



SMART PARSER

EtihadLY:

A smart parser for cargo messages





OBJECTIVE

The Green Coding Challenge is to develop a SMART Parser Application

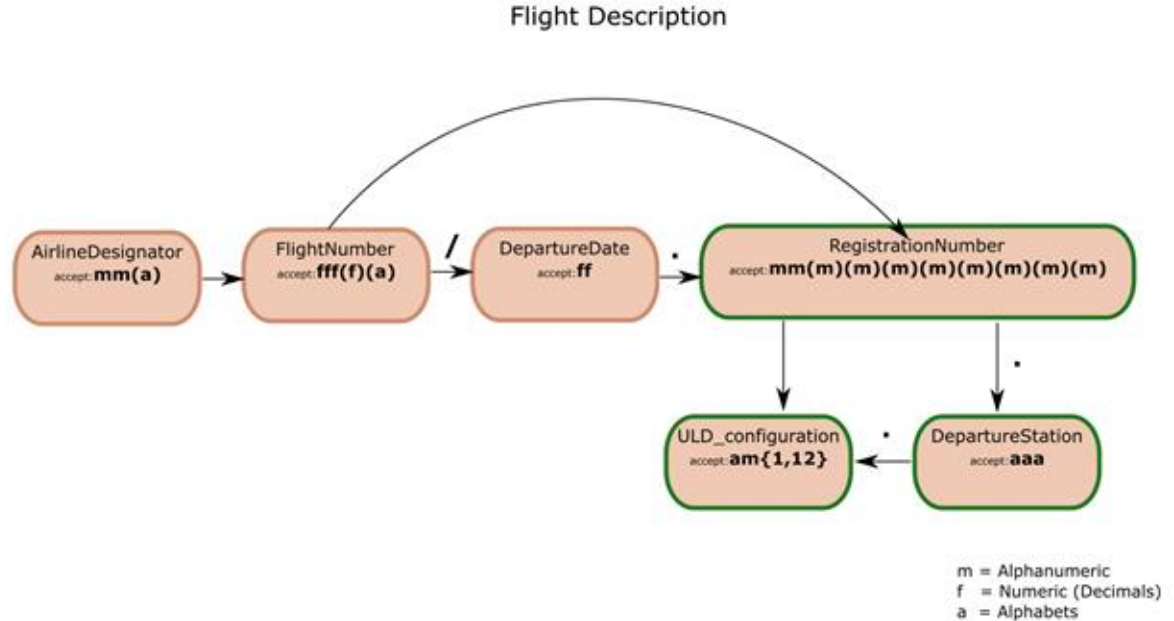
- To **process Cargo EDI Messages** in a specified format.
- To **identify and log any errors** encountered during the processing of the message.
- Ability to **auto correct common errors** contained in the message.
- Ability to **skip any complex errors** or **incorrect data elements** in the message.
- A dashboard to view the parsed data as well as monitor the messages with errors.

BENEFITS

- Improve the **% of messages processed** by the application.
- Reduce or **eliminate the need for manual corrections** in processing the message.
- Retrieve/Process as much data as possible from the messages.
- **Increased data quality** results in qualitative improvements in the Positional Load Factor reporting.
- **Accurate Positional Load Factor reporting** supports aircraft/ULD loading optimization which in turn results in a **sustainable cargo operation**.

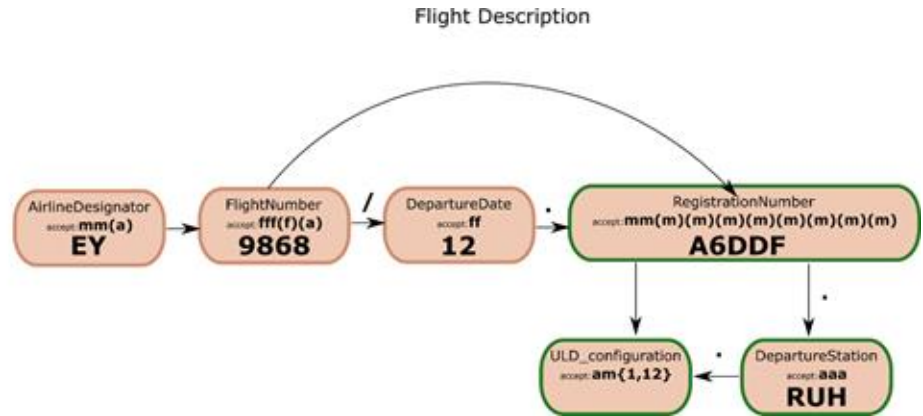
We have built grammars

- Description of the language
- Fields
- Transitions
- Conditions



We have built grammars

EY9868/12.A6DDF.RUH



Syntax Correction

Incorrect format

- Wrong characters
- Wrong positions of characters



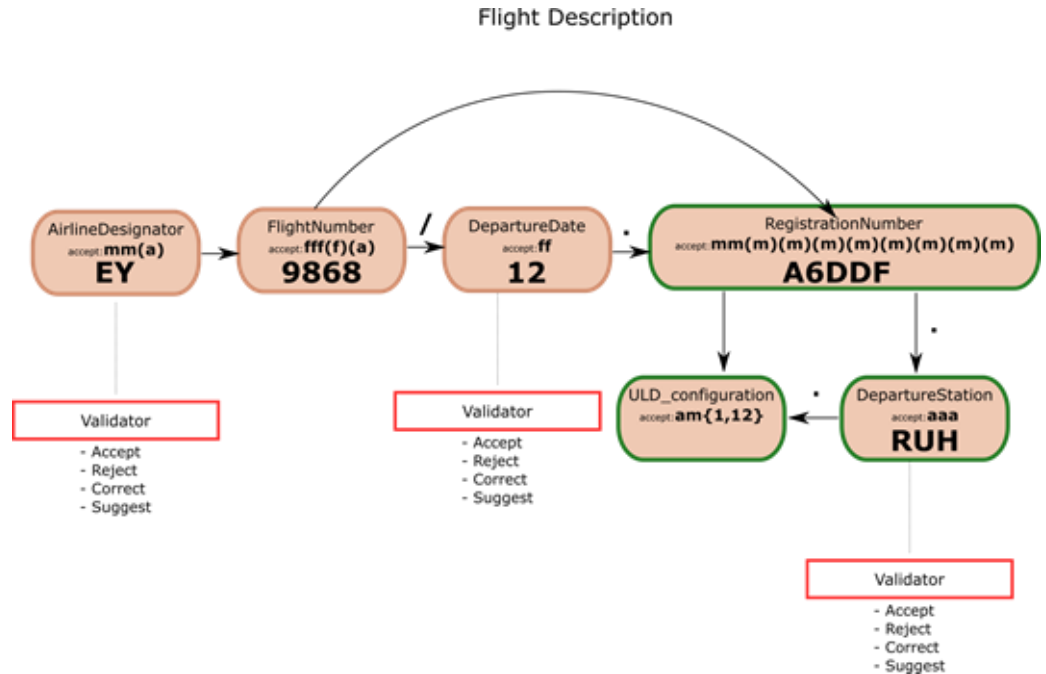
Incorrect newlines

EY9868/
1
2.A6D
DF.RUH
-AR/PMC72671EY/
AUH/1840/C.ELI.VUN → EY9868/12.A6DDF.RUH
→ -AR/PMC72671EY/AUH/1840/C.ELI.VUN

Semantic Correction

- Wrong departure date?
- Wrong Airport Name?
- Wrong Airline Departure

- Validator:
 - **Accept**, **Reject**
 - **Correct**: if the fix is "clear"
 - **Suggest** possible values if not sure which data to correct



Semantic Correction

- Validators to check correctness
- Validator:
 - **Accept**, **Reject**
 - **Correct**: if the fix is “clear”
 - **Suggest** possible values if not sure which data to correct

```
SmartParser > parser > FieldSuggestion.py > ...
161 airports = ["JFL", "JFJR", "JEQ", "DDD", "AB", "IEPWI", "C"]
162 airlines = ["3E", "CZ", "JDP", "C", "JDOEP", "AA", "353"]
163 reg = ["A6DD", "33B8C", "DPRDC", "KDPAAA", "FCZZA", "BCD", "QQQAAD"]
164 uid_types = ["AKE", "PWA", "JEI", "BBB", "RERR", "CD", "P6P"]
165 uid_bays = ["11R", "KL", "IJO", "22PL", "JD", "123"]
166 contours = ["P1P/Q5", "POPEJ", "P6P/AB"]
167
168 num_suggestions = 4

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL JUPYTER

('ACCEPT', [])
('ACCEPT', [])
('SUGGEST', [['A2QAAD'], ['2QAAD'], ['DQQAAD'], ['S2QAAD', '3AQAAD', 'A3QAAD']])
uid
('ACCEPT', [])
('ACCEPT', [])
('SUGGEST', [['MQC'], ['VMC'], ['MAU'], ['MVC']])
('SUGGEST', [['MVC', 'VMC'], ['MYC'], ['MKN'], ['MKH']])
('REJECT', [])
('REJECT', [])
('ACCEPT', [])
bays
('ACCEPT', [])
('ACCEPT', [])
('SUGGEST', ['JL', 'JR', 'JP', 'KL', 'KR', 'KP', 'UL', 'UR', 'UP'])
('SUGGEST', ['KL', 'JL', 'LL', 'UL', 'PL', '9L', '8L'])
('SUGGEST', ['JL', 'JP', 'JR'])
('SUGGEST', ['12L', '12P', '12R'])
contours
('SUGGEST', ['P1P/Q7', 'P1P/Q6', 'P1P/X5', 'P6P/Q7', 'P6P/Q6', 'P6P/X5'])
('SUGGEST', ['P1P/Q7', 'P1P/Q6', 'P1P/X5', 'P6P/Q7', 'P6P/Q6', 'P6P/X5'])
('SUGGEST', ['P1P/Q7', 'P1P/Q6', 'P1P/X5', 'P6P/Q7', 'P6P/Q6', 'P6P/X5'])
PS D:\programming\python\amadeus-hackathon\src\SmartParser\parser>
```

Similarity of values + Distance between keys

E.g., $(EY, EX) = 1 + \text{distance between } (Y, X)$



User Rules

- Allows to define rules to fix data
- We have an analyzer that helps to prepare the the rules

The image displays two side-by-side screenshots of a web application titled "Etihadly: Smart CPM Parser". Both screenshots show a form titled "Add rule".

The left screenshot shows the form with three sections: "IF", "AND", and "THEN". Each section has a text input field, a dropdown menu (set to "Equal"), and another text input field. A yellow "Add rule" button is at the bottom.

The right screenshot shows the same form, but the dropdown menu in the "THEN" section is set to "Replace". The yellow "Add rule" button is also present.

IF

- source = KLM.Webservice'
- LoadCategory = 'B'

THEN

- REPLACE
 - LoadCategory = 'X'

Dashboard ~ Grammarly for CPM files

- **Editor**
 - Interactive Editing of files
- **Analysis**
 - Overview of errors
- **Rules**
 - Editing rules

The screenshot displays the 'Etihadly: Smart CPM Parser' interface. On the left, a 'Parser History' sidebar lists several files: etihad_CPM1.txt, etihad_CPM2.txt, etihad_CPM3.txt, etihad_CPM4.txt, CPM_wrongnewlines_1.txt, CPM_typpo_UJD_6.txt, and CPM_typpo_UJD_5.txt. The main area features an 'Upload File' section with a 'Choose Files' button, a 'No file chosen' status, and a blue 'Submit' button. Below this, the file 'etihad_CPM1.txt' is selected, with tabs for 'CPM Editor' and 'Parsed file'. A 'Parse' button is visible. The analysis results show a CPM entry 'EY972/11A6DDD.HAN' with a highlighted error: 'This occurrence: EY, EL, ET' and 'This file.: EY, EL, ET'. A yellow box highlights the error message and a 'Create rule' link. Below the error, a list of CPM entries is shown, including '-CL/PMCfdafdasfdaf75672EY/AUH/2275/C.ELI.HEA.VUN', '-CR/PMC76847EY/AUH/1855/C.ELI.VUN', '-DL/PMC74817EY/AUH/2490/C.ELI.ELM.HEA.VUN', and '-DR/PMC01084EY/AUH/2460/C.ELI.VUN'.

Etihadly: Smart CPM Parser

Editor Analysis Rules

Parser History

- etihad_CPM1.txt
- etihad_CPM2.txt
- etihad_CPM3.txt
- etihad_CPM4.txt
- CPM_wrongnewlines_1.txt
- CPM_typpo_UJD_6.txt
- CPM_typpo_UJD_5.txt

Upload File

Choose Files No file chosen Submit

You can only upload a txt file.

etihad_CPM1.txt

CPM Editor Parsed file

Parse

CPM

EY972/11A6DDD.HAN

This occurrence: EY, EL, ET 5/C.ELI.VUN

This file.: EY, EL, ET 0/C.ELI.VUN

Create rule 5/C.ELI.VUN

5/C.ELI.VUN

-CL/PMCfdafdasfdaf75672EY/AUH/2275/C.ELI.HEA.VUN

-CR/PMC76847EY/AUH/1855/C.ELI.VUN

-DL/PMC74817EY/AUH/2490/C.ELI.ELM.HEA.VUN

-DR/PMC01084EY/AUH/2460/C.ELI.VUN

Analysis

- Aggregation of errors
 - Data source
 - Wrong Value
 - Count of errors
- Helps to create rules

Etihadly: Smart CPM Parser

Editor Analysis Rules

Error today

51

Error this month

51

Latest Error

Common Error

datasource	field	value	Aggregated	
etihad	IMP	VUN	44	create rule
CPM	IMP	VUN	2	create rule
etihad	LoadCategory	E	2	create rule
CPM	LoadCategory	P	1	create rule
etihad	AirlineDesignator	Ej	1	create rule
etihad	IMP	EIC	1	create rule

Technology Stack

- Cloud ready
- It's easy to scale
 - More containers if needed
- The application can run on many nodes

Try Etihadly:

- `sudo docker run -d -p 80:5000 struharv/parser`
- (MS Azure) <http://13.80.122.98/>

