rocket Virtual

Launch Your Virtual World Fast

Learn how to build your own virtual world with free open source software



Copyright © 2009 by Michael McAnally, Document Version 1.0 June 30, 2009

Figure 1. Screen shot of a Virtual World Island

PART I - SETTING UP THE SERVER

Back in May of 2007, I heard about a virtual world called SecondLife.com. People were saying it was really great! You could create an avatar and move through a 3D simulation space, much like a video game, but over the Internet in a client-server architecture.

If you understand everything I just said above, then maybe you're ready to build your own virtual world. It will be moderately difficult, requiring a degree of effort and fully reading this article. So if you don't like reading technical documentation, or have trouble following detailed instructions, stop right now. If you're still reading, then let's begin . . .

OPENSIMULATOR

First, Opensimulator.org is a free open source simulator application project which has the capability to create virtual worlds. It is written in the C# language which can run on a Microsoft Windows and Linux OS platform. The choice of "Operating System" to run it on is yours.

I myself have chosen to use Windows 2003 Standard Server, or Windows Vista because of some previous experience I have with these products, and will be making the assumption that you are using a windows OS in this article as well.

OpenSimulator code could be thought of as the derivative open source child of SecondLife, since its design inherits from the original 5 year development efforts, but it appears to be rapidly evolving and feature branching into unique directions.

Now, if you have a dedicated server box, or a powerful desktop (suggest using dual core AMD, or Intel CPUs), then at the time of this writing you can download a copy of a binary install executable from Opensimulator.org. "OpenSim", as it is affectionately called in the community.

There is also the option to compile one of the C# OpenSim versions as well. That is not explained in detail here, but usually requires (downloading and installing free C# Express from Microsoft, getting a free copy of Tortoise SVN and exporting the code repository, executing the runprebuild.bat, building the opensim.sln in the C# Express IDE, [see Opensimulator.org and the Internet for more detailed information on the subject of building or "compiling" OpenSim from scratch.]) and then you will have a fresh binary build. If you do this, you can then precede with the following setup instructions from here.

However, if you download the provided binaries, all this is usually not necessary unless you wish to develop the OpenSim code.

In the OpenSim binaries, the directory structure has a number of configuration files which need to be properly configured and installed when setting up your virtual world space. One of the first configurations to decide on is "standalone" or "grid" mode.

STANDALONE

Stand alone means your simulation will be inside a home, or LAN (Local Area Network). Although it is possible to run in standalone mode over the Internet, you will need to use command line commands to create logons and manage them manually at the time of this writing. You could integrate your own login authorization system as an add-on later, but that is beyond the scope of this article, and that service is also provided by grid worlds like OSGrid.org (more on this in later articles).

GRID

Grid mode means your OpenSim installation is connected to a grid of servers (like OSGrid.org) sharing common grid services such as Assets and Login Ids, allowing the ability for other avatars to come into your virtual space by crossing region boundaries, or through teleportation. Yes, teleportation and flying are things that are possible for your avatar (a virtual world can have different rules than our physical reality, like in the movie "The Matrix", although Kung Fu moves are not one of the features provided in OpenSim at this time!).

REGION

A "region" is a simulation area within OpenSim, the smallest definable land space area. You can run multiple regions in your server, up to the CPU capacity and memory of the machine supporting those simulations. Multiple region locations are defined as having coordinates on an X,Y Cartesian grid. The color values on a binary image file (I use .png) defines the Z coordinate value, a "Terrain Map" ultimately giving hills and valleys in the virtual world as in Figure 2 and 3.

Region	Region
x = 1000 y = 1000	x = 1001 y = 1000
Region	Region
x = 1000 y = 1001	x = 1001 y = 1001

Figure 2. Regions with .png terrain map of Virtual World Island in Figure 1.



Figure 3. Viewer screen shots of Virtual Island, high above and below water looking up.

DOWNLOAD, INSTALL & CONFIGURE OPENSIM BINARIES

So, now go to Opensimulator.org download and install the "Binaries" to your hard drive. Change the default install to C:\OpenSim

http://opensimulator.org/wiki/Download

Initially for this article we will begin using standalone mode and create one single default region then expand out into a larger virtual world area of multiple regions in following articles.

Standalone mode is set as a parameter inside of your OpenSim.ini file (in *the \bin directory of your installation if you did a fresh compile, else in the c:\opensim\ for your binnary*). Sometimes you'll notice this file does not exist, although there may be a file named OpenSim.ini.example. If it doesn't exist, you'll want to rename the file to OpenSim.ini removing the ".example" extension from the name. Then open the file in an editor (suggest notepad) search for the parameter "gridmode =". Make sure the parameter gridmode = false and save the file. See example below.

; Set this to true if you are connecting your OpenSimulator regions to a grid ; Set this to false if you are running OpenSimulator in standalone mode gridmode = **false**

Now run the Opensim.exe application, which opens a command line window. For those using Windows Vista or 7, remember to "Run as Administrator".

DEFAULT REGION CONFIG: Region Name [OpenSim Test]: < <u><type enter=""></type></u>	
DEFAULT REGION CONFIG: Grid Location (X Axis) [1000]:	
DEFAULT REGION CONFIG: Grid Location (Y Axis) [1000]:	
DEFAULT REGION CONFIG: Internal IP Address for incoming UDP client connections 0.0.0.0]:	Γ
DEFAULT REGION CONFIG: Internal IP Port for incoming UDP client connections [90	Ø
0]: <type enter=""></type>	
DEFAULT REGION CONFIG: External Host Name [127.0.0.1]: <mark><type enter=""></type></mark>	
DEFAULT REGION CONFIG: First Name of Master Avatar [Test]: <mark><type enter=""></type></mark>	
DEFAULT REGION CONFIG: Last Name of Master Avatar [User]: <mark><type enter=""></type></mark>	
DEFAULT REGION CONFIG: (Sandbox Mode Only)Password for Master Avatar account [t st]:	e
<pre><type enter=""></type></pre>	
14:50:40 - ICONFIGI: Calling Configuration Load Function 14:50:40 - ILOADREGIONSI: Creating Region: OpenSim Test (ThreadID: 1) 14:50:40 - [CONFIG]: Calling Configuration Load Function	_

THE DEFAULT CONFIGURATION

You will want to take all the defaults, by pressing **<enter>** to each. This will give you the following default OpenSim user and configuration.

Default Region Name: [**OpenSim Test**] Default Master Avatar Username (First & Last): [**Test User**] Default Password: [**test**] Default Region X: [**1000**] Default Region Y: [**1000**] Default Internal IP Address for UDP Client Connections: [**0.0.0.0**] Default Internal Port Address for UDP Client Connections: [**9000**] (communications port) Default External Host Name: [**127.0.0.1**] (in this case meaning local host)

You may be asked to give execution permissions and to unblock a firewall port, do so. Once setup is complete type "shutdown" and press enter to safely end the opensim.exe. You now have a default install of OpenSim.

MYSQL DATABASE FOR PERSISTANCE

You may want to use a full strength database version of MySQL instead of the SQL Lite default. To do this, go to mysql.com and download and install the MySQL 5.1.36 Windows essential 32 bit version. During the installation process follow these screenshots, noticing any changes in options. You will have to allow execution privileges at points along the way with Vista during parts of the installation. **IMPORTANT: You must temporarily disable any firewall and anti-virus programs before this install begins.** In Vista, type firewall into windows "start search" and select the windows firewall above to turn off your firewall.





Now download and install MySQL (link below) . . .

http://dev.mysql.com/downloads/mysql/5.1.html#win32



Select Custom Setup

MySQL Server	5.1 - Setup Wizard
Setup Type Choose the se	tup type that best suits your needs.
Please select a	a setup type.
© Typical	Common program features will be installed. Recommended for general use.
© Complete	All program features will be installed. (Requires the most disk space.)
• Custom	Choose which program features you want installed and where they will be installed. Recommended for advanced users.
	< Back Next > Cancel
MySQL Server	5.1 - Setup Wizard

Custom Setup Select the program features you want installed.	0
Click on an icon in the list below to change how a featur MySQL Server MySQL Server Datafiles Client Programs X C Include Files / Lib Files	e is installed. Feature Description Installs the MySQL-server executables. This feature requires 31MB on your hard drive. It has 1 of 1 subfeatures selected. The subfeatures require 0KB on your
Install to: C:\Program Files\MySQL\MySQL Server 5.1\ Help < Back	Change

ady to Install the Program			6
The wizard is ready to begin installat	ion.		6
If you want to review or change any exit the wizard.	of your installation se	tings, dick Back. C	lick Cancel to
Current Settings:			
Setup Type:			
Custom			
Destination Folder:			
C: Program Files WySQL WySQL	Server 5.1\		
Data Folder:			
C: ProgramData WySQL WySQL	Server 5.1		
	< Back	Install	Cancel
h/SOI Senier 51 - Setup Wirard			
Vac aciver 3.1 - Setue Wizard			Contraction of the local division of the loc



MySQ	A MySQL Enterprise subscription is the most comprehensive offering of MySQL database software, services, and support to ensure your business achieves the highest levels of reliability, security, and uptime.
Enterprise	An Enterprise Subscription includes:
2. MySQL Enterpris assistant.	se Monitor Service - An automated virtual database
you need it, along with	on Support - Technical and consultative support when service packs, hot-fixes, and more.
S. MYSQL Producti you need it, along with Dammercuniterink More	on Support - Technical and consultative support when service packs, hot-fixes, and more. iservice packs, hot-fixes, and more.
S. MYSQL Producti you need it, along with Barmarounitaring More	on Support - Technical and consultative support when service packs, hot-fixes, and more. Homelick (More::: onvision/www.myselkcom/enterprise < Back Next > Cancel





MySQL Server Instance Configuration Wizard	-X-,
MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance.	0
Please select a configuration type.	
Detailed Configuration	
Choose this configuration type to create the optimal server set this machine.	tup for
C Standard Configuration	
Use this only on machines that do not already have a MySQL so installation. This will use a general purpose configuration for the server that can be tuned manually.	erver ie
< Back Next >	Cancel

Select Server Machine

MySQL Server Instance Configuration	Wizard		
MySQL Server Instance Configura	ition		
Configure the MySQL Server 5.1 serv	ver instance.		
Please select a server type. This will	influence memory,	, disk and CPU usage.	
C Developer Machine			-
This is a developmen run on it. MySQL Ser memory.	t machine, and ma ver should only us	any other applications will se a minimal amount of	be
Server Machine			
Several server applic this option for web/a memory usage.	ations will be runn application servers	ning on this machine. Choo . MySQL will have medium	ose I
C Dedicated MySQL Server Ma	chine		
This machine is dedic other servers, such utilize up to all availa	ated to run the M as a web or mail s ble memory.	ySQL Database Server. N erver, will be run. MySQL	o wil
	< Back	Next >	Cancel
elect Multifunctional Database			
MySQL Server Instance Configuration	Wizard		×
My50L Server Instance Configura	ition		
Configure the MySQL Server 5.1 serv	ver instance.		
Please select the database usage.			
Multifunctional Database			
General purpose dat of the fast transaction MyISAM storage eng	abases. This will o onal InnoD8 stora jine.	ptimize the server for the ge engine and the high sp	use eed
C Transactional Database Only	,		
Optimized for applica This will make InnoDi MyISAM engine can	ation servers and t 8 the main storage still be used.	transactional web applicat e engine. Note that the	ions.
C Non-Transactional Database	Only		
Suited for simple well as well as analysis pr storage engine will b	o applications, mo rograms. Only the e activated.	nitoring or logging applicat non-transactional MyISAI	tions M
	< Back	Next >	Cancel

MySQL Server Instance Configuration Wizard	*
MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance.	0
Please select the drive for the InnoDB datafile, if you do not want to use the default InnoDB Tablespace Settings Please choose the drive and directory where the InnoDB tablespace should be placed.	settings.
C: Unstallation Path	
< Back C	ancel
lySQL Server Instance Configuration Wizard	×
MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance.	0

Please set the approximate number of concurrent connections to the server.

C Decision Support (DSS)/OLAP

Select this option for database applications that will not require a high number of concurrent connections. A number of 20 connections will be assumed.

C Online Transaction Processing (OLTP)

Choose this option for highly concurrent applications that may have at any one time up to 500 active connections such as heavily loaded web servers. G Manual Setting

32	Please enter the approxima	te number of	f concurrent connect	ions.
20	Concurrent connections:	15	•	
		< Back	Next >	Cancel

lySQL Server	Instance Configura	ation			C
Configure the	MySQL Server 5.1 ser	ver instand	ce.		
Please set the	networking options.				
Enable To	P/IP Networking				
2	Enable this to allow connections through	TCP/IP con n named pip	nections. Wh bes are allow	nen disabled, only ed.	local
	Port Number: 330	5 💌	Add fir	ewall exception f	or this port
Please set the	server SQL mode.				
₩ Enable St	rict Mode				
	This option forces the database server. It	ne server to is recomme	o behave mo ended to ena	re like a traditiona ble this option.	d.
		11	892 I F		0202202
		< 8	iack	Next >	Cancel
QL Server Inst	ance Configuration	< 8 Wizard	Sack	Next >	Cancel
QL Server Inst ySQL Server Configure the	ance Configuration Instance Configura MySQL Server 5.1 serv	< 8 Wizard Ition ver instance	sack	Next >	Cancel
QL Server Inst y5QL Server Configure the Please select t	ance Configuration Instance Configura MySQL Server 5, 1 serv he default character s	< 8 Wizard Ition ver instance	e.	Next >	Cancel
QL Server Inst ySQL Server Configure the Please select t	ance Configuration Instance Configura MySQL Server 5.1 serv he default character s Character Set	< 8 Wizard Ition ver instance et.	e.	Next >	Cancel
QL Server Inst ySQL Server Configure the Please select t Standard	ance Configuration Instance Configura MySQL Server 5, 1 serv he default character se Character Set Makes Latin 1 the def English and other We	< 8 Wizard Ition ver instance et. fault charse est Europea	e. e. This chara	Next >	Cancel
QL Server Inst ySQL Server Configure the Please select t Standard	ance Configuration Instance Configura MySQL Server 5.1 serv he default character s Character Set Makes Latin 1 the def English and other We	< 8 Wizard Ition et. fault charse est Europea	e. et. This chara	Next >	Cancel
QL Server Inst ySQL Server Configure the Please select t (• Standard Helor Best Supp	ance Configuration Instance Configura MySQL Server 5.1 serv he default character se Character Set Makes Latin 1 the def English and other We Fort For Multilingual Make UTF8 the defau character set for sto	< 8 Wizard Ition et. fault charse est Europea lism ult character ring text in	e. e. er This chara an languages er set. This is i many differe	Next >	Cancel
QL Server Inst ySQL Server Configure the Please select t Standard Standard Best Supp Best Supp Standard Manual S	ance Configuration Instance Configura MySQL Server 5.1 serv he default character se Character Set Makes Latin 1 the defa English and other We port For Multilingual Make UTF8 the defa character set for sto elected Default Cha	< 8 Wizard Ition ver instance et. fault charse est Europea lism ult character ring text in iracter Se	e. e. e. er set. This is many different et / Collatio	Next >	Cancel
QL Server Inst bySQL Server Configure the Please select t Standard Felor Best Supp Best Supp Manual S (Manual S	ance Configuration Instance Configura MySQL Server 5, 1 serv he default character se Character Set Makes Latin 1 the def English and other We Fort For Multilingual Make UTF8 the defa character set for sto elected Default Cha	< 8 Wizard Ition ver instance et. fault charse est Europea lism ult character ring text in macter Se naracter se	e. e. et. This chara an languages er set. This is i many differe et / Collatio it to use.	Next >	Cancel

< Back

Next >

L

Cancel

Make sure to include bin directory in windows PATH

MySQL Server Inst	ance Configurati	on Wizard		2	×
MySQL Server Configure the P	Instance Config	uration server instance.			0
Please set the	Windows options.				
🔽 Install As	Windows Servic	e			
0	This is the recom on Windows.	mended way to ru	n the MySQL ser	rver	
	Service Name:	MySQL IF Launch the	ب MySQL Server a	rutomatically	
🔽 Include Bi	n Directory in W	/indows PATH			
113564.	Check this option server / dient ex so they can be co	to include the dir ecutables in the V alled from the com	ectory containing Andows PATH va mand line.	g the ariable	
		< Back	Nex	:t>	Cancel

If you change the password, remember it. The current default root password is blank (nothing), I recommend making it "root" or something else.

MySQL Serve Configure the	r Instance Configuration MySQL Server 5, 1 server in	stance.	0
Please set th	e security options.		-
Modify S	ecurity Settings		
	Current root password:	1	Enter the current password.
root	New root password:	root	Enter the root password.
	Confirm:	root	Retype the password.
		Enable roo	ot access from remote machines
Create Ar	n Anonymous Account		
2	This option will create an a note that this can lead to	anonymous acco an insecure sys	ount on this server. Please tem.
	1	< Back	Next > Cancel

	0
MySQL Server Instance Configuration	6
Configure the MySQL Server 5.1 server instance.	
Processing configuration	
Prepare configuration	
Write configuration file (Ci\Program Files\MySQL)	MySQL Server 5.1\my.ini)
Start service	
Apply security settings	
< Back	Execute Cancel
< Back SQL Server Instance Configuration Wizard MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance.	Execute Cancel
SQL Server Instance Configuration Wizard MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance. Processing configuration	Execute Cancel
SQL Server Instance Configuration Wizard MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance. Processing configuration Ø Prepare configuration	Execute Cancel
 SQL Server Instance Configuration Wizard MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance. Processing configuration 	Execute Cancel
SQL Server Instance Configuration Wizard MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance. Processing configuration Processing configuration Processing configuration file (Ci\Program Files\MySQL) Write configuration file (Ci\Program Files\MySQL) Restart service	Execute Cancel
Configure the MySQL Server 5.1 server instance. Processing configuration Processing configuration Processing configuration file (Ci\Program Files\MySQL) Restart service Apply security settings	Execute Cancel
SQL Server Instance Configuration Wizard MySQL Server Instance Configuration Configure the MySQL Server 5.1 server instance. Processing configuration Processing configuration file (Ci\Program Files\MySQL) Write configuration file (Ci\Program Files\MySQL) Restart service Apply security settings Configuration file created. Service restarted successfully.	Execute Cancel

< Back

Cancel

Finish

1

If everything went ok, remember to turn your firewall and anti-virus back on and proceed to TOAD install next step.

If you didn't disable your firewall and changed the password, then encountered certain problems in the last step, you may find this link of help . . .

http://www.liferay.com/web/guest/community/forums/-/message_boards/message/3130292;jsessionid=BF3E00CC4509A2A948B67925 A34EEC02

USING TOAD FOR MYSQL DATABASE

You will want to have a tool for managing your MySQL database. I recommend a version of TOAD. To do this, go to www.toadsoft.com and download and install the free TOAD MySQL version. During the installation process follow these screenshots, noticing any changes in options. You will have to allow execution privileges at points along the way with Vista during parts of the installation. You may have to allow firewall access privileges as well depending on your machines specific security software configuration.

http://www.toadsoft.com/toadmysql/FreewareDownload.htm

Development Quest Software Toad for MySQL Freeware 4.1 Setup	
Welcome to the Toad for MySQL Freeware Installation Wizard	Ê
It is strongly recommended that you exit all Windows programs before running th	is setup program.
Click Cancel to quit the setup program, then close any programs you have runni continue the installation.	ng, Click Next to
WARNING: This program is protected by copyright law and international treaties	ь.
Unauthorized reproduction or distribution of this program, or any portion of it, may civil and criminal penalties, and will be prosecuted to the maximum extent possib	v result in severe Ne under law.
< Back Next >	Cancel

	nt
You must agree with	the license agreement below to proceed.
oftware License	Agreement- Freeware
LEASE READ THIS OWNLOADING, INST CCEPTANCE OF ANI GREEMENT. IF Y O NOT DOWNLOAD, OT SUPERSEDE ANY OFTWARE, INC.	SOFTWARE LICENSE AGREEMENT CAREFULLY. BY TALLING OR USING THE SOFTWARE YOU INDICATE D AGREE TO THE TERMS AND CONDITIONS OF THIS YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, INSTALL OR USE THE SOFTWARE. THIS AGREEMENT DOES Y OTHER WRITTEN AGREEMENT BETWEEN YOU AND QUEST
his agreement () nc., ("Quest") (the "Agreement") is made between Quest Software, and you, the customer ("Licensee"). The terms
	I accept the license agreement
se Installation Wizard®	I do not accept the license agreement
	Reset (Back Next) Cancel
Quest Software Toa	ad for MySQL Freeware 4.1 Setup
Quest Software Toa	ad for MySQL Freeware 4.1 Setup
Quest Software Toa User Information Enter the following in	ad for MySQL Freeware 4.1 Setup
Quest Software Toa User Information Enter the following in	ad for MySQL Freeware 4.1 Setup
Quest Software Toa User Information Enter the following in Fyll Name:	ad for MySQL Freeware 4.1 Setup
Quest Software Toa User Information Enter the following in Fyll Name:	ad for MySQL Freeware 4.1 Setup
Quest Software Toa User Information Enter the following in Full Name: Qrganization:	ad for MySQL Freeware 4.1 Setup
Quest Software Toa User Information Enter the following in Full Name: Organization:	ad for MySQL Freeware 4.1 Setup formation to personalize your installation.
User Information Enter the following in Full Name: Organization: The settings for th share this comput users. Install this a	ad for MySQL Freeware 4.1 Setup formation to personalize your installation.
Quest Software Toa User Information Enter the following in Full Name: Organization The settings for the share this comput users: Install this a	ad for MySQL Freeware 4.1 Setup formation to personalize your installation. Michael McAnaly RocketVirtual.com is application can be installed for the current user or for all users that er. You must have administrator rights to install the settings for all application for: Anyone who uses this computer

Wise Installation Wizard®

Cancel

Next >

< Back

Development Quest Software Toad for MySQL Freeware 4.1 Setup	
Destination Folder Select a folder where the application will be installed.	Ŕ
The Wise Installation Wizard will install the files for Quest Software To Freeware 4.1 in the following folder. To install into a different folder, click the Browse button, and select an You can choose not to install Quest Software Toad for MySQL Freew Cancel to exit the Wise Installation Wizard.	ad for MySQL other folder. are 4.1 by clicking
Destination Folder C:\Program Files\Quest Software\Toad for MySQL Freeware 4.1	Browse
Wise Installation Wizard® Kack Next	Cancel

Add .sql file extension here

negistel the following life extensions with this a	appreador.
Toad File Extensions	Common File Extensions
📝 .tas (Toad Automation Script)	📝 .sql (SQL File)
.tcs (Toad Command Script)	
V. tdr (Toad Data Report File)	
V. ter (Toad E.B. Disease)	Note: Double-clicking any of the selected file types will open
In the fire of the transfer File	the file in this copy of Toad,
V. trp (Toad Schema Report File)	regardiess of other 1 oad installations,
Ism (Toad Query Builder File)	
📝 .xpn (Quest Saved Explain Plan)	

剧 Quest Software Toad for MySQL Freeware 4.1 Setup	
Toad for MySQL Freeware has been successfully installed.	
 Launch Release Notes. Start Toad when installation is complete Click the Finish button to exit this installation. 	
< Back F	inish Cancel

CREATE OPENSIM MYSQL DATABASE

Now let's configure a connection and create the "opensim" database with TOAD.



You will first need to create a connection.

🤣 Toad for MySQL - [Toad fo	Connections				- 0 X
<u>Eile Edit Web Browser</u>	2-51031-9-3	15		th Google	9
No open connections	Name	Connect on startup			
http://www.toadso	Accesso				
Connection Manager					* 4 Þ X
				UEST	ARE*
			This area displays connection properties when you select a connection on the left side.	odeler To	ad for Data
🖄 Connection Manager 🔗 S	Show this dialog on startup	,			
🔘 AutoCommit - (1 iter					1 task

Unless you have changed it, User is "root" and Password is "root". Save password and connect on startup.

😓 Toad for MySQL - [Toad fr	O Connections	Create New Conn	ection	×	×	
<u>File Edit Web Browser</u>	Sa - 1 - 3 - 1 - 2 - 2 - 4 - 4	Group:				th Google
No open connection	Name	NySQL				
http://www.toadso			700	1-1		
Connection Manager		Connection type:	liur Instant			* 4 Þ *
24 Se Se Se Se 🕸		Host:	locarnost			÷
		User:	root			UEST OFTWARE®
		Password:	•••••			OFTWARE
		Database:				
		Port:	3306	-	avs connection properties when nnection on the left side.	odeler Toad for Data
					create a new connection	
		100 5 100 100	In the set of the set			
		Compress				
		Name:				
		root@localhost				
		Save password	Connect on startum			
		in a set possion	sauger made of and help			
% Connection Manager 💣 S	Show this dialog on startup	Conn	ect Save C	ancel		
G AutoCommit + Done						

Now from the menu bar, select Create > database.

Toad for MySQL - [Browser root@localhost]			κ.
File Edit Create Yiew Iools Window		G Search Google	Q.
Image: Second secon	Constraints of the second	✓ 4 No object details to show	×
Connection Manager Connection Manager AutoCommit Done		1 item, 0 selected 🌾 root@locali	ost

Call the name of the database "opensim".



You can select the new database in the object or database explorer, and notice no tables are present. That will change later when we restart opensim.exe and the tables are created.

👶 Toad for MySQL - [Browser root@localhost]		
Ele Edit Greate View Tools Window H	jelp	G Search Google
😪 🎠 root@localhost 💌	. <mark>6 . 8 . 9 8 7 8 8 8 8 8</mark>	
3· 8-8 %. 3-13-2	· 3 · .	
Connection Manager 🛛 🗸 🕈 🗙	Toad for MySQL Launch Page root@localhost	- 4 Þ ×
<u>%</u> % 3% 8% 8% 8%	apensim 🗶 🗶 💌	
☐ № MySQL root@localhost	information_schema v v v v v v v v v v v v v v v v v v v	
	test uia *	
		No object details to show
A Connection Manager		



TOAD is now available for managing your database. Exit for now.

CONFIGURING THE OPENSIM.INI FILE

Now let's reconfigure the opensim.ini file to use the MySQL database we have setup in the previous steps. Create a backup file of this opensim.ini before we begin modifying it in case we need to restart fresh again. The steps that follow are a little tricky.

Please note that because OpenSim is rapidly evolving the parameters within the opensim.ini file are changing as well, depending on which version of OpenSim you are using. The settings may be different or located in different places. Although reading comment notes in the file may help. The ";" (semicolon) is used to denote the beginning of a commented line.

Since we are using stand alone mode, we will configure the prim (primitive objects like squares and spheres) and region storage areas first. Find the ##STORAGE area. Notice that the default is sqlite set for storage_plugin and storage_connection_string. Comment out the sqlite .dll file and connection string URI by putting a ";" in the front of each line, making it a comment. Now "uncomment" the other MySQL storage_plugin and storage_connection_string lines by taking out the ";".

You will modify following the now need the parameters to on storage_connection_string Database=, UserID=, and Password= parameters to the values you setup in the earlier steps while installing MySQL and creating the database. These must be correct or an error will occur and OpenSim will be unable to connect to the MySQL database. The information below is only an example and may look different in your opensim.ini file. Be careful not to delete any other semicolons or quotes within the lines.

; ## STORAGE ; ## ; *** Prim Storage - only leave one storage_plugin uncommented *** ; --- Null stores nothing - effectively disabling persistence: ;storage_plugin = "OpenSim.Data.Null.dll"

:##

; --- To use sqlite as region storage: ;storage_plugin = "OpenSim.Data.SQLite.dll" ;storage_connection_string="URI=file:OpenSim.db,version=3";

; --- To use MySQL storage, supply your own connectionstring (this is only an example): ; note that the supplied account needs create privilegies if you want it to auto-create needed tables. storage_plugin="OpenSim.Data.MySQL.dll" storage_connection_string="Data Source=localhost;Database=**opensim**;User ID=**root**;Password=**root**;"; Now in the same fashion in the opensim.ini file find the "[StandAlone]" section and modify the asset_plugin, asset_source, inventory_plugin, inventory_source, userDatabase_plugin, and user_source. These lines control the database connections for storing Assets, Inventory and User Logins in your virtual world.

Comment out each of the SQLite.dll and un-comment the MySQL.dll's. Do the same for the source connection strings and replace Database=, UserID=, and Password= parameters with the correct values as you did above. Save the opensim.ini file and execute the opensim.exe.

If everything is good it will startup and create tables in the MySQL database. You can view these tables later in TOAD. It's interesting to see the default data values in the database.

[StandAlone] accounts_authenticate = true welcome_message = "Welcome to Rocket Virtual"

; Asset database provider ;asset_plugin = "OpenSim.Data.SQLite.dll" asset_plugin = "OpenSim.Data.MySQL.dll" ; for mysql ; asset_plugin = "OpenSim.Data.NHibernate.dll" ; for nhibernate

; the Asset DB source. This only works for sqlite, mysql, and nhibernate for now

; Asset Source SQLite example

; asset_source = "URI=file:Asset.db,version=3"

; Asset Source NHibernate example (DIALECT; DRIVER; CONNECTSTRING)

; asset_source = "SQLiteDialect;SqliteClientDriver;URI=file:Asset.db,version=3"

; Asset Source MySQL example

asset_source = "Data Source=localhost;Database=opensim;UserID=root;Password=root;"

; Inventory database provider ; inventory_plugin = "OpenSim.Data.SQLite.dll" inventory_plugin = "OpenSim.Data.MySQL.dll" ; inventory_plugin = "OpenSim.Data.NHibernate.dll" ; for nhibernate

; Inventory Source NHibernate example (DIALECT;DRIVER;CONNECTSTRING) ; inventory_source = "SQLiteDialect;SqliteClientDriver;URI=file:Inventory.db,version=3" ; Inventory Source MySQL example

inventory_source = "Data Source=localhost;Database=opensim;UserID=root;Password=root;"

; User Data Database provider

; Multiple providers can be specified by separating them with commas (whitespace is unimportant)

; If multiple providers are specified then if a profile is requested, each is queried until one ; provides a valid profile, or until all providers have been queried.

; Unfortunately the order of querying is currently undefined (it may not be the order in which ; providers are specified here). This needs to be fixed ; ;userDatabase_plugin = "OpenSim.Data.SQLite.dll" userDatabase_plugin = "OpenSim.Data.MySQL.dll" ; userDatabase_plugin = "OpenSim.Data.NHibernate.dll" ; for nhibernate ; User Source NHibernate Example (DIALECT;DRIVER;CONNECTSTRING) ; user_source = "SQLiteDialect;SqliteClientDriver;URI=file:User.db,version=3" ; User Source MySQL example

user_source = "Data Source=localhost;Database=opensim;UserID=root;Password=root;"

If there is an error and the opensim.exe aborts (ends), then something is usually wrong with the opensim.ini configuration file. Double check all your changes and retry. If you still can't find the error(s), delete and rename a new opensim.ini from the backup file I asked you to create at the beginning this section and retry.

If you were successful, congratulations! You have a MySQL standalone version of OpenSim server and you are ready to move on to the next article. Good job!

Copyright © 2009 by Michael McAnally, RocketVirtual.com