



TIMETABLE

-	GARNET LEADER	VOY 123	TIME	TAB	LE		A LINE
						Actual	Plan
	\longleftrightarrow					<u> </u>	
PORT	Navegation	Time at	Berth	OP	Time	Depart	ure Time
	27/6/24 15:00 ATA	27/6/2415:36 POB	28/6/24 1:18 ATB	28/6/24 7:00 Init.OP	28/6/24 18:30 End.OP	28/6/24 21:42 POB S	29/6/24 2:30 ATS
BALD		9:4	2	11	:30	4:	48
	- 5:00	+	8:42	+	1:30	+	4:18
1		Consumption (Mt): Added Cost:	47 +\$36.780	Moves:	1637	Naveg, Time: Time at Port:	35:30
BALD 4	29/6/24 2:30 30/6/24 3:00 ATA	30/6/24.3:33 POB	30/6/24 5:24 ATB	30/6/24 7:00 Init.OP	30/6/24 18:10 End.OP	30/6/2419:48 POBS	1/7/24 1:15 ATS
DVV	24:30	1:5	1	11	:10	5:	27
	- 8:10	+	1:36	+	2:10	+	4:57
	Distance (Nm): 524	Consumption (Mt)	18.2			Naves Time:	24:30
		_					



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What is the TT?



The Timetable is a time and cost simulator that keeps a complete voyage log, making it possible to have an accurate analysis of partial and overall time spent as well as fuel consumption. It also includes voyage status - On or Behind Schedule - and more detailed port call information such as number of movements by operation, ship speed, consumption and costs, as well as simulations.



St<u>ructure</u>



INITIALIZATION AND SETUP

• **Params:** Constant and Voyage Params are added to their respective tabs



PLAN

• **Base Zero:** Planned datetimes are manually entered in Base Zero for all stages of each port call throughout the entire voyage.



ACTUAL

• **Base Real:** As the voyage progresses, actual datetimes are gradually added.



PROJECTION

• **Timetable:** Strips in blue showing what has been real information so far and in white showing what is being projected from the last actual datetime entered.



SIMULATION

• **Timetable:** Speed, Movements and Datetimes for ETB and ETS can be simulated in each of the projected strips/calls.



ADJUSTED PROJECTION

• **Timetable:** As simulations are entered to specific calls, the subsequent ones are adjusted accordingly.





FINAL REPORT

• **Report:** Final report showing voyage deltas for time and costs, as well as CII information.



The Calculations tab is the engine of the Timetable solution, where all planned, actual, and simulated data are processed to generate projections and calculate fuel consumption, costs, and CII scores. It integrates and consolidates data, driving the visual outputs and reports in the Timetable. Key sections handle plan and actual data, simulations, projections, and consumption, all linked to ensure accurate and dynamic updates throughout the voyage.

Logic behind 'Plan' and 'Actual' sections:

Plan									Actual
e at Berth	Delay	OP Time	Delay	Departure Time	Port	Navegation	Delay	Time at Berth	Delay
97 27/6/24/22/07 ETB	1000 0000	Can OPE Tim OPE		20/624-00:30 20/624-00/00 POD-1 515		27/6/24 /5/00 416	10000 2000	27/6/24 /5/36 20/6/24 23	1
1:00	10:00	10:00	0:30	0:30	BALD		0:36	9:42	5:42
Mb: 4,4		TOTAL CUSTC 3.861,26 Movements: 1727		Time at Port 23.00				Consume (Mi) 46,5	
8 33624425		306043.00 3060417.00		30504.07.30 30604.01.00 FOR 1		29604230 30604310		30604.3.37 30604.6.34	
	3:35	9:00 2	0:30	0:30	DVV	24:30	0:33	1:51 2	1:36
0:15									
0:15 We 52,4		TOTAL CUSTC 45.779,51 Movements: 1514		Time at Port 14-20		Distance Nm: 524 Speed Knots: FULL - 21	Referência:	Consume (Mt) 18,2 FULL - 17	



Datetimes being **fetched from the Plan**, Base Zero, through **lookup formulas**



Number of hours in that specific stage of the port call by **subtracting** the initial datetime for that stage from the ending datetime.

Logic behind 'Simulation' sections:

The simulation sections in the Calculations tab allow users to adjust vessel speed, operation movements, and arrival/departure times for upcoming port calls. These simulations modify the planned data and cascade through subsequent stages, updating projections dynamically to reflect potential changes in the voyage schedule.

Simulations are manually entered on the Timetable tab.



Number of hours to be added or subtracted, if it's negative, from the one that is currently the case, as per the Plan.

2

Calculations to support the **translation** of simulated values into **hours**.

About the 'Projection' section:

Projection									
Port	Navegation	Delay	Time at Berth	Delay	OP Time	Delay	Departure Time		
	27/6/24 15:00		27/6/2415:36 28/6/241:18		28/6/247:00 28/6/2418:30		28/6/24 21:42 29/6/24 2:30		
BALD		0:36	9:42	5:42	11:30	3:12	4:48		
	0,21 Simulation 0,00	0,02	+ 0,36 Simulation 0,00 Consume (Mt): 46,50	0,18	+ 0,05 Simulation 0,00 Total Custo 40.641,00	+ 0,11	+ 0,18 Simulation 0,00		
			Custo Adicional 36.780		Movements: 1637		Time at Port: 35:30		
	29/6/242:30 30/6/243:00		30/6/243:33 30/6/245:24		30/6/247:00 30/6/2418:10		30/6/2419:48 1/7/241:15		
DVV	24:30	0:33	1:51	1:36	11:10	1:38	5:27		
- 1	0,34	+ 0,00	+ 0,07	0,08	+ 0,09	+ 0,05	+ 0,21		
	Simulation 0,00 Distance Nm: 524		Simulation 0,00		Simulation 0,00 Total Ousto 15 905 80		Simulation 0,00		

The Projection section of the Calculations tab is **the core that drives the Timetable report**, with each strip in the Timetable **directly referencing this section**.

It determines the displayed data by checking for actual entries; if none exist, it combines planned data with any applicable simulations. The cascading effect ensures that any change in one port call's timing affects all subsequent calls, providing an up-to-date and accurate projection of the voyage schedule.

Logic behind 'Projection' section:

	Projection									
Port	Navegation 1	Delay 3	Time at Berth	Delay	OP Time	Delay	Departure Time			
	27/6/24 15:00		27/6/2415:36 28/6/241:16		28/6/247:00 28/6/2418:30		28/6/24 21:42 29/6/24 2:30			
BALD		0:36	9:42	5:42	11:30	3:12	4:48			
1	0,21 Simulation 0,00	0,02	+ 0,36 Simulation 0,00 Consume (Mt): 46,50	0,18	* 0,05 Simulation 0,00 Total Custo 40.641,00	+ 0,11	+ 0,18 Simulation 0,00			
			Custo Adicional 36.780		Movements: 1637		Time at Port: 35:30			
6	29/6/24 2:30 30/6/24 3:00		30/6/243:33 30/6/245:24		30/6/247:00 30/6/2418:10		30/6/2419:48 1/7/241:15			
dvv [24:30	0:33	1:51	1:36	11:10	1:38	5:27			
1	0,34 Simulation 0,00	+ 0,00	+ 0,07 Simulation 0,00	0,08	+ 0,09 Simulation 0,00	+ 0,05	+ 0,21 Simulation 0,00			



Checks whether there is **actual data** for the first strip. If there is, **Actual data will be prioritized.**

- 2 *Checks* whether there is an actual calculated delay in the **Actual section** to **prioritize** it. If there isn't, it will **default to delay from Plan.**
- **3 Adds delay to the datetime** of the beginning of the voyage to serve as the **datetime for beginning of the next stage.**
 - Datetime as a result of its **previous** + **stage duration in hours.**
- **5** Consumption and cost calculations **prioritizing actual data** and defaulting to plan if Actual is 0.
- 6

Last datetime of the previous strip to set the ground for the subsequent strips.

The cycle repeats having the last datetime of the previous strip as **basis**, hence the cascading effect.

Logic behind 'Consumption' sections:

Plan:

The **Planned Consumption** section in the Calculations tab estimates fuel costs by calculating the time spent during navigation and port calls, using speed and fuel consumption data from the **Params_Voy tab.** It provides a detailed projection of fuel expenses based on the vessel's planned itinerary and speed, ensuring cost forecasts are accurate and aligned with the voyage plan.

Consume Plan										
Port	Navegation	Delay	Time at Berth	Delay	OP Time		() (
		Tempo adicion A	al Simulação: 0 de consume:: 0	Tempo adicio	al Simulação: 0 iddiconsume:: 0					
BALD PLAN	Análise - entra na projeção	1:00 Não 4.61 Consum 0.2 Consum	1:00 Não 2 (parámetro): 4,61 0 Total Plano: 0,2 3	10:00 Não 4,61 Consum 1,9 Consum	ID:00 Na o (parâmetro): 4,1 o Total Plano: 1,		CP - pós análise (PLAN + SIM); Consume Projection (PLAN + SIM); Consume Total Simulation;	0,0 4,4 0,0		
o Parâmetro Simulação DVV PLAN	(MOST ECO - 16): 36,46 Add consume:: 0:00 32:40	Tempo addition A 0:30	al Simulação: 0 del consume: 0 0:15	Tempo adicio 3:35	nal Simulação: 0 odd.consume:: 0 9:00		Consume Total Plan:	4,4		
063366.4			NSS				CP - pós análise (PLAN + SIM); Consume Projection (PLAN + SIM); Consume Total Simulation;	0,0 52,4		

- Consumption parameter from Params_Voy tab
- 3

Consumption calculation based on parameterized cost and duration.

4 Consolidation of **planned consumption with simulations**, if any, to return a projected consumption. For this, simulations of vessel speed, movements and datetimes are **translated into how much more or less would be consumed.** This panel **feeds back the Projection section** which, in turn, will be presented on the Timetable report.

Logic behind 'Consumption' sections:

Actual:

				DO		
					۰.	
Port Navegation	Dela	y Time at Berth	Delay	OP Time	C	
IALD 0:00	0:36	9:42	5:42	11:30		
sto Parámetro (ATPORT - 0,0): 4,61 Consume Navegation: 0,0 Speed 0,0	DH	DI DJ E	0 DL DM	DA DO DP (C	O DR DS D	ו טם וי
Actual				Pro	jection	
Port Navegation Delay Time at Berth Delay OP	Port	Navegation	Delay	Time at Berth	Delay	OP Time
BALD 0:36 9:42 5:42 11		27/6/24 15:00	111 111	27/10/24 15:36 20/16/24 1.98		2016/24 7:00 - 2016
Consume (Mt): 46.5 Movements	BALD		0:36	9:42	5:42	11:30
Long Line Mark		0,21 Simulation 0,00	0,02	+ 0,36 Simulation 0.00 Consume (Mt): 46,50 Custo Adiciona 36,780	0,18	+ 0 Simulation 0 Total Custo 40.6 Movements: 1
Speedfoors (FLL+2) Debalacia (FLL+3) Novemen		236124230 3081243.00	111 511	3016124 3.33 - 3016124 8.24	111 111	3016124 7.00 3016
	DVV	24:30	0:33	1:51	1:36	11:10

Although there is an actual consumption section in the Calculations tab, the actual consumption currently displayed in the Projection section, and consequently on the Timetable and final report, is **directly sourced from the data manually entered in the Base Real tab.** As the voyage progresses, users input actual port call information, including fuel consumption, which is then **reflected in the Projection section** to provide an accurate and up-to-date representation of the voyage's actual fuel usage.

Editing the Calculations tab

The Calculations tab in the Timetable solution is structured in strips, with each strip representing a port call. Each strip is linked to the one before it, ensuring that changes in one port call cascade through to subsequent ones. To make alterations to the formulas within this tab, it is crucial to follow a specific sequence of steps to avoid errors and ensure consistency across the entire dataset. Here's how you can do it:

Step 1: Clearing Data from the Third Strip Down

- Begin by **clearing all data from the third strip** downward across all sections within the Calculations tab.
- To do this, select the entire range horizontally and downwards, starting from the third strip.
- Use the **Eraser feature** to clear the data. **Important:** Do not delete the rows during this process, as doing so will result in **#REF!** errors across all dependent cells in other tabs.



Step 2: Adjusting Formulas in the First and Second Strips

- Once the data from the third strip down has been cleared, make the necessary adjustments to the formulas in the **first and second strips**.
- Carefully review and **modify the formulas across all sections** (Plan, Actual, Speed Simulation, Quantity of Movements Simulation, Time Simulation, Projection, Planned Consumption, Actual Consumption, and Cll sections).
- Ensure that any references within the formulas are **correctly locked using the F4 functionality** to maintain consistency when copying the formulas.

Step 3: Replicating the Adjusted Strips

- After all necessary alterations have been made to the first and second strips, **select the entire second strip** across all sections.
- Drag this strip down until row 288 to replicate the adjusted formulas across all 35 strips.
- The **locked references will ensure that** as the strips are dragged down, the formulas automatically adjust to **reference the correct cells**, restoring the previously cleared port calls with the new adjustments.





The Cascading Effect

The cascading effect in the Calculations tab refers to the sequential dependency where **each strip's calculations rely on the previous strip's output.**

Specifically, the first datetime in each strip (ETA) is calculated by adding the navigation time to the final datetime of the preceding strip (ETS).

Any changes—actual data, planned adjustments, or simulations—**propagate** downstream, updating all subsequent port calls. This ensures the timeline and related calculations (like fuel consumption and costs) consistently reflect earlier modifications, maintaining accuracy throughout the voyage.



Timetable Conditional Formatting



Modifying Conditional Formatting Rules in the Timetable Tab

The Timetable tab utilizes an **extensive array of conditional formatting rules** to visually differentiate actual data, simulated values, delays, and other key metrics across the voyage. These rules are crucial for quickly identifying important information, such as:

- Blue Strips: Indicating actual data entries.
- Orange Cells: Highlighting values that are products of simulation.
- Red Delay Cells: Signaling delays longer than 4 hours.

When modifications to these conditional formatting rules are necessary, it's important to follow a **structured process to ensure that the changes are applied consistently across all port call strips.** Here's the step-by-step procedure:

Step 1: Clear Data from the Third Strip Down

- Begin by clearing all data from the third strip downward.
- To do this, select the entire range of the strip and downward starting from the third strip.
- Use the Eraser feature to clear the data. Important: Do not delete the rows; this could cause #REF! errors across dependent cells and disrupt the totalizer panel.

Step 2: Modify Conditional Formatting in the First and Second Strips

- With the lower strips cleared, proceed to **adjust the conditional formatting rules** in the first and second strips.
- Access the Conditional Formatting menu in Excel and make the necessary changes, such as altering color thresholds, modifying formulas that trigger formatting, or adding new rules.
- Ensure that the formatting changes are applied consistently across all relevant cells within these two strips.

Hew Rule	🐺 Edit Rule	X Delete Rule	E Dup	ligate Rule 📃 🕓	
Rule (applied in orde	r shown)	Format		Applies to	
Formula: =LEFT(3	(J16;1)="+"	AaBb	CcYyZz	=\$1516	*
Formula: =LEFT(S	\$J16;1)="+"	AaBb	CcYyZz	=\$J\$16	1
Formula: =LEFT(5	\$J16;1)="-"	AaBb	CcYyZz	=\$J\$16	2
Formula: =LEFT(1	(J16;1)="-"	AaBb	CcYyZz	=\$1\$16	±
Formula: =\$J16+	0			=\$J\$16	±
Formula: =\$J16=	•			=\$I\$16	±
Formula: =\$813=	"Sem V0"	AaBb	CcYyZz	=\$1516:\$J\$16	2
Formula: =Calcul	lations?/10<>0	AaBb	CcYyZz	= \$D\$10;\$I\$10;\$J\$10;\$O\$10;\$P\$10	\$U\$10.\$V\$10;\$I\$ ⁻ 🛨
Formula: =Calcul	lations/210<>0	AaBb	CcYyZz	=\$D\$16;\$P\$16;\$V\$16;\$/\$16;\$V\$24	(\$D\$24;\$J\$24;\$P\$ 🛨
Formula: = Calcul	lations/210<>0	AaBb	CcYyZz	=\$C\$16;\$O\$16;\$U\$16;\$I\$16;\$O\$2	4;5U524;5C524;5! 🛨
Formula: =Calcul	lations/SAR10<>0	AaBb	CcYyZz	=\$U\$15:\$V\$15;\$U\$23:\$V\$23;\$U\$3	s1:svs31;sus39:s\ 🛨
Formula: =\$014	"Simulation"	AaBb	CcYyZz	=\$0\$14:\$P\$14	2
Formula: =\$U14+	"Simulation"	AaBb	CcYyZz	=\$U\$14:\$V\$14	1
Formula: =AND(3	\$C12<>0;\$I12=0)			=\$K\$11;\$Q\$11	2
Formula: = Calcul	lations/210<>0	AaBb	CcYyZz	=\$D\$11;\$O\$11;\$P\$11;\$U\$11;\$V\$1	1;51511:5/511;505 🛨
Formula: =ROUN	4D(\$V13;2)=0	AaBb		=\$U\$13:\$V\$13	1
Formula: - OILL		A s R	C-No7+	-60613-60613	•

Step 3: Replicate the Adjusted Strips

- After making the necessary adjustments to the first and second strips, **select the entire second strip**.
- **Drag this strip downward until you reach row 144.** This will replicate the formatting changes across all remaining strips, ensuring consistency in the conditional formatting.
- Caution: Row 144 is just above the totalizer panel, which should not be cleared or altered. Ensure that the replication stops one row before this panel to avoid any unintended changes.

Auxiliary Tabs

			and the second se
Unhide	?	1	×
Unhide one or more sheets:			
Cadastros - Nomenclaturas			
Output - Projection			
PowerBI_BaseZero			
PowerBI_BaseReal			
PowerBl_OutputProjection			1
PowerBl_OutputShip			_
CII - Vessel GT			
CII - Parameters			
			_
OK		Cance	1

The Timetable includes hidden tabs dedicated to **CII** background calculations and the registry of nomenclatures used across the solution. The CII background calculations tab processes detailed data necessary for generating accurate Carbon Intensity Indicator (CII) scores and grades, supporting the CII panels displayed in the report. The nomenclature registry tab contains standardized terms and labels used throughout the Timetable.

PowerBI Tabs



The Timetable also includes **hidden sheets** such as **"PowerBI_BaseZero" and "PowerBI_BaseReal,"** which serve as **datasets for a related PowerBI dashboard**.

These sheets are **fully automated and linked to Base Zero and Base Real**, but they have been treated to filter out unwanted values, ensuring that only clean and relevant data is imported into PowerQuery in PowerBI.





