguard¹¹. (Optional) Daily Performance Indicator (DPI) report. | Ship monitoring as a subscribe-to service that includes: Access to all data and actions on Fleetguard. Full support in managing ships and voyages. Data checks on specified fields. Follow-up on a set of agreed alerts. Back-track checking. (Optional) Daily Performance Indicator (DPI) report. | Ship monitoring as a subscribe-to service that includes: Access to all data and actions on Fleetguard. Full support in managing ships and voyages. Data checks on specified fields. Follow-up on a set of agreed alerts. Back-track checking. Post Voyage Analysis Report (PVAR) that can be used in claims handling. (Optional) Daily Performance Indicator (DPI) report | Ship monitoring as a one-off or per voyage Service that includes: Access to all data and actions on Fleetguard. Full support in managing ships and voyages. Data checks on specified fields. Follow-up on a set of agreed alerts. Back-track checking. Post Voyage Analysis Report (PVAR) that can be used in claims handling. (Optional) Daily Performance Indicator (DPI) report |

11. Customer is responsible for managing ships and voyages, and actions, such as charter parties, data checking, follow-up on alerts, and reporting.

EU MRV compliance

What's in this section:

Fleetguard as a Service "MRV Compliance Package".

Fleetguard as a Service "MRV Compliance Package"

Fleetguard as a Service "MRV Compliance Package" is an online web portal, accessible through any browser. It provides customers with analyzed and checked data to guard their fleet and to monitor the parameters of importance.

For position monitoring, customers can choose and combine different possibilities:

- Global AIS positions with multiple updates per day.
- Inmarsat-C polling at set intervals.
- Noon reports from the Master, in various, flexible, formats.

For vessel monitoring, customers can choose from a predefined set of possible parameters that are important for fleet performance, a vessel or just the given voyage. These include:

- Bunker types and bunker consumers.
- Speed.
- Time and ETA monitoring.
- User defined weather limits and restrictions.

Furthermore, customers can receive:

- Warnings of extreme weather, distance to hurricanes and tropical storms.
- Alerts on performance on speed, fuel and ETA.
- Own templates for performance monitoring (user defined).

In the web portal customers have access to a vast quantity of relevant map layers, including:

- Satellite maps.
- Relevant zones, such as ECA, insurance zones, and load lines.
- Navigational charts, fully updated.
- Weather forecast maps with:
- Fronts.
- Wind.
- Pressure.
- Precipitation.
- Visibility.
- 500 HPa level.
- Air temperature.
- Water temperature.
- Waves and swell (height and period).
- Ice.
- Risk of icing.
- Current.
- Piracy information.



What's in this section:

- <u>Allocation of voyages to the EU MRV</u>.
- Reporting of fuel consumption.
- <u>Reporting of vessel type and cargo</u>.
- Time and distance reporting.
- <u>Aggregation into annual emis-</u> sion reports per ship.
- Methods for delivering the data to verifying bodies.

Allocation of voyages to the EU MRV

The most important step in the MRV regulation is to identify which voyages are to be included in the reporting. In the Fleetguard as a Service "MRV Compliance Package", the approach is as follows:

- Master reports Departure and Destination ports upon starting the voyage.
- Master updates any changes in Destinations, next or intermediate ports in the noon reporting tool on a daily basis.
- Fleetguard automatically processes this reported data into the database.
- Fleetguard has scheduled 'workitems' in the operations platform (named RG ArmorHead) to check Fleetguard/Routeguard voyages.
 - One of the tasks they carry out is to check on the voyage level whether a voyage is calling an EU port.
 - Upon completion of the voyage, the voyage is saved into the database with a 'flag' stating whether the voyage included an EU port call or not.

Our customer users can also double-check and, if needed, adjust this. In the Fleetguard web portal they use to monitor the fleet the same functionality is implemented. Related use case: <u>Configure a voyage</u>.

Reporting of fuel consumption

Next to knowing which voyage needs to be included in the reporting, the Fuel consumption data needs to be measured, reported and verified.

Fleetguard supports several methods. All come down to daily noon reporting and Start of Sea Passage, End of Sea Passage, Berthing and Unberthing reports. The standard is that the ship crew uses our EasyNoon html tool to report their daily fuel consumption on any voyage.

The method of collecting the data on board is the responsibility of the ship owner. Whether this is via fuel meters, sounding, mass measurements, the outcome needs to be reported in the EasyNoon report and sent to Shipping for further processing.

The daily reports are automatically processed into our databases and a sanity check of the reported data is carried out. If any sanity flags are raised, due to illogical speed, destination change, ETA shift, over-under-consumption and/ or weather parameters, a workitem to check the voyage is prioritized or the already scheduled workitem will show these alerts for our Customer Service Analysts to follow up and verify the data.

The data is visible to our Customer Service Analysts guarding the voyages. Both in tabular form and in detailed form. They can either change the data themselves or request the Master to resend a faulty report.

Related reference topic: EasyNoon reporting.



Reporting of vessel type and cargo

Reporting on combinations of Vessel type and cargo is important to relate fuel and CO₂ to tonnage, and so on.

In our system, all Ships are logged with their specific characteristics, of which ship type is one. Other parameters like length and beam can also be registered.

Cargo under MRV is not reported in one single unit. Bulkers have, for example, to report Mass (mT), a passenger ship the number of passengers (-).

To keep database structures simple and to avoid confusion we have removed the Unit from the EasyNoon reporting tool, allowing every user to report in the unit applicable for his ship type. In the help pop-up for the cargo field we have added explanatory text.

Related use case: Configure a vessel.

Related reference topic: EasyNoon reporting.

Time and distance reporting

Time and distance are important parameters to understand fuel consumption and the cargo carried per nautical mile.

For position monitoring we can choose and combine different possibilities:

- Global AIS positions with multiple updates per day.
- Inmarsat-C polling at set intervals.
- Noon reports from the Master, in various, flexible, formats.

Each position contains at least the latitude, longitude and UTC time stamp. Next to that, the Noon reports can also contain the Observed ship distance, as reported by the crew onboard, since the previous update. All these positions together make up the backtrack of a voyage and with this information the distance and time are automatically calculated by the system.

Part of our service is to regularly check the backtrack of the voyages that we guard for our customers. Our operations team can add what is called 'backtrack' positions between reported points, if our operations team sees that:

- The reported Observed distance is not in line with the calculated distance.
- The backtrack is not having enough positions to make up a clear and correct voyage profile.

Related use case: <u>Configure a vessel</u>. Related reference topic: <u>EasyNoon reporting</u>.

Aggregation into annual emission reports per ship

The Fleetguard web portal offers our customers that have the MRV compliance package the 'Analysis Module'. In the Analysis Module, users have all collected and processed data available to analyze. Think of All weather analysis, specific Charter Party analysis, and so on. They can plot data for fixed periods, select ships and voyages and visualize data in graphs. The tables can be fully customized, with grouping, sorting, filtering. Once satisfied, they can save the layout for later use and it can be used to analyze other ships or voyages. The data provided is helping you, for example, in fuel reporting, in finding trends in ship performance data to plan maintenance, C/P's for contracts, and so on.

MRV specific aggregation - The data collection for MRV happens via four steps:

- The user selects the reporting period. For MRV this would typically be one year or shorter if intermediate reports are prepared.
- 2. The user selects one or more ships.
- The system proposes to the user all the voyages that are within the selected period and for the selected ship(s). The user selects all voyages.
- 4. The Results are retrieved. All data for the selection is present.

Based on the MRV true/false 'flag' on voyage level the user can easily filter all voyages per ship on whether they need to be included in the Analysis table. From the column chooser, the user can add all Fuel data and CO₂ emissions. Next to that the user can choose to include all kind of other data, such as performance speed, RPMs, drafts, weather details, weather factors, and many others.

Related topic: Analysis.



Methods for delivering the data to verifying bodies

The final step is to present the data to the ship owner's verifying organization. Our Analysis Module allows the user to export the data in xls format. The produced xls file will contain the same grouping and summarization levels as the table in the Analysis Module. Next to that the customer can give the verifier direct access to the Analysis Module to allow the verifier to dive into further details. Our API also allows customers to retrieve the same data directly from the API into any other database/system.

Related topic: Analysis.

Routeguard API

Most actions in the use cases described in this document can be performed via API calls. For reference, see Routeguard API help.

The Routeguard API service requires the following credentials:

- Client ID.
- Secret.

To request those, contact Customer Service.





Nautical MeteoBase

Fleetguard relies on weather data coming from the Nautical MeteoBase (NMB). The NMB is a forecast data engine that feeds all The marine-related products (both shipping and offshore) by drawing on the following regional and global weather models:

Table 4–8. Regional and global weather models

| | Atmospheric Model | Oceanographic Model | EPS Model | |
|----------|----------------------------------|----------------------------------|-----------|--|
| Global | • ECMWF • UKMO • NCEP/NOAA | • ECMWF • UKMO • NCEP/NOAA | • ECMWF | |
| Regional | • UKMO • KNMI | • UKMO • KNMI | | |

We weight different weather models according to their relative performance using a system of variable weights dependent on the forecast lead time and then creates an overall weighted average. This approach enhances the strong points of the input models and reduces their weak sides, thus contributing to reliability and accuracy of data. Additionally, to account for uncertainties, the EPS model is used.

Raw NMB data can be modified and further improved by:

- A near-shore post-processing module called Rose that provides refinement on top of raw NMB data where the resolution of the wave model is not fine enough to describe the behavior of waves at near-shore locations.
- Automated local calibration using observations with a Kalman filter - a self-learning statistical algorithm that improves accuracy by establishing relationships between actual local observations and the forecast, and then applying appropriate corrections.

- Manual adjustment by meteorologists combining multiple data sources, for example, observations, satellite and radar, and tapping into their expert judgment.
- Running high-resolution SWAN wave forecasts for specific locations (on request).

Items of data available in the NMB include instant values, aggregates, or standardized periods. For nautical or marine purposes, we also provide derived elements such as risk wind speed and risk wave height. The output data is refreshed four times each day.

The NMB output is made available on a global 1.0×1.0-degree grid and for high-precision regional forecasts on 0.1×0.1 fine-mesh grids. These fine mesh grids are available as standard in highly-used areas but can also be produced for any point in the sea globally on customer request.

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Platform Description

Table 5–1. summarizes some technical details relevant to FGE.

Table 5–1. FGE technical details

| Technical Overview | Technology Stack | Availability and Troubleshooting | Backup |
|--|--|---|--|
| Static single-page application hosted on an Amazon S3 bucket, distributed via Cloud Formation (cross-regional cache) as a bundle. Three environments: alpha, beta, production. Loaded into the user's browser compatible with ECMA- 262 ECMAScript Language Specification 5th Edition. | ReactJS, DevExpress. Material UI components. Bamboo (CI/CD), The on-premise server. Routeguard API. | Any downtime has severe business impact. FGE users are supported during CET office hours by the Customer Service Analysts. Outside these hours, FGE users can, for ship emergencies, call or e-mail The weather room teams 24/7. | Source code is backed up in a private repository on GitHub. |

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