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Documentation \times Modules \times Subscriptions \times Subscriptions Interface \times

Dynamic Parameters Validation

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Video Tutorial

Overview

Dynamic validation parameters include draft request validation and inquiry form validation:

- **Draft Request validation** represents real-time request structure validation prior to the draft fulfillment request creation on the Connect platform.
- **Inquiring Form validation** represents real-time validation of inquiring forms. It allows implementing dynamic validation after the fulfillment request creation.

By default, the dynamic validation parameters are disabled. Proceed to the **Settings** tab from the product profile page to enable these parameters.

Click the **Edit** button to switch on required capabilities.

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Tutor Master	ial Product -	Settings @				1	° EDIT
Ê	General	Administrative Hold Product supports Suspend & Resume actions for the given Subscription.	Off				
•	Items	Consumption reporting for Reservation Items					
*	Embedding	Product supports real-time reporting of consumption for the Reservation items.	Off				
٩	Configuration	Pav-as-voil-no					
Ì	Versions	Product has pay-as-you-go setting, where the Vendor is required to periodically submit Usage Files to your partners.	• On				
⊕	Localization	Dynamic Items					
0	Preview	Product reports dynamic items in the Usage File, i.e. the ones that were not one-declared in the Product Definition	Off				
\$	Pricing						
٠	Offers	Future Charges					
*	Listings	Product can generate usage reports with charges assigned to future dates.	Off				
\$	Settings						

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Once the **Draft Request** dynamic validation is enabled, Vendors can create a Webhook that will be used to perform real-time validation of the Ordering Parameters. Namely, this webhook will be available from the subscription parameters assignment step during the subscription creation that is initiated from the Provider Portal. The following diagram illustrates the dynamic validation capability and webhook interconnection in details:



Therefore, enabled dynamic validation capability and a created webhook allows implementing complex multi-step order population and validation scenarios by Providers as schematically illustrated below:



The following explains how to create a webhook for the enabled dynamic validation parameter, how to preview this webhook, and how to implement the aforementioned scenarios.

Webhook Creation

Once Draft Request dynamic validation capability is enabled, Vendors can create a corresponding handler and define a Webhook that will link a product and handler with the validation business logic.

Navigate to the **Integrations** module from the **Vendor** portal. Thereafter, proceed to the **Webhooks** section.

Click the **Create Webhook** button to launch a webhook wizard.



Follow the steps of this wizard to successfully configure a draft fulfillment request validation webhook.

1. Specify general properties

Provide a name and description for your webhook. Thereafter, click on the **Enable** switch to switch on this webhook.

CloudBlue	👹 Integrations 🗸	0	HELP	Robert Balboa Front Street Inc.
CloudBlue Integrations © General © Tokens Webhooks Extensions	 Create webhook – Step 1 General Product Type HTTP Settings Additional data Inse: 1 words: 10 66 symbols Enabled	0	HELP	Robert Balboa Front Street Inc.
×	CANCEL BACK NEXT	↓		

Click **Next** to continue.

2. Select your product

👾 Integrations 🗸 Robert Ba () HELP CloudBlue Create webhook - Step 2 Integrations Select product ✓ General 🛱 General Q 0-Tokens 2 Product Tutorial Product PRD-404-832-779 The following represents a tutor... 5 Webhooks ۲ 3 Туре 4 HTTP Settings 5 Additional data CANCEL NEXT BACK ×

Choose a product with enabled dynamic validation capability and at least 1 configured ordering parameter.

Click Next to continue.

3. Select Draft fulfillment request validation

Choose the "Draft fulfillment request validations" Webhook type.



Click Next to continue.

4. Specify HTTP settings

Specify your Endpoint URL and Headers.

CloudBlue.	Integrations ✓ Create webhook –	Step 4			🛛 HELP 🔔 Ro	obert Ball ont Street
Integrations		Endpoint URL *				
General	General	https://frontstreetinc.com/validate				
C Tokens	Product	JWT secret JWT-7c39++++++++++++++++++++++++++++++++++++	*b5c1			
Extensions	🗸 Туре					
	HTTP Settings	Method POST		-		
	5 Additional data					
		Headers				
		Key	Value			
		+ Key	Value			
		CANCEL	BAG	CK NEXT		

Click **Next** to continue.

5. Provide additional data

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Specify an arbitrary JSON object (optional).

CloudBlue.	Integrations V			HELP	Robert Balboa Front Street Inc.
Integrations	Create webhook – Ste	ep 5			
General	General	Arbitrary JSON object			
O- Tokens	Product				
C Webhooks	🗸 Туре	Will be appended to the token as .data property	h.		
CALCHISIONS	✓ HTTP Settings				
	5 Additional data				
				•	
		CANCEL	BACK CREATE		
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Click the **Create** button to finish. Thus, your draft request validation webhook will be successfully defined and ready for Vendor test previews.

Webhook Preview

Preview and test out your created webhook by creating a subscription from the Vendor Portal. The following steps showcase how to preview your created draft request validation webhook.

1. Create a new subscription

Click the **Create Subscription** button from the **Subscription** module.

CloudBlue.	\diamondsuit Subscriptions \checkmark			•	HELP	Front S Vendor	Street Inc • Robert Balboa
Subscriptions @	DIRECTORY FULFILLM	ENT BILLING				+ CREA	ATE SUBSCRIPTION
C REFRESH T FILTER	R 1 SORT III COLUMNS				Rows per	page 10 👻	1—9 of 9 < >
SUBSCRIPTION -	PRODUCT -	MARKETPLACE -	CUSTOMER -	PERIOD -	NEXT BILLING 👻	CREATED -	STATUS -
AS-2329-4388-2680 External ID: M56CEXYRMN	PRD-640-516-332	Tutorial Marketpla MP-38661	Wintheiser - Turcotte TA-5505-3120-3284	1 month	02/21/2021 3:44 AM	01/21/2021 2:43 AM	Active
					Rows per	page 10 -	1−9 of 9 < >

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Specify the **Vendor internal test (preview)** environment after the introduction step.

2. Select your product

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Select a product that includes **Dynamic Validation for Draft requests** capability and at least one **ordering parameter**.

CloudBlue.	ubscriptions V			Ø	HELP	Robert Balboa Front Street Inc.
Subscriptions	Create Subscription -	- Step 3			+ CRE	ATE SUBSCRIPTION
C REFRESH = FILTER 1 S	Introduction	Select a product			10 -	1—9 of 9 < >
SUBSCRIPTION - P	C Environment	Q,			EATED 👻	STATUS -
AS-2329-4388-2680 External ID: M56CEXYRMN	Environment	Tutorial Product	testudes de Arena de Udation		/21/2021 I3 AM	 Active
	3 Product	PRD-404-832-779	includes draft request validation	۲	10 -	1—9 of 9 < >
	4 Marketplace					
	5 Tiers					
	UT2 Account					
	7 T1 Account					
	8 Customer Account					
	9 Select Items					
		CANCEL	BACK	IEXT		
	© 2021 — Ingram Micro	inc. All kights keserved. – <u>Privacy</u> (Terms of Service - version 21.0.1027-geab380	·		

Keep configuring your new subscription: select marketplace, specify tier and account data, validate items, and confirm provided attributes.

3. Test your dynamic validation webhook

Make sure that Subscription parameters assignment and Dynamic validation are switched on.

CloudBlue.	ptions 🗸			D HELP	Robert Balboa Front Street Inc.
Subscriptions	reate Subscription –	Step 11		+ CR	EATE SUBSCRIPTION
© REFRESH ₹ FILTER % S	Marketplace	Subscription parameters assignment	cription. You can	10 -	1-10 of 11 < >
SUBSCRIPTION ~ P AS-2329-4388-2680 (External ID: M56CEXYRMN (Tiers	experience. Values Dvnamic validation	ordening	REATED - 1/21/2021 43 AM	STATUS -
4	D T2 Account	Tutorial parameter * Ordering parameter		10 ~	1—10 of 11 🧹 🗲
~	T1 Account				
~	Customer Account				
~	Select Items				
~	Attributes				
Q	Parameters				
12	2 Summary	CANCEL BACK	CREATE		
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The **Parameters** step of the subscription creation wizard simulates Provider systems behavior. In case of any error from the dynamic validation script, it displays an error message for users:

CloudBlue.	Subscriptions			() HELP	Robert B Front Stree
Subscriptions @	Create	e Subscription	— Step 11	+ -	CREATE SUBSCRIPT
C REFRESH ₹ FILTER	t S	rketplace		-	1-10 of 10 <
SUBSCRIPTION -	P	Retplace	Subscription parameters assignment	TED -	STATUS 👻
AS-6273-6884-6364 Preview External ID: M1BT964UZK	(🗸 Tiers	rs	Please specify values of the ordering phase parameters for the subscription. You can skip assignment of values (if not required) to simulate an unattended ordering supering	2/2021 AM	Draft
AS-4008-9845-0398 Preview External ID: 30777QQK8K	(Account	experience.	1/2021 AM	Draft
AS-3078-0107-1751 Preview External ID: V3TBSX6CAI	(Tutorial parameter *	1/2021 AM	Draft
AS-3860-1999-1370 Preview External ID: 4T08H4RW9X	(TIA	Account	I am Error	1/2021 AM	Draft
AS-6752-8663-5065 Preview External ID: X2M5SNR1TB	(🗸 Cust	tomer Account		1/2021 AM	Draft
AS-1232-9696-0899 Preview External ID: WRCINSCSKT	(Sele	ect Items		9/2021 AM	Processing
AS-2329-4388-2680 External ID: M56CEXYRMN	(1/2021 AM	 Active
AS-1501-7706-0940 External ID: LTNC3ZNA9A	(Attri	ibutes		0/2021 AM	Active
AS-4539-3550-5840 Preview External ID: 0001JAT6I0	(🛈 Para	ameters		9/2021 AM	Processing
AS-8398-4476-8816 Preview	(12 Sum	nmary	CANCEL BACK OPEATE	3/2021 AM	Terminating

The system also allows skipping dynamic validation of a provided value and switch to the inquiring state, in which parameters

are asked from users after the subscription creation. Thereby, the **dynamic validation of inquiring forms** should be switched on.

Webhook Details

Firewall

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Validation handler is triggered by the Connect platform from the IP addresses that are specified under a special domain: egress.connect.cloudblue.com. This process is illustrated in the following diagram:



Refer to the Firewall Configuration article for more information.

Payload

The webhook payload is presented within the Fulfillment (Asset) Request object:

```
{
    "id": "PR-2901-1844-5270-001",
    "type": "purchase",
    "reason": "",
    "status": "draft",
    "created": "2020-05-30T07:12:20+00:00",
    "updated": "2020-05-30T07:12:26+00:00",
    // ...
    "asset": {
        "id": "AS-2901-1844-5270",
        "status": "draft",
```

```
// ...
    "params": [
        {
            "id": "order_parameter",
            "name": "Order Parameter",
            "type": "text",
            "description": "Parameters are important",
            "value": "123",
            "value_error": "",
            "value_choices": [],
            "title": "The Order Parameter"
        },
        // ...
     ],
    "tiers": {
        // ...
    },
    "configuration": {
        "params": []
    },
    "marketplace": {
        "id": "MP-54865",
        "name": "Germany",
        "icon": "/media/PA-239-689/marketplaces/MP-54865/icon.png"
    },
    "contract": {
        "id": "CRD-00000-00000-00000",
        "name": "ACME Distribution Contract"
    }
}
```

CloudBlue Connect expects same structure that was sent to the handler and that was received from the handler. Furthermore, the asset.params section should be modified to represent your handler.

The value_error property from this parameter contains an error description string in case any validation error occurs. If validation is successful, value_error is expected to be empty.

Caller Authentication

Webhook handler can use the following options for the caller authentication procedure:

1. Every webhook is sent with the JWT token from the Authentication header (see http://jwt.io for details). The JWT

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token can be used to validate the authenticity of a caller by using a secret value available in the Webhook details.

- 2. Custom Headers can be added to the Webhook payload. This enables simple header-based secret validation.
- 3. Custom body attributes can be appended to the webhook body in the webhook configuration.
- 4. Firewall rules can be used to enable inbound connections from the egress.connect.cloudblue.com only.

The aforementioned options provide flexible authentication configuration of any complexity.

Example

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Create a Product

Create a sample Product with a **single ordering phase parameter id = 'ordering_param_1**' that will be used by a sample handler business logic described below.

Write a Sample Handler with Flask

Test the dynamic parameters validation functionality by using the following sample webhook handler written using the **Flask** (https://flask.palletsprojects.com) framework.

```
#!/usr/bin/env python
# dynamic-validation-example.py
from flask import Flask, request, json
api = Flask(__name__)
def get_parameter_by_id(params, id):
    for param in params:
        if param['id'] == id:
            return param
    raise Exception('Parameter {id} not found.'.format(id=id))
def set_parameter(params, param):
    ret = []
    for p in params:
        if p['id'] == param['id']:
            ret.append(param)
        else:
            ret.append(p)
    return ret
@api.route('/validate', methods=['POST'])
def do_validate():
    data = request.json
    params = data['asset']['params']
```

```
param_1 = get_parameter_by_id(params, 'ordering_param_1')
param_1['value_error'] = 'This error is from my validation script!'
params = set_parameter(params, param_1)
data['asset']['params'] = params
return data
if __name__ == '__main__':
```

api.run()

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This script shows that **POST** handler within the **/validate** path that unconditionally returns an error associated with the **'ordering_param_1**'. Therefore, it allows adding any custom/test logic on the top.

Copy the aforementioned script and run it with the following simple command:

\$ python ./dynamic-validation-example.py

- * Serving Flask app "dynamic-validation" (lazy loading)
- * Environment: production WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
- * Debug mode: off

* Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)

127.0.0.1 - - [30/May/2020 23:00:59] "POST /validate HTTP/1.1" 200 -

Thus, it will run a webserver on your local machine on port 5000.

Forward your port with Ngrok

Running on **port 5000** on your local host will not allow CloudBlue Connect to trigger it, unless your port is forwarded. Thereby, it is required to make this script accessible from the Internet, so that the Connect platform is able to trigger it.

It is recommended to use the **ngrok** (https://ngrok.com) tunnel. Download and install **ngrok** on your machine and make **local port 5000** visible to the internet by running the following command:

\$ ngrok http 5000

ngrok by @inconshreveable

Session StatusonlineAccountCloudBlue ConnectVersion2.3.35

Region	United S	States (u	ıs)				
Web Interface	http://127.0.0.1:4040						
Forwarding	http://\	0UR-SUBD	OMAIN.ng	grok.io ·	> http:/	//localhost:5000	
Forwarding	https://	YOUR - SUE	BDOMAIN.r	ngrok.io	-> http:	//localhost:5000	
Connections	ttl	opn	rt1	rt5	p50	p90	
	Θ	0	0.00	0.00	0.00	0.00	

Therefore, your sample validation handler will be accessible via the http://YOUR-SUBDOMAIN.ngrok.io/validate URL.

Update Webhook URL

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Once your a dynamically generated **http://{YOUR-SUBDOMAIN}.ngrok.io/validate** handler is configured, update your webhook URL setting with that value to enable CloudBlue Connect to communicate with your sample validation script.

Validation via Subscription Wizard

Once your webhook URL is configured, create a subscription and follow to the Parameters step. The system should provide your error message:



Thus, your custom validation logic from the sample script has successfully returned an error value. Add additional validation logic by following this example to meet your business requirements.