

МИНОБРНАУКИ РОССИИ

Федеральное государственное бюджетное образовательное учреждение  
высшего образования

**«САРАТОВСКИЙ НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ  
ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ИМЕНИ Н.Г. ЧЕРНЫШЕВСКОГО»**

Кафедра теоретических основ  
компьютерной безопасности и  
криптографии

**Установка DVWA на Fedora 14**

**ОТЧЁТ**

**ПО ДИСЦИПЛИНЕ**

**«ОСНОВЫ ПОСТРОЕНИЯ ЗАЩИЩЁННЫХ БАЗ ДАННЫХ»**

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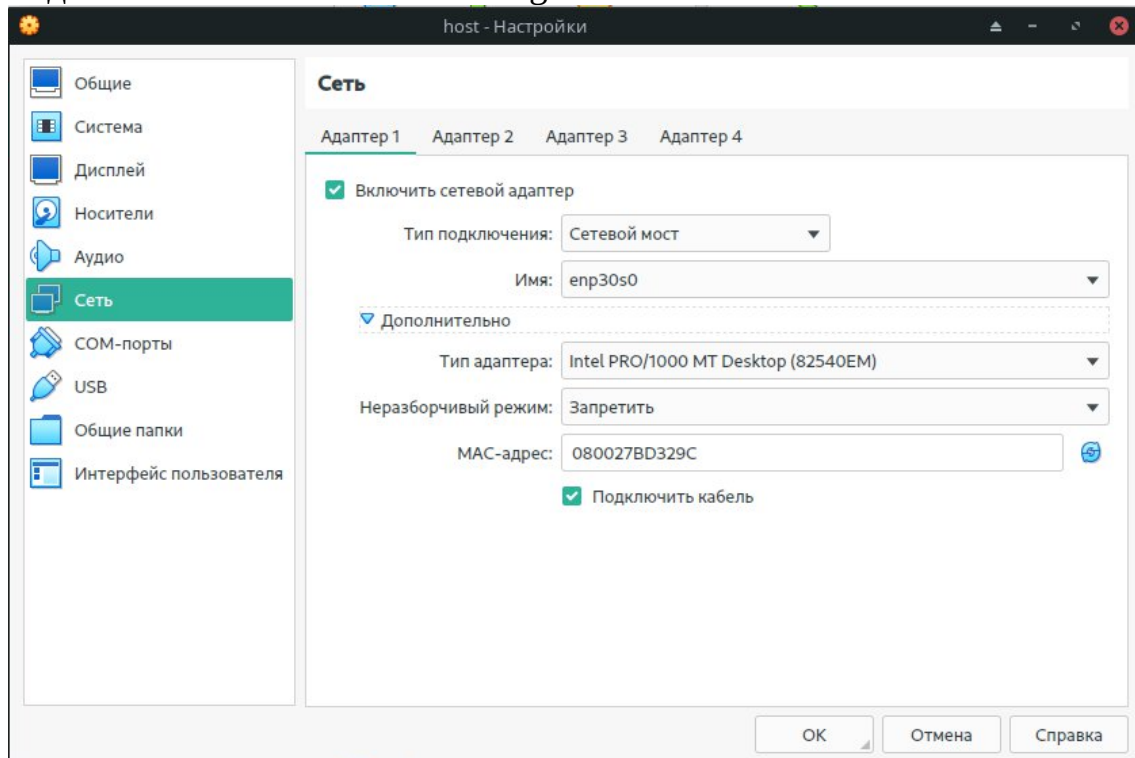
Саратов 2023

## Раздел 1. Настройка виртуальной машины

Запустите Virtual Box, зайдите в настройки Fedora 14

Настройте виртуальную машину

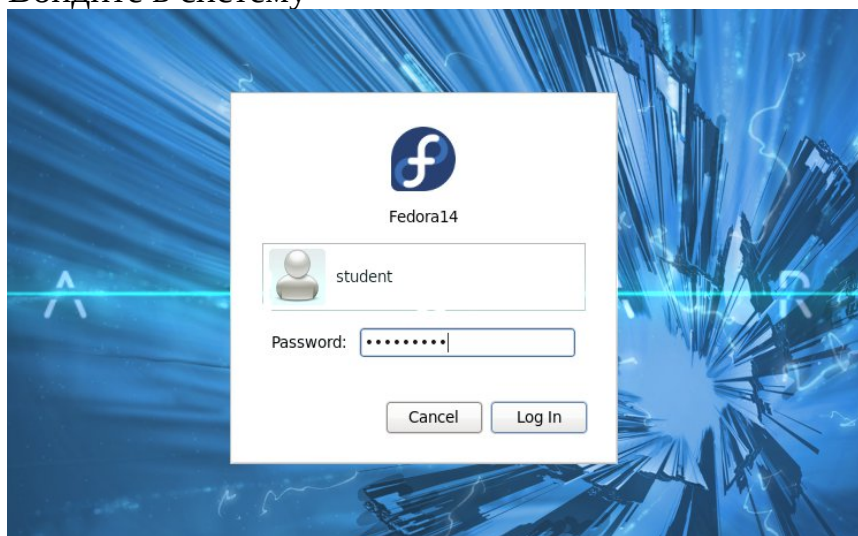
Во вкладке «Сеть» в настройках виртуальной машины выберите тип подключения «сетевой мост/bridged»



## Раздел 2. Вход в Fedora 14

Запустите виртуальную машину Fedora14

Войдите в систему



## Раздел 3. Запуск консоли и определение IP адреса

Откройте терминал

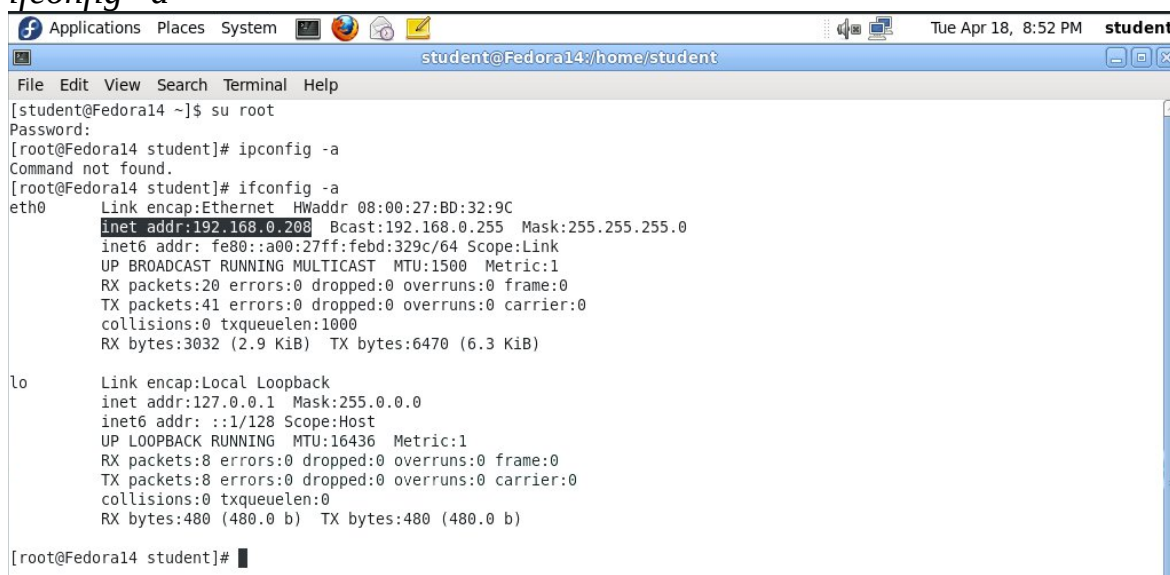
Смените текущего пользователя на root



```
student@Fedora14:/home/student
File Edit View Search Terminal Help
[student@Fedora14 ~]$ su root
Password:
[root@Fedora14 student]# ipconfig -a
```

### 3. Определите IP адрес

*ifconfig -a*



```
student@Fedora14:/home/student
File Edit View Search Terminal Help
[student@Fedora14 ~]$ su root
Password:
[root@Fedora14 student]# ipconfig -a
Command not found.
[root@Fedora14 student]# ifconfig -a
eth0      Link encap:Ethernet  HWaddr 08:00:27:BD:32:9C
          inet addr:192.168.0.208  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::a00:27ff:febd:329c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:20 errors:0 dropped:0 overruns:0 frame:0
          TX packets:41 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3032 (2.9 KiB)  TX bytes:6470 (6.3 KiB)

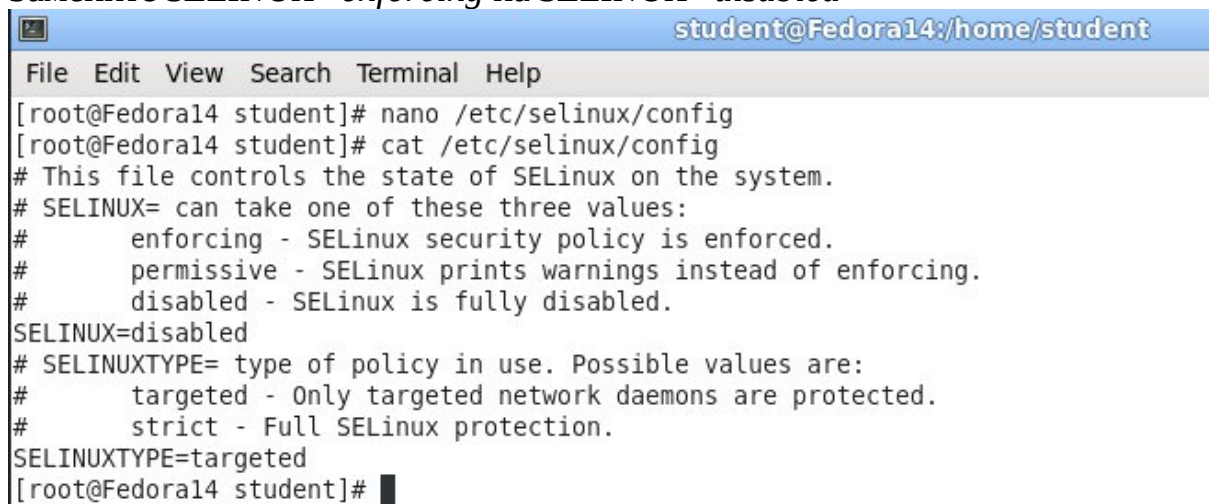
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:8 errors:0 dropped:0 overruns:0 frame:0
          TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:480 (480.0 b)  TX bytes:480 (480.0 b)

[root@Fedora14 student]#
```

## Раздел 4. Отключение SELinux

Откройте конфигурационного файла SELinux

Замените *SELINUX=enforcing* на *SELINUX=disabled*



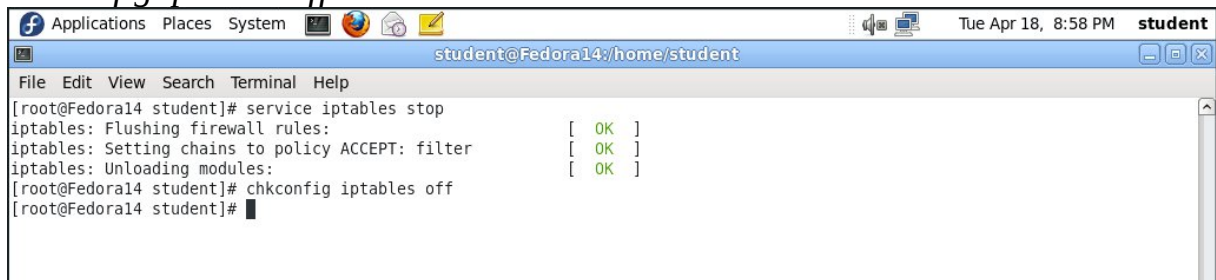
```
student@Fedora14:/home/student
File Edit View Search Terminal Help
[root@Fedora14 student]# nano /etc/selinux/config
[root@Fedora14 student]# cat /etc/selinux/config
# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - SELinux is fully disabled.
SELINUX=disabled
# SELINUXTYPE= type of policy in use. Possible values are:
#     targeted - Only targeted network daemons are protected.
#     strict - Full SELinux protection.
SELINUXTYPE=targeted
[root@Fedora14 student]#
```

Нажмите “Save”, выйдите из редактора  
Измените режим работы SELinux  
введите *setenforce 0*  
введите *sestatus*

```
[root@Fedora14 student]# setenforce 0
[root@Fedora14 student]# sestatus
SELinux status:                enabled
SELinuxfs mount:              /selinux
Current mode:                  permissive
Mode from config file:        disabled
Policy version:                24
Policy from config file:       targeted
[root@Fedora14 student]#
```

## Раздел 5. Отключение межсетевого экрана

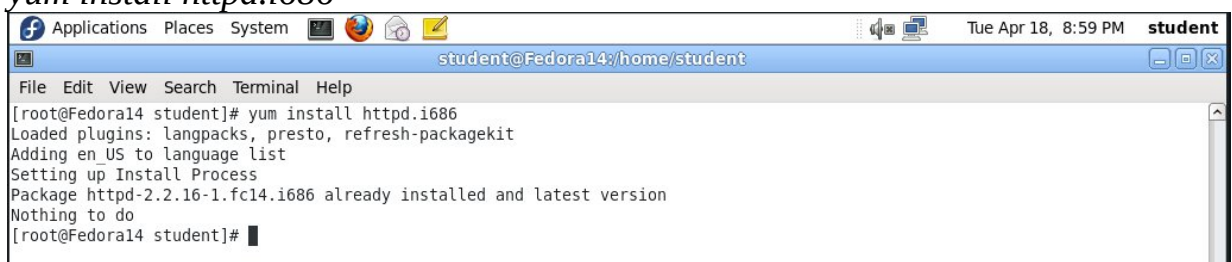
Введите в консоли:  
*service iptables stop*  
*chkconfig iptables off*

A screenshot of a terminal window titled 'student@Fedora14:/home/student'. The terminal shows the following commands and output:

```
[root@Fedora14 student]# service iptables stop
iptables: Flushing firewall rules:      [ OK ]
iptables: Setting chains to policy ACCEPT: filter [ OK ]
iptables: Unloading modules:            [ OK ]
[root@Fedora14 student]# chkconfig iptables off
[root@Fedora14 student]#
```

## Раздел 6. Установка httpd сервера apache

Установите httpd  
*yum install httpd.i686*

A screenshot of a terminal window titled 'student@Fedora14:/home/student'. The terminal shows the following commands and output:

```
[root@Fedora14 student]# yum install httpd.i686
Loaded plugins: langpacks, presto, refresh-packagekit
Adding en_US to language list
Setting up Install Process
Package httpd-2.2.16-1.fc14.i686 already installed and latest version
Nothing to do
[root@Fedora14 student]#
```

Запустите Apache  
*service httpd start*

A screenshot of a terminal window titled 'student@Fedora14:/home/student'. The terminal shows the following commands and output:

```
[root@Fedora14 student]# service httpd start
Starting httpd: httpd: Could not reliably determine the server's fully qualified domain name, using ::1 for ServerName
[ OK ]
```

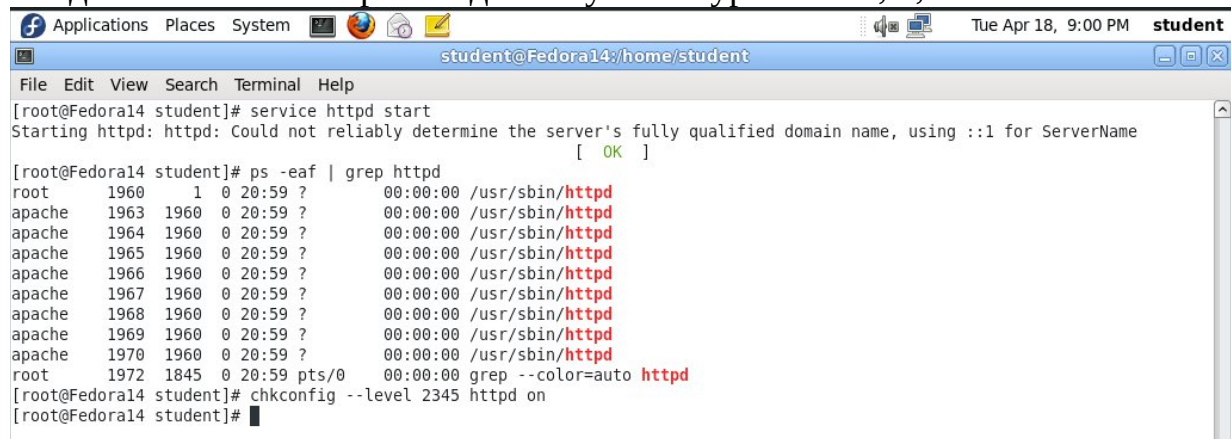
Эта команда запускает Apache Listening Daemon (фоновый процесс прослушивания)

*ps -eaf | grep httpd*

Проверяем работает ли сервер Apache.

`chkconfig --level 2345 httpd on`

Создает начальные скрипты для запуска на уровнях: 2, 3, 4 и 5.



```
[root@Fedora14 student]# service httpd start
Starting httpd: httpd: Could not reliably determine the server's fully qualified domain name, using ::1 for ServerName
[ OK ]

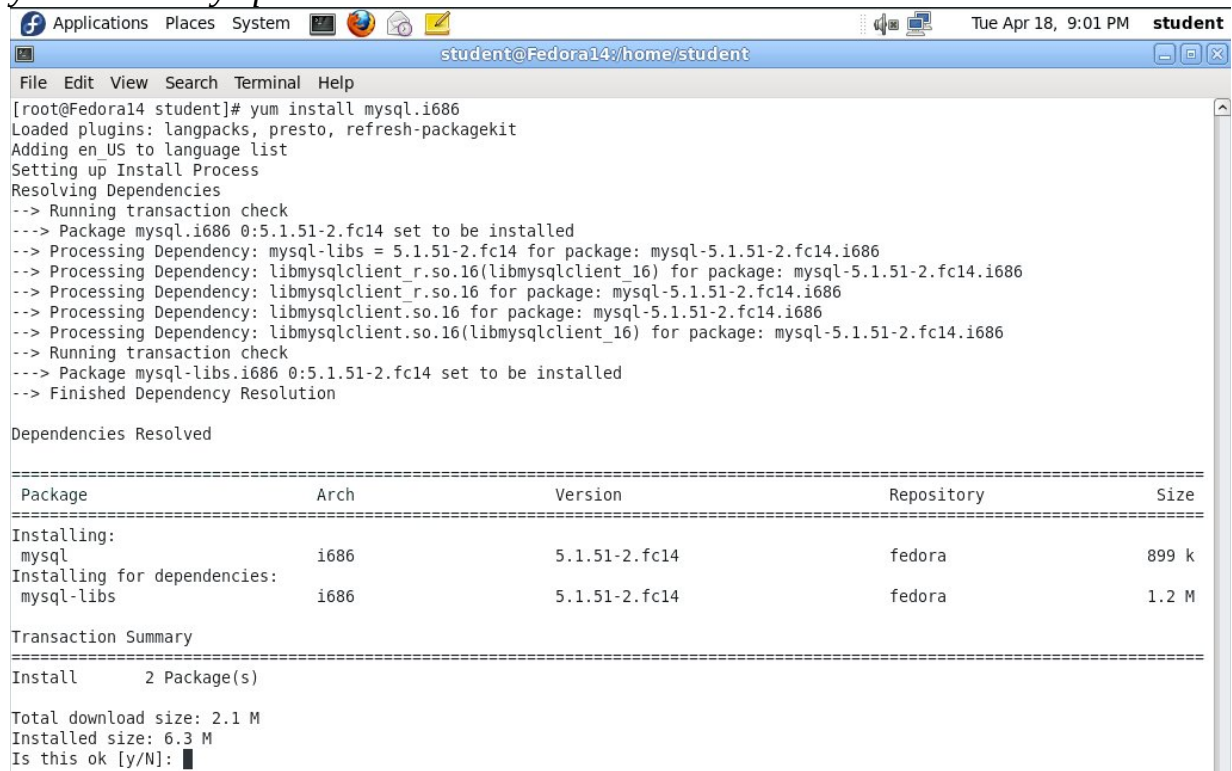
[root@Fedora14 student]# ps -eaf | grep httpd
root      1960      1  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1963    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1964    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1965    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1966    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1967    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1968    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1969    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
apache    1970    1960  0 20:59 ?        00:00:00 /usr/sbin/httpd
root      1972   1845  0 20:59 pts/0    00:00:00 grep --color=auto httpd

[root@Fedora14 student]# chkconfig --level 2345 httpd on
[root@Fedora14 student]#
```

## Раздел 7. Установка mysql и сервера mysql server

Установите mysql

`yum install mysql.i686`



```
[root@Fedora14 student]# yum install mysql.i686
Loaded plugins: langpacks, presto, refresh-packagekit
Adding en_US to language list
Setting up Install Process
Resolving Dependencies
--> Running transaction check
--> Package mysql.i686 0:5.1.51-2.fc14 set to be installed
--> Processing Dependency: mysql-libs = 5.1.51-2.fc14 for package: mysql-5.1.51-2.fc14.i686
--> Processing Dependency: libmysqlclient_r.so.16(libmysqlclient_16) for package: mysql-5.1.51-2.fc14.i686
--> Processing Dependency: libmysqlclient_r.so.16 for package: mysql-5.1.51-2.fc14.i686
--> Processing Dependency: libmysqlclient.so.16 for package: mysql-5.1.51-2.fc14.i686
--> Processing Dependency: libmysqlclient.so.16(libmysqlclient_16) for package: mysql-5.1.51-2.fc14.i686
--> Running transaction check
--> Package mysql-libs.i686 0:5.1.51-2.fc14 set to be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                               Arch             Version           Repository        Size
=====
Installing:
mysql                                 i686             5.1.51-2.fc14     fedora            899 k
Installing for dependencies:
mysql-libs                           i686             5.1.51-2.fc14     fedora            1.2 M
=====
Transaction Summary
-----
Install      2 Package(s)

Total download size: 2.1 M
Installed size: 6.3 M
Is this ok [y/N]:
```

наберите: y

Установите mysql-server

`yum install mysql-server`



```
Applications Places System [icons] [status] Tue Apr 18, 9:02 PM student
student@Fedora14:/home/student
File Edit View Search Terminal Help
[root@Fedora14 student]# yum install mysql-server
Loaded plugins: langpacks, presto, refresh-packagekit
Adding en_US to language list
Setting up Install Process
Resolving Dependencies
--> Running transaction check
--> Package mysql-server.i686 0:5.1.51-2.fc14 set to be installed
--> Processing Dependency: perl-DBI for package: mysql-server-5.1.51-2.fc14.i686
--> Processing Dependency: perl-DBD-MySQL for package: mysql-server-5.1.51-2.fc14.i686
--> Processing Dependency: perl(DBI) for package: mysql-server-5.1.51-2.fc14.i686
--> Running transaction check
--> Package perl-DBD-MySQL.i686 0:4.017-1.fc14 set to be installed
--> Package perl-DBI.i686 0:1.613-1.fc14 set to be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
mysql-server i686 5.1.51-2.fc14 fedora 8.3 M
Installing for dependencies:
perl-DBD-MySQL i686 4.017-1.fc14 fedora 137 k
perl-DBI i686 1.613-1.fc14 fedora 775 k
=====

Transaction Summary
-----
Install 3 Package(s)

Total download size: 9.2 M
Installed size: 25 M
Is this ok [y/N]: █
```

## Запустите mysql service *mysqld* start

```
Applications Places System [icons] [status] Tue Apr 18, 9:03 PM student
student@Fedora14:/home/student
File Edit View Search Terminal Help
[root@Fedora14 student]#
[root@Fedora14 student]#
[root@Fedora14 student]#
[root@Fedora14 student]#
[root@Fedora14 student]# service mysqld start
Initializing MySQL database: Installing MySQL system tables...
OK
Filling help tables...
OK

To start mysqld at boot time you have to copy
support-files/mysql.server to the right place for your system

PLEASE REMEMBER TO SET A PASSWORD FOR THE MySQL root USER !
To do so, start the server, then issue the following commands:

/usr/bin/mysqladmin -u root password 'new-password'
/usr/bin/mysqladmin -u root -h Fedora14 password 'new-password'

Alternatively you can run:
/usr/bin/mysql_secure_installation

which will also give you the option of removing the test
databases and anonymous user created by default. This is
strongly recommended for production servers.

See the manual for more instructions.

You can start the MySQL daemon with:
cd /usr ; /usr/bin/mysqld_safe &

You can test the MySQL daemon with mysql-test-run.pl
cd /usr/mysql-test ; perl mysql-test-run.pl

Please report any problems with the /usr/bin/mysqlbug script!

Starting mysqld: [ OK ]
[root@Fedora14 student]# █
```

## Сконфигурируйте mysqld *chkconfig --level 2345 mysqld on*

Создает начальные скрипты для запуска на уровнях: 2, 3, 4 и 5.

*mysqladmin -u root password dvwaPASSWORD*

Устанавливает для mysql пользователя root пароль "dvwaPASSWORD".

```
[root@Fedora14 student]#  
[root@Fedora14 student]#  
[root@Fedora14 student]#  
[root@Fedora14 student]# chkconfig --level 2345 mysqld on  
[root@Fedora14 student]# mysqladmin -u root password dvwaPASSWORD  
student@Fedora14:/home/student
```

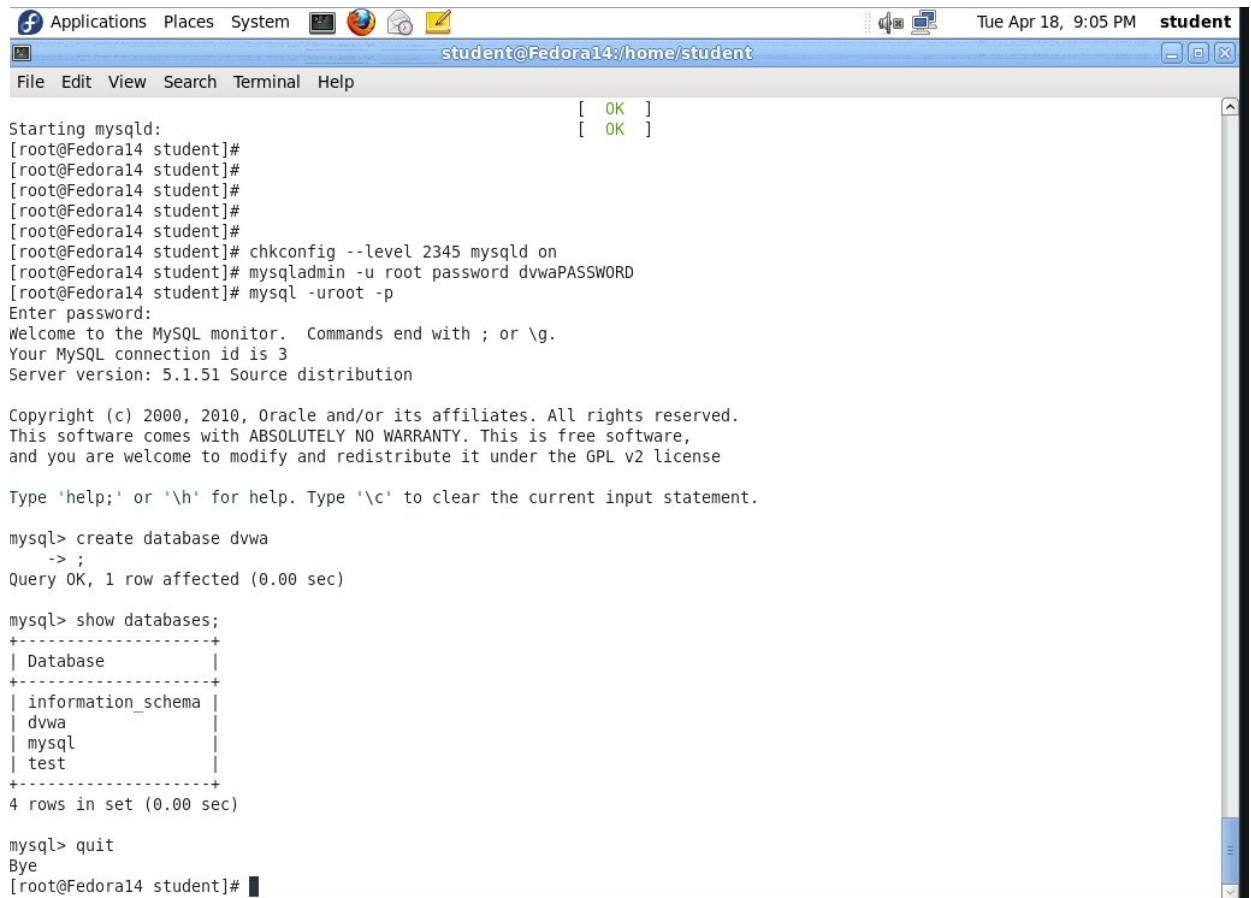
student@Fedora14:/ho...

Войдите в систему mysql и создайте базу данных dvwa

*mysql -uroot -p*

*dvwaPASSWORD*

*create database dvwa*



The screenshot shows a terminal window titled 'student@Fedora14:/home/student'. The terminal output shows the following commands and their results:

```
Starting mysqld: [ OK ]  
[root@Fedora14 student]#  
[root@Fedora14 student]#  
[root@Fedora14 student]#  
[root@Fedora14 student]#  
[root@Fedora14 student]#  
[root@Fedora14 student]# chkconfig --level 2345 mysqld on  
[root@Fedora14 student]# mysqladmin -u root password dvwaPASSWORD  
[root@Fedora14 student]# mysql -uroot -p  
Enter password:  
Welcome to the MySQL monitor. Commands end with ; or \g.  
Your MySQL connection id is 3  
Server version: 5.1.51 Source distribution  
  
Copyright (c) 2000, 2010, Oracle and/or its affiliates. All rights reserved.  
This software comes with ABSOLUTELY NO WARRANTY. This is free software,  
and you are welcome to modify and redistribute it under the GPL v2 license  
  
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.  
  
mysql> create database dvwa  
-> ;  
Query OK, 1 row affected (0.00 sec)  
  
mysql> show databases;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| dvwa |  
| mysql |  
| test |  
+-----+  
4 rows in set (0.00 sec)  
  
mysql> quit  
Bye  
[root@Fedora14 student]#
```

## Раздел 8. Установка PHP и wget

Установите PHP

*yum install php.i686*

```
Dependency Installed:  
  php-cli.i686 0:5.3.3-1.fc14      php-common.i686 0:5.3.3-1.fc14  
  
Complete!  
[root@Fedora14 student]#
```

Установите php-mysql

*yum install php-mysql*

```
Installed:
php-mysql.i686 0:5.3.3-1.fc14

Dependency Installed:
php-pdo.i686 0:5.3.3-1.fc14

Complete!
[root@Fedora14 student]#
```

Установите php-pear  
*yum install php-pear php-pear-DB*

```
Installed:
php-mysql.i686 0:5.3.3-1.fc14

Dependency Installed:
php-pdo.i686 0:5.3.3-1.fc14

Complete!
[root@Fedora14 student]#
```

Установите wget  
*yum install wget*

```
[root@Fedora14 student]# yum install wget
Loaded plugins: langpacks, presto, refresh-packagekit
Adding en_US to language list
Setting up Install Process
Package wget-1.12-2.fc13.i686 already installed and latest version
Nothing to do
[root@Fedora14 student]#
```

## Раздел 9. Установка DVWA

Разархивируйте dvwa в /var/www/html  
*unzip archive.zip*



Удалите архив  
*ls -lrta*  
*rm <имя архива>.zip*

Сохраните и откройте config.inc.php  
*cd /var/www/html/dvwa/config*

Это директория с настройками проекта.  
*cp config.inc.php config.inc.php.BKP*

Сделать резервную копию  
*chmod 000 config.inc.php.BKP*

Удалить все права для резервной копии  
*naпо config.inc.php*

Это конфигурационный файл, отвечающий за взаимодействие базы данных с веб приложением.



```
Applications Places System student@Fedora14: Tue Apr 18, 9:18 PM student
student@Fedora14:/var/www/html/dvwa/config
File Edit View Search Terminal Help
[root@Fedora14 Downloads]# cd /var/www/html/
[root@Fedora14 html]# ls -la
. . . dvwa DVWA-1.0.7.zip
[root@Fedora14 html]# ls -lrta
total 1344
drwxr-xr-x. 8 root root 4096 Sep 8 2010 dvwa
drwxr-xr-x. 6 root root 4096 Oct 22 2010 ..
-rw-rw-r--. 1 student student 1363062 Apr 18 21:12 DVWA-1.0.7.zip
drwxr-xr-x. 3 root root 4096 Apr 18 21:14 .
[root@Fedora14 html]# rm DVWA-1.0.7.zip
rm: remove regular file 'DVWA-1.0.7.zip'? y
[root@Fedora14 html]# cd dvwa/config/
[root@Fedora14 config]# cp config.inc.php config.inc.php.BKP
[root@Fedora14 config]# chmod 000 config.inc.php.BKP
[root@Fedora14 config]# nano config.inc.php
```

Настройте config.inc.php

Переместите указатель на строку, содержащую db\_password

Введите "dvwaPASSWORD"

```
Applications Places System student@Fedora14: Tue Apr 18, 9:19 PM student
student@Fedora14:/var/www/html/dvwa/config
File Edit View Search Terminal Help
GNU nano 2.2.4 File: config.inc.php Modified
<?php
# If you are having problems connecting to the MySQL database and all of the variables below are correct
# try changing the 'db_server' variable from localhost to 127.0.0.1. Fixes a problem due to sockets.
# Thanks to digininja for the fix.

# Database management system to use

$DBMS = 'MySQL';
#$DBMS = 'PGSQL';

# Database variables

$DVWA = array();
$DVWA[ 'db_server' ] = 'localhost';
$DVWA[ 'db_database' ] = 'dvwa';
$DVWA[ 'db_user' ] = 'root';
$DVWA[ 'db_password' ] = 'dvwaPASSWORD';

# Only needed for PGSQL
$DVWA[ 'db_port' ] = '5432';

?>
```

Перезапустите apache

*service httpd restart*

Перезапуск Apache

*ps -eaf | grep -v grep | grep httpd*

Удостоверьтесь, что Apache запущен.

```
Applications Places System student@Fedora14: Tue Apr 18, 9:21 PM student
student@Fedora14:/var/www/html/dvwa/config
File Edit View Search Terminal Help
[root@Fedora14 config]# service httpd restart
Stopping httpd: [ OK ]
Starting httpd: httpd: Could not reliably determine the server's fully qualified domain name, using ::1 for ServerName
[ OK ]

[root@Fedora14 config]# ps -eaf | grep -v grep | grep httpd
root      9004      1  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9007    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9008    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9009    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9010    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9011    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9012    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9013    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
apache    9014    9004  0 21:20 ?        00:00:00 /usr/sbin/httpd
[root@Fedora14 config]#
```

Запустите веб браузер

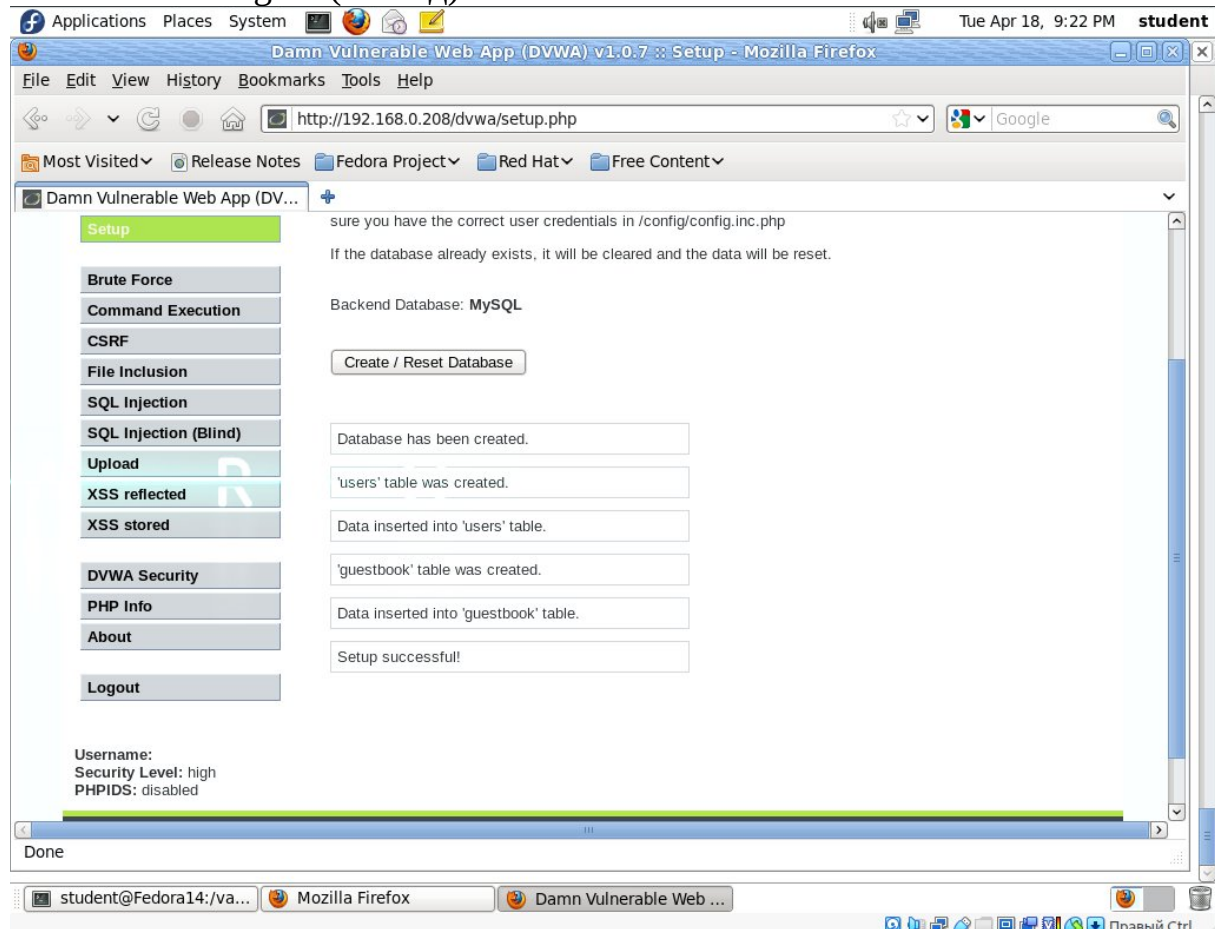
Applications --> Internet --> Firefox

Настройте БД DVWA

<http://192.168.1.208/dvwa/setup.php>

Нажмите на кнопку Create / Reset Database (создание/сброс базы данных)  
Вы должны видеть сообщения о том, что база данных была создана, данные загружены и что настройка прошла успешно.

Нажмите на Logout (Выход)



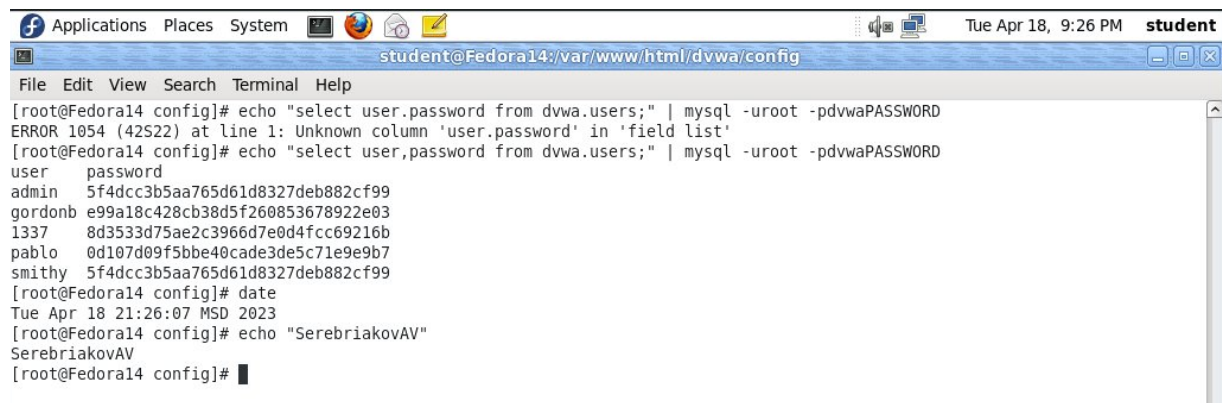
Войдите в DVWA

<http://192.168.1.208/dvwa/login>

Имя пользователя (Username): admin

Пароль (Password): password

## Раздел 10. Отчет о работе



The screenshot shows a terminal window on a Fedora 14 system. The user is root at the Fedora14 machine, currently in the /var/www/html/dvwa/config directory. They attempt to run a SQL query using the mysql command-line client. The query is: `select user.password from dvwa.users;" | mysql -uroot -pdvwaPASSWORD`. This results in an error: `ERROR 1054 (42S22) at line 1: Unknown column 'user.password' in 'field list'`. The user then corrects the query to: `select user,password from dvwa.users;" | mysql -uroot -pdvwaPASSWORD`. This query succeeds and displays a table with two columns: 'user' and 'password'. The table contains five rows of data. After displaying the table, the user enters the `date` command, which shows the current date and time as Tuesday, April 18, 2012, 21:26:07 MSD. Finally, the user enters the `echo "SerebriakovAV"` command, which outputs the string 'SerebriakovAV'.

```
student@Fedora14:/var/www/html/dvwa/config
File Edit View Search Terminal Help
[root@Fedora14 config]# echo "select user.password from dvwa.users;" | mysql -uroot -pdvwaPASSWORD
ERROR 1054 (42S22) at line 1: Unknown column 'user.password' in 'field list'
[root@Fedora14 config]# echo "select user,password from dvwa.users;" | mysql -uroot -pdvwaPASSWORD
user      password
admin     5f4dcc3b5aa765d61d8327deb882cf99
gordonb   e99a18c428cb38d5f260853678922e03
1337      8d3533d75ae2c3966d7e0d4fcc69216b
pablo     0d107d09f5bbe40cade3de5c71e9e9b7
smithy    5f4dcc3b5aa765d61d8327deb882cf99
[root@Fedora14 config]# date
Tue Apr 18 21:26:07 MSD 2012
[root@Fedora14 config]# echo "SerebriakovAV"
SerebriakovAV
[root@Fedora14 config]#
```