Fiction Based on a True Story

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This is about Vehicle Product Data. Please read my general article on this issue if you want to understand the problems: *Automotive Product Data Management.*

Described in this document is a set of services where you can get information about a specific vehicle model. The data is **fiction** which means that is not describing a real vehicle. **But** it is based on real data. This data is re-coded, descriptions are changed, I have limited the geographical areas, and I have changed principles and handling. Anyway, a bit simplified, but it shows a **realistic** vehicle.

The purpose of this document and the described functionality is to illustrate that a vehicle company needs product data for a lot of different functions. Product data needs to service all these different needs.

There are a few basic principles for the data.
1. A vehicle is described by a list of **features** like *W85A Front 18" 4-spoke al wheel*. Where *W85A* is the feature code.
2. A feature always belongs to **family**. I this case *W8 Wheel front*
3. For a specific vehicle there is exactly one feature in each family.
4. Base vehicles. An important part of the data model is the base vehicle. A base vehicle is completely specified and buildable. It is a unique combination of the feature values in families called **main families.** In my vehicle concept the main families are:

   ```
   FH   m   Model
   HI   m   Propulsion
   BH   m   Version
   H8   m   Drive Side
   II   m   Gearbox
   2I   m   Area
   ```
5. In some families there may be alternative values available for a specific base vehicle. These are called optional features and can be used to change the specific vehicle configuration e.g., to a different wheel.
6. Change points. Vehicle can change over time. In my model I use week as the time unit. Changes can be e.g., introduction of a new base vehicle, adding or removing a feature, changing the standard configuration of a base vehicle.
7. Restrictions. Not all combinations of features are allowed. A standard configuration is always allowed but optional feature combinations may not be allowed e.g., a vehicle with heated rear seats must also have front heated seats. Internally restrictions are represented as allowed combinations of features,

A good overview of a vehicle model can be seen in the SO- grid.

	Model	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3
	Propulsion	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV
	Version	PERF	PERF	PERF	PERF	PERF	PERF	PERF	BASE	BASE	BASE	BASE	BASE	BASE	BASE
	Gearbox	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Drive Side	LHD	LHD	LHD	LHD	LHD	LHD	RHD	LHD	LHD	LHD	LHD	LHD	LHD	RHD
	Area	EUR	EUR	USA	USA	CHI	CHI	JAP	EUR	EUR	USA	USA	CHI	CHI	JAP
	Start	202148	202203	202148	202203	202148	202203	202203	202148	202203	202148	202203	202148	202203	202203
	End	202202	202225	202202	202225	202202	202225	202225	202202	202225	202202	202225	202202	202225	202225
FH10	BX3	S	S	S	S	S	S	S	S	S	S	S	S	S	S
HI04	Battery vehicle	S	S	S	S	S	S	S	S	S	S	S	S	S	S
HP07	Rear electric engine	S	S	S	S	S	S	S	S	S	S	S	S	S	S
HQ05	Connector, US type+ quickcharge	-	-	S	S	-	-	-	-	-	S	S	-	-	-
HQ06	Connector, EU type+ quickcharge	S	S	-	-	S	S	-	S	S	-	-	S	S	-
HQ08	Connector, Japan type+ quickcharge	-	-	-	-	-	-	S	-	-	-	-	-	-	S
HW04	Front elecric engine	S	S	S	S	S	S	S	S	S	S	S	S	S	S
H801	Left Hand Drive	S	S	S	S	S	S	-	S	S	S	S	S	S	-
H802	Right Hand Drive	-	-	-	-	-	-	S	-	-	-	-	-	-	S
IH02	Shift by wire	S	S	S	S	S	S	S	S	S	S	S	S	S	S
II0C	Gear one speed	S	S	S	S	S	S	S	S	S	S	S	S	S	S
IP06	Wooden gearshift knob	S	S	S	S	S	S	S	S	S	S	S	S	S	S
IQ01	No gearshift display	-	-	S	S	S	S	S	-	-	S	S	S	S	S
IQ02	Gearshift display	S	S	-	-	-	-	-	S	S	-	-	-	-	-
JK04	Air Condition	S	S	S	S	S	S	S	S	S	S	S	S	S	S
JQ01	No switch for passenger airbag	-	-	S	S	S	S	-	-	-	S	S	S	S	-
JQ02	Switch to turn off passenger airbag	S	S	-	-	O	O	S	S	S	-	-	O	O	S
JU01	Airbag passenger level two	-	-	S	S	-	-	-	-	-	S	S	-	-	-
JU03	Airbag passenger level one	S	S	-	-	S	S	S	S	S	-	-	S	S	S
JV01	Airbag both driver and passenger side US	-	-	S	S	-	-	-	-	-	S	S	-	-	-
JV02	Airbag both driver and passenger side	S	S	-	-	S	S	S	S	S	-	-	S	S	S
JW01	No heat pump	-	-	-	-	S	S	-	S	S	S	S	S	S	S
JW02	Air heat pump	S	S	S	S	O	O	S	-	-	O	O	O	O	-
JX02	Driver knee aribag	S	S	S	S	S	S	S	S	S	S	S	S	S	S
J205	Large fixed sunroof	S	S	S	S	S	S	S	S	S	S	S	S	S	S
KO01	Grey interior roof	S	S	S	S	S	S	S	S	S	S	S	S	S	S
KT01	Grey interior inserts	S	S	S	S	S	S	S	S	S	S	S	S	S	S
KT03	Azure interior inserts	O	O	O	O	O	O	O	O	O	O	O	O	O	O
KY02	Traffic-sign recognition	S	S	S	S	S	S	S	S	S	S	S	S	S	S
K002	Lane keeping assistance	S	S	S	S	S	S	S	S	S	S	S	S	S	S
K104	Emergency lane keeping support level B	-	-	-	-	-	-	-	S	S	-	-	-	-	-
K105	Emergency lane keeping support level A	S	S	S	S	S	S	S	-	-	S	S	S	S	S
LY08	Special grill for electric vehicle	S	S	S	S	S	S	S	S	S	S	S	S	S	S
ML01	Normal grill emblem	-	-	-	-	S	S	-	-	-	-	-	S	S	-
ML02	Heated grill emeblem	S	S	S	S	-	-	S	S	S	S	S	-	-	S
NL01	Without front mudflaps	S	S	S	S	S	S	S	S	S	S	S	S	S	S
NL02	Front mudflaps	O	O	O	O	O	O	O	O	O	O	O	O	O	O
NM01	Without rear mudflaps	S	S	S	S	S	S	S	S	S	S	S	S	S	S
NM02	Rear mudflaps	O	O	O	O	O	O	O	O	O	O	O	O	O	O
OI0A	LED headlights	-	-	-	-	-	-	-	S	S	-	-	S	S	S
OI09	LED headlights	-	-	-	-	-	-	-	-	-	S	S	-	-	-
OI11	Micro-pixel LED healights	-	-	S	S	-	-	-	-	-	-	-	-	-	-
OI12	Micro-pixel LED healights	S	S	-	-	S	S	S	-	-	-	-	-	-	-
ON01	No headlight washers	-	-	S	S	S	S	S	S	S	S	S	S	S	S
ON02	Headligt washers	S	S	-	-	-	-	-	-	-	O	O	-	-	-
OQ01	No luggage cover	-	-	S	S	S	S	S	S	S	S	S	S	S	S
OQ02	Luggage cover	S	S	-	-	-	-	-	O	O	-	-	-	-	-
OZ01	Fog-lights on with trailer	S	S	S	S	S	S	S	S	S	S	S	S	S	S
OZ02	Turned off fog-lights with trailer	O	O	-	-	-	-	-	O	O	-	-	-	-	-
O001	No foglights	-	-	-	-	-	-	-	S	S	S	S	S	S	S
O002	Front foglights	S	S	S	S	S	S	S	-	-	-	-	-	-	-
PI05	Large driver display	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PN02	Cruise control	-	-	-	-	-	-	-	S	S	S	S	-	-	S
PN03	ACC	S	S	S	S	S	S	S	-	-	-	-	S	S	-
PP01	No Traffic Jam Assist	-	-	-	-	-	-	-	S	S	S	S	-	-	S
PP05	Traffic Jam Assist level II	S	S	S	S	S	S	S	-	-	-	-	S	S	-
PR05	Double USB-C front	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PY01	Fixed speed limiter	-	-	S	S	S	S	S	-	-	S	S	S	S	S
PY02	Speed limiter adjustable	S	S	-	-	-	-	-	S	S	-	-	-	-	-
P104	Smartphone app connection	S	S	S	S	S	S	S	S	S	S	S	S	S	S
P301	No subwoofer	-	-	-	-	-	-	-	S	S	S	S	S	S	S
P302	Subwoofer	S	S	S	S	S	S	S	-	-	-	-	-	-	-
P901	No DAB	-	-	-	-	S	S	S	-	-	-	-	S	S	S
P902	DAB - Digitial Audio Broadcasting	S	S	-	-	-	-	-	S	S	-	-	-	-	-
P903	Sirius Radio	-	-	S	S	-	-	-	-	-	S	S	-	-	-
PC02	Performance sound	-	-	-	-	-	-	-	S	S	S	S	S	S	S
PC04	Premium sound	S	S	S	S	S	S	S	-	-	-	-	-	-	-
PE02	Retractable outer mirrors	S	S	S	S	S	S	S	S	S	S	S	S	S	S
PG03	Smartphone inductive charging	S	S	S	S	S	S	S	S	S	S	S	S	S	S
QH02	Front doors central lock switch	S	S	-	-	S	S	S	S	S	-	-	S	S	S
QH03	Front and rear doors central lock switch	-	-	S	S	-	-	-	-	-	S	S	-	-	-
QM05	Black outer mirrors	S	S	S	S	S	S	S	S	S	S	S	S	S	S
QX01	No extra locking	-	-	-	-	-	-	-	S	S	-	-	-	-	-
QX02	Extra locking for luggage compartment and glovebox	S	S	S	S	S	S	S	O	O	S	S	S	S	S
QY01	No dark windows	S	S	-	-	S	S	S	S	S	-	-	S	S	S
QY02	Rear dark windows	O	O	S	S	-	-	-	O	O	S	S	-	-	-
Q301	Blind spot monitor	-	-	-	-	-	-	-	S	S	-	-	-	-	-
Q302	Blind spot monitor with extra alert	S	S	S	S	S	S	S	-	-	S	S	S	S	S
Q802	Alarm	S	S	S	S	S	S	S	O	O	S	S	S	S	S
Q803	Alarm preparation	-	-	-	-	-	-	-	S	S	-	-	-	-	-

Here you get a pretty good overview of what is available for a specific base vehicle during a certain time. In the short example you can see that a Japanese vehicle is introduced week 202202, that a base version for Europe has no alarm as standard but only as an option, or that headlight washers are only available on some vehicles.

Technology

This solution is built using array-based logic. It is not based on Boolean algebra. In-stead all dependencies are represented by many connected tables containing allowed combinations. This means a few things: You get full validation of the consistency, you can analyze data like combinations, you can get overviews, and the services execute very fast.

Services

This vehicle model is available via a set of services which will be described below. By contacting me you will get the URL and port address for these services. The services are on-line services in JSON format or text format. The services are:
1. Family list
2. Feature list
3. Base families
4. Base vehicle list
5. Option list
6. SO- grid
7. Single specification configuration and break-down
8. Multiple specification break-down
9. Creation of dummy specifications.

This service list may be increased or changed depending on you. Give suggestions and I will modify and add services.

The format is either JSON or text.
The http-message shall contain the service name e.g., Families
```
POST  /Families  HTTP/1.1
```
And then the body either JSON `{"Select":""}`
Or
plain text
```
SP11004030C0110202148     95      1
SP11004030C0110202148     94      1
SP11004030C0110202148     87      1
```

Detailed descriptions

Family list
Service name: Families
What it does: List feature families for a selection
Type: JSON
Parameters:
Select – to contain selection of family codes.
Example: {"Select":""}
Result:
[{"Family":"FH","Main":"m","Description":"Model"},{"Family":"HI","Main":"m","Description":"Propulsion"}, {"Family":"HP","Main":" ","Description":"Rear engine"} …
Or as a table:

Family	Main	Description

FH	m	Model
HI	m	Propulsion
HP		Rear engine
HQ		ELECTRIC VEHICLE INLET
HW		Front engine
H8	m	Drive Side
IH		Shift

Feature List

Service name: Features

What it does: List features for a selection

Type: JSON

Parameters:

Select – to contain selection of feature codes.

Example: {"Select":} ["W7","W8"]

Result:

[{"Feature":"W70A","Short":"AR90X20D","StartWeek":"202148","EndWeek":"202225","Description":"Rear 20\" 6-spoke al wheel"},{"Feature":"W709","Short":"AR85X19K","StartWeek":"202148","EndWeek":"202225","Description":"Rear 18\" 8-spoke al wheel"},{"Feature":"W85A","Short":"75X19K","StartWeek":"202148","EndWeek":"202225","Description":"Front 18\" 4-spoke al wheel"},{"Feature":"W850","Short":"AL80X20D","StartWeek":"202148","EndWeek":"202225","Description":"Front 20\" 4-spoke al wheel"}]

Or as a table:

Feature	Short	StartWeek	EndWeek	Description
W70A	REAL20 6	202148	202225	Rear 20" 6-spoke al wheel
W709	REAL18 8	202148	202225	Rear 18" 8-spoke al wheel
W85A	FRAL18 4	202148	202225	Front 18" 4-spoke al wheel
W850	FRAL20 4	202148	202225	Front 20" 4-spoke al wheel

Base families

Service name: BaseFam

What it does: List all base (main) feature families

Type: JSON

Parameters:

None

Example: {}

Result:

[{"Family":"FH","Main":"m","Description":"Model"},{"Family":"HI","Main":"m","Description":"Propulsion"},{"Family":"BH","Main":"m","Description":"Version"},{"Family":"II","Main":"m","Description":"Gearbox"},{"Family":"H8","Main":"m","Description":"Drive Side"},{"Family":"2I","Main":"m","Description":"Area"}]

Or as a table:

Family	Main	Description
FH	m	Model
HI	m	Propulsion
BH	m	Version
II	m	Gearbox
H8	m	Drive Side
2I	m	Area

Base vehicle list
Service name: Base
What it does: List the base vehicles (combinations of the main features)
Type: JSON
Parameters:
Area – to contain feature codes of family 2I
Week – to contain week or empty for all
Code – Y if code is wanted. Default is abbreviations
Example: {"Area":["19","31","50","62"],"Week":""}

Result:
[{"BaseVehicle":"BX3,BEV,BASE,1D,LHD,EUR","Start":"202148","End":"202225"},{"BaseVehicle":"BX3,BEV,BASE,1D,LHD,USA","Start":"202148","End":"202225"},{"BaseVehicle":"BX3,BEV,BASE,1D,LHD,CHI","Start":"202148","End":"202225"},{"BaseVehicle":"BX3,BEV,BASE,1D,RHD,JAP","Start":"202203","End":"202225"}…

Or as a table:

BaseVehicle	Start	End
BX3,BEV,BASE,1D,LHD,EUR	202148	202225
BX3,BEV,BASE,1D,LHD,USA	202148	202225
BX3,BEV,BASE,1D,LHD,CHI	202148	202225
BX3,BEV,BASE,1D,RHD,JAP	202203	202225
BX3,BEV,PLUS,1D,LHD,EUR	202148	202225
BX3,BEV,PLUS,1D,LHD,USA	202148	202225
BX3,BEV,PLUS,1D,LHD,CHI	202148	202225
BX3,BEV,PLUS,1D,RHD,JAP	202203	202225
BX3,BEV,PERF,1D,LHD,EUR	202148	202225
BX3,BEV,PERF,1D,LHD,USA	202148	202225
BX3,BEV,PERF,1D,LHD,CHI	202148	202225
BX3,BEV,PERF,1D,RHD,JAP	202203	202225

Or if code is requested

BaseVehicle	Start	End
FH10,HI04,BH01,II0C,H801,2I19	202148	202225
FH10,HI04,BH01,II0C,H801,2I31	202148	202225
FH10,HI04,BH01,II0C,H801,2I62	202148	202225
FH10,HI04,BH01,II0C,H802,2I50	202203	202225
FH10,HI04,BH02,II0C,H801,2I19	202148	202225
FH10,HI04,BH02,II0C,H801,2I31	202148	202225
FH10,HI04,BH02,II0C,H801,2I62	202148	202225
FH10,HI04,BH02,II0C,H802,2I50	202203	202225
FH10,HI04,BH03,II0C,H801,2I19	202148	202225
FH10,HI04,BH03,II0C,H801,2I31	202148	202225
FH10,HI04,BH03,II0C,H801,2I62	202148	202225
FH10,HI04,BH03,II0C,H802,2I50	202203	202225

Options

Service name: Options

What it does: List features that are optional within a selection of base vehicles

Type: JSON

Parameters:

Select - to contain selection of main feature codes.

Week – a week or none

Example   {"Select":["BH01","BH02","2I31"],"Week":null}

Result:

[{"Option":"JW02","Short":"HEATPUMP","StartWeek":"202148","EndWeek":"202225","Description":"Air heat pump"},{"Option":"KT03","Short":"INSBLU","StartWeek":"202148","EndWeek":"202225","Description":"Azure interior inserts"},{"Option":"NL02","Short":"MUDFLF","StartWeek":"202148","EndWeek":"202225","Description":"Front mudflaps"},{"Option":"NM02","Short":"MUDFLR","StartWeek":"202148","EndWeek":"202225","Description":"Rear mudflaps"},{"Option":"ON02","Short":"HLW","StartWeek":"202148","EndWeek":"202225","Description":"Headlight washers"}…

Or as a table:

Option	Short	StartWeek	EndWeek	Description
JW02	HEATPUMP	202148	202225	Air heat pump
KT03	INS BLU	202148	202225	Azure interior inserts
NL02	MUDFLF	202148	202225	Front mudflaps
NM02	MUDFLR	202148	202225	Rear mudflaps
ON02	HLW	202148	202225	Headlight washers

Grid

Service name: Grid

What it does: Return a grid with features as rows and base products as columns. Cells contains S=Standard, O=Option, or – for not allowed

Type: JSON

Parameters:

Area – to contain feature codes of family 2I

Week – to contain week or empty for all

Example   {"Area":["19","31","50","62"],"Week":""}

Result:

[
[{"Model":"BX3","Propulsion":"BEV","Version":"PERF","Gearbox":"1D","Drive_Side":"LHD","Area":"EUR","Start":"202148","End":"202202"},{"Model":"BX3","Propulsion":"BEV","Version":"PERF","Gearbox":"1D","Drive_Side":"LHD","Area":"EUR","Start":"202203","End":"202225"}…],
[{"Feat":"FH10","Description":"BX3","SO_":"SSSSSSSSSSSSSSSSSSSSS"},{"Feat":"HI04","Description":"Battery vehicle","SO_":"SSSSSSSSSSSSSSSSSSSSS"},{"Feat":"HP07","Description":"Rear electric engine","SO_":"SSSSSSSSSSSSSSSSSSSSS"},{"Feat":"HQ05","Description":"Connector, US type+ quickcharge","SO_":"--SS-----SS-----SS---"},{"Feat":"HQ06","Description":"Connector, EU type+ quickcharge","SO_":"SS--SS-SS--SS-SS--SS-"},{"Feat":"HQ08","Description":"Connector, Japan type+ quickcharge","SO_":"------S------S------S"},{"Feat":"HW04","Description":"Front elecric engine","SO_":"SSSSSSSSSSSSSSSSSSSSS"},{"Feat":"H801","Description":"Left Hand Drive","SO_":"SSSSSS-SSSSSS-SSSSSS-"},{"Feat":"H802","Description":"Right Hand Drive","SO_":"------S------S------S"},{"Feat":"IH02","Description":"Shift by wire","SO_":"SSSSSSSSSSSSSSSSSSSSS"}…]]

Or as a table:

		BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3
	Model	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3	BX3
	Propulsion	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV	BEV
	Version	PERF	PERF	PERF	PERF	PERF	PERF	PERF	BASE	BASE	BASE	BASE	BASE	BASE
	Gearbox	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D	1D
	Drive_Side	LHD	LHD	LHD	LHD	LHD	LHD	RHD	LHD	LHD	LHD	LHD	LHD	LHD
	Area	EUR	EUR	USA	USA	CHI	CHI	JAP	EUR	EUR	USA	USA	CHI	CHI
	Start	202148	202203	202148	202203	202148	202203	202203	202148	202203	202148	202203	202148	202203
	End	202202	202225	202202	202225	202202	202225	202225	202202	202225	202202	202225	202202	202225
FH10	BX3	S	S	S	S	S	S	S	S	S	S	S	S	S
HI04	Battery vehicle	S	S	S	S	S	S	S	S	S	S	S	S	S
HP07	Rear electric engine	S	S	S	S	S	S	S	S	S	S	S	S	S
HQ05	Connector, US type+ quickcharge	-	-	S	S	-	-	-	-	-	S	S	-	-
HQ06	Connector, EU type+ quickcharge	S	S	-	-	S	S	-	S	S	-	-	S	S
HQ08	Connector, Japan type+ quickcharge	-	-	-	-	-	-	S	-	-	-	-	-	-
HW04	Front electric engine	S	S	S	S	S	S	-	S	S	S	S	S	S
H801	Left Hand Drive	S	S	S	S	S	S	-	S	S	S	S	S	S
H802	Right Hand Drive	-	-	-	-	-	-	S	-	-	-	-	-	-
IH02	Shift by wire	S	S	S	S	S	S	S	S	S	S	S	S	S
II0C	Gear one speed	S	S	S	S	S	S	S	S	S	S	S	S	S
IP06	Wooden gearshift knob	S	S	S	S	S	S	S	S	S	S	S	S	S
IQ01	No gearshift display	-	-	S	S	S	S	S	-	-	S	S	S	S
IQ02	Gearshift display	S	S	-	-	-	-	-	S	S	-	-	-	-
JK04	Air Condition	S	S	S	S	S	S	S	S	S	S	S	S	S
JQ01	No switch for passenger airbag	-	-	S	S	S	S	-	-	-	S	S	S	S
JQ02	Switch to turn off passenger airbag	S	S	-	-	O	O	S	S	S	-	-	O	O
JU01	Airbag passenger level two	-	-	S	S	-	-	-	-	-	S	S	-	-
JU03	Airbag passenger level one	S	S	-	-	S	S	S	S	S	-	-	S	S

Configure

Service name: Configure

What it does: Takes a single order specification and returns either an error or a complete break down to all features. This includes adding options required by other options.

Type: JSON

Parameters:

Base - to contain the base vehicle as code. Mandatory.

Week – to contain a single week

Options – to contain a list of option features

Example   {"Base": ["FH10","HI04","BH02","II0C","H801","2I19"]
,"Week":"202209","Options":["NL02","NM02","QY02","Q802","W850","675E","680Q"]}

Result:

SO is either s=standard or o=optional

Mod is either blank or m=Modified because another options needed this.

[{"Feat":"FH10","SO":"s","Mod":""},{"Feat":"HI04","SO":"s","Mod":""},{"Feat":"HP07","SO":"s","Mod":""},{"Feat":"HQ06","SO":"s","Mod":""},{"Feat":"HW04","SO":"s","Mod":""},{"Feat":"H801","SO":"s","Mod":""},{"Feat":"IH02","SO":"s","Mod":""},{"Feat":"II0C","SO":"s","Mod":""},{"Feat":"IP06","SO":"s","Mod":""},{"Feat":"IQ02","SO":"s","Mod":""},{"Feat":"JK04","SO":"s","Mod":""},{"Feat":"JQ02","SO":"s","Mod":""},{"Feat":"JU03","SO":"s","Mod":""},{"Feat":"JV02","SO":"s","Mod":""},{"Feat":"JW02","SO":"s","Mod":""},{"Feat":"JX02","SO":"s","Mod":""},{"Feat":"J205","SO":"s","Mod":""},{"Feat":"KO01","SO":"s","Mod":""},{"Feat":"KT01","SO":"s","Mod":""},{"Feat":"KY02","SO":"s","Mod":""},{"Feat":"K002","SO":"s","Mod":""},{"Feat":"K105","SO":"s","Mod":""},{"Feat":"LY08","SO":"s","Mod":""},{"Feat":"ML02","SO":"s","Mod":""},{"Feat":"NL02","SO":"o","Mod":""},{"Feat":"NM02","SO":"o","Mod":""},{"Feat":"OI0A","SO":"s","Mod":""},{"Feat":"ON01","SO":"s","Mod":""},{"Feat":"OQ02","SO":"s","Mod":""},{"Feat":"OZ01","SO":"s","Mod":""},{"Feat":"O001","SO":"s","Mod":""},{"Feat":"PI05","SO":"s","Mod":""},{"Feat":"PN03","SO":"s","Mod":""},{"Feat":"PP05","SO":"s","Mod":""},{"Feat":"PR05","SO":"s","Mod":""},{"Feat":"PY02","SO":"s","Mod":""},{"Feat":"P104","SO":"s","Mod":""},{"Feat":"P301","SO":"s","Mod":""},{"Feat":"P902","SO":"s","Mod":""},{"Feat":"PC02","SO":"s","Mod":""},{"Feat":"PE02","SO":"s","Mod":""},{"Feat":"PG03","SO":"s","Mod":""},{"Feat":"QH02","SO":"s","Mod":""},{"Feat":"QM05","SO":"s","Mod":""},{"Feat":"QX02","SO":"s","Mod":""},{"Feat":"QY02","SO":"o","Mod":""},{"Feat":"Q302","SO":"s","Mod":""},{"Feat":"Q802","SO":"s","Mod":""},{"Feat":"Q902","SO":"s","Mod":""},{"Feat":"QA02","SO":"s","Mod":""},{"Feat":"QB02","SO":"s","Mod":""},{"Feat":"QE02","SO":"s","Mod":""},{"Feat":"QG02","SO":"s","Mod":""},{"Feat":"RI04","SO":"s","Mod":""},{"Feat":"RJ02","SO":"s","Mod":""},{"Feat":"RT02","SO":"s","Mod":""},{"Feat":"RV09","SO":"s","Mod":""},{"Feat":"RX02","SO":"s","Mod":""},{"Feat":"RZ20","SO":"s","Mod":""},{"Feat":"SJ11","SO":"o","Mod":"m"}…]

Or if there is an error instead:

{"res":"Week is missing"}

Or as a table:

Feat	SO	Mod
FH10	s	
HI04	s	
HP07	s	
HQ06	s	
HW04	s	
H801	s	
IH02	s	
II0C	s	
IP06	s	
IQ02	s	
JK04	s	
JQ02	s	
JU03	s	
JV02	s	
JW02	s	
JX02	s	
J205	s	

KO01	s	
KT01	s	
KY02	s	
K002	s	
K105	s	
LY08	s	
ML02	s	
NL02	o	
NM02	o	
OI0A	s	
ON01	s	
OQ02	s	
OZ01	s	
O001	s	
PI05	s	
PN03	s	
PP05	s	
PR05	s	
PY02	s	
P104	s	
P301	s	
P902	s	
PC02	s	
PE02	s	
PG03	s	
QH02	s	
QM05	s	
QX02	s	
QY02	o	
Q302	s	
Q802	s	
Q902	s	
QA02	s	
QB02	s	
QE02	s	
QG02	s	
RI04	s	
RJ02	s	
RT02	s	
RV09	s	
RX02	s	
RZ20	s	
SJ11	o	m

Mbreak
Service name: Mbreak
What it does: Takes multiple orders (specifications) and break down these to features.
Type: Text
Data in: Specifications (order or dummy). Fixed position fields in records with two record types – one for base specification and number (SP1) and one for option list (SP2). Records are delimited by CrLf.
Example
SP11004030C0119202148   54   2 CrLf SP11004030C0119202148   53   1 CrLf
SP11004030C0119202148   52   1 CrLf SP11004030C0119202148   51   2 CrLf
SP11004030C0119202148   50   2 …

SP2   50NL02 CrLf SP2   50NM02 CrLfSP2   50OZ02 CrLfSP2   50QY02 CrLfSP2   50W850 CrLf
SP2   50675E …

Or as a table
```
SP11004030C0119202148        54        2
SP11004030C0119202148        53        1
SP11004030C0119202148        52        1
SP11004030C0119202148        51        2
SP11004030C0119202148        50        2
```
…
Format

Record type	3 SP1
Base vehicle code	12 (codes from the base families)
Week	6
Option key	6
Number	6

And
```
SP2     50NL02
SP2     50NM02
SP2     50OZ02
SP2     50QY02
SP2     50W850
SP2     50675E
SP2     50680H
SP2     507H04
SP2     507J05
SP2     508J01
SP2     508K02
SP2     508601
SP2     50B407
SP2     50D416
SP2     51NL02
SP2     51NM02
SP2     51OZ02
SP2     51QY02
SP2     51W850
SP2     51675E
SP2     51680H
SP2     517H04
SP2     517J05
SP2     518J01
SP2     518K02
SP2     518601
SP2     51B407
SP2     51D415
```
…

Format

Record type	3 SP2
Option key	6
Option feature	4

Result: Feature list of every specification. Fixed position fields in records have two record types – one for feature families (BR1 one row) and one for feature codes (BR2). Records are delimited by CrLf.

Example
BR1KOMPMWMXM3MFNONPNWNXOROXO1O2O3O4O9PVP0P5… CrLf
BR2100407060401020C0602040203020202020205010102… CrLf
BR2100407060401020C0602040203020202020205010102… CrLf
BR2100407060401020C0602040203020202020205010102… CrLf
BR2100407060401020C0602040203020202020205010102… CrLf
BR2100407060401020C0602040203020202020205010102… CrLf
BR2100407060401020C0602040203020202020205010102…

Or as a table
BR1KOMPMWMXM3MFNONPNWNXOROXO1O2O3O4O9PVP0P5…

Format

Record type	3 BR1
Feature family x n	2

And
BR2100407060401020C0602040203020202020205010102…
BR2100407060401020C0602040203020202020205010102…
BR2100407060401020C0602040203020202020205010102…
BR2100407060401020C0602040203020202020205010102…
BR2100407060401020C0602040203020202020205010102…
BR2100407060401020C0602040203020202020205010102…
…

Format

Record type	3 BR2
Feature code x n	2

DummySpec

Service name: Dummy Spec

What it does: Takes a base volume forecast per week, and option features mix per area. Then creates dummy (complete) specifications. These can then be used in Mbreak. This function will only deliver correct specifications.

Type: Text

Data in: Fixed position fields in records have two record types – one for the base vehicle volumes per week (VO1), and one for option feature mix per area (MX1).

Example

VO11004030C0119202148   35 CrLf VO11004030C0119202149   64 CrLf
VO11004030C0119202150   99 CrLfVO11004030C0119202151   94 CrLf
VO11004030C0119202152   64 …

VO11004030C0110202148   20 CrLf VO11004030C0110202149   89 CrLf
VO11004030C0110202150   5 CrLf VO11004030C0110202151   44 CrLf
VO11004030C0110202152   30
And
MX1NL0219 30.0 CrLf MX1NL0231 30.0 CrLf MX1NL0250 30.0 CrLf MX1NL0262 30.0 CrLf
MX1NM0219 30.0 CrLf MX1NM0231 30.0 …

Or as a table

```
VO11004030C0119202148    35
VO11004030C0119202149    64
VO11004030C0119202150    99
VO11004030C0119202151    94
VO11004030C0119202152    64
VO11004030C0119202201    64
```

…

Format

Record type	3 VO1
Base vehicle code	12 (codes from the base families)
Week	6
Number	6

```
And
MX1NL0219 30.0
MX1NL0231 30.0
MX1NL0250 30.0
MX1NL0262 30.0
MX1NM0219 30.0
MX1NM0231 30.0
MX1NM0250 30.0
```

…

Record type	3 MX1
Feature option	4
Mix %	5.1

Result: Fixed position fields in records have two record types – one for feature families (BR1 one row) and one for feature codes (BR2). Records are delimited by CrLf.

Specifications. Fixed position fields in records with two record types – one for base specification and number (SP1) and one for option list (SP2). Records are delimited by CrLf.

Example

SP11004030C0119202148   54   2 CrLf SP11004030C0119202148   53   1 CrLf
SP11004030C0119202148   52   1 CrLf SP11004030C0119202148   51   2 CrLf
SP11004030C0119202148   50   2 …

SP2   50NL02 CrLf SP2   50NM02 CrLfSP2   50OZ02 CrLfSP2   50QY02 CrLfSP2   50W850 CrLf

SP2   50675E …

Or as a table
```
SP11004030C0119202148      54       2
SP11004030C0119202148      53       1
SP11004030C0119202148      52       1
SP11004030C0119202148      51       2
SP11004030C0119202148      50       2
```
…
Format
Record type   3 SP1
Base vehicle code   12 (codes from the base families)
Week   6
Option key   6
Number   6

And
```
SP2     50NL02
SP2     50NM02
SP2     50OZ02
SP2     50QY02
SP2     50W850
SP2     50675E
SP2     50680H
SP2     507H04
SP2     507J05
SP2     508J01
SP2     508K02
SP2     508601
SP2     50B407
SP2     50D416
SP2     51NL02
SP2     51NM02
SP2     51OZ02
SP2     51QY02
SP2     51W850
SP2     51675E
SP2     51680H
SP2     517H04
SP2     517J05
SP2     518J01
SP2     518K02
SP2     518601
SP2     51B407
SP2     51D415
```
…
Format
Record type   3 SP2
Option key   6
Option feature   4