

Using VNC on an Access Grid Node

Satish Vanimisetti
Center for Computational Sciences, University of Kentucky
satish@ccs.uky.edu

Using VNC on an Access Grid Node

by Satish Vanimisetti

Copyright © 2001 by Center for Computational Sciences, University of Kentucky

Permission to use, copy, distribute, and sell this document for any purpose is hereby granted without fee, provided that the above copyright notice and this permission notice appear in all copies and associated documentation, and that neither the name of University of Kentucky nor that of the author be used in advertising or publicity pertaining to the distribution or sale of the document without specific, prior written permission.

Derivative works are permitted provided the following:

1. Send your derivative work (in the most suitable format, such as DocBook) to the AGDP (Access Grid Documentation Project) or the like for posting on the Internet. If not the AGDP, then let the AGDP know where it is available.
2. License the derivative work with this same license or negotiate an appropriate license with the copyright holder. Include a copyright notice and at least a pointer to the license used.
3. Give due credit to previous authors and major contributors. If you're considering making a derived work other than a translation, it's requested that you discuss your plans with the current maintainer.

It's requested that corrections and/or comments be forwarded to the document maintainer, Satish Vanimisetti, satish@ccs.uky.edu.

Neither Center for Computational Sciences, University of Kentucky nor its agents make any representations about the suitability of this document for any purpose. It is provided "as is" without warranty of any kind, either express or implied. Neither Center for Computataional Sciences, University of Kentucky nor the author indemnify any infringement of copyright, patent, trademark, or trade secret resulting from the use, modification, distribution or sale of this document.

Revision History

Revision 1.0.6 July 11, 2003

Minor changes to support rendering to pdf via docbook2pdf

Revision 1.0.5 July 11, 2001

Added link to Michael Grobe's "VNC Relay" document.

Revision 1.0.4 June 26, 2001

Added the "How is VNC used on the AG?" section (as suggested by Jennifer).

Revision 1.0.3 June 16, 2001

Added the Linux server screen-shots and revised the Linux server section.

Revision 1.0.2 June 5, 2001

Added links to VNC docs and download pages. Minor editorial corrections.

Revision 1.0.1 June 4, 2001

First Draft

Table of Contents

1. Introduction	1
What is "VNC"?	1
How is VNC used on the AG?	1
Conventions Used in this Document	1
Acknowledgments	1
2. Using the VNC Client.....	3
Starting the VNC Client on a Windows machine.....	3
Starting the VNC client on a linux machine.....	3
3. Starting the VNC Server.....	5
Starting the VNC server on Linux	5
Starting the VNC server on Windows.....	6
Generating the config file for distribution to remote sites	7

Chapter 1. Introduction

This document describes the operation of VNC (Virtual Network Computing) in the context of the Access Grid. It assumes that VNC is already installed and that the executables are in your 'PATH'. In case you do not have it installed you can download a binary (or source) for your operating system from: <http://www.uk.research.att.com/vnc/download.html>¹

What is "VNC"?

VNC is a remote desktop sharing tool developed at the AT&T research labs (<http://www.uk.research.att.com/vnc/>). The developers describe VNC as:

"... a remote desktop display system which allows you to view a computing 'desktop' environment not only on the machine where it is running, but from anywhere in the internet and from a wide variety of machine architectures ..."

Within the AG environment VNC has been used mostly to share terminals and to display animations, or PowerPoint presentations which have embedded animations.

How is VNC used on the AG?

In the AG setup VNC is used mostly for presentations which need more than just PowerPoint, or for presentations where PowerPoint cannot be used. For example, VNC can be used for presentations where the presenter prefers to use software other than PowerPoint, has animation/movies that (s)he'd like to show or would like to demonstrate software applications.

Typically, the host site sets up a "VNC Server" to which remote sites connect as "VNC Clients". If the system the presenter is using is not very powerful, the host site can setup a client of its own which "controls" the shared desktop, with all remote sites participating as "view-only" clients.

The remote sites run the VNC client on their display machines to display the shared session (presentation/movie/demo) on their display wall/screen.

Conventions Used in this Document

Within this document, the following conventions are used:

- A command to be entered exactly as written, into a console or terminal window, is indicated like this: **sample command**
- Command options are enclosed within < >, like this: **command < option > < option1 >**
- When discussing options from Windows' menus, menu options are indicated by the use of quotes. And menu choice sequences are separated by arrows.

Acknowledgments

This document is derieved from the documentation available on the VNC website, e-mail exchanged over the ag-tech mailing list and information obtained from various people on the Waterfall Glen MUD.

Many thanks to Vikram Gazula and Jennifer Teig Von Hoffman for reviewing this document and for their valuable suggestions.

Many thanks to Jim Miller, whose SGML templates I am using to generate this document.

Notes

1. <http://www.uk.research.att.com/vnc/download.html>
2. <http://www.uk.research.att.com/vnc/>

Chapter 2. Using the VNC Client

This chapter describes how to start up a VNC client to view the desktop environment of a remote machine. Steps for both Windows and Linux machines are described. Though, in the AG setup you will most probably be running the client on your display machine (Windows).

Starting the VNC Client on a Windows machine.

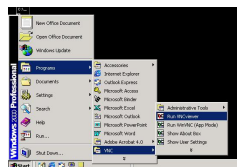
If the remote site has provided you with a batch file and a VNC config file, you can start the VNC viewer by placing both files in the same directory and double clicking the batch file.

If you only have a VNC config file, you can start the viewer by typing `vncviewer -config < config_file >` in a DOS window. If you don't have either file, read on. You will need the following:

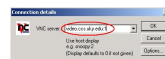
1. The IP address of the host that the server is running on.
2. The screen number the server is running on.
3. Any options that the remote site might want used.

Note: The screen number is the number after the colon in the hostname screen shot.

From the Start menu on the display machine, select "Programs"->"VNC"->"VNC viewer". This will look something like this:



This will open a window prompting for the hostname. Enter the hostname provided by the remote site.



Now click the "Options" button



This will open up a window where you can set connection parameters. Set the connection parameters to those specified by the remote site.



Click OK to dismiss the connection options window, and OK again to dismiss the hostname window. This will open a new window prompting you for the session password. Enter the password provided by the remote site and click OK.



This will open up window showing the remote desktop display.

Starting the VNC client on a linux machine.

If you have a VNC config file for the session, you can start the viewer by typing in `vncviewer -config <config_file>` into a terminal window. If you do not have a config file, read on.

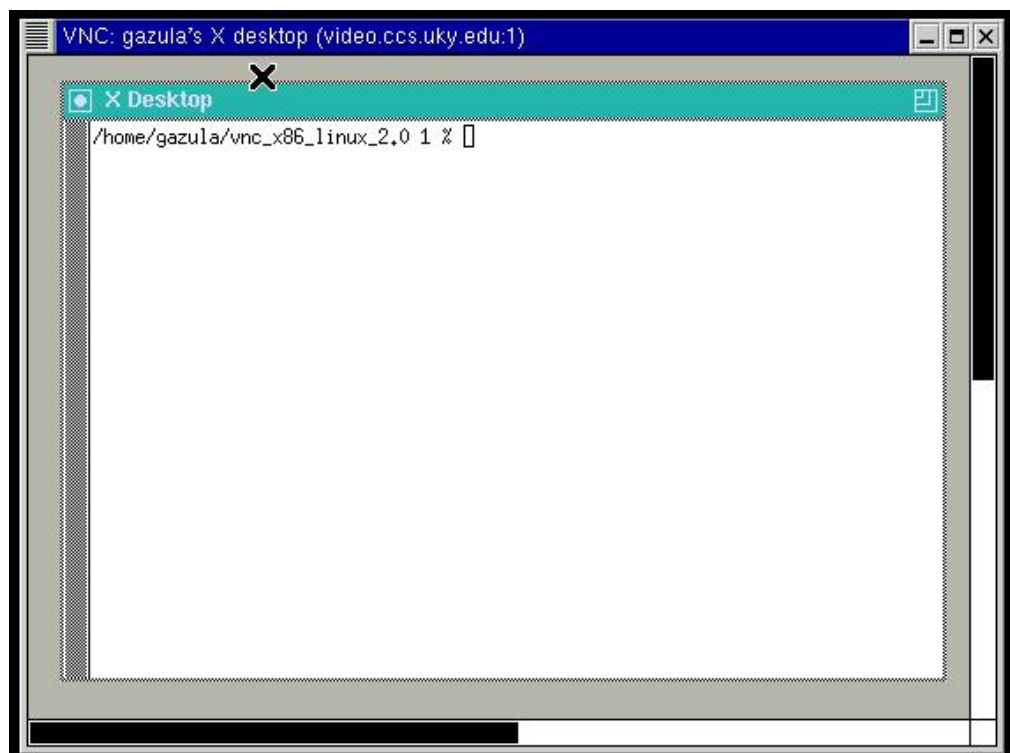
In a terminal window, type in `vncviewer` This should bring up a dialog prompting you for the hostname. Enter the hostname and hit enter. Alternatively, you could specify the hostname as an argument to the command.



This should bring up a dialog prompting you for a password. Enter the password and hit enter.



This should bring up the remote desktop display.

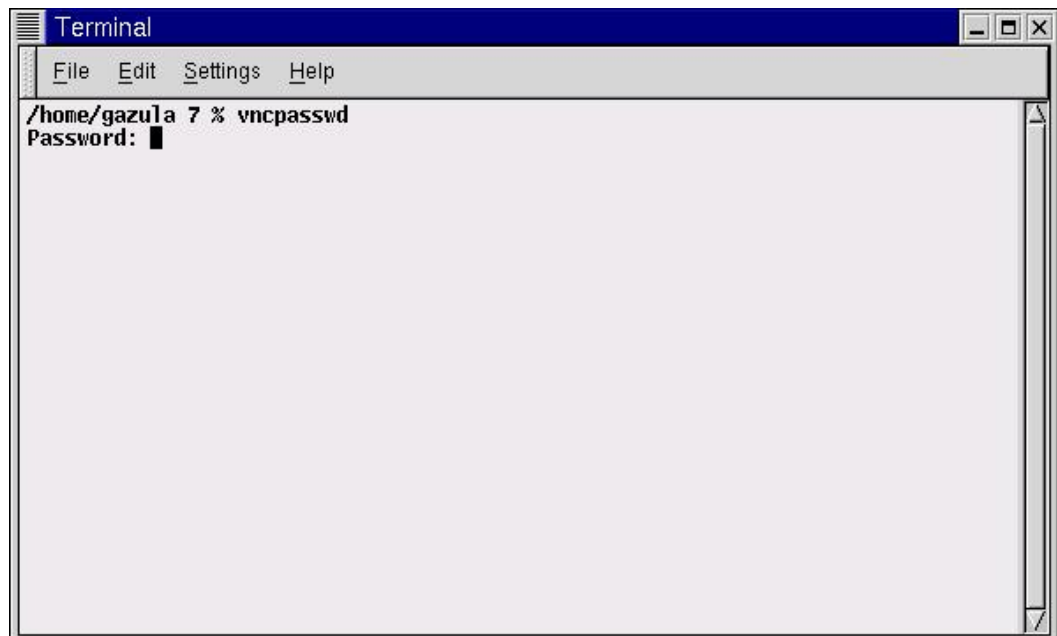


Chapter 3. Starting the VNC Server

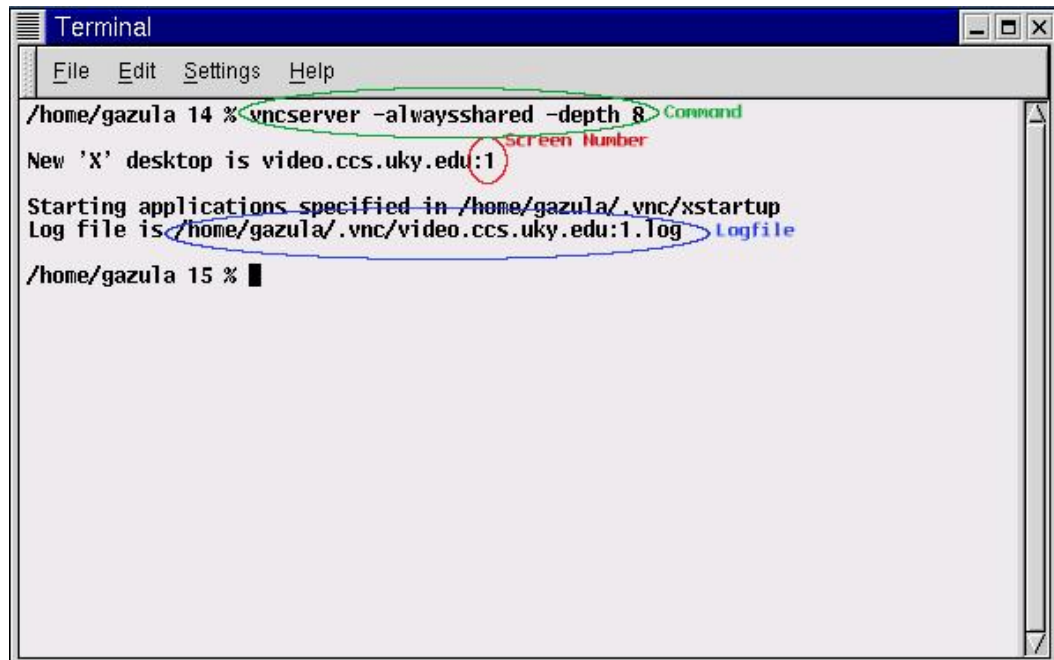
This chapter describes how the VNC server is started on Windows and Linux machines. After the server has been started you will need to generate the config file to be distributed to remote sites. This is done easily from a Windows machine (described in the last section of this chapter).

Starting the VNC server on Linux

First you need to set the password for the session. To do this, type in **vncpasswd** in a terminal window. This will prompt you for a password. This is the password you will need to distribute to remote sites so that they are able to connect to the server.

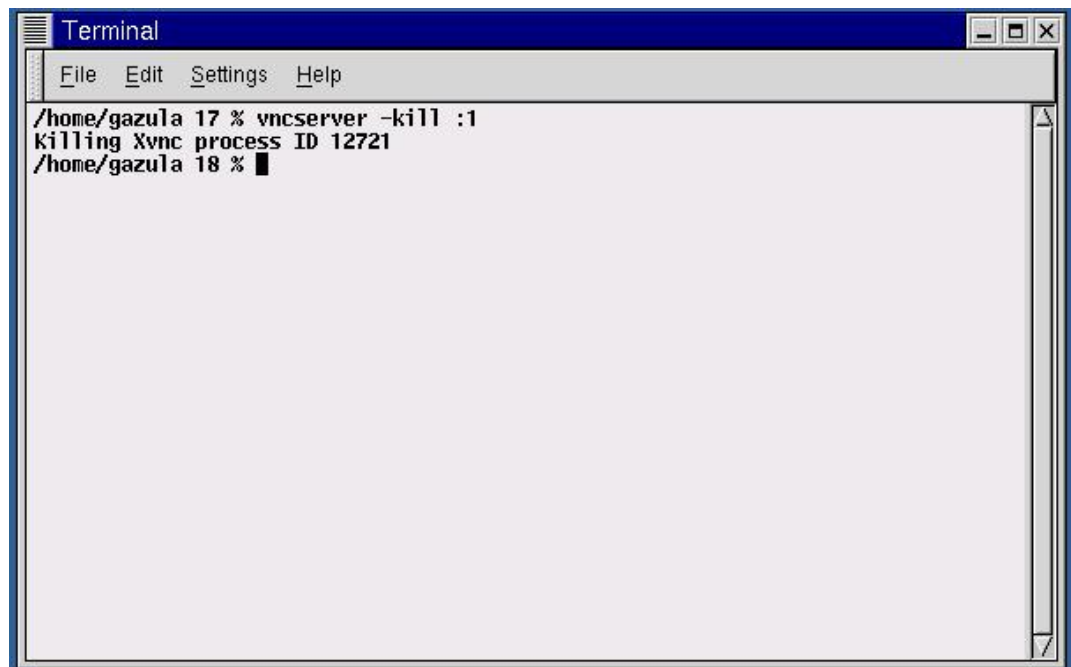


On a terminal window, type in **vncserver**. This will start up a server on the next available screen. You will want to check the log file specified in the message to check and make sure there have been no errors. (Or, you could use **ps** to see if the server is running).



```
Terminal
File Edit Settings Help
/home/gazula 14 % vncserver -alwaysshared -depth 8
New 'X' desktop is video.ccs.uky.edu:1
Starting applications specified in /home/gazula/.vnc/xstartup
Log file is /home/gazula/.vnc/video.ccs.uky.edu:1.log
/home/gazula 15 % █
```

To kill the server, on a terminal window, type in `vncserver -kill < screen_number >`. Note: The screen number is the number following the colon



```
Terminal
File Edit Settings Help
/home/gazula 17 % vncserver -kill :1
Killing Xvnc process ID 12721
/home/gazula 18 % █
```

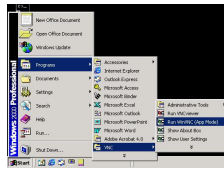
You can specify arguments to the vncserver. Two options you might be interested in are:

1. `-nevershared` / `-alwaysshared`: specify if the session can be shared by multiple clients. Use this option to restrict how many people can connect to the server. In the AG setup, normally, multiple sites participate in a session. So, you might want to set this to always shared. This will allow clients with an incorrect shared flag to connect.
2. `-depth`: specify the pixel depth in bits of the desktop to be created. A lower depth value will make the connection faster, but will not display as many colors.

For a complete list of options, see (<http://www.uk.research.att.com/vnc/xvnc.html>¹⁾).

Starting the VNC server on Windows

From the Windows start menu choose: "Start"- >"Programs"- >"VNC"- >"Run WinVNC(App Mode)"



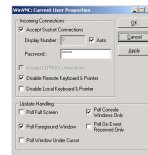
This starts the VNC server, and places an icon in the "system tray".



Right click the icon in the system tray to bring up a menu. Choose "Properties" on the menu.



This should bring up a Window where you can set properties for the session. Set the properties to those you want and click OK.



Properties you might want to consider:

1. Keep the "Disable Remote Keyboard & Pointer" checked unless you want remote sites to have control of your display. (Though, the VNC documentation warns that this might be incompatible for some applications - where you would need to poll the full screen.)
2. Also, keep the "Poll Foreground Window" checked and the "Poll Full Screen" unchecked. This will speed up the server, because the server need not to pump as much data, compared to polling the full screen.

Many people have reported problems using VNC server running on a Windows machine with multiple clients. Michael Grobe has an excellent document². about using unix VNC as a relay for Windows VNC traffic.

Generating the config file for distribution to remote sites

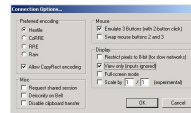
From a Windows machine other than the one running the server, connect to the server using the vncviewer (see the section on using VNC as a client for this). Though, do not connect right away (so you can set the options before you connect).

Before connecting, specify the options that you want the remote site viewers to use for the connection.

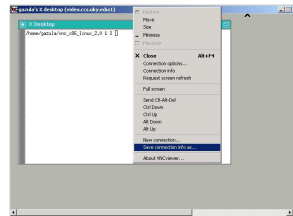


Options you might be interested in:

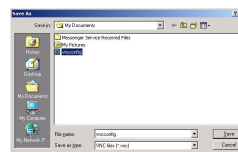
1. Request shared Session: If there are multiple sites listening in to the session you will want to make sure this is checked.
2. View Only: If you do not want remote sites to be able to control mouse and keyboard inputs to the session, you will want this checked.



After you have entered the password and connected to the server right click on the title bar of the viewer window. This should bring up a menu. On the menu choose "Save connection info".



This will bring up a file dialog. Give the file a name and choose "Save".



This will bring up a prompt asking you whether you want to save the password in the file. If you choose not to save the password in the file, you will need to distribute that to remote sites in some other way.



Now create a DOS batch file. The contents of the batch file should be as follows:

vncviewer -config < config_file_from_previous_step >

If you want to do this on a Linux machine, you will need to create a shell script. It might look something like the following:

```
#!/bin/sh
vncviewer -shared -viewonly -passwd < password_file >; ...
```

Note: The (encrypted) password is stored in a file called 'passwd' in the '.vnc' subdirectory in the home directory of the account you used to generate the password. You will need to distribute this file along with the above shell script.

For a complete list of options you can set for the viewer see <http://www.uk.research.att.com/vnc/xvncviewer.html> ³.

Notes

1. <http://www.uk.research.att.com/vnc/xvnc.html>
2. <http://www.cc.ukans.edu/%7Eacs/docs/access-grid-node/vnc/>
3. <http://www.uk.research.att.com/vnc/xvncviewer.html>