

LAB: SỬ DỤNG POSTMAN TƯƠNG TÁC VỚI SD-WAN REST API

1. Mô tả

- Sử dụng công cụ Postman tạo Collection để chứa các request xác thực và lấy thông tin từ SD-WAN vManage
- Sử dụng công cụ Postman thực hiện gửi các request đến SD-WAN (vManage) để lấy thông tin thiết bị, template
- Từ Collection trong Postman, tiến hành tạo request để xác thực với vMange
- Sau khi xác thực thành công thì tiếp tục tạo các request để lấy thông tin những thiết bị có trong Controller

2. Yêu cầu kỹ thuật

- Cài đặt công cụ Postman (Bài lab sử dụng Postman version 10.15.0)
- Kết nối đến SD-WAN vManage, thông tin vManage trong bài lab:
 - ✤ Host: https://10.215.26.217
 - ✤ Username: admin
 - Password: Admin
- Tạo các request để xác thực, lấy thông tin thiết bị có trong SD-WAN

3. Thực hiện

a. Tạo môi trường

Sử dụng Environment trong Postman như một nơi để lưu trữ "biến" để có thể tái sử dụng ở nhiều nơi.

Ở Postman sẽ chia làm 2 loại Environments: Local và Global

- Local: Phạm vi ảnh hưởng chỉ có khi chọn đúng Enviroments.
- Global: Phạm vi ảnh hưởng đến toàn bộ các project có trong Postman, nhưng nếu có 2 biến cùng tên ở Local và Global thì sẽ ưu tiên lấy Local.

Giao diện Postman



Bước 1: Để tạo môi trường, bạn cần vào phần Environment sau đó chọn vào New, chọn

Environment





Bước 2: Nhập tên môi trường

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Bước 3: Điền thông tin truy cập của vManage vào môi trường để có thể sử dụng nhiều nơi



Bước 4: Nhấn save để lưu

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b. Xác thực



Thông thường việc đầu tiên khi chúng ta tương tác với API đó là việc xác thực. Xác thực để đảm bảo rằng chỉ những người dùng có quyền mới có thể truy cập vào API. Chúng ta có thể sử dụng các tính năng RBAC để có thể giới hạn quyền truy cập tài nguyên.

Để hiểu rõ hơn về các xác thực của **CISCO SD-WAN REST API**, bạn có thể tham khảo thêm tài liệu trên trang chính thức của Cisco: <u>https://developer.cisco.com/sdwan/</u>

Bước 1: Tạo collection

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Bước 2: Tạo một request để xác thực

Bên trong Cisco-SD-WAN collection, tạo mội API request đặt tên là Authentication.

- Authentication call sử dụng phương thức POST
- Để xác định địa chỉ của vManage chúng ta sử dụng biến môi trường *{{vmanage}}* đã tạo ở phần trước. Biến môi trường sẽ được thay thế bằng giá trị đã tạo trong môi trường khi gửi request.
- Địa chỉ mà chúng ta trỏ đến là j_check_security

Chọn đúng môi trường đã tạo



Tạo một request với phương thức là POST và điền tên request là Authentication

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Thông tin username và password được điền vào **Body** tab với key là j_username và j_password, phần value gọi lại biến trong môi trường

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Chọn Save để lưu request

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Sau khi đã điền tất cả những tham số cần thiết để xác thực với vManage: địa chỉ vManage, phương thức, header và body. Nhấn nút **Send** và trả về kết quả như sau:

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Lưu ý: Nếu bạn sử dụng SD-WAN vManage của cá nhân và chưa được cấu hình SSL thì bạn phải vào phần File > Setting > tắt chức năng SSL certificate verification



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Bước 3: Phòng Ngừa API CSRF

CSRF hay còn gọi là kỹ thuật tấn công "Cross-site Request Forgery", nghĩa là kỹ thuật tấn công giả mạo chính chủ thể của nó. CSRF nói đến việc tấn công vào chứng



thực request trên web thông qua việc sử dụng Cookies. Đây là nơi mà các hacker có khả năng sử dụng thủ thuật để tạo request mà bạn không hề biết.

Tính năng này được sử dụng để chống kỹ thuật tấn công giả mạo (CRSF) có thể xảy ra khi sử dụng Cisco SD-WAN REST APIs. Ở đây chúng ta sử dụng crsf_token để phòng chống CSRF, token này sẽ được đính kèm trong các lần gọi API và sẽ thay đổi liên tục trong phiên làm việc. Nếu token được sinh ra và token được gửi lên ko trùng nhau thì loại bỏ request.

Tạo một request mới để thực hiện lấy Token:

- Sử dụng phương thức Get
- Resource tro dén là /dataservice/client/token

Tạo một request

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Điền tên cho request là Token

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Phương thức sử dụng sẽ là GET và điền URL {{vmanage}}/dataservice/client/token

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Trong Headers tab, nhập thông tin Content-Type và Cookie, ở đây Cookie là giá trị jsessionid mà chúng ta đã lấy được ở request Authentication



Ta sẽ vào Environments và thêm một biến jsessionid

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Quay về request Authentication, ở Tests tab ta điền một đoạn javascript với chức năng tự động gán giá trị jsessionid vào biến với status code là 200



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Send lại request và qua Environment thì chúng ta thấy cookies tự động gán vào biến jsessionid

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Điền thông tin Headers tab ở request Token

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Sau đó lưu request và nhấn Send, kết quả trả về như sau

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Đầu tiên chúng ta sẽ tạo Environment, nhấn vào nút hình bánh răng như hình c. Lấy thông tin và trạng thái thiết bị SD-WAN

Sau khi đã xác thực thành công và có được JSESSIONID cookie, bây giờ bạn có thể truy xuất dữ liệu từ Cisco SD-WAN REST API.

Bước 1: Danh sách thiết bị

Để lấy được danh sách thiết bị chúng ta sử dụng phương thức GET cùng với resource đến api endpoint là /dataservice/device. Dữ liệu sẽ được trả về với định dạng JSON cùng với danh sách của tất cả thiết bị có trong SD-WAN fabric:

		CÔNG TY TNHH TƯ VẤN VÀ DỊCH VỤ CHUYÊN VIỆT TRUNG TÂM TIN HỌC VNPRO ĐC: 276 - 278 Ung Văn Khiêm, P.25, Q.Binh Thạnh, Tp Hồ Chí Minh ĐT: (028) 35124257 Hotline: 0933427079 Email: vnpro@vnpro.org
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Nếu bạn không nhận được kết quả như hình, kiểm tra lại status code đã trả về 200 OK. Nguyên nhân có thể do JSESSIONID cookie đã hết hạn, nếu vậy bạn cần phải xác thực lại.

Bước 2: Trạng thái thiết bị

Request tiếp theo được tạo trong collection được gọi để xem thông tin cụ thể trạng thái của tất cả thiết bị trong fabric. Sử dụng phương thức GET và trỏ đến resource /dataservice/device/monitor.

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d. Lấy thông tin device counters và interface statistics

Nếu bạn muốn có thêm thông tin liên quan đến các kết nối của fabric, số lần thiết bị được khởi động lại và nhiều thông tin khác. Nếu bạn tìm kiếm trong **API Documentation**, bạn sẽ tìm thấy resource /dataservice/device/counters.

Kết quả trả về như sau:

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Tiếp theo, lấy thông tin số liệu thống kê của các interface có trong SD-WAN fabric sử dụng resource /dataservice/statistics/interface.

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