



# PCS/PPS

## REST API Solutions Guide

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REST API Solutions Guide

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# Overview

The REST API provides a standardized method for Next-Gen firewalls, NAC devices, and third-party systems to interact with PCS/PPS. **Representational state transfer (REST)** or RESTful Web services are one way of providing interoperability between computer systems on the Internet. REST-compliant Web services allow requesting systems to access and manipulate textual representations of Web resources using a uniform and predefined set of stateless operations. In a RESTful Web service, requests made to a resource's URI will elicit a response that may be in XML, HTML, JSON or some other defined format. PCS/PPS supports JSON format only.

REST methods determine the HTTP method for manipulating the resources defined in the service operation. The kind of operations available include those predefined by the HTTP verbs GET, POST, PUT, DELETE and so on. The response may confirm that some alteration has been made to the stored resource, and it may provide hypertext links to other related resources or collections of resources. By making use of a stateless protocol and standard operations, REST systems aim for fast performance, reliability, and the ability to grow, by re-using components that can be managed and updated without affecting the system as a whole, even while it is running.



**Note:** REST API Support for PCS/PPS involves only Configuration APIs. Also, PCS/PPS supports only the GET, POST, PUT and DELETE APIs.

The valid and supported values are described in the **Table 1**.

**Table 1: Valid and Supported Values**

HTTP Verb	Definition
DELETE	Delete an existing resource.
GET	Retrieve a representation of a resource.
POST	Create a new resource
PUT	Create a new resource to a new URL, or modify an existing resource to an existing URL.

The error codes supported are described in the **Table 2**.

**Table 2: Error Codes Supported**

HTTP Verb	Definition
200 OK	Requesting for resource information successful using GET Resource update successful using PUT
201 Created	Resource creation successful using POST
204 No Content	Deletion of resource successful with no body. Even PUT, POST may return 204 if no errors or warnings seen
400 – Bad Request	Any Request (GET/PUT/POST/DELETE, and so on) is invalid. Example: Incorrect JSON format

HTTP Verb	Definition
401 – Unauthorized	Any REST Call with invalid credentials
403 – Forbidden	REST Call with valid credentials but no permission
404 – Not found	Requested resource in URI does not exist
422 – Unprocessable Entity	Any validation/referential integrity errors that would result in failure of PUT/POST/DELETE request
500 Server Error	When PCS/PPS rest server is not responding

## Authentication for REST APIs

Basic authentication using the HTTP authorization header is used to authenticate username/password on the Administrators authserver. It is expected that the user is already configured in the Administrators authserver. On a successful login, a random token (api\_key) is generated and sent back as a JSON response. Further access to APIs can use this api\_key in their Authorization header for access. The entire communication is over TLS. An example is explained below:

### REQUEST

```
GET /api/v1/auth HTTP/1.1
Host: 10.209.112.106
Authorization: Basic YWRtaW5kYjpkYW5hMTIz
Content-Type: application/json
```

### RESPONSE

```
HTTP/1.1 200 OK
Cache-Control: no-store
Connection: Keep-Alive
Content-Type: application/json
Expires: -1
Keep-Alive: timeout=15
{ "api_key": "p5mM1c7RQu81R2NvssLCCZhP05kf0N2ONFeYeLXX6aU=" }
```

Authorization header for all future request should perform Basic Auth using above api\_key value as username and password as empty.

### REQUEST

```
GET /api/v1/configuration HTTP/1.1
Host: 10.209.112.106
Authorization: Basic
```

```
cDVtTWxjn1JRdTgxUjJOdnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06
```

**RESPONSE**

```
HTTP/1.1 200 OK
```

```
Content-Length →283
```

```
Content-Type →application/json
```

```
{  
  "administrators":  
  { "href": "/api/v1/configuration/administrators" }  
  ,  
  "authentication":  
  { "href": "/api/v1/configuration/authentication" }  
  ,  
  "system":  
  { "href": "/api/v1/configuration/system" }  
  ,  
  "users":  
  { "href": "/api/v1/configuration/users" }  
}
```

## Configurations REST APIs

The configuration of PCS/PPS can be accessed using REST APIs. The PCS/PPS configuration is represented in a json form when accessed using REST APIs. The structure of the JSON representation is very similar to the structure of PCS/PPS XML configuration.

A new admin UI option for users under "Administrators" authserver has been added. REST API authentication would be successful only for those users who have this option enabled.

To enable this check box:

1. Go to **Authentication > Auth. Servers > Administrators > Update Administrator admin1**.
2. Select the Allow access to REST APIs check box. See figure below:
3. Click on **Save Changes**.

**Pulse Secure** System **Authentication** Administrators

Auth Servers > Administrators > Update Administrator admin1

### Update Administrator admin1

Full Name:

Authenticate using: Administrators

Password:

Confirm Password:

One-time use (disable account after the next successful sign-in)

Allow console access

Allow access to REST APIs **This is the new check box added**

Enabled

Disabled

Quarantined

Require user to change password at next sign in

Note: You must also configure password management on the [Authentication server Settings](#) with 'Allow users inherit the server's password management capabilities.'

**Save Changes**



## Enabling REST API Access for an Administrator from the Console

REST API access for an administrator user can be enabled during initial configuration and while creating a new administrator user.

During initial provisioning, there are no administrator accounts configured and the system prompts to create a new administrator user. For the option “Do you want to enable REST API access for this administrator (y/n):”, enter **y**. Note that any characters other than “y” or “n” are invalid responses.

```

~ -- ssh shri@10.243.53.143

Internal port configuration completed, proceeding to next step...
-----

Internal NIC: .[OK]
Currently there are no administrators configured...

Please create an administrator user.
Admin username: admindb
Password:
Confirm password:
Do you want to enable REST API access for this administrator (y/n): y

The administrator was successfully created.
-----

```

When creating a new administrator user from the console using the option “2. Create admin username and password”, for the option “Do you want to enable REST API access for this administrator (y/n):”, enter **y**.

```

~ -- ssh shri@10.243.53.143

Current version: 9.0R1 (build 63950)
Rollback version: 8.3R4 (build 60528)
Reset version: 8.1R4.1 (build 37682)

Licensing Hardware ID: 0332MJ0WK0NUP111S
Serial Number: 0332122015100018

Please choose from among the following options:
 0. Start shell
100. mount root rw and start rsync...
101. mount root rw and chpax /home/bin...
102. modify platform code...
103. validate files...
104. Start sshd for debugging ...
105. Manage fault injection scenarios
 1. Network Settings and Tools
 2. Create admin username and password
 3. Display log/status
 4. System Operations
 5. Toggle password protection for the console (Off)
 6. Create a Super Admin session.
 7. System Maintenance
 8. Reset allowed encryption strength for SSL
(Choice: 2

Please create an administrator username and password.
Admin username: consoleadmin
Password:
Confirm password:
Do you want to enable REST API access for this administrator (y/n): y

The administrator consoleadmin was successfully created.

```

## Sample GET/POST/PUT/DELETE Request and Responses in PCS

Below is a sample of GET/POST/PUT/DELETE request and responses:

### GET API Call: Fetch the Specific User under Local Authentication Server

#### REQUEST

```
GET /api/v1/configuration/authentication/auth-servers/auth-server/Sys-Local/local/users/user/user0001 HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
cDVtTWxjN1JRdTgxUjJODnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06
```

```
Content-Type: application/json
```

#### RESPONSE

```
HTTP/1.1 200 OK
```

```
Content-Length: 309
```

```
Content-Type: application/json
```

```
{
  "change-password-at-signin": "false",
  "console-access": "false",
  "enabled": "true",
  "fullname": "user0001",
  "one-time-use": "false",
  "password-encrypted":
  "3u+UR6n8AgABAAAATjgR31G4neKag2hxI+wjaNsRRZGD6wMQVkLEQv+DPQZdUrQi5IWPuihJf8tnrsBV0XCQly6WgZ79Jv1fyzmssg==",
  "username": "user0001"
}
```

### POST API Call: Create User for Existing Local Authentication Server

#### REQUEST

```
POST /api/v1/configuration/authentication/auth-servers/auth-server/Sys-Local/local/users/user HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
cDVtTWxjN1JRdTgxUjJODnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06
```

```
Content-Type: application/json
```

```
{
```

```

"change-password-at-signin": "false",
"console-access": "false",
"enabled": "true",
"fullname": "user0001",
"one-time-use": "false",
"password-encrypted":
"3u+UR6n8AgABAAAATjgR31G4neKag2hxI+wjaNsRRZGD6wMQVkJLEQv+DPQZdUrQi5IWPuihJ
f8tnrsBV0XCQly6WgZ79Jv1fyzmssg==",
"username": "user0001"
}

```

**RESPONSE**

HTTP/1.1 200 OK

Content-Length: 122

Content-Type: application/json

```

{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or error!"
      }
    ]
  }
}

```

**PUT API Call: Update Full name field of Specific user****REQUEST**

PUT /api/v1/configuration/authentication/auth-servers/auth-server/Sys-Local/local/users/user/user0001/fullname HTTP/1.1

Host: 10.209.112.106

Authorization: Basic

cDVtTWxjN1JRdTgxUjJ0dnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06

Content-Type: application/json

Cache-Control: no-cache

```

Postman-Token: 1ca1c683-4cb4-f629-53d9-cdabb9d6f092

{
  "fullname":"REST API test for user0001"
}

RESPONSE
HTTP/1.1 200 OK
Content-Length: 122
Content-Type: application/json
{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or error!"
      }
    ]
  }
}

```

After updating fetch the User details and observe the fullname field updated:

```

REQUEST
GET /api/v1/configuration/authentication/auth-servers/auth-server/Sys-Local/local/users/user/user0001 HTTP/1.1
Host: 10.209.112.106
Authorization: Basic
cDVtTWxjN1JRdTgxUjJOdnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06
Content-Type: application/json

RESPONSE
HTTP/1.1 200 OK
Content-Length →327
Content-Type →application/json
{
  "change-password-at-signin": "false",
  "console-access": "false",
  "enabled": "true",

```

```

"fullname": "REST API test for user0001",
"one-time-use": "false",
"password-encrypted":
"3u+UR6n8AgABAAAATjgR31G4neKag2hxI+wjaNsRRZGD6wMQVkleQv+DPQZdUrQi5IWPuihJ
f8tnrsBV0XCQly6WgZ79Jv1fyzmssg==",
"username": "user0001"
}

```

## DELETE API Call: DELETE Specific User

### REQUEST

```
DELETE /api/v1/configuration/authentication/auth-servers/auth-server/Sys-Local/local/users/user/user0001 HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
cDVtTWxjNlJRdTgxUjJOdnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06
```

```
Content-Type: application/json
```

### RESPONSE

```
HTTP/1.1 200 OK
```

```
Content-Length →122
```

```
Content-Type →application/json
```

```

{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or error!"
      }
    ]
  }
}

```

After deleting Try to fetch the resource and you would observe 404 response

### REQUEST

```
GET /api/v1/configuration/authentication/auth-servers/auth-server/Sys-Local/local/users/user/user0001 HTTP/1.1
```

```
Host: 10.209.112.106
```

```

Authorization: Basic
cDVtTWxjNlJRdTgxUjJOdnNzTENDWmhQMDVrZjBOMk9ORmVZZUxYWDZhVT06

Content-Type: application/json

Cache-Control: no-cache

Postman-Token: c94a2f29-2b52-4ed1-3987-302cbce96a30

```

**RESPONSE**

```

404 NOT FOUND

Content-Length: 105

Content-Type: application/json

{
  "result": {
    "errors": [
      {
        "message": "Resource does not exist."
      }
    ]
  }
}

```

**Representing Configuration Resources Using Links**

When performing a GET request on a configuration resource, the json response may have "href" attributes to represent smaller resources within.

As an example, "GET /api/v1/configuration" returns:

```

{
  "users": {
    "href": "/api/v1/configuration/users"
  },
  "system": {
    "href": "/api/v1/configuration/system"
  },
  "authentication": {
    "href": "/api/v1/configuration/authentication"
  },
  "administrators": {

```

```

    "href": "/api/v1/configuration/administrators"
  }
}

```

The href values can be used to access smaller resources.

## Sample GET/POST/PUT/DELETE Request and Responses in PPS

Below is a sample of GET/POST/PUT/DELETE request and responses:

### GET API Call: Fetch the Details under Endpoint Policy

This example shows how to fetch the details under endpoint policy in PPS.

```

REQUEST
GET /api/v1/configuration/uac HTTP/1.1

Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVks5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

{
  "admissionControl": {
    "href": "/api/v1/configuration/uac/admissionControl"
  },
  "host-enforcer": {
    "href": "/api/v1/configuration/uac/host-enforcer"
  },
  "infranet-enforcer": {
    "href": "/api/v1/configuration/uac/infranet-enforcer"
  },
  "mac-address-realms": {
    "href": "/api/v1/configuration/uac/mac-address-realms"
  },
  "network-access": {
    "href": "/api/v1/configuration/uac/network-access"
  },
  "snmpEnforcement": {
    "href": "/api/v1/configuration/uac/snmpEnforcement"
  }
}
}
RESPONSE

HTTP/1.1 200 OK

Content-Length: 340

Content-Type: application/json

```

**POST API Call: Create an SRX Enforcer in Infranet Enforcer Connection**

This example shows how to create an SRX Enforcer in Infranet Enforcer connection.

**REQUEST**

```
POST /api/v1/configuration/uac/infranet-enforcer/connections/infranet-enforcer/ HTTP/1.1
```

```
Host xx.xx.xx.xx
```

```
Authorization : Basic
```

```
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "idp-for-local-sessions-only": "true",
  "junos": {
    "location-group": "- No 802.1X -",
    "password-encrypted":
"3u+UR6n8AgABAAAofSnIBrU19vdwUslG5LG4cg1QH6CbXDSmY4ZW0x85HY="
  },
  "name": "SRX",
  "serial-number": [
    "SJFIOQJI4KNM"
  ],
  "severity-filter": "medium",
  "use-idp": "false"
}
```

**RESPONSE**

```
HTTP/1.1 201 OK
```

```
Content-Length: 122
```

```
Content-Type: application/json
```

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or
error!"
      }
    ]
  }
}
```



## PUT API Call: Update the Existing Configuration Where In the Initial Location Group

This example updates the existing configuration where in the initial Location Group is configured as "Guest" and then later updated to "Default" Location group.

Before Updating the Location Group

```
REQUEST
GET api/v1/configuration/uac/network-access/radius-clients/radius-
client/Radius%20Client HTTP/1.1

Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

{
  "location-group": "Guest",
  "name": "Radius Client",
}

RESPONSE

HTTP/1.1 200 OK

Content-Length: 122

Content-Type: application/json
```

After Updating the Location Group

```
REQUEST

PUT api/v1/configuration/uac/network-access/radius-clients/radius-
client/Radius%20Client HTTP/1.1

Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

{
  "location-group": "Default",
```

```
    "name": "Radius Client",
  }
RESPONSE
HTTP/1.1 200 OK

Content-Length: 122

Content-Type: application/json

{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or
error!"
      }
    ]
  }
}
```

**DELETE API Call: Delete an SNMP Device**

This example shows how to delete SNMP device from PPS.

**REQUEST**

```
DELETE api/v1/configuration/uac/snmpEnforcement/clients/client/ruckus
HTTP/1.1
```

```
Host 10.96.73.37
```

```
Authorization : Basic
VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

**RESPONSE**

```
HTTP/1.1 204 NO CONTENT
```

```
Content-Length: 0
```

```
Content-Type: application/json
```

# PCS Configurations Using REST APIs

- **Creating a VLAN**
- **Deleting a VLAN**
- **Creating a User Role**
- **Updating the User Role Settings**
- **Deleting a User Role**
- **Creating a User Realm**
- **Deleting a User Realm**
- **Creating a Resource Profile**
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- **Creating a Resource Policy**
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- **Reordering**
- **Fetching the Resource with Multiple Identifiers**
- **Updating resource identified using Multiple Identifiers**
- **Updating Password In Clear Text**
- **Sample Error Responses**
- **Limitations**

## Creating a VLAN

To create a VLAN on a cluster node:

### Request

```
POST /api/v1/configuration/system/network/vlans/Node88/vlan/
HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

```
{
  "arp-cache": {
    "arp-entry": []
  },
  "name": "vlan-int-1",
  "routes": {
    "route": []
  },
  "settings": {
    "default-gateway": "2.0.0.1",
    "default-vlan-interface": "false",
    "enable-ipv6": "enabled",
    "ip-address": "2.2.2.2",
    "ipv6-address": "fc00:7777:5678:5678::222",
    "ipv6-default-gateway": "fc00:7777:5678:5678::3",
    "ipv6-prefix-length": "64",
    "is-enabled": "enabled",
    "netmask": "255.0.0.0",
    "vlan-id": "2",
    "vlan-parent": "0"
  },
  "virtual-ports": {
    "virtual-port": []
  }
}
```

```

}
Response:
HTTP/1.1 201 CREATED
Content-Length: 128
Content-Type: application/json

{
  "result": {
    "warnings": [
      {
        "message": "The configuration has been implicitly changed"
      }
    ]
  }
}

```

## Deleting a VLAN

To delete a VLAN from cluster node:

```

Request

DELETE
/api/v1/configuration/system/network/vlans/Node88/vlan/vlan-int-1
HTTP/1.1

Host: 10.209.113.88

Authorization: Basic
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06

Content-Type: application/json

Response:

HTTP/1.1 204 NO CONTENT

Content-Length: 0

Content-Type: application/json

```

## Creating a User Role

To create a user role:

**Request:**

```
POST /api/v1/configuration/users/user-roles/user-role/ HTTP/1.1
Host: 10.209.113.88

Authorization: Basic
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06

Content-Type: application/json

{
  "name": "rest-userrole-4",
  "web": {
    "web-bookmarks": {
      "bookmark": [
        {
          "auto-allow": "disable",
          "description": "",
          "name": "web-bm-1",
          "new-window": "false",
          "no-address-bar": "false",
          "no-tool-bar": "false",
          "parent": "--none--",
          "standard": {
            "url": "http://www.msn.com"
          }
        }
      ]
    }
  },
  "web-options": {
    "browsing-untrusted-sslsites": "true",
    "flash-content": "false",
    "hpxproxy-connection-timeout": "1800",
    "http-connection-timeout": "240",
    "java-applets": "true",
    "mask-hostname": "false",
    "persistent-cookies": "false",
    "rewrite-file-urls": "false",
```

```
"rewrite-links-pdf": "false",
"unrewritten-page-newwindow": "false",
"user-add-bookmarks": "false",
"user-enter-url": "false",
"users-bypass-warnings": "false",
"warn-certificate-issues": "true",
"websocket-connection-timeout": "900"
}
}
```

**Response:**

HTTP/1.1 201 CREATED

Content-Length: 122

Content-Type: application/json

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeed
without warning or error!"
      }
    ]
  }
}
```



## Updating the User Role Settings

To update the user role settings:

**Request:**

```
PUT /api/v1/configuration/users/user-roles/user-role/rest-userrole-4 HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

```
{
  "name": "rest-userrole-4",
  "web": {
    "web-bookmarks": {
      "bookmark": [
        {
          "auto-allow": "disable",
          "description": "",
          "name": "web-bm-1",
          "new-window": "false",
          "no-address-bar": "false",
          "no-tool-bar": "false",
          "parent": "--none--",
          "standard": {
            "url": "http://www.yahoo.com"
          }
        }
      ]
    },
    "web-options": {
      "browsing-untrusted-sslsites": "true",
      "flash-content": "false",
      "hpxproxy-connection-timeout": "1800",
      "http-connection-timeout": "240",
```

```
    "java-applets": "true",
    "mask-hostname": "false",
    "persistent-cookies": "false",
    "rewrite-file-urls": "false",
    "rewrite-links-pdf": "false",
    "unrewritten-page-newwindow": "false",
    "user-add-bookmarks": "false",
    "user-enter-url": "false",
    "users-bypass-warnings": "false",
    "warn-certificate-issues": "true",
    "websocket-connection-timeout": "900"
  }
}
}
}
```

**Response:**

HTTP/1.1 200 OK

Content-Length: 122

Content-Type: application/json

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeed
without warning or error!"
      }
    ]
  }
}
```

## Deleting a User Role

To delete a user role:

### Request

```
DELETE /api/v1/configuration/users/user-roles/user-
role/rest-userrole-4 HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

### Response:

```
HTTP/1.1 204 NO CONTENT
```

```
Content-Length: 0
```

```
Content-Type: application/json
```

## Creating a User Realm

To create a user realm:

### Request

```
POST /api/v1/configuration/users/user-realms/realm/ HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

```
{
  "accounting-server": "None",
  "authentication-group": "",
  "authentication-policy": {
    "browser": {
      "customized": "any-user-agent",
      "user-agent-patterns": {
        "user-agent-pattern": []
      }
    }
  },
}
```

```
"certificate": {
  "cert-key-value-pairs": {
    "cert-key-value-pair": []
  },
  "customized": "allow-all-users"
},
"host-checker": {
  "enforce-all-policies": "false",
  "enforce-policy-list": null,
  "evaluate-all-policies": "false",
  "evaluate-logic": "all-policies-must-succeed",
  "evaluate-policy-list": null
},
"limits": {
  "guaranteed-minimum": null,
  "limit-concurrent-users": "false",
  "max-sessions-per-user": "1",
  "maximum": null
},
"password": {
  "primary-password-expiration-warning-days": "14",
  "primary-password-management": "true",
  "primary-password-minimum-length": "4",
  "primary-password-restricted": "allow-passwords-of-
minimum-length",
  "secondary-password-expiration-warning-days": "14",
  "secondary-password-management": "false",
  "secondary-password-minimum-length": "4",
  "secondary-password-restricted": "allow-passwords-of-
minimum-length"
},
"source-ip": {
  "customized": "any-ip",
  "ips": {
```

```

        "ip": []
      }
    },
    "authentication-server": "AD server",
    "description": "",
    "device-server": "None",
    "directory-server": "AD server",
    "dynamic-policy": {
      "dynamic-policy-evaluation": "false",
      "refresh-interval": "60",
      "refresh-policies": "false",
      "refresh-roles": "false"
    },
    "editing-description": "false",
    "inbound-ifmap-attributes": "false",
    "migration-sharing-type": "enable-session-migration",
    "name": "rest-user-realm",
    "role-mapping-rules": {
      "rule": [
        {
          "name": "rest-admin-rule",
          "roles": [
            "test1"
          ],
          "stop-rules-processing": "false",
          "user-name": {
            "test": "is",
            "user-names": [
              "user1"
            ]
          }
        }
      ]
    }
  }
}

```

```

    ],
    "user-selects-role": "false",
    "user-selects-roleset": "false"
  },
  "secondary-authentication-settings": {
    "authentication-must-succeed": "true",
    "name": "-",
    "password-input": "user",
    "predefined-password": "",
    "predefined-user-name": "",
    "user-name-input": "user"
  },
  "session-migration": "false"
}

```

**Response:**

HTTP/1.1 201 CREATED

Content-Length: 122

Content-Type: application/json

```

{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or
error!"
      }
    ]
  }
}

```

## Deleting a User Realm

To delete a user realm:

**Request**

```
DELETE /api/v1/configuration/users/user-realms/realm/rest-user-
realm HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

**Response:**

```
HTTP/1.1 204 NO CONTENT
```

```
Content-Length: 0
```

```
Content-Type: application/json
```

## Creating a Resource Profile

To create a web resource profile:

**Request**

```
POST /api/v1/configuration/users/resource-profiles/web-
profiles/web-profile/ HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

```
{
  "custom": {
    "bookmarks": {
      "bookmark": [
        {
          "apply": "all",
          "description": "",
          "name": "web-resourceprofile",
          "new-window": "false",
```

```

        "no-address-bar": "false",
        "no-tool-bar": "false",
        "roles": null,
        "url": "http://www.google.com"
    }
]
},
"client-authentication": [],
"java-acl": [],
"rewriting-options": {
    "ptp": [],
    "selective-rewriting": "false",
    "use-jsam": [],
    "use-wsam": []
},
"sso-basic-ntlm-kerberos": [],
"sso-header": [],
"sso-post": [],
"url": "http://www.google.com",
"web-compression": [],
"webacl": [
    {
        "rules": {
            "rule": [
                {
                    "action": "allow",
                    "name": "Allow
http://www.google.com:80/*",
                    "resource":
"http://www.google.com:80/*"
                }
            ]
        }
    }
]
}
}

```



```

    ],
    "webcaching": []
  },
  "description": "",
  "name": "web-resourceprofile",
  "roles": [
    "rest-userrole-3"
  ]
}

```

**Response:**

HTTP/1.1 201 CREATED

Content-Length: 128

Content-Type: application/json

```

{
  "result": {
    "warnings": [
      {
        "message": "The configuration has been
implicitly changed"
      }
    ]
  }
}

```

**Deleting a Resource Profile**

To delete a web resource profile:

**Request**

```
DELETE /api/v1/configuration/users/resource-profiles/web-
profiles/web-profile/web-resourceprofile HTTP/1.1
```

Host: 10.209.113.88

Authorization: Basic

MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06

```
Content-Type: application/json
```

### Response

```
HTTP/1.1 204 NO CONTENT
```

```
Content-Length: 0
```

```
Content-Type: application/json
```

## Creating a Resource Policy

To create a web resource policy:

### Request

```
POST /api/v1/configuration/users/resource-policies/web-
policies/web-acls/web-acl/ HTTP/1.1
Host: 10.209.113.88
Authorization: Basic
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
Content-Type: application/json

{
  "action": "allow",
  "apply": "selected",
  "description": "",
  "name": "web-acl-policy",
  "parent-type": "none",
  "resources": [
    "1.1.1.1:80,443/*"
  ],
  "roles": [
    "rest-userrole-1"
  ],
  "rules": {
    "rule": []
  }
}
```

**Response:**

```
HTTP/1.1 201 CREATED
```

```
Content-Length: 122
```

```
Content-Type: application/json
```

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or
error!"
      }
    ]
  }
}
```

**Fetching a Resource Policy**

To fetch a web resource policy:

**Request**

```
GET /api/v1/configuration/users/resource-policies/web-policies/web-
acls/web-acl/name=web-acl-policy,parent-type=none HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

**Response:**

```
HTTP/1.1 200 OK
```

```
Content-Length: 245
```

```
Content-Type: application/json
```

```
{
  "action": "allow",
```

```

    "apply": "selected",
    "description": "",
    "name": "web-acl-policy",
    "parent-type": "none",
    "resources": [
        "1.1.1.1:80,443/*"
    ],
    "roles": [
        "rest-userrole-1"
    ],
    "rules": {
        "rule": []
    }
}

```

## Deleting a Resource Policy

To delete a web resource policy:

### Request

```
DELETE /api/v1/configuration/users/resource-policies/web-policies/web-
acls/web-acl/name=web-acl-policy,parent-type=none HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
```

```
Content-Type: application/json
```

### Response:

```
HTTP/1.1 204 NO CONTENT
```

```
Content-Length: 0
```

```
Content-Type: application/json
```

## Creating an AD Auth Server

### Request

```
POST /api/v1/configuration/authentication/auth-servers/auth-
server HTTP/1.1
```

```
Host: 10.209.114.152
```

```
Authorization: Basic
```

QmJYZ1Z6eER2Tzhodjh4NzhlU28vU1NNZ0tHelJJUHhsbC9pdjcrZlRxcz06

Content-Type: application/json

```
{
  "ad": {
    "server-catalog": {
      "custom-variables": {
        "custom-variable": []
      },
      "expressions": {
        "custom-expression": []
      },
      "groups": {
        "ad-group": []
      }
    },
    "settings": {
      "additional-options": {
        "allow-trusted-domains": "false",
        "change-machine-password-after-every": "0",
        "enable-ntlm-protocol": "true",
        "enable-periodic-password-change-of-machine-
account": "false",
        "kerberos": "true",
        "max-domain-connections": "5",
        "ntlm-protocol": "ntlmv2"
      },
      "container-name": "Computers",
      "domain": "TEST",
      "kerberos-realm": "TEST.SAQACERTSERV.COM",
      "nodenames": [
        {
          "computer-name": "0332MWK0NRP111",
          "machine-hardware-id": "0332MOGWK0NRP111S",
          "node": "localhost2"
        }
      ],
      "password-encrypted":
"3u+UR6n8AgABAAAAYCaUPKhCg3J/y46bhB4wz6mnupQH0oTHOTfTexJxP2k=",
      "save-credentials": "true",
      "username": "Administrator"
    }
  }
}
```

```

    },
    "logical-name": "",
    "name": "AD-Server",
    "user-record-sync": "false"
  }

```

**Response:**

HTTP/1.1 201 CREATED

Content-Length: 128

Content-Type: application/json

```

{
  "result": {
    "warnings": [
      {
        "message": "The configuration has been implicitly changed"
      }
    ]
  }
}

```

## Deleting an AD Auth Server

**Request**

```
DELETE /api/v1/configuration/authentication/auth-servers/auth-server/AD-Server HTTP/1.1
```

Host: 10.209.114.152

Authorization: Basic

QmJYZlZ6eER2Tzhodjh4NzhlU28vU1NNZ0tHelJUUHhsbC9pdjcrZlRxcz06

Content-Type: application/json

**Response**

HTTP/1.1 204 NO CONTENT

Content-Length: 0

Content-Type: application/json

## Creating an LDAP Auth Server

**Request**

```
POST /api/v1/configuration/authentication/auth-servers/auth-server HTTP/1.1
```

Host: 10.209.114.152

```
Authorization: Basic
QmJYZlZ6eER2Tzhodjh4Nzh1U28vU1NNZ0tHelJJUHhsbC9pdjcrZlRxcz06

Content-Type: application/json

{
  "ldap": {
    "server-catalog": {
      "attributes": {
        "user-attribute": [
          {
            "name": "cn"
          },
          {
            "name": "department"
          },
          {
            "name": "departmentNumber"
          },
          {
            "name": "employeeNumber"
          },
          {
            "name": "o"
          },
          {
            "name": "ou"
          },
          {
            "name": "sAMAccountName"
          },
          {
            "name": "uid"
          }
        ]
      }
    }
  }
}
```

```

        "name": "homeDirectory"
      },
      {
        "name": "homeDrive"
      },
      {
        "name": "wwwHomePage"
      }
    ]
  },
  "custom-variables": {
    "custom-variable": []
  },
  "expressions": {
    "custom-expression": []
  },
  "groups": {
    "user-group": []
  }
},
"settings": {
  "admin-dn":
"CN=Administrator,CN=Users,DC=test,DC=saqacertserv,DC=com",
  "admin-password-encrypted":
"3u+UR6n8AgABAAAQkYh+Te/ebXL7gSn+W6IEPOV2YFsaaiKH2SVxkb81TKzWhS1EPF1sNXBpuQP5sW
XfeOYfjmhQSRZ5DP/z9UhQ/116DDne9/u7Lw67HyE/8Q=",
  "attribute-to-update-at-server": "",
  "attribute-type": "type-integer",
  "attribute-value-to-update-at-server": "<LOGINTIMELDAP>",
  "authentication-required-to-search-ldap": "true",
  "backup-port-1": null,
  "backup-port-2": null,
  "backup-server-1": "",
  "backup-server-2": "",
  "connection-timeout": "15",

```



```

    "connection-type": "plain",
    "enable-attribute-update-at-server": "false",
    "group-base-dn": "",
    "group-filter": "",
    "ldap-server-type": "active-directory",
    "meetings": {
      "email-address": "mail",
      "full-name": "displayname",
      "name-attribute-mapping": "",
      "user-name": "samaccountname"
    },
    "member-attribute": "",
    "nested-group-level": "0",
    "port": "389",
    "query-attribute": "",
    "reverse-group-search": "false",
    "search-timeout": "60",
    "server": "10.209.124.88",
    "server-catalog": "catalog",
    "test-user-dn": "",
    "user-base-dn": "DC=test,DC=saqacertserv,DC=com",
    "user-filter": "samaccountname=<USER>",
    "validate-referral-cert": "verifyserverconfigured",
    "validate-server-cert": "false"
  }
},
"logical-name": "",
"name": "LDAP-Server",
"user-record-sync": "false"
}

```

**Response :**

HTTP/1.1 201 CREATED

Content-Length: 128

Content-Type: application/json

```

{
  "result": {
    "warnings": [
      {

```

```

"message": "The configuration has been implicitly changed"
}
    ]
  }
}

```

## Creating a Radius Server

### Request

```

POST /api/v1/configuration/authentication/auth-servers/auth-server
HTTP/1.1

```

```

Host: 10.209.114.152

```

```

Authorization: Basic

```

```

QmJYZlZ6eER2Tzhodjh4Nzh1U28vU1NNZ0tHelJJUHhsbC9pdjcrZlRxcz06

```

```

Content-Type: application/json

```

```

{
  "logical-name": "",
  "name": "Radius-Server",
  "radius": {
    "server-catalog": {
      "attributes": {
        "user-attribute": []
      },
      "custom-variables": {
        "custom-variable": []
      },
      "expressions": {
        "custom-expression": []
      }
    },
    "settings": {
      "accounting-port": "1813",
      "authenticate-with-tokens-onetimepassword": "false",
      "authentication-port": "1812",
      "backup-accounting-port": "1813",
      "backup-authentication-port": "1812",
      "backup-server": "10.209.126.179",
      "backup-shared-secret-encrypted":
"3u+UR6n8AgABAAAA2Th1sUV9vXDS9gRdMt1yCB40l6tacMTwhWsTlIFd7Q4=",
      "custom-radius-rules": {

```

```

        "custom-radius-rule": []
    },
    "interim-update-interval": null,
    "load-balance-auth": "false",
    "nasid": "",
    "nasipaddr": "10.209.113.88",
    "process-radius-disconnect": "false",
    "retries": "0",
    "server": "10.209.126.179",
    "shared-secret-encrypted":
"3u+UR6n8AgABAAA2Th1sUV9vXDS9gRdMt1yCB40l6tacMTwhWsTlIFd7Q4=",
    "timeout": "30",
    "use-nc-assigned-ip": "false",
    "use-subsession-interim-update": "false",
    "user-name": "<USER>(<REALM> [<ROLE SEP=\", \"]"
    }
},
"user-record-sync": "false"
}

```

**Response:**

HTTP/1.1 201 CREATED

Content-Length: 128

Content-Type: application/json

```

{
  "result": {
    "warnings": [
      {
        "message": "The configuration has been implicitly changed"
      }
    ]
  }
}

```

**Modifying Radius Server Details****Request**

```

PUT /api/v1/configuration/authentication/auth-servers/auth-
server/Radius-Server HTTP/1.1

```

```
Host: 10.209.114.152
Authorization: Basic
QmJYZlZ6eER2Tzhodjh4Nzh1U28vU1NNZ0tHelJJUHhsbC9pdjcrZlRxcz06
Content-Type: application/json
{
  "name": "Radius-Server",
  "radius": {
    "settings": {
      "backup-accounting-port": "1814",
      "backup-authentication-port": "1816",
      "backup-server": "2.2.2.2"
    }
  }
}
```

**Response:**

```
HTTP/1.1 200 OK
Content-Length: 128
Content-Type: application/json
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without
warning or error!"
      }
    ]
  }
}
```

## Creating Sign-In-Policy

**Request:**

```
POST /api/v1/configuration/authentication/signin/urls/access-
urls/access-url/ HTTP/1.1
Host: 10.209.113.89
```

```
Authorization: Basic
MEthMXM0MmJraHpjYms0WFZCZ29Xb3k1Nk5NL3JqaDBwQ05iTmFhUlh5ST06
```

```
Content-Type: application/json
```

```
{
  "description": "",
  "enabled": "true",
  "page": "Default Sign-In Page",
  "realm-select": "pick-list",
  "url-pattern": "test/url3/",
  "user": {
    "enable-new-ux-pages": "false",
    "meeting-url": "*/meeting/",
    "post-authentication-signin-notification-id": "None",
    "post-authentication-signin-notification-skip": "false",
    "pre-authentication-signin-notification-id": "None",
    "realms": [
      "Users"
    ]
  }
}
```

**Response:**

```
HTTP/1.1 201 CREATED
```

```
Content-Length: 128
```

```
Content-Type: application/json
```

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

```

    ]
  }
}

```

## Deleting Sign-in-Policy

### Request

```
DELETE /api/v1/configuration/authentication/signin/urls/access-
urls/access-url/test%5C%2Furl13%5C%2F HTTP/1.1
```

Host: 10.209.113.89

Authorization: Basic

MEthMXMOMmJraHpjYms0WFZCZ29Xb3k1Nk5NL3JqaDBwQ05iTmFhUlh5ST06

Cache-Control: no-cache

### Response:

HTTP/1.1 204 NO CONTENT

Content-Length: 0

Content-Type: application/json

## Disable Sign-in-URL

### Request

```
PUT /api/v1/configuration/authentication/signin/urls/access-
urls/access-url/test%5C%2Furl1%5C%2F/enabled HTTP/1.1
```

Host: 10.209.113.89

Authorization: Basic

MEthMXMOMmJraHpjYms0WFZCZ29Xb3k1Nk5NL3JqaDBwQ05iTmFhUlh5ST06

Content-Type: application/json

```

{
  "enabled": "false"
}

```

### Response:

HTTP/1.1 200 OK

Content-Length: 128

Content-Type: application/json

```

{
  "result": {

```

```

        "info": [
            {
                "message": "Operation succeeded without warning or
error!"
            }
        ]
    }
}

```

## Creating a Web Bookmark For a Role

To create a web bookmark for a role:

### Request

```
POST /api/v1/configuration/users/user-roles/user-role/rest-userrole-1/web/web-bookmarks/bookmark HTTP/1.1
```

Host: 10.209.113.88

Authorization: Basic

MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06

Content-Type: application/json

Cache-Control: no-cache

Postman-Token: 5aa23287-a4b1-7619-1a1d-57ed0e693097

```

{
  "auto-allow": "disable",
  "description": "",
  "name": "webbm",
  "new-window": "false",
  "no-address-bar": "false",
  "no-tool-bar": "false",
  "parent": "--none--",
  "standard": {
    "url": "http://www.yahoo.com"
  }
}

```

### Response:

```

HTTP/1.1 201 CREATED
Content-Length: 122
Content-Type: application/json

{
  "result": {
    "info": [
      {
        "message": "Operation succeed without warning or
error!"
      }
    ]
  }
}

```

## Reordering

For re-ordering existing ordered elements in the configuration, a PUT API can be used with an 'order' suffix. This API can be used to reorder any ordered element in the configuration including role-mapping-rules, resource policies and ACLs.

Example: Reorder existing role-mapping-rules in a specific realm

### Request

```

PUT /api/v1/configuration/users/user-realms/realm/testRealm/role-
mapping-rules/rule/order HTTP/1.1

Host: 10.209.112.106

Authorization: Basic
Y1VPZE1XZ1ZubVEvVnIrcWwrd3lJY3F0Y05WTGhDVkx1M0wrkd5YR3hzVT06

Content-Type: application/json

{
  "rule": [
    {
      "href": "/api/v1/configuration/users/user-
realms/realm/testRealm/role-mapping-rules/rule/rule3"
    },
    {
      "href": "/api/v1/configuration/users/user-

```



```
realms/realm/testRealm/role-mapping-rules/rule/rule1"
```

```
}
```

```
]
```

```
}
```

### Response

```
HTTP/1.1 200 OK
```

```
content-length: 122
```

```
content-type: application/json
```

```
{
```

```
  "result": {
```

```
    "info": [
```

```
      {
```

```
        "message": "Operation succeed without warning or  
error!"
```

```
      }
```

```
    ]
```

```
  }
```

```
}
```

## Fetching the Resource with Multiple Identifiers

Example: Retrieve one of SNMP Trap server configured on PCS device

### Request

```
GET /api/v1/configuration/system/log/snmp/localhost2/trap-  
servers/trap-server/ip=1.1.1.1,port=162 HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
T0o1dzVpK3g4U0dKV0d1TkJCdWlwVzREaUc0SjZvbkeXmV1jc0RtNU14bz06
```

### Response

```
HTTP/1.1 200 OK
```

```

content-length: 65
content-type: application/json

{
  "community": "public",
  "ip": "1.1.1.1",
  "port": "162"
}

```

## Updating resource identified using Multiple Identifiers

Example: Updating the community string for specific SNMP trap server identified by IP and port

### Request

```

PUT /api/v1/configuration/system/log/snmp/localhost2/trap-
servers/trap-server/ip=1.1.1.1,port=162/community HTTP/1.1

Host: 10.209.112.106

Authorization: Basic
T0oldzVpK3g4U0dKV0d1TkJCdWlwVzREaUc0SjZvbkExMVljc0RtNU14bz06

Content-Type: application/json

{
  "community": "pulsesecure"
}

```

### Response

```

HTTP/1.1 200 OK

content-length: 122
content-type: application/json

{
  "result": {
    "info": [
      {

```

```

        "message": "Operation succeed without warning or
error!"
    }
]
}
}

```

## Updating Password In Clear Text

Example: Updating password of System Local User

### Request

```
PUT /api/v1/configuration/authentication/auth-servers/auth-
server/System%20Local/local/users/user/user0001/password-
cleartext HTTP/1.1
```

Host: 10.209.112.106

Authorization: Basic  
T0o1dzVpK3g4U0dkV0d1TkJCdWlwVzREaUc0SjZvbkeXmV1jc0RtNU14bz06

Content-Type: application/json

```
{
  "password-cleartext": "Psecure"
}
```

### Response

HTTP/1.1 200 OK

content-length: 128

content-type: application/json

```
{
  "result": {
    "warnings": [
      {

```

```

        "message": "The configuration has been
        implicitly changed"
    }
}
]
}
}

```

## Applying Authcode and Downloading Licenses from PCLS on VA-SPE|PSA-V

In PCS 8.3R4|PPS 5.4R4, this REST API can be used to download the license key from PCLS and install on the Virtual Appliance

### Request

```

PUT /api/v1/license/auth-code HTTP/1.1
TE: deflate,gzip;q=0.3
Connection: TE, close
Authorization: Basic
TnBDUk1veFFFQTJKZjM0S2ZxV2JKUlhRaDJaWGFrYnkvWVpTR3hhNTdmbz0=
Host: 10.209.125.7
User-Agent: REST::Client/273
Content-Length: 35
Content-Type: application/json
Request Body:
{"auth-code":"<auth-code-to-apply>"}
Response
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 191
{
  "result": {
    "info": [
      { "message": "Installed new license key \"landmark utility
      prestige trip mayor diesel faucet summer prestige income
      heritage\""}
    ]
  }
}

```

## Sample Error Responses

## 400 BAD REQUEST

**REQUEST**

```
PUT /api/v1/configuration/users/user-realms/realm/testRealm/role-  
mapping-rules/rule/rule1 HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
Y1VPZE1XZ1ZubVEvVnIrcWwrd3lJY3F0Y05WTGhDVkx1M0wrkd5YR3hzVT06
```

```
Content-Type: application/json
```

```
{  
  "name": "rule1",  
  "roles": [  
    "Users"  
  ],  
  "stop-rules-processing": "false",  
  "user-name": {  
    "test": "is",  
    "user-names": [  
      "*",  
    ]  
  }  
}
```

**RESPONSE**

```
HTTP/1.1 400 BAD REQUEST
```

```
content-length: 92
```

```
content-type: application/json
```

```
{  
  "message": "The browser (or proxy) sent a request that this  
server could not understand."  
}
```

Solution: Invalid JSON body content in Request. Please check if JSON is valid

**REQUEST**

```
PUT /api/v1/configuration/users/user-roles/user-role/rest-  
userrole-1 HTTP/1.1
```

```
Host: 10.209.113.88
```

```
Authorization: Basic
```

```
MVhDbDJTSUhkV3ZjUkd6WXM1T1V3MU5wbHNmemJPbTJxSHI2NVZCdXp5bz06
```

```
{
  "name": "rest-userrole-1",
  "web": {
    "web-bookmarks": {
      "bookmark": [
        {
          "auto-allow": "disable",
          "description": "",
          "name": "web-bm-1",
          "new-window": "false",
          "no-address-bar": "false",
          "no-tool-bar": "false",
          "parent": "--none--",
          "standard": {
            "url": "http://www.yahoo.com"
          }
        }
      ]
    },
    "web-options": {
      "browsing-untrusted-sslsites": "true",
      "flash-content": "false",
      "hpxproxy-connection-timeout": "1800",
      "http-connection-timeout": "240",
      "java-applets": "true",
      "mask-hostname": "false",
      "persistent-cookies": "false",
      "rewrite-file-urls": "false",
      "rewrite-links-pdf": "false",
      "unrewritten-page-newwindow": "false",
      "user-add-bookmarks": "false",
```

```

        "user-enter-url": "false",
        "users-bypass-warnings": "false",
        "warn-certificate-issues": "true",
        "websocket-connection-timeout": "900"
    }
}

```

**RESPONSE**

HTTP/1.1 400 BAD REQUEST

Content-Length: 99

Content-Type: application/json

```

{
  "result": {
    "errors": [
      {
        "message": "Accepts only JSON."
      }
    ]
  }
}

```



**Note:** Include the “Content-Type” header in the request with a value “application/json” as used in the examples above.

**403 Forbidden****REQUEST**

GET /api/v1/auth HTTP/1.1

Host: 10.209.112.106

Authorization: Basic YWRtaW5kYjpkYW5hMTIz

Content-Type: application/json

**RESPONSE**

HTTP/1.1 403 Forbidden

```

cache-control: no-store
connection: Keep-Alive
content-type: text/html; charset=utf-8
expires:-1
keep-alive: timeout=15
strict-transport-security →max-age=31536000
transfer-encoding: chunked

```

**Solutions:**

1. Make sure admin user used for authentication has "Allow access to REST APIs" option enabled from admin UI
2. Admin Username and Password passed in Authorization header are correct
3. If api\_key is available, use api\_key value as username and password as empty in authorization header

**404 NOT FOUND****REQUEST**

```
GET /api/v1/configuration/users/user-realms/realm/testRealm/role-
mapping-rules/rule HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
Y1VPZE1XZ1ZubVEvVnIrcWwrd3lJY3F0Y05WTGhDVkx1M0wrdk5YR3hzVT06
```

**RESPONSE**

```
HTTP/1.1 404 NOT FOUND
```

```
content-length: 213
```

```
content-type: application/json
```

```

{
  "result": {
    "errors": [
      {
        "message": "Invalid resource path; use
\"users/user-realms/realm/testRealm/role-mapping-
rules/rule/<resource-id>\" to access a specific resource"
      }
    ]
  }
}

```



**Solution:** Resource-id should be passed in Resource path as shown in example below

#### Request

```
GET /api/v1/configuration/users/user-realms/realm/testRealm/role-
mapping-rules/rule/rule1 HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
Y1VPZE1XZ1ZubVEvVnIrcWwrd3lJY3F0Y05WTGhDVkx1M0wrkd5YR3hzVT06
```

#### Response

```
HTTP/1.1 200 OK
```

```
content-length: 167
```

```
content-type: application/json
```

```
{
  "name": "rule1",
  "roles": [
    "Users"
  ],
  "stop-rules-processing": "false",
  "user-name": {
    "test": "is",
    "user-names": [
      "*"
    ]
  }
}
```

**Solution:** Invalid JSON body content in Request. Please check if JSON is valid

## 422 UNPROCESSABLE ENTITY

#### REQUEST

```
POST /api/v1/configuration/users/user-realms/realm/testRealm/role-
mapping-rules/rule/ HTTP/1.1
```

```
Host: 10.209.112.106
```

```
Authorization: Basic
```

```
Y1VPZE1XZ1ZubVEvVnIrcWwrd3lJY3F0Y05WTGhDVkx1M0wrkd5YR3hzVT06
```

```
Content-Type: application/json
{
  "name": "rule2",
  "roles": [
    "Users",
    "testRole1"
  ],
  "stop-rules-processing": "false",
  "user-name": {
    "test": "is",
    "user-names": [
      "user1"
    ]
  }
}
```

**RESPONSE**

HTTP/1.1 422 UNPROCESSABLE ENTITY

content-length: 368

content-type: application/json

```
{
  "result": {
    "errors": [
      {
        "message": "[/users/user-
realms/realm[name=testRealm]/role-mapping-
rules/rule[name=rule2]/roles] Invalid reference: no 'User Roles'
object found with identifier 'testRole1'."
      },
      {
        "message": "Failed to resolve path references"
      },
      {
        "message": "Commit failed"
      }
    ]
  }
}
```

```
    ]  
  }  
}
```

**Solution:** Make sure to have all the referenced resources are created first using POST call and then repeat.

## Limitations

1. Configuration of large data objects is not qualified- ESAP, Pulse Client package, Custom Sign-in page, applets, and so on.
2. Resource names similar to resource tags e.g. vlans, roles, etc. should be avoided while creating new resources.

# PPS Configurations Using REST API

- **Creating the HC Policy**
- **Deleting the HC Policy**
- **Creating the Infranet Enforcer**
- **Deleting the Infranet Enforcer**
- **Creating a Resource Policy**
- **Deleting a Resource Policy**
- **Creating a RADIUS Client**
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- **Creating a RADIUS Attribute Policy**
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- **Creating SNMP Device**
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- **Creating SNMP Policy**
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- **Creating Device Group - TACACS+**
- **Deleting Device Group- TACACS+**
- **Creating TACACS+ Client**
- **Deleting TACACS+ Client**
- **Creating Shell Policies**
- **Deleting Shell Policies**
- **Creating Admission Control Client**
- **Deleting Admission Control Client**
- **Creating Admission Control Policy**
- **Deleting Admission Control Policy**

## Creating the HC Policy

### Request

```
POST api/v1/configuration/authentication/endpoint/host-checker/policies/policy HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVtk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "policy-name": "HC",
  "regular": {
    "platforms": {
      "chromeos": {
        "dashboard": {
          "consider-for-reporting": "true"
        },
        "remediation": {
          "custom-instructions": "",
          "enable-custom-instructions": "false",
          "send-reason-strings": "true"
        }
      },
      "windows": {
        "dashboard": {
          "consider-for-reporting": "true"
        },
        "remediation": {
          "custom-instructions": "",
          "delete-files": "false",
          "enable-custom-instructions": "false",
          "files": null,
          "kill-processes": "false",
          "processes": null,
          "send-reason-strings": "true"
        },
        "rule-expression": {
          "custom-expression": "",
          "requirement": "all"
        },
        "rules": {
          "advancedRule": [],
          "firewall-rules": {
            "firewall-rule": [
              {
                "needs-monitoring": "false",
                "product-list": null,
                "product-selection-option":
"specific",
                "rule-name": "rule1",
                "select-specific-product": "false",
                "select-specific-vendor": "true",
                "selected-product-list": {
                  "product-info": [
```



```
Content-Length: 0
Content-Type: application/json
```

## Creating the Infranet Enforcer

### Request

```
POST api/v1/configuration/uac/infranet-
enforcer/connections/infranet-enforcer HTTP/1.1
Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

{
  "idp-for-local-sessions-only": "true",
  "junos": {
    "location-group": "- No 802.1X -",
    "password-encrypted":
"3u+UR6n8AgABAAAAofSnIBrU19vdwUslG5LG4cg1QH6CbXDSmY4ZW0x85HY="
  },
  "name": "SRX",
  "serial-number": [
    "ABCNWPWFS"
  ],
  "severity-filter": "medium",
  "use-idp": "false"
}
```

### Response

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

## Deleting the Infranet Enforcer

### Request

```
DELETE api/v1/configuration/uac/infranet-
enforcer/connections/infranet-enforcer/SRX HTTP/1.1
Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json
```

**Response**

```
HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json
```

## Creating a Resource Policy

**Request**

```
POST api/v1/configuration/uac/infranet-enforcer/resource-access-
policies/resource-access-policy/ HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "action": "allow-access",
  "apply": "all-roles",
  "apply-ie-options": "all-options",
  "deny-message": "",
  "description": "",
  "ie-options": [],
  "infranet-enforcer": [
    "(all)"
  ],
  "name": "Resource Policy",
  "resources": [
    "10.25.15.0/24:*"
  ],
  "roles": null,
  "vsys": ""
}
```

**Response**

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

## Deleting a Resource Policy

**Request**

```
DELETE api/v1/configuration/uac/infranet-enforcer/resource-access-
policies/resource-access-policy/Resource%20Policy HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
```



```
VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

**Response**

```
HTTP/1.1 204 NO CONTENT
```

```
Content-Length: 0
```

```
Content-Type: application/json
```

## Creating a RADIUS Client

**Request**

```
POST /api/v1/configuration/uac/network-access/radius-clients/radius-client HTTP/1.1
```

```
Host xx.xx.xx.xx
```

```
Authorization : Basic
```

```
VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "coa-support": "false",
  "description": "",
  "disconnect-support": "true",
  "dynamic-auth-port": "3799",
  "enable": "true",
  "gatewayid": "",
  "ip-address": "10.204.88.12",
  "ip-address-range": "1",
  "kek-encrypted": "",
  "key-wrap-format": "HEX",
  "key-wrap-support": "false",
  "location-group": "Default",
  "mack-encrypted": "",
  "make-model": "Ruckus Wireless",
  "name": "Ruckus",
  "ruckus-certificate-verification": "false",
  "ruckus-password-encrypted": "",
  "shared-secret-encrypted":
  "3u+UR6n8AgABAAAAofSnIBrU19vdwUslG5LG4cg1QH6CbXDSmY4ZW0x85HY="
}
```

**Response**

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

## Deleting a RADIUS Client

```

Delete /api/v1/configuration/uac/network-access/radius-
clients/radius-client/Ruckus HTTP/1.1
Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

Response
HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json

```

## Creating a RADIUS Attribute Policy

```

REQUEST
POST /api/v1/configuration/uac/network-access/radius-
attribute/radius-attributes-policies/radius-attribute-policy
HTTP/1.1
Host xx.xx.xx.xx

Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

{
  "apply": "all",
  "description": "",
  "location-group": [
    "Guest"
  ],
  "name": "Return Attribute policy",
  "network-interface": "automatic",
  "open-port": "false",
  "return-attribute-flag": "false",
  "return-attributes": {
    "return-attribute": []
  },
  "roles": null,
  "send-session-timeout-by-default": "false",
  "send-termination-action-by-default": "false",
  "vlan": "65",
  "vlan-check": "true"
}

Response

{
  "result": {
    "info": [
      {

```

```

        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}

```

## Deleting a RADIUS Attribute Policy

### Request

```
DELETE /api/v1/configuration/uac/network-access/radius-
attribute/radius-attributes-policies/radius-attribute-
policy/Return%20Attribute%20policy/HTTP/1.1
```

Host xx.xx.xx.xx

Authorization : Basic

VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

### Response

HTTP/1.1 204 NO CONTENT

Content-Length: 0

Content-Type: application/json

## Creating SNMP Device

### REQUEST

```
POST /api/v1/configuration/uac/snmpEnforcement/clients/client
HTTP/1.1
```

Host xx.xx.xx.xx

Authorization : Basic

VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

```

{
  "default-vlan": "0",
  "description": "",
  "enable": "true",
  "ip-address": "10.204.88.12",
  "location-group": "none",
  "model": "Ruckus Wireless",
  "name": "ruckus",
  "read-auth-password-encrypted": "",
  "read-auth-protocol": "md5",
  "read-priv-password-encrypted": "",
  "read-priv-protocol": "",
  "read-security-level": "auth",
  "read-username": "public",
  "snmp-enforcement": "false",

```

```

"snmp-version": "V2",
"ssh-passphrase-encrypted": "",
"ssh-port-number": "22",
"ssh-private-key-encrypted": "",
"ssh-user-name": "",
"ssh-user-password-encrypted": "",
"sys-contact": "https://support.ruckuswireless.com/contact_us",
"sys-description": "Ruckus Wireless ZD1200",
"sys-location": "350 West Java Dr. Sunnyvale, CA 94089 US",
"sys-name": "ruckus",
"trap-auth-password-encrypted": "",
"trap-auth-protocol": "md5",
"trap-priv-password-encrypted": "",
"trap-priv-protocol": "",
"trap-security-level": "auth",
"trap-username": "public",
"use-samecredential": "true",
"write-auth-password-encrypted": "",
"write-auth-protocol": "md5",
"write-priv-password-encrypted": "",
"write-priv-protocol": "",
"write-security-level": "auth",
"write-username": "public"
}

```

**Response**

```

{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}

```

## Deleting SNMP Device

### Request

```

DELETE
/api/v1/configuration/uac/snmpEnforcement/clients/client/ruckus/HTTP/1.1
Host xx.xx.xx.xx

```

```

Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

```

```

Content-Type: application/json

```

### Response

```

HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json

```

## Creating SNMP Policy

### Request

```
POST /api/v1/configuration/uac/snmpEnforcement/snmpPolicies/policy
HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "apply-to-roles": "selected",
  "description": "",
  "location-group": "Guest Wired",
  "name": "SNMP policy",
  "roles": [
    "Guest Wired Restricted"
  ],
  "vlan": "65"
}
```

### Response

```
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

## Deleting SNMP Policy

### Request

```
DELETE
/api/v1/configuration/uac/snmpEnforcement/snmpPolicies/policy/SNMP%20policy
HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

**Response**

```
HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json
```

## Creating Device Group - TACACS+

**Request**

```
POST /api/v1/configuration/uac/networkDeviceAdministration/groups/group/
HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVtk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "admin-realm": "Admin Users",
  "description": "",
  "name": "Device Group"
}
```

**Response**

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or error!"
      }
    ]
  }
}
```

## Deleting Device Group- TACACS+

**Request**

```
DELETE
/api/v1/configuration/uac/networkDeviceAdministration/groups/group/Device%20Group
HTTP/1.1
```

```
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVtk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

**Response**

```
HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json
```

## Creating TACACS+ Client

### Request

```
POST /api/v1/configuration/uac/networkDeviceAdministration/clients/client
HTTP/1.1
Host xx.xx.xx.xx
```

Authorization : Basic

VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

```
{
  "description": "",
  "deviceGroup": "Device Group",
  "enable": "true",
  "ipAddress": "10.204.88.244",
  "ipAddressRange": "1",
  "name": "TACACS client",
  "shared-secret-encrypted":
  "3u+UR6n8AgABAAAofSnIBrU19vdwUslG5LG4cg1QH6CbXDSmY4ZW0x85HY="
}
```

### Response

```
{
  "result": {
    "warnings": [
      {
        "message": "The configuration has been implicitly
changed"
      }
    ]
  }
}
```

## Deleting TACACS+ Client

### Request

```
DELETE
/api/v1/configuration/uac/networkDeviceAdministration/clients/client/TACACS%20client
HTTP/1.1
Host xx.xx.xx.xx
```

Authorization : Basic

VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

### Response

HTTP/1.1 204 NO CONTENT

Content-Length: 0

Content-Type: application/json

## Creating Shell Policies

**Request**

```
POST /api/v1/configuration/uac/networkDeviceAdministration/policies/policy HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "apply-action": "deny",
  "apply-groups": "all",
  "apply-roles": "all",
  "commandSets": {
    "command-set": []
  },
  "defaultPrivilege": "1",
  "description": "",
  "groups": null,
  "maxPrivilege": "1",
  "name": "TACACS policy",
  "roles": null
}
```

**Response**

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or error!"
      }
    ]
  }
}
```

## Deleting Shell Policies

**Request**

```
DELETE
/api/v1/configuration/uac/networkDeviceAdministration/policies/policy/TACACS%20policy
HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

**Response**

```
HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json
```

**Response**



```
{
  "result": {
    "warnings": [
      {
        "message": "The configuration has been implicitly changed"
      }
    ]
  }
}
```

## Creating Admission Control Client

### Request

```
POST /api/v1/configuration/uac/admissionControl/clients/client HTTP/1.1
Host xx.xx.xx.xx
```

Authorization : Basic

VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

```
{
  "description": "",
  "enable": "true",
  "ipAddress": "10.204.88.12",
  "name": "FORTINET",
  "templateID": "fortigate-text.itmpl"
}
```

### Response

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

## Deleting Admission Control Client

### Request

```
DELETE
/api/v1/configuration/uac/admissionControl/clients/client/FORTINET
HTTP/1.1
Host xx.xx.xx.xx
```

Authorization : Basic

VU9qSTlGTzNrYVvk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06

Content-Type: application/json

**Response**

```
HTTP/1.1 204 NO CONTENT
Content-Length: 0
Content-Type: application/json
```

**Creating Admission Control Policy****Request**

```
POST /api/v1/configuration/uac/admissionControl/policies/policy/ HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

```
{
  "action": "ignore",
  "apply": "selected",
  "count": "1",
  "event": "utm:ips",
  "name": "policy1",
  "replacementRole": null,
  "replacementType": "Permanent",
  "roles": null,
  "severity": "critical",
  "templateID": "fortigate-text.itmpl"
}
```

**Response**

```
{
  "result": {
    "info": [
      {
        "message": "Operation succeeded without warning or
error!"
      }
    ]
  }
}
```

**Deleting Admission Control Policy****Request**

```
DELETE /api/v1/configuration/uac/admissionControl/policies/policy/policy1
HTTP/1.1
Host xx.xx.xx.xx
```

```
Authorization : Basic
VU9qSTlGTzNrYVk5d0t2aXpBN1dPZ0FyZlN1S3FmTkNnQUh0R0ZuR0xSbz06
```

```
Content-Type: application/json
```

**Response**

```
HTTP/1.1 204 NO CONTENT  
Content-Length: 0  
Content-Type: application/json
```