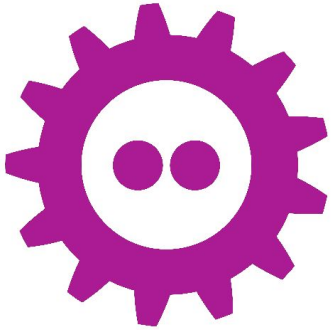

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Automated Integration of FreeIPA with AD and External IdP

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What is this talk about?

- Automated FreeIPA deployment and configuration to integrate with Microsoft Active Directory (AD)
- Automated configuration and use of External Identity Providers (External IdP)

Automated FreeIPA deployment

- Deployment using https://github.com/rjeffman/freeipa-ad-trust.git as a base
  - Change `ipaserver_timezone` and `winserver_timezone` and IP addresses as needed in `inventory.yaml`
- Documentation and playbooks will be added to ansible-freeipa web page soon

  `https://www.freeipa.org/ansible-freeipa.github.io/`
- Preparation of the controller (Fedora)

```
dnf install python3-winrm.noarch

ansible-galaxy collection install ansible.windows
ansible-galaxy collection install community.windows

git clone https://github.com/rjeffman/freeipa-ad-trust.git
cd freeipa-ad-trust/
```

- Ensure timezone and time is correct on all machines

Microsoft AD setup

- Preparation of Windows
- Windows AD setup

Might be needed to disable IPv6 in `01-windows-ad-setup.yml`:

```
- name: Disable ms_tcpip6 for all interfaces
  community.windows.win_net_adapter_feature:
    interface: '*'
    state: disabled
    component_id:
    - ms_tcpip6
```

```
ansible-playbook -i inventory.yaml 01-windows-ad-setup.yml
```

FreeIPA server setup

Enable DNS auto reverse
Disable DNSSEC validation

```
ipaserver:
  vars:
    ipaserver_auto_reverse: yes
    ipaserver_no_dnssec_validation: yes

ansible-playbook -i inventory.yaml 02-ipa-setup.yml
ansible-playbook -i inventory.yaml 03-nslookup-test.yml
ansible-playbook -i inventory.yaml 04-add-trust.yml
```

Login as AD admin

```
$ ssh AD\\administrator@server.lin.ipa.test
(AD\administrator@server.lin.ipa.test) Password:
Last login: Sun Feb  4 11:53:19 2024 from 192.168.153.1
[administrator@ad.ipa.test@server ~]$ klist
Ticket cache: KCM:325600500:99540
Default principal: Administrator@AD.IPA.TEST

Valid starting     Expires            Service principal
02/04/2024 11:54:16  02/04/2024 21:54:16  krbtgt/AD.IPA.TEST@AD.IPA.TEST
    renew until 02/05/2024 11:54:16
[administrator@ad.ipa.test@server ~]$ id
uid=325600500(administrator@ad.ipa.test) gid=325600500(administrator@ad.ipa.test)
groups=325600500(administrator@ad.ipa.test),325600512(domain
admins@ad.ipa.test),325600513(domain users@ad.ipa.test),325600518(schema
admins@ad.ipa.test),325600519(enterprise admins@ad.ipa.test),325600520(group policy
creator owners@ad.ipa.test)
context=unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023

[administrator@ad.ipa.test@server ~]$ ipa user-add testuser --first=f --last=l
ipa: ERROR: Insufficient access:  Invalid credentials
```

Enable AD administrator to act as an IPA admin

```
---
- name: Enable AD administrator to act as a FreeIPA admin.
  hosts: ipaserver
  become: false
  gather_facts: false

  tasks:
  - name: Ensure idoverride for administrator@ad.ipa.test in 'default trust view'
     ipaidoverrideuser:
       ipaadmin_password: SomeADMINpassword
       idview: default trust view
       anchor: administrator@ad.ipa.test

  - name: Ensure idoverride for administrator@ad.ipa.test is part of admins group
     ipagroup:
       ipaadmin_password: SomeADMINpassword
       name: admins
       idoverrideuser: administrator@ad.ipa.test
...
```

Use AD administrator as an IPA admin

```
[administrator@ad.ipa.test@server ~]$ ipa user-add testuser --first=f --last=l
----------------------
Added user "testuser"
----------------------
  User login: testuser
  …
  Principal name: testuser@LIN.IPA.TEST
  …

[administrator@ad.ipa.test@server ~]$ ipa user-del testuser
------------------------
Deleted user "testuser"
------------------------
```

Client deployment

Important: Use proper AD administrator `Administrator@AD.IPA.TEST`

Change inventory.yml

```
ipaclients:
  hosts:
    client1.lin.ipa.test:
      ansible_user: root
  vars:
    ipaclient_configure_dns_resolver: yes
    ipaclient_dns_servers: 192.168.122.251
    ipaadmin_principal: Administrator@AD.IPA.TEST
    ipaadmin_password: SomeW1Npassword
```

Deploy client:

```
---
- name: Deploy IPA client
  hosts: ipaclients
  become: true

  roles:
  - role: ipaclient
     state: present
...
```

Replica deployment

Temporary work a round: Disable replica connection check

```
Add to inventory.yml
     ipareplicas:
       hosts:
         replica1.lin.ipa.test:
           ansible_user: root
       vars:
         ipareplica_skip_conncheck: yes
         ipaclient_dns_servers: 192.168.122.251
         ipaadmin_principal: Administrator@AD.IPA.TEST
         ipaadmin_password: SomeW1Npassword
```

Deploy Replica:

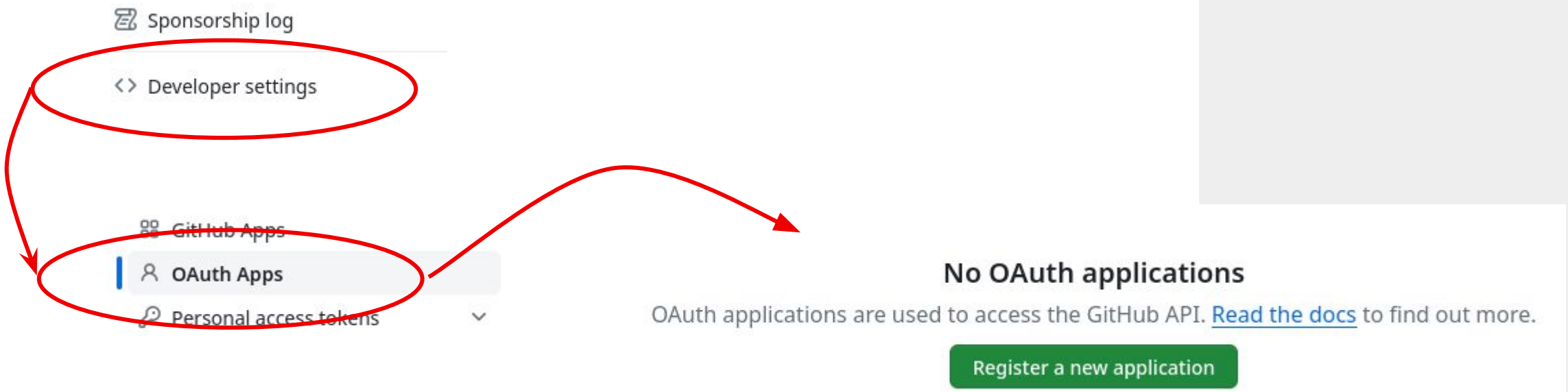
```
     ---
     - name: Deploy IPA replica
       hosts: ipareplicas
       become: true

       roles:
       - role: ipareplica
          state: present
     ...
```

External IdP configuration

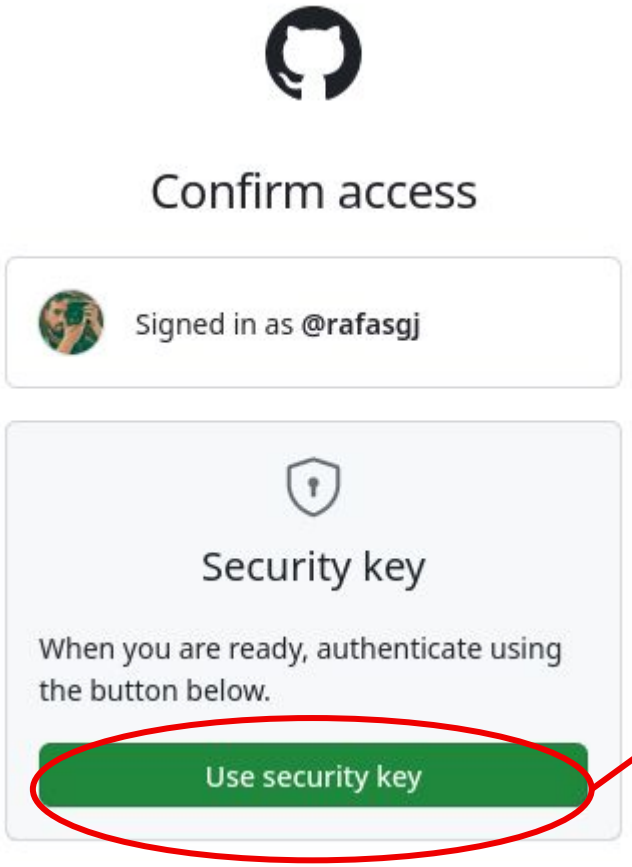
- FreeIPA can be integrated with external identity providers (IdP)
- The integration requires configuration of FreeIPA as an OAuth client for the external IdP, add external IdP to FreeIPA, and configure users to authenticate through external IdP
- Example: Using Github as external IdP
  - Configure a new OAuth application on Github
  - Configure FreeIPA to use Github as external IdP
  - Configure FreeIPA user to authenticate through Github

Create Github OAuth App

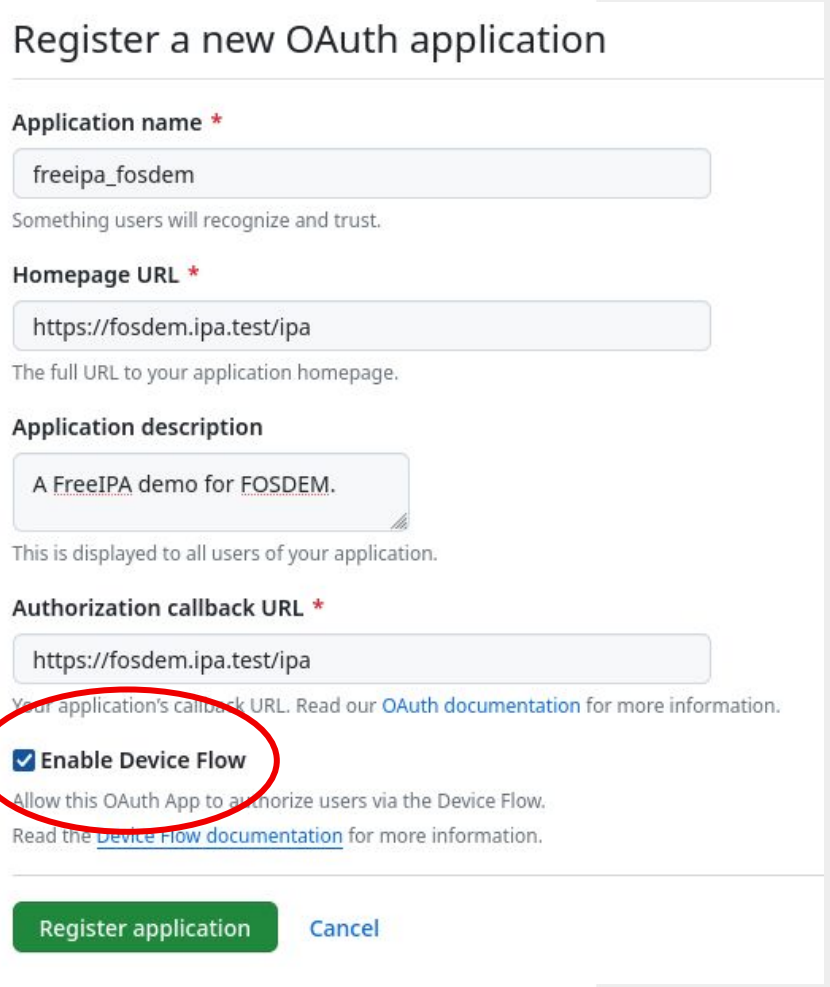


FreeIPA
Open Source Identity Management Solution

Create Github OAuth App



This is important!



FreeIPA
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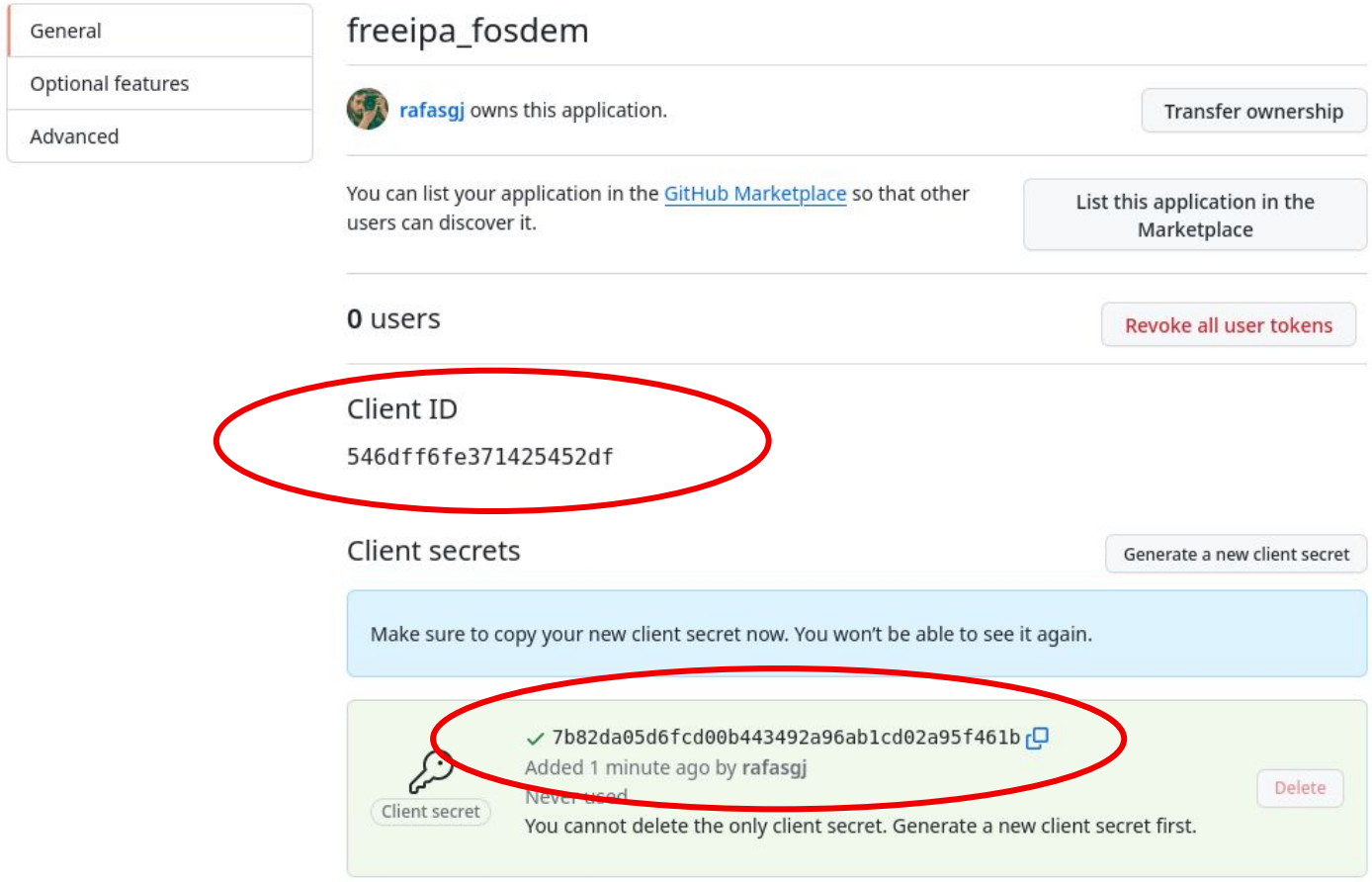
Create Github OAuth App



FreeIPA
Open Source Identity Management Solution

Add IdP to FreeIPA

```
1   ---
2   - name: Setup external IdP
3     hosts: ipaserver
4     become: false
5     gather_facts: false
6
7     tasks:
8     - name: Ensure an external provider for Github is available
9       ipaidp:
10        ipaadmin_password: SomeADMINpassword
11        name: github_idp
12        provider: github
13        client_id: 481789d5cd3ca6b3f03f
14        secret: 979a1511df376e371c407760619148b82a2c4a6d
15        idp_user_id: 'id'
```

Add user with external IdP

```
10      - name: Retrieve Gitbhub user id
11        ansible.builtin.uri:
12          url: "https://api.github.com/users/{{ github_login }}"
13          method: GET
14          headers:
15            Accept: "application/vnd.github.v3+json"
16        register: user_data
17
18      - name: Ensure user exists with IdP configuration
19        ipauser:
20          ipaadmin_password: SomeADMINpassword
21          name: rafasgj
22          first: Rafael
23          last: Jeffman
24          userauthtype: idp
25          idp: github_idp
26          idp_user_id: "{{ user_data.json.id }}"
```

User authentication

Questions?