

# Exploring Akeneo-PIM Rest API

Let's take a look at the Akeneo PIM Rest Api. In unison with this notebook the package `src.akeneo.client` was implemented. It offers a way to comfortably access the data in Akeneo PIM.

For this example an Akeneo PIM instance was setup with sample data, that can be loaded during installation of the pim for development purposes.

```
In [ ]: import shutil

from IPython.display import display
import pandas as pd

from src import akeneo, config
```

```
In [ ]: CSV_DIR = config.dir_data / "01-akeneo-api"
```

```
In [ ]: client = akeneo.create_client_from_env()
```

## Routes

Akeneo offers an unprotected endpoint that lists all available routes.

We are only interested in the GET routes for data retrieval.

```
In [ ]: routes = pd.DataFrame(client.get_routes())
routes[routes["method"] == "GET"].sort_values(["is_list", "path"], ascending=[False, True])
```

	id	path	method	path_vars	is_list
34	pim_api_association_type_list	/api/rest/v1/association-types	GET	[]	True
19	pim_api_attribute_group_list	/api/rest/v1/attribute-groups	GET	[]	True
9	pim_api_attribute_list	/api/rest/v1/attributes	GET	[]	True
14	pim_api_attribute_option_list	/api/rest/v1/attributes/{attributeCode}/options	GET	[attributeCode]	True
44	pim_api_category_list	/api/rest/v1/categories	GET	[]	True
2	pim_api_channel_list	/api/rest/v1/channels	GET	[]	True
7	pim_api_currency_list	/api/rest/v1/currencies	GET	[]	True
24	pim_api_family_list	/api/rest/v1/families	GET	[]	True
29	pim_api_family_variant_list	/api/rest/v1/families/{familyCode}/variants	GET	[familyCode]	True
0	pim_api_locale_list	/api/rest/v1/locales	GET	[]	True
59	legacy_pim_api_measure_family_list	/api/rest/v1/measure-families	GET	[]	True
55	pim_api_media_file_list	/api/rest/v1/media-files	GET	[]	True
39	pim_api_product_model_list	/api/rest/v1/product-models	GET	[]	True
49	pim_api_product_list	/api/rest/v1/products	GET	[]	True
35	pim_api_association_type_get	/api/rest/v1/association-types/{code}	GET	[code]	False
21	pim_api_attribute_group_get	/api/rest/v1/attribute-groups/{code}	GET	[code]	False
18	pim_api_attribute_option_get	/api/rest/v1/attributes/{attributeCode}/option...	GET	[attributeCode, code]	False
12	pim_api_attribute_get	/api/rest/v1/attributes/{code}	GET	[code]	False
45	pim_api_category_get	/api/rest/v1/categories/{code}	GET	[code]	False
3	pim_api_channel_get	/api/rest/v1/channels/{code}	GET	[code]	False
8	pim_api_currency_get	/api/rest/v1/currencies/{code}	GET	[code]	False
25	pim_api_family_get	/api/rest/v1/families/{code}	GET	[code]	False
30	pim_api_family_variant_get	/api/rest/v1/families/{familyCode}/variants/{c...	GET	[familyCode, code]	False
1	pim_api_locale_get	/api/rest/v1/locales/{code}	GET	[code]	False
60	legacy_pim_api_measure_family_get	/api/rest/v1/measure-families/{code}	GET	[code]	False
61	pim_api_measurement_family_get	/api/rest/v1/measurement-families	GET	[]	False
57	pim_api_media_file_get	/api/rest/v1/media-files/{code}	GET	[code]	False
56	pim_api_media_file_download	/api/rest/v1/media-files/{code}/download	GET	[code]	False
40	pim_api_product_model_get	/api/rest/v1/product-models/{code}	GET	[code]	False
50	pim_api_product_get	/api/rest/v1/products/{code}	GET	[code]	False

# GET

All other routes require authorization. Which was implemented to work automatically in the background.

Then a basic `get` method was written to query the `GET` routes in Akeneo by they route id.

```
In [ ]: client.get("pim_api_locale_list")

Out[ ]: {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales?page=1&limit=10&with_count=false'},
  'first': {'href': 'http://localhost:8080/api/rest/v1/locales?page=1&limit=10&with_count=false'},
  'next': {'href': 'http://localhost:8080/api/rest/v1/locales?page=2&limit=10&with_count=false'}},
  'current_page': 1,
  '_embedded': {'items': [{'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/af_ZA'}},
    'code': 'af_ZA',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/am_ET'}},
    'code': 'am_ET',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_AE'}},
    'code': 'ar_AE',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_BH'}},
    'code': 'ar_BH',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_DZ'}},
    'code': 'ar_DZ',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_EG'}},
    'code': 'ar_EG',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_IQ'}},
    'code': 'ar_IQ',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_JO'}},
    'code': 'ar_JO',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_KW'}},
    'code': 'ar_KW',
    'enabled': False},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/ar_LB'}},
    'code': 'ar_LB',
    'enabled': False}]}}
```

Some routes require the definition of certain parts (like an id of an entry) within the route. They can be set by using a mapping from the path variable to the value it should be replaced with.

```
In [ ]: client.get("pim_api_locale_get", {"code": "de_DE"})

Out[ ]: {'code': 'de_DE', 'enabled': True}
```

Finally, additional `GET` parameters can be added to a query. They are used e.g. for filtering the result.

```
In [ ]: params = {"search": '{"enabled":{"operator":"=", "value":true}}'}
client.get("pim_api_locale_list", params=params)

Out[ ]: {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales?page=1&limit=10&with_count=false&search=%7B%22enabled%22%3A%7B%22operator%22%3A%3D%22%22value%22%3Atrue%7D%5D%7D'}},
  'first': {'href': 'http://localhost:8080/api/rest/v1/locales?page=1&limit=10&with_count=false&search=%7B%22enabled%22%3A%7B%22operator%22%3A%3D%22%22value%22%3Atrue%7D%5D%7D'}},
  'current_page': 1,
  '_embedded': {'items': [{'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/de_DE'}},
    'code': 'de_DE',
    'enabled': True},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/en_US'}},
    'code': 'en_US',
    'enabled': True},
    {'_links': {'self': {'href': 'http://localhost:8080/api/rest/v1/locales/fr_FR'}},
    'code': 'fr_FR',
    'enabled': True}]}}
```

## GET Lists

Akeneo offers several lists via the api. All of them have a similar structure and are paginated. Therefore, a `get_list` was implemented, which automatically queries the complete list. The mechanisms for path variables and `GET` parameters work similarly to the standard `get` method.

```
In [ ]: # basic example
res_list = client.get_list("pim_api_locale_list")
pd.DataFrame(res_list)
```

Out[ ]:

	code	enabled
0	af_ZA	False
1	am_ET	False
2	ar_AE	False
3	ar_BH	False
4	ar_DZ	False
...	...	...
205	zh_HK	False
206	zh_MO	False
207	zh_SG	False
208	zh_TW	False
209	zu_ZA	False

210 rows × 2 columns

```
In [ ]: # example with GET parameters
params = {"search": '{"enabled":[{"operator": "=", "value": true}]}' }
res_list = client.get_list("pim_api_locale_list", params=params)
pd.DataFrame(res_list)
```

Out[ ]:

	code	enabled
0	de_DE	True
1	en_US	True
2	fr_FR	True

## Query All Lists

Finally, we'll take a look at all the lists and data types, that Akeneo PIM offers.

Therefore, all list routes will be queried and the result is stored in `.csv` files.

```
In [ ]: list_routes = routes[(routes["method"] == "GET") & (routes["is_list"] == True)].sort_values("path")
list_routes
```

Out[ ]:

	id	path	method	path_vars	is_list
34	pim_api_association_type_list	/api/rest/v1/association-types	GET	[]	True
19	pim_api_attribute_group_list	/api/rest/v1/attribute-groups	GET	[]	True
9	pim_api_attribute_list	/api/rest/v1/attributes	GET	[]	True
14	pim_api_attribute_option_list	/api/rest/v1/attributes/{attributeCode}/options	GET	[attributeCode]	True
44	pim_api_category_list	/api/rest/v1/categories	GET	[]	True
2	pim_api_channel_list	/api/rest/v1/channels	GET	[]	True
7	pim_api_currency_list	/api/rest/v1/currencies	GET	[]	True
24	pim_api_family_list	/api/rest/v1/families	GET	[]	True
29	pim_api_family_variant_list	/api/rest/v1/families/{familyCode}/variants	GET	[familyCode]	True
0	pim_api_locale_list	/api/rest/v1/locales	GET	[]	True
59	legacy_pim_api_measure_family_list	/api/rest/v1/measure-families	GET	[]	True
55	pim_api_media_file_list	/api/rest/v1/media-files	GET	[]	True
39	pim_api_product_model_list	/api/rest/v1/product-models	GET	[]	True
49	pim_api_product_list	/api/rest/v1/products	GET	[]	True

```
In [ ]: # delete dir for results if exists
csv_dir = CSV_DIR
shutil.rmtree(csv_dir, ignore_errors=True)
csv_dir.mkdir(parents=True, exist_ok=True)

def print_and_safe_list(name: str, data: list[dict]):
    df = pd.DataFrame(data)
    df.to_csv(csv_dir / f"{name}.csv", index=False)
    print(f"--- {name} -----")
    display(df)
```

## All Basic Lists

```
In [ ]: def get_print_and_safe(name: str, route_id: str, path_vars: dict = None):
    entries = client.get_list(route_id, path_vars)
    print_and_safe_list(name, entries)

for _, row in list_routes[["id", "path"]].iterrows():
    route_id = str(row["id"])
    name = str(row["path"]).split("/")[-1]

    # print the attribute options of the first three simple select attributes
    if route_id == "pim_api_attribute_option_list":
        attributes = client.get_list("pim_api_attribute_list")
        num_found = 0
        for attr in attributes:
            attr_code = attr["code"]
            attr_type = attr["type"]

            if attr_type == "pim_catalog_simpleselect":
                get_print_and_safe(f"attribute-options_{attr_code}", route_id, {"attributeCode": attr_code})
                num_found += 1
            if num_found >= 3:
                break
        continue

    # print the family variants of the first three families
    if route_id == "pim_api_family_variant_list":
        families = client.get_list("pim_api_family_list")
        num_found = 0
        for family in families:
            fam_code = family["code"]
            if len(client.get_list(route_id, {"familyCode": fam_code})) > 0:
                get_print_and_safe(f"family-variants_{fam_code}", route_id, {"familyCode": fam_code})
                num_found += 1
            if num_found >= 3:
                break
        continue

    get_print_and_safe(name, route_id)
```

--- association-types -----

	code	labels	is_two_way	is_quantified
0	PACK	{'de_DE': 'Pack', 'en_US': 'Pack', 'fr_FR': 'P...	False	False
1	SUBSTITUTION	{'de_DE': 'Ersatz', 'en_US': 'Substitution', '...	False	False
2	UPSELL	{'en_US': 'Upsell', 'fr_FR': 'Vente incitative'}	False	False
3	X_SELL	{'en_US': 'Cross sell', 'fr_FR': 'Vente croisée'}	False	False

--- attribute-groups -----

	code	sort_order	attributes	labels
0	color	8	[main_color, secondary_color]	{'en_US': 'Color', 'fr_FR': 'Couleur', 'de_DE': ...
1	design	3	[tshirt_style]	{'en_US': 'Design', 'fr_FR': 'Style', 'de_DE': ...
2	ecommerce	6	[meta_title, meta_description, keywords]	{'en_US': 'Ecommerce', 'fr_FR': 'Ecommerce', '...
3	erp	1	[sku, price, erp_name, ean, supplier]	{'en_US': 'ERP', 'fr_FR': 'ERP', 'de_DE': 'ERP'}
4	manufacturing	6	[container_material, tshirt_materials]	{'en_US': 'Manufacturing', 'fr_FR': 'Fabricati...
5	marketing	0	[name, description, response_time, release_dat...	{'en_US': 'Marketing', 'fr_FR': 'Marketing', '...
6	medias	9	[picture, pdf_description, image, notice, vari...	{'en_US': 'Media', 'fr_FR': 'Media', 'de_DE': ...
7	other	10	[]	{'en_US': 'Other', 'fr_FR': 'Autre', 'de_DE': ...
8	product	4	[composition, wash_temperature, care_instructi...	{'en_US': 'Product', 'fr_FR': 'Produit', 'de_D...
9	size	8	[clothing_size]	{'en_US': 'Size', 'fr_FR': 'Taille', 'de_DE': ...
10	technical	2	[weight, maximum_scan_size, color_scanning, po...	{'en_US': 'Technical', 'fr_FR': 'Technique', '...

--- attributes -----

	code		type	group	unique	useable_as_grid_filter	allowed_extensions	metric_family	default_metric
0	auto_exposure	pim_catalog_boolean	technical	False		True	[]	None	
1	auto_focus_assist_beam	pim_catalog_boolean	technical	False		True	[]	None	
2	auto_focus_lock	pim_catalog_boolean	technical	False		True	[]	None	
3	auto_focus_modes	pim_catalog_text	technical	False		True	[]	None	
4	auto_focus_points	pim_catalog_number	technical	False		True	[]	None	
...	...	...	...	...	...	...	...	...	...
72	variation_image	pim_catalog_image	medias	False		True	[png, jpeg, jpg]	None	
73	variation_name	pim_catalog_text	marketing	False		True	[]	None	
74	viewing_area	pim_catalog_metric	technical	False		True	[]	Length	MILLIME
75	wash_temperature	pim_catalog_simpleselect	product	False		True	[]	None	
76	weight	pim_catalog_metric	technical	False		True	[]	Weight	KILOG

77 rows × 29 columns

attribute-options\_\_brand

	code	attribute	sort_order	labels
0	akeneo	brand	1	{'en_US': 'Akeneo'}

attribute-options\_\_camera\_brand

	code	attribute	sort_order	labels
0	canon_brand	camera_brand	1	{'de_DE': 'Canon', 'en_US': 'Canon', 'fr_FR': ...
1	nikon_brand	camera_brand	2	{'de_DE': 'Nikon', 'en_US': 'Nikon', 'fr_FR': ...

attribute-options\_\_camera\_type

	code	attribute	sort_order	labels
0	bridge	camera_type	1	{'de_DE': 'Bridge', 'en_US': 'Bridge', 'fr_FR': ...
1	compact	camera_type	2	{'de_DE': 'Compact', 'en_US': 'Compact', 'fr_F...
2	milc	camera_type	3	{'de_DE': 'MILC', 'en_US': 'MILC', 'fr_FR': 'M...
3	milc_body	camera_type	4	{'de_DE': 'MILC Body', 'en_US': 'MILC Body', '...
4	slr_body	camera_type	5	{'de_DE': 'SLR Body', 'en_US': 'SLR Body', 'fr...
5	slr_kit	camera_type	6	{'de_DE': 'SLR Kit', 'en_US': 'SLR Kit', 'fr_F...

categories

	code	parent	labels
0	master	None	{'en_US': 'Master catalog', 'de_DE': 'Hauptkat...
1	tv_projectors	master	{'en_US': 'TVs and projectors', 'de_DE': 'TVs ...
2	pc_monitors	tv_projectors	{'en_US': 'PC Monitors', 'de_DE': 'PC Monitore...
3	led_tvs	tv_projectors	{'en_US': 'LED TVs', 'de_DE': 'TVs LED', 'fr_F...
4	cameras	master	{'en_US': 'Cameras', 'de_DE': 'Cameras', 'fr_F...
...	...	...	...
163	suppliers	None	{'en_US': 'Suppliers', 'de_DE': 'Suppliers', '...
164	supplier_mongo	suppliers	{'en_US': 'Mongo', 'de_DE': 'Mongo', 'fr_FR': ...
165	supplier_zaro	suppliers	{'en_US': 'Zaro', 'de_DE': 'Zaro', 'fr_FR': 'Z...
166	supplier_the_tootles	suppliers	{'en_US': 'The Tootles', 'de_DE': 'The Tootles...
167	supplier_abibas	suppliers	{'en_US': 'Abibas', 'de_DE': 'Abibas', 'fr_FR'...

168 rows × 3 columns

--- channels -----

	code	currencies	locales	category_tree	conversion_units	labels
0	ecommerce	[USD, EUR]	[de_DE, en_US, fr_FR]	master	{}	{'en_US': 'Ecommerce', 'de_DE': 'Ecommerce', '...
1	mobile	[USD, EUR]	[de_DE, en_US, fr_FR]	master	{}	{'en_US': 'Mobile', 'de_DE': 'Mobil', 'fr_FR': '...
2	print	[USD, EUR]	[de_DE, en_US, fr_FR]	master	{}	{'en_US': 'Print', 'de_DE': 'Drucken', 'fr_FR': '...

--- currencies -----

	code	enabled
0	ADP	False
1	AED	False
2	AFA	False
3	AFN	False
4	ALK	False
...	...	...
289	ZRN	False
290	ZRZ	False
291	ZWD	False
292	ZWL	False
293	ZWR	False

294 rows × 2 columns

--- families -----

	code	attributes	attribute_as_label	attribute_as_image	attribute_requirements	labels
0	accessories	[brand, collection, color, composition, descri...	name	image	{'ecommerce': ['collection', 'description', 'e...	{'en_US': 'Accessories', 'fr_FR': 'Accessories...
1	camcorders	[description, image_stabilizer, name, optical_...	name	picture	{'ecommerce': ['description', 'name', 'price',...	{'en_US': 'Camcorders', 'fr_FR': 'Caméscopes' n...
2	clothing	[brand, care_instructions, collection, color, ...	variation_name	variation_image	{'ecommerce': ['collection', 'color', 'descrip...	{'en_US': 'Clothing', 'fr_FR': 'Clothing', 'de...
3	digital_cameras	[auto_exposure, auto_focus_assist_beam, auto_f...	name	picture	{'ecommerce': ['auto_exposure', 'auto_focus_as...	{'en_US': 'Digital cameras', 'fr_FR': 'Caméras...
4	headphones	[description, headphone_connectivity, name, pi...	name	picture	{'ecommerce': ['description', 'name', 'price',...	{'en_US': 'Headphones', 'fr_FR': 'Casques audi...
5	laser_led_printers	[description, maximum_print_size, name, pictur...	name	picture	{'ecommerce': ['description', 'maximum_print_s...	{'en_US': 'Laser and LED printers', 'fr_FR': '!'...
6	led_tvs	[description, display_diagonal, name, picture,...	name	picture	{'ecommerce': ['description', 'display_diagona...	{'en_US': 'LED TVs', 'fr_FR': 'TVs LED', 'de_D...
7	loudspeakers	[description, name, picture, power_requirement...	name	picture	{'ecommerce': ['description', 'name', 'price',...	{'en_US': 'Loudspeakers', 'fr_FR': 'Hauts-parl...
8	mp3_players	[description, name, picture, power_requirement...	name	picture	{'ecommerce': ['description', 'name', 'price',...	{'en_US': 'MP3 players', 'fr_FR': 'Lecteurs et...
9	mugs	[container_material, description, main_color, ...	name	picture	{'ecommerce': ['container_material', 'descript...	{'en_US': 'Mugs', 'fr_FR': 'Chopes/Mugs', 'de_...
10	multifunctionals	[color_scanning, description, maximum_print_si...	name	picture	{'ecommerce': ['color_scanning', 'description'...	{'en_US': 'Multifunctionals', 'fr_FR': 'Multif...
11	pc_monitors	[description, display_color, display_diagonal,...	name	picture	{'ecommerce': ['description', 'display_diagona...	{'en_US': 'PC Monitors', 'fr_FR': 'Moniteurs',...
12	scanners	[color_scanning, description, maximum_scan_siz...	name	picture	{'ecommerce': ['color_scanning', 'description'...	{'en_US': 'Scanners', 'fr_FR': 'Scanners', 'de...
13	shoes	[brand, collection, color, composition, descri...	name	image	{'ecommerce': ['collection', 'description', 'e...	{'en_US': 'Shoes', 'fr_FR': 'Shoes', 'de_DE': '...'}
14	tablets	[description, name, picture, power_requirement...	name	picture	{'ecommerce': ['description', 'name', 'price',...	{'en_US': 'Tablets', 'fr_FR': 'Tablettes', 'de...
15	tshirts	[clothing_size, description, main_color, name,...	name	picture	{'ecommerce': ['clothing_size', 'description',...	{'en_US': 'T-shirts', 'fr_FR': 'T-shirts', 'de...
16	webcams	[description, maximum_frame_rate, maximum_vide...	name	picture	{'ecommerce': ['description', 'maximum_video_r...	{'en_US': 'Webcams', 'fr_FR': 'Webcams', 'de_D...

--- family-variants\_\_accessories -----

	code	labels	variant_attribute_sets
0	accessories_size	{'de_DE': 'Accessories by size', 'en_US': 'Acc...	[{'level': 1, 'axes': ['size'], 'attributes': ...

--- family-variants\_\_clothing -----

	code	labels	variant_attribute_sets
0	clothing_color	{'de_DE': 'Kleidung nach Farbe', 'en_US': 'Clo...	[{'level': 1, 'axes': ['color'], 'attributes':...
1	clothing_color_size	{'de_DE': 'Kleidung nach Farbe und Größe', 'en...	[{'level': 1, 'axes': ['color'], 'attributes':...
2	clothing_colorsiz	{'de_DE': 'Kleidung nach Farbe/Größe', 'en_US'...	[{'level': 1, 'axes': ['color', 'size'], 'attr...
3	clothing_material_size	{'de_DE': 'Clothing by material and size', 'en...	[{'level': 1, 'axes': ['material'], 'attribute...
4	clothing_size	{'de_DE': 'Kleidung nach Größe', 'en_US': 'Clo...	[{'level': 1, 'axes': ['size'], 'attributes': ...

--- family-variants\_\_led\_tvs -----

	code	labels	variant_attribute_sets
0	tv	{'de_DE': 'LED TV', 'en_US': 'LED TV', 'fr_FR'...	[{'level': 1, 'axes': ['display_diagonal'], 'a...

--- locales -----

	code	enabled
0	af_ZA	False
1	am_ET	False
2	ar_AE	False
3	ar_BH	False
4	ar_DZ	False
...	...	...
205	zh_HK	False
206	zh_MO	False
207	zh_SG	False
208	zh_TW	False
209	zu_ZA	False

210 rows × 2 columns

--- measure-families -----			
	code	standard	units
0	Angle	RADIAN	[{'code': 'RADIAN', 'convert': {'mul': '1'}, '...
1	Area	SQUARE_METER	[{'code': 'SQUARE_MILLIMETER', 'convert': {'mu...
2	Binary	BYTE	[{'code': 'CHAR', 'convert': {'mul': '8'}, 'sy...
3	Brightness	LUMEN	[{'code': 'LUMEN', 'convert': {'mul': '1'}, 's...
4	Capacitance	FARAD	[{'code': 'ATTOFARAD', 'convert': {'div': '100...
5	CaseBox	PIECE	[{'code': 'PIECE', 'convert': {'mul': '1'}, 's...
6	Decibel	DECIBEL	[{'code': 'DECIBEL', 'convert': {'mul': '1'}, '...
7	Duration	SECOND	[{'code': 'MILLISECOND', 'convert': {'mul': '0...
8	ElectricCharge	AMPEREHOURL	[{'code': 'MILLIAMPEREHOURL', 'convert': {'mul'...
9	Energy	JOULE	[{'code': 'JOULE', 'convert': {'mul': '1'}, 's...
10	Force	NEWTON	[{'code': 'MILLINEWTON', 'convert': {'mul': '0...
11	Frequency	HERTZ	[{'code': 'HERTZ', 'convert': {'mul': '1'}, 's...
12	Intensity	AMPERE	[{'code': 'MILLIAMPERE', 'convert': {'mul': '0...
13	Length	METER	[{'code': 'MICROMETER', 'convert': {'mul': '0....
14	Power	WATT	[{'code': 'WATT', 'convert': {'mul': '1'}, 'sy...
15	Pressure	BAR	[{'code': 'CENTIBAR', 'convert': {'mul': '0.01...
16	Resistance	OHM	[{'code': 'MILLIOHM', 'convert': {'mul': '0.00...
17	Speed	METER_PER_SECOND	[{'code': 'METER_PER_SECOND', 'convert': {'mul...
18	Temperature	KELVIN	[{'code': 'CELSIUS', 'convert': {'add': '273.1...
19	Voltage	VOLT	[{'code': 'MILLIVOLT', 'convert': {'mul': '0.0...
20	Volume	CUBIC_METER	[{'code': 'MICROLITER', 'convert': {'mul': '0....
21	VolumeFlow	CUBIC_METER_PER_SECOND	[{'code': 'CUBIC_METER_PER_SECOND', 'convert':...
22	Weight	KILOGRAM	[{'code': 'MICROGRAM', 'convert': {'mul': '0.0...

--- media-files -----					
	code	original_filename	mime_type	size	extension
0	c/e/5/3/ce531b5e95eb7e375c27fb33de2db276838053...	apollo.jpg	image/jpeg	6144	jpg
1	5/1/b/9/51b91fbc9207be1b646ec0d2afbcdbf3ae3b84...	artemis.jpg	image/jpeg	5013	jpg
2	e/5/3/7/e537567677effa1bf10726b9175d7c7d7eb0b0...	athena.jpg	image/jpeg	3069	jpg
3	a/a/a/b/aaabc1851b57a5be1b81a433a0750be8e5a3a5...	bacchus.jpg	image/jpeg	8918	jpg
4	8/9/4/e/894e211b0a66b849d53f4beedb807982631ffc...	climbingshoe.jpg	image/jpeg	220576	jpg
...	...	...	...	...	...
141	f/1/5/c/f15cddd2f1fb63ac82057bd42ff0a94289e9a7...	running-shoe-371624_960_720-pink.jpg	image/jpeg	136338	jpg
142	1/6/5/c/165cdd9b14b40eafda360deb04f294f31cc778...	magento.png	image/png	6800	png
143	2/d/e/c/2dec24dca3e7d8799c1b375b34f82851f787f1...	sap.png	image/png	2464	png
144	c/1/6/6/c166f53666e5100cedf6ad8978f8873aba00e0...	alkemics.png	image/png	1349	png
145	e/7/4/e/e74e062901d4734472287024befa5637b16800...	translations_com.png	image/png	2947	png

146 rows × 5 columns

--- product-models -----



	code	family	family_variant	parent	categories	values	created	update
0	amor	clothing	clothing_color_size	None	[master_men_blazers, supplier_zaro]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00
1	brooksblue	shoes	shoes_size	None	[master_men_shoes]	{'color': [{'locale': None, 'scope': None, 'da...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00
2	brookspink	shoes	shoes_size	None	[master_women_shoes]	{'color': [{'locale': None, 'scope': None, 'da...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00
3	caelus	clothing	clothing_color_size	None	[master_men_blazers_deals, supplier_mongo]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00
4	climbingshoe	shoes	shoes_size	None	[master_men_shoes, print_shoes, supplier_abibas]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00
...	...	...	...	...	...	...	...	...
76	model-tshirt-divided-blue	clothing	clothing_color_size	model-tshirt-divided	[tshirts]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:37:01+00:00	2022-01-27T17:37:01+00:00
77	bacchus	clothing	clothing_color_size	None	[master_men_pants_shorts, supplier_zaro]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00
78	model-tshirt-divided-grey	clothing	clothing_color_size	model-tshirt-divided	[tshirts]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:37:01+00:00	2022-01-27T17:37:01+00:00
79	model-tshirt-divided-red	clothing	clothing_color_size	model-tshirt-divided	[tshirts]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:37:01+00:00	2022-01-27T17:37:01+00:00
80	brogueshoe	shoes	shoes_size	None	[master_men_shoes, supplier_abibas]	{'supplier': [{'locale': None, 'scope': None, ...	2022-01-27T17:36:57+00:00	2022-01-27T17:36:57+00:00

81 rows × 10 columns

--- products -----

	identifier	enabled	family	categories	groups	parent	values	created
0	1111111171	True	accessories	[master_accessories_bags, print_accessories, s...	[]	None	{'image': [{'locale': None, 'scope': None, 'da...	2022-01-27T17:37:08+00:01
1	13620748	True	led_tvs	[led_tvs, samsung, tvs_projectors_sales]	[]	None	{'name': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:08+00:01
2	15554974	True	webcams	[cameras_sales, logitech, webcams]	[]	None	{'maximum_video_resolution': [{'locale': None, ...	2022-01-27T17:37:08+00:01
3	12249740	True	scanners	[avision, print_scan_sales, scanners]	[]	None	{'picture': [{'locale': None, 'scope': None, 'l...	2022-01-27T17:37:42+00:01
4	1111111130	True	clothing	[master_men_blazers_deals, supplier_zaro]	[]	apollon_yellow	{'size': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:47+00:01
...	...	...	...	...	...	...	...	...
1234	1111111125	True	clothing	[master_men_blazers_deals, supplier_zaro]	[]	apollon_pink	{'size': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:42+00:01
1235	1111111126	True	clothing	[master_men_blazers_deals, supplier_zaro]	[]	apollon_red	{'size': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:42+00:01
1236	1111111127	True	clothing	[master_men_blazers_deals, supplier_zaro]	[]	apollon_red	{'size': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:42+00:01
1237	1111111128	True	clothing	[master_men_blazers_deals, supplier_zaro]	[]	apollon_yellow	{'size': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:42+00:01
1238	1111111129	True	clothing	[master_men_blazers_deals, supplier_zaro]	[]	apollon_yellow	{'size': [{'locale': None, 'scope': None, 'dat...	2022-01-27T17:37:42+00:01

1239 rows × 11 columns

### Product Values

Products and product models contain their values as an embedded structure. This structure is now exported separately as this is most important data needed for the clustering.

```
In [ ]: cases: list[tuple[str, str]] = [
    ("product-models__values", "pim_api_product_model_list", "code"),
    ("products__values", "pim_api_product_list", "identifier"),
]

for name, route_id, id_key in cases:
    res = client.get_list(route_id)
    values = [{"__id__": entry[id_key], **entry["values"]} for entry in res]
    print_and_safe_list(name, values)

--- product-models__values -----
```

	_id__	supplier	wash_temperature	collection	price	name	erp_name	description	color	variation_name	image	m
	0	amor	[{'locale': None, 'scope': None, 'data': 'zaro'}]	[{'locale': None, 'scope': None, 'data': '800'}]	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'Heri...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'A...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	NaN
	1	brooksblue	NaN	NaN	NaN	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'Broo...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'B...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	[{'locale': None, 'scope': None, 'data': 'blue'}]	[{'locale': 'en_US', 'scope': None, 'data': 'B...'}]	NaN
	2	brookspink	NaN	NaN	NaN	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'Broo...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'B...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	[{'locale': None, 'scope': None, 'data': 'pink'}]	[{'locale': 'en_US', 'scope': None, 'data': 'B...'}]	NaN
	3	caelus	[{'locale': None, 'scope': None, 'data': 'mong...'}]	[{'locale': None, 'scope': None, 'data': '600'}]	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'Tuxe...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'C...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	NaN
	4	climbingshoe	[{'locale': None, 'scope': None, 'data': 'abib...'}]	NaN	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'clim...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'C...'}]	NaN	NaN	NaN	[{'locale': None, 'scope': None, 'data': '8/9/...'}]
...	...	...	...	...	...	...	...	...	...	...	...	...
	76	model-tshirt-divided-blue	[{'locale': None, 'scope': None, 'data': 'zaro'}]	[{'locale': None, 'scope': None, 'data': '400'}]	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'Cott...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'T...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	[{'locale': None, 'scope': None, 'data': 'blue'}]	[{'locale': 'en_US', 'scope': None, 'data': 'C...'}]	[{'locale': None, 'scope': None, 'data': '5/1/...'}]
	77	bacchus	[{'locale': None, 'scope': None, 'data': 'zaro'}]	[{'locale': None, 'scope': None, 'data': '600'}]	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'Slig...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'B...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	[{'locale': None, 'scope': None, 'data': 'a/a/...'}]
	78	model-tshirt-divided-grey	[{'locale': None, 'scope': None, 'data': 'zaro'}]	[{'locale': None, 'scope': None, 'data': '400'}]	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'Cott...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'T...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	[{'locale': None, 'scope': None, 'data': 'grey'}]	[{'locale': 'en_US', 'scope': None, 'data': 'C...'}]	[{'locale': None, 'scope': None, 'data': '5/1/...'}]
	79	model-tshirt-divided-red	[{'locale': None, 'scope': None, 'data': 'zaro'}]	[{'locale': None, 'scope': None, 'data': '400'}]	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'Cott...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'T...'}]	[{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	[{'locale': None, 'scope': None, 'data': 'red'}]	[{'locale': 'en_US', 'scope': None, 'data': 'C...'}]	[{'locale': None, 'scope': None, 'data': '5/1/...'}]
	80	brogueshoe	[{'locale': None, 'scope': None, 'data': 'abib...'}]	NaN	[{'locale': None, 'scope': None, 'data': 'sum...'}]	[{'locale': None, 'scope': None, 'data': 'am...'}]	[{'locale': None, 'scope': None, 'data': 'brog...'}]	[{'locale': 'en_US', 'scope': None, 'data': 'B...'}]	NaN	NaN	NaN	NaN

81 rows × 18 columns

--- products\_\_values -----

	_id_	image	ean	name	weight	display_diagonal	description	release_date	maximum_video_resolution	total_megapi
0	1111111171	['{'locale': None, 'scope': None, 'data': '7/8/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Bag'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	NaN	NaN	NaN	
1	13620748	NaN	NaN	['{'locale': None, 'scope': None, 'data': 'Sams...'}]	NaN	['{'locale': None, 'scope': None, 'data': 'amo...'}]	['{'locale': 'en_US', 'scope': 'print', 'data': '...'}]	['{'locale': None, 'scope': 'ecommerce', 'data': '...'}]	NaN	
2	15554974	NaN	NaN	['{'locale': None, 'scope': None, 'data': 'Logi...'}]	NaN	NaN	['{'locale': 'en_US', 'scope': 'print', 'data': '...'}]	['{'locale': None, 'scope': 'ecommerce', 'data': '...'}]	['{'locale': None, 'scope': None, 'data': '640...'}]	['{'locale': N, 'scope': N, 'data': '...'}]
3	12249740	NaN	NaN	['{'locale': None, 'scope': None, 'data': 'Avis...'}]	NaN	NaN	['{'locale': 'de_DE', 'scope': 'print', 'data': '...'}]	['{'locale': None, 'scope': 'ecommerce', 'data': '...'}]	NaN	
4	1111111130	['{'locale': None, 'scope': None, 'data': 'c/e/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Long...'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	['{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	
...	...	...	...	...	...	...	...	...	...	...
1234	1111111125	['{'locale': None, 'scope': None, 'data': 'c/e/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Long...'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	['{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	
1235	1111111126	['{'locale': None, 'scope': None, 'data': 'c/e/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Long...'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	['{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	
1236	1111111127	['{'locale': None, 'scope': None, 'data': 'c/e/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Long...'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	['{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	
1237	1111111128	['{'locale': None, 'scope': None, 'data': 'c/e/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Long...'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	['{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	
1238	1111111129	['{'locale': None, 'scope': None, 'data': 'c/e/...'}]	['{'locale': None, 'scope': None, 'data': '1234...'}]	['{'locale': None, 'scope': None, 'data': 'Long...'}]	['{'locale': None, 'scope': None, 'data': 'amo...'}]	NaN	['{'locale': 'en_US', 'scope': 'ecommerce', 'data': 'da...'}]	NaN	NaN	

1239 rows × 42 columns

## Measurement Families

Akeneo changed the handling of measurements recently. The measurements families are no longer available as a list like all other data structures. Instead there is a special endpoint that returns all measurement families in a different way.

```
In [ ]: name = "measurement-family"
res = client.get("pim_api_measurement_family_get")
print_and_safe_list(name, res)

--- measurement-family -----
```

	code	labels	standard_unit_code	units
0	Angle	{'de_DE': 'Winkel', 'en_US': 'Angle', 'fr_FR':...	RADIAN	{'RADIAN': {'code': 'RADIAN', 'labels': {'en_U...
1	Area	{'ca_ES': 'Àrea', 'da_DK': 'Areal', 'de_DE': '...	SQUARE_METER	{'SQUARE_MILLIMETER': {'code': 'SQUARE_MILLIME...
2	Binary	{'ca_ES': 'Binari', 'da_DK': 'Binaer', 'de_DE':...	BYTE	{'CHAR': {'code': 'CHAR', 'labels': {'en_US': ...
3	Brightness	{'de_DE': 'Helligkeit', 'en_US': 'Brightness',...	LUMEN	{'LUMEN': {'code': 'LUMEN', 'labels': {'de_DE':...
4	Capacitance	{'de_DE': 'Elektrische Kapazität', 'en_US': 'C...	FARAD	{'ATTOFARAD': {'code': 'ATTOFARAD', 'labels': ...
5	CaseBox	{'ca_ES': 'Embalatge', 'da_DK': 'Emballage', '...	PIECE	{'PIECE': {'code': 'PIECE', 'labels': {'ca_ES':...
6	Decibel	{'ca_ES': 'Decibel', 'da_DK': 'Decibel', 'de_D...	DECIBEL	{'DECIBEL': {'code': 'DECIBEL', 'labels': {'ca...
7	Duration	{'ca_ES': 'Durada', 'da_DK': 'Varighed', 'de_D...	SECOND	{'MILLISECOND': {'code': 'MILLISECOND', 'label...
8	ElectricCharge	{'ca_ES': 'Càrrega elèctrica', 'da_DK': 'Elekt...	AMPEREHOUR	{'MILLIAMPEREHOUR': {'code': 'MILLIAMPEREHOUR'...
9	Energy	{'ca_ES': 'Energia', 'da_DK': 'Energi', 'de_DE...	JOULE	{'JOULE': {'code': 'JOULE', 'labels': {'de_DE':...
10	Force	{'de_DE': 'Kraft', 'en_US': 'Force', 'fr_FR': ...	NEWTON	{'MILLINEWTON': {'code': 'MILLINEWTON', 'label...
11	Frequency	{'ca_ES': 'Freqüència', 'da_DK': 'Frekvens', '...	HERTZ	{'HERTZ': {'code': 'HERTZ', 'labels': {'ca_ES':...
12	Intensity	{'ca_ES': 'Intensitat', 'da_DK': 'Intensitet',...	AMPERE	{'MILLIAMPERE': {'code': 'MILLIAMPERE', 'label...
13	Length	{'ca_ES': 'Longitud', 'da_DK': 'Længde', 'de_D...	METER	{'MICROMETER': {'code': 'MICROMETER', 'labels'...
14	Power	{'ca_ES': 'Potència', 'da_DK': 'Effekt', 'de_D...	WATT	{'WATT': {'code': 'WATT', 'labels': {'ca_ES': ...
15	Pressure	{'ca_ES': 'Pressió', 'da_DK': 'Tryk', 'de_DE':...	BAR	{'CENTIBAR': {'code': 'CENTIBAR', 'labels': {'l...
16	Resistance	{'ca_ES': 'Resistència', 'da_DK': 'Modstand', ...	OHM	{'MILLIOHM': {'code': 'MILLIOHM', 'labels': {'l...
17	Speed	{'ca_ES': 'Velocitat', 'da_DK': 'Hastighed', '...	METER_PER_SECOND	{'METER_PER_SECOND': {'code': 'METER_PER_SECON...
18	Temperature	{'ca_ES': 'Temperatura', 'da_DK': 'Temperatur'...	KELVIN	{'CELSIUS': {'code': 'CELSIUS', 'labels': {'ca...
19	Voltage	{'ca_ES': 'Voltatge', 'da_DK': 'Spænding', 'de...	VOLT	{'MILLIVOLT': {'code': 'MILLIVOLT', 'labels': ...
20	Volume	{'ca_ES': 'Volum', 'da_DK': 'Volume', 'de_DE':...	CUBIC_METER	{'MICROLITER': {'code': 'MICROLITER', 'labels'...
21	VolumeFlow	{'de_DE': 'Volumenstrom', 'en_US': 'Volume flo...	CUBIC_METER_PER_SECOND	{'CUBIC_METER_PER_SECOND': {'code': 'CUBIC_MET...
22	Weight	{'ca_ES': 'Pes', 'da_DK': 'Vægt', 'de_DE': 'Ge...	KILOGRAM	{'MICROGRAM': {'code': 'MICROGRAM', 'labels': ...