Deviation REST API V3

ValueStreamer GmbH

Content

1. Introduction

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1.1 REST-API & basic technical knowledge

- The API allows clients to fetch or insert entries via **REST** and **JSON documents**
- The API specification contains all endpoints and JSON formats in **.yaml** files as **OpenAPI 3** format
- We recommend to view the file via **Swagger UI** / Editor
- All access to the API is done via **HTTPS**
- The API uses appropriate **HTTP methods** for each action.
  - GET: For retrieving one or more entries, descriptions or meta data
  - POST: For creating an entry
  - PUT: For updating an entry or a description
  - DELETE: For deleting an entry
- The API returns corresponding **HTTP status codes** for each request, see Swagger file. E.g.
  - 2xx for success: 200 OK, 204 Deleted
  - 4xx for client errors: 400 Bad request, 401 Unauthorized, 404 Not found
  - 5xx for server errors: 500 Internal server error
- The API is reachable via https://api-**<tenant>**.valuestreamer.de/api/ where <tenant> must be replaced with your tenant
- E.g.: https://api-demo.valuestreamer.de/api/exchange/deviations

Deviation Endpoints for fetching and updating deviations

GET	/exchange/deviations	Retrieve a collection of deviations by team
POST	/exchange/deviations	Create a deviation
GET	/exchange/deviations/{id}	Retrieve a specific deviation.
PUT	/exchange/deviations/{id}	Update a deviation
DELETE	/exchange/deviations/{id}	Delete a deviation.

Deviation: Description Endpoints for fetching and updating the data of the richtext input field 'description'.

| GET | /exchange/deviations/{id}/description | Get the description. |
| PUT | /exchange/deviations/{id}/description | Update the description. |

Meta: Team config Endpoints to retrieve the deviation configurations of the teams.

| GET | /exchange/teams/{id}/deviation-config | Get the deviation configuration for a specific team |

Meta: Sys. admin Sys. admin endpoints to maintain the available deviation categories.

GET	/exchange/deviation-categories	Get all available deviation categories on the tenant
POST	/exchange/deviation-categories	Create a deviation category
GET	/exchange/deviation-categories/{id}	Retrieve a specific deviation category.
PUT	/exchange/deviation-categories/{id}	Update a deviation category
DELETE	/exchange/deviation-categories/{id}	Delete a deviation category.

Work Safety

| GET | /exchange/worksafety-config | Get configurations of work safety |

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1.2 Authorization and user assignment

Authorization

1. Authorization on the API endpoints works via basic auth per request
2. ValueStreamer Support provides username + password to the customer
3. When sending requests to the API, the basic auth credentials must be passed base64 encoded in the authorization header like this: Authorization: Basic 123456

Assigned user for changes via the API

1. The ValueStreamer Support creates a ValueStreamer Application user named "API-USER"
2. Whenever a deviation is created, modified or deleted via the API, this API-USER is written to the changelogs (createdBy, modifiedBy, …)

```
HTTP Example:
GET
/api/exchange/deviations?status=ALL&level=ALL&team=e70ebfdd
-760b-4f50-b69f-6564acb4a367&page=1
Host: api-demo.valuestreamer.de
Accept: application/vs.v2.0+json
Content-Type: application/vs.v2.0+json
Authorization: Basic a3Bpxxxxxxvvvvvv66554433222=
```

Postman example:
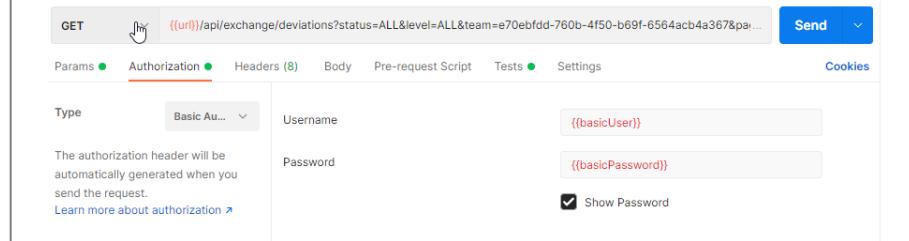
1.3 Deviation management overview

- The deviation view is available for every team by default
- Each team member can create deviations
- A deviation either has the type Problem or Error
- A deviation has a category. Based on the list of available deviation categories of the team, a category must be assigned to the deviation
- A deviation has a Duration i. e., how long did the deviation occur in minutes
- A deviation has a Frequency i. e., how often did the deviation occur
- Single deviation
  - "Single" deviations are not combined resp. related to another deviation
- Combined parent deviation
  - A combined deviation is created based on multiple single deviations, which then become child deviations
  - The duration and frequency of the combined deviation are calculated based on the values of the child deviations
  - When a combined deviation is closed, its child deviations are also closed
  - When a combined deviation is deleted, its child deviations are also deleted
- Child deviation
  - A combined child deviation is related to a parent deviation
  - A child deviation can not be closed directly. A child is only closed, when the parent deviation is closed
  - A child deviation can not be deleted directly. A child is only deleted, when the parent deviation is deleted

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2. Necessary meta data for querying, creating and updating deviations

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2.1 Meta data: Use cases and API endpoints

▪ The following table describes how to get all the data you need for interactions with the API

#	Use case	Use case description	HTTP method	API URL
1	**Team: Get the list of teams**	Returns all teams with id and name. The id can be used to fetch the team details.	GET	/exchange/teams
2	**Team: Get a team's details (by team id)**	Returns the details of a team by its team id: ▪ Team's name and short name ▪ List of team members	GET	/exchange/teams/{teamid}
3	**Get the list of all users**	Returns all existing users with id and name	GET	/exchange/users
4	**Get the list of all deviation categories**	Returns all available categories on the tenant	GET	/exchange/deviation-categories
5	**Get a deviation category by id**	Returns a specific categories on the tenant	GET	/exchange/deviation-categories/{id}
5	**Get the deviation configuration of a team**	Returns the deviation configuration of the given team with available categories	GET	/exchange/teams/{teamid}/deviation-config

For more details, please have a look into the OpenAPI files.

2.2 #1 GET /exchange/teams
Get the list of teams

- The endpoint returns a lists of all teams existing on the tenant
- Accept: application/json

```
Request:
GET /api/exchange/teams HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/json
Authorization: Basic a3BpZXhjaGjaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
[
  {
        "id": "5bcaa97a-d0c1-11ea-87d0-0242ac130003",
        "name": "Linie 1",
        "shortName": "Linie 1",
        "parentTeam": "5bcaa8b2-d0c1-11ea-87d0-0242ac130003"
  },
  {
        "id": "5bcaaa38-d0c1-11ea-87d0-0242ac130003",
        "name": "Linie 2",
        "shortName": "Linie 2",
        "parentTeam": "5bcaa8b2-d0c1-11ea-87d0-0242ac130003"
  },
  {
        "id": "d72fb249-af46-43d8-a116-afd5b32815ef",
        "name": "Log-X",
        "shortName": "Log-X",
        "parentTeam": "14321ce0-ba75-4336-ab26-1b13ebc33114"
  },
  {
        "id": "5bca9930-d0c1-11ea-87d0-0242ac130003",
        "name": "Management",
        "shortName": "Management",
        "parentTeam": "8ba7de30-41b8-4fb3-8d19-dd6c9e92ead7"
  }
]
```

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2.2 #2 GET /exchange/teams/{id}
Get team details

Request:
GET /api/exchange/teams HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.te.v2.0+json
Authorization: Basic a3BpZXhjaGjaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=

- The endpoint returns the details of a team, like the teams members, and available KPIs
- Accept: application/vs.te.v2.0+json

Response:
{
    "id": "5bcaa97a-d0c1-11ea-87d0-0242ac130003",
    "name": "Linie 1",
    "shortName": "Linie 1",
    "parentTeam": "5bcaa8b2-d0c1-11ea-87d0-0242ac130003",
    "members": [
        {
            "id": "e3373620-d0c2-11ea-87d0-0242ac130003",
            "firstName": "Nino",
            "lastName": "Baresi",
            "email": "Nino.Baresi@valuestreamer-demo.de"
        },
        {
            "id": "e3375560-d0c2-11ea-87d0-0242ac130003",
            "firstName": "Jürgen",
            "lastName": "Seiler",
            "email": "Jürgen.Seiler@valuestreamer-demo.de"
        },
    ],
    "processBoards": [
        {
            "id": "78f748e5-0ad5-4f1a-951e-7bcc7cc94d97",
            "name": "log-x"
        },
        {
            "id": "d40f30ae-f509-4126-bd71-73da5df21967",
            "name": "KVP Projekte"
        }
    ],
    "availableKpis": [
        {
            "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
            "name": "string",
            "recordingTeam": true,
            "subTileRecording": false,
            "subTiles": [
                {
                    "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
                    "name": "string",
                    "orderId": 0
                }]
}

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2.2 #3 GET /exchange/users
Get the list of users

- The endpoint returns all users present on the tenant
- Accept: application/json

```
Request:
GET /api/exchange/users HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/json
Authorization: Basic a3BpZXhjaGGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
[
    {
        "id": "e3372d60-d0c2-11ea-87d0-0242ac130003",
        "firstName": "Daniel",
        "lastName": "Ackermann",
        "email": "Daniel.Ackermann@valuestreamer-demo.de"
    },
    {
        "id": "e3372fcc-d0c2-11ea-87d0-0242ac130003",
        "firstName": "Martina",
        "lastName": "Amsel",
        "email": "Martina.Amsel@valuestreamer-demo.de"
    },
    {
        "id": "e3373314-d0c2-11ea-87d0-0242ac130003",
        "firstName": "Sarah",
        "lastName": "Andersen",
        "email": "Sarah.Andersen@valuestreamer-demo.de"
    },
    …
]
```

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2.2 #4 GET /exchange/deviation-categories
Get all available categories

- The endpoint returns a list of all deviation categories on the tenant
- The process of managing the categories is divided into two parts:
  - System administration
    - The sys. admin can create new categories using the sys. Administration or the deviation-categories API
    - The sys. admin can temporarily activate or deactivate existing categories
    - The sys. Admin can delete categories completely. Deleted categories can not be reactivated
  - Team administration
    - Based on the list of all active deviation categories, each team admin can select categories for his team's deviation management
    - In the team's deviation management, the selected and active categories can be used to create or update deviations
    - Deactivated categories are not available for the team's deviation management anymore. Deactivated categories can be reactivated and will then be available again

```
Request:
GET /api/exchange/deviation-categories HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/json
Authorization: Basic a3BpZXhjaGFGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
{
    "categories":[
    {
        "id":"cd315130-cb2c-11ea-87d0-0242ac130003",
        "active":true,
        "deleted":false,
        "names":[
        {
            "language":"DE",
            "name":"Überproduktion"
        },
        {
            "language":"EN",
            "name":"Over production"
        },
        {
            "language":"FR",
            "name":"Surproduction"
        },
        {
            "language":"HU",
            "name":"Túltermelés"
        },
        {
            "language":"PL",
            "name":"Nadprodukcja"
        }
        ]
    },...
    ]
}
```

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2.2 #4 GET /exchange/deviation-categories

- Accept:
  - application/json
  - application/vs.v2.0+json
- Extra Query Parameters in V2:
  - @RequestParam category-type: Filters the categories by type. Available values: ALL, CORE
- Extra Response Fields in V2:
  - coreCategory (boolean): Indicates whether the category is a core category.
  - coreCategoryType (string or null): A string value if coreCategory = true, otherwise null.

```
Request:
GET /api/exchange/deviation-categories HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.vs.v2.0+json
Authorization: Basic a3BpZXhjaaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=

Response:
[
    {
        "id":"fe7dd559-e1fe-4287-b856-9df646944946",
        "active":true,
        "deleted":false,
        "names":[
        {
            "language":"DE",
            "name":"Überproduktion"
        },
        {
            "language":"EN",
            "name":"Over production"
        },
        {
            "language":"FR",
            "name":"Surproduction"
        },
        {
            "language":"HU",
            "name":"Túltermelés"
        },
        {
            "language":"PL",
            "name":"Nadprodukcja"
        } ",
        „teams":[
            "fe7dd559-e1fe-4287-b856-9df646944946",
            …
        ],
        "coreCategory":true,
        "coreCategoryType":„WORKSAFETY„
    },...
]
```

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2.2 #5 GET /exchange/deviation-categories/{id}
Get a category by id

- Accept:
  - application/json
  - application/vs.v2.0+json
- Extra Response Fields in V2:
  - coreCategory (boolean): Indicates whether the category is a core category.
  - coreCategoryType (string or null): A string value if coreCategory = true, otherwise null.

```
Request:
GET /api/exchange/deviation-categories/{id} HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.vs.v2.0+json
Authorization: Basic a3BpZXhjaGFGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:

    {
        "id":"fe7dd559-e1fe-4287-b856-9df646944946",
        "active":true,
        "deleted":false,
        "names":[
        {
            "language":"DE",
            "name":"Überproduktion"
        },
        {
            "language":"EN",
            "name":"Over production"
        },
        {
            "language":"FR",
            "name":"Surproduction"
        },
        {
            "language":"HU",
            "name":"Túltermelés"
        },
        {
            "language":"PL",
            "name":"Nadprodukcja"
        } ",
        „teams":[
            "fe7dd559-e1fe-4287-b856-9df646944946",
            …
        ],
        "coreCategory":true,
        "coreCategoryType":„WORKSAFETY„
    }
```

2.2 #6 GET /exchange/teams/{team_id}/deviation-config
Get the deviation configuration of a team

- The endpoint returns all available deviation categories for the given team
- Available means the category has been selected for the team, the category is active and not deleted
- Categories no longer appear in the list that were selected for the team, but were subsequently deactivated or deleted by the system administrator
- The section categories has the same structure as given by the endpoint /exchange/deviation-categories
- Accept: application/json

```
Request:
GET /api/exchange/teams/{id}/deviation-config HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/json
Authorization: Basic a3BpZXhjaGaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
{
    "categories":[
        {
            "id":"cd315130-cb2c-11ea-87d0-0242ac130003",
            "active":true,
            "deleted":false,
            "names":[
                {
                    "language":"DE",
                    "name":"Überproduktion"
                },
                {
                    "language":"EN",
                    "name":"Over production"
                },
                {
                    "language":"FR",
                    "name":"Surproduction"
                },
                {
                    "language":"HU",
                    "name":"Túltermelés"
                },
                {
                    "language":"PL",
                    "name":"Nadprodukcja"
                }
            ]
        },...
    ]
}
```

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3. Extended configuration of KPI WorkSafety and how to use it

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3.1 Extension of the configuration options of the work safety cross

System administrators now have the opportunity to define extra fields, instead of being limited to non-working days only.

Old	New
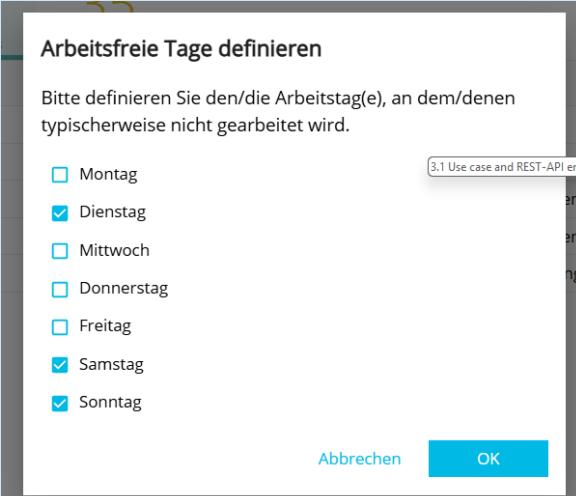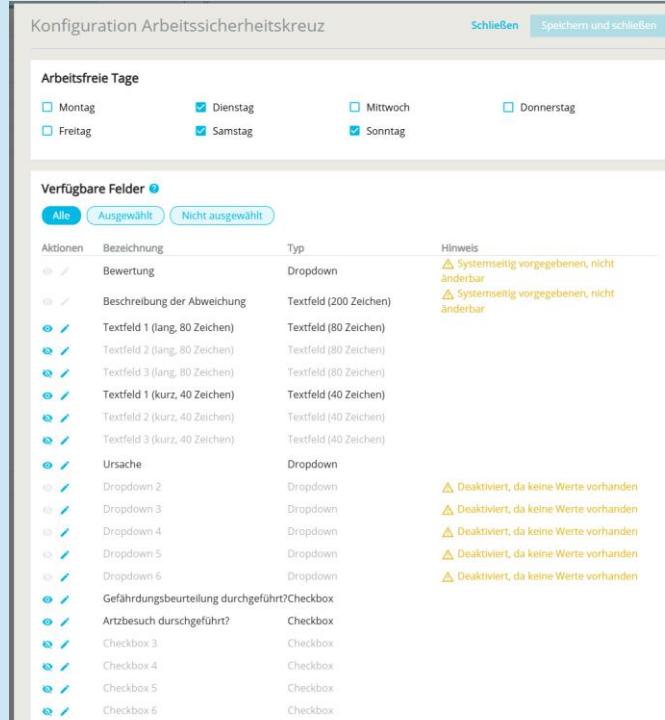
Available extra fields for work safety deviations:

- 3 long text fields (maximum 80 characters each)
- 3 short text fields (maximum 40 characters each)
- 6 checkbox fields
- 6 dropdown fields

System administrators can update the names of all fields and dropdown options in all supported languages.

3.2 GET /exchange/worksafety-config
Get the configuration of the work safety kpi

- The endpoint returns the configuration of the work safety kpi
- Accept: application/json

```
Request:
GET /api/exchange/worksafety-config HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/json
Authorization: Basic a3BpZXhjaGGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
{
  "textfield_long_1": {
    "active": true,
    "names": {
      "CS": "Textfield 1 (long, 80 characters)",
      "DE": "Textfeld 1 (lang, 80 Zeichen)",
      "PT-BR": "Textfield 1 (long, 80 characters)",
      "EN": "Textfield 1 (long, 80 characters)",
      "FR": "Textfield 1 (long, 80 characters)",
      "ZH": "Textfield 1 (long, 80 characters)"
    },
    "type": "TEXTFIELD_LONG"
  },
   …
  "dropdown_1": {…},
   …
  " checkbox_1": {…},
   …
}
```

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3.3 # 1 Fields of work safety's configuration and where to get them as response

Screen 1: the „active" field and the „type" field

Screen2 : the „names" fields

#	Field	Format	note
1	active	Boolean	If the extra field is activated
2	names	Map<String, String>	The translations in all supported languages
3	type	Enum	Type of the field, one of : • TEXTFIELD_LONG • TEXTFIELD_SHORT • CHECKBOX • DROPDOWN

Response:
{
  "textfield_long_1": {..},
  …
  "dropdown_1": {
    "active": true,
    "names": {
      "CS": "Příčina",
      "DE": "Ursache",
      "PT-BR": "Causa",
      "EN": "Cause",
      "FR": "Cause",
      "ZH": "原因"
    },
    "type": "DROPDOWN",
    "options": [..]
  }
}

3.3 # 2 Fields of work safety's configuration and where to get them as response

Screen 3: all options of a dropdown

Screen4 : the translations of an option

#	Field	Format	note
5	options[i].id	UUID	The id of the dropdown option
6	options[i].field_id	Enum	Which dropdown does the option belong to?
7	options[i].names	Map<String, String>	The translations of the option in all supported languages
8	options[i].order_id	int	The order of the option

```
Response:
{
  "dropdown_1": {
    …
    "options": [
      {
        "id": "add87296-f986-408c-9a0f-b2a76dfeb06e",
        "field_id": "DROPDOWN_1",
        "names": {
          "CS": "Technical or organizational failure",
          "DE": "Technisches oder organisatorisches Versagen",
          "PT-BR": "Falha técnica ou organizacional",
          "EN": "Technical or organizational failure",
          "FR": "Défaillance technique ou organisationnelle",
          "ZH": "Technical or organizational failure"
        },
        "order_id": 0
      },..
    ]
```

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4. Deviation management use cases and REST-API endpoints

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4.1 Use case and REST-API endpoint mapping

#	Use case	HTTP Method	API URL
1	Retrieve a collection of deviations according to the query parameters	GET	/exchange/deviations?{query-parameters}
2	Retrieve the given deviation and each of its fields	GET	/exchange/deviations/{deviation-id}
3	Create a new deviation	POST	/exchange/deviations
4	Update the given deviation	PUT	/exchange/deviations/{deviation-id}
5	Delete the given deviation	DELETE	/exchange/deviations/{deviation-id}
6	Get the description of the given deviation	GET	/exchange/deviations/{deviation-id}/description
7	Update the description of the given deviation	PUT	/exchange/deviations/{deviation-id}/description

For more details, please have a look into the OpenAPI Files.

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4.2 Fields of a deviation and where to get them as response

Screen 1: Single deviation focus mode

Screen2 : Deviation focus mode – Additional info

#	Field	Format	JSON field name	List of endpoints: 1. GET /exchange/deviations?{query_parameters} 2. GET /exchange/deviations/{id} 3. GET /exchange/deviations/{id}/description		
				1	2	3
	id	UUID	id	✓	✓	
1	Title	String	title	✓	✓	
2	Category	UUID	category	✓	✓	
3	Deviation type	Enum	deviationType	✓	✓	
4	Duration	Integer	duration	✓	✓	
5	Frequency	Integer	frequency	✓	✓	
6	Description	String				✓
7	Created By	UUID	createdBy	✓	✓	
8	Created On	Date string	createdDate	✓	✓	
9	Origin	Object	sourceEntity	✓	✓	
9	Origin	String	source	✓	✓	
10	Last changed by	UUID	modifiedBy		✓	
11	Last changed on	Date String	modifiedOn		✓	
12	Archived on	Date string	closedOn		✓	

4.2 The new deviation Category **WORKSAFETY** and new deviation types **NEAR_MISS/ ACCIDENT**

Screen 1: Single deviation focus mode
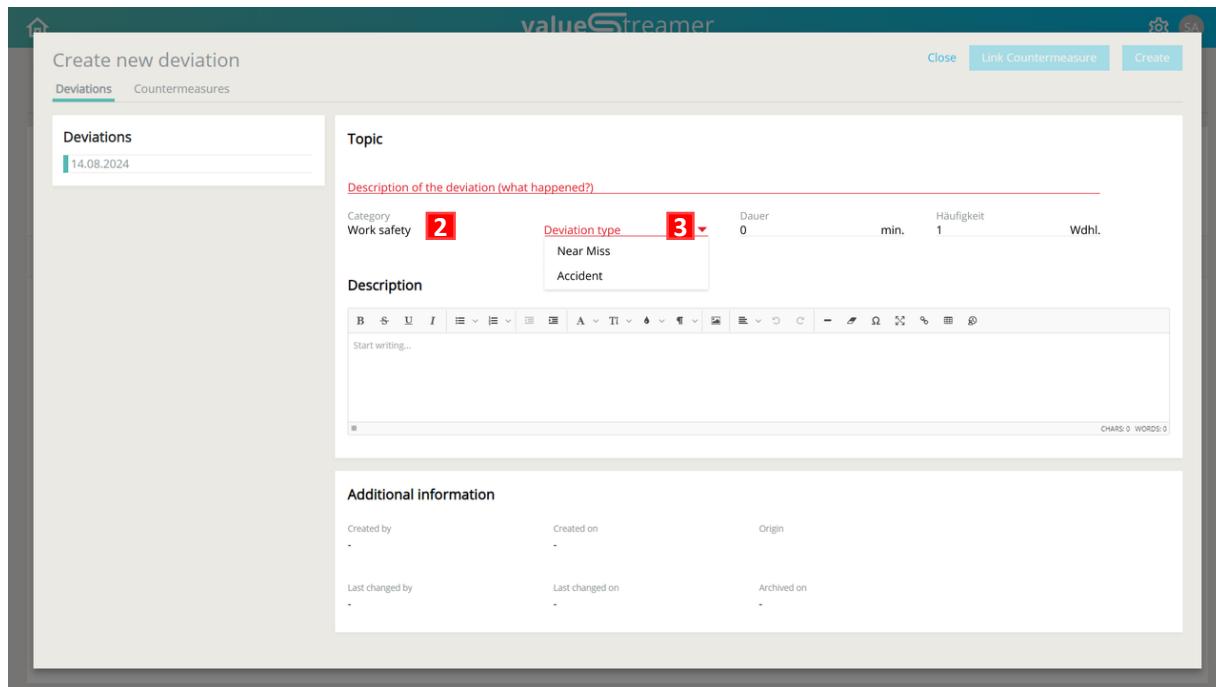
#	Field	Format	JSON field name	List of endpoints: 1. GET /exchange/deviations?{query_parameters} 2. GET /exchange/deviations/{id} 3. GET /exchange/deviations/{id}/description		
				1	2	3
2	Category	UUID	category	✓	✓	
3	Deviation type	Enum	deviationType	✓	✓	

- Work safety deviations are assigned the fixed category "Work Safety".
- Non-work safety deviations cannot be assigned the category "Work Safety".
- For these deviations, the available types are "Near_Miss" and "Accident".
- For all non-work safety deviations, the type is "Problem / Error".

4.2 Fields of a deviation and where to get them as response

Screen 3: Combined deviation modal view
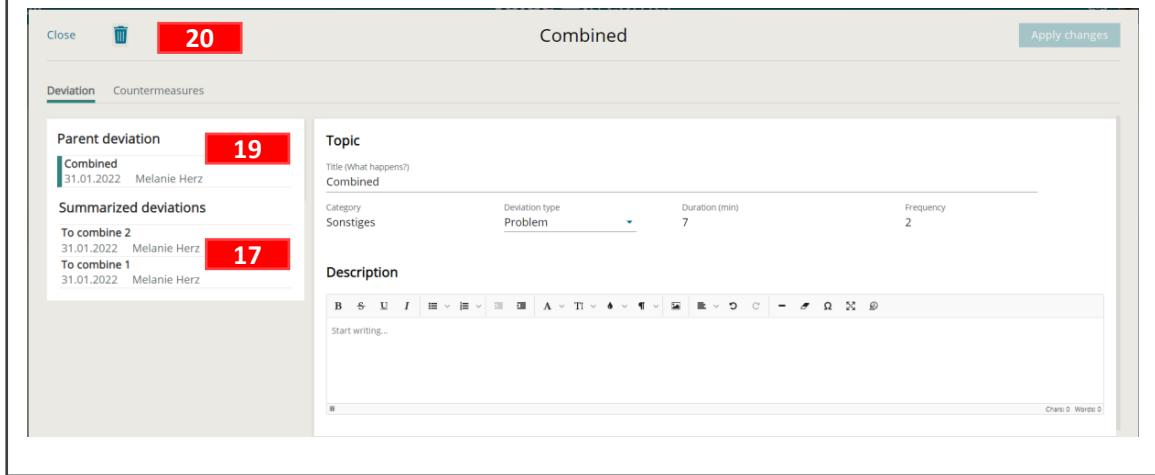
#	Field	Format	JSON field name	List of endpoints: 1. GET /exchange/deviations?{query_parameters} 2. GET /exchange/deviations/{id} 3. GET /exchange/deviations/{id}/description		
				1	2	3
13		Enum	status	✓	✓	
14		Enum	level	✓	✓	
15		Boolean	closed	✓	✓	
16		Boolean	isCombinedParentDeviation	✓	✓	
17		List of UUIDs	childDeviations	✓	✓	
18		Boolean	isChildDeviation	✓	✓	
19		UUID	parentDeviation	✓	✓	
20		List of UUIDs	countermeasures		✓	

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4.2 Extra fields of a work safety's deviation and where to get them as response

If system administrators define extra fields and the deviation belongs to the work safety's kpi

Screen 4: Extra fields of a work safety's deviation

#	Field	Format	JSON field name	List of endpoints: 1. GET /exchange/deviations?{query_parameters} 2. GET /exchange/deviations/{id} 3. GET /exchange/deviations/{id}/description		
				1	2	3
21		String	textfield_long_1 - 6	✓	✓	
22		String	textfield_short_1 - 6	✓	✓	
23		UUID	dropdown_1 – 6	✓	✓	
24		Boolean	Checkbox_1 - 6	✓	✓	

4.3 Fields of a deviation and where to insert or update them

Screen 1: Single deviation modal view

Close   No cookies   Apply changes

Deviation Countermeasures

Deviations
No cookies
17.03.2021   Christina Kuhn

Topic
Title (What happens?)
No cookies [1]

Category [2]   Deviation type [3]   Duration (min) [4]   Frequency [5]
No Material   Problem   30   1

Description [6]

Screen 2 : Deviation modal view – Additional info

Additional information

Created by [7]   Created on [8]   Origin [9]
Christina Kuhn   17.03.2021   PMO

Last changed by [10]   Last changed on [11]   Archived on [12]
Christina Kuhn   23.03.2022   -

#	Field	Format	JSON field name	List of endpoints: 1. POST /exchange/deviations 2. PUT /exchange/deviations/{deviation_id} 3. PUT /exchange/deviations/{deviation_id}/description		
				1	2	3
	id	UUID	id	✓		
1	Title	String	title	✓	✓	
2	Category	UUID	category	✓	✓	
3	Deviation Type	Enum	deviationType	✓	✓	
4	Duration	Integer >=0	duration	✓	✓	
5	Frequency	Integer > 0	frequency	✓	✓	
6	Description					✓
7	Created By	UUID	createdBy	Automatically set		
8	Created On	Date String	createdDate	Automatically set		
9	Origin	String	source	Automatically set		
9	Origin	Object	sourceEntitiy	✓	✓	
10	Last changed by	UUID	modifiedBy	Automatically set		
11	Last changed on	Date String	modifiedDate	Automatically set		
12	Archived on	Date String	closedOn	Automatically set		

4.3 Fields of a deviation and where to insert or update them

Screen 3: Combined deviation focus mode

#	Field	Format	JSON field name	**List of endpoints:** 1. POST /exchange/deviations 2. PUT /exchange/deviations/{deviation_id} 3. PUT /exchange/deviations/{deviation_id}/description		
				1	2	3
13		Enum	status	Automatically set		
14		Enum	level	Automatically SINGLE		
15		Boolean	closed	Automatically set		
16		Boolean	isCombinedParentDeviation		✓	
17		List of UUIDs	childDeviations		✓	
18		Boolean	isChildDeviation		✓	
19		UUID	parentDeviation		✓	
20		List of UUIDs	countermeasures		✓	

4.3 Extra fields of a work safety's deviation and where to insert or update them

If system administrators define extra fields and the deviation belongs to the work safety's kpi

Screen 4: Extra fields of a work safety's deviation

#	Field	Format	JSON field name	List of endpoints: 1. GET /exchange/deviations?{query_parameters} 2. GET /exchange/deviations/{id} 3. GET /exchange/deviations/{id}/description		
				1	2	3
21		String	textfield_long_1 - 6	✓	✓	
22		String	textfield_short_1 - 6	✓	✓	
23		UUID	dropdown_1 – 6	✓	✓	
24		Boolean	Checkbox_1 - 6	✓	✓	

4.4 #1 GET /exchange/deviations?{query-parameters}
Retrieve a collection of deviations according to the query parameters

- The endpoint returns all deviations for a team that match the given query parameters
- Filter attributes as req. parameters:
  - **&team=**   → id of the team
  - **&status=**   → ALL, ACTIVE or CLOSED
    - ACTIVE: Only include deviations that are not done
    - CLOSED: Only include deviations that are done
    - ALL: Include both, ACTIVE + CLOSED deviations
  - **&level=**   → SINGLE, COMBINED, CHILDREN
    - SINGLE: Only include deviations that are not combined, parent or child
    - COMBINED: Only include parents of combined deviations
    - CHILDREN: Only include children of combined deviations
      - Parameter „level" can take a list of the values comma-separated
  - **&page=1**   → Page number, max. 200 entries per page
  - &countermeasures=   → WITHCOUNTERMEASURES, WITHOUTCOUNTERMEASURES
    - Get deviations with existing countermeasures or without existing countermeasures
- V2: Accept: application/vs.v2.0+json
- V3: Accept: application/vs.v3.0+json

Bold = required / mandatory

Request:
GET /api/exchange/deviations?level=ALL&team=276cf6e6-f4fe-4e66-ae2b-cc42e51997a2&status=ALL&page=1 HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v2.0+json
Authorization: Basic a3BpZXhjaGGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=

Response:
{
 "page":{
  "page":1,
  "elementsOnPage":7,
  "elementsPerPage":200,
  "totalPages":1,
  "totalElements":7
 },
 "entries":[
  {
   "id":"393ffad4-9b6f-423d-8b50-5c3801b5b0bf",
   "category":"cd315130-cb2c-11ea-87d0-0242ac130003",
   "createdBy":"a8437d73-53ff-458f-961c-063a4d800adb",
   "createdDate":"2022-01-31",
   "closed":false,
   "deviationType":"problem",
   "duration":15,
   "frequency":2,
   "responsibleTeam":"276cf6e6-f4fe-4e66-ae2b-cc42e51997a2",
   "status":"ACTIVE_WITH_COUNTERMEASURES",
   "title":"No cookies",
   "level":"SINGLE",
   "source":"Control element for the new XYZ-Car",
   "combinedParentDeviation":{
    "isCombinedParentDeviation":false,
    "childDeviations":[

    ]
   },
   "childDeviation":{
    "isChildDeviation":false,
    "parentDeviation":null
   }
  },
  "sourceEntity":{
   "type": "PROCESSACTIVITY",
   "id": "1fdd2864-162e-4f79-b20e-1dbcbd409f2d",
   "name": "Control element for the new XYZ-Car"},
   "worksafety": null
...
 ]
}

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4.4 #1 GET /exchange/deviations?{query-parameters}

Difference between V2 and V3:

- In V2 the response contains only deviation types: PROBLEM and ERROR
- In V3 the response additionally includes deviation types: NEAR_MISS and ACCIDENT

V2 Accept: application/vs.v2.0+json	V3 Accept: application/vs.v3.0+json

"entries": [
    {
        "id": "96900c97-7851-4df8-9775-9a4ef3c4722a",
        "category": "...",
        "createdBy": "...",
        "createdDate": "2025-07-18",
        "closed": **false**,
        "deviationType": „PROBLEM/ERROR",
        "duration": 0,
        "frequency": 1,
        "responsibleTeam": "...",
        "status": "ACTIVE_WITHOUT_COUNTERMEASURES",
        "title": "dfsd",
        "level": "SINGLE",
        "source": {}
	"entries": [
	    {
	        "id": "96900c97-7851-4df8-9775-9a4ef3c4722a",
	        "category": "...",
	        "createdBy": "...",
	        "createdDate": "2025-07-18",
	        "closed": **false**,
	        "deviationType":
	„PROBLEM/ERROR/NEAR_MISS/ACCIDENT",
	        "duration": 0,
	        "frequency": 1,
	        "responsibleTeam": "...",
	        "status": "ACTIVE_WITHOUT_COUNTERMEASURES",
	        "title": "dfsd",
	        "level": "SINGLE",
	        "source": {}

4.4 #2 GET /exchange/deviations/{deviation-id}?include=
Retrieve the given deviation and each of its fields

- The endpoint returns all fields and additional information of the given deviation

- The **description** of the deviation can be retrieved with endpoint #6

- The property **closed** indicates whether the deviation is active (closed=false) or closed / read only (closed=true)

- **Duration** – how long did the deviation occur in minutes?

- **Frequency** - how often did the deviation occur?

- If the deviation is a combined parent deviation, the properties duration and frequency are derived from the child deviations

- The property **status** is derived from the property **closed** and the presence of **countermeasures** and can be either
    - ACTIVE_WITH_COUNTERMEASURES or ACTIVE_WITHOUT_COUNTERMEASURES
    - CLOSED_WITH_COUNTERMEASURES or CLOSED_WITHOUT_COUNTERMEASURES

- The property **level** indicates wheter this is a SINGLE, COMBINED, or CHILD deviation
    - If the deviation is a COMBINED parent deviation, the property **isCombinedParentDeviation** is TRUE and the **childDeviations** array contains the child deviations
    - If the deviation is a child deviation, the property **isChildDeviation** is TRUE and contains a a reference to the parent deviation in the property **parentDeviation**

- Get countermeasures with query parameter **?include=COUNTERMEASURES**
    - When the query parameter is present in the URL, the array countermeasures contains the list of related countermeasures
    - When the query parameter is not present in the URL, countermeasures are not included in the response and the array will be empty

- V1: Accept: application/json – Content-Type: application/json
- V2: Accept: application/ vs.v2.0+json – Content-Type: application/vs.v2.0+json
- V3 Accept: application/ vs.v3.0+json – Content-Type: application/vs.v3.0+json

```
Request:
GET /api/exchange/deviations/61d93096-3235-4b6d-8fef-
1ca2935e2ee6?include=COUNTERMEASURES HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v2.0+json
Authorization: Basic a3BpZXhjaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=

Response:
{
  "id":"61d93096-3235-4b6d-8fef-1ca2935e2ee6",
  "category":"cd3152c0-cb2c-11ea-87d0-0242ac130003",
  "createdBy":"a8437d73-53ff-458f-961c-063a4d800adb",
  "createdDate":"2022-01-31",
  "closed":false,
  "closedOn":null,
  "deviationType":"PROBLEM",
  "duration":7,
  "frequency":2,
  "modifiedBy":"a8437d73-53ff-458f-961c-063a4d800adb",
  "modifiedDate":"2022-01-31",
  "responsibleTeam":"276cf6e6-f4fe-4e66-ae2b-cc42e51997a2",
  "status":"ACTIVE_WITH_COUNTERMEASURES",
  "source":"Level of disturbance (aggregated)",
  "title":"Cookies are empty",
  "level":"COMBINED",
  "combinedParentDeviation":{
    "isCombinedParentDeviation":true,
    "childDeviations":[
      "73c5e68f-c622-4f5a-bd00-48b5600081d8",
      "e32deb2b-c6fa-4a05-8340-f8261f398cce"
    ]
  },
  "childDeviation":{
    "isChildDeviation":false,
    "parentDeviation":null
  },
  "countermeasures":[
  ],
  "sourceEntity":{
    "type": "KPI",
    "id": "1fdd2864-162e-4f79-b20e-1dbcbd409f2d",
    "name": "Level of disturbance (aggregated)"},
  }
```

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4.4 #2 GET /exchange/deviations/{deviation-id}?include=
V3 with worksafety's properties

- Work safety deviations include additional work safety-specific properties:
  - textfield_long_1 to textfield_long_3: string (maximum 80 characters each)
  - textfield_short_1 to textfield_short_3: string (maximum 40 characters each)
  - checkbox_1 to checkbox_6: Boolean
  - dropdown_1 to dropdown_6: UUID
- If the deviation is not related to work safety, the worksafety object is set to null

```
Request:
GET /api/exchange/deviations/61d93096-3235-4b6d-8fef-
1ca2935e2ee6?include=COUNTERMEASURES HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v3.0+json
Authorization: Basic a3BpZXhjaGFGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
{
    "id": "24ddf8c4-6941-472a-99c1-887976f8304d",
    ....
    "countermeasures": [],
    "sourceEntity": {...},
    "worksafety": {
        "textfield_long_1": "text long 1",
        "textfield_long_2": "text long 2",
        "textfield_long_3": "text long 3",
        "textfield_short_1": "text short 1",
        "textfield_short_2": "text short 2",
        "textfield_short_3": "text short 3",
        "checkbox_1": true,
        "checkbox_2": true,
        "checkbox_3": true,
        "checkbox_4": true,
        "checkbox_5": true,
        "checkbox_6": true,
        "dropdown_1": "3c845cca-0e3e-45c8-84f8-fdff6bb5a3fa",
        "dropdown_2": null,
        "dropdown_3": null,
        "dropdown_4": null,
        "dropdown_5": null,
        "dropdown_6": null
    }
}
```

4.4 #3 POST /exchange/deviations Create a new deviation

- The endpoint creates a new deviation
- The API only supports to create **SINGLE** deviations. Combined parent deviations and child deviations can be created only via GUI
- Property: **responsibleTeam**
  - A deviation is always linked to a team by the team id
- Property: **category**
  - Based on the list of available categories of the team, a category ID must be provided. Only active and available categories for the team are accepted
- Property: **duration**
  - To generate a deviation, the duration of the deviation must be provided. It is an integer for the duration in minutes and can be zero
- Property: **frequency**
  - To generate a deviation, the frequency must be provided. It is an integer to show how often the deviation occured
- Property: **deviationType**
  - A deviation type must be provided. The deviation type can be „ERROR" or „PROBLEM"
- Property: **title**
  - Every deviation must have a title
- Property: sourceEntity
  - A deviation can be linked to other items. Type can be KPI, LIST, MEETINGATTENDANCE, PROCESSACTIVITY, TASK. The ID is the ID of the KPI, list entry, null in case of MEETINGATTENDANCE, ID of the process item or ID of the task
  - The link to other items can only be created for active (not closed or done) items and only ONCE per list
- Accept: application/json – Content-Type: application/vs.v2.0+json
- **Currently, the endpoint does not support creating work safety deviations. Therefore, only 'PROBLEM' and 'ERROR' can be used as DeviationType, and the new core category 'Work Safety' cannot be applied**

Bold = required / mandatory

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```
Request:
POST /api/exchange/deviations HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v2.0+json
Authorization: Basic a3BpZXhjaaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=

{
    "responsibleTeam":"276cf6e6-f4fe-4e66-ae2b-cc42e51997a2",
    "category":"cd314b36-cb2c-11ea-87d0-0242ac130003",
    "deviationType":"ERROR",
    "duration":13,
    "frequency":7,
    "title":"No cookies",
    "sourceEntity": {
        "type": "KPI",
        "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6"
    }
}
```

```
Response:
{
    "id":"93aad423-2f16-4d5d-889c-895c7c5f7a66",
    "category":"cd314b36-cb2c-11ea-87d0-0242ac130003",
    "createdBy":"785a94d2-97d8-43b3-aa55-9e7141571ee7",
    "createdDate":"2022-02-01",
    "closed":false,
    "closedOn":null,
    "deviationType":"ERROR",
    "duration":13,
    "frequency":7,
    "modifiedBy":"785a94d2-97d8-43b3-aa55-9e7141571ee7",
    "modifiedDate":"2022-02-01",
    "responsibleTeam":"276cf6e6-f4fe-4e66-ae2b-cc42e51997a2",
    "status":"ACTIVE_WITHOUT_COUNTERMEASURES",
    "source":"resource availability",
    "title":"No cookies",
    "level":"SINGLE",
    "combinedParentDeviation":{
        "isCombinedParentDeviation":false,
        "childDeviations":[

        ]
    },
    "childDeviation":{
        "isChildDeviation":false,
        "parentDeviation":null
    },
    "countermeasures":[],
    "sourceEntity": {
        "type": "KPI",
        "id": "3fa85f64-5717-4562-b3fc-2c963f66afa6",
        "name": "resource availability"
    }
}
```

4.4 #4 PUT /exchange/deviations/{id} Update the given deviation

- The endpoint updates the given deviation. SINGLE, as well as COMBINED and CHILD deviations can be updated
- Title and closed are **mandatory**
- Frequency and duration are **mandatory** when updating a SINGLE or CHILD deviation. When updating a combined parent deviation, frequency and category must be null, as the values are then calculated based on the values of the child deviations
- Category is **mandatory** when updating a SINGLE deviation. When updating COMBINED or CHILD deviations, the category can't be changed and must be null
- If properties are sent with NULL values, the existing values in the database are removed resp. overwritten with NULL
- Deviations can be closed by setting „closed"=true. Closed deviations are then read only and can no longer be updated
- SINGLE deviations cannot be combined to a COMBINED deviation with this endpoint. This is only possible via GUI
- Deviations can be linked to lists, tasks, process items, KPIs etc (see POST) by putting sourceEntity into the request

- V1: Accept: application/json – Content-Type: application/json
- V2: Accept: application/ vs.v2.0+json – Content-Type: application/vs.v2.0+json
- V3 Accept: application/ vs.v3.0+json – Content-Type: application/vs.v3.0+json

```
Request:
PUT /api/exchange/deviations/d80673f9-5011-4e86-88e2-278c01ac6dfb HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v2.0+json
Content-Type: application/vs.v2.0+json
Authorization: Basic a3BpZXhjaGGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
{
  "category": "cd314f50-cb2c-11ea-87d0-0242ac130003",
  "closed": false,
  "title": "No cookies",
  "duration": 7,
  "frequency": 7,
  "deviationType": "PROBLEM"
}
Response:
{
  "id":"61d93096-3235-4b6d-8fef-1ca2935e2ee6",
  "category":"cd3152c0-cb2c-11ea-87d0-0242ac130003",
  "createdBy":"a8437d73-53ff-458f-961c-063a4d800adb",
  "createdDate":"2022-01-31",
  "closed":false,
  "closedOn":null,
  "deviationType":"PROBLEM",
  "duration":7,
  "frequency":2,
  "modifiedBy":"a8437d73-53ff-458f-961c-063a4d800adb",
  "modifiedDate":"2022-01-31",
  "responsibleTeam":"276cf6e6-f4fe-4e66-ae2b-cc42e51997a2",
  "status":"ACTIVE_WITH_COUNTERMEASURES",
  "source":"Level of disturbance (aggregated)",
  "title":"No cookies",
  "level":"COMBINED",
  "combinedParentDeviation":{
    "isCombinedParentDeviation":true,
    "childDeviations":[
      "73c5e68f-c622-4f5a-bd00-48b5600081d8",
      "e32deb2b-c6fa-4a05-8340-f8261f398cce"
    ]
  },
  "childDeviation":{
    "isChildDeviation":false,
    "parentDeviation":null
  },
  "countermeasures":[
  ],
  "sourceEntity":{
    "type": "KPI",
    "id": "1fdd2864-162e-4f79-b20e-1dbcbd409f2d",
    "name": "Level of disturbance (aggregated)"},
}
```

4.4 #4 PUT /exchange/deviations/{id}
V3 mit worksafety's properties

- Work safety deviations include additional work safety-specific properties:
  - textfield_long_1 to textfield_long_3: string (maximum 80 characters each)
  - textfield_short_1 to textfield_short_3: string (maximum 40 characters each)
  - checkbox_1 to checkbox_6: Boolean
  - dropdown_1 to dropdown_6: UUID
- If the deviation is not related to work safety, the worksafety object is set to null

```
Request:
PUT /api/exchange/deviations/d80673f9-5011-4e86-88e2-278c01ac6dfb HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v3.0+json
Content-Type: application/vs.v3.0+json
Authorization: Basic a3BpZXhjaGaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
{
  "category": "cd314f50-cb2c-11ea-87d0-0242ac130003",
  "closed": false,
  "title": "No cookies",
  "duration": 7,
  "frequency": 7,
  "deviationType": "PROBLEM"
}
```

```
{
  "id": "24ddf8c4-6941-472a-99c1-887976f8304d",
  ....
  "countermeasures": [],
  "sourceEntity": {...},
  "worksafety": {
    "textfield_long_1": "text long 1",
    "textfield_long_2": "text long 2",
    "textfield_long_3": "text long 3",
    "textfield_short_1": "text short 1",
    "textfield_short_2": "text short 2",
    "textfield_short_3": "text short 3",
    "checkbox_1": true,
    "checkbox_2": true,
    "checkbox_3": true,
    "checkbox_4": true,
    "checkbox_5": true,
    "checkbox_6": true,
    "dropdown_1": "3c845cca-0e3e-45c8-84f8-fdff6bb5a3fa",
    "dropdown_2": null,
    "dropdown_3": null,
    "dropdown_4": null,
    "dropdown_5": null,
    "dropdown_6": null
  }
}
```

4.4 #4 PUT /exchange/deviations/{id}
Note regarding the new core category 'Work Safety', the new deviation types 'NEAR_MISS' and 'ACCIDENT', and the associated work safety properties.

- If the created deviation has the core category "Work Safety":
  - Only NEAR_MISS and ACCIDENT can be used as DeviationType.
  - The deviation category cannot be changed.
- If the created deviation has a category other than the core category "Work Safety":
  - Only PROBLEM and ERROR can be used as DeviationType.
  - The deviation category cannot be changed to the core category "Work Safety".
- The work safety properties cannot be added or modified.

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4.4 Creating/updating the link to other entities

- Using either the POST or PUT endpoint, a deviation can optionally be linked to the following entities within ValueStreamer: KPI, LIST, MEETINGATTENDANCE, PROCESSACTIVITY, TASK
- A special case is MEETINGATTENDANCE, since no ID is needed (Link will be created to the Meeting Attendance list in the given team in ValueStreamer)
- For KPIs you can use the endpoint `GET /exchange/teams/{id}` to get the list of available KPIs in this team
  - Use **application/vs.te.v2.0+json** for the Accept-Header to receive a list of available KPIs in this team
- For LIST you can use the `GET /exchange/list/{list-id}/{team-id}` endpoint to find the list record you want to link the deviation to
- For PROCESSACTIVITY you can use the `GET /exchange/processactivities` endpoint to find the process item you want to link the deviation to
- For TASK you can use the `GET /exchange/tasks` endpoint to find the task you want to link the deviation to

- The sourceEntity property is only available for version 2.0 of the POST/PUT deviation endpoint by using Content-Type: application/vs.v2.0+json

```
Request:
PUT /api/exchange/deviations/d80673f9-5011-4e86-88e2-278c01ac6dfb HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/vs.v2.0+json
Authorization: Basic a3BpZXXhjaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
{
  "category": "cd314f50-cb2c-11ea-87d0-0242ac130003",
  "closed": false,
  "title": "No cookies",
  "duration": 7,
  "frequency": 7,
  "deviationType": "PROBLEM"
}
```

```
Response:
{
  "id":"61d93096-3235-4b6d-8fef-1ca2935e2ee6",
  "category":"cd3152c0-cb2c-11ea-87d0-0242ac130003",
  "createdBy":"a8437d73-53ff-458f-961c-063a4d800adb",
  "createdDate":"2022-01-31",
  "closed":false,
  "closedOn":null,
  "deviationType":"PROBLEM",
  "duration":7,
  "frequency":2,
  "modifiedBy":"a8437d73-53ff-458f-961c-063a4d800adb",
  "modifiedDate":"2022-01-31",
  "responsibleTeam":"276cf6e6-f4fe-4e66-ae2b-cc42e51997a2",
  "status":"ACTIVE_WITH_COUNTERMEASURES",
  "source":"Level of disturbance (aggregated)",
  "title":"No cookies",
  "level":"COMBINED",
  "combinedParentDeviation":{
    "isCombinedParentDeviation":true,
    "childDeviations":[
      "73c5e68f-c622-4f5a-bd00-48b5600081d8",
      "e32deb2b-c6fa-4a05-8340-f8261f398cce"
    ]
  },
  "childDeviation":{
    "isChildDeviation":false,
    "parentDeviation":null
  },
  "countermeasures":[
  ],
  "sourceEntity":{
    "type": "KPI",
    "id": "1fdd2864-162e-4f79-b20e-1dbcbd409f2d",
    "name": "Level of disturbance (aggregated)"},
}
```

4.4 #5 DELETE /exchange/deviations/{deviation-id}
Delete a deviation

- The endpoint deletes the given deviation
- When a deviation is deleted, entries of the following types related to the deviation are also deleted:
  - Child deviations
  - Countermeasures
  - Go + see
  - Top issue
  - Feedback
- Tasks that are linked to a deviation remain but the deviation and the link are deleted
- Accept: application/json

```
Request:
DELETE /exchange/deviations/54e0f2ab-9c22-402f-a915-f63b4c4b7071 HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: application/json
Authorization: Basic a3BpZXhjaGGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
```

4.4 #6 GET /exchange/deviations/{deviation-id}/description
Get the description of the given deviation

- The endpoint returns the description of the given deviation as HTML code
- **Accept: text/html**

```
Request:
GET /api/exchange/deviations/81beaa9b-b510-4924-af84-
0fe651de8fcb/description HTTP/1.1
Host: api-demo.valuestreamer.de
Accept: text/html
Authorization: Basic a3BpZXhjaGaGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=
```

```
Response:
<p>Your text could stand here</p>
```

4.4 #7 PUT /exchange/deviations/{deviations-id}/description
Update the description of the given deviation

- The endpoint updates the description of a deviation
- Valid HTML code must be sent in the request body
- **Accept: text/html – Content-Type: text/html**

```
Request:
PUT /api/exchange/deviation/54e0f2ab-9c22-402f-a915-
f63b4c4b7071/description HTTP/1.1
Host: api-demo.valuestreamer.de
Accept:'text/html'
Authorization: Basic a3BpZXhjaGGFuZ2U6NW1VZE1HbWpxOTNvdE9WTDdLdXY=

'<p>Get some cookies!</p>'
```

```
Response:
'<p>Get some cookies!</p>'
```

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