

String Charts: Visual Transport Schedules

Group 3: Trinish Nepal, Martin Rabensteiner, Stephan Robinig

Final Survey Presentation - 07 May 2025

Information Visualisation SS 2025

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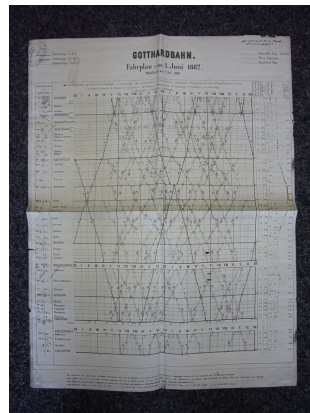
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Overview

- Historical
- Tools and Demos
- Conclusion

Historical

- 8 May 1842: Accident on the Versailles railway
- April 1843: Jules Petiet publishes memoir of the accident with graphic
- From May 1843: Used by Busche for the route Lille-Valenciennes
- 1846: Charles Ibry presents his approach and tool to the public railway administration

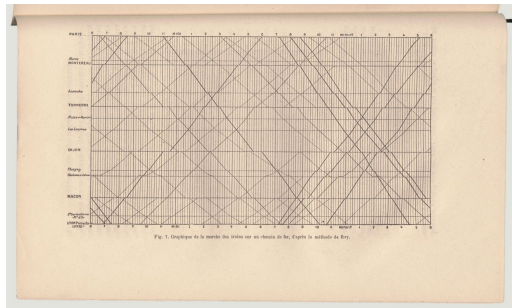


"Grafischer Fahrplan Gotthardbahn", 1. Juni 1882, with corrections from 1. July 1882. Verkehrshaus der Schweiz, Luzern. Public Domain.

Source: Article by Léon Lalanne (1884), <https://gallica.bnf.fr/ark:/12148/bpt6k3055h/f307>

La méthode graphique

- Psychology, graphic theory, photography
- General book about information visualization
- Charles Ibry: Invention of graphic charts for the movement of trains
- Étienne-Jules Marey: Published design of Ibry



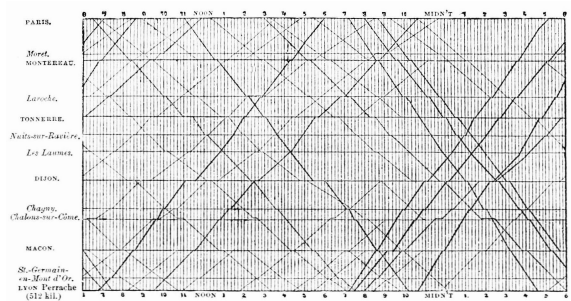
Source gallica.bnf.fr / Bibliothèque nationale de France

"Graphique de la marche des trains sur un chemin de fer" by Ibry. <https://gallica.bnf.fr>. Public Domain.

Source: Book by Étienne-Jules Marey (1878), <https://gallica.bnf.fr/ark:/12148/bpt6k6211376f/f55>

Inventor

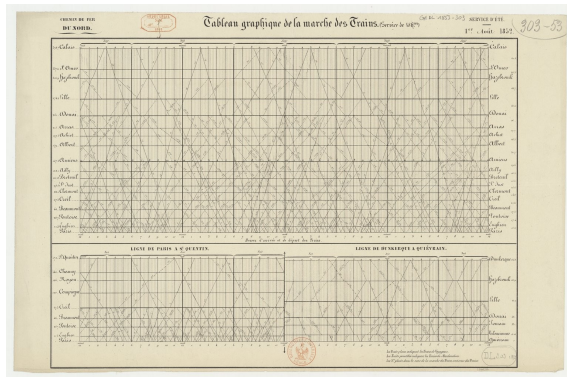
- Ibry created with first design
- Marey falsly associated because of publication
- Lieutenant Serjev
speculated to be original inventor
Corps of Transportation Engineers
- Not yet known if Ibry or Serjev first



Created by Ibry, Published By Étienne-Jules Marey - Popular Science Monthly Volume 15, Public Domain

Source: <https://commons.wikimedia.org/w/index.php?curid=11175467>

Tableau graphique de la marche des Trains



Source gallica.bnf.fr / Bibliothèque nationale de France

"Chemin de fer du Nord. Tableau graphique de la marche des Trains" by L. Danel (Lille) . <https://gallica.bnf.fr>. The image is dedicated to the public domain under CC0.

Source: Bibliothèque nationale de France, <https://catalogue.bnf.fr/ark:/12148/cb450494786>

Survey Criteria

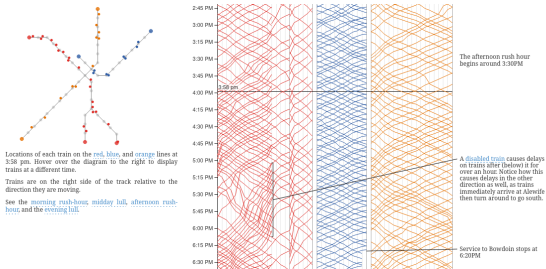
- Owner
- License
- Import / Export
- Tech Stack

Tools

- MBTA Viz
(<https://mbtaviz.github.io/>)
- Marey Graph generator
(<https://github.com/CondensedChaos/condensedchaos.github.io>)
- Marey's Trains
(<https://observablehq.com/@mbostock/mareys-trains>)
- jTrainGraph
(<https://jtraingraph.de/>)
- String Charter 2
(<https://courses.isds.tugraz.at/ivis/projects/ss2023/ivis-ss2023-g2-project-string-charter2.pdf>)
- 6 additional tools in report

MBTA Viz

- Owner: Mike Barry and Brian Card
- License: MIT License
- Import: JSON
- Export: Screenshot
- Tech Stack: HTML, JS, HTTP Server



Source: Screenshot captured by Stephan Robinig.

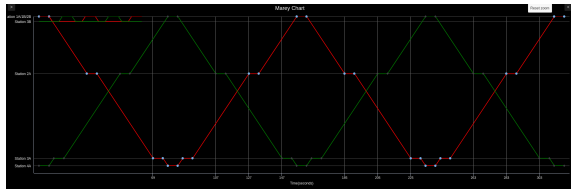
<https://mbtaviz.github.io/>

MBTA Viz

- manual coding required for data input
- Setup: npm install
- requires HTTP Server to run

Marey Graph Generator

- Owner: CondensedChaos
- License: CC-BY-NC-SA 4.0
- Import: Manual Input
- Export: Screenshot
- Tech Stack: HTML, JS



Source: Screenshot captured by Stephan Robinig.

<https://github.com/CondensedChaos/condensedchaos.github.io>

Marey Graph Generator

- simple HTML / JS implementation
- cumbersome to use for large data
- Setup: simple git clone

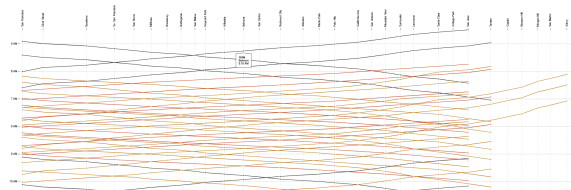
Marey's Trains

- Owner: Mike Bostock
- License: ISC License (free)
- Import: TSV
- Export: SVG
- Tech Stack: JS, D3

Marey's Trains

A recreation of [Bill Marey's](#) graphical train schedule. Stations are positioned in order so that slope denotes speed. This display also reveals when and where **limited service trains** are passed by **busy bobbies**. This type of plot is sometimes called a **stringer chart**.

[View Source](#) 
View on GitHub
Edit on GitHub

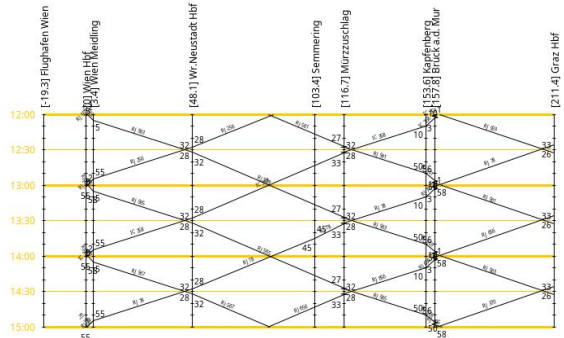


Source: Screenshot captured by Stephan Robinig.

<https://observablehq.com/@mbostock/mareys-trains>

jTrainGraph

- Owner: Moritz Scherzinger
- License: Personel / Commercial
- Import:
 - FPL ("Fahrplan")
 - CSV, XLS(X)
- Export:
 - Data: FPL, CSV, XLS(X)
 - Image: JPG, GIF, PNG, Print
- Tech Stack: Java



Source: Screenshot captured by Martin Rabensteiner.

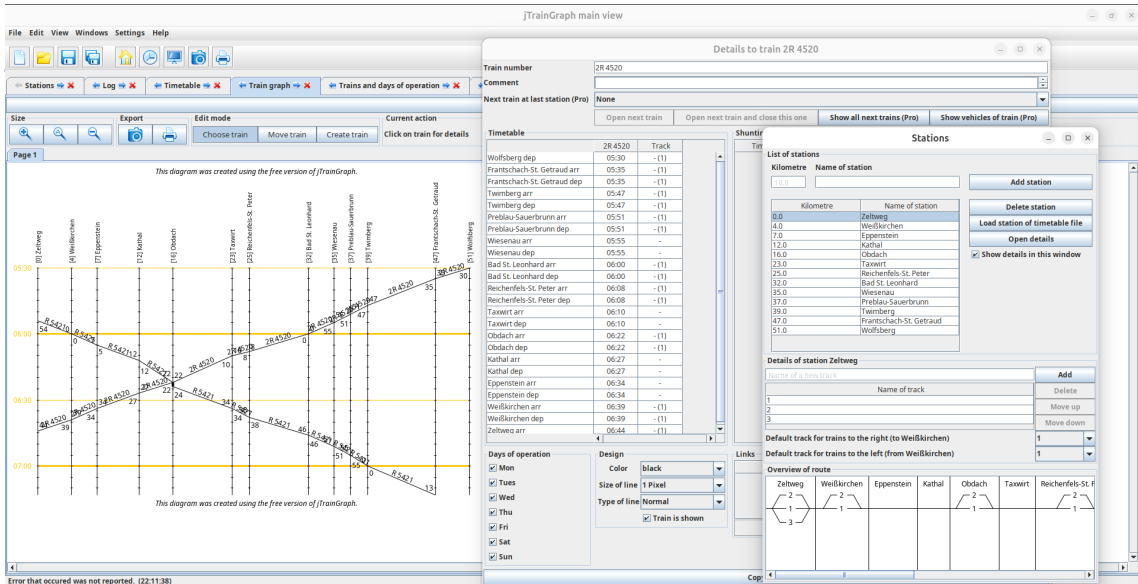
<https://jtraingraph.de/>

jTrainGraph

- Additional Features: collision detection
- Personal project
- Setup: Execute .exe or .jar file
- Usefull for model railroads → learn realistic operation
- Plenty format and export options for the train graph
- Pro Version for € 25,- once:

Collision checks

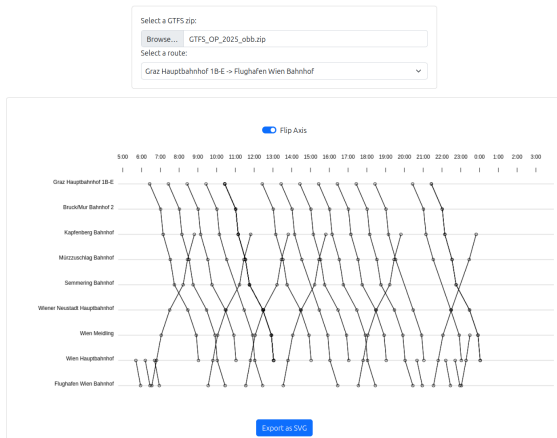
Excel/CSV Export/Import



Source: Screenshot captured by Martin Rabensteiner

String Charter 2

- Owner: Inge G., Michael H., and Danijela L.
- License: MIT License
- Import: GTFS
- Export: SVG
- Tech Stack: Tauri, Node.js, TypeScript



Source: Screenshot captured by Martin Rabensteiner.

String Charter 2

- X/Y axis flipable
- Problems with stop differences
- Geographic distance not representable

Summary

Application	License	Import	Export	Tech Stack	Remarks / Features
MBTA Viz	MIT License	JSON	Screenshot	HTML, JS, HTTP-Server	
Marey Graph Generator	CC-BY-NC-SA 4.0	Manual Input	Screenshot	HTML, JS	cumbersome for large data
Marey's Trains	ISC License	TSV	SVG	D3	
jTrainGraph	Free Pro Commercial	FPL CSV XSL(X)	FPL, CSV, CXLS(X), JPG, GIF, PNG, Print	Java	Collision Detection
String Charter 2	MIT License	GTFS	SVG	Tauri, Node.js, TypeScript	not editable

Conclusion

- Many different applications
- Only few for personal use

Many "enterprise only" solutions

- Plotting it yourself might be a viable option

e.g. Python, Java, JS

- Recommendation: StringCharter 2 and jTrainGraph

Questions?

