

Gdy uruchomienie normalne blokuje apparmor

```
[└ $ podman run --security-opt=no-new-privileges -p 5000:5000 --name curljq docker.io/mazurkatarzyna/curl-jq-server:latest
 * Serving Flask app 'app'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment.
Use a production WSGI server instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://10.0.2.100:5000
```

0.1 Wyświetl wszystkie informacje użytkownika Alice.

```
[└ [user@parrot] ~]
└ $ curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/*/*' | jq
% Total    % Received % Xferd  Average Speed   Time     Time      Time  Current
                                         Dload  Upload   Total  Spent   Left  Speed
100    116  100    116    0      0  49678       0  --:--:--  --:--:--  --:--:-- 58000
{
  "age": 25,
  "city": "Warsaw",
  "email": "alice@example.com",
  "hobbies": [
    "reading",
    "chess",
    "cycling"
  ],
  "name": "Alice Smith"
}
```

0.2 Wyświetl imię i nazwisko użytkownika Alice.

```
[└ [user@parrot] ~]
└ $ curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq -r ".name"
% Total    % Received % Xferd  Average Speed   Time     Time      Time  Current
                                         Dload  Upload   Total  Spent   Left  Speed
100    116  100    116    0      0  43299       0  --:--:--  --:--:--  --:--:-- 58000
Alice Smith
```

◆ Bez `-r`:

```
bash jq '.hobbies[0]'
```

- `jq` zwraca dane w formacie JSON.
- Dlatego tekst jest w cudzysłowie "reading".
- Jest to poprawny JSON-owy string.
- Taki wynik może być dalej przetwarzany przez inne narzędzia, które rozumieją JSON.

◆ Z `-r` (czyli `--raw-output`):

```
bash jq -r '.hobbies[0]'
```

- `jq` usuwa cudzysłowy i wypisuje czysty tekst.
- Zamiast "reading" dostajesz po prostu:

```
nginx reading
```

- To jest wygodne, gdy chcesz użyć tej wartości w dalszym poleceniu powłoki (np. przypisać do zmiennej w bashu).

◆ Podsumowanie:

Polecenie	Wynik na ekranie	Format
<code>jq '.hobbies[0]'</code>	"reading"	JSON
<code>jq -r '.hobbies[0]'</code>	reading	Tekst (raw)

0.3 Wyświetl adres e-mail użytkownika Bob.

```
[user@parrot]~$ curl -X 'GET' 'http://127.0.0.1:5000/user/bob' -H 'accept:/' | jq -r ".email"
% Total    % Received % Xferd  Average Speed   Time      Time      Current
                                         Dload  Upload   Total   Spent    Left  Speed
100  105  100  105     0      0  49019       0 --:--:-- --:--:-- --:--:-- 52500
bob@example.com
```

0.4 Wyświetl wiek użytkownika Alice.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq -r ".age"
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  116  100  116    0     0  46159      0 --:--:-- --:--:-- --:--:-- 58000
25
```

0.5 Wyświetl nazwę miasta, w którym mieszka użytkownik Bob.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/bob' -H 'accept:/' | jq -r ".city"
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  105  100  105    0     0  42321      0 --:--:-- --:--:-- --:--:-- 52500
Krakow
```

0.6 Wyświetl hobby użytkownika Alice.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/bob' -H 'accept:/' | jq -r ".hobbies"
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  105  100  105    0     0  54887      0 --:--:-- --:--:-- --:--:-- 102k
[
  "football",
  "games"
]
```

0.7 Sprawdź, czy jednym z hobby użytkownika Bob są gry.

```
[x]-[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/bob' -H 'accept:/' | jq -r 'any(.hobbies[]; .=="games")'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  105  100  105    0     0  54235      0 --:--:-- --:--:-- --:--:-- 102k
true
```

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/bob' -H 'accept:/' | jq -r '(.hobbies | index("games")) != null'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  105  100  105    0     0  47967      0 --:--:-- --:--:-- --:--:-- 52500
true
```

0.8 Wyświetl pierwsze hobby użytkownika Alice.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq -r '.hobbies[0]'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  116  100  116    0     0  84733      0 --:--:-- --:--:-- --:--:-- 113k
reading
```

Lista od tytułu √

```
[user@parrot]~]
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq '.hobbies[-1]'

% Total    % Received % Xferd  Average Speed   Time     Time      Time  Current
                                         Dload  Upload   Total  Spent   Left  Speed
100  116  100  116    0     0  11704      0 --:--:-- --:--:-- --:--:-- 12888
"cycling"
```

0.9 Sprawdź, ile hobby ma użytkownik Bob, a ile użytkownik Alice.

```
[user@parrot]~]
└─ $curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq '.hobbies | length'

% Total    % Received % Xferd  Average Speed   Time     Time      Time  Current
                                         Dload  Upload   Total  Spent   Left  Speed
100  116  100  116    0     0  50434      0 --:--:-- --:--:-- --:--:-- 58000
3
```

The screenshot shows a terminal window with three distinct sections, each demonstrating a different way to compare the number of hobbies for Alice and Bob:

- Variant 1: najprostzy (dwa curl w jednym poleceniu)**

```
bash
echo "Lista Alice:" && curl -s http://127.0.0.1:5000/user/alice | jq '.hobbies' && \
echo "Lista Bob:" && curl -s http://127.0.0.1:5000/user/bob | jq '.hobbies'
```

Wynik może wyglądać tak:

```
Lista Alice:
[
  "reading",
  "cycling"
]
Lista Bob:
[
  "gaming",
  "cooking",
  "traveling"
]
```
- Variant 2: tylko liczba hobby (czyli odpowiedź na polecenie „ile mają”)**

```
bash
echo "Alice ma:" $(curl -s http://127.0.0.1:5000/user/alice | jq '.hobbies | length') "hobby" && \
echo "Bob ma:" $(curl -s http://127.0.0.1:5000/user/bob | jq '.hobbies | length') "hobby"
```

Wynik:

```
perl
Alice ma: 2 hobby
Bob ma: 3 hobby
```
- Variant 3: w jednym bloku JSON (ładne połączenie)**

```
bash
jq -n --argjson alice "$(curl -s http://127.0.0.1:5000/user/alice | jq '.hobbies')" \
--argjson bob "$(curl -s http://127.0.0.1:5000/user/bob | jq '.hobbies')" \
"{'alice': $alice, 'bob': $bob}"
```

Wynik:

```
json
{
  "alice": ["reading", "cycling"],
  "bob": ["gaming", "cooking", "traveling"]
}
```

0.10 Wyświetl nazwę użytkownika i miasto jako jeden ciąg znaków, np. "Alice Smith (Warsaw)". Zmodyfikuj polecenie, aby tekst był wyświetlany jako "Alice Smith from Warsaw".

```
[user@parrot]~
└─$ curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq -r '"\(.name) (\(.city))"'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
          Dload  Upload   Total Spent   Left Speed
100  116  100  116    0     0  57142      0 --:--:-- --:--:-- 58000
Alice Smith (Warsaw)
[user@parrot]~
└─$ curl -X 'GET' 'http://127.0.0.1:5000/user/alice' -H 'accept:/' | jq -r '"\(.name) from \(.city)"'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
          Dload  Upload   Total Spent   Left Speed
100  116  100  116    0     0  34876      0 --:--:-- --:--:-- 38666
Alice Smith from Warsaw
```

0.11 Wyświetl wszystkie przedmioty. Wyświetl nazwy wszystkich przedmiotów.

```
[x]~[user@parrot]~
└─$ curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq -r
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
          Dload  Upload   Total Spent   Left Speed
100  157  100  157    0     0  58062      0 --:--:-- --:--:-- 78500
[
  {
    "id": 1,
    "name": "itemX",
    "price": 15.99
  },
  {
    "id": 2,
    "name": "superItem",
    "price": 99.9
  },
  {
    "id": 3,
    "name": "item123",
    "price": 5.49
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  }
]
```

```
[user@parrot]~
└─$ curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq -r '.[].name'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
          Dload  Upload   Total Spent   Left Speed
100  157  100  157    0     0  78894      0 --:--:-- --:--:-- 153k
itemX
superItem
item123
itemY
```

## 0.12 Wyświetl przedmioty droższe niż 20 pln.

```
[x]-[user@parrot]-
└─$ curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] .price > 20.00'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0  72084      0 --::-- --::-- --::-- 78500
false
true
false
true
[user@parrot]-
└─$ curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] | (.price > 20.00)'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0  17963      0 --::-- --::-- --::-- 19625
false
true
false
true
```

```
[user@parrot]-
└─$ curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] | select(.price > 20.00)'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0  47880      0 --::-- --::-- --::-- 52333
{
  "id": 2,
  "name": "superItem",
  "price": 99.9
}
{
  "id": 4,
  "name": "itemY",
  "price": 29
}
[user@parrot]-
└─$ curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '[.[] | select(.price > 20.00)]'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0  27485      0 --::-- --::-- --::-- 31400
[
  {
    "id": 2,
    "name": "superItem",
    "price": 99.9
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  }
]
```

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] | select(.price > 20.00) | .name'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  85792      0  --::-- --::-- --::--  153k
"superItem"
"itemY"
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] | select(.price > 20.00) | length'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  49016      0  --::-- --::-- --::--  52333
3
3
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '[.[] | select(.price > 20.00)] | length'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
                                         Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  56272      0  --::-- --::-- --::--  78500
2
```

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq 'map(select(.price > 20.00))'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
                                         Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  69530      0  --::-- --::-- --::--  78500
[
  {
    "id": 2,
    "name": "superItem",
    "price": 99.9
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  }
]
```

0.13 Wyświetl przedmioty tańsze niż 30 pln.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq 'map(select(.price < 30.00))'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
                                         Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  68588      0  --::-- --::-- --::--  78500
[
  {
    "id": 1,
    "name": "itemX",
    "price": 15.99
  },
  {
    "id": 3,
    "name": "item123",
    "price": 5.49
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  }
]
```

0.14 Posortuj przedmioty według ceny rosnąco, a następnie malejąco.

```
[x]~[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq 'sort_by(.price)'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
                                         Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  46381      0  --::-- --::-- --::--  52333
[
  {
    "id": 3,
    "name": "item123",
    "price": 5.49
  },
  {
    "id": 1,
    "name": "itemX",
    "price": 15.99
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  },
  {
    "id": 2,
    "name": "superItem",
    "price": 99.9
  }
]
```

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq 'sort_by(.price) | reverse'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0 31813      0 --:--:-- --:--:-- --:--:-- 39250
[
  {
    "id": 2,
    "name": "superItem",
    "price": 99.9
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  },
  {
    "id": 1,
    "name": "itemX",
    "price": 15.99
  },
  {
    "id": 3,
    "name": "item123",
    "price": 5.49
  }
]
```

0.15 Pobierz sumę cen wszystkich przedmiotów.

```
[x]~[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq 'map(.price) | add'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0 65994      0 --:--:-- --:--:-- --:--:-- 78500
150.38
```

0.16 Wyświetl przedmioty, których nazwa zawiera "item".

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] | select(.name | test("item"))'
% Total    % Received % Xferd  Average Speed   Time   Time   Time  Current
                                         Dload  Upload Total Spent   Left  Speed
100  157  100  157    0     0 71624      0 --:--:-- --:--:-- --:--:-- 78500
{
  "id": 1,
  "name": "itemX",
  "price": 15.99
}
{
  "id": 3,
  "name": "item123",
  "price": 5.49
}
{
  "id": 4,
  "name": "itemY",
  "price": 29
}
```

Z importowaniem wielkości liter V

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq '.[] | select(.name | test("item"; "i"))'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
          Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  64849      0 --:--:--:--:--:--:--:-- 78500
{
  "id": 1,
  "name": "itemX",
  "price": 15.99
}
{
  "id": 2,
  "name": "superItem",
  "price": 99.9
}
{
  "id": 3,
  "name": "item123",
  "price": 5.49
}
{
  "id": 4,
  "name": "itemY",
  "price": 29
}
```

0.17 Wyświetl przedmioty w przedziale cenowym 10-30 pln.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://127.0.0.1:5000/items' -H 'accept:/' | jq 'map(select(.price >= 10.00 and .price <= 30.00))'
% Total    % Received % Xferd  Average Speed   Time   Time   Current
          Dload  Upload   Total Spent   Left  Speed
100  157  100  157    0     0  57614      0 --:--:--:--:--:--:--:-- 78500
[
  {
    "id": 1,
    "name": "itemX",
    "price": 15.99
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 29
  }
]
```

0.18 Wyświetl użytkowników, którzy mają więcej niż 2 hobby.

0.19 Wyślij do serwera request typu POST (endpoint /echo) i wyświetl odpowiedź.

```
[x]-[user@parrot]~
└─ $curl -X 'POST' 'http://localhost:5000/echo' -H 'accept:/' -H 'Content-Type: application/json' -d '{}'
{"received":{}}
```

0.20 Wyślij do serwera request typu POST, który doda nowy przedmiot (użyj endpointa /items). Wyświetl wszystkie przedmioty po dodaniu.

```
[user@parrot]~[~]
└─ $curl -X 'POST' 'http://localhost:5000/items' -H 'accept:/' -H 'Content-Type: application/json' -d '{"id":5,"name":"item5","price":15}'
[usere@parrot]~[~]
└─ $curl -X 'GET' 'http://localhost:5000/items' -H 'accept: /*'
[{"id":1,"name":"itemX","price":15.99}, {"id":2,"name":"superItem","price":99.9}, {"id":3,"name":"item123","price":5.49}, {"id":4,"name":"itemY","price":29.0}, {"id":5,"name":"item5","price":15}]
```

0.21 Za pomocą requestu typu PUT, aktualizuj cenę przedmiotu o numerze 1. Wyświetl wszystkie przedmioty.

```
[user@parrot]~[~]
└─ $curl -X 'PUT' 'http://localhost:5000/items/1' -H 'Content-Type: application/json' -d '{"name":"newname", "price":90}'
{"id":1,"name":"newname","price":90}
[usere@parrot]~[~]
└─ $curl -X 'GET' 'http://localhost:5000/items' -H 'accept: /*'
[{"id":1,"name":"newname","price":90}, {"id":2,"name":"superItem","price":99.9}, {"id":3,"name":"item123","price":5.49}, {"id":4,"name":"itemY","price":29.0}, {"id":5,"name":"item5","price":15}]
```

0.22 Za pomocą requestu typu DELETE, usuń przedmiot o numerze 3. Wyświetl wszystkie przedmioty.

```
[user@parrot]~[~]
└─ $curl -X DELETE http://localhost:5000/items/1
{"result":"Item deleted if existed"}
[usere@parrot]~[~]
└─ $curl -X 'GET' 'http://localhost:5000/items' -H 'accept: /*'
[{"id":2,"name":"superItem","price":99.9}, {"id":3,"name":"item123","price":5.49}, {"id":4,"name":"itemY","price":29.0}, {"id":5,"name":"item5","price":15}]
```

0.23 Wyświetl przedmiot o największej cenie.

```
[user@parrot]~[~]
└─ $curl -X 'GET' 'http://localhost:5000/items' -H 'accept:/' | jq 'max_by(.price | tonumber)'
% Total    % Received % Xferd  Average Speed   Time   Time   Time Current
                                         Dload Upload Total Spent   Left Speed
100  158  100  158    0     0  108k      0 --:--:-- --:--:-- --:--:-- 154k
{
  "id": 2,
  "name": "superItem",
  "price": 99.9
}
```

0.24 Wyświetl wszystkie przedmioty z ceną podwyższoną o 10%.

```
[user@parrot]~[~]
└─ $curl -X 'GET' 'http://localhost:5000/items' -H 'accept:/' | jq 'map(.price | tonumber * 1.1)'
% Total    % Received % Xferd  Average Speed   Time   Time   Time Current
                                         Dload Upload Total Spent   Left Speed
100  158  100  158    0     0  14342      0 --:--:-- --:--:-- --:--:-- 14363
[
  109.89000000000001,
  6.039000000000001,
  31.900000000000002,
  16.5
]
```

```
[user@parrot]~
└─ $curl -X 'GET' 'http://localhost:5000/items' -H 'accept:/' | jq 'map(.price = (.price | tonumber * 1.1))'
% Total    % Received % Xferd  Average Speed   Time   Time   Time Current
                                         Dload Upload Total Spent   Left Speed
100  158  100  158    0     0  81950      0 --::-- --::-- --::-- 154k
[
  {
    "id": 2,
    "name": "superItem",
    "price": 109.89000000000001
  },
  {
    "id": 3,
    "name": "item123",
    "price": 6.039000000000001
  },
  {
    "id": 4,
    "name": "itemY",
    "price": 31.900000000000002
  },
  {
    "id": "5",
    "name": "item5",
    "price": 16.5
  }
]
```

0.25 Pobierz nazwy wszystkich użytkowników i ich wiek.

0.26 Wyświetl hobby Alice jako string połączony przecinkami.

```
[user@parrot]~
└─ $curl -X 'GET' 'http://localhost:5000/user/alice' | jq '.hobbies | join(",")'
% Total    % Received % Xferd  Average Speed   Time   Time   Time Current
                                         Dload Upload Total Spent   Left Speed
100  116  100  116    0     0  39549      0 --::-- --::-- --::-- 58000
"reading, chess, cycling"
```

0.27 Pobierz pierwszy i ostatni przedmiot z listy.

```
[user@parrot]~$ curl -s 'http://localhost:5000/items' | jq '. | [.[0], .[-1]]'  
[  
 {  
   "id": 2,  
   "name": "superItem",  
   "price": 99.9  
 },  
 {  
   "id": "5",  
   "name": "item5",  
   "price": "15"  
 }  
]
```

0.28 Sprawdź, czy są przedmioty droższe niż 100 pln.

```
[user@parrot]~$ curl -s 'http://localhost:5000/items' | jq '.[] | select(.price | tonumber) > 100'
```

0.29 Utwórz nowy przedmiot za pomocą POST /items. Wyświetl odpowiedź serwera i następnie listę wszystkich przedmiotów.

0.30 Zaktualizuj przedmiot id=2. Wyświetl odpowiedź serwera i następnie listę wszystkich przedmiotów.