REST API of the RESTifier for SAP

The RESTifier provides a REST interface. The supported content type for results and requests is JSON (application/json).

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Execute BAPI function

```
GET /sap/:functionName?parameter1=value1[&...][&callback=clientCallback]
POST /sap/:functionName?[callback=clientCallback]
```

If the BAPI function name as only simple parameters then both `GET` and `POST` can be used. If the BAPI function has tables or structures as input parameter only `POST` can be used. For `POST` the body must be a JSON object with all parameters as properties and Content-Type must be application/json.

Parameter	Description
functionName	BAPI function name. Slash (/) must be encoded as tilde (~).
parameter1	BAPI function parameters with value. The parameters names and types can be explored with /sap/:functionName/metadata.
callback	JSON-P callback

Example for executing a BAPI

The BAPI function is called with `GET`.

```
curl http://localhost:3000/sap/ZGETCUSTOMERDETAILS?PARTNERNUMBER=0000008889
```

The same BAPI function can also be called with `POST`.

```
curl -X POST -H "Content-Type: application/json" -d '{"PARTNERNUMBER":"
0000008889"}' 'http://localhost:3000/sap/ZGETCUSTOMERDETAILS'
```

Response

```
{
  "result": {
    "CITY": "SPRINGFIELD  07081",
    "COUNTRY": "US",
    "DISTRICT": "UNION",
    "HOUSENUMBERSTREET": "12 BROADWAY",
    "NAME": "John Taylor",
    "POSTALCODE": "07081",
    "PARTNERNUMBER": "0000008889"
  },
  "self_url": "http://localhost:3000/sap/ZGETCUSTOMERDETAILS?
PARTNERNUMBER=0000008889"
}
```

Per default, the RESTifier trims the response fields of whitespaces and empty data. If you need the response untrimmed, you can add `~noclean` as a query parameter to your request. `~noclean` is a comma-separated, multi-value parameter and allows for the following values:

Value	Description
whitespace	Do not trim whitespaces at all.
empty-values	Keep simple types that are empty (like empty strings).

nulls	Keep fields that are `NULL`.
empty-objects	Keep objects that do not contain any data.

Call with `GET`:

```
curl http://localhost:3000/sap/ZGETCUSTOMERDETAILS?
PARTNERNUMBER=0000008889&~noclean=whitespace,empty-values
```

Call with `POST`:

```
curl -X POST -H "Content-Type: application/json" -d '{"PARTNERNUMBER":"
0000008889"}' 'http://localhost:3000/sap/ZGETCUSTOMERDETAILS?
~noclean=whitespace,empty-values'
```

Exception

If you call a RFC function instead of a BAPI, an exception on the SAP server can happen. In this case you get HTTP status **502** and the following response:

Result	Type	Description
error	Number	HTTP status code
message	String	SAP error description
rfcErrorInfo	Object	Details of the error
rfcErrorInfo.**code**	Number	Return value of last function from SAP client
rfcErrorInfo.**group**	Number	SAP error group
rfcErrorInfo.**key**	String	SAP error key or exception
rfcErrorInfo.**abapMsgClass**	String	SAP ABAP message ID, or class
rfcErrorInfo.**abapMsgType**	String	SAP ABAP message type, e.g. 'E', 'A' or 'X'
rfcErrorInfo.**abapMsgNumber**	String	SAP ABAP message number
rfcErrorInfo.**abapMsgV1**	String	SAP ABAP message details field 1, corresponds to SY-MSGV1
rfcErrorInfo.**abapMsgV2**	String	SAP ABAP message details field 2, corresponds to SY-MSGV2
rfcErrorInfo.**abapMsgV3**	String	SAP ABAP message details field 3, corresponds to SY-MSGV3
rfcErrorInfo.**abapMsgV4**	String	SAP ABAP message details field 4, corresponds to SY-MSGV4
self_url	String	URL to this call

Empty elements of **rfcErrorInfo** will be suppressed. Find below an example response.

```
{
  "error": 502,
  "message": " Number:000",
  "rfcErrorInfo": {
    "code": 5,
    "group": 1,
    "key": "DIV_BY_ZERO",
    "abapMsgType": "",
    "abapMsgNumber": "000"
  },
  "self_url": "http://sap.e2e.ch/sap/Z_TEST_EXCEPTION"
}
```

Get BAPI function signature

```
GET /sap/:functionName/metadata
```

Parameter	Description
functionName	BAPI function name. Slash (/) must be encoded as tilde (~).

The result is of type JSON with these properties.

Name	JavaScript Type	Description
functionName	String	Array of function descriptions
metadata	Object	JSON Schema with additional properties.
error	String	Error description

An meta objects has these properties.

Property	JavaScript Type	Description
title	String	Name of the object or property.
type	String	JavaScript type.
length	Number	Length of a simple type or structure.
description	String	Description of parameters from SAP. Can be empty.
sapType	String	Native SAP type.
sapDirection	String	Input or output parameter. RFC_IMPORT | RFC_EXPORT | RFC_CHANGING | RFC_TABLES
sapTypeName	String	Name of a structure or name of a structure of a table.
dbTable	String	Name of the SAP database table
dbTableField	String	Field of the SAP database table
label	String	Short description

Example for getting metadata

Get description of BAPI function STFC_STRING.

```
curl http://localhost:3000/sap/ZGETCUSTOMERDETAILS/metadata
```

```
{
  "error": null,
  "metadata": {
    "title": "Signature of SAP RFC function ZGETCUSTOMERDETAILS",
    "type": "object",
    "properties": {
      "PARTNERNUMBER": {
        "type": "string",
        "length": "10",
        "sapType": "RFCTYPE_CHAR",
        "description": "Character Field Length = 10",
        "sapDirection": "RFC_IMPORT",
        "label": "Character Field Length = 10",
        "title": "PARTNERNUMBER"
      }
    }
  },
  "functionName": "ZGETCUSTOMERDETAILS",
  "exec_url": "http://localhost:3000/sap/ZGETCUSTOMERDETAILS{?callback}",
  "self_url": "http://localhost:3000/sap/ZGETCUSTOMERDETAILS/metadata"
}
```


Find BAPI function /sap/functions

```
GET /sap/functions/:searchTerms[/:pageNumber]&[description=1]
```

Parameter	Description
searchTerms	One or more parts of BAPI function name. Several terms should be separated by a URL encoded space.
pageNumber	Which result page should be returned.
description =1	The searchTerms will also be used to search in BAPI function descriptions.

The result is of type JSON with these properties.

Property	JavaScript Type	Description
functionList	Array	Array of function descriptions
currentPage	Number	The current result page. Result is divided into pages. Each page has up to 25 entries.
totalPages	Number	Total count of result pages.
error	String	Error description

An object in array **functionList** has these properties.

Property	JavaScript Type	Description
FUNCNAME	String	Function name
GROUPNAME	String	Group name
APPL	String	Application to which function module is assigned
HOST	String	Remote host (CPIC)
STEXT	String	Function description

Example /sap/functions

Search for **customer** and get the first 25 functions.

```
curl http://localhost:3000/sap/functions/customer
```


```
{
  "functionList": [
    {
      "FUNCNAME": "/DSD/ME_CR_CUSTOMERCPD",
      "GROUPNAME": "/DSD/ME_SYNCBO",
      "APPL": "",
      "HOST": "",
      "STEXT": ""
    },
// ... cut of functions
    {
      "FUNCNAME": "BAPI_CUSTOMEREXPINV_GETLIST",
      "GROUPNAME": "2144",
      "APPL": "W",
      "HOST": "",
      "STEXT": "Agency Business: BAPI - Determine Detailed Data for
Expenses Settlement"
    }
  ],
  "error": null,
  "self_url": "http://localhost:3000/sap/functions/customer",
  "first_url": "http://localhost:3000/sap/functions/customer",
  "last_url": "http://localhost:3000/sap/functions/customer/8"
}
```


Search for **customer** and/or **get** in function name and description. Return the 26th-50th (2nd page) functions.

```
curl 'http://localhost:3000/sap/functions/customer%20get/2?description=1'
```

```
{
  "functionList": [
    {
      "FUNCNAME": "BAPI_CUSTOMEREXPINV_GETLIST",
      "GROUPNAME": "2144",
      "APPL": "W",
      "HOST": "",
      "STEXT": "Agency Business: BAPI - Determine Detailed Data for
Expenses Settlement"
    },
// ... cut of functions
    {
      "FUNCNAME": "BAPI_SERVICENOTIFICAT_GETLIST",
      "GROUPNAME": "IWWW",
      "APPL": "I",
      "HOST": "",
      "STEXT": "Select service notifications according to customer or
contact person"
    }
  ],
  "error": null,
  "self_url": "http://localhost:3000/sap/functions/customer%20get/2?
description=1",
  "next_url": "http://localhost:3000/sap/functions/customer%20get/3?
description=1",
  "previous_url": "http://localhost:3000/sap/functions/customer%20get/1?
description=1",
  "first_url": "http://localhost:3000/sap/functions/customer%20get?
description=1",
  "last_url": "http://localhost:3000/sap/functions/customer%20get/5?
description=1"
}
```

Migrating from version 0.3.2 and below

Change in endpoints:

Old endpoint	New endpoint
/sap/exec/:functionName	/sap/:functionName
/sap/metadata/:functionName	/sap/:functionName/metadata
/sap/findFunction/:searchTerms	/sap/functions/:searchTerms

Changes in response:

- Addition of *_url properties - this should require no changes to the clients
- The result of a BAPI call has been moved to "result" property of the response.
- Properties "currentPage" and "totalPages" are no longer present in function search results.