

Задание 4.4.2

NGINX web-server

1. Установить Nginx и убедиться, что он работает

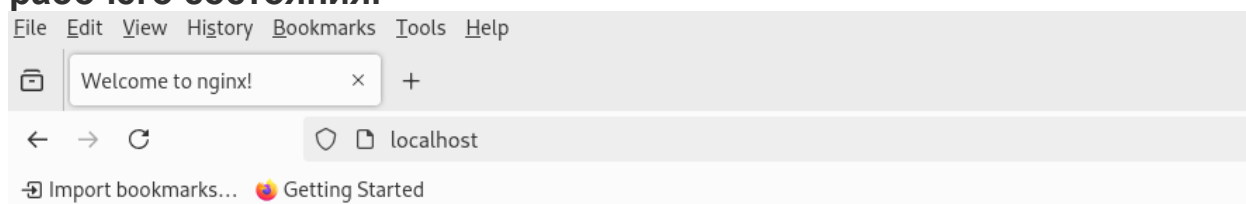
```
sudo apt update
```

```
sudo apt install nginx
```

```
sudo systemctl status nginx
```

```
vguser@vbox:~$ sudo systemctl status nginx
• nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Wed 2025-01-08 05:21:27 UTC; 5min ago
     Docs: man:nginx(8)
  Process: 2815 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (cc
  Process: 2817 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited
 Main PID: 2842 (nginx)
    Tasks: 2 (limit: 2284)
   Memory: 1.7M
      CPU: 43ms
   CGroup: /system.slice/nginx.service
           └─2842 "nginx: master process /usr/sbin/nginx -g daemon on; master_process c
           └─2844 "nginx: worker process"
```

Просмотреть страницу сервера в веб-браузере для проверки рабочего состояния.



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

2. Настройте прямой и обратный прокси в Nginx для перенаправления запросов.

Конфигурируем прямой прокси

```
GNU nano 7.2 /etc/nginx/sites-available/forward-nginx.conf
server {
    listen 8888;

    location / {
        resolver 8.8.8.8;
        proxy_pass http://$http_host$uri;
    }
}
```

Применим конфигурацию

```
vguser@vbox: ~
vguser@vbox:~$ sudo cp /etc/nginx/sites-available/forward-nginx.conf /etc/nginx/sites-enabled/
vguser@vbox:~$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
vguser@vbox:~$ sudo systemctl restart nginx
vguser@vbox:~$ ss -tulpn | grep 8888
tcp    LISTEN 0      511      0.0.0.0:8888      0.0.0.0:*
```

```
vguser@vbox: ~
vguser@vbox:~$ curl -v -L --proxy http://localhost:8888 http://httpforever.com
* Trying 127.0.0.1:8888...
* Connected to localhost (127.0.0.1) port 8888 (#0)
> GET http://httpforever.com/ HTTP/1.1
> Host: httpforever.com
> User-Agent: curl/7.88.1
> Accept: */*
> Proxy-Connection: Keep-Alive
>
< HTTP/1.1 200 OK
< Server: nginx/1.22.1
< Date: Wed, 08 Jan 2025 06:07:20 GMT
< Content-Type: text/html
< Content-Length: 5124
< Connection: keep-alive
< Last-Modified: Wed, 22 Mar 2023 14:54:48 GMT
< ETag: "641b16b8-1404"
< Referrer-Policy: strict-origin-when-cross-origin
< X-Content-Type-Options: nosniff
< Feature-Policy: accelerometer 'none'; camera 'none'; geolocation 'none'; gyros
agnetometer 'none'; microphone 'none'; payment 'none'; usb 'none'
< Content-Security-Policy: default-src 'self'; script-src cdnjs.cloudflare.com '
rc cdnjs.cloudflare.com 'self' fonts.googleapis.com 'unsafe-inline'; font-src fc
.com fonts.gstatic.com cdnjs.cloudflare.com; frame-ancestors 'none'; report-uri
elme.report-uri.com/r/d/csp/enforce
< Accept-Ranges: bytes
<
<!DOCTYPE HTML>
```

Конфигурируем обратный прокси

```
GNU nano 7.2 /etc/nginx/sites-available/reverse-nginx.conf
server {
    listen 8080;
    server_name localhost;

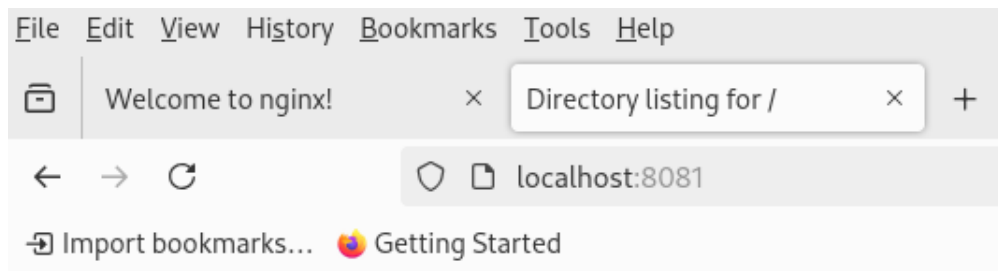
    location / {
        proxy_pass http://localhost:8081;
    }
}
```

```
vguser@vbox:~$ sudo cp /etc/nginx/sites-available/reverse-nginx.conf /etc/nginx/sites-enabled/
vguser@vbox:~$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
vguser@vbox:~$ sudo systemctl restart nginx
vguser@vbox:~$ ss -tulpn | grep 8080
tcp LISTEN 0      511          0.0.0.0:8080      0.0.0.0:*
```

Запускаем сервис на порту 8081, затем отправляем запрос на порт 8080

```
vguser@vbox:~$ python3 -m http.server 8081
Serving HTTP on 0.0.0.0 port 8081 (http://0.0.0.0:8081/) ...

vguser@vbox:~$ ss -tulpn | grep 8081
tcp LISTEN 0      5            0.0.0.0:8081      0.0.0.0:*        users:(("python3",pid=5093,fd=3))
vguser@vbox:~$ curl -v -L localhost:8080
* Trying 127.0.0.1:8080...
* Connected to localhost (127.0.0.1) port 8080 (#0)
> GET / HTTP/1.1
> Host: localhost:8080
> User-Agent: curl/7.88.1
> Accept: */*
>
< HTTP/1.1 200 OK
< Server: nginx/1.22.1
< Date: Wed, 08 Jan 2025 08:06:35 GMT
< Content-Type: text/html; charset=utf-8
< Content-Length: 1069
< Connection: keep-alive
<
<!DOCTYPE HTML>
<html lang="en">
<head>
<meta charset="utf-8">
<title>Directory listing for /</title>
```



Directory listing for /

- [.bash_history](#)
 - [.bash_logout](#)
 - [.bashrc](#)
 - [.cache/](#)
 - [.config/](#)
 - [.face](#)
 - [.face.icon@](#)
 - [.gnupg/](#)
 - [.local/](#)
 - [.mozilla/](#)
 - [.profile](#)
 - [deb-project/](#)
 - [Desktop/](#)
 - [Documents/](#)
 - [Downloads/](#)
 - [miphi/](#)
 - [Music/](#)
 - [Pictures/](#)
 - [Public/](#)
 - [Templates/](#)
 - [Videos/](#)
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3. Для обеспечения безопасности данных настроить HTTPS-подключение с использованием самоподписанных SSL-сертификатов в Nginx.

Создадим сертификат

```
sudo openssl req -x509 -nodes -days 365 -newkey rsa:4096 -keyout  
/etc/ssl/private/nginx.key -out /etc/ssl/certs/nginx.crt
```

Отредактируем конфиг для использования сертификата

```
sudo nano /etc/nginx/sites-enabled/default
```

Добавим

```
server {
```

```
    listen 443 ssl;
```

```
    server_name _;
```

```
    ssl_certificate /etc/ssl/certs/nginx.crt;
```

```
    ssl_certificate_key /etc/ssl/private/nginx.key;
```

```
    location / {
```

```
        proxy_pass http://localhost;
```

```
    }
```

```
}
```

Перезапустим nginx

```
sudo nginx -t
```

```
sudo systemctl restart nginx
```

Проверим по ссылке <https://localhost>

