Nautobot Prometheus Integration Service: NautoPromo

1. Download dependencies for script
   1. sudo apt-get update
   2. sudo apt install python3-pip
   3. pip config set global.target /home/NautoPromo
   4. pip install pynautobot
   5. pip config unset global.target
   6. sudo cp -r /home/djkaval05/.local/lib/python3.8/site-packages/pynautobot /home/NautoPromo/
      1. Highlighted because I don’t know which one f those worked, the install and copy or setting global target and installing
2. Make a python file called NautoPromo.py under /home/NautoPromo or your preferred location and copy the below script to it.
   1. Nano NautoPromo.py
   2. Use Nautobot url and get api target key from Nautobot under **Admin > API Tokens**

A screenshot of a computer

Description automatically generated

import pynautobot

import json

query = """

query {

devices {

device\_type{

model

}

name

interfaces {

name

ip\_addresses {

address

}

}

}

}

"""

print("Started, making API call")

nb = pynautobot.api(

url="https://IP-ADDRESS-OF-NAUTOBOT-SERVER",

token="API-TOKEN-STRING",

verify=False

)

gql = nb.graphql.query(query=query)

gqljson = (json.dumps(gql.json, indent=2))

print("parsing through request for 172. addresses")

gqljsonlines = gqljson.split('\n')

arrayOfAddresses = []

complete = False

while complete == False:

name = ""

address = ""

model = ""

for line in gqljsonlines:

print(line)

if "model" in line and model == "":

model = line[line.find(":")+3:len(line)-2]

elif "name" in line and name == "":

name = line[line.find(":")+3:len(line)-2]

elif "172." in line and address == "":

address = line[line.find(":")+3:line.find("/")]

if model != "" and name != "" and address != "":

arrayOfAddresses.append(address+":8080")

name = ""

address = ""

model = ""

complete = True

print("creating prometheus targets list based on query")

prometheusTargets = "- targets: ["

for object in arrayOfAddresses:

prometheusTargets = prometheusTargets + "'" + object + "', "

prometheusTargets = prometheusTargets[:-2]

prometheusTargets = prometheusTargets + "]"

print("current list of targets:")

print(prometheusTargets)

writeOver = False

print("reading target file")

with open("/home/NautoPromo/NautobotTargets.yml", "r") as file:

for line in file:

print("target file:")

print(line)

if line != prometheusTargets:

print("target file differs from current list")

writeOver = True

if writeOver:

print("writing over file")

with open("/home/NautoPromo/NautobotTargets.yml", "w") as file:

file.write(prometheusTargets)

else:

print("no differences found, no changes made to target file")

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Description automatically generated

1. Since were using self signed certs we need to do
   1. sudo apt install --only-upgrade ca-certificates
   2. sudo apt upgrade --only-upgrade ca-certificates
2. Give the script permissions
   1. sudo chmod 777 NautoPromo.py
   2. sudo chmod 777 NautobotTargets.py
3. Make another file in this directory called NautobotTargets.yml and write a target in yml format
   1. Sudo nano NautobotTargets.tml

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Description automatically generated

1. Make a system service file called NautoPromo.service
   1. sudo nano /etc/systemd/system/NautoPromo.service
2. Add the below configuration to outline the file

[Unit]

Description=Script that queries nautobot for Prometheus file\_sd targets

After=network.target

[Service]

Type=simple

ExecStart=/usr/bin/python3 /home/NautoPromo/NautoPromo.py

[Install]

WantedBy=multi-user.target

A computer screen with white text

Description automatically generated

1. Use the following to enable the script on startup and start the service
   1. sudo systemctl daemon-reload
   2. sudo systemctl enable NautoPromo.service
   3. sudo systemctl start NautoPromo.service
2. now make a timer file in the same location of sudo nano /etc/systemd/system/ called NautoPromo.timer
   1. add the below

[Unit]

Description=Run NautoPromo every 5 minutes

[Timer]

OnUnitActiveSec=5m

Unit=NautoPromo.service

[Install]

WantedBy=timers.target

* 1. run the below to apply changes
     1. sudo systemctl daemon-reload
     2. sudo systemctl enable NautoPromo.timer
     3. sudo systemctl start NautoPromo.timer

1. Now, go to where you have Prometheus installed and modify the .yml file as follows:

scrape\_configs:

- job\_name: 'all'

file\_sd\_configs:

- files:

- ‘/home/NautoPromo/NautobotTargets.yml’