

УПРАЖНЕНИЕ 3

Администриране на потребители и права в MySQL

Потребителският идентификатор в MySQL се състои от две части – потребителско име и адрес (компютър, мрежа), от който потребителят осъществява достъп до базата данни. В зависимост от мястото, от което се намира потребителят е възможно правата да бъдат различни.

Потребителят, който се създава по подразбиране и има всички права в системата е:

root@localhost

В този пример root е потребителското име, а localhost – името на компютъра, на който се намира mysql сървър, тоест може да се осъществява достъп само от локалния компютър. Примери за местоположение, които да се поставят след знака @ са:

127.0.0.1 – IP адрес, имащ смисъла на localhost;

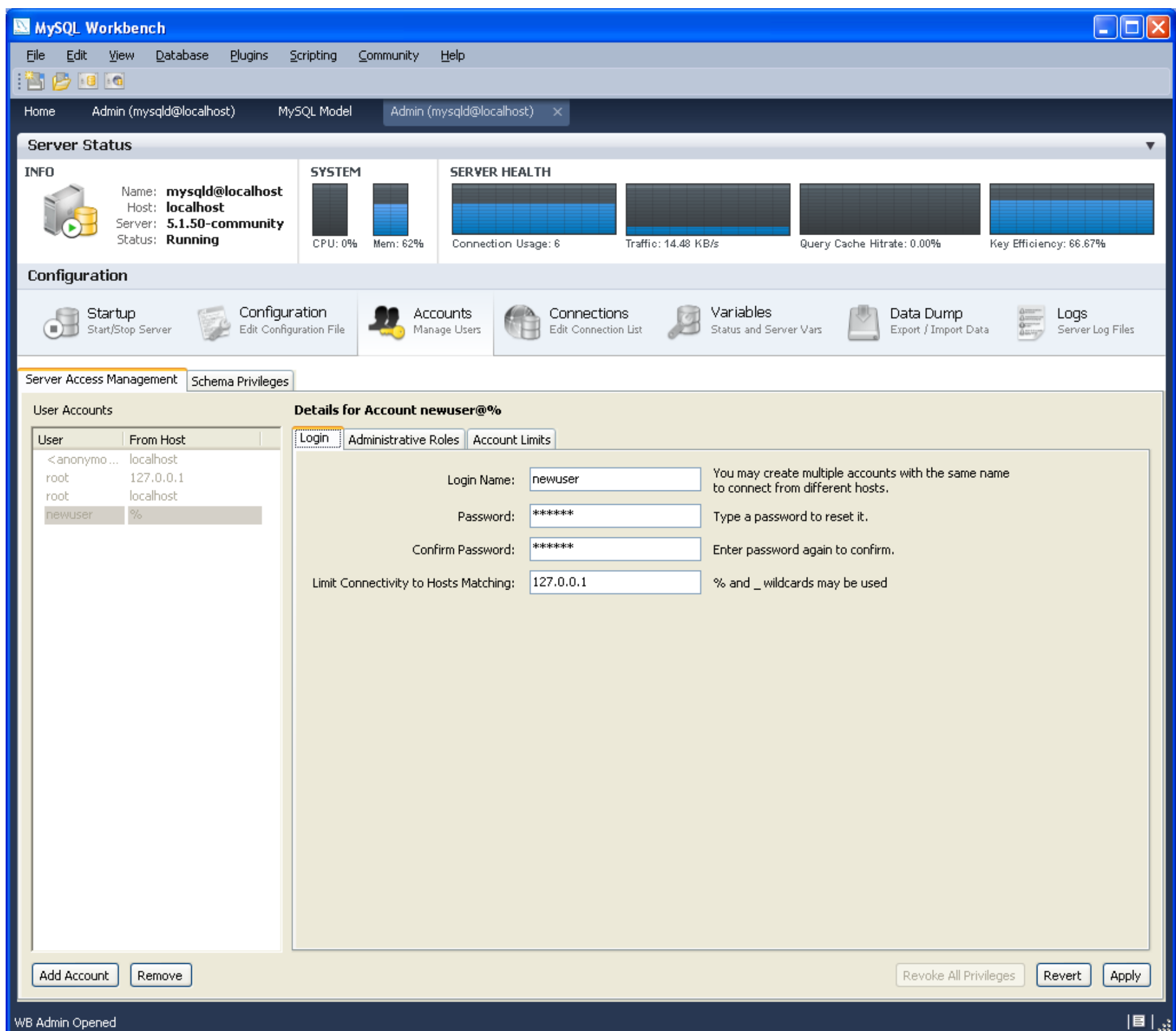
192.168.0.1 – един IP адрес;

'%' – символ, заместващ произволен низ, т.е. компютър с произволно име, отвсякъде;

192.168.197.0/255.255.255.0 – Цяла IP мрежа, с указана маска;

'%.tugab.bg' – всеки компютър, чието име завършва на 'tugab.bg'.

Създаването на нов потребител чрез MySQL Workbench е показано на фигурата:



Необходимите параметри са: потребителско име, парола, потвърждение на паролата и име на компютър или IP адрес/мрежа.

Създаване на потребител може да се направи и с командите на SQL заявка, така:

CREATE USER 'jeffrey'@'localhost'; – създава потребител Jeffrey, работещ от компютъра където е инсталирана системата и базата данни;

CREATE USER 'jeffrey'@'localhost' IDENTIFIED BY 'mypass'; - създава потребителя и му назначава парола;

CREATE USER 'jeffrey'@'%'; - потребителят има достъп отвсякъде;

CREATE USER 'jeffrey'@'192.58.197.0/255.255.255.0'; - достъпът е от цяла IP мрежа.

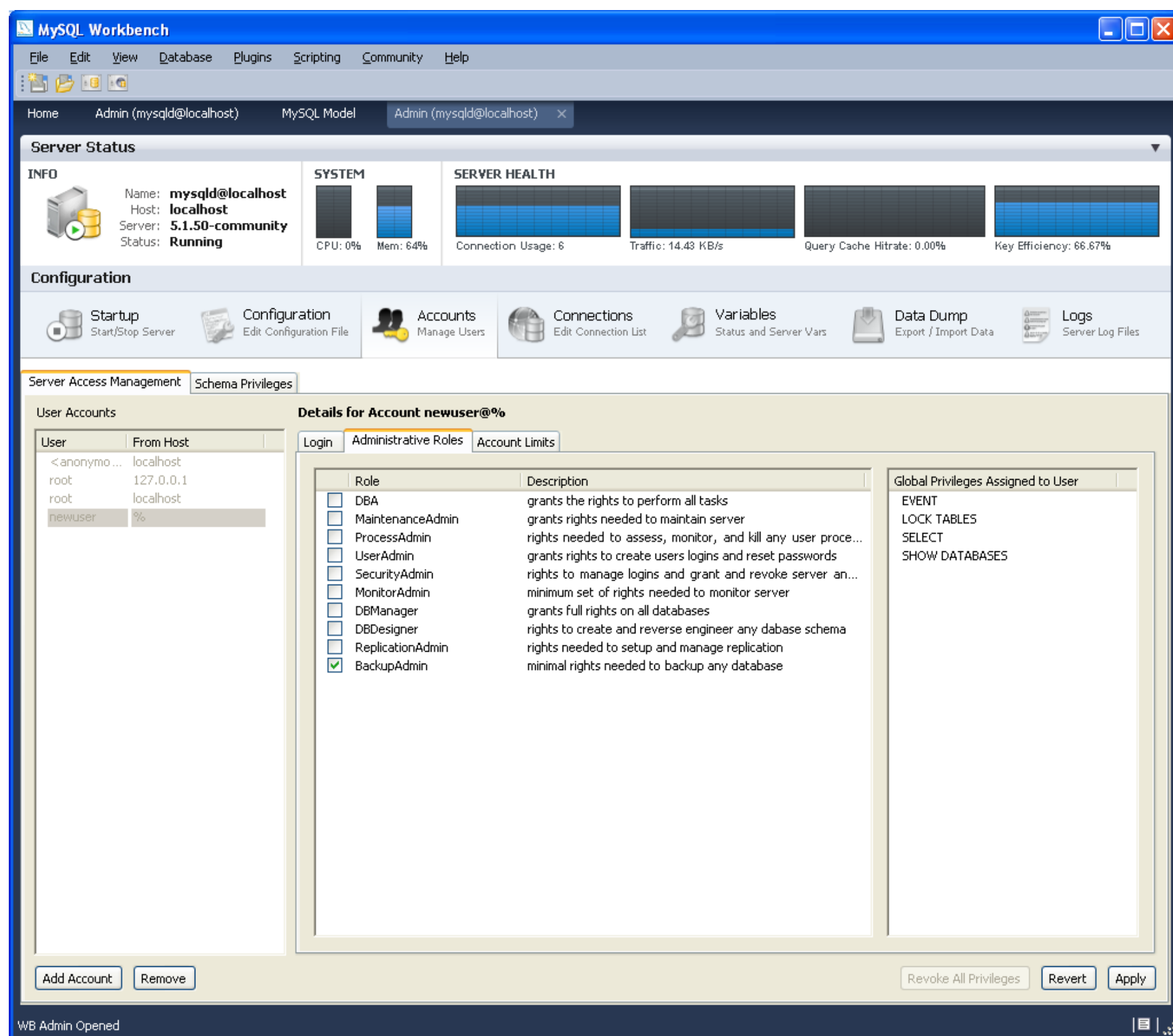
Други действия с потребители:

DROP USER 'jeffrey'@'localhost'; - изтрива потребител;

RENAME USER 'jeffrey'@'localhost' TO 'jeff'@'127.0.0.1'; - преименува потребител;

SET PASSWORD FOR 'bob'@'%.loc.gov' = PASSWORD('newpass'); назначава парола на потребител.

Правата определят кой потребител върху коя база данни може да изпълнява операции, като Select, Insert, Update, Delete и др. В MySQL Workbench има зададени предварителни набори от права, разпределени в роли. Те са показани на фигурата:



Ролите са както следва:

DBA (Database Administrator) – роля с права за изпълнение на всички действия със системата;

Maintenance Admin – права, необходими за поддържането на сървъра;

ProcessAdmin – права за достъп, наблюдение и управление на процесите на MySQL сървъра;

UserAdmin – Права за манипулиране на останалите потребители;

SecurityAdmin – права за управление на влизането в системата и да дава или премахва привилегии за сървъра;

MonitorAdmin – минимален набор права за наблюдение на сървъра;

DBManager – всички права върху всички бази данни;

DBDesigner – права за създаване и управление на бази данни;

ReplicationAdmin – права за поддържане на репликация на данните между няколко сървъра;

BackupAdmin – права за архивиране и възстановяване на архивни копия.

Ролите могат да бъдат комбинирани или техните подразбиращи се права да бъдат променени.

Привилегиите могат да се разделят на:

- Административни привилегии – дават възможност на потребителя да управлява MySQL сървъра и имат глобално значение;
- Привилегии за база данни – важи за всички обекти в нея;
- Привилегии за обект на база данни – таблици, индекси, изгледи, запазени процедури.

Служебните думи за даване и отнемане на права в MySQL сървъра са GRANT и REVOKE.

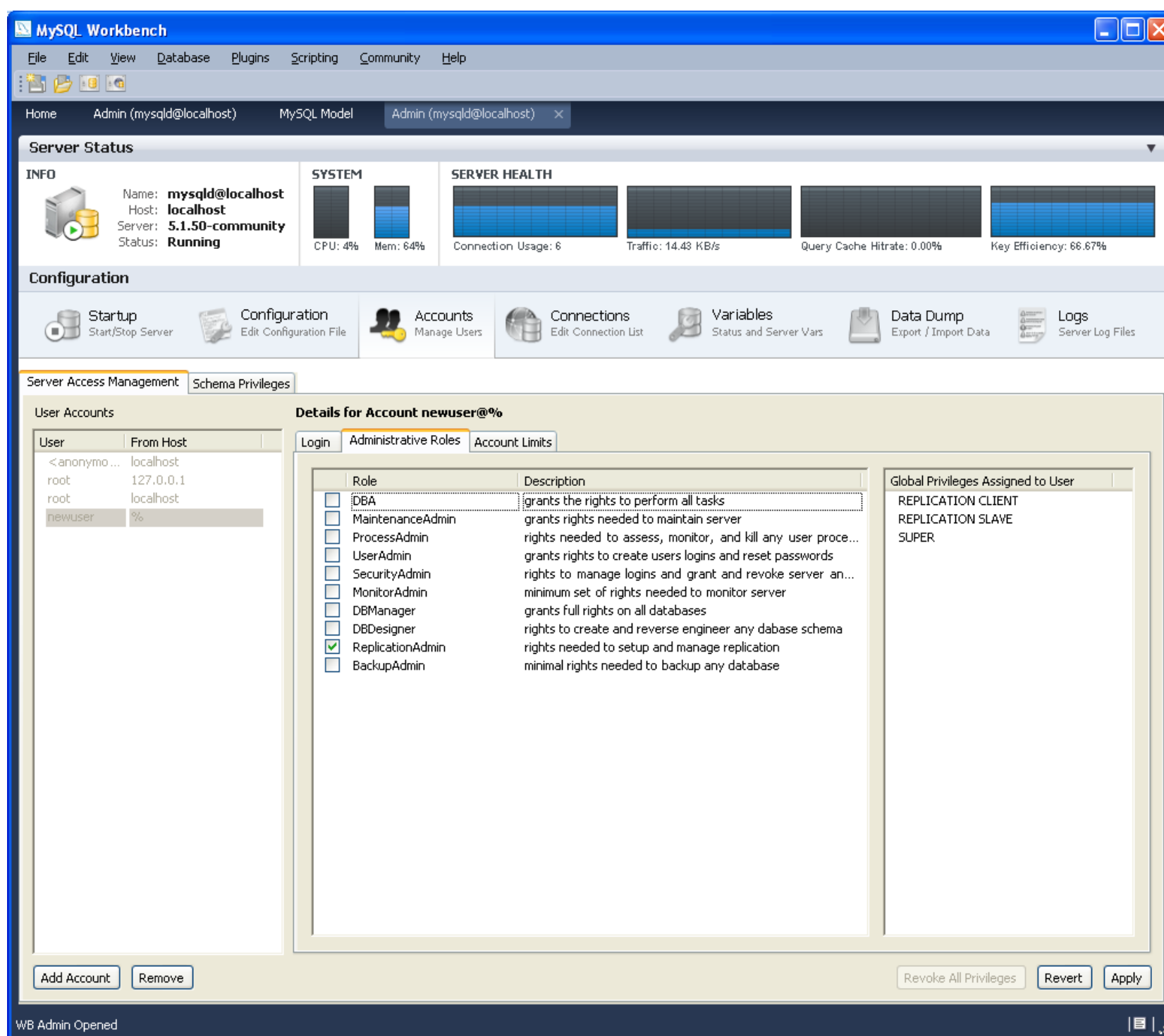
Видове привилегии:

- GRANT ALL – дава на потребителя всички права без възможността за управление на правата на другите потребители;
- GRANT SUPER – всички права;
- GRANT ALTER – промяна на таблици;
- GRANT CREATE – създаване на таблици и бази;
- GRANT CREATE USER, GRANT CREATE VIEW – създаване на потребители и изгледи;
- GRANT DELETE – изтриване на редове;
- GRANT DROP – изтриване на таблица, база, изглед;
- GRANT FILE – четене и запис във файл
- GRANT GRANT_OPTION – управление на права на други потребители;
- GRANT INDEX – създаване и изтриване на индекси;
- GRANT INSERT – вмъкване на редове;
- GRANT LOCK TABLES – заключване на таблици;
- GRANT SELECT – четене от таблица;
- GRANT SHOW_DATABASE – потребителят да вижда базата;
- GRANT UPDATE – актуализация на полета.

Примери за даване и преглед на права:

- `GRANT ALL ON mydb.* TO 'someuser'@'somehost';` - дава всички права на потребителя 'someuser'@'somehost' към всички обекти на базата mydb, без възможност да променя правата на другите потребители;
- `GRANT SELECT, INSERT ON mydb.* TO 'someuser'@'somehost';` - дава права на потребителя да чете и добавя данни в базата;
- `GRANT ALL ON mydb.mytbl TO 'someuser'@'somehost';` - дава всички права върху таблицата mytbl;
- `GRANT SELECT (col1), INSERT (col1,col2) ON mydb.mytbl TO 'someuser'@'somehost';` - различни права върху различните колони от таблицата;
- `SHOW GRANTS FOR 'bob'@'pc84.example.com';` - показва всички привилегии на потребител.

На следващите фигури са показани правата на потребителските роли:



MySQL Workbench

File Edit View Database Plugins Scripting Community Help

Home Admin (mysql@localhost) MySQL Model Admin (mysql@localhost) x

Server Status

INFO

Name: **mysql@localhost**
Host: **localhost**
Server: **5.1.50-community**
Status: **Running**

SYSTEM

CPU: 1% Mem: 64%

SERVER HEALTH

Connection Usage: 6 Traffic: 14.43 KB/s Query Cache Hitrate: 0.00% Key Efficiency: 66.67%

Configuration

Startup Start/Stop Server Configuration Edit Configuration File Accounts Manage Users Connections Edit Connection List Variables Status and Server Vars Data Dump Export / Import Data Logs Server Log Files

Server Access Management Schema Privileges

User Accounts

User	From Host
<anonymo...	localhost
root	127.0.0.1
root	localhost
newuser	%

Details for Account newuser@%

Login Administrative Roles Account Limits

Role	Description
<input type="checkbox"/> DBA	grants the rights to perform all tasks
<input type="checkbox"/> MaintenanceAdmin	grants rights needed to maintain server
<input type="checkbox"/> ProcessAdmin	rights needed to assess, monitor, and kill any user proce...
<input type="checkbox"/> UserAdmin	grants rights to create users logins and reset passwords
<input type="checkbox"/> SecurityAdmin	rights to manage logins and grant and revoke server an...
<input type="checkbox"/> MonitorAdmin	minimum set of rights needed to monitor server
<input type="checkbox"/> DBManager	grants full rights on all databases
<input checked="" type="checkbox"/> DBDesigner	rights to create and reverse engineer any dabase schema
<input type="checkbox"/> ReplicationAdmin	rights needed to setup and manage replication
<input type="checkbox"/> BackupAdmin	minimal rights needed to backup any database

Global Privileges Assigned to User

* Modify Routines

ALTER
ALTER ROUTINE
CREATE
CREATE ROUTINE
CREATE VIEW
INDEX
SHOW DATABASES
SHOW VIEW
TRIGGER

Add Account Remove Revoke All Privileges Revert Apply

WB Admin Opened

MySQL Workbench

File Edit View Database Plugins Scripting Community Help

Home Admin (mysql@localhost) MySQL Model Admin (mysql@localhost) x

Server Status

INFO

Name: **mysql@localhost**
Host: **localhost**
Server: **5.1.50-community**
Status: **Running**

SYSTEM

CPU: 10% Mem: 64%

SERVER HEALTH

Connection Usage: 6 Traffic: 14.43 KB/s Query Cache Hitrate: 0.00% Key Efficiency: 66.67%

Configuration

Startup Start/Stop Server Configuration Edit Configuration File Accounts Manage Users Connections Edit Connection List Variables Status and Server Vars Data Dump Export / Import Data Logs Server Log Files

Server Access Management Schema Privileges

User Accounts

User	From Host
<anonymo...	localhost
root	127.0.0.1
root	localhost
newuser	%

Details for Account newuser@%

Login Administrative Roles Account Limits

Role	Description
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<input type="checkbox"/> ReplicationAdmin	rights needed to setup and manage replication
<input checked="" type="checkbox"/> BackupAdmin	minimal rights needed to backup any database

Global Privileges Assigned to User

ALTER
ALTER ROUTINE
CREATE
CREATE ROUTINE
CREATE TEMPORARY TABLES
CREATE VIEW
DELETE
DROP
EVENT
GRANT OPTION
INDEX
INSERT
LOCK TABLES
SELECT
SHOW DATABASES
SHOW VIEW
TRIGGER
UPDATE

Add Account Remove Revoke All Privileges Revert Apply

WB Admin Opened

MySQL Workbench

FileEditViewDatabasePluginsScriptingCommunityHelp

HomeAdmin (mysqld@localhost)MySQL ModelAdmin (mysqld@localhost) x

Server Status

INFO

Name:mysqld@localhost

Host:localhost

Server:5.1.50-community

Status:Running

SYSTEM

CPU: 3%

Mem: 64%

SERVER HEALTH

Connection Usage: 6

Traffic: 14.37 KB/s

Query Cache Hitrate: 0.00%

Key Efficiency: 66.67%

Configuration

Startup

Start/Stop Server

Configuration

Edit Configuration File

Accounts

Manage Users

Connections

Edit Connection List

Variables

Status and Server Vars

Data Dump

Export / Import Data

Logs

Server Log Files

Server Access Management

Schema Privileges

User Accounts

Details for Account newuser@%

UserFrom Host

<anonymo...localhost

root127.0.0.1

rootlocalhost

newuser%

LoginAdministrative RolesAccount Limits

RoleDescription

☐DBA

grants the rights to perform all tasks

☐MaintenanceAdmin

grants rights needed to maintain server

☐ProcessAdmin

rights needed to assess, monitor, and kill any user proce...

☐UserAdmin

grants rights to create users logins and reset passwords

☐SecurityAdmin

rights to manage logins and grant and revoke server an...

☒MonitorAdmin

minimum set of rights needed to monitor server

☐DBManager

grants full rights on all databases

☐DBDesigner

rights to create and reverse engineer any dabase schema

☐ReplicationAdmin

rights needed to setup and manage replication

☐BackupAdmin

minimal rights needed to backup any database

Global Privileges Assigned to User

PROCESS

Add AccountRemove

Revoke All PrivilegesRevertApply

WB Admin Opened

MySQL Workbench

FileEditViewDatabasePluginsScriptingCommunityHelp

HomeAdmin (mysqld@localhost)MySQL ModelAdmin (mysqld@localhost) x

Server Status

INFO

Name:mysqld@localhost

Host:localhost

Server:5.1.50-community

Status:Running

SYSTEM

CPU: 9%

Mem: 64%

SERVER HEALTH

Connection Usage: 6

Traffic: 14.48 KB/s

Query Cache Hitrate: 0.00%

Key Efficiency: 66.67%

Configuration

Startup

Start/Stop Server

Configuration

Edit Configuration File

Accounts

Manage Users

Connections

Edit Connection List

Variables

Status and Server Vars

Data Dump

Export / Import Data

Logs

Server Log Files

Server Access Management

Schema Privileges

User Accounts

Details for Account newuser@%

UserFrom Host

<anonymo...localhost

root127.0.0.1

rootlocalhost

newuser%

LoginAdministrative RolesAccount Limits

RoleDescription

☐DBA

grants the rights to perform all tasks

☐MaintenanceAdmin

grants rights needed to maintain server

☐ProcessAdmin

rights needed to assess, monitor, and kill any user proce...

☐UserAdmin

grants rights to create users logins and reset passwords

☒SecurityAdmin

rights to manage logins and grant and revoke server an...

☐MonitorAdmin

minimum set of rights needed to monitor server

☐DBManager

grants full rights on all databases

☐DBDesigner

rights to create and reverse engineer any dabase schema

☐ReplicationAdmin

rights needed to setup and manage replication

☐BackupAdmin

minimal rights needed to backup any database

Global Privileges Assigned to User

* Modify Access Control
CREATE USER
GRANT OPTION
RELOAD
SHOW DATABASES

Add AccountRemove

Revoke All PrivilegesRevertApply


WB Admin Opened



MySQL Workbench

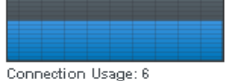

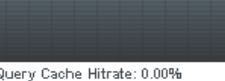
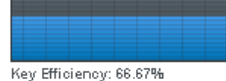
File Edit View Database Plugins Scripting Community Help

Home Admin (mysql@localhost) MySQL Model Admin (mysql@localhost) X

Server Status

INFO

Name: **mysql@localhost**
Host: **localhost**
Server: **5.1.50-community**
Status: **Running**

SYSTEM

CPU: 0%

Mem: 64%

SERVER HEALTH
 Connection Usage: 6
 Traffic: 14.48 KB/s
 Query Cache Hitrate: 0.00%
 Key Efficiency: 66.67%

Configuration

Startup Start/Stop Server Configuration Edit Configuration File Accounts Manage Users Connections Edit Connection List Variables Status and Server Vars Data Dump Export / Import Data Logs Server Log Files

Server Access Management

Schema Privileges

User Accounts

User	From Host
<anonymo...	localhost
root	127.0.0.1
root	localhost
newuser	%

Details for Account newuser@%

Login Administrative Roles Account Limits

Role	Description
<input type="checkbox"/> DBA	grants the rights to perform all tasks
<input type="checkbox"/> MaintenanceAdmin	grants rights needed to maintain server
<input type="checkbox"/> ProcessAdmin	rights needed to assess, monitor, and kill any user proce...
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<input type="checkbox"/> DBDesigner	rights to create and reverse engineer any dabase schema
<input type="checkbox"/> ReplicationAdmin	rights needed to setup and manage replication
<input type="checkbox"/> BackupAdmin	minimal rights needed to backup any database

Global Privileges Assigned to User
CREATE USER
RELOAD

Add Account Remove Revoke All Privileges Revert Apply


WB Admin Opened



MySQL Workbench

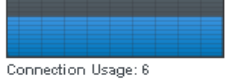
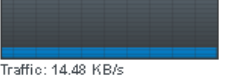
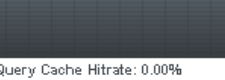
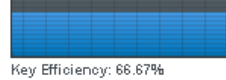
File Edit View Database Plugins Scripting Community Help

Home Admin (mysql@localhost) MySQL Model Admin (mysql@localhost) X

Server Status

INFO

Name: **mysql@localhost**
Host: **localhost**
Server: **5.1.50-community**
Status: **Running**

SYSTEM

CPU: 6%

Mem: 64%

SERVER HEALTH
 Connection Usage: 6
 Traffic: 14.48 KB/s
 Query Cache Hitrate: 0.00%
 Key Efficiency: 66.67%

Configuration

Startup Start/Stop Server Configuration Edit Configuration File Accounts Manage Users Connections Edit Connection List Variables Status and Server Vars Data Dump Export / Import Data Logs Server Log Files

Server Access Management

Schema Privileges

User Accounts

User	From Host
<anonymo...	localhost
root	127.0.0.1
root	localhost
newuser	%

Details for Account newuser@%

Login Administrative Roles Account Limits

Role	Description
<input type="checkbox"/> DBA	grants the rights to perform all tasks
<input type="checkbox"/> MaintenanceAdmin	grants rights needed to maintain server
<input checked="" type="checkbox"/> ProcessAdmin	rights needed to assess, monitor, and kill any user proce...
<input type="checkbox"/> UserAdmin	grants rights to create users logins and reset passwords
<input type="checkbox"/> SecurityAdmin	rights to manage logins and grant and revoke server an...
<input type="checkbox"/> MonitorAdmin	minimum set of rights needed to monitor server
<input type="checkbox"/> DBManager	grants full rights on all databases
<input type="checkbox"/> DBDesigner	rights to create and reverse engineer any dabase schema
<input type="checkbox"/> ReplicationAdmin	rights needed to setup and manage replication
<input type="checkbox"/> BackupAdmin	minimal rights needed to backup any database

Global Privileges Assigned to User
RELOAD
SUPER

Add Account Remove Revoke All Privileges Revert Apply

WB Admin Opened

MySQL Workbench

File Edit View Database Plugins Scripting Community Help

Home Admin (mysqld@localhost) MySQL Model Admin (mysqld@localhost) x

Server Status

INFO

Name: **mysqld@localhost**
Host: **localhost**
Server: **5.1.50-community**
Status: **Running**

SYSTEM

CPU: 0% Mem: 64%

SERVER HEALTH

Connection Usage: 6 Traffic: 14.48 KB/s Query Cache Hitrate: 0.00% Key Efficiency: 66.67%

Configuration

Startup Start/Stop Server Configuration Edit Configuration File Accounts Manage Users Connections Edit Connection List Variables Status and Server Vars Data Dump Export / Import Data Logs Server Log Files

Server Access Management Schema Privileges

User Accounts

User	From Host
<anonymo...	localhost
root	127.0.0.1
root	localhost
newuser	%

Details for Account newuser@%

Login Administrative Roles Account Limits

Role	Description
<input type="checkbox"/> DBA	grants the rights to perform all tasks
<input checked="" type="checkbox"/> MaintenanceAdmin	grants rights needed to maintain server
<input checked="" type="checkbox"/> ProcessAdmin	rights needed to assess, monitor, and kill any user proce...
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<input type="checkbox"/> ReplicationAdmin	rights needed to setup and manage replication
<input type="checkbox"/> BackupAdmin	minimal rights needed to backup any database

Global Privileges Assigned to User

EVENT
RELOAD
SHOW DATABASES
SHUTDOWN
SUPER

Add Account Remove Revoke All Privileges Revert Apply

WB Admin Opened

MySQL Workbench

File Edit View Database Plugins Scripting Community Help

Home Admin (mysqld@localhost) MySQL Model Admin (mysqld@localhost) x

Server Status

INFO

Name: **mysqld@localhost**
Host: **localhost**
Server: **5.1.50-community**
Status: **Running**

SYSTEM

CPU: 1% Mem: 64%

SERVER HEALTH

Connection Usage: 6 Traffic: 14.48 KB/s Query Cache Hitrate: 0.00% Key Efficiency: 66.67%

Configuration

Startup Start/Stop Server Configuration Edit Configuration File Accounts Manage Users Connections Edit Connection List Variables Status and Server Vars Data Dump Export / Import Data Logs Server Log Files

Server Access Management Schema Privileges

User Accounts

User	From Host
<anonymo...	localhost
root	127.0.0.1
root	localhost
newuser	%

Details for Account newuser@%

Login Administrative Roles Account Limits

Role	Description
<input checked="" type="checkbox"/> DBA	grants the rights to perform all tasks
<input checked="" type="checkbox"/> MaintenanceAdmin	grants rights needed to maintain server
<input checked="" type="checkbox"/> ProcessAdmin	rights needed to assess, monitor, and kill any user proce...
<input checked="" type="checkbox"/> UserAdmin	grants rights to create users logins and reset passwords
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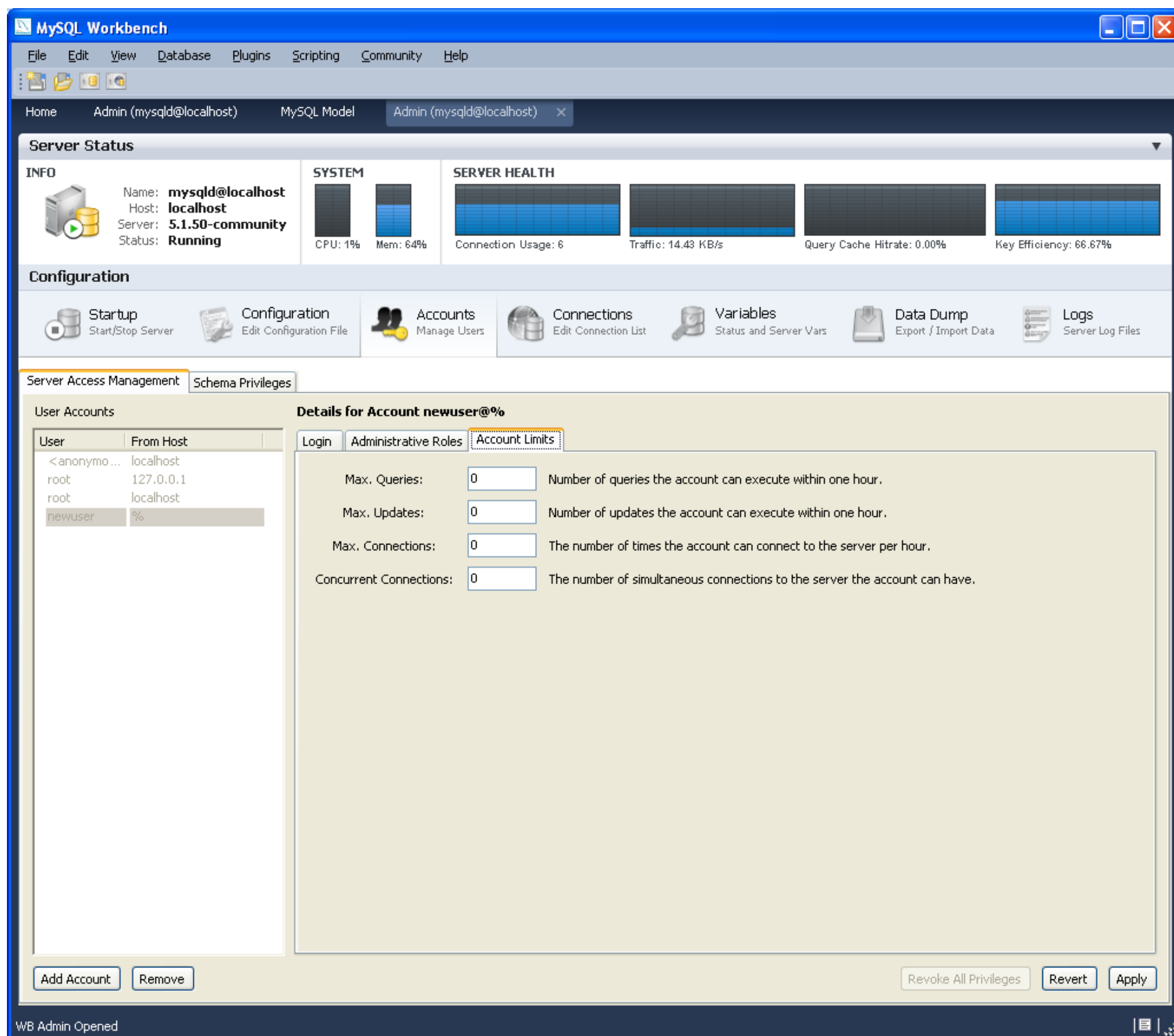
Global Privileges Assigned to User

* Modify Access Control
* Modify Routines
ALTER
ALTER ROUTINE
CREATE
CREATE ROUTINE
CREATE TABLESPACE
CREATE TEMPORARY TABLES
CREATE USER
CREATE VIEW
DELETE
DROP
EVENT
EXECUTE
FILE
GRANT OPTION
INDEX
INSERT
LOCK TABLES
PROCESS
REFERENCES
RELOAD
REPLICATION CLIENT

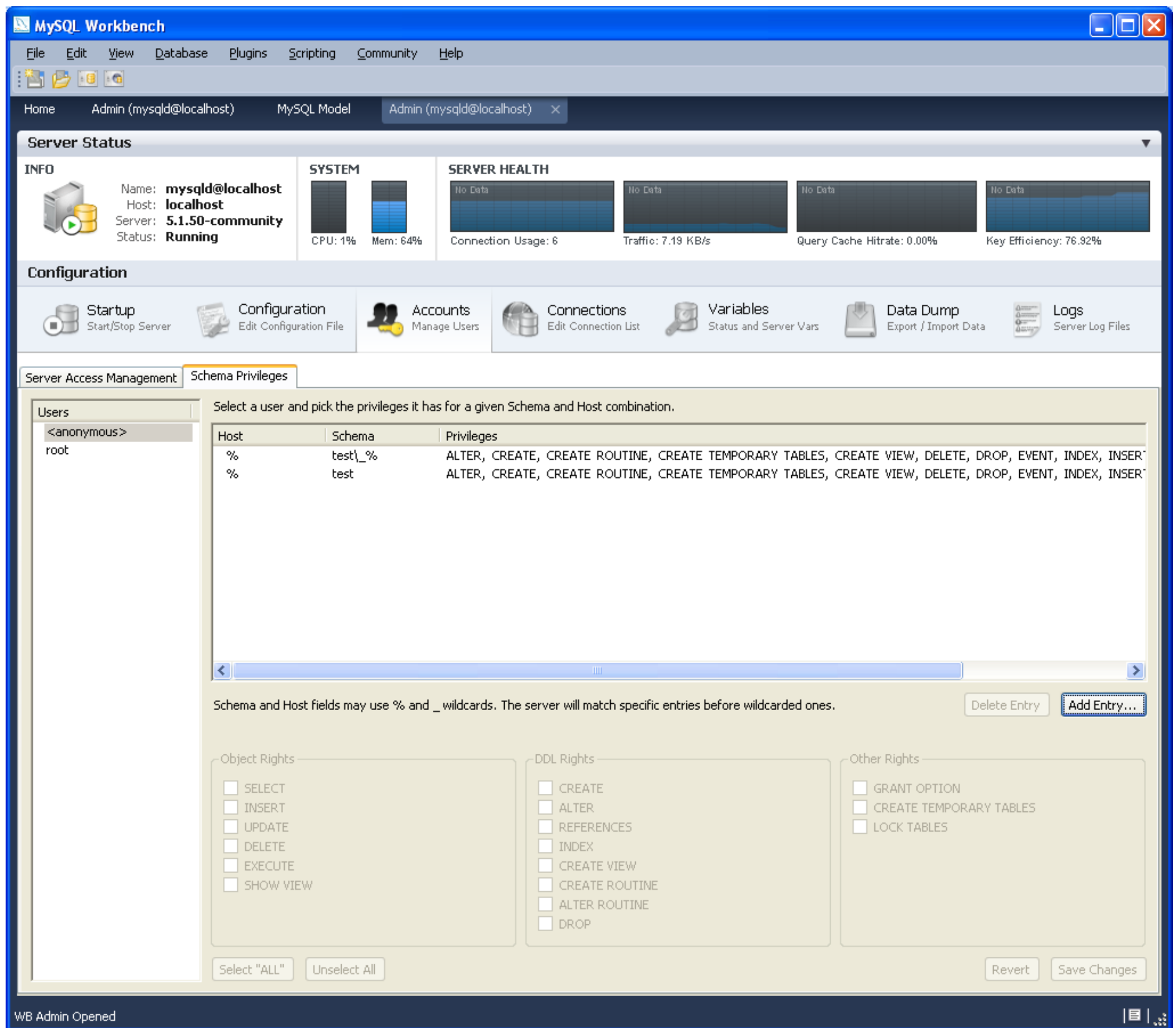
Add Account Remove Revoke All Privileges Revert Apply

WB Admin Opened

На следващата фигура е показана възможност за задаване на определени ограничения за даден потребител – максимален брой заявки за един час, максимален брой актуализации за час, максимален брой свързвания към сървъра за час и максимален брой едновременни връзки към сървъра.



На следващите две фигури е показано регулирането на правата на даден потребител за отделна база данни (Schema), както и мястото (име на компютър или IP адрес), за които да важат тези права:



Select the Host and the Schema for which the user " " will have the privileges you want to define.

Host

☒ Any Host (%)

☐ Hosts matching pattern or name:

☐ Selected host:

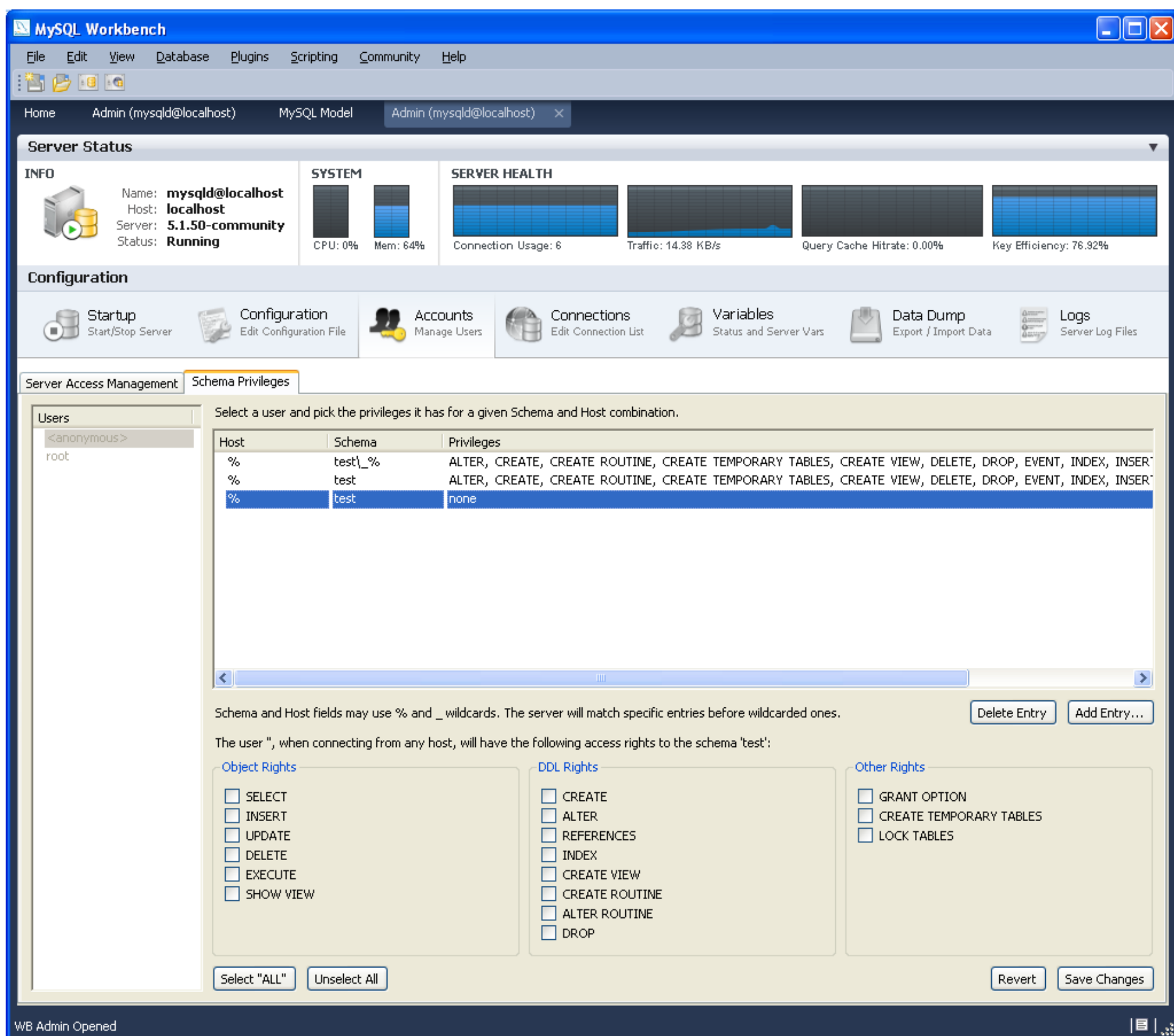
Schema

☐ Any Schema (%)

☐ Schemas matching pattern or name:

☒ Selected schema:

На фигурата е показана възможността за регулиране на правата на потребителя извън зададените роли.



Задачи за изпълнение:

1. Да се създаде база от данни(схема) с наименование KST_Test и колация utf8.
2. Да се създаде таблица Studenti със следната структура:
Studenti (
 FakNo int unique, primary key,
 Ime varchar(45),
 Stipendia decimal, 10.2,);
3. Да се създаде потребител TestUser.
4. Да се зададат последователно права върху таблицата: SELECT, INSERT, UPDATE, DELETE. При задаването на всяко право да се експериментира с потребителя възможността за изпълнение на следните операции: Четене на данни, вмъкване на данни, актуализация на данни, изтриване на данни.
5. Да се изтрият създадените бази данни и потребители.