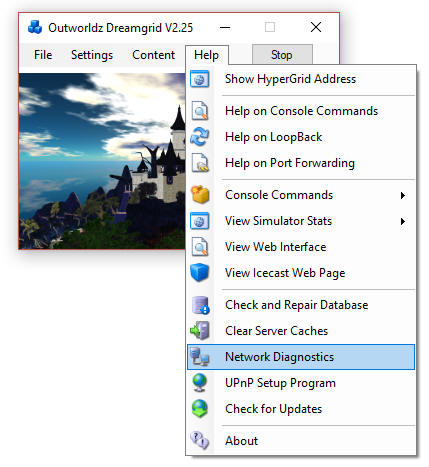
# Troubleshooting Manually

Run Help-Network Diagnostics and see what it says. Or troubleshoot it manually, step-by-step. The diagnostics essentially do what is described below, but sometimes you just need to know more.

Diagnostics are run by going to Help->Diagnostics



## How to Get on The Hypergrid

Accessing the Hypergrid can be done with compatible uPnP router with loopback. If your router does not support loopback, you can still join the Hypergrid by installing a special pointer in /etc/hosts or a special Windows Device Driver. Additional information about routers is available online at the Opensimulator site at <http://opensimulator.org/wiki/NAT_Loopback_Routers>.

## Step-By-Step

Try these in order:

1.  http://127.0.0.1:8002 <- gives a web page.  Verifies that robust is running on the machines Network Card loopback adapter.  
  
    If not, start Robust.

**Go to the next step only when this test passes.**

2. Find your LAN IP with the dos command 'ipconfig' or look at the console screen in DreamGrid.

Use a web browser to go to your LAN IP, such as http://192.168.0.10:8002

You should get a Web Page when robust is running.  If not, double check your IP with the DOS command 'ipconfig'.  It will be listed as an IPV4 address.

**Go to the next step only when this test passes.**

 3. Use a cellphone or some other PC connected to your LAN for this next one.

Navigate using a web browser on that OTHER device to <http://192.168.0.10:8002> or whatever you system reported. You should see the web page.   
  
If this fails, it is likely to be an antivirus program blocking a port such as the Windows Defender firewall. Turn them ALL off.  Look for Malwarebytes or other installations that can block the port.  I have troubleshot one machine that had three anti-viruses. You can turn them back on once you get it working, one at a time, and see when Opensim quits. Then add the necessary exclusions to that anti-virus program.

**Go to the next step only when this test passes.**

4. If UPNP is enabled in the Setup-Settings->Network ports, go to step 5. If not, you MUST port forward port 8002 and 8004-8100 or more in the router. Go read the manual on Port Forwards.

5. All the above tests are LAN-based.  So now try the router:  
  
    <http://canyouseeme.org> on port 8002  
  
This test must pass.   If it does not the problem can be another firewall is blocking you.  Usually this is when people realize they have their router plugged into another router that needs to port forward, too. Or that they are running 3 different Antiviruses. Or that their ISP is terrible and is blocking you. Call them on the phone and ask if you are double NAT’ed,

Go read the manual on Port Forwards again.

Look up your router manual. Go to http://portforward.com and look it up.  
  
If this still fails, it is still likely to be your anti-virus. The grid was running back in Step 4. AV can detect if it’s a local IP or a remote IP, so go shut them all down.

It can also be the Windows Defender windows firewall. Turn them all off.  Look again for Avast and Malwarebytes or other installations that can block the LAN port.   You have already proven it is not DreamGrid, so there is no point in re-installing the grid or restarting it.  
  
**Do not go to the next step until the above is working**.  There is no point until the above works.    
  
If you still can’t get it working, it is likely your ISP is blocking the port. Call them.  
  
6.  If you added Loopback, go to the network settings and click the properties of the Microsoft Driver for the Loopback Adapter.   You should have renamed it 'Loopback".  If you did, DreamGrid will update this IP when it changes.  In the IPV4 settings, it should show the same address Canyouseeme.org shows as the address.  The gateway is 255.255.255.0   No other settings are needed.   Close those settings, and right click the adapter and enable it.   
  
7.  Navigate to http://(The Ip address reported by CanyouSeeme.org):8002   
  
You should see the web page. If not, recheck the Loopback settings.   
  
**Go to the next step only when this test passes.**  
  
8. Right click the Loopback Network Adapter and disable it, if you have installed it.

Navigate to http://(The Ip address reported by CanyouSeeme.org):8002.   It may or may not work.  If not, you need to re-enable the adapter.

If it gives a web page, **congratulations, your router supports loopback.** Leave it disabled.  
  
9. Go to DreamGrid Settings-> Hypergrid DNS name.  Add your desired name, such as in ‘somename.outworldz.net’.  The allowed characters are a-z, 0-9, and a dash '-'.  Press Save.

`0. Go to a DOS prompt.  Type 'nslookup<enter>'.  Type ‘somename.outworldz.net', where name is the name you chose.  It should report the IP with the exact same number as Canyouseeme.org.

11. Add the ‘somename.outworldz.net:8002’ to the viewer’s grid selection, and log in. Both the robust and welcome region should show you logging in. If you only see Robust, then you forgot to port forward or unblock Ports 8004 upwards. You should unlock 10 to 100 ports for expansion, as any extras are harmless.

## Ports are still blocked?

Reset your router by cycling the router power. This is often the ONLY WAY to clear out old UPNP entries.

UPnP settings are usually removed when the program is started to keep your system safe. DreamGrid uses Universal Plug and Play (uPnP) and several diagnostics to configure compatible routers automatically. uPnP may be disabled or fail. If your router does not support uPnP, you must manually open ports in your router and Port Forward them to your PC.

## Try This SIMPLE BEGINNING

Go to Setup-> Settings, click the DNS button at top left, and enter '127.0.0.1'. Now start the grid.

You should also be able to see the Systems admin web page with a viewer by clicking the above address with the :8002.

Open up your viewer. Now add the grid <http://127.0.0.1:8002> to the viewer. You should be able to log in on the Server from the Server.

You should see the Welcome region spit out a lot of text as you log in. If this fails, it is not your network, router, or loopback as you are on localhost, aka. 127.0.0.1. You will need to read the error message and troubleshoot from there.

## Password Reset

You may have forgotten your Opensim password. You can reset your password with the command 'reset user password' in the Robust screen.

## Troubleshooting the Network.

Any IP from outside must be able to connect to port 8002, and from 8004 upwards. A test at http://canyouseeme.org should work on port 8002 when Robust is running. It should also work on port 8004 which is the default home or welcome region at the very beginning.

If not, you must Port Forward. See the manual on Port Forwards.   
  
If it does not work after port forward, it is very likely to be an antivirus firewall. DreamGrid automatically opens the Windows firewall.

### Anti Virus

Programs such as MalwareBytes, Norton, Avast, and others are designed to block Ports. Try disabling them entirely to get Canyouseeme.org to work on port 8002. You have a firewall in your router so should be perfectly safe. Once you get the system running, enable your AV one at a time. If it quits, add exclusions to the ports you used:

8001 – Used by PC for icons, signs and status, may be closed in the router  
8002 - Robust HTTP port “The Grid”. This is where avatars connect. Must be open  
8003 – **Should not normally be port forwarded but can be if you want to run a special Region server.**  
8004 – from 8004 upwards it uses one port per region.

### AV Exclusions

You need to add exclusions to Real Time Scanners for Outworldzfiles\Opensim\bin\. Opensim creates millions of files and thousands of DLL’s.

## Flaky Teleports

Multiple factors can cause flaky things, some of which may not be under your control, such as at the far-end system.

One way to prove your issue is not Opensim or your PC network card is to boot up after changing the Hypergrid DNS name to the IP of the server, or just leave it blank, so it will choose the LAN IP by default. You should be login to that IP address in your viewer, and teleports on your grid should take just moments.

Try uploading a dozen textures. Do they all load without aborting? Now ask some on the Hypergrid to do so. If there is a difference, you have issues with the router and loopback, as the traffic from you and the outside both go to the region, but the region cannot reliably reach some of the ports.

Do you have more than one Network adapter with paths to the Internet, such as both wireless and hardwired running? Opensim can listen to only one adapter, but traffic can come back on either.

Loopback is often flaky in routers. For example, the routers from FIOS and Frontier have tiny 1K buffers for UDP leaving to flaky teleports. Have you tried adding the Microsoft Loopback driver?

These are the URLS it checks to see if it is working that can be run on the server.

When the DNS name is blank, such as first boot, I need a LAN IP to broadcast to the viewer. If a LAN IP is unreachable from the Internet, I announce you cannot Hypergrid.

DG tries to always make a working system, no matter what. There are multiple ways to connect to a LAN, by the WAN IP with or without a DNS name, and as a LAN IP, and localhost. In a complex network environment, there can be multiple ways and more than one IP in use to connect to the outside. Both Wifi and Ethernet adapters, for example. Opensim can only listen to one IP, thus return traffic on the wrong IP can be lost. This is flaky, at best, and is a major cause of teleport problems.

Opensim needs to listen and broadcast only on the "proper" IP. But which is it? I do this by connecting to Googles 8.8.8.8 DNS server, then asking Windows what the Endpoint address is. Typically, this is a number in the 192.168 range, or the 10. \* range, which are typical LAN IP's. But it can be anything. If I cannot reach it, I use localhost. DG will thus always come up in a working configuration on first boot.

## I cannot teleport to two different grids on the same network.

(1) on the server: add the public IP address as a secondary IP address on the server's network interface with the 255.255.255.255 mask (web service or whatever you want on the server should listen on this IP address too); all modern operating systems will permit you to do this (or a loopback interface with the public IP address assigned to it can be used instead of adding a secondary IP to the primary interface).  
  
(2) on the LAN hosts: add a host route for the public IP address, for example, for Windows hosts use the following command: route -p add <WANIP> mask 255.255.255.255 <LANIP>  
  
And fill in the LAN and WAN IP.

## The URL I use to Test port forwards:

<https://outworldz.com/cgi/probetest.plx?Port=9000>

Answer should be **yes**

## Test Private Loopback:

<http://192.168.2.135:8001> (change this to your LAN IP of the server)

Answer should be **Test Completed**

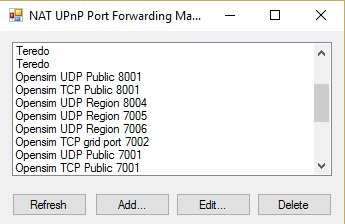
## Test Public Loopback

<http://YOURNAME.Outworldz.net:8002>

Gives back a web page

## UPnP Not Working?

Do you have Plug and Play (uPnP) issues? Your Help menu has a useful tool to look at uPnP in your router:



Free UPnP (Universal Plug and Play) Tool for Windows

You can add, delete, and modify the settings without a password, assuming you have uPnP enabled. This is included in Dreamworld and DreamGrid in the Help menu.

You can still manually forward ports in your Router. Instructions for your specific router can be located at <http://www.portforward.com>

## Firewall

Windows will prompt you to allow Opensim to open ports when it first runs. If you say no, you will not be able to log in.

If you are using an Anti-virus with a firewall, such as Zone Alarm, AVG Internet Suite, or anything else, running Start.exe my trigger the 3rd party firewall popup warnings. Opensim.exe needs to be allowed internet access, and Start.exe should be allowed to make changes. This code is digitally signed by me, Fred Beckhusen of Outworldz.com, and is open source and available for inspection on <https://www.github.com/Outworldz>.

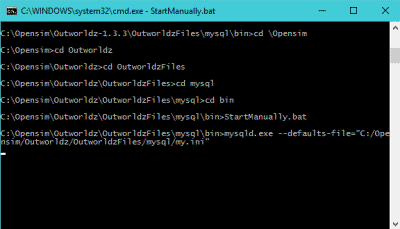
## Updater:

If it acts wonky or is missing files, look in Help->Check for Updates. It will repair any missing files.

## Help with Opensim Crashes:

Your MySQL database may be crashed. This is a way to start MYSQL manually.

Navigate to the Outworldzfiles\MySQL\bin folder. Press and hold the Shift Key and right click the BLANK area next to the files. Or navigate there, as I did below, by typing in commands. Then run "StartManually.bat"



Any error message it prints may be helpful. If the above DOS window closes, a MySQL LOG file will be saved in OutworldzFiles\MySQL\data as a \*.err file. That will give you a clue as to what to do.

## My database still did not start.

Try running Outworldzfiles\MySQL\bin\Repair\_ISAM.bat. Start MySQL and wait until the Task manager in Windows shows that Mysqld.exe is at 0% CPU use.

Still not working? Delete the two 10 MB files, ib\_logfile0, and ib\_logfile1 in MySQL\Data and repeat the Repair\_ISAM.bat and run "StartManually.bat" again and wait for the CPU to drop to 0%

## Starting Over with A Blank Database

You can wipe ALL data out and recreate it from OAR and IAR files. This WILL LOSE ALL DATA.

If you MUST wipe out the database and start over, there are two methods.

The easiest way is to unzip the provided blank database and replace (do not mix) the contents of MySQL\Data with it.

Method 2 is to delete the ib\_logfile0, ib\_logfile1 and ibdata1 file in OutworldzFiles\MySQL\data (leave the folders). Then delete just the contents of data\opensim\\*. Leave the folder "MySQL\data\MySQL" alone.

Either method will make it start over at the very beginning and you need to re-enter your Avatar name and password and reload everything.

## Ports

Here is more detail about ports and the way the interact with the outside world such as [www.canyouseeme.org](file:///G:\Dropbox\Dreamworld\Manuals\www.canyouseeme.org) and to my diagnostics tests.

Port 8001:

8001 is a TCP/HTTP port that is used for setting icons to the state of what Opensim is doing, and some other simple functions such as automatic updating teleport signs and the Partners prim. It is unique to Dreamworld.

Port 8002:

Opensim has a web server that web browsers understand, using the same protocol (TCP/HTTP) that tools such as [www.canyouseeme.org](file:///G:\Dropbox\Dreamworld\Manuals\www.canyouseeme.org) support. Put simply, Robust listens to port 8002 and answers to http:// requests on 8002. Port 8002 is much like port 80, the default port for web pages. You can actually set Dreamworld's 8002 port to 80, and it will work. You can then drop the need to type :8002 at the end of your hyperlink. <http://hg.Osgrid.org> does this. There would be no need to type the :80, as literally http:// means "add a :80 to the end of it". So only 8002 works with web-based probe tools. If you do switch it to 80, then you must change the Apache port 80 to some other port. Only one program can listen to a port.

If Opensim is not running and your ports are open, it is as if you tried to connect to [www.google.com's](file:///G:\Dropbox\Dreamworld\Manuals\www.google.com's) web server, but their web server is down. Nothing will happen, though your packets can get through the Google firewall because it is still open to traffic and is steering it to a dead server. You will get no answer. Similarly, if Opensim is not running, there is no web server to answer the request.

Port 8003:

This port is listened to by Robust so regions can chat to the server database for login, presence, and other services so people can teleport from one region to another. In Dreamgrid, just like OsGrid or any other remotely attachable grid, the regions can run on any machine anywhere in the world.

If you opened port 8003 to anyone on the web, you expose the internal database protocol to the web. Anyone with the right knowledge could attach a region to your sim. If you run a DreamGrid and host region outside your LAN, it is recommended you use firewall rules to only allow access from known IP addresses running approved regions.

Port 8004 and upwards:

The region ports (8004-upward) run both TCP and UDP. UDP is used for the viewer. UDP cuts the load on the server dramatically as there is no need to automatically always ACK every packet. As one example, no one cares if an audio stream gets briefly interrupted as you cannot hear it anyway, and it is too late to use it if it comes later in a retry. It just gets discarded.

## Running Manually

You can run Opensimulator without Dreamgrid. Dreamgrid sets up Opensim to run. Once it has run once, you can run Opensim without it.

When you click [Start], Dreamgrid looks for a MySQL listening on a specific Port. If it does not see one, it starts MySQL as a separate process. When you exit, it shuts MySQL down gracefully with \*MySQL-admin.-u root shutdown\*. Dreamgrid will detect Robust running on Port 8002 and just use it. If it does not see it, Dreamgrid starts up a Robust.

For running manually, MySQL can be used in two ways.

1) MySQL\bin\ StartManually.bat runs MySQL manually. Once the Command Prompt opens, this window can be closed manually, as MySQL will run by itself in another thread.

This is also useful for diagnostics and manual backups and running a Dreamgrid in folder A on a database in Folder B or C or D:\SomeWhereElse. But there is a significant issue: you need to shut down MySQL gracefully! This really needs to be done correctly to reboot or log out of Windows. The command is \*MySQL\bin\mysqladmin.-u root shutdown\*. There is a batch file in MySQL\bin named \*StopMySql.bat\* that will do this for you.

## Run as A Service

You can install MySQL as a Windows service. There is a batch file \*InstallAsAService.bat\* in MySQL\bin to set this up. MySQL will then start with Windows.

This batch file must be run once, as an Administrator. You type "CMD" in the search box, and then right click the Command Prompt and select "Run as Administrator". Use that DOS box to run \*InstallAsAService.bat\*. Then type in 'Services.msc” and use it to start MySQL.

You should also set the service to restart so MySQL restarts on any crash. Windows knows about services and will send signals to MySQL to shut itself off gracefully. The only danger is that power fails and you corrupt the database. I have set this MySQL to always flush data to the disk without saving it in RAM, which helps. If you are serious about running a grid, then a UPS is necessary.

You can start Robust manually, too. Outworldzfiles\RunRobust.bat assumes MySQL is running.

Go.bat starts a command prompt with an instance of Opensim in it (an instance is a set of sims). The batch file switches to the bin folder and launches Opensim with the settings it needs for the INI files and the Log file.

You can start it all with a batch file like this:

@remarkable batch file to start Dreamgrid manually.

cd MySQL\bin  
start startmanually.bat  
cd ..\..\opensim  
call runrobust.bat  
call go Welcome  
call go AnotherRegion

## How to Compile DreamGrid

The vast majority of this software is just Opensimulator and MySQL with edits in the INI files to allow auto-configuration by XML and INI editing.

The source code package "How\_to\_Compile.txt" explains how it is compiled, and what changes are made. You need Visual Studio 2015 or higher, and preferably 2019.