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Meter's QA Engineer Take-Home Challenge

03/28/2023

**Environment Setup:**

* Language: python 3.8.7
* Pycharm IDE, edition 2023
* Package manager for python packages: pip3
* Installed Following Libraries using CMD
  + Robot Framework
  + Requests
  + Robotframework-requests
  + Robotframework-jsonlibrary

Example: pip3 install requests

* Python Interpreter added in pycharm:

|  |  |  |
| --- | --- | --- |
| iplib | 1.2.1 | 1.2.1 |
| ipv4helper | 0.9.1 | 0.9.1 |
| jsonpath-ng | 1.5.3 | 1.5.3 |
| jsonschema | 4.17.3 | 4.17.3 |
| lazy-object-proxy | 1.5.2 | 1.9.0 |
| mccabe | 0.6.1 | 0.7.0 |
| netbox-ipv4-tools | 1.0.1 | 1.0.1 |
| pip | 23.0.1 | 23.0.1 |
| pylint | 2.7.2 | 2.17.1 |
| pylint-requests | 0.1.1 | 0.1.1 |
| requests | 2.28.2 | 2.28.2 |
| robotframework | 6.0.2 | 6.0.2 |
| robotframework-jsonlibrary | 0.5 | 0.5 |
| robotframework-requests | 0.9.4 | 0.9.4 |
| |  |  |  | | --- | --- | --- | | ipaddress | 1.0.23 | 1.0.23 | | ipaddresses | 0.0.2 | 0.0.2 | | ipaddresstools | 1.2.12 | 1.2.12 | |  |  |

**Moc data in result of API call to base url:**

{

"moc-noc.v1.meta": {

"controller": "mcx06",

"realm": "qa"

},

"moc-noc.v1.network.corp": {

"dhcp": {

"gateway": "10.100.0.1",

"ip-range": " 10.100.0.10 - 10.102.255.250",

"netmask": "255.255.255.0"

},

"ip-address": "10.100.0.1/24"

},

"moc-noc.v1.network.guest": {

"dhcp": {

"gateway": "172.16.0.1",

"ip-range": "172.16.0.10-172.16.0.250",

"netmask": "255.255.255.0"

},

"ip-address": "172.16.0.1/24"

}

}

**CMD to run ControllerInterfaces.robot**

Python3 -m robot ControllerInterfaces.robot

Graphical user interface, text

Description automatically generated

**Libraries used in Test Cases:**

Library RequestsLibrary  
Library JSONLibrary  
Library String  
Library OperatingSystem  
Library Ipaddress

**Methods used: Variable Length Subnet Mask (VSLM)**

**Example below for subnetting 192.168.10.0/24**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| hosts | Subnet mask | octet | Increment | Network Address | Subnet mask | 1st usable address | Last usable address | Broadcast address |
| 100 | 128 -2  /25 | 4 | 128 | 192.168.10.0 | /25 | 192.168.10.1 | 192.168.10.196 | 192.168.10.197 |
| 50 | 64  /26 | 4 | 64 | 192.168.10.128 | /26 | 192.168.10.129 | 192.168.10.190 | 192.168.10.191 |
| 10 | /28 | 4 | 16 | 192.168.10.192 | /28 | 192.168.10.193 | 192.168.10.206 | 192.168.10.207 |
|  |  |  |  | 192.168.10.208 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |

Network to start with: 192.168.10.0/24. Starting with the largest network and proceed. We do VSLM so we won’t waist any address

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Hosts | Subnet mask | Octet 4th |  |
| 2 power 0 | 1 | /32 |  |  |
| 2 power 1 | 2 | /31 | … |  |
| 2 power 2 | 4 | /30 |  |  |
| 2 power 3 | 8 | /29 |  |  |
| 2 power 4 | 16 | /28 |  |  |
| 2 power 5 | 32 | /27 |  |  |
| 2 power 6 | 64 | /26 |  |  |
| 2 power 7 | 128 | /25 | 255.255.255.128 |  |

/26

11111111.11111111.11111111.11000000

Network host

255.255.255.192

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