Hi :легкая_улыбка:

what is the actual fields that each element can have and root view staff

You can find the JSON scheme for the forms here: <https://gitto.axiell.com/alm/alm-r-d/nts/forms-service/-/tree/develop/server/src/universal/conf/schemas>

is there any specific validation apart from possible types, for populatesKey/populatesFrom for example

Each element can have a validation property that applies different validation based on the element i.e. you can have minLength and maxLength for a TextElement.  
I think there is other validation going on though, but hopefully I can cover than in some documentation.

could you provide list of all endpoints and their structure, short description what should do each of them (as I can see openapi wasn’t updated for a year, postman tests for two; could be deprecated)

There isn't really that much that has changed, the current openapi spec should cover most stuff. Again I'll try to update it.

instances: where they stored, how they can be accessed

They're stored in Redis. You can either access them through the forms service, or using a Redis client like <https://redis.io/docs/manual/cli/>

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**Artem Bokii**  [17:08](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670252882638839)

Thanks for responding! Speaking for validation I meant are there any specific rules to validate incoming definition, to not contain some specific symbols for example, etc. For example form id shouldn’t contain / , only full definition forms:/{tenant}/definitions/{id} can contain it.

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**Ryan Martin**  [17:12](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670253167189729)

Ahh right, well the JSON schema should cover most, if not all the validation for fields

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**Artem Bokii**  [17:16](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670253394307889)

Ok, got it, thanks) JSON schemas will be very useful

**7 декабря 2022 г.**

https://ca.slack-edge.com/TKFQVBMEU-U02N2RBEA0L-g577ba9dbaab-48

**Artem Bokii**  [13:26](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670412386126989)

Hi, Ryan. I have a task in flow new service view-service and I need to make a cdp request to get data using optionsId, optionPath and optionsFilter. Mike said that it seems to be the same functionality as here in resolveOptions: <https://gitto.axiell.com/alm/alm-r-d/nts/forms-service/-/blob/develop/server/src/main/scala/com/axiell/forms/util/ElementOptionsResolver.scala>. What CDP stands for and how can it be accessed? Is it redis db where instances are stored?

https://ca.slack-edge.com/T0L9D6Y30-U0NRC4PE2-a829f253bfc4-48

**Ryan Martin**  [13:49](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670413753476409)

CDP is the Common Database Platform. It's a name for a piece of software that is now abandoned however, the interface that was designed is still used to enable us to have a generic interface regardless of implementation of the backend database.  
So when someone talks about a shim, that's just a piece of software that exposes a CDP interface but translates the CDP calls into something the backend can understand.  
The backend is where all the customers data is.You can access a CDP interface using http requests. I use [postman](https://www.postman.com/)  
You can also find a list of CDP shims here: <https://axiell.atlassian.net/wiki/spaces/NTS/pages/1985478719/Proxy+-+Wireguard+-+SHIM>In order to use one from postman, you'll need to generate a token. This is an example for xplus on dev:

POST xplus.dev.shim.flow.se1.axiell/xplus/tokens

{

"username": "barney",

"password": "pw"

}

That will give you Authorization header in the response that can be used for future requests.Regarding the options stuff;  
You use the optionsId to retrieve an entity from the CDP:

GET /{tenant}/{resource}/{identifier}

Then you use optionsPath to extract a property from the entity.Finally you filter out any information if optionsFilter is set.  
If the extracted data is an array, then only occurrences that match something in the filter is extracted  
If the extracted data is a JSON object, then you only extract data that matches the property names in the object.Let me know if you need more info :легкая_улыбка:

https://ca.slack-edge.com/TKFQVBMEU-U02N2RBEA0L-g577ba9dbaab-48

**Artem Bokii**  [14:04](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670414646080219)

Oh, now I see, thanks)

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**Artem Bokii**  [17:49](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670428144111289)

Hi, Ryan. Have you ever met timed out error in request to cdp? It works fine in postman, but there is something wrong with querying from node code

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**Ryan Martin**  [17:50](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670428226870939)

Not that I can remember

[17:51](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670428268801589)

If your postman requests still work then it should work everywhere else

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**Artem Bokii**  [17:51](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1670428315871829)

Yes, looks like something wrong in code. Thanks

**21 декабря 2022 г.**

https://ca.slack-edge.com/TKFQVBMEU-U02N2RBEA0L-g577ba9dbaab-48

**Artem Bokii**  [12:51](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1671619909776169)

Hi, Ryan! I have a couple of questions about definitions side of things of forms-service:  
1. As I can see here <https://gitto.axiell.com/alm/alm-r-d/nts/forms-service/-/blob/develop/openapi.yaml>, here is the PATCH request for definitions, could you provide list or examples of operations that allowed with this request? Also as I can see this request is not used in flow-ui, do you know does some other service use this request?  
2. In mason response for get one definition and upload (PUT request) there are schema and template fields. Do they come from some other request or they just hardcoded here?  
3. What isHrefTemplate field stands for? This field is false everywhere, is there any case where it’s true? (отредактировано)

Снимок экрана 2022-12-21 в 12.43.55.png

**Вторник, 3 января**

https://ca.slack-edge.com/T0L9D6Y30-U0NRC4PE2-a829f253bfc4-48

**Ryan Martin**  [11:11](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672737099414939)

Hi,

1. As I can see here <https://gitto.axiell.com/alm/alm-r-d/nts/forms-service/-/blob/develop/openapi.yaml>, here is the PATCH request for definitions, could you provide list or examples of operations that allowed with this request? Also as I can see this request is not used in flow-ui, do you know does some other service use this request?

It's just a simple patch request where the body is in the [JSON patch](https://jsonpatch.com/) format.  
For example, to update formLabel:

PATCH /definitions/{id}

[

{

"op": "replace",

"path": "/formLabel",

"value": "New formLabel here"

}

]

2. In mason response for get one definition and upload (PUT request) there are schema and template fields. Do they come from some other request or they just hardcoded here?

schema and template are hard coded per each REST endpoint.

3. What isHrefTemplate field stands for? This field is false everywhere, is there any case where it’s true?

isHrefTemplate indicates whether the href property is a URI Template or a fully defined URI.  
It's set to true when creating a new form instance:

"@controls": {

"forms:load": {

"href": "[http://lc.localhost:80/instances/f68b73a0-bb83-430f-9ad9-6ab6c1774e72/{subform}](http://lc.localhost/instances/f68b73a0-bb83-430f-9ad9-6ab6c1774e72/%7Bsubform%7D)",

"isHrefTemplate": true,

"description": "Load & bind a subform.{subform} is the id present in the bindings{subform} must be URL encoded.",

"method": "POST",

"encoding": "json"

},

...

}

Regarding point 2 & 3; the format for the response adhere to the Mason specification. You can find the spec here: <https://github.com/JornWildt/Mason/blob/master/Documentation/Mason-draft-2.md>

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**Artem Bokii**  [12:31](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672741901344389)

Hi, thanks for reply. I had more question related to instances side of things:  
General  
  - why there are two ways of making requests -- with tenant and without, if we can extract tenant from token?  
  - do any restrictions exist for endpoints or it’s just check is user authorized or not without checking user role?POST  
  - what should this endpoint do with these two fields? do we need to make a request to cdp to get entity or something like that?  
    {  
      “formDefinitionId”: “forms:/xplus/definitions/D4",  
      “entity”: “cdp:/xplus/collect/52"  
    }  
  - how child instance creation worksPATCH  
  - /instances/{id}/logic -- what should this endpoint do, should it call business-logic-service or something like that?PUT  
 - how save form data works and what nested forms are saved first meanI found a weird behavior with Redis database, if you just reload form in ui it forces to add new key-value pair to db, it also happens if you try to change something, it doesn’t change form and just creates new one. Why does it happen?Also what is the status of documenting Forms and Cursor services stuff and where it can be found? I searched Confluence by keywords but didn’t find anything (отредактировано)

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**Ryan Martin**  [13:06](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672744002792969)

why there are two ways of making requests -- with tenant and without, if we can extract tenant from token?

Doing with the tenant is deprecated. You should only do requests without the tenant.

do any restrictions exist for endpoints or it’s just check is user authorized or not without checking user role?

It only checks they are authorized. There is no form of access control in the forms-service.

what should this endpoint do with these two fields? do we need to make a request to cdp to get entity or something like that?

So the form should be loaded first, in your example the id is forms:/xplus/definitions/D4.  
Then the entity should be loaded from the cdp.  
In order to resolve the entity you need to know the location of the shim. The froms-service does it two ways:

1. Set ENV\_ZONE, ENV\_NS and ENV\_CLUSTER environment variables
2. Set CDP\_SHIM environment variable

For the first option, each environment variable is set depending on the environment they're running in. This is normally used when the service is deployed to k8s.  
For example in QA, they would look like this:

ENV\_CLUSTER=qa

ENV\_NS=flow

ENV\_ZONE=se1

This is then transformed into {tenant}.{ENV\_CLUSTER}.shim.{ENV\_NS}.{ENV\_ZONE}.axiell which is the location of the shim.For the second option, you can supply they whole URI without the tenant. This is normally used for testing locally.  
Again an example for QA:

CDP\_SHIM=qa.shim.flow.se1.axiell

Regardless of which option you choose, the result of either has the tenant added to the front to it.  
The tenant is extract from the Host header. e.g. For a host of lc.localhost the tenant would be lc. For a host of xplus.flow.ext.elastisyscl.k8s.se1.axiell the tenant would be xplus.

how child instance creation works

I'll get back to you on this

/instances/{id}/logic -- what should this endpoint do, should it call business-logic-service or something like that?

I'll get back to you on this

how save form data works and what nested forms are saved first mean

There can be forms/views within forms/views. These nested forms/views can point to different entities other than the root form/view.  
Basically all the nested forms/views are saved first, then the root form/view is saved last.

I found a weird behavior with Redis database, if you just reload form in ui it forces to add new key-value pair to db, it also happens if you try to change something, it doesn’t change form and just creates new one. Why does it happen?

Not sure why that happens, sounds like an issue with the UI creating new form instances instead of using existing ones.

Also what is the status of documenting Forms and Cursor services stuff and where it can be found? I searched Confluence by keywords but didn’t find anything

I've added documentation to the repos:  
<https://gitto.axiell.com/alm/alm-r-d/nts/forms-service>  
<https://gitto.axiell.com/alm/alm-r-d/nts/cursor-service>

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**Artem Bokii**  [13:19](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672744776750979)

Thanks for answers) (отредактировано)

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**Ryan Martin**  [13:51](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672746667659189)

how child instance creation works

A child instance request looks something like this:

POST /instances/{id}/child?new=false&filterEntities=true

{

"element": {UUID},

"bindingIndex": 0,

"index": 0

}

Creating a child instance only works when element points to a lookup or reference element.  
This also only works on the root view.What happens is:

* The instance /instances/{id} is loaded.
* The element with the matching UUID is extracted.
* The data from the root view binding is extracted where bindingIndex selected the specified binding. Normally this is 0.
* The link to the child form definition is extracted from the element (link, createLink and updateLink).
* link is used by default for both create and update, but if either createLink or updateLink are set, then they override the default link for their respective operation.
* You can also specify createLink and updateLink on their own without link.
* You can also just specify one of createLink or updateLink.
* Having no link should cause an error.
* The data for the element is extracted form the binding data, using index from the body to select an index if the data is an array. This defaults to 0.
* If the data is not an array, then index is ignored.
* If createLink is not defined and the new query parameter is set to true, then throw an error.
* If there is no value for the element but new is set to false or createLink is not defined (i.e. trying to updated something that doesn't exist), then throw an error.
* If the value is null and the element has allowNull set to true, then treat the value as if there is no value, otherwise throw an error.

Finally with the data and link extracted, create a new form instance and return it in the response.filterEntites work like normal i.e. will only show properties in the data where there exists elements for them. Defaults to true  
new defaults to false (отредактировано)

:+1:**1**

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**Ryan Martin**  [14:42](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672749731504539)

/instances/{id}/logic -- what should this endpoint do, should it call business-logic-service or something like that?

That endpoint lets you run arbitrary business logic against a form instanceThe body looks something like this:

{

"id": <URI>,

"index": 0,

"data": <BusinessLogic>

}

id is optional, it will choose the root binding by default  
index is optional, it will choose which index within the binding. By default it is 0  
<BusinessLogic> is required and follows the same format for any business logic defined in a form.The business logic is then executed against the whole binding data.  
The response is then parsed and the resulting data replaces the existing data.  
The instance is updated and returned to the user.

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**Artem Bokii**  [14:48](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672750095216869)

Ok, but how it actually executes logic, does it call any business-logic-service endpoints?

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**Ryan Martin**  [14:48](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672750127315039)

Yea, it calls to the business logic service

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**Artem Bokii**  [14:49](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1672750180578869)

Ok, got it

**Artem Bokii**  [13:43](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673005384739289)

Hi, Ryan, there are couple of questions related to forms-service:

* Why patch instance request should contain form definition id and what index stand for?
* In postman tests I found put request without id as request parameter, but there is not mention about this request in openapi, is this endpoint relevant?

2 файла

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**Ryan Martin**  [13:53](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673005980083129)

* Why patch instance request should contain form definition id and what index stand for?

id refers to a form binding. You set it to patch a specific form/view  
index refers to which data binding. A binding can have more than on data associated with it for example in the case of a MultiReferenceView.  
For the root view it is always 0

In postman tests I found put request without id as request parameter, but there is not mention about this request in openapi, is this endpoint relevant?

There is no request that allows an empty id.  
I think that postman test is just missing the id.

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**Artem Bokii**  [13:55](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673006145158189)

But if it’s request to patch instance and we have instance id to retrieve instance from db and patch with operations from data field why do we need form id?

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**Ryan Martin**  [13:57](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673006257648469)

because there can be multiple forms/views within a form.

[14:01](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673006463219329)

forms:/xplus/definitions/sample\_main is an example form that has multiple forms/views

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**Artem Bokii**  [14:11](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673007091000219)

Well, ok. Could you please explain how PUT request for instances work? It should save form data, but I don’t really understand what should it save, is there any temporary store of changes or something like that. What is the purpose of this request if we have patch request that should save changes (if I understand it right)? (отредактировано)

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**Ryan Martin**  [16:01](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673013684960449)

An instance is temporary. It holds the form and the data. It also holds an unmodified set of the data.  
So when you patch an instance, you are patching the temporary data.When you do a PUT request to an instance, it will take that data and then send it to the shim to save.  
If usePatch is false then the whole entity is sent with a PUT to replace the existing entity  
If usePatch is true then the modified entity is compared with the unmodified one, and a set of [JSON patch](https://jsonpatch.com/) operations are created and a PATCH request is done. (отредактировано)

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**Artem Bokii**  [16:06](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673013985375579)

Depending on usePatch it can send either PUT or PATCH request to shim, right?

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**Ryan Martin**  [16:06](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673013989735379)

yes

https://ca.slack-edge.com/TKFQVBMEU-U02N2RBEA0L-g577ba9dbaab-48

**Artem Bokii**  [16:06](https://outerspace-ops.slack.com/archives/D03U2FZRH8U/p1673014004550719)

Got it, thank you

redis-cli -h talxx002.iaas.se1.axiell -p 6379