

# Linux 2012 ( ALT Linux Astra Linux)

0

1. USB- .
2. USB- :

```
$ lsusb
```

USB-:

```
[dmitrieva@localhost ~]$ lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 004: ID 0a89:0030 Aktiv Rutoken ECP
Bus 002 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 002 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
```

, : Aktiv Rutoken ECP

1

```
sudo apt-get install libccid pcscd opensc openssl libpam-pkcs11
```

## 2 PAM -2012

[https://download.rutoken.ru/Rutoken/PAM/1.0.0/x86\\_64/librtpam.so.1.0.0](https://download.rutoken.ru/Rutoken/PAM/1.0.0/x86_64/librtpam.so.1.0.0)

```
$ wget --no-check-certificate https://download.rutoken.ru/Rutoken/PAM/1.0.0/x86_64/librtpam.so.1.0.0
```

```
$ sudo cp librtpam.so.1.0.0 /usr/lib/x86_64-linux-gnu/
$ sudo chmod 644 /usr/lib/x86_64-linux-gnu/librtpam.so.1.0.0
```

## 3 librtpkcs11ecp.so

.

64- :

<https://download.rutoken.ru/Rutoken/PKCS11Lib/Current/Linux/x64/librtpkcs11ecp.so>

32- :

<https://download.rutoken.ru/Rutoken/PKCS11Lib/Current/Linux/x32/librtpkcs11ecp.so>

- - Fly

64- :

```
$ wget --no-check-certificate https://download.rutoken.ru/Rutoken/PKCS11Lib/Current/Linux/x64/librtpkcs11ecp.so
```

32- :

```
$ wget --no-check-certificate https://download.rutoken.ru/Rutoken/PKCS11Lib/Current/Linux/x32/librtpkcs11ecp.so
```

```
$ sudo cp librtpkcs11ecp.so /usr/lib/x86_64-linux-gnu/  
$ sudo chmod 644 /usr/lib/x86_64-linux-gnu/librtpkcs11ecp.so
```

## 4

```
$ pkcs11-tool --module /usr/lib/x86_64-linux-gnu/librtpkcs11ecp.so -T
```

```
, .  
Rutoken ECP <no label>
```

## 5

```
$ pkcs11-tool --module /usr/lib/x86_64-linux-gnu/librtpkcs11ecp.so -0
```

Using slot 0 with a present token (0x0)

- , . , {id} ID-, :

```
$ pkcs11-tool --module /usr/lib/x86_64-linux-gnu/librtpkcs11ecp.so -r -y cert --id {id} --output-file cert.crt
```

```
, cert.crt 6
```

- , .

### 5.1

[pkcs11-tool -2012 GitHub-](#), [OpenSC 0.19.0.](#)  
[master OpenSC 8cf1e6f](#)

```
:  
--key-type: GOSTR3410-2012-512: (-2012 512 c ), GOSTR3410-2012-256:A (-2012 256 A)  
--id: (CKA_ID) hex ASCII. ASCII- ,..id OpenSSL . ASCII- "3132" "12".  
, - ASCII-.
```

```
$ ./pkcs11-tool --module /usr/lib/librtpkcs11ecp.so --keypairgen --key-type GOSTR3410-2012-512:A -1 --id 3132
```

```
. OpenSSL 1.1 rtengine : OpenSSL  
id , pkcs11-tool, OpenSSL - hex- ASCII, .  
, - ASCII- .
```

```
: '--id 3132' OpenSSL "pkcs11:id=12".
```

```
$ openssl req -utf8 -x509 -keyform engine -key "pkcs11:id=12" -engine rtengine -out cert.cer
```

```
$ pkcs11-tool --module /usr/x86_64-linux-gnu/librtpkcs11ecp.so -l -y cert -w cert.crt --id 3132
```

## 6

```
openssl x509 -in cert.crt -out cert.pem -inform DER -outform PEM
```

```
mkdir ~/.eid  
chmod 0755 ~/.eid  
cat cert.pem >> ~/.eid/authorized_certificates  
chmod 0644 ~/.eid/authorized_certificates
```

## 7

```
$ sudo nano /usr/share/pam-configs/rtpam-gost
```

```
Name: Rutoken PAM GOST  
Default: yes  
Priority: 800  
Auth-Type: Primary  
Auth: sufficient usr/lib/x86_64-linux-gnu/librtppam.so.1.0.0 /usr/lib/x86_64-linux-gnu/librtpkcs11ecp.so
```

, Ctrl + X, Y

```
$ sudo pam-auth-update
```

"Rutoken PAM GOST" OK

## 8

```
$ sudo login
```

PIN-

## 9

libpam-pkcs11 pkcs11\_eventmgr, PKCS#11.

pkcs11\_eventmgr - /etc/pam\_pkcs11/pkcs11\_eventmgr.conf

,  
:

```
pkcs11_eventmgr
{
    #
    daemon = true;

    #
    debug = false;

    #
    polling_time = 1;

    # -
    # - 0
    expire_time = 0;

    # pkcs11
    pkcs11_module = usr/lib/x86_64-linux-gnu/librtpkcs11lecp.so;

    #
    # :
    event card_insert {
        # ( )
        on_error = ignore ;

        action = "/bin/false";
    }

    #
    event card_remove {
        on_error = ignore;

        #

        # GNOME
        action = "dbus-send --type=method_call --dest=org.gnome.ScreenSaver /org/gnome/ScreenSaver org.gnome.ScreenSaver.Lock";

        # XFCE
        # action = "xflock4";

        # Astra Linux (FLY)
        # action = "fly-wmfunc FLYWM_LOCK";
    }

    #
    event expire_time {
        # ( )
        on_error = ignore;

        action = "/bin/false";
    }
}
```

pkcs11\_eventmgr .