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образования  
**«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ УНИВЕРСИТЕТ ИТМО»**

## **ОТЧЕТ**

по практической работе  
«Ansible + Caddy»

по дисциплине «Администрирование компьютерных сетей»

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Санкт-Петербург 2025г.

Устанавливаю необходимые пакеты. Пришлось немного модифицировать команду, чтобы всё работало:

```
root@lab-2:~# curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py && python3 get-pip.py --break-system-packages
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           % Dload  Upload    Total   Spent    Left   Speed
100 2222k  100 2222k    0     0 32.1M    0  --:--:-- --:--:-- --:--:-- 32.3M
Collecting pip
  Downloading pip-24.3.1-py3-none-any.whl.metadata (3.7 kB)
  Downloading pip-24.3.1-py3-none-any.whl (1.8 MB)
    _____ 1.8/1.8 MB 51.9 MB/s eta 0:00:00
Installing collected packages: pip
Successfully installed pip-24.3.1
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system packa
ion if you know what you are doing and want to suppress this warning.
root@lab-2:~#

root@lab-2:~# python3 -m pip install ansible --break-system-packages
Collecting ansible
  Downloading ansible-11.1.0-py3-none-any.whl.metadata (8.0 kB)
Collecting ansible-core~=2.18.1 (from ansible)
  Downloading ansible_core-2.18.1-py3-none-any.whl.metadata (7.7 kB)
Requirement already satisfied: Jinja2>=3.0.0 in /usr/lib/python3/dist-packages (from ansible-core~=2.18.1->ansible) (3.1.2)
Requirement already satisfied: PyYAML>=5.1 in /usr/lib/python3/dist-packages (from ansible-core~=2.18.1->ansible) (6.0.1)
Requirement already satisfied: cryptography in /usr/lib/python3/dist-packages (from ansible-core~=2.18.1->ansible) (41.0.7)
Requirement already satisfied: packaging in /usr/lib/python3/dist-packages (from ansible-core~=2.18.1->ansible) (24.0)
Collecting resolvelib<1.1.0,>=0.5.3 (from ansible-core~=2.18.1->ansible)
  Downloading resolvelib-1.0.1-py2.py3-none-any.whl.metadata (4.0 kB)
  Downloading ansible-11.1.0-py3-none-any.whl (51.4 MB)
    _____ 51.4/51.4 MB 157.6 MB/s eta 0:00:00
  Downloading ansible_core-2.18.1-py3-none-any.whl (2.2 MB)
    _____ 2.2/2.2 MB 107.4 MB/s eta 0:00:00
  Downloading resolvelib-1.0.1-py2.py3-none-any.whl (17 kB)
Installing collected packages: resolvelib, ansible-core, ansible
Successfully installed ansible-11.1.0 ansible-core-2.18.1 resolvelib-1.0.1
WARNING: Running pip as the 'root' user can result in broken permissions and conflicting behaviour with the system package manager,
ion if you know what you are doing and want to suppress this warning.
```

Добавляю конфиги из текста лабораторной работы:

```
root@lab-2:~# ls
get-pip.py
root@lab-2:~# nano ansible.cfg
root@lab-2:~# mkdir inventory
root@lab-2:~# nano inventory/hosts
root@lab-2:~#
```

Проверяю как запускается ansible

```
root@lab-2:~# nano inventory/hosts
root@lab-2:~# ansible my_servers -m ping -c local
[WARNING]: Platform linux on host local_server is using the discovered
core/2.18/reference_appendices/interpreter_discovery.html for more info
local_server | SUCCESS => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3.12"
  },
  "changed": false,
  "ping": "pong"
}
```

Создаю и удаляю файлы:

```
root@lab-2:~# ansible my_servers -c local -m shell -a 'echo test_file_content > $HOME/test.txt'
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /usr
core/2.18/reference_appendices/interpreter_discovery.html for more information.
local_server | CHANGED | rc=0 >>

root@lab-2:~# ls
ansible.cfg  get-pip.py  inventory  test.txt
root@lab-2:~# echo test.txt
test.txt
root@lab-2:~# cat test.txt
test_file_content
root@lab-2:~#
```

```
root@lab-2:~# ansible my_servers -c local -m file -a 'path=$HOME/test.txt state=absent'
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /usr
core/2.18/reference_appendices/interpreter_discovery.html for more information.
local_server | CHANGED => {
  "ansible_facts": {
    "discovered_interpreter_python": "/usr/bin/python3.12"
  },
  "changed": true,
  "path": "/root/test.txt",
  "state": "absent"
}
root@lab-2:~# ls
ansible.cfg  get-pip.py  inventory
```

Добавляю caddy:

```
root@lab-2:~# mkdir roles
root@lab-2:~# cd roles
root@lab-2:~/roles# ansible-galaxy init caddy_deploy
- Role caddy_deploy was created successfully
```

```
root@lab-2:~# ls roles/caddy_deploy/
defaults  files  handlers  meta  README.md  tasks  templates  tests  vars
root@lab-2:~#
```

Создаю playboock с кодом из задания лабораторной:

```
GNU nano 7.2 roles/caddy_deploy/tasks/main.yml
SPDX-License-Identifier: MIT-0
---
# tasks file for caddy_deploy

- name: Install prerequisites
  apt:
    pkg:
      - debian-keyring
      - debian-archive-keyring
      - apt-transport-https
      - curl

- name: Add key for Caddy repo
  apt_key:
    url: https://dl.cloudsmith.io/public/caddy/stable/gpg.key
    state: present
    keyring: /usr/share/keyrings/caddy-stable-archive-keyring.gpg

- name: add Caddy repo
  apt_repository:
    repo: "deb [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version main"
    state: present
    filename: caddy-stable

- name: add Caddy src repo
  apt_repository:
    repo: "deb-src [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/deb/debian any-version main"
    state: present
    filename: caddy-stable

- name: Install Caddy webserver
  apt:
    name: caddy
    update_cache: yes
    state: present

[ Read 35 lines ]
^C Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   ^U Undo       ^-A Set Mark  ^-] To Bracket ^-Q
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^_ Go To Line  ^-E Redo      ^-G Copy      ^-O Where Was  ^-W
```

```
root@lab-2:~# nano roles/caddy_deploy/tasks/main.yml
root@lab-2:~# nano roles/caddy_deploy/tasks/main.yml
root@lab-2:~# nano caddy_deploy.yml
root@lab-2:~#
```

Пробую запустить лабораторную, не выходит, не хватает пакета. Доустанавливаю его и всё запускается:

```
root@lab-2:~# ansible-playbook caddy_deploy.yml

PLAY [Install and configure Caddy webserver] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /usr/bin/python3.12, but fu
re/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [local_server]

TASK [caddy_deploy : Install prerequisites] *****
fatal: [local_server]: FAILED! => {"changed": false, "msg": "No package matching 'debian-keyring' is available"}

PLAY RECAP *****
local_server : ok=1 changed=0 unreachable=0 failed=1 skipped=0 rescued=0 ignored=0

root@lab-2:~# ansible-playbook caddy_deploy.yml

PLAY [Install and configure Caddy webserver] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /usr/bin/python3.12, but fu
re/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [local_server]

TASK [caddy_deploy : Install prerequisites] *****
changed: [local_server]

TASK [caddy_deploy : Add key for Caddy repo] *****
changed: [local_server]

TASK [caddy_deploy : add Caddy repo] *****
changed: [local_server]

TASK [caddy_deploy : add Caddy src repo] *****
changed: [local_server]

TASK [caddy_deploy : Install Caddy webserver] *****
changed: [local_server]

PLAY RECAP *****
local_server : ok=6 changed=5 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
```

Создаю сабдомен с адресом виртуальной машины:

success: ip address for lab-2-for-cna.duckdns.org updated to 37.27.46.4

domains 1/5

http:// sub domain .duckdns.org add domain

domain	current ip	ipv6	changed
lab-2-for-cna	37.27.46.4 update ip	ipv6 address update ipv6	0 seconds ago delete domain

Обновляю настройки caddy:

```
GNU nano 7.2
--
# vars file for caddy_deploy

domain_name: lab-2-for-cna.duckdns.org

log: # Можно поиграться со значениями
    file: /var/log/caddy_access.log
    level: "INFO"
```

```
root@lab-2:~# nano roles/caddy_deploy/templates/Caddyfile.j2
root@lab-2:~# nano roles/caddy_deploy/vars/main.yml
```

```
GNU nano 7.2
#SPDX-License-Identifier: MIT-0
--
# tasks file for caddy_deploy

- name: Install prerequisites
  apt:
    pkg:
      - debian-keyring
      - debian-archive-keyring
      - apt-transport-https
      - curl

- name: Add key for Caddy repo
  apt_key:
    url: https://dl.cloudsmith.io/public/caddy/stable/gpg.key
    state: present
    keyring: /usr/share/keyrings/caddy-stable-archive-keyring.gpg

- name: add Caddy repo
  apt_repository:
    repo: "deb [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/debian
    state: present
    filename: caddy-stable

- name: add Caddy src repo
  apt_repository:
    repo: "deb-src [signed-by=/usr/share/keyrings/caddy-stable-archive-keyring.gpg] https://dl.cloudsmith.io/public/caddy/stable/debian
    state: present
    filename: caddy-stable

- name: Install Caddy webserver
  apt:
    name: caddy
    update_cache: yes
    state: present

- name: Create config file
  template:
    src: templates/Caddyfile.j2 # Откуда берем
    dest: /etc/caddy/Caddyfile # Куда кладем

- name: Reload with new config
  service:
    name: caddy
    state: reloaded
```

Caddy очень долго не перезапускался, долго разбирался в чем дело, оказалось в правах доступа к лог файлам:

```
Jan 23 01:10:20 lab-2 caddy[2302]: Error: loading initial config: loading new config: setting up custom log 'log': opening log writer using &logging.FileWriter(filename="/var/log/caddy_access.log", Mode:0x6, Roll:('bool'),
Jan 23 01:10:20 lab-2 systemd[1]: caddy.service: Main process exited, code=exited, status=1/FAILURE
Subject: Unit process exited
Defined-By: systemd
Support: http://www.ubuntu.com/support

An ExecStart= process belonging to unit caddy.service has exited.

The process' exit code is 'exited' and its exit status is 1.
Jan 23 01:10:20 lab-2 systemd[1]: caddy.service: Failed with result 'exit-code'.
Subject: Unit failed
Defined-By: systemd
Support: http://www.ubuntu.com/support

The unit caddy.service has entered the 'failed' state with result 'exit-code'.
Jan 23 01:10:20 lab-2 systemd[1]: Failed to start caddy.service - Caddy.
Subject: A start job for unit caddy.service has failed
Defined-By: systemd
Support: http://www.ubuntu.com/support

A start job for unit caddy.service has finished with a failure.

The job identifier is 4601 and the job result is failed.

root@lab-2:~# sudo mkdir -p /var/log
root@lab-2:~# sudo touch /var/log/caddy_access.log
root@lab-2:~# sudo chown -R caddy:caddy /var/log/caddy_access.log
root@lab-2:~# sudo touch /var/log/caddy_access.log
root@lab-2:~# sudo chown -R caddy:caddy /var/log/caddy_access.log
root@lab-2:~# ansible-playbook caddy_deploy.yml
```

```
root@lab-2:~# ansible-playbook caddy_deploy.yml

PLAY [Install and configure Caddy webserver] *****

TASK [Gathering Facts] *****
[WARNING]: Platform linux on host local_server is using the discovered Python interpreter at /usr/bin/python3.12, but future installation of
core/2.18/reference_appendices/interpreter_discovery.html for more information.
ok: [local_server]

TASK [caddy_deploy : Install prerequisites] *****
ok: [local_server]

TASK [caddy_deploy : Add key for Caddy repo] *****
ok: [local_server]

TASK [caddy_deploy : add Caddy repo] *****
ok: [local_server]

TASK [caddy_deploy : add Caddy src repo] *****
ok: [local_server]

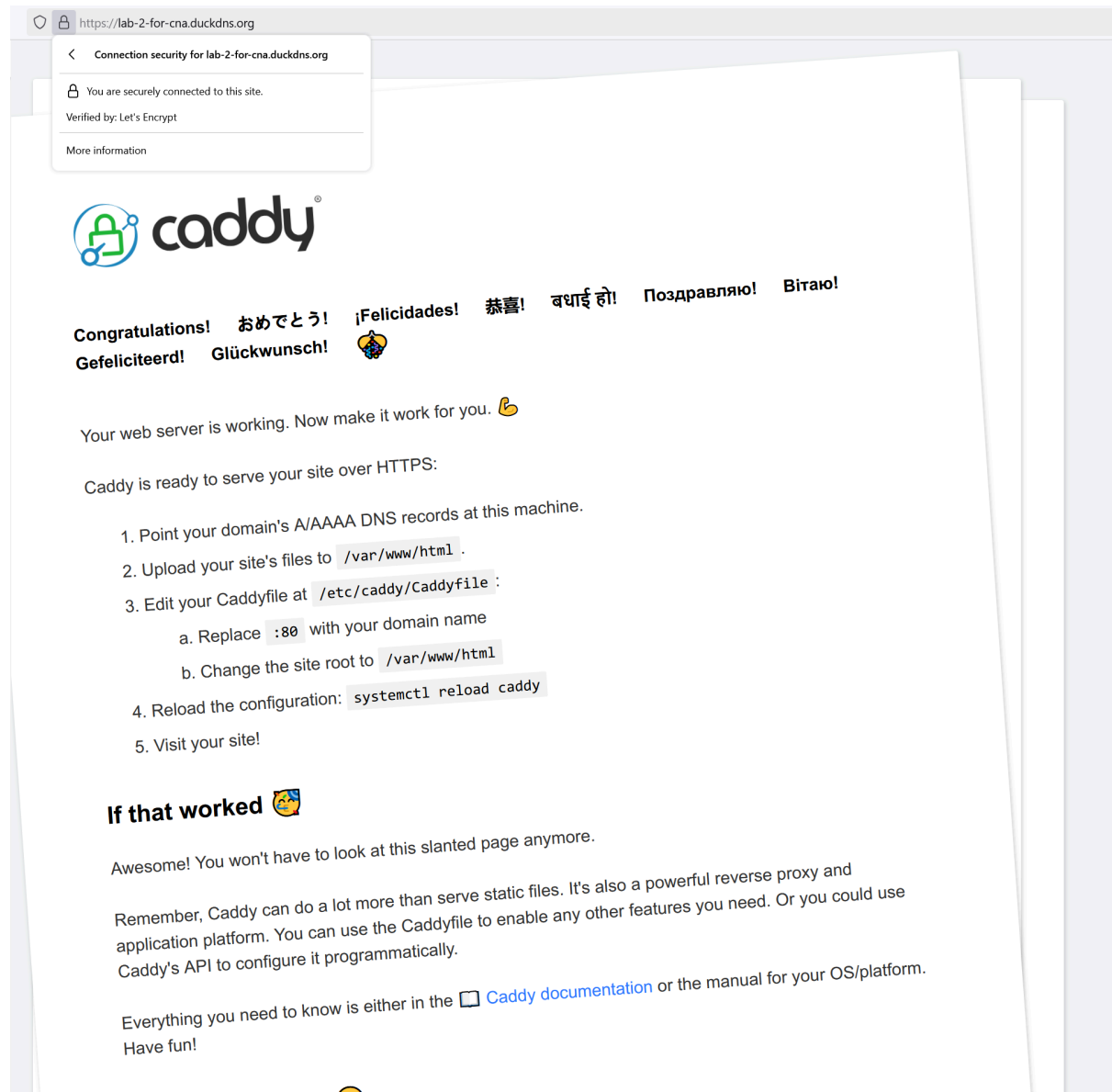
TASK [caddy_deploy : Install Caddy webserver] *****
ok: [local_server]

TASK [caddy_deploy : Create config file] *****
ok: [local_server]

TASK [caddy_deploy : Reload with new config] *****
changed: [local_server]

PLAY RECAP *****
local_server : ok=8 changed=1 unreachable=0 failed=0 skipped=0 rescued=0 ignored=0
```

Запущенная страница caddy по https:





По заданию создаю playbook с созданием, модифицированием содержимого, выводом содержимого и удалением файла. Долго разбирался с тем, как сделать вывод нового содержимого файла.

```
--
- name: Task_1
  hosts: localhost
  tasks:
    - name: Create file
      ansible.builtin.shell: echo "test_file_content" > "$HOME/test.txt"
      args:
        executable: /bin/bash

    - name: Edit
      ansible.builtin.shell: echo "new_file_content" > "$HOME/test.txt"
      args:
        executable: /bin/bash

    - name: Show new content
      ansible.builtin.shell: cat "$HOME/test.txt"
      args:
        executable: /bin/bash
      register: file_content

    - name: Print
      ansible.builtin.debug:
        msg: "New file content: {{ file_content.stdout }}"

    - name: Delete file
      ansible.builtin.file:
        path: "$HOME/test.txt"
        state: absent
```

```
root@lab-2:~# ansible-playbook task_1.yml
```

```
PLAY [Task_1] *****

TASK [Gathering Facts] *****
ok: [localhost]

TASK [Create file] *****
changed: [localhost]

TASK [Edit] *****
changed: [localhost]

TASK [Show new content] *****
changed: [localhost]

TASK [Print] *****
ok: [localhost] => {
  "msg": "New file content: new_file_content"
}

TASK [Delete file] *****
changed: [localhost]

PLAY RECAP *****
localhost                : ok=6    changed=4    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

В качестве задания 2 обновил главную страницу. Сайт работает, можно посмотреть тут: <https://lab-2-for-cna.duckdns.org/>

