# Configure Postman to Execute APIs on vManage

# Contents

Introduction System Requirements Background Information Configure Postman to Execute the APIs Step 1. Open Postman and create a new HTTP request. Step 2. Authenticate with your username and password credentials to vManage. Step 3. Request a token Step 4. Proceed to execute another API to vManage. Step 5. Close your session Run API calls in an automated environment How to save token in a variable? How to clear SESSIONID cookie for new sessions? How to use Collection Runner

## Introduction

This document describes how to execute Application Programming Interfaces (APIs) with Postman.

# **System Requirements**

- Postman installed
- Access to vManage and username and password credentials

Note: If you do not have Postman, download it from https://www.postman.com/downloads/

# **Background Information**

The primary or most-commonly-used HTTP verbs (or methods, as they are properly called) are POST, GET, PUT, PATCH, and DELETE.

These correspond to create, read, update, and delete (or CRUD) operations, respectively.

There are a number of other verbs, too, but are utilized less frequently. Of those less-frequent methods, OPTIONS and HEAD are used more often than others.

# **Configure Postman to Execute the APIs**

Step 1. Open Postman and create a new HTTP request.

You can create a new HTTP requests if you click in any of the highlighted options.



Create a new HTTP request.

# Step 2. Authenticate with your username and password credentials to vManage.

Create another HTTP request.

- 1. Select **POST** as your HTTP verb.
- 2. Add https://<vmanage-ip>/j security checknext to POST.
- 3. Click **Body** and add as **KEY** parameters **j\_username** and **j\_password** and their values respectively.
- 4. Click Send.

Note: In this example vManage ip address is 10.88.244.30 and the port is 5301

Note: As username and password values, we use admin.

Fullfil the parameters in Postman.

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A My Wor	rkspace New Import	POST https://10.88.244.30:f • + ••••		No Environmer	nt v ©
Collections	+ = •••	https://10.88.244.30:5301/j_security_check		🖺 Save	~ 🖉 🗉 🛷
00 APIs	<ul> <li>Call Authentication</li> <li>POST Authentication</li> </ul>	Post 1 https://10.88.244.30:5301/j_security Params Authorization Headers (9) Body •	r_check	2 4	Send V
Environments	<ul> <li>GET Token</li> <li>✓</li></ul>	none form-data ex-www-form-urlencoded	• raw • binary • GraphQL	3	
Mock Servers	GET Fabric Devices	KEY j_username	VALUE	DESCRIPTION	••• Bulk Edit
An Monitors	GET Device Counters	j_password Key	admin Value	Description	
P{0 Flows	CET Template Feature				
(1) History	CET Tempate Feature Type     CET Device Templates     CET 4. SD-WAN Device Policy				
	GET VEdge Template Policy GET Policy List	Body Cookles (1) Headers (10) Test Results Pretty Raw Preview Visualize Text	Status: 2	00 OK Time: 1153 ms Size: 415 B	Save Response V
	CET Tenant-list	1		Response	

```
vManage authentication.
```

Caution: The response of this API call must be empty

#### Step 3. Request a token

- 1. Select **GET** as your HTTP verb.
- 2. Add the API call details next to GET https://<vmanage-ip>/dataservice/client/token
- 3. Click Send

**Note:** Since vManage version 19.2.1, it has been made mandatory that a successfully logged in user needs to send X-XSRG-TOKEN or CSRF token for each POST/PUT/DELETE operation via API call.

Once the API call is executed, you get a response string in the body. Save that string. The image shown exemplifies the output In Postman.

•••		Postman			
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Collections	+ = · · · · · · · · · · · · · · · · · ·	https://10.88.244.30:5301/dataservice/client/token		🖺 Save 🗸 🧷 🖉	)
APIs	<ul> <li>LAuthentication</li> <li>POST Authentication</li> <li>OET Token</li> </ul>	GET 1 https://10.88.244.30:5301/dataservice Params Authorization Headers (7) Body Pre Query Params	a/Client/token ⊢request Script Tests Settings	2 3 Send Cooki	ୁ s
	<ul> <li>2. SD-WAN Fabric Devices</li> <li>GET Fabric Devices</li> </ul>	KEY	VALUE	DESCRIPTION •••• Bulk	Edit
Mock Servers	OET Devices Status OET Device Counters OET Interface statistics	Key	Value	Description	
¤{0 Flows	CET Template Feature				
4) History	CET Device Templates     CET 4. SD-WAN Device Policy				
	vEdge Template Policy     err Policy List     En 5. Tenant list     err Tenant-list	Body         Cookies (1)         Headers (13)         Test Results           Pretty         Raw         Preview         Visualize         JSON           1         9DE4EB3A230ADF4A6A802885BFD2066A2A62038E-	Status: 20     Trop     43893D498C1F677988915CDD6701FBF8CF90C419F91	NO OK         Time: 837 ms         Size: 517 B         Save Response           Response         Image: Comparison of the state o	λ
	GET system statistics GET Packet capture	l			

Request a token for vManage

Warning: If you did not get a token as shown in the image please repeat the step.

#### Step 4. Proceed to execute another API to vManage.

This example entails a POST request

1. Select the API call to execute, in our case is <u>https://dataservice/statistics/dpi/aggregation</u>

**Tip:** If you wish to explore other API calls, please go to vManage url <u>https://vmanage-ip:port/apidocs</u>

2. Collect your API call body.

Note: This API call contains a body in JSON format

		Postman	
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Collections	+ = ∞ ↔	https://10.88.244.30:5301/dataservice/statistics/dpi/aggregation	
80 APIs	1.Authentication	POST v https://10.88.244.30:5301/dataservice/statistics/dpi/aggregation	୍ତି
Environments	CET Token	Params       Authorization       Headers (9)       Body •       Pre-request Script       Tests       Settings       Cookies         • none       • form-data       • x-www-form-urlencoded       • raw       • binary       • GraphQL       JSON ∨       Beautify	
Mock Servers	GET Fabric Devices GET Devices Status	<pre>1 { "query":{ "condition":"AND", "rules":[ '{ "value":[ "2022-05-06T14:45:00", "2022-05-06T14:49:59" ], "field":"entry_time",</pre>	
Monitors	GET Device Counters GET Interface statistics	<pre>{"property":"remote_color", "sequence":4 }, {"property":"application", "sequence":5 }, {"property":"local_system_ip", "sequence":6 }, {"property":"remote_system_ip", "sequence":7 } ], "metrics":[ { "property":"ottes", "type":sum", "order":"desc" }, { "property":"packets", "type":sum", "order":"desc" } ], "histogram": { "property": "entry_time",</pre>	
o{0 Flows	✓      ☐ 3. SD-WAN Device Template     OET Template Feature	"type": "minute", "interval": 5, "order": "asc" } }	J
ر History	OET Template Feature Type OET Device Templates		
	<ul> <li>4. SD-WAN Device Policy</li> </ul>		

3. Click Header and add as Key the string X-XSRF-TOKEN as value.

#### 4. Click Send.

The image shown displays how your API call must appear.

•••			Postman						
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A My Wor	rkspace New Import	POST https://10.88.244.30:1 • GET https://10.88.2	44.30:5: • POST https://10.88.244.30:! •	+ •••		No Enviro	nment	~	0
Collections	+ =	https://10.88.244.30:5301/dataservice/stati	stics/dpi/aggregation			🖺 Sav	e ~	/ E	
O APIs	<ul> <li>✓ Cisco-Reservable-SD-WAN ★</li> <li>✓ □ 1.Authentication</li> </ul>	POST ~ https://10.88.244.30:530	1/dataservice/statistics/dpi/aggregation				3	Send ~	100
Environments	Post Authentication GET Token	Params Authorization Headers (10) Headers 📀 9 hidden	Body  Pre-request Script Tests	Settings				Cookies	
6	GET Fabric Devices	KEY	VALUE		DESCRIPTION	080	Bulk Edit	Presets 🗸	
Mock Servers	GET Devices Status GET Device Counters	Key	9DE4EB3A230ADF4A6A802 Value	2885BFD206A2A6203	Description			4	
Monitors	OET Interface statistics								1
010	<ul> <li>SD-WAN Device Template</li> </ul>								
Flows	GET Template Feature								
0	GET Template Feature Type								
History	GET Device Templates								
	V 🗎 4. SD-WAN Device Policy								

DPI aggregation API call.

#### Step 5. Close your session

Once you have retrieved all the information needed from vManage and/or the devices, liberate resources of the vManage and eliminate the possibility for malicious users to use your session.

### Run API calls in an automated environment

Save cookies and variables to be used in subsequent API calls

#### How to save token in a variable?

Save the token in a variable for subsequent re-use.

▶ Get new token in 19.2 on my vManage          GET       • https://10.48.21.230/dataservice/client/token?json=true       Send       ▼       Sav         Params       • Authorization       Headers (9)       Body       Pre-request Script       Tests       Settings       Cookie         1       var       jsonData = JSON.parse(responseBody);       Tests       Settings       Cookie         2       postman.setEnvironmentVariable("token", jsonData.token);       Test scripts are written in JavaScript, an run after the response is received.       Learn more about tests scripts         3       pm.test("Status code is 200", () => {       Min.presponse.code).to.eql(200);       SNIPPETS         5       >);       Get an environment variable       Southorment variable	€ OST C	GET G.)	GET G.	GET G.	GET D.	GET h	GET G.	GET G.	Þ	+	 SDWAN		•	۵
GET       • https://10.48.21.230/dataservice/client/token?json=true       Send       Sav         Params       Authorization       Headers (9)       Body       Pre-request Script       Tests       Settings       Cookie         1       var       jsonData = JSON.parse(responseBody);       Tests       Settings       Cookie         2       postman.setEnvironmentVariable("token", jsonData.token);       Test scripts are written in JavaScript, an run after the response is received.       Learn more about tests scripts         3       pm.test("Status code is 200", () => {       SNIPPETS       SNIPPETS         4       pm.expect(pm.response.code).to.eql(200);       SNIPPETS       Get an environment variable	▶ Get n	ew token	in 19.2 on m	iy vManage							Examples 0 💌	BUII	LD !	<b>P</b>
Params       Authorization       Headers (9)       Body       Pre-request Script       Tests       Settings       Cookie         1       var       jsonData = JSON.parse(responseBody);       Tests       Test scripts are written in JavaScript, an run after the response is received.       Learn more about tests scripts       Learn more about tests scripts       SNIPPETS         3       pm.test("Status code is 200", () => {       fm.expect(pm.response.code).to.eql(200);       SNIPPETS       SNIPPETS       Get an environment variable	GET	Ŧ	https://10	.48.21.230/da	ataservice/cli	ent/token?j	son=true				Sen	d v	Save	*
1       var jsonData = JSON.parse(responseBody);         2       postman.setEnvironmentVariable("token", jsonData.token);         3       pm.test("Status code is 200", () => {         4       pm.expect(pm.response.code).to.eql(200);         5       });         6       Get an environment variable	Params	<ul> <li>Auth</li> </ul>	norization	Headers (9)	Body	Pre-ree	quest Script	Tests ●	Sett	ings			Cookies	Code
Get a global variable	1 2 3 4 5	<pre>var json postman. pm.test(     pm.exp });</pre>	Data = JSO setEnviron "Status con ect(pm.res	N.parse(re: mentVariab de is 200", ponse.code	<pre>sponseBody le("token" , () =&gt; { ).to.eql(2</pre>	); , jsonDa† 00);	ta.token);				Test scripts are wr run after the respo Learn more about SNIPPETS Get an environme Get a global variat	itten in Jav mse is rec tests scrip nt variable	aScript, and eived. IS	are 🕨

Save the token in a variable

When we request the token in JSON format, store it. Use the **Tests** tab and paste the shown lines.

var jsonData = JSON.parse(responseBody);
postman.setEnvironmentVariable("token", jsonData.token);

#### Afterwards, any API call can use token variable.

	et g.	GET G.	GET G.	GET D.	GET h	GET G.	GET G.	GET G.	× ►	+	••••	SDWAN	*	$\odot$	\$
⊧ Ge	et serve	er informa	tion 19.2 la	b vManage	with corre	ect token						Examples 1 🔻	BUILD	1	Ę.
GET	r	* - I	nttps://10.48	.21.230/data	aservice/ser	ver/info						Send	•	Save	٣
Para	ms	Authorizat	ion Hea	ders (10)	Body	Pre-reque	st Script	Tests	Setti	ngs				Cookies	Code
~	Host					<calculated< td=""><th>when reque</th><td>st is sent&gt;</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></calculated<>	when reque	st is sent>							
~	User-A	gent				PostmanRu	ntime/7.26.3	3							
~	Accept					*/*									
$\checkmark$	Accept	-Encoding				gzip, deflate, br									
$\checkmark$	Connection (1)					keep-alive									
~	X-XSRF-TOKEN					{{token}}									
~	Content-Type				application/json										
	Кеу					Value					D	escription			

Use the token variable

#### How to clear SESSIONID cookie for new sessions?

Whenever you execute the API call to get out of, use JSESSIONID.

We cannot use any basic authentication like we did in earlier releases. Instead, we only provide credentials and save the ID in our cookie. Prior this, we can use a pre-test to clear all or specific cookies.

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► Get J	SESSIONID	in newe	er release(	(s)						Examples	0 🔻 BU	ild 🖌	Ę
POST	Ŧ	https:	//10.48.21.	.230/j_secu	urity_check						Send 🔻	Save	•
Params	Author	ization	Header	rs (10)	Body 鱼	Pre-reques	st Script 🔵	Tests 🔵	Settings			Cookies	Code
1 2 3 4 5	<pre>const ja jar.clea // err });</pre>	r = pm. r(pm.re or - <e< td=""><td>cookies. quest.ur rror&gt;</td><th>jar(); l, funct</th><th>i<b>on (</b>error</th><td>) {</td><td></td><td></td><td></td><td>Pre-reque and are ru Learn moi SNIPPETS Get an en Get a glob Get a varia Set an env Set a glob</td><td>est scripts are writ un before the requ re about pre-requ vironment variable able vironment variable al variable</td><td>ten in JavaScri uest is sent. eest scripts le</td><td>pt, ⊧</td></e<>	cookies. quest.ur rror>	jar(); l, funct	i <b>on (</b> error	) {				Pre-reque and are ru Learn moi SNIPPETS Get an en Get a glob Get a varia Set an env Set a glob	est scripts are writ un before the requ re about pre-requ vironment variable able vironment variable al variable	ten in JavaScri uest is sent. eest scripts le	pt, ⊧

Clear cookies

This is via the code put in the Pre-request Script.

#### How to use Collection Runner

Now that we have some environment where we can run sessions and save data specific to each session, you can run a sequence of calls usung Collection Runner.

Select the order of events you want to repeat, select the repeat count so Postman can execute the API calls, the selected number of times times with results per run.

Choose a collection or folder	RUN ORDER	Deselect All	Select All	Reset
Q Search for a collection or folder	POST Get JSESSIONID in newer release(s)			
< Viptela	GET Get new token in 19.2 on my vManage			
POST https://10.48.21.230/apidocs	GET Get server info with in-correct token			
Post https://10.48.21.230/dataservice/device	GET Get server information 19.2 lab vManage with correct token			- 1
Post https://10.48.21.230:443/dataservice/statistics/approute	POST https://10.48.21.230/apidocs			- 1
POST https://10.48.21.230:443/dataservice/statistics/approute	POST https://10.48.21.230/dataservice/device			- 1
POST https://10.48.21.230:443/dataservice/statistics/approute	POST https://10.48.21.230:443/dataservice/statistics/approute			- 1
	POST https://10.48.21.230:443/dataservice/statistics/approute			- 1
Environment SDWAN *	Post https://10.48.21.230:443/dataservice/statistics/approute			
Iterations 5	GET https://10.48.21.230:443/dataservice/statistics/approute			
	POST https://10.48.21.230/dataservice/system/device			- 1
Delay 0 ms	POST https://10.48.21.230:443/dataservice/template/device/config/config			- 1
Data Select File	POST https://10.48.21.230/dataservice/system/device/fileupload			
Save responses ()	PUT https://mtv5-sdwan-vman-1			
Keep variable values 🚯	POST https://10.48.21.230/dataservice/system/device			- 1
Run collection without using stored cookies	POST https://10.48.21.230/dataservice/system/device			
Save cookies after collection run 🕕	GET Get new token in 19.2			
	GET inventory call			
Run Viptela	GET https://10.48.21.230/dataservice/alarms			
	GET Get alarms on my lab vManage			

Collection Runner

From the "library" of call, put them in a certain order to get a specifc flow/order to be executed.

Put in a result check whether you get a 200 OK or other value as response and treat it as pass or fail.



```
pm.test("Status code is 200", () => {
    pm.expect(pm.response.code).to.eql(200);
});
```

Then we can see passed or fail in our runs.

ollection Run	ner Run Res	ults		My Workspace 🔻			Run In Command	Line	Docs
20 PASSED	Viptela Just now	SDWAN			Run Summary 🔸	Export Results	Retry	N	iew
Iteration 1									
POST	Get JSESSIONID in nev	ver release(s)	https://10.48.21.230/j_se	Viptela / Get JSESSIONID in newer					
	Status code is 200								
GET	Get new token in 19.2 (	on my vManag	e https://10.48.21.230/dat	Viptela / Get new token in 19.2	on 🕒 200 OK 🌒 🗄	53 ms 🔵 550 B			
	Status code is 200								Ľ
GET	Get server info with in-	correct token	https://10.48.21.230/dat	Viptela / Get server info with in-co	0 403 Forbidden	🔵 56 ms 🌑 583 B			
	Status code is 403								
GET	Get server information	19.2 lab vMar	hage with correct token https://	/10.48.21.230/dat Viptela / G	et server information 1	200 OK 49	9 ms 🔵 486 B		
	Status code is 200								
Iteration 2									
POST	Get JSESSIONID in nev	ver release(s)	https://10.48.21.230/j_se	Viptela / Get JSESSIONID in newer					
	Status code is 200								
GET GET	Get new token in 19.2 (	on my vManag	e https://10.48.21.230/dat	Viptela / Get new token in 19.2	оп 🔴 200 ОК 🌒 4	48 ms 🌑 550 B			
	Status code is 200								
GET	Get server info with in-	correct token	https://10.48.21.230/dat	Viptela / Get server info with in-co	0 403 Forbidden	🔴 49 ms 🌑 583 B			
	Status code is 403								
Console	Status code is 403								

Automated run