

Ultra VNC Repeater Guide

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1. Downloading the repeater

The current stable version of the repeater is: 1.0.4

The current test version of the repeater is: 1.2.2.1

The current stable linux version of the repeater is: 0.08



Figure 1 - UVNC Homepage

1. Let's start at the Ultra VNC website. For this step by step I am using Firefox 1.7 but you can use IE or any other browser. Go to:

<http://www.ultravnc.com>

2. On the right had side of the page you will see the Repeater listed
3. Left click on

Ultr@VNC Repeater 1.0.4

Figure 2 - Repeater Link

- This will take you to the sourceforge¹ download mirror site. On there is a list of servers where the zip file, containing the repeater, can be downloaded from. Pick one that is closest to you.

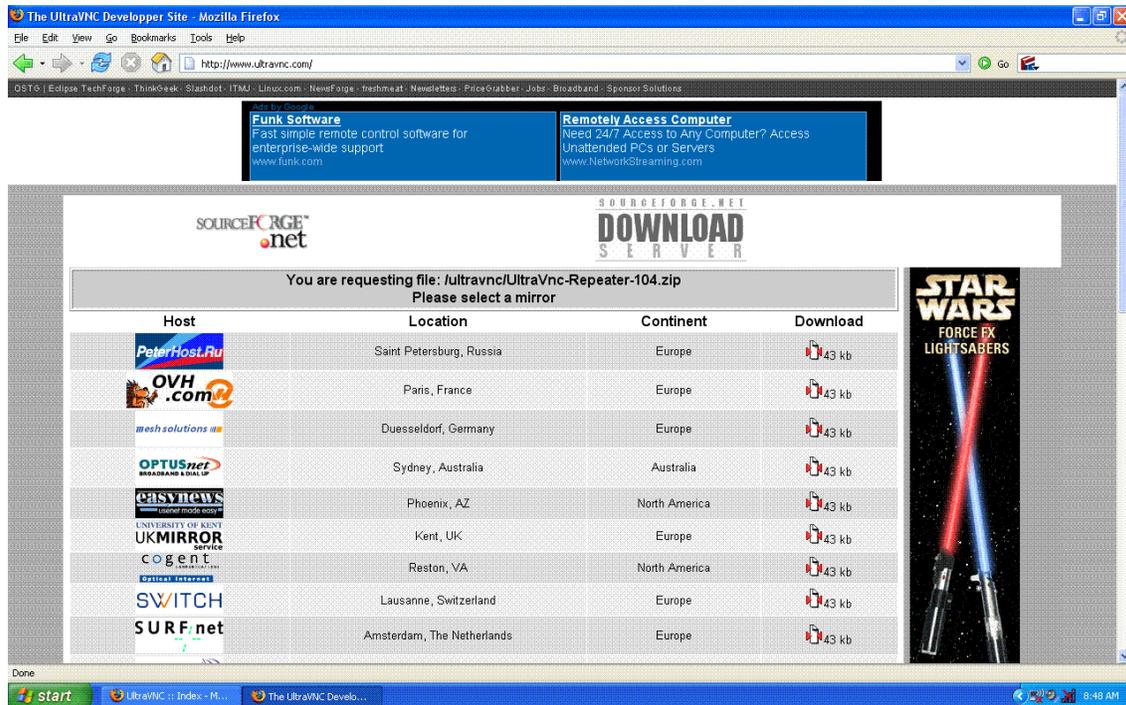


Figure 3 - Sourceforge Download Mirrors

- Left click on the Download icon:



Figure 4 - Download Icon

- Choose a location to download the zip file to. I chose the Desktop. See Figure 5 - Save to Disk Window.

¹ www.sourceforge.net

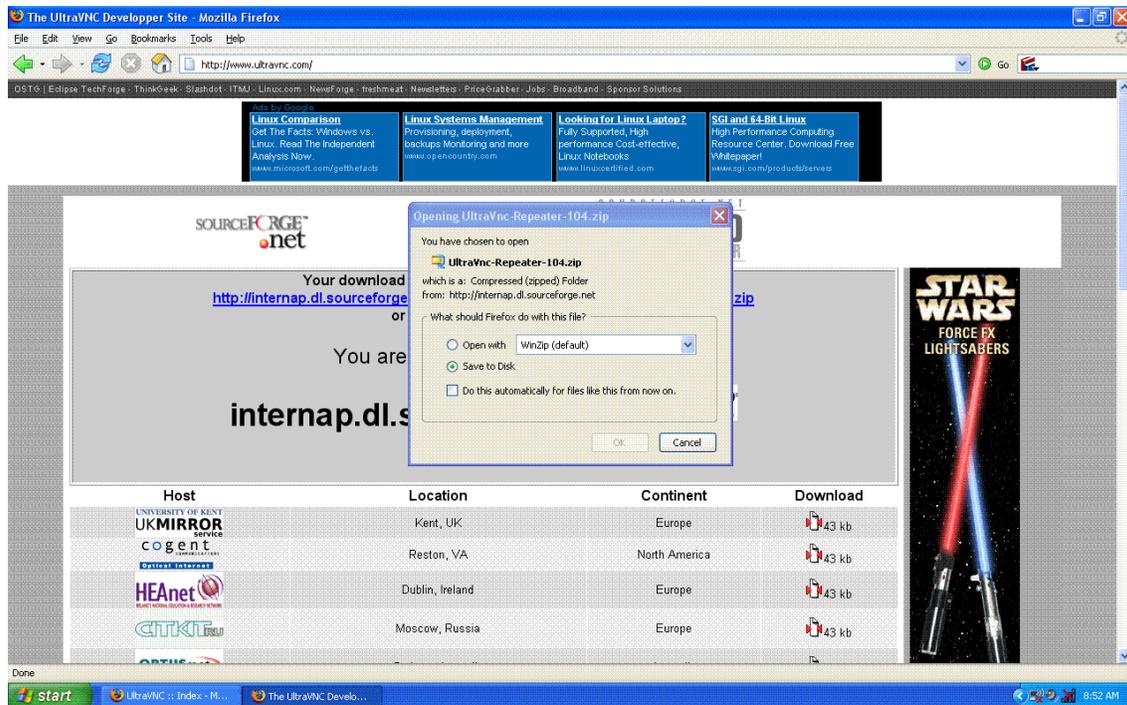


Figure 5 - Save to Disk Window

7. Once the download is complete you will need to extract the contents. On the desktop you will find the downloaded zip file.
8. Inside the archive there are two files:
 - a. Readme.txt
 - b. Repeater.exe
9. There are a number of ways the zip file can be extracted. The following example will use WinZip but there are a number of alternatives:
 - a. 7-Zip² – Supports Windows 98/ME/NT/2000/XP/2k3
 - b. Expand - Windows Decompression (Built In)

² <http://www.7-zip.org/>

2. Extracting the Zip File

1. Double click the *UltraVNC-Repeater-104.zip* file

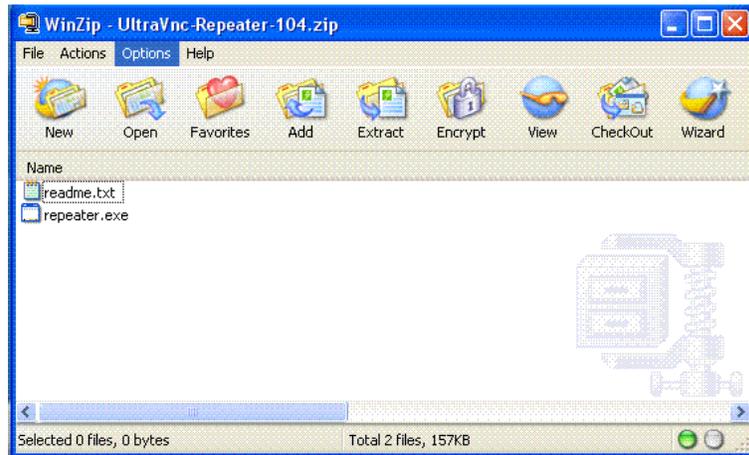


Figure 6 - UltraVNC-Repeater-104.zip file contents in WinZip

2. Go to Actions->Extract menu.
3. This will bring up a new dialog. Select the *Desktop* as the extract location and make sure you have *All Files* selected.
4. Click Extract

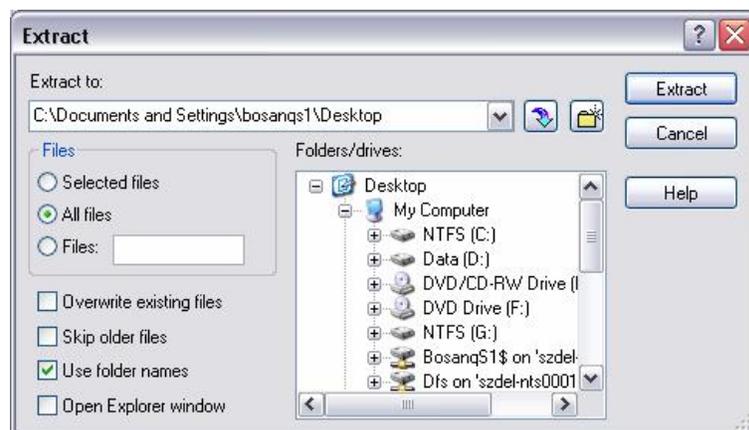


Figure 7 - Extract Window

5. The files will now be available on your desktop



Figure 8 - Extracted files on desktop with renamed readme.txt

6. Rename the *readme.txt* to **Repeater104Readme.txt**
 - a. This means that you can copy the repeater readme file to the UltraVNC folder without having to overwrite the UltraVNC Readme file.
7. If you have UltraVNC Installed go to Step 8 otherwise go to step 9.
8. Highlight the two files and move them to the UltraVNC directory
 - a. Default Installation directory is: *c:\Program Files\UltraVNC* but this may differ depending on your installation.
 - b. Go to step 11.

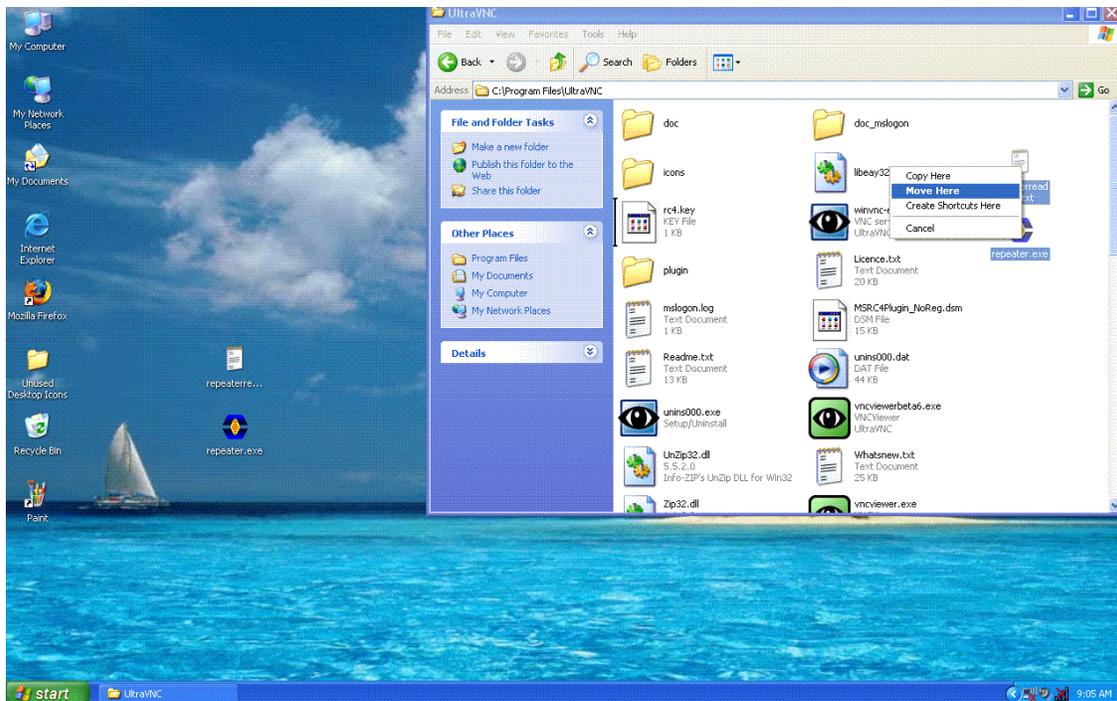


Figure 9 - Move Repeater files to UltraVNC Directory

9. If you are running a repeater on a PC without UltraVNC installed you will need to create a new directory where you would like to run the repeater from.
 - a. E.g. *c:\Program Files\UltraVNCRepeater*
10. Highlight the two files and move them to the directory you have just created.
11. Once that is done you can delete the *repeater.1.0.4.zip* file if you wish or archive it.
12. Finally, run the repeater by double clicking on it

3. Running/Configuring the Repeater

1. If you are running windows XP with SP2 the following will dialog box will appear. Otherwise, if you are using a different firewall package it will prompt you with a similar dialog box to windows firewall.
2. Make Sure to allow the Repeater to run and open TCP port **5901** for Mode I and Port **5500** for Mode II, if necessary.
 - a. The difference between the modes is explained below in Section 3.1 Step 7. Only open the required ports.
3. These ports can be changed to suite your needs through the settings configuration found in Section 3.1 Step 10. For example, you can use ports **443** and **2105**

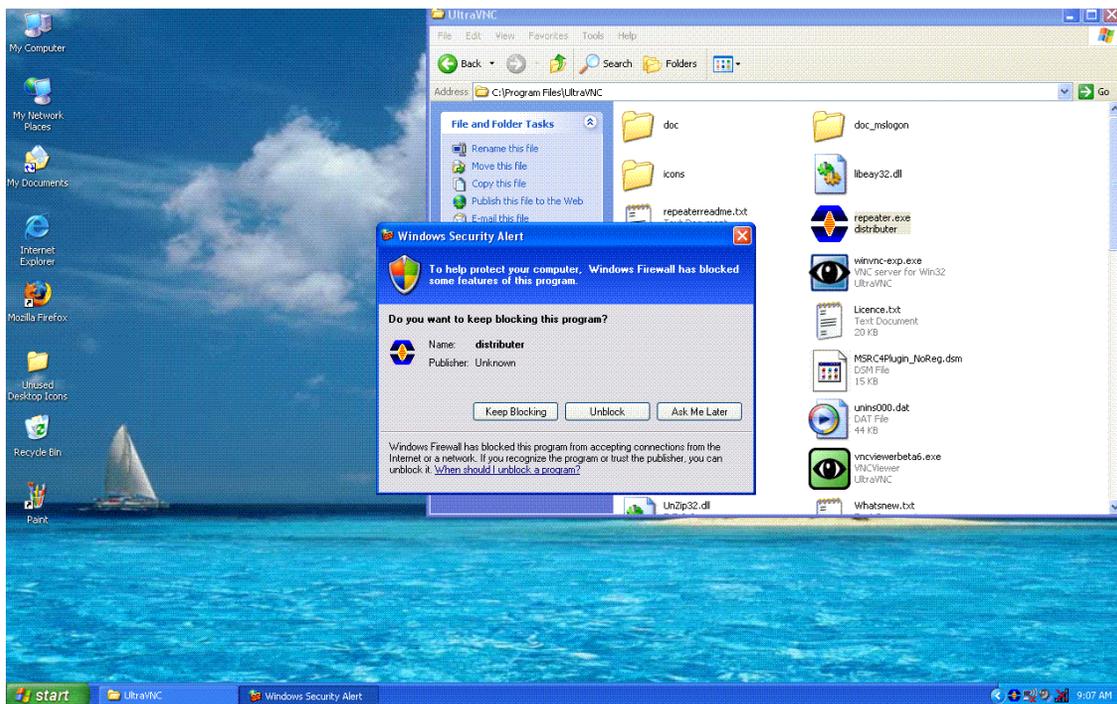


Figure 10 - Windows firewall access permission screen

4. For Windows Firewall users choose



Figure 11 - Unblock button

5. If everything is correct you should notice the repeater Icon on your system tray
 - a. NOTE: Your icons down here will vary depending on what you have loaded



Figure 12 - Repeater Icon in system tray

6. Right click on your repeater icon on the system tray

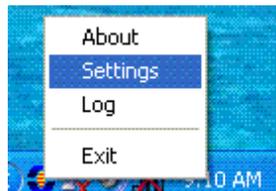


Figure 13 - Right Click context menu

7. On the right click menu you will notice two options:
 - i. settings and,
 - ii. log
8. These are very important when working with a repeater. Be sure to note that you right click on the repeater icon on the system tray to access them

3.1 Settings

1. Right click on the repeater icon in the system tray
2. Select **Settings**
3. The follow dialog box will appear (minus the Mode I and Mode II (SC) diagram text. These were added for clarification purposes).

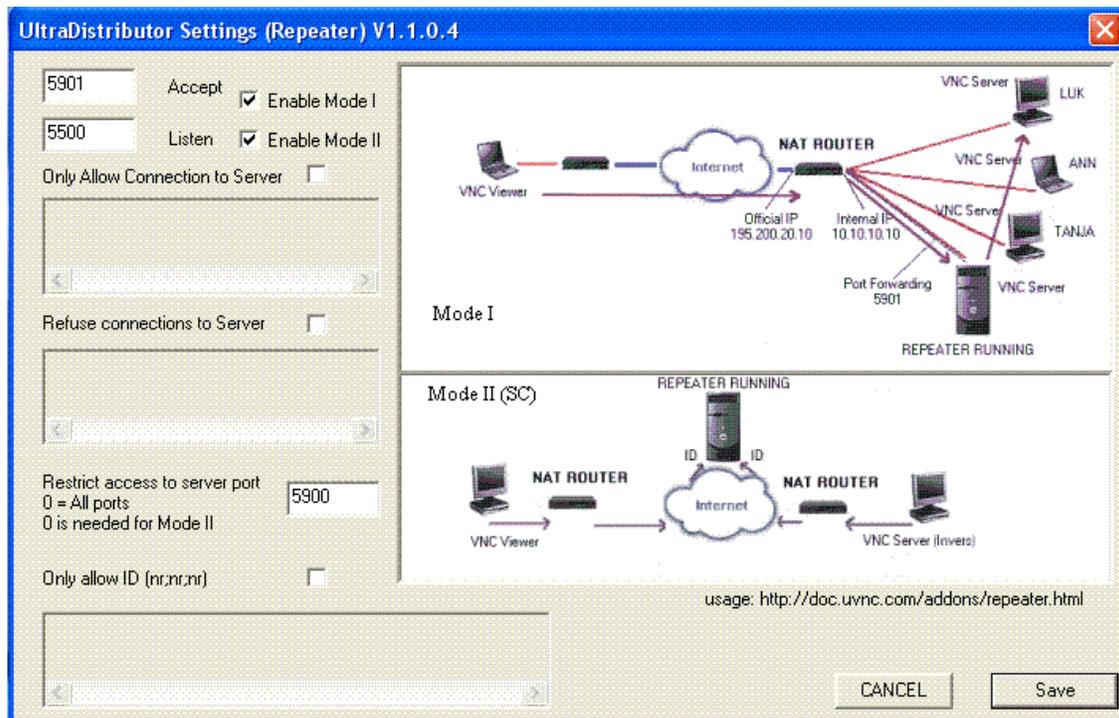


Figure 14 - Repeater Settings Window

4. As you can see there are several sections to the repeater settings page
5. On the top left hand side are the port configurations

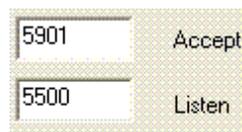


Figure 15 - Port Configuration

- Accept 5901 (this is the Proxy port for the standard UltraVNC viewer and servers)
 - Listen 5500 (is the listening port of SC and possibly other servers)
6. These ports can be changed if the default ones do not work.
- a. Note: If using mode II under *restrict access to server port* make sure that you enter 0
7. The repeater can operate in the following modes:
- i. Mode I and II, or
 - ii. Mode I, or
 - iii. Mode II
- b. I personally prefer only mode II it gives you the best of both configurations
 - c. I would suggest disabling any mode that you don't need.

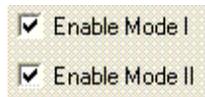


Figure 16 - Mode Configuration

8. ID are used to help secure connection requests
- a. Keep in mind the SC is a special VNC server but it still is a server acting in reverse mode
9. You are at the step that you have to decided what kind of repeater you wish to run and make sure that it is enabled
- a. For the following example I am going to use mode II only so disable Mode 1 (See Figure 17 - Single Mode II Configuration).

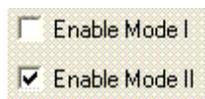


Figure 17 - Single Mode II Configuration

10. The **Only Allow Connections to Server** if checked

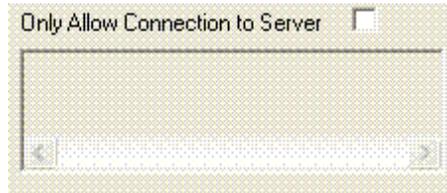


Figure 18 - Only Allow Connection to Server Option

11. Only allows IP Addresses added to the box below the option. Each address must be separated by a ;

- a. For example, IP Addresses **192.168.2.1** and **192.168.2.2**, would be entered as:

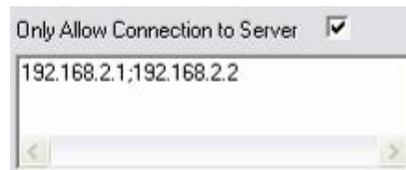


Figure 19 - Configured Only Allow Connections to Server dialog

12. The **Only Allow ID** if Checked

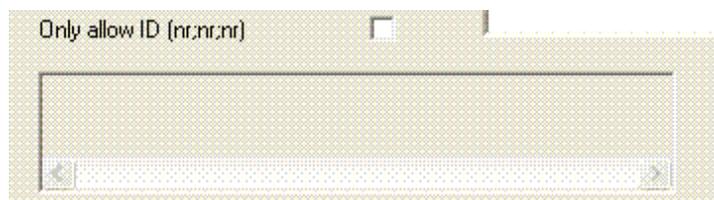


Figure 20 - Only Allow ID Option

13. Only allows ID's added to the box below the option. Each ID must be separated by a ;

- a. For Example, ID's **1234;1235;1236**, would be entered as:



Figure 21 - Configured Only Allow ID dialog

14. The **Refuse Connections to Server** if checked

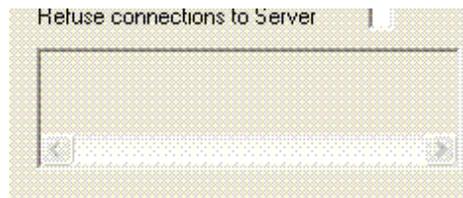


Figure 22 - Refuse Connections to Server Option

15. Refuses connections from IP Addresses added to the box below the option. Each address must be separated by a ;

- a. For example, IP Addresses **192.168.2.1** and **192.168.2.2**, would be entered as:

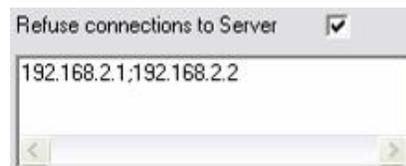


Figure 23 - Configured Refuse connections to Server Dialog

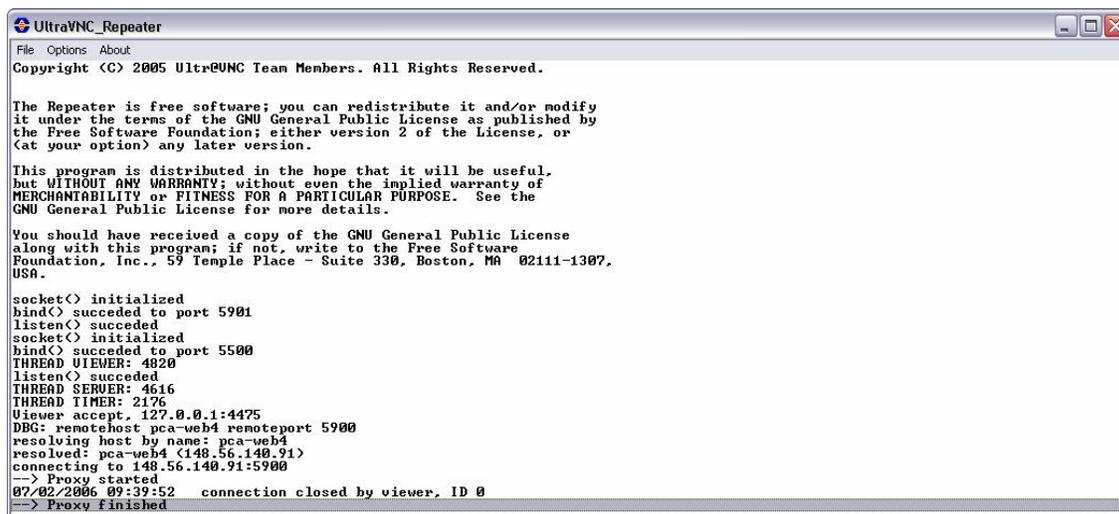
16. Note: BE SURE TO SAVE YOUR SETTINGS!!!!

17. The window will disappear. Any changes made to the settings only become active when the repeater is restarted.

3.2 Logs

The following section aims to provide a brief overview of the Repeater logs and how you can use them for troubleshooting as well as port usage.

1. Right click on the repeater icon in the system tray
2. Select Log
3. The following window will appear



```

UltraVNC_Repeater
File Options About
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it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
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along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307,
USA.

socket() initialized
bind() succeeded to port 5901
listen() succeeded
socket() initialized
bind() succeeded to port 5500
THREAD VIEWER: 4820
listen() succeeded
THREAD SERVER: 4616
THREAD TIMER: 2176
Viewer accept, 127.0.0.1:4475
DBG: remothost pca-web4 remoteport 5900
resolving host by name: pca-web4
resolved: pca-web4 (148.56.140.91)
connecting to 148.56.140.91:5900
--> Proxy started
07/02/2006 09:39:52 connection closed by viewer, ID 0
--> Proxy finished
  
```

Figure 24 -Repeater Log Viewer

4. This will show you when server and viewers are present before they connect. You can see that the ports the repeater use are bound to the TCP IP stack
5. Now This log is the best troubleshooting log I have found for the repeater
 - a. If you have a viewer using the repeater it will show up here
 - b. If you have a server using the repeater it will show up here
6. If you don't see anything in the log this means you have a problem with either:
 - a. If you don't see the binding information, or there is an error with this, then you have a problem with the repeater configuration
 - i. One simple check is to restart the repeater and see if the error persists. If it is a binding error then chances are there is another program using that port. Try changing the port (See Section 3.1) and restarting the repeater.

- b. If there are no repeater errors then there is a problem either routing to your repeater or the viewer configuration.
- To check your routing is working issue the following command from inside your network via a command prompt:

telnet *ipaddress port*



Figure 25 - Telnet Commands [Top = Mode I, Bottom = Mode II]

- If you are running in **Mode I** you will see the following (See Figure 26 - Telnet 127.0.0.1 5901 results):



Figure 26 - Telnet 127.0.0.1 5901 results

- If you are running in **Mode II** you will connect but there will be no feedback. Look at the repeater log and you will see a **server accepted** message (See Figure 27 - Telnet 127.0.0.1 5500 results).

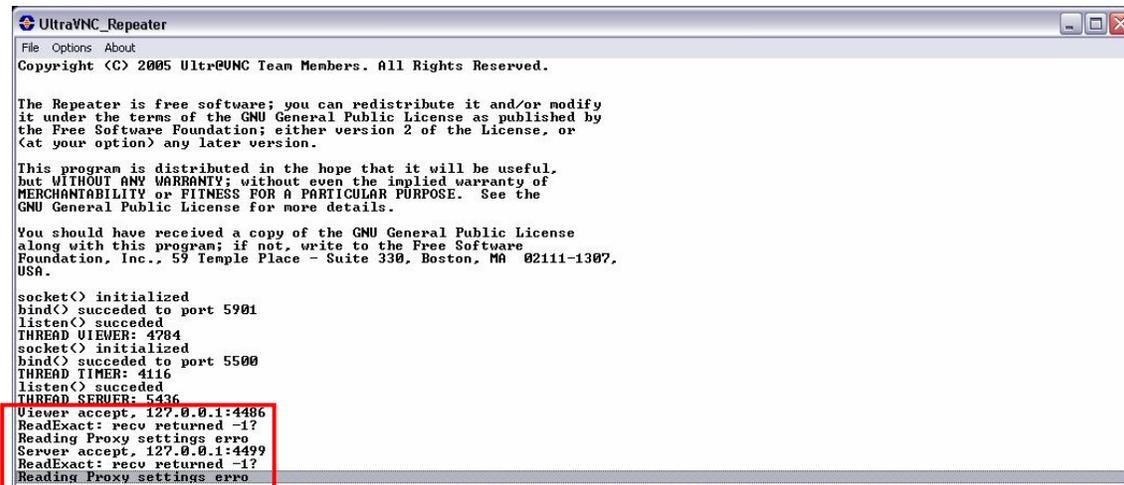


Figure 27 - Telnet 127.0.0.1 5500 results

18. There are a number of additional options available in the repeater build 1.2.2.1.
19. Click on the options menu and you will see two additional menu items (See Figure 28 - Repeater Log Options)
 - a. Show Proxy Connection (Mode I Connections)
 - b. Show Repeater Connections (Mode II Connections)

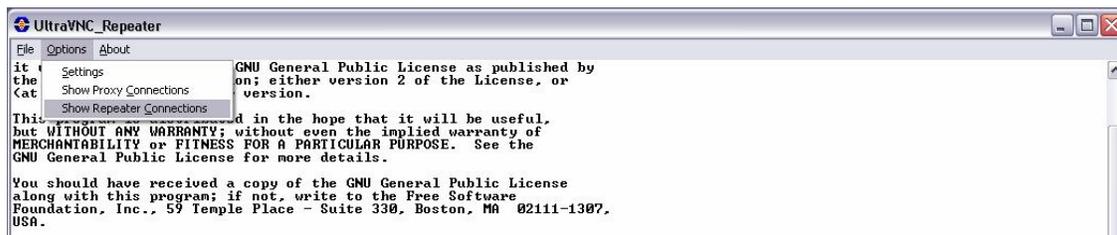
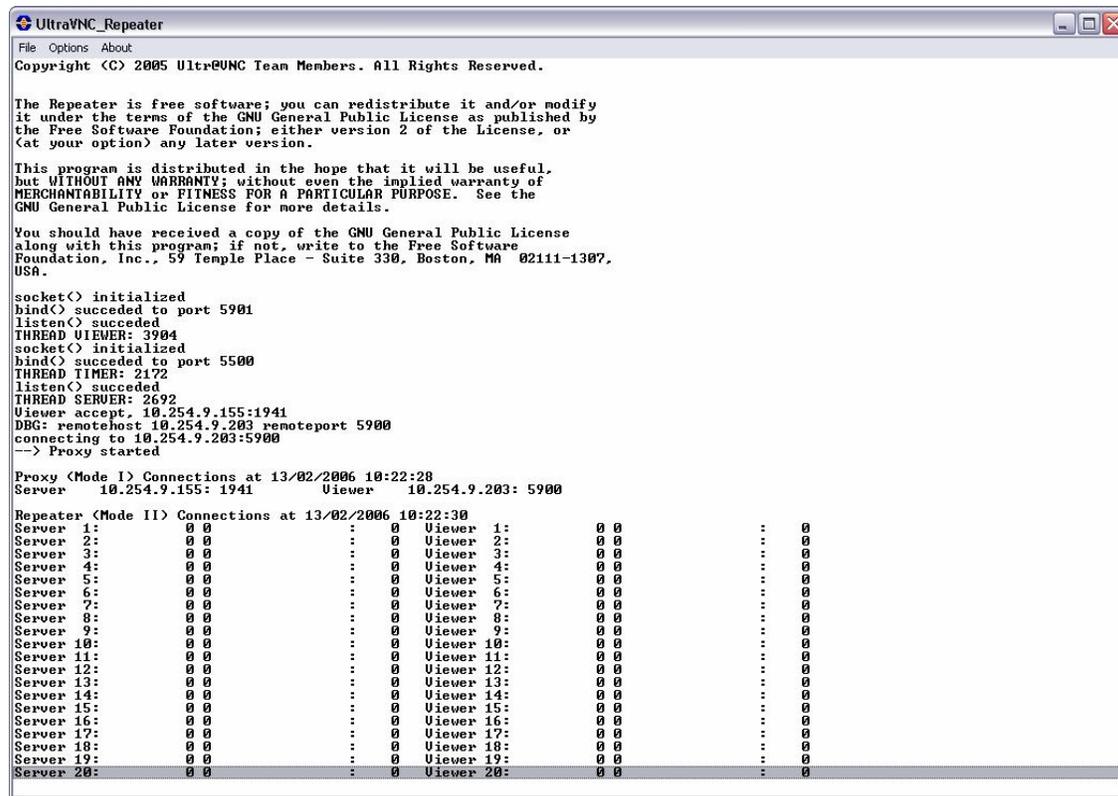


Figure 28 - Repeater Log Options

20. For the screenshot below (Figure 29 - Show Proxy Connections (Mode I)) I have selected both *Show Proxy Connection* and *Show Repeater Connection* with a Mode I session active.



```

UltraVNC_Repeater
File Options About
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(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307,
USA.

socket() initialized
bind() succeeded to port 5901
listen() succeeded
THREAD VIEWER: 3904
socket() initialized
bind() succeeded to port 5500
THREAD TIMER: 2172
listen() succeeded
THREAD SERVER: 2692
Viewer accept, 10.254.9.155:1941
DBG: remotehost 10.254.9.203 remoteport 5900
connecting to 10.254.9.203:5900
--> Proxy started

Proxy (Mode I) Connections at 13/02/2006 10:22:28
Server 10.254.9.155: 1941 Viewer 10.254.9.203: 5900

Repeater (Mode II) Connections at 13/02/2006 10:22:30
Server 1: 0 0 : 0 Viewer 1: 0 0 : 0
Server 2: 0 0 : 0 Viewer 2: 0 0 : 0
Server 3: 0 0 : 0 Viewer 3: 0 0 : 0
Server 4: 0 0 : 0 Viewer 4: 0 0 : 0
Server 5: 0 0 : 0 Viewer 5: 0 0 : 0
Server 6: 0 0 : 0 Viewer 6: 0 0 : 0
Server 7: 0 0 : 0 Viewer 7: 0 0 : 0
Server 8: 0 0 : 0 Viewer 8: 0 0 : 0
Server 9: 0 0 : 0 Viewer 9: 0 0 : 0
Server 10: 0 0 : 0 Viewer 10: 0 0 : 0
Server 11: 0 0 : 0 Viewer 11: 0 0 : 0
Server 12: 0 0 : 0 Viewer 12: 0 0 : 0
Server 13: 0 0 : 0 Viewer 13: 0 0 : 0
Server 14: 0 0 : 0 Viewer 14: 0 0 : 0
Server 15: 0 0 : 0 Viewer 15: 0 0 : 0
Server 16: 0 0 : 0 Viewer 16: 0 0 : 0
Server 17: 0 0 : 0 Viewer 17: 0 0 : 0
Server 18: 0 0 : 0 Viewer 18: 0 0 : 0
Server 19: 0 0 : 0 Viewer 19: 0 0 : 0
Server 20: 0 0 : 0 Viewer 20: 0 0 : 0

```

Figure 29 - Show Proxy Connections (Mode I)

21. For the screenshot below (Figure 30 - Show Repeater Connection (Mode II)) I have selected both *Show Proxy Connection* and *Show Repeater Connection* with a Mode II session active.

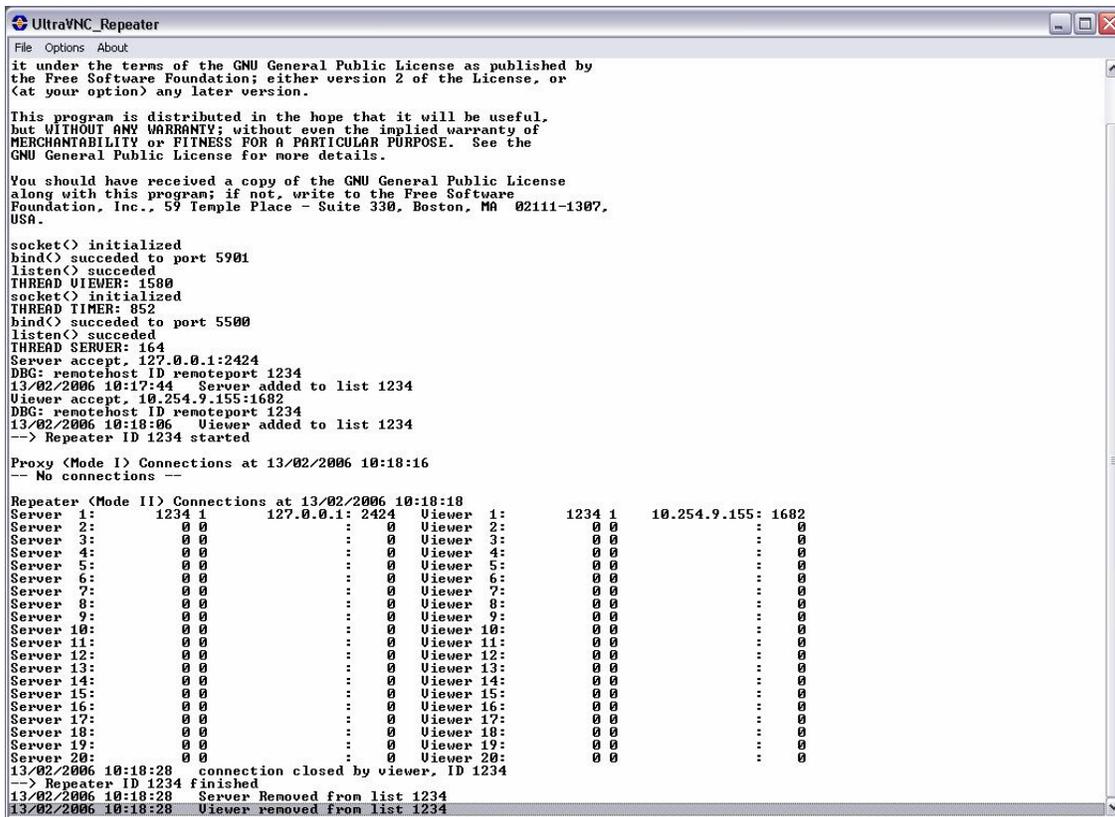


Figure 30 - Show Repeater Connection (Mode II)

4. Configuring the Viewer / SC to use the Repeater

1. To simplify things I will use a Class C non-routable IP Address scheme (found in most home networks)

192.168.0.1 - Router that connects to the outside world (netgear, Linksys cable DSL router)

192.168.0.2 - My repeater server (note: WAN IP TCP ports 5500 and 5901 forwarded)

192.168.0.3 - Computer A (UltraVNC version 1.0.1)

192.168.0.4 - Computer B (SC connection)

2. Now before you begin configuring VNC for use on an Internet Connection please start in a Local Area Network (LAN) environment first as this will give you a feel for how VNC works. Also, it is easier to configure. Once you have the LAN mastered then you can move to the Internet Wide Area Network (WAN).
3. If you want to use the repeater make sure it is running. At this point I am assuming that the repeater is installed and configured to run.
4. You can create an icon for it and place it on your desktop so that it only runs when you want it to. Another option is to copy a shortcut to the repeater into your start menu startup folder.
5. The repeater can be run as a service on any Windows NT/XP/2003. To configure this see Section 5.

4.1 **Configuring Single Click using the repeater**

1. Lets Focus on Single Click (SC)
2. Dwalf wrote and awesome Step by Step
3. <http://forum.UltraVNC.net/viewtopic.php?t=4606>
4. The Helpdesk.txt will need to have the following added
5. For example: A section of the helpdesk.txt

[TITLE]

Remote Support

[HOST]

Connection 1

-id 1234 -connect {your WAN or dynamic host address}:5500

[HOST]

Connection 2

-id 1235 -connect {your WAN or dynamic host address}:5500

[HOST]

Connection 3

-id 1236 -connect {your WAN or dynamic host address}:5500

6. Now that is a basic SC setup
7. The following settings for SC

-plugin = used for the encryption MSRC4 (note you can only use the noreg version only)

-noregistry = keeps the vnc server settings out of the pc's registry

-no tray icon = icon removes the icon from the system tray

-read only = makes the pc only in watch mode

-username = force username authentication

-password = force password authentication

8. I know that -plugin, -noregistry work. I have not tested the other ones.
9. Note: the -plugin and -nonregistry switches are not need if you are using the SSL version

4.2 Configuring UltraVNC Viewer

1. Start UltraVNC Viewer

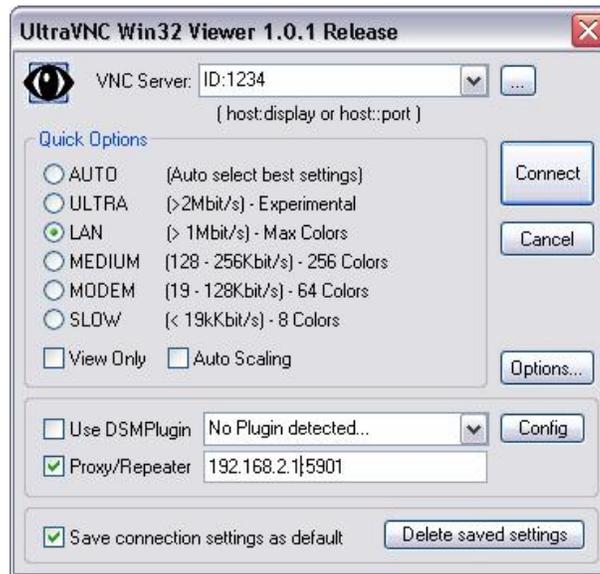


Figure 31 - UltraVNC Viewer Connection Info

2. Notice that the Proxy/Repeater is checked. The screenshot shows that we are connecting to a repeater hosted at **192.168.0.1** on port **5901** (The repeater is running in Mode 1 for this example) using an ID of **1234**.
3. Repeater settings (See Figure 32 - Example Repeater Settings)

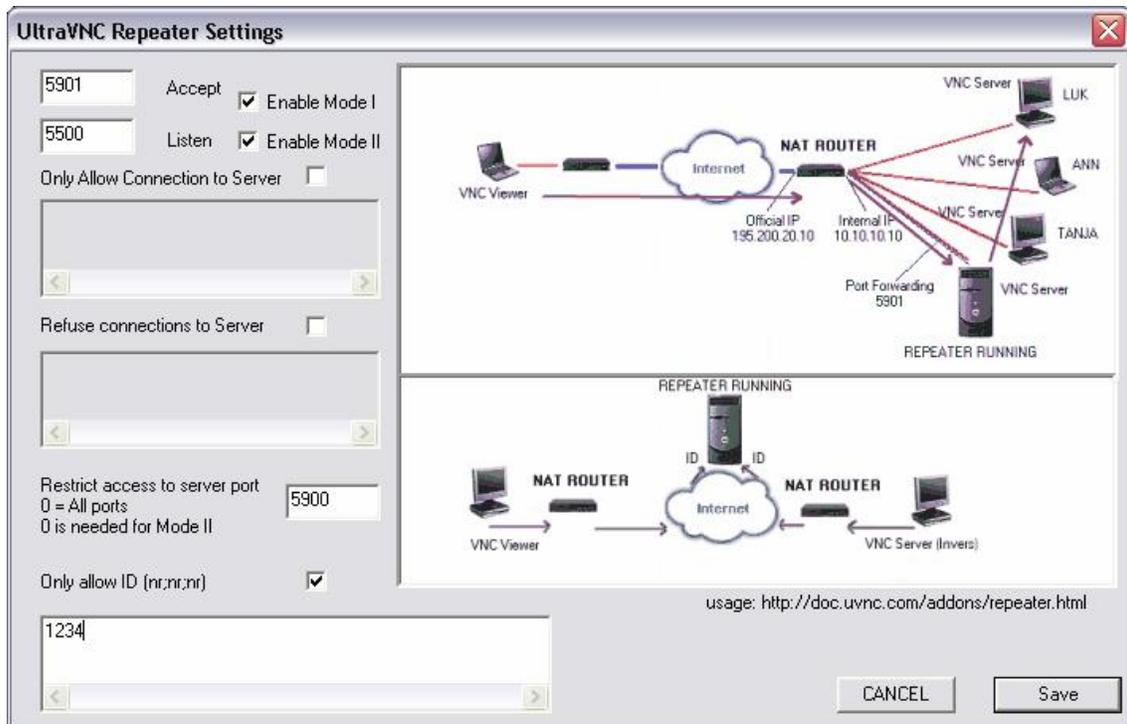


Figure 32 - Example Repeater Settings

4. The VNC Sever can be accessed using and ID switch, e.g. **ID:1234**
5. Command line command for **vncviewer.exe**

c:\program files\UltraVNC\vncviewer ID:1234 -proxy {your WAN IP or dynamic hosts address of proxy}:{proxy listening port}

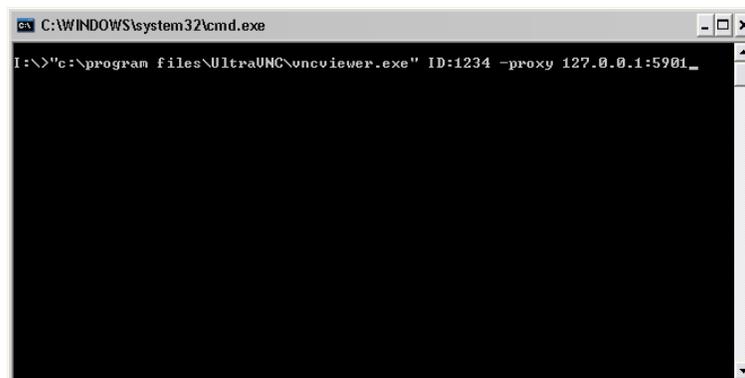
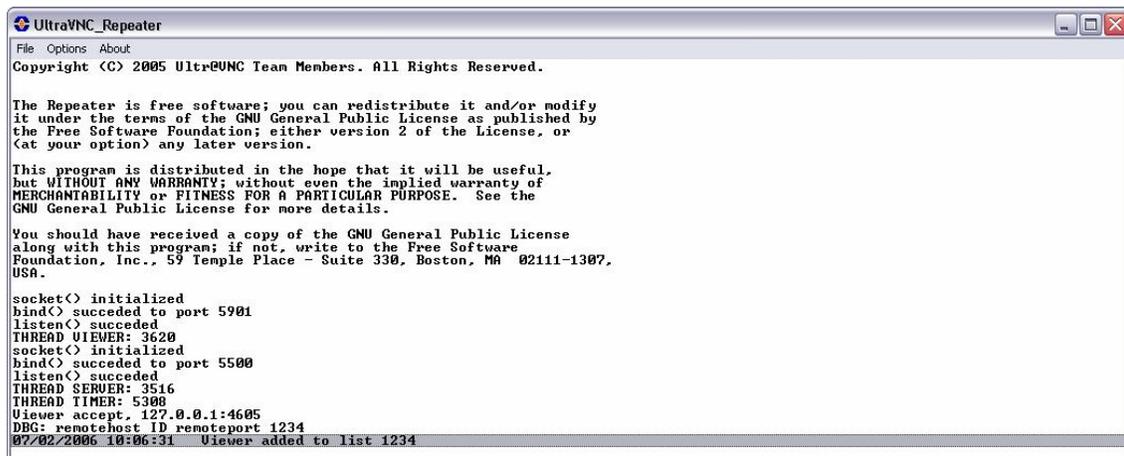


Figure 33 - Command Line Example

- Note: If you are running this command from older systems you may have problems due to the space between ***“program files”***. I always run the command as follows:

“c:\program files\UltraVNC\vncviewer” ID:1234 -proxy {your WAN IP or dynamic hosts address of proxy}:{proxy listening port}

- If it works you will see the following in the repeater logs:

The image shows a screenshot of the 'UltraVNC_Repeater' application window. The window title is 'UltraVNC_Repeater' and it has a menu bar with 'File', 'Options', and 'About'. The main content area displays the following text:

```
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it under the terms of the GNU General Public License as published by
the Free Software Foundation; either version 2 of the License, or
(at your option) any later version.

This program is distributed in the hope that it will be useful,
but WITHOUT ANY WARRANTY; without even the implied warranty of
MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
GNU General Public License for more details.

You should have received a copy of the GNU General Public License
along with this program; if not, write to the Free Software
Foundation, Inc., 59 Temple Place - Suite 330, Boston, MA 02111-1307,
USA.

socket() initialized
bind() succeeded to port 5901
listen() succeeded
THREAD VIEWER: 3620
socket() initialized
bind() succeeded to port 5500
listen() succeeded
THREAD SERVER: 3516
THREAD TIMER: 5308
Viewer accept, 127.0.0.1:4605
DBG: remoteshost ID remotesport 1234
07/02/2006 10:06:31 Viewer added to list 1234
```

Figure 34 - Repeater Log: Viewer added to list

- You can add the encryption in once you have it working. It is always better to start with a basic configuration then add the add-on in.

5. Configuring the service

1. Now for those running windows 2000 or XP you can install the repeater as a service
(Using default Paths) for example
2. You can install the repeater from the command prompt
3. Start->Run-> "cmd"

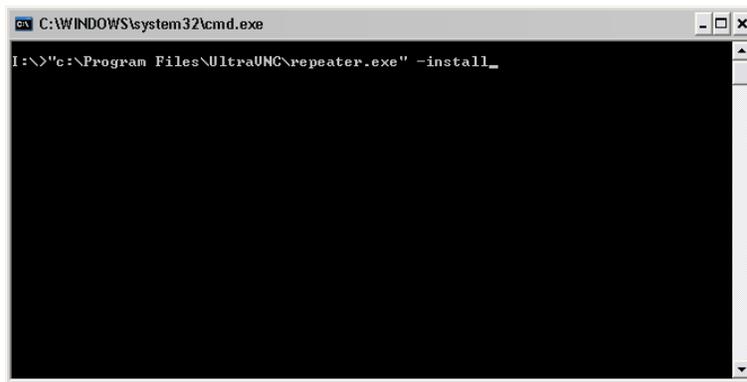


Figure 35 - Install Repeater as a service from the command prompt

4. This installs it a service named **repeater_service** and you can control it via the windows services or by running the command from the command prompt.
5. Start->Run->"cmd"



Figure 36 - Opening the Service Manager from the command prompt

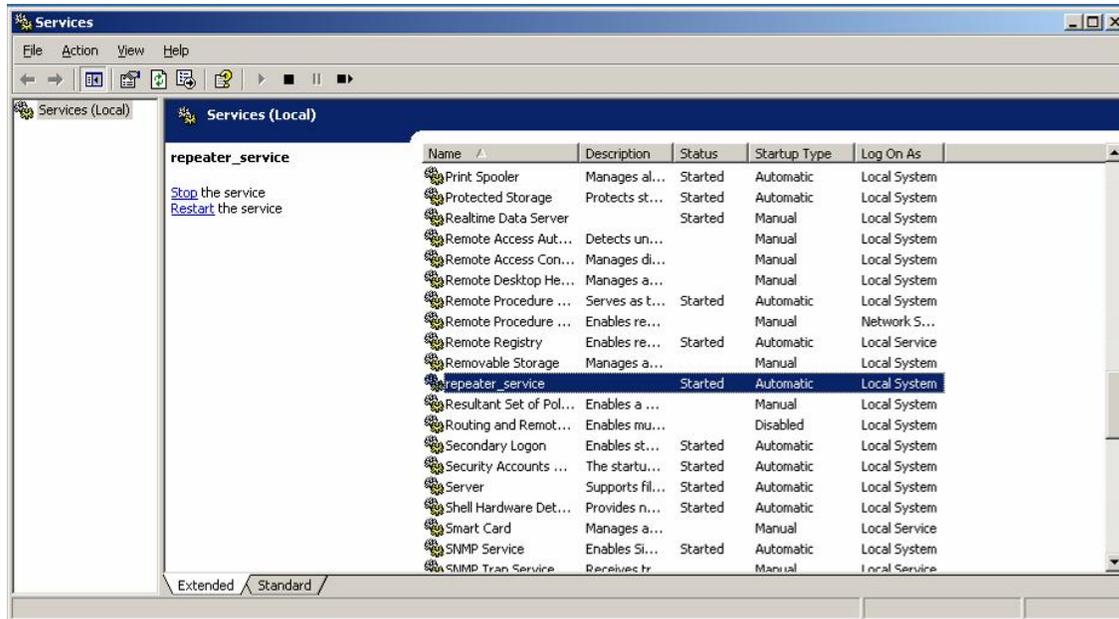


Figure 37 - Service Window

6. You can set it to automatic start or start when you wish. If the repeater is set to manual you can start or stop the repeater either from the services window or from a command prompt using the following command:

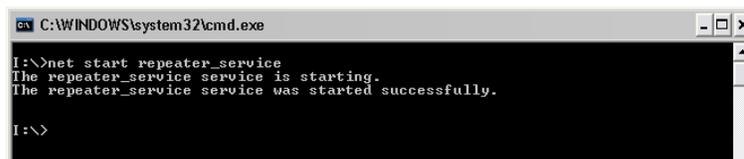


Figure 38 - Starting the service from a command prompt

- a. Note: The service can be stopped by replacing the *start* in the *net start* command with *stop*. E.g. *net stop repeater_service*
7. If you would like to uninstall the repeater go to your windows services and disable it close the system tray icon.
8. You can uninstall the repeater from the command prompt
9. Start->Run-> "cmd"

"c:\Program Files\UltraVNC\repeater.exe" -uninstall

10. I have also created a document that has UltraVNC settings and their location in the registry. This can be found at the following location:

<http://forum.UltraVNC.net/viewtopic.php?t=4684>

6. Linux Repeater

The Linux version of the repeater can be downloaded from: <http://koti.mbnet.fi/jtko/uvncrepeater/>. The following tests were run in Suse Linux 9.3 running on a VMWare system. These instructions should cover the majority of linux distributions.

6.1 Downloading / Compiling

1. Download the *Repeater008.zip* file to the desktop.
2. If downloading on a windows PC then go to Step 3, otherwise go to Step 5.
3. Follow Section 2 Steps 1 – 5 for instructions on extracting the zip file to the desktop.
4. Copy the extracted files to your Linux box. I would suggest putting them in a folder of their own.
5. On your Linux box go to the directory where the extracted files have been stored.
6. Type *make*
 - a. For *make* to work you need to have gcc installed and configured.
7. The repeater will be built and linked. A correct *make* will look like Figure 39: Repeater make Output.



```
simon@linux:~/modifiedrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help
simon@linux:~/Modifiedrepeater009> make
g++ -Wall -c repeater.cpp
g++ -Wall -o repeater repeater.o repeaterproc.o openbsd_stringfuncs.o iniparser.o
simon@linux:~/Modifiedrepeater009> █
```

Figure 39: Repeater make Output

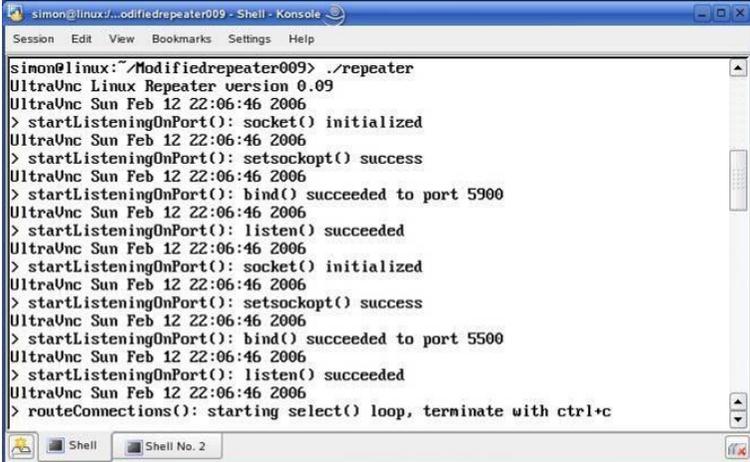
8. The build should be successful. If not you will need to fix the errors and then do Step 6 again.
9. Go to the next section.

6.2 Running

1. Open a console
2. Go to the location where the built repeater files are located
 - a. If you have stored the files in a subfolder within your home directory an example command would be:

cd Modifiedrepeater009

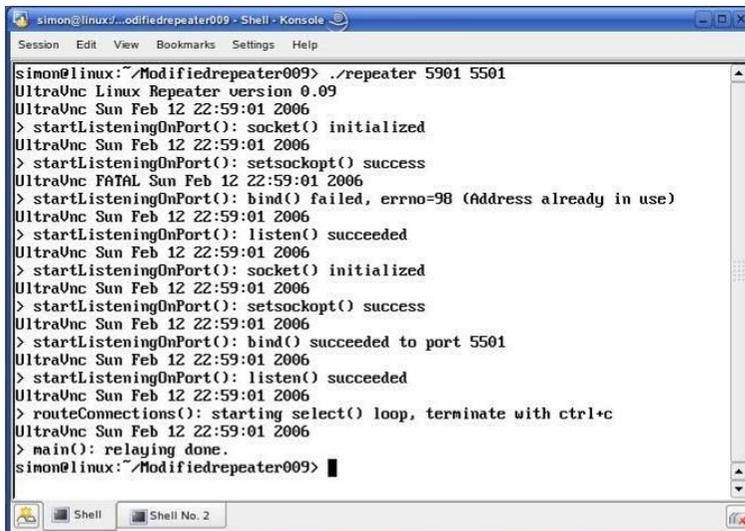
- b. Where *Modifiedrepeater009* is the folder name
 - c. Note: everything is case sensitive
3. Type *./repeater*
 - a. The repeater will run the repeater with default settings
 - i. *Viewer listen port (Mode I): 5900,*
 - ii. *Viewer Server Port (Mode II): 5500*
 - b. A successful execution of the repeater will look like Figure 40: Linux Repeater startup.



```
simon@linux:~/Modifiedrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help
simon@linux:~/Modifiedrepeater009> ./repeater
UltraVnc Linux Repeater version 0.09
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): bind() succeeded to port 5900
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): bind() succeeded to port 5500
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:06:46 2006
> routeConnections(): starting select() loop, terminate with ctrl+c
```

Figure 40: Linux Repeater startup

- c. If the bind isn't successful then the information written to the console will look like Figure 41: Linux Repeater Bind Error.



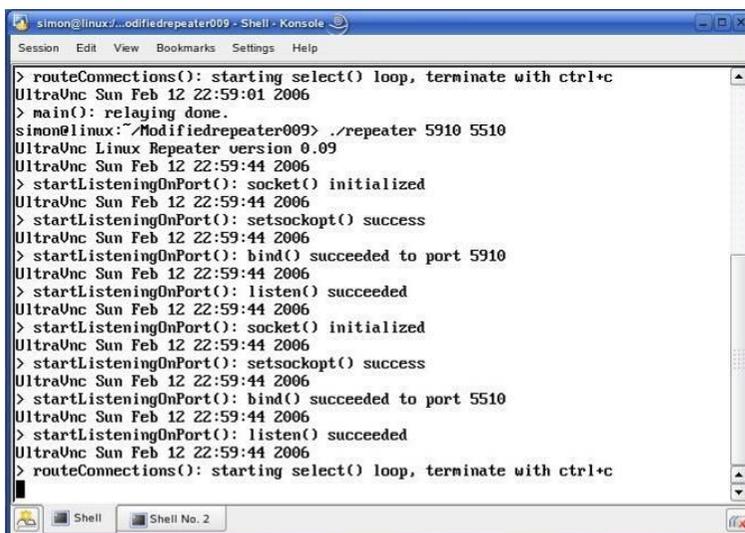
```

simon@linux:~/Modifiedrepeater009> ./repeater 5901 5501
UltraVnc Linux Repeater version 0.09
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): setsockopt() success
UltraVnc FATAL Sun Feb 12 22:59:01 2006
> startListeningOnPort(): bind() failed, errno=98 (Address already in use)
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): bind() succeeded to port 5501
UltraVnc Sun Feb 12 22:59:01 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:59:01 2006
> routeConnections(): starting select() loop, terminate with ctrl+c
UltraVnc Sun Feb 12 22:59:01 2006
> main(): relaying done.
simon@linux:~/Modifiedrepeater009>

```

Figure 41: Linux Repeater Bind Error

4. If you want to run the repeater on a different port then it is possible to specify the port number. The repeater command takes two arguments:
 - a. `./repeater [viewerlistenport] [serverlistenport]`
 - b. E.g. `./repeater 5901 5501`
 - c. Note: Only root can open ports under 1024 so it is advised that you use ports greater than 1024.



```

> routeConnections(): starting select() loop, terminate with ctrl+c
UltraVnc Sun Feb 12 22:59:01 2006
> main(): relaying done.
simon@linux:~/Modifiedrepeater009> ./repeater 5910 5510
UltraVnc Linux Repeater version 0.09
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): bind() succeeded to port 5910
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): bind() succeeded to port 5510
UltraVnc Sun Feb 12 22:59:44 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:59:44 2006
> routeConnections(): starting select() loop, terminate with ctrl+c

```

Figure 42: Linux Repeater Running on Non Default Ports

5. Once the repeater is up and running the console is locked and the way to stop the repeater running is to press ***ctrl+c***.
 - a. No other commands will be available from the console until the repeater process has been stopped.
6. Another way of running the repeater, which will not lock the console is to run
 - a. ***./repeater [optionalViewerPort] [optionalServerPort] &***

./repeater 5910 5510 &

7. To list the running processes run the following command:

ps -e

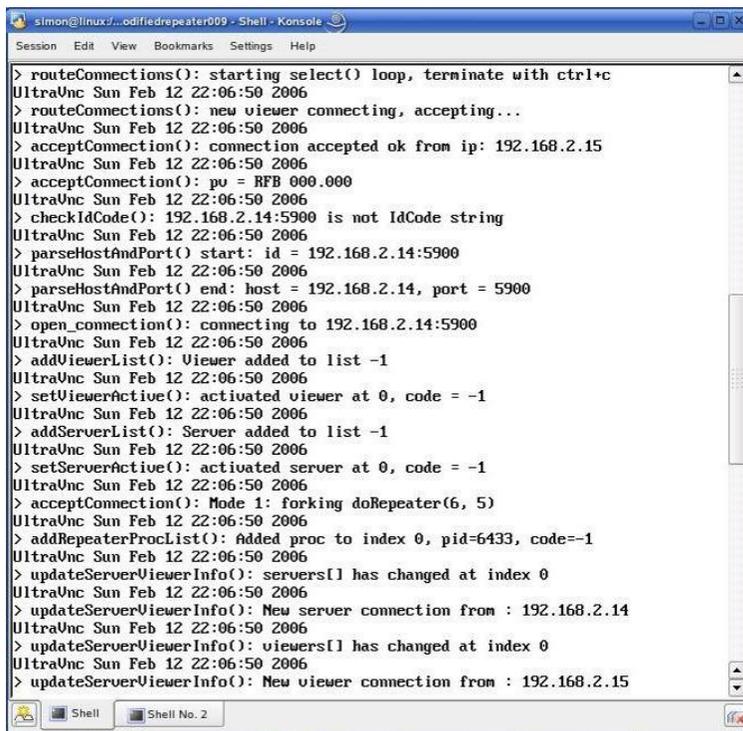
8. If you have run the repeater with the ***&*** paramter then the only way of stopping the process is to run

killall repeater

- a. Note: The log information will continue to be printed in the console window.

6.3 Mode I Log Information

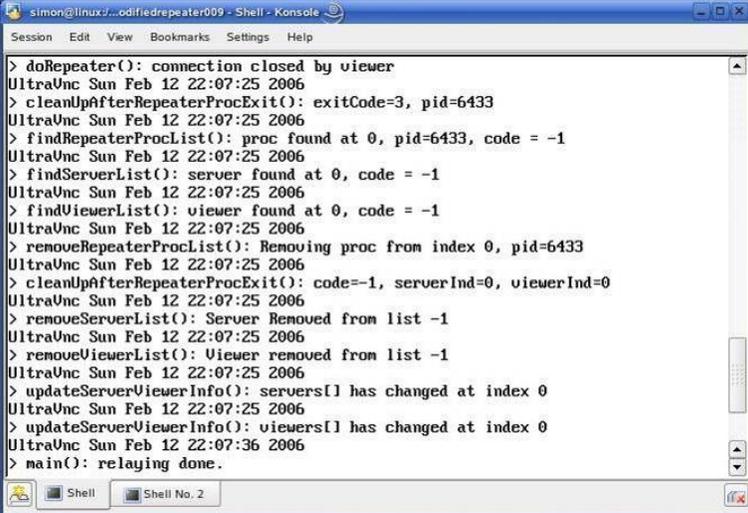
1. When a viewer connects to a remote PC via the repeater you will see the following information written to the console window:



```
simon@linux7...odifiedrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help
> routeConnections(): starting select() loop, terminate with ctrl+c
UltraUnc Sun Feb 12 22:06:50 2006
> routeConnections(): new viewer connecting, accepting...
UltraUnc Sun Feb 12 22:06:50 2006
> acceptConnection(): connection accepted ok from ip: 192.168.2.15
UltraUnc Sun Feb 12 22:06:50 2006
> acceptConnection(): pu = RFB 000.000
UltraUnc Sun Feb 12 22:06:50 2006
> checkIdCode(): 192.168.2.14:5900 is not IdCode string
UltraUnc Sun Feb 12 22:06:50 2006
> parseHostAndPort() start: id = 192.168.2.14:5900
UltraUnc Sun Feb 12 22:06:50 2006
> parseHostAndPort() end: host = 192.168.2.14, port = 5900
UltraUnc Sun Feb 12 22:06:50 2006
> open_connection(): connecting to 192.168.2.14:5900
UltraUnc Sun Feb 12 22:06:50 2006
> addViewerList(): Viewer added to list -1
UltraUnc Sun Feb 12 22:06:50 2006
> setViewerActive(): activated viewer at 0, code = -1
UltraUnc Sun Feb 12 22:06:50 2006
> addServerList(): Server added to list -1
UltraUnc Sun Feb 12 22:06:50 2006
> setServerActive(): activated server at 0, code = -1
UltraUnc Sun Feb 12 22:06:50 2006
> acceptConnection(): Mode 1: forking doRepeater(6, 5)
UltraUnc Sun Feb 12 22:06:50 2006
> addRepeaterProcList(): Added proc to index 0, pid=6433, code=-1
UltraUnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): servers[] has changed at index 0
UltraUnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): New server connection from : 192.168.2.14
UltraUnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): viewers[] has changed at index 0
UltraUnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): New viewer connection from : 192.168.2.15
```

Figure 43: Linux Repeater Viewer Connection

2. When the viewer closes the console window will update and provide the information seen in Figure 44: Linux Repeater Viewer Close.



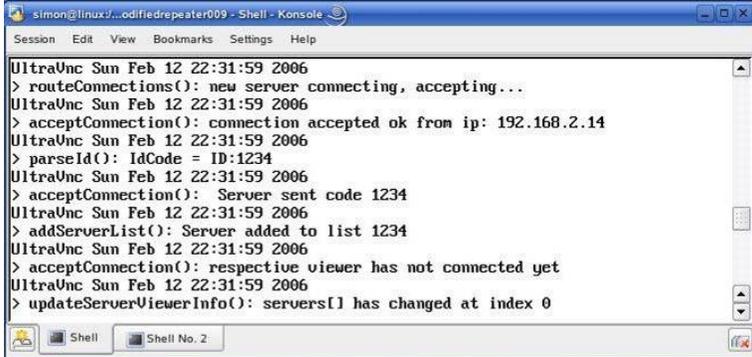
```
simon@linux:/...odifiedrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help

> doRepeater(): connection closed by viewer
UltraUnc Sun Feb 12 22:07:25 2006
> cleanUpAfterRepeaterProcExit(): exitCode=3, pid=6433
UltraUnc Sun Feb 12 22:07:25 2006
> findRepeaterProcList(): proc found at 0, pid=6433, code = -1
UltraUnc Sun Feb 12 22:07:25 2006
> findServerList(): server found at 0, code = -1
UltraUnc Sun Feb 12 22:07:25 2006
> findViewerList(): viewer found at 0, code = -1
UltraUnc Sun Feb 12 22:07:25 2006
> removeRepeaterProcList(): Removing proc from index 0, pid=6433
UltraUnc Sun Feb 12 22:07:25 2006
> cleanUpAfterRepeaterProcExit(): code=-1, serverInd=0, viewerInd=0
UltraUnc Sun Feb 12 22:07:25 2006
> removeServerList(): Server Removed from list -1
UltraUnc Sun Feb 12 22:07:25 2006
> removeViewerList(): Viewer removed from list -1
UltraUnc Sun Feb 12 22:07:25 2006
> updateServerViewerInfo(): servers[] has changed at index 0
UltraUnc Sun Feb 12 22:07:25 2006
> updateServerViewerInfo(): viewers[] has changed at index 0
UltraUnc Sun Feb 12 22:07:36 2006
> main(): relaying done.
```

Figure 44: Linux Repeater Viewer Close

6.4 Mode II Log Information

1. When a VNC server connects to the repeater you will see the following information written to the console window:
2. For this example i have used an ID of *1234*.

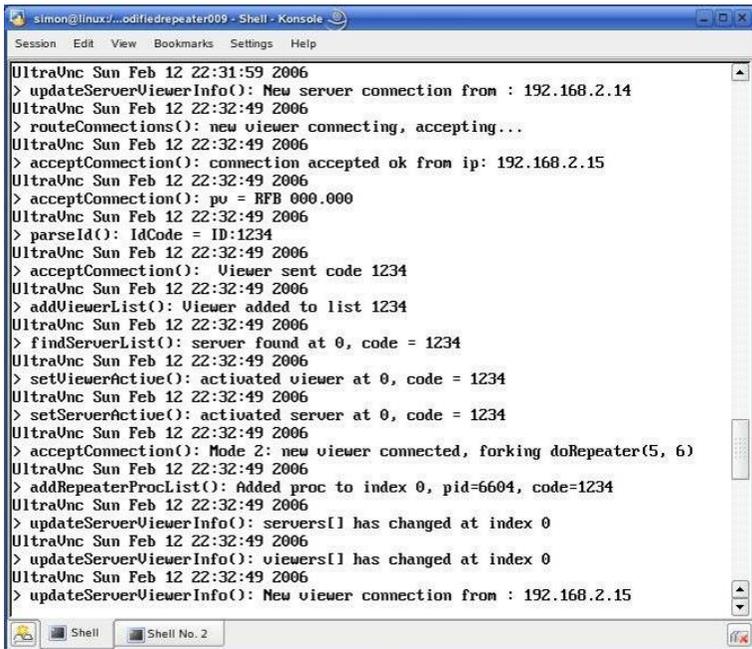


```

simon@linux2...odifredrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help
UltraVnc Sun Feb 12 22:31:59 2006
> routeConnections(): new server connecting, accepting...
UltraVnc Sun Feb 12 22:31:59 2006
> acceptConnection(): connection accepted ok from ip: 192.168.2.14
UltraVnc Sun Feb 12 22:31:59 2006
> parseId(): IdCode = ID:1234
UltraVnc Sun Feb 12 22:31:59 2006
> acceptConnection(): Server sent code 1234
UltraVnc Sun Feb 12 22:31:59 2006
> addServerList(): Server added to list 1234
UltraVnc Sun Feb 12 22:31:59 2006
> acceptConnection(): respective viewer has not connected yet
UltraVnc Sun Feb 12 22:31:59 2006
> updateServerViewerInfo(): servers[] has changed at index 0
  
```

Figure 45: Linux Repeater Server Connection

3. When the viewer connects to the repeater the logs will look as follows:

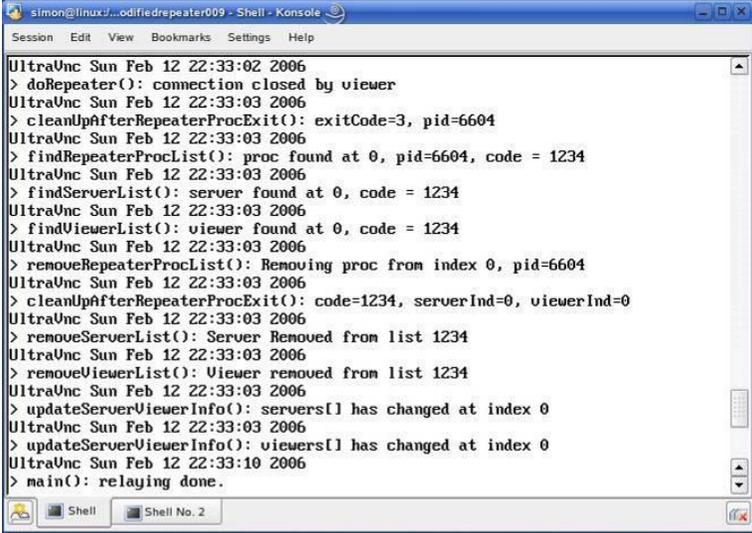


```

simon@linux2...odifredrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help
UltraVnc Sun Feb 12 22:31:59 2006
> updateServerViewerInfo(): New server connection from : 192.168.2.14
UltraVnc Sun Feb 12 22:32:49 2006
> routeConnections(): new viewer connecting, accepting...
UltraVnc Sun Feb 12 22:32:49 2006
> acceptConnection(): connection accepted ok from ip: 192.168.2.15
UltraVnc Sun Feb 12 22:32:49 2006
> acceptConnection(): pv = RFB 000.000
UltraVnc Sun Feb 12 22:32:49 2006
> parseId(): IdCode = ID:1234
UltraVnc Sun Feb 12 22:32:49 2006
> acceptConnection(): Viewer sent code 1234
UltraVnc Sun Feb 12 22:32:49 2006
> addViewerList(): Viewer added to list 1234
UltraVnc Sun Feb 12 22:32:49 2006
> findServerList(): server found at 0, code = 1234
UltraVnc Sun Feb 12 22:32:49 2006
> setViewerActive(): activated viewer at 0, code = 1234
UltraVnc Sun Feb 12 22:32:49 2006
> setServerActive(): actuated server at 0, code = 1234
UltraVnc Sun Feb 12 22:32:49 2006
> acceptConnection(): Mode 2: new viewer connected, forking doRepeater(5, 6)
UltraVnc Sun Feb 12 22:32:49 2006
> addRepeaterProcList(): Added proc to index 0, pid=6604, code=1234
UltraVnc Sun Feb 12 22:32:49 2006
> updateServerViewerInfo(): servers[] has changed at index 0
UltraVnc Sun Feb 12 22:32:49 2006
> updateServerViewerInfo(): viewers[] has changed at index 0
UltraVnc Sun Feb 12 22:32:49 2006
> updateServerViewerInfo(): New viewer connection from : 192.168.2.15
  
```

Figure 46: Linux Repeater Server-Viewer Connection

4. Finally, when the viewer disconnects the log information will display the following:



```
simon@linux:/...odifiedrepeater009 - Shell - Konsole
Session Edit View Bookmarks Settings Help
UltraVnc Sun Feb 12 22:33:02 2006
> doRepeater(): connection closed by viewer
UltraVnc Sun Feb 12 22:33:03 2006
> cleanUpAfterRepeaterProcExit(): exitCode=3, pid=6604
UltraVnc Sun Feb 12 22:33:03 2006
> findRepeaterProcList(): proc found at 0, pid=6604, code = 1234
UltraVnc Sun Feb 12 22:33:03 2006
> findServerList(): server found at 0, code = 1234
UltraVnc Sun Feb 12 22:33:03 2006
> findViewerList(): viewer found at 0, code = 1234
UltraVnc Sun Feb 12 22:33:03 2006
> removeRepeaterProcList(): Removing proc from index 0, pid=6604
UltraVnc Sun Feb 12 22:33:03 2006
> cleanUpAfterRepeaterProcExit(): code=1234, serverInd=0, viewerInd=0
UltraVnc Sun Feb 12 22:33:03 2006
> removeServerList(): Server Removed from list 1234
UltraVnc Sun Feb 12 22:33:03 2006
> removeViewerList(): Viewer removed from list 1234
UltraVnc Sun Feb 12 22:33:03 2006
> updateServerViewerInfo(): servers[] has changed at index 0
UltraVnc Sun Feb 12 22:33:03 2006
> updateServerViewerInfo(): viewers[] has changed at index 0
UltraVnc Sun Feb 12 22:33:10 2006
> main(): relaying done.
```

Figure 47: Linux Repeater Server-Viewer Connection Close

6.5 Example Repeater Log for a Mode I Connection

The following listing provides an example log for a connection from one pc to another via the repeater using Mode I:

```
simon@linux:~/Modifiedrepeater009> ./repeater
UltraVnc Linux Repeater version 0.09
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): bind() succeeded to port 5900
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): socket() initialized
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): setsockopt() success
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): bind() succeeded to port 5500
UltraVnc Sun Feb 12 22:06:46 2006
> startListeningOnPort(): listen() succeeded
UltraVnc Sun Feb 12 22:06:46 2006
> routeConnections(): starting select() loop, terminate with ctrl+c
UltraVnc Sun Feb 12 22:06:50 2006
> routeConnections(): new viewer connecting, accepting...
UltraVnc Sun Feb 12 22:06:50 2006
> acceptConnection(): connection accepted ok from ip: 192.168.2.15
UltraVnc Sun Feb 12 22:06:50 2006
> acceptConnection(): pv = RFB 000.000
UltraVnc Sun Feb 12 22:06:50 2006
> checkIdCode(): 192.168.2.14:5900 is not IdCode string
UltraVnc Sun Feb 12 22:06:50 2006
> parseHostAndPort() start: id = 192.168.2.14:5900
UltraVnc Sun Feb 12 22:06:50 2006
> parseHostAndPort() end: host = 192.168.2.14, port = 5900
UltraVnc Sun Feb 12 22:06:50 2006
> open_connection(): connecting to 192.168.2.14:5900
UltraVnc Sun Feb 12 22:06:50 2006
> addViewerList(): Viewer added to list -1
UltraVnc Sun Feb 12 22:06:50 2006
> setViewerActive(): activated viewer at 0, code = -1
```

```
UltraVnc Sun Feb 12 22:06:50 2006
> addServerList(): Server added to list -1
UltraVnc Sun Feb 12 22:06:50 2006
> setServerActive(): activated server at 0, code = -1
UltraVnc Sun Feb 12 22:06:50 2006
> acceptConnection(): Mode 1: forking doRepeater(6, 5)
UltraVnc Sun Feb 12 22:06:50 2006
> addRepeaterProcList(): Added proc to index 0, pid=6433, code=-1
UltraVnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): servers[] has changed at index 0
UltraVnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): New server connection from : 192.168.2.14
UltraVnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): viewers[] has changed at index 0
UltraVnc Sun Feb 12 22:06:50 2006
> updateServerViewerInfo(): New viewer connection from : 192.168.2.15
UltraVnc Sun Feb 12 22:07:24 2006
> doRepeater(): connection closed by viewer
UltraVnc Sun Feb 12 22:07:25 2006
> cleanUpAfterRepeaterProcExit(): exitCode=3, pid=6433
UltraVnc Sun Feb 12 22:07:25 2006
> findRepeaterProcList(): proc found at 0, pid=6433, code = -1
UltraVnc Sun Feb 12 22:07:25 2006
> findServerList(): server found at 0, code = -1
UltraVnc Sun Feb 12 22:07:25 2006
> findViewerList(): viewer found at 0, code = -1
UltraVnc Sun Feb 12 22:07:25 2006
> removeRepeaterProcList(): Removing proc from index 0, pid=6433
UltraVnc Sun Feb 12 22:07:25 2006
> cleanUpAfterRepeaterProcExit(): code=-1, serverInd=0, viewerInd=0
UltraVnc Sun Feb 12 22:07:25 2006
> removeServerList(): Server Removed from list -1
UltraVnc Sun Feb 12 22:07:25 2006
> removeViewerList(): Viewer removed from list -1
UltraVnc Sun Feb 12 22:07:25 2006
> updateServerViewerInfo(): servers[] has changed at index 0
UltraVnc Sun Feb 12 22:07:25 2006
> updateServerViewerInfo(): viewers[] has changed at index 0
UltraVnc Sun Feb 12 22:07:36 2006
> main(): relaying done.
```