ARIS

MOBILE API - TECHNICAL INTRODUCTION

VERSION 10.0 - SERVICE RELEASE 11

December 2019

This document applies to ARIS Version 10.0 and to all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

Contents

1 Introduction

This document provides additional information for accessing an ARIS repository via the ARIS API. It should be considered as a supplement to the official API documentation available on every running ARIS Connect Server and ARIS Design Server under **http://<servername:portal>/apidocs**.

2 General principles

- The ARIS RESTful APIs are designed to access an ARIS repository by apps typically running on mobile devices. It is not meant as a replacement for other ways to access an ARIS repository, for example, the ARIS Report API. Therefore it has various limitations with respect to functionality that you might have expected.
- Every call to the API is atomic: either the operation succeeds or fails.
- Every call to the API requires a valid API cookie/token from ARIS User Management.
- Many calls have obligatory and/or optional URL parameters. All parameter values must be URL-encoded as they may contain special characters.
- If URL parameters are passed that are unknown or not the correct ones for the specific method or misspelled, then they are silently ignored. This may lead to an unexpected outcome of the requested operation.
- Many calls require a database language as parameter. If not given, the fallback language of the current database is used.
- Many operations require an ARIS method filter GUID as parameter. If not given, a specific auto-selection mechanism chooses the right filter, similar to a login on the Connect portal. It is strongly recommended to pass the desired filter as parameter which is also much faster.
- The result objects may contain method data, for example, **typename**. Method data is delivered in the language from the client's HTTP header ("accept-language"). Alternatively, you can pass an optional URL parameter **methodlanguage** in order to set the method language directly.
- There is an absolute result size limit (depending on the license, typically 5,000 items).
- Date parameters must be provided and are returned in UTC in the RFC 3339 Internet format YYYY-MM-DD, and for timestamps in UTC in the RFC 3339 Internet Zulu time format is needed YYYY-MM-DD'T'HH:MM:SS'Z', for example, 2014-01-22T08:22:55Z.

3 Login

For all API calls, a valid token from ARIS User Management (also known as UMC) is required. The token must be obtained by calling a dedicated method from the UMC API. It is not allowed to use a standard UMC token obtained by logging in to the Connect portal.

The token must be included in all subsequent API calls as URL parameter **(umcsession)** or added as cookie to the HTTP request.

POST

```
http://<servername:port>/umc/api/tokens?tenant=default&name=system&password=mana
ger&key=lsjflskjfsfj
```

Remarks

A typical problem is that the client programmer forgets to urlencode all parameters.

The parameter key is the string representation of an X.502 certificate. It must be requested from Software AG for certifying the app:

https://www.ariscommunity.com/aris-access-certification-inquiry-form

4 Get information on available databases

GET

`http://<servername:port>/abs/api/databases`

This call returns a list of all available databases for the current user. It is the same list that a user would see when opening ARIS Architect.

For each database, its name, main group GUID and the **isversioned** flag is returned.

Example

```
{
"kind": "DATABASE",
"name": "United Motor Group",
"isversioned": true,
"maingroup_guid": "4a713de0-5d02-11e3-0fda-fd81e986d7e2"
}
```

Note

A type **ARIS Access Full** or **ARIS Access Read-only** license is required for this operation.

GET

`http://<servername:port>/abs/api/databases/United%20Motor%20Group`

This call returns more detailed information for the given database name: main-group GUID, isVersioned flag as well as a list of all allowed method filters and db languages. Exactly one database language will have the flag **isalternative = true** which means that it will be used as the fallback database language if a request does not pass the URL parameter **language**.

In case of a versionable database, the existing change lists are returned as well.

Example for method filter item

```
{
"kind": "METHODFILTER",
"guid": "dd838074-ac29-11d4-85b8-00005a4053ff",
"name": "Entire method",
"description": "All method content is available."
}
```

Example for database language item

```
{
"kind": "DBLANGUAGE",
"language": "en_US",
"isalternative": true
}
```

Example for changelist item


```
{
"kind": "CHANGELIST",
"changelist_number": 1,
"user": "internal",
"description": "initial revision after restore from basic archive file.",
"submit_time": "2015-04-07T16:11:13Z"
}
```

5 API Docs ComparePair

5.1 Get a list of database comparison pairs

GET

/publishing/databaseComparePair

http://<servername:port>/abs/publishing/databaseComparePair

This call returns a list of all available database pairs.

Example

```
[
      {
      "name": "A",
      "user": null,
      "description": null,
      "sourceDatabaseName": "test_mv",
      "sourceVersion": 1,
      "targetDatabaseName": "test_mv",
      "targetVersion": 2,
      "enabled": true
      }
]
```

GET

/publishing/databaseComparePair(dbPairName)

http://<servername:port>/abs/publishing/databaseComparePair/A

Parameter

```
name = A    // Name of the database pair
```

Gets a database pair for comparison by its name.

This call returns a single database pair if one is found.

The information detail is exactly the same as in **get databaseComparePair**.

No new information is provided.

Example


```
[
      {
      "name": "A",
      "user": null,
      "description": null,
      "sourceDatabaseName": "test_mv",
      "sourceVersion": 1,
      "sourceDatabaseName": "test_mv",
      "targetVersion": 2,
      "enabled": false
      }
]
```

5.2 Create a database comparison pair

POST

/publishing/databaseComparePair

http://<servername:port>/abs/publishing/databaseComparePair?name=A&user=test&description=test%20description&sourceDatabaseName=test_mv&sourceVersion=1&targetName=test_mv&targetVersion=2

Parameter

```
databasePairName                    = A         //Name of the database pair
user                    = ""        //Name of the responsible user
description             = ""        //Description of the pair
sourceDatabaseName      = Test_mv   //Name of the source database
sourceVersion           = 1         //Version of the source database
targetDatabaseName                  = Test_mv   //Name of the target database
targetVersion           = 2         //Version of the target database
enabled                 = true      //Enable the database pair
```

If successful, this call returns the newly created database pair. For each pair a name, a short description, and the responsible user can be saved.

The unique name of the database pair is required. The source database must be unique. The target database can be referenced in several pairs. For source and target, the database and version must exist, but the databases do not need to be published. If the source and target databases and their versions are the same, the comparison does not return any results.

Database pairs with the same name or the same source database overwrite older ones.

Example

```
[
      {
      "name": "A",
      "user": "",
      "description": "",
      "sourceDatabaseName": "test_mv",
      "sourceVersion": 1,
      "targetDatabaseName": "test_mv",
      "targetVersion": 2,
      "enabled": true
      }
]
```

5.3 Toggle the enable state of a database comparison pair

PATCH

/publishing/databaseComparePair/{databasePairName}

http://<servername:port>/abs/publishing/databaseComparePair/test_mv.1-test_mv.2

Parameter

```
databasePairName = A    //Name of the database pair
```

This call returns the updated database pair.

This method toggles the enabled value of the database pair and is a simple way to change the state in the background.

Example


```
[
      {
      "name": "A",
      "user": null,
      "description": null,
      "sourceName": "test_mv",
      "sourceVersion": 1,
      "targetName": "test_mv",
      "targetVersion": 2,
      "enabled": true
      }
]
```

5.4 Delete a database comparison pair

DELETE

/publishing/databaseComparePair

http://<servername:port>/abs/publishing/databaseComparePair/databaseComparePair?sourceDatabaseName=test_mv&sourceVersion=1&targetDatabaseName=test_mv&targetVersion=2

Parameter

```
sourceDatabaseName      = test_mv   //Name of the source database
sourceVersion           = 1         //Version of the source database
targetDatabaseName      = test_mv   //Name of the target database
targetVersion           = 2         //Version of the target database
```

This call returns **200** if everything is correct. Otherwise, all errors will be returned. The given parameter searches and deletes all pairs. If the databases are the same, source and target are exchangeable. All found database pairs are deleted even if it should just be one in the first place.

DELETE

/publishing/databaseComparePair/{databasePairName}

http://<servername:port>/abs/publishing/databaseComparePair/A

Parameter

```
databasePairName = A    //Name of the database pair
```

Deletes a database pair with the pair name. Only one database name is required for this call. This call returns **200** if everything is correct. Otherwise, all errors are returned. The given parameter searches and deletes all pairs.

6 Get information on published databases

GET

/publishing/publishDatabase

`http://<servername:port>/abs/publishing/publishDatabase`

This call returns a list of all available published databases for the current user. The result returns the name of the database and the published database version. The published version can be **-1** for **Workspace**, **0** for **Latest version**, or a change list version.
If the database could not be published, the result list is empty.

Example

```
[
  {
    "name": "United Motor Group",
    "publishedVersion": -1,
    "published": true,
    "versions": [ 62, 63, 64, 65, 66, -1, 0]
  }
]
```

GET

/publishing/publishDatabase/{databaseName}

`http://<servername:port>/abs/publishing/publishDatabase/United%20Motor%20Group`

Parameter

`databaseName = United Motor Group  //Name of the database`

This call returns the same information as **getPublishDatabases**, but for the specified database name.

Example

```
[
  {
    "name": "United Motor Group",
    "publishedVersion": -1,
    "published": true,
    "versions": [ 62, 63, 64, 65, 66, -1, 0]
  }
]
```

DELETE

/publishing/publishDatabase/{databaseName}

```
http://<servername:port>/abs/publishing/publishDatabase/United%20Motor%20Group
```

Parameter

databaseName = United Motor Group //Name of the database

This call returns **200** if everything went right. In this case, **went right** means that the publishing status of the specified database is then **Ceased**.

PUT

/publishing/publishDatabase/{databaseName}/{version}

```
http://<servername:port>/abs/publishing/publishDatabase/United%20Motor%20Group/-1
```

Parameter

```
databaseName = United Motor Group   //Name of the database
version = 1                  //Existing version of the database
```

Sets the publishing status of a database with version. Only one version can be published at a time. If another database is published, it is this version, then the publication state of this database is **Ceased**. This call returns **200** if everything went right.

Note

Multiple databases can be published, but only in one version.

7 Get an item

The ARIS API offers to retrieve groups, objects (definitions) and models. The desired item must be identified by its ARIS GUID or a full CONNECT item-id (for example, **c.process.United Motor Group.CibrcP1SEdsnKQALzQzOTg.-1**).

Identifying via group path + name is unsupported as this is possibly ambiguous.

GET

```
http://<servername:port>/abs/api/groups/United%20Motor%20Group/1191ae90-02f7-11dc-2729-000bcd0cce4e
```

By default, only the name attribute (AT_NAME) is included in the response. If you need more attributes, the URL parameter **attributes** must be given. Possible values are

- **all**: all non-empty attributes
- a comma-separated list of attribute type numbers, API names or type-GUIDs (all of these can be arbitrarily mixed)

Example

```
attributes = 1, AT_DESC, AT_AUTH    // attribute name, description, author
```

Remarks

Connections are not supported.

Note

It is also possible to retrieve HTTP portal links that can be directly used in the browser to access the item via the CONNECT portal. Add URL parameter **withportallinks = true**.

PORTAL LINK EXAMPLES (FOR A MODEL)

```
{
"kind": "LINK",
"method": "GET",
"href": "http://<servername:port>/#default/item/c.process.United Motor
Group.CibrcP1SEdsnKQALzQzOTg.-1",
"rel": "ITEM_MODEL"     // CONNECT Item View
},


{
"kind": "LINK",
"method": "GET",
"href": "http://<servername:port>/#default/repository/a.model.United Motor
Group.CibrcP1SEdsnKQALzQzOTg.-1",
"rel": "REPO_MODEL"     // CONNECT Repository View
},


{
"kind": "LINK",
"method": "GET",
"href": "http://<servername:port>/#default/thinclient/c.process.United Motor
Group.CibrcP1SEdsnKQALzQzOTg.-1",
"rel": "TC_MODEL" // CONNECT Designer View
},


{
"kind": "LINK",
"method": "GET",
"href": "http://
<servername:port>/abs/downloadClient/aris_database.jsp?configuration=ARIS&apps
erver=myserver&database=United%20Motor%20Group&guid=0a26eb70-fd52-11db-2729-
000bcd0cce4e&language=en_US&tenant=default",
"rel": "DC_MODEL" // CONNECT Download client
}
```

8 Get group children

A group usually contains children, that is, subgroups as well as models and objects.

GET

```
http://<servername:port>/abs/api/groups/United%20Motor%20Group/4a713de0-5d02-11e3-0fda-fd81e986d7e2/children
```

This call returns all subgroups of the group identified by the given GUID or CONNECT item-iD.

If you additionally need the models and/or objects in the group, you can add the URL parameters **withmodels=true** or **withobjects=true**.

GET

```
http://<servername:port>/abs/api/groups/United%20Motor%20Group/4a713de0-5d02-11e3-0fda-fd81e986d7e2/children?withmodels=true&withobjects=true
```

Remark

It also possible to retrieve an entire subtree by passing the URL parameter **recursive=true**.

Note

There is an absolute result size limit of 5,000 items (regardless of the page size you choose and how many paging requests are sent). If a group contains more than 5,000 children, you will not be able to retrieve them all.

Depending on the ARIS license, other size limits may apply.

9 Get content of a model

The content of a model are its occurrences (= model objects, model connections). They can be retrieved in a **getModel** call by passing the URL parameter **withcontent=true**.

GET

```
http://<servername:port>/abs/api/models/United%20Motor%20Group/88ba40a0-cfb6-
11e0-2556-5c260a398437?withcontent=true
```

Remarks

Model objects/model connections are a blend of data from the occurrence and definition levels. They do not contain any graphical information, such as dimension (width, height), and no coordinates of positions and edge paths.

Example for model object item


```
{
"kind": "MODELOBJECT",
"occid": "(7wLHfY8btgy:u:L+6PmFOGfzQQ4:x:L+33+c)",
"guid": "d734eb6f-cf14-11e0-2556-5c260a398437",
"link": {
      "kind": "LINK",
      "method": "GET",
      "href": "http://<servername:port>/abs/api/objects/United Motor
Group/d734eb6f-cf14-11e0-2556-
5c260a398437?language=en_US&methodfilter=dd838074-ac29-11d4-85b8- 00005a4053ff",
      "rel": "OBJECT"
      },
"type": 239,
"typename": "Strategy",
"apiname":"OT_STAT",
"symbol": 1627,
"symbolname": "Tactic",
symbol_apiname": "ST_TACTIC",
"attributes": [
      {
      "kind": "ATTRIBUTE",
      "id": "6S4A4i43Hh0:p:L=1=1033:1:s",
      "typename": "Name",
      "type": 1,
      "apiname": "AT_NAME",
      "language": "en_US",
      "value": "Reduce operational costs in Supply Chain"
      }
    ]
 }
```

Example for model connection item


```
{
"kind": "MODELCONNECTION",
"occid": "(7wLHfY8btgy:u:L+-6xMo0A_0oEz:y:L+34+c)",
"type": 67,
"typename": "encompasses",
"apiname": "CT_SUBS_1",
"source_guid": "c7ca78b0-abcf-11e0-7ee8-5c260a398437",
"target_guid": "289b0560-ac64-11e0-7ee8-5c260a398437",
"source_link": {
"kind": "LINK",
"method": "GET",
"href": "http://<servername:port>/abs/api/objects/United Motor Group/c7ca78b0-
abcf-11e0-7ee8-5c260a398437?language=en_US&methodfilter=dd838074-ac29-11d4-
85b8-00005a4053ff",
      "rel": "OBJECT"
},
"target_link": {
      "kind": "LINK",
      "method": "GET",
      "href": "http://<servername:port>/abs/api/objects/United Motor
Group/289b0560-ac64-11e0-7ee8-
5c260a398437?language=en_US&methodfilter=dd838074-ac29-11d4-85b8- 00005a4053ff",
      "rel": "OBJECT"
      },
"source_occid": "(7wLHfY8btgy:u:L+-7cJgUsuG4Td:x:L+33+c)",
"target_occid": "(7wLHfY8btgy:u:L+-2apRUFiN0WT:x:L+33+c)"
}
```

10 Create an item

The API offers support for creating groups and objects. For objects, groups and models, it is possible to create attributes (or more correctly formulated in ARIS terminology: it is possible to maintain attributes with a value). It is allowed to add multiple attributes in the same call --> for all of them, the same database language will be used (from URL parameter **language**).

Furthermore, it is possible to create an assignment relationship between an existing object and an existing model.

Note

The creation of models is not supported.

Example

Create a new object of type **43** (OT_ORG_UNIT) with two attributes (AT_NAME and AT_DESC). Database language = English; parent group = 4a713de0-5d02-11e3-0fda-fd81e986d7e2 (= main group)

POST

```
http://<servername:port>/abs/api/objects/United%20Motor%20Group?language=en&pare
nt=4a 713de0-5d02-11e3-0fda-fd81e986d7e2


Request-Body:
{
"kind": "OBJECT",
"type": 43,
"attributes": [
      {
      "kind": "ATTRIBUTE",
      "type": 1,
      "value": "My first OrgUnit "
      },
      {
      "kind": "ATTRIBUTE",
      "type": 9,
      "value": "This is the long description"
      }
      ]
}
```

Remarks

The "**kind**" entries in the request body are redundant and not required.

There is a slight difference in the behavior whether creating an object or a group with a duplicate name.

- If you create a new group with the name **X** and there is already a group **X** in the desired parent group, then the new group will automatically be renamed to **X(1)**.
- If you create a new object with name **X** and there is already an object **X** in the desired parent group, then the new object has the name **X**, so there are two objects with the name **X**.

11 Create model content

Models cannot be created via the ARIS Mobile API, but it is allowed to create model objects and model connections. When creating a new connection, it is possible to use objects that are created in the same request. As they do not have an ID yet, you must define a temporary occ-id (starting with #) and use these temporary occ-ids when defining source and target of the new connection. Example:

PUT

```
http://<servername:port>/abs/api/models/United%20Motor%20Group/42ad5380-3d0e-11e5-6479-22000b630ca4
```

Request-Body:

```
{
"modelobjects": [
	{
	"kind": "MODELOBJECT",
	"occid": "#1",
	"type" : 22,
	"symbol": 335,
	"attributes": [
		{
		"kind": "ATTRIBUTE",
		"type": 1,
		"value": "new function via model update"
		}
		]
	},
	{
	"kind": "MODELOBJECT",
	"occid": "#2",
	"type" : 18,
	"symbol": 1,
	"attributes": [
		{
		"kind": "ATTRIBUTE",
		"type": 1,
		"value": "new event via model update"
		}
		]
	}
	],
"modelconnections": [
	{
	"kind": "MODELCONNECTION",
	"type": 44,
	"source_occid": "#1",
	"target_occid": "#2"
	}
	]
}
```

Remarks

- When creating objects as shown above, a new definition object is created. If you want to reuse an already existing object, provide the GUID, for example,

```
{
"kind": "MODELOBJECT",
"occid": "#1",
"guid" : "4686bd20-3d0e-11e5-6479-22000b630ca4"
"type" : 22,
"symbol": 335
}
```

- As model objects and model connections are created without any positional information, they will be located one above the other in the upper left corner of the model. It is possible to enforce an automatic layout of the model when it is opened for the first time in ARIS Architect/Designer by passing the URL parameter **layoutonopen=true**.

Note

A user with **ARIS Mobile Access** license can only create one model object or one model connection in a single request.

12 Delete model content

Model objects or model connections can be deleted from a model via their occ-ids. If you delete a model object, then all affected model connections are deleted automatically (no need to include them in the request).

DELETE

```
http://<servername:port>/abs/api/models/United%20Motor%20Group/1672a301-3d14-11e5-6479-22000b630ca4/objects?occid=(-7O3yxAzzRgN%3Au%3AL%2B-7RaSdNnA6hr%3Ax%3AL%2B33%2Bc)
```

Remarks

- Occ-IDs often contain special characters --> it is important to ensure properly urlencoded values.
- In the request path, make sure to have **/objects** or **/connections** at the end, otherwise the model itself will be deleted!

Note

A user with **ARIS Mobile Access** license can only delete one model object or one model connection in a single request (automatically deleted model connections are not counted).

13 Attributes

Attributes are no top-level items and are tightly bound to their parent item (object, group, model). You can retrieve attributes only along with its parent item to which they belong.

Attributes can be identified by an integer type number (for example, 1) , the API name (for example, AT_NAME) or a type GUID. These type identifiers can be freely mixed in the same request and even in the same parameter, for example, in the URL parameter **attributes**.

Attributes are maintained in the database language as given by the URL parameter **language**. If no such parameter is given, the default language of the current database is used.

Remarks

- Currently, only a limited subset of attribute types is supported, notably integer, float, text, timestamp, time, value attributes, binary.
- Binary data must be sent as BASE64 encoded string.

13.1 Creation

You can create an attribute together with its parent in the same request.

Example

Create an object with the two attributes **name** and **description**.

POST

```
http://<servername:port>/abs/api/objects/United%20Motor%20Group?language=en
&parent=4a713de0-5d02-11e3-0fda-fd81e986d7e2
```

Request-Body:

```
{
"kind": "OBJECT",
"type": 43,
"attributes":
      [
      {
      "kind": "ATTRIBUTE",
      "type": "AT_NAME",
      "value": "I am an OrgUnit!"
      },
      {
      "kind": "ATTRIBUTE",
      "type": 9,
      "value": "This is the long description"
      }
      ]
}
```

13.2 Updating or creation for existing item

If you want to add a new attribute to an already existing item or if you want to update the value of an existing attribute, you must do an update operation (PUT) on the item.

Example
Update the name of an existing object and add the author attribute.

PUT

```
http://<servername:port>/abs/api/objects/United%20Motor%20Group/b7e90c56-00cf-11e2-21d1-5c260a628455?language=en
```

Request-Body:

```
{
"attributes": [
      {
      "kind": "ATTRIBUTE",
      "type": 1,
      "value": "Just renamed it"
      },
      {
      "kind": "ATTRIBUTE",
      "type": "AT_AUTH",
      "value": "I am the author"
      }
      ]
}
```

13.3 Deleting an attribute

Deleting an attribute cannot be done via an update operation on the parent item. Instead, the dedicated DELETE operation must be used. The type numbers of the attributes to be deleted must be passed via the URL parameter **typenumbers**.

DELETE

```
http://<servername:port>/abs/api/objects/United%20Motor%20Group/b7e90c56-00cf-11e2-21d1-5c260a628455/attributes?language=en&typenumbers=AT_DESC, AT_AUTH
```

Remarks

- Do not forget to have **/attributes** at the end of the URL path, otherwise you do a DELETE on the parent object and it is gone!
- The result of a successful delete operation is simply empty with STATUS = OK, for example,

```
{
"kind": "RESULT",
"request": "abs#deleteObjectAttributes",
"status": "OK",
"item_count": 0,
"items": []
}
```

Note

Only one attribute can be deleted in a single request for users with an **ARIS Mobile Access** license.

13.4 Styled values for text attributes

In ARIS, text attributes (for example, AT_DESC) can also have a styled value. If you want to retrieve text attributes with their styled value, you must set the URL parameter **withstyledtext = true**. If the text attribute has got a valid styled value, it will be returned in addition to the standard value field.

A typical response would like as follows:

```
{
"kind": "ATTRIBUTE",
"id": "2Nc1glOg_LN:p:L=9=1033:1:s",
"typename": "Description/Definition",
 "type": 9,
"apiname": "AT_DESC",
"language": "en_US",

"styled_value":
      "<html><body>
      <p    style=\"margin-left:0;margin-bottom:0;
            margin-top:0\"><b>my&#32;updated</b> description
      </p>
</body></html>",

"value": "my updated description"
}
```

The styled value is HTML starting with tags **<html><body>**.

It is also possible to set a styled value when creating or updating an attribute. Simply pass **"styled_value"** with a valid HTML string.

Remarks

- The URL parameter **withstyledtext** is not required for write operations (POST, PUT).
- If a write operation (POST, PUT) contains both **value** and **styled_value**, then **styled_value** has precedence and **value** is basically ignored. According to standard ARIS behavior, **value** will then contain a plain-text representation of the HTML from **styled_value**.
- Only a basic set of HTML is supported: <b>, <i>, <u>, <strike>, <ul>, <ol>, <li>,
, <p>, , .
- For styling information (margin, color, font-family, size), use an inline style attribute, for example,

```
<span style=\"font-size:48pt;\">
   <span style=\"font-family:Kokila;\">Hello World</span>
</span>
```

- Unsupported HTML tags are silently ignored (only their text content will be considered).
- Make sure to correctly escape JSON special characters, for example, **\n** must be escaped as **\\n** and **"** as **\"**.
- If the HTML in **styled_value** does not contain any real formatting, then this will lead to setting a plain text value, for example,

  ```
  <html><body><p> My name is Bond. James Bond.</p></body></html>
  ```

  Result

  "value" : "My name is Bond. James Bond."

  "styled_value" : null

14 Assignments

An assignment is simply a link between an existing object and an existing model. With the ARIS Repository API, you can create and delete assignments. It is not possible to retrieve a specific assignment: assignments are always included automatically in the response when you retrieve an object.

Example
Create an assignment

POST

`http://<servername:port>/abs/api/objects/United Motor Group/6aa1b167-fac0-11de-55c7-001a6b3c820f/assignment/a39aefb0-fa1c-11db-2729-000bcd0cce4e`

objectGUID (source of assignment)

modelGUID (target of assignment)

Example
Delete an assignment

DELETE

`http://<servername:port>/abs/api/objects/United Motor Group/6aa1b167-fac0-11de-55c7-001a6b3c820f/assignment/a39aefb0-fa1c-11db-2729-000bcd0cce4e`

15 Model graphic

The ARIS API does not provide positional information when retrieving a model with its contents. But it is possible to get a model graphic. It has format PNG (Portable Network Graphics) and is returned as a BASE64-encoded string. There are two optional URL parameters **maxwidth** and **maxheight** that allow you to control the size (in image pixels) of the generated graphic. Example:

GET

```
http://<servername:port>/abs/api/models/United%20Motor%20Group/0a26eb70-fd52-11db-2729-000bcd0cce4e/graphic
```

16 Finding items in the database

It is possible to search for items according to several criteria that are AND-linked, that is, they reduce the number of matching result items. You must pass the URL parameter kind in order to declare what to search (model or object). In addition, you can define the desired type (= comma-separated list of object type numbers or model type numbers; API names or type GUIDs are also supported) and optionally a filter criterion with respect to an attribute.

Example
Find all models of type **13** (MT_EEPC), whose names start with **Sale** (written with small or large **s**).

GET

```
http://<servername:port>/abs/api/databases/United%20Motor%20Group/find?kind=MODEL&typefilter=13&language=en&attrfilter=AT_NAME=Sale
```

Remarks

- Available item kinds: MODEL, OBJECT, GROUP
- For all attributes: + (isMaintained), - (isNotMaintained)
- For numbers, the usual operators are available: =, !=, >, <, >=, <=
- For Boolean: = and !=
- For text attributes: =
- Note: unequal (!=) is not supported because it may lead to full-table scans in the underlying database index.
- The parameter **attrfilter** may contain fully parenthesized expressions (parenthesis= { }), combined with operators AND, OR
- Date values must be given in UTC in the RFC 3339 Internet format YYYY-MM-DD, for example, 2017-04-01
- Timestamp values must be given in UTC in the RFC 3339 Internet Zulu time format YYYY-MM- DD'T'HH:MM:SS'Z', for example, 2014-01-22T08:22:55Z

Examples for timestamp queries

All objects changed in a given period of time

GET

```
http://<servername:port>/abs/api/databases/United%20Motor%20Group/find?kind=OBJECT&language=en_US&attributes=all&attrfilter={AT_LAST_CHNG_2 >= 2017- 07-26T00:00:00Z} AND {AT_LAST_CHNG_2 <= 2017-07-26T09:00:00Z}
```

All objects created in a given period of time

GET

```
http://<servername:port>/abs/api/databases/United%20Motor%20Group/find?kind=OBJECT&language=en_US&attributes=all&attrfilter={AT_CREAT_TIME_STMP   >= 2017-07-26T00:00:00Z} AND {AT_CREAT_TIME_STMP <= 2017-07-26T09:00:00Z}
```

Searching for text: examples for the value of attrfilter

```
AT_NAME     =     Jones
9           = Human Resources // (9 = AT_DESC)
AT_AUTH -                     // (AT_AUTH not maintained)
{AT_NAME = Jones} AND {AT_DESC = Human Resources}
{{AT_NAME = Jones} OR {AT_DESC = Human Resources}} AND {AT_AUTH -}
```

- **Important**: in case of a parenthesized expression, the search value must not contain **{ or }**. If the search value must contain a curly parenthesis, pass an escaped character, for example, **\ }** when searching for text attributes.
- The normal search behavior is similar to that of standard search engines: Contents of text attributes are token-based, that is, typical separators, such as blanks or dashs (-), are ignored. If the text attribute contains tokens from the search value (regardless of order/position), this is considered a match.

  Example: search expression: AT_NAME = holder certificate
  will find Holder Certificate and certificate holder and the certificate holder.
- URL parameter **matchcase**: if true, searching will be case-sensitive and order of tokens is relevant
- URL parameter **exactsearch**: if true, only exact matches are returned; special characters and notably the asterisk (*) are interpreted as simple character; in addition, the order of the tokens is important.

  Example: search expression: AT_NAME = holder certificate
  will find **Holder Certificate** but not **certificate holder** and not **The Holder Certificate**.

- Special search patterns for text: (parameter **exactsearch** must be false)
- **A*** returns all strings that start with **A** (A must be a string of length >=2, the first two characters must be letters or digits).
- **A*B** returns all strings that start with **A** (A must be a string of length >=2, the first two characters must be letters or digits) and end with B.

Important note

The search functionality described above is not intended to load large amounts of data from an ARIS repository. Therefore, there is a result size limit (typically 5,000 items, depending on the user license). This limit is absolute, that is, it is independent on the page size you choose and how many paging requests are sent.

Example: If a search query is sent to get all models of **EPC** type and the database contains 10,000 such models, then only the first 5,000 hits can be retrieved (for example, by sending 50 paging requests with page size 100).

In general, a search request that leads to several thousand hits should always be refined with more concrete search criteria.

17 Paging

Typically when using the database-find operation from the previous chapter, many items will be found and returned to the caller. A default page size of 100 is in effect. A different page size can be indicated with the URL parameter **pagesize**.

If there are more items to be returned than the page size allows, the response will contain an entry **next_pagetoken**. This indicates to the client that there is more data to load. Example:

Request

```
http://<servername:port>/abs/api/databases/United%20Motor%20Group/find?kind=MODEL&language=en&attrfilter=AT_NAME&wildcards=true&attrcriterion==S*
```

Response

```
{
"kind": "RESULT",
"request": "abs#find",
"status": "OK",
"item_count": "100",
"next_pagetoken": "1:100:guid",
"items": [
…     100 items here
]
}
```

In order to get the next page of results, the client must send the same request again and add the page token.

GET

```
http://<servername:port>/abs/api/databases/United%20Motor%20Group/find?kind=MODEL&language=en&attrfilter=AT_NAME&wildcards=true&attrcriterion==S*&pagetoken=1:100:guid
```

Response

```
{
"kind": "RESULT",
"request": "abs#find",
"status": "OK",
"item_count": "35",
"items": [
… remaining 35 items here
]
}
```

The second response contains no entry **next_pagetoken** --> the client knows that there are no more items to load.

Notes

- The maximum allowed page size is 500. If a page size is given that is too large, it will be silently corrected to the allowed maximum.
- Regardless of paging, there is an absolute result size limit (depending on the user license, typically 5,000 items), for example, when using page size 500, at most 10 paging requests will return data. If the total result set is larger, it is not possible to retrieve the remainder.

18 Ordering the result

If more than one item is returned by a request (for example, database-find), the items are ordered by their GUID in ascending order. Ordering by GUID itself is normally useful but this ensures a stable result, especially with respect to paging.

You can pass the URL parameter orderby in order to indicate a different sorting, for example,

```
…&orderby = name  (order by attribute AT_NAME, ascending)
…&orderby = -name (order by attribute AT_NAME, descending)
```

Other possible values: **modified** (ascending), **-modified** (descending), **path** (group path starting at main group)

19 Generic queries

Generic queries try to offer a kind of graph-based retrieval of items. The syntax and functionality is based on the CONNECT Portal Designer query language which is used for the contents of fact sheets.

Starting from a defined item (object or model identified by GUID/CONNECT item-id or a type number), it is possible to add items that can be reached from the start item via a sequence of filter items.

The general properties of an item definition are as follows:

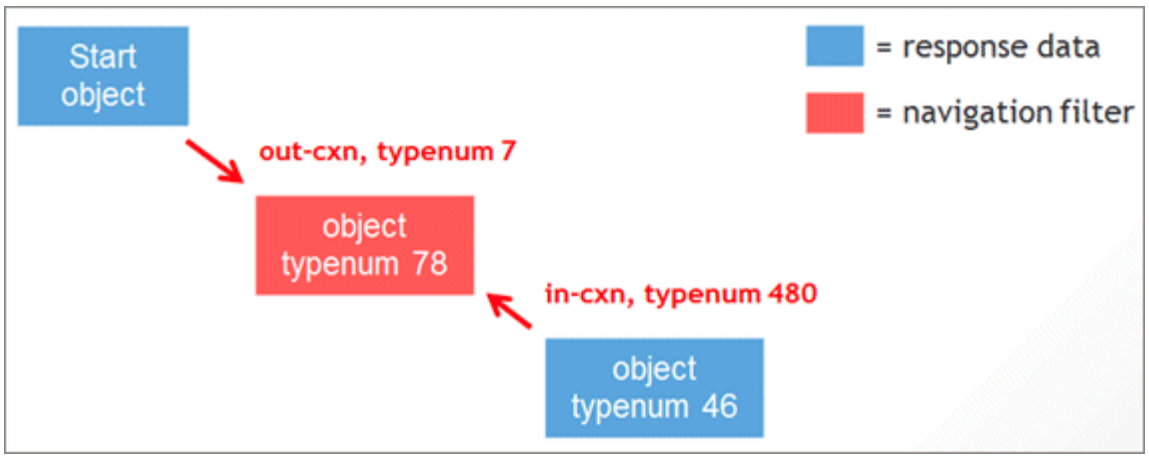
type MODEL, OBJECT, CONNECTION, ASSIGNMENT, OCCURRENCE, CONNECTIONOCCURRENCE

function FILTER, TARGET (TARGET means that objects that match this item are added to the result)

(FILTER means that this item is only used for filtering; it is the default value and therefore optional)

direction IN, OUT, BOTH (only allowed for type CONNECTION)

typenum comma-separated list of type numbers, api-names, type-GUIDs



Remarks

- Not all possible combinations will lead to sensible results! The syntax promises more than what is implemented.
- Item definitions normally contain other item definitions and thus form a nested path of items. Within a single path, only one item of function TARGET is allowed.
- Although a generic query is of read-only nature, it must be sent as a POST request because the query definition must be provided in the request body.
- If the start item is an object, the request URL must be **.../objects/<db>/query;** in case of models, it is **.../models/<db>/query**.

The request body must contain the query itself as a nested list of query item definitions.

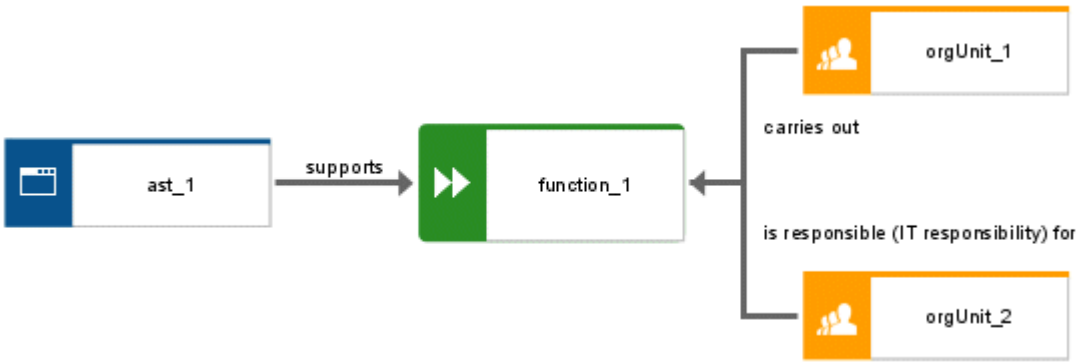
EXAMPLE 1 (STARTING FROM OBJECT)

POSTS

```
http://<servername:port>/abs/api/objects/mydemodatabase/query
```

Request-Body:

```
{
"start_guids" : "a387cc60-3c34-11e5-216f-782bcb6367e0",
"items" : [
      { "type" : "CONNECTION",
      "direction" : "IN",
      "items" : [
            {
            "type" : "OBJECT",
            "typenum" : "6,43",
            "function" : "TARGET"
            }
            ]
      }
      ]
}
```



Result

start function (function_1), ast_1 (type 6) , orgUnit_1 (type 43) , orgUnit_2 (type 43)

EXAMPLE 2 (STARTING FROM MODEL)

POST

http://<servername:port>/abs/api/models/mydemodatabase/query

Request-Body

```
{
"start_guids" : "0a26eb70-fd52-11db-2729-000bcd0cce4e",
"items" : [
      {
      "type" : "OCCURRENCE",
      "items" : [
            {
            "type" : "OBJECT",
            "typenum" : "22",
            "function" : "FILTER"
            },
            {
            "type" : "CONNECTIONOCCURRENCE",
            "items" : [
                  {
                  "type" : "CONNECTION",
                  "function" : "FILTER",
                  "direction" : "IN",
                  "items" : [
                        {
                        "type" : "OBJECT",
                        "typenum" : "43,6",
                        "function" : "TARGET"
                        }
                        ]
                  }
                  ]
            }
            ]
      }
      ]
}
```

Result

start model, function **Configure vehicle** (type 22), application system type COT (type 6)

20 Legal information

20.1 Documentation scope

The information provided describes the settings and features as they were at the time of publishing. Since documentation and software are subject to different production cycles, the description of settings and features may differ from actual settings and features. Information about discrepancies is provided in the Release Notes that accompany the product. Please read the Release Notes and take the information into account when installing, setting up, and using the product.

If you want to install technical and/or business system functions without using the consulting services provided by Software AG, you require extensive knowledge of the system to be installed, its intended purpose, the target systems, and their various dependencies. Due to the number of platforms and interdependent hardware and software configurations, we can describe only specific installations. It is not possible to document all settings and dependencies.

When you combine various technologies, please observe the manufacturers' instructions, particularly announcements concerning releases on their Internet pages. We cannot guarantee proper functioning and installation of approved third-party systems and do not support them. Always follow the instructions provided in the installation manuals of the relevant manufacturers. If you experience difficulties, please contact the relevant manufacturer.

If you need help installing third-party systems, contact your local Software AG sales organization. Please note that this type of manufacturer-specific or customer-specific customization is not covered by the standard Software AG software maintenance agreement and can be performed only on special request and agreement.

If a description refers to a specific ARIS product, the product is named. If this is not the case, names for ARIS products are used as follows:

Name	Includes
ARIS products	Refers to all products to which the license regulations of Software AG standard software apply.
ARIS Client	Refers to all programs that access shared databases by using ARIS Server.
ARIS Download Client	Refers to an ARIS Client that can be accessed using a browser.

20.2 Data protection

Software AG products provide functionality with respect to processing of personal data according to the EU General Data Protection Regulation (GDPR).

Where applicable, appropriate steps are documented in the respective administration documentation.

20.3 Disclaimer

ARIS products are intended and developed for use by persons. Automated processes, such as the generation of content and the import of objects/artifacts via interfaces, can lead to an outsized amount of data, and their execution may exceed processing capacities and physical limits. For example, processing capacities are exceeded if models and diagrams transcend the size of the modeling area or an extremely high number of processing operations is started simultaneously. Physical limits may be exceeded if the memory available is not sufficient for the execution of operations or the storage of data.

Proper operation of ARIS products requires the availability of a reliable and fast network connection. Networks with insufficient response time will reduce system performance and may cause timeouts.

If your product contains ARIS document storage, the following applies:

ARIS document storage was tested with 40.000 document items. This includes documents, document versions or folders. We recommend monitoring the number and overall size of stored document items and archiving some document items if needed.

If ARIS products are used in a virtual environment, sufficient resources must be available there in order to avoid the risk of overbooking.

The system was tested using scenarios that included 100,000 groups (folders), 100,000 users, and 1,000,000 modeling artifacts. It supports a modeling area of 25 square meters.

If projects or repositories are larger than the maximum size allowed, a powerful functionality is available to break them down into smaller, more manageable parts.

Some restrictions may apply regarding the use of process administration, ARIS Administration, ARIS document storage, and ARIS Process Board, and the generation of executable processes. Process Governance has been tested and approved for 1000 parallel process instances. However, the number may vary depending on process complexity, for example, if custom reports are integrated.

ARIS document storage was tested with 40.000 document items. This includes documents, document versions or folders. We recommend monitoring the number and overall size of stored document items and archiving some document items if needed.