

# **AxGVNC**

## *Configuring VNC Terminals under Linux*

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**- 1 -  
OVERVIEW**

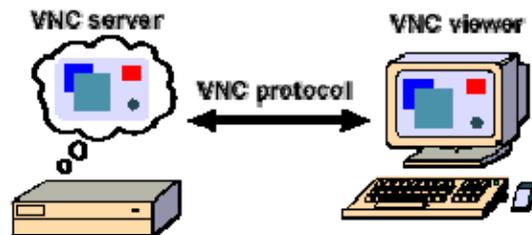
*This chapter deals with the main features of AxGVNC*

The AxGVNC software allows graphical terminals to be setup on a Linux system. These terminals are 'seen' as X11 terminals, but the network communication is based on the VNC protocol.

## 1.1 - THE VNC PROTOCOL

The VNC protocol allows a terminal session to be connected in graphical mode to a Linux server.

**Operating Mode:** The VNC protocol enables a remote X display on the terminal. The image is constructed, maintained and updated within the Linux server's frame buffer, and transmitted across the TCP/IP network.



The benefit is a VNC client requires fewer resources (memory and CPU) than a real X terminal. This offers a cost-effective and efficient X11-compliant terminal.

## 1.2 - AXGVNC BENEFITS

AxGVNC allows the VNC protocol to be administered within a 'multi-user' environment.

Often the VNC protocol is used to remotely administer Linux or Windows servers. With AxGVNC each VNC terminal has its own environment: a logon screen authentication (username/password) followed by a desktop (KDE, Gnome...) from where any application can be run.

AxGVNC analyses the Linux settings and performs modifications to enable a 'multi-user' capability.

**Note:** the maximum number of users is only limited by the Linux server scaling.

## 1.3 - OBTAINING THE VNC SERVER

This "multi-user" capability doesn't need a special VNC server or a VNC client.

On Linux, VNC server may be offered as a standard feature. If not, VNC servers can be downloaded. For example:

- <http://www.realvnc.com>
- <http://www.tightvnc.com>

## 1.4 - FOLLOWING CHAPTERS...

The manual is organized into the following chapters:

- Installing / uninstalling AxGVNC,
- Using AxGVNC,
- Setting up the Axel VNC client,
- Additional information.

**- 2 -  
INSTALLING / UNINSTALLING  
AXGVNC**

*This chapter covers the installation/uninstallation 'AxGVNC procedure.*

## **2.1 - PREREQUISITES**

### **2.1.1 - Linux System**

AxGVNC must be installed on a Linux system.

AxGVNC runs on most of Linux versions. It has been certified for Fedora 6 (or higher), Red Hat 5, Mandriva 2008, OpenSuse 11, Debian 4, Cent OS 5 and Xubuntu.

#### **Prerequisites:**

- x86-based Linux distributions with GTK+ 2.0 (or more)
- glibc-2.3 (or more)
- libstdc++.so.6

### **2.1.2 - Graphical Environment**

The Linux server must start in graphical mode and a logon screen must be displayed (no default auto-logon).

The display manager must be GDM or KDM. The XDMCP capability (sending a logon screen to X11 terminals) must be supported. If needed, XDMCP will be enabled by AxGVNC.

### **2.1.3 - VNC Server**

A VNC server (Xvnc) must be available from default paths.

## 2.2 - INSTALLATION

First logon as 'root'.

Use 'gzip' and 'tar' command to extract files from AxGVNC.tar.gz.

Copy the AxGVNC binary file and the languages files (\*.lng) in your preferred folder.

**Note:** An icon file is available to create a launcher from the desktop.

## 2.3 - UNINSTALLATION

Remove from the folder both AxGVNC binary file and the language files (\*.lng).  
Remove also AxGVNC.conf (configuration file) located in the home directory.

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**- 3 -  
USING AXGVNC**

*This chapter describes the use of AxGVNC.*

The software is launched by running the AxGVNC binary file. No option is needed.

### 3.1 - LANGUAGE SELECTION

When the software is run for the first time a language selection dialog box is displayed:

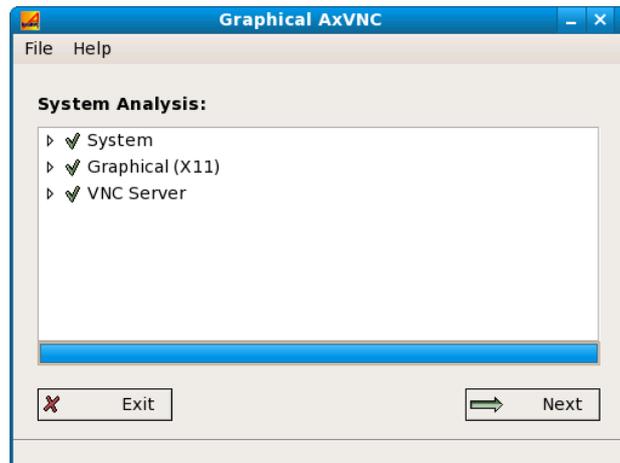


**Note:** the available languages depend on the 'LNG' files in the folder where AxGVNC had been copied.

The language can be changed at a later time. (See Chapter 3.5.1)

### 3.2 - SYSTEM ANALYSYS

Before managing VNC terminals, Linux must be analysed. The result is displayed as shown in the following dialog box:



**Note:** Analysis is automatically performed when the software is run. It can also be done by the **[File]-[Refresh Analyse]**.

The analysis result is divided into three groups:

- Operating System,
- Graphical (X11),
- VNC Server.

For each group, the analysis result is shown by a coloured indicator: green is OK, red indicates at least a problem was detected.

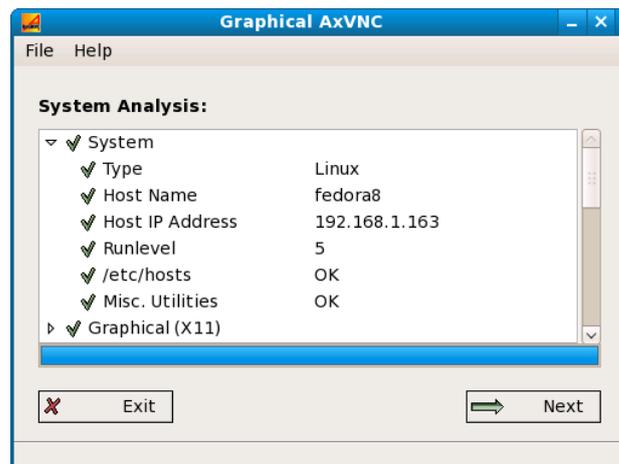
Whatever the indicator colour, the analysis results can be expanded by clicking the arrow at the left of indicator.

If a leaf of the tree structure is marked as red, double-click this line to get an explanation and follow instructions to fix the problem.

The **[Next]** button is only available when the analysis is shows the system is ready to support VNC terminals. (See chapter 3.3).

### 3.2.1 - "Operating System" Group

The "Operating System" components are the following:



#### a) Type

The system type is detected by the 'uname -s' command.

This software runs only on 'Linux' operating systems.

#### b) Server Name

The server name is obtained by the 'hostname' command.

**Note:** the server name must be known. In event of problems, please check the Linux configuration.

#### c) Server IP Address

The IP address is automatically detected by the software.

If this IP address is not correct (for example in event of multiple NICs), go to the software preferences and modify it. (See Chapter 3.5.1)

**Note:** the server IP address must be known.

**d) Run Level**

The run level value is obtained by the 'runlevel' command.

**Note:** this value must be different than 0. In event of problems, please check the availability of the 'runlevel' command.

**e) /etc/hosts File**

The /etc/hosts file associates IP addresses with network device name.

To be AxGVNC-compliant this file must contain at least two lines about the loopback interface and the server IP address. For example:

127.0.0.1	localhost	
192.168.1.162	myLinux	myLinux.axel.com

If the file format is not correct, either use a text editor to modify it or double-click the line to allow the problem to be fixed by AxGVNC (the original /etc/hosts file will be backed-up).

**Note:** the /etc/hosts file format is only checked when the KDM display manager is detected. (See Chapter 3.2.2)

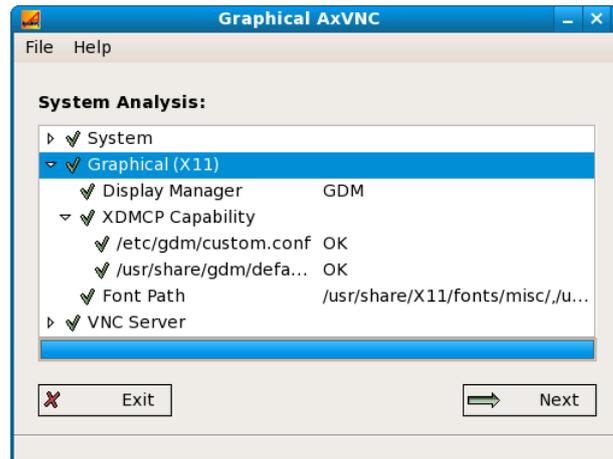
**f) Optional Utilities**

When using VNC terminals without logon (see Chapters 3.3.1 and 5.4), the following utilities must be available: xterm, file and xsetroot.

If one or more utilities are not available, it won't be possible to declare the VNC terminals without logon.

### 3.2.2 - "Graphical (X11)" Group

The "Graphical (X11)" components are the following:



#### a) Display Manager

By default AxGVNC detects the display manager. It must be GDM or KDM.

If neither are detected the **[Next]** button is disabled (no way to declare VNC terminals).

**Note:** in event of problem the display manager can be "forced" through the AxGVNC tunings (see Chapter 3.5.1.)

**Important:** XDMCP is not correctly supported by GDM on Fedora 9. With OpenSuse 11, this problem is with KDM.

#### b) XDMCP Capability

The XDMCP capability allows a logon screen to be sent to an X11 terminal. This capability must be enabled. For more information about XDMCP, see Chapter 5.3.

The XDMCP activation is located in the display manager configuration file. The name and the location of this file depend on both the Linux distribution and the display manager.

**Note 1:** multiple configuration files may be detected. XDMCP must be enabled for each file.

**Note 2:** the configuration file can also be manually set-up in the AxGVNC preferences. For more information please read Chapter 5.5.4.

If XDMCP needs be enabled, use a system tool (like gdmsetup) or double-click the line(s) to allow AxGVNC to modify the configuration file(s).

**Note:** After XDMCP activation, the Linux server must be rebooted.

### c) Font Path

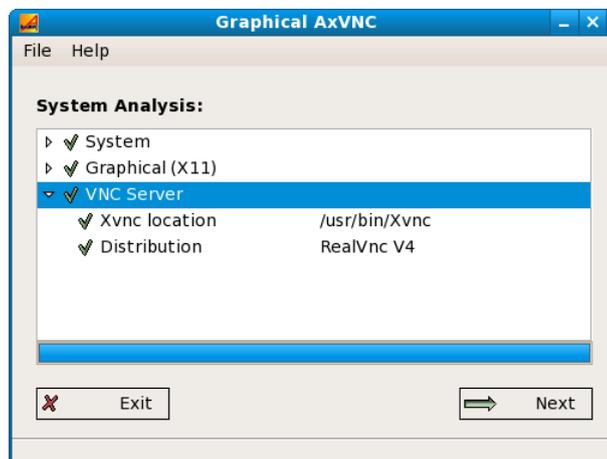
One or more fonts may be given as runtime option to the Xvnc server.

By default, the selected fonts are the same as the main Linux console.

If needed, the selected font paths can be modified from the AxGVNC preferences. (See Chapter 3.5.3)

### 3.2.3 - "VNC Server" Group

The "VNC Server" components are the following:



**a) Xvnc Location**

A VNC server binary with the filename Xvnc must be available in one of the default Linux paths.

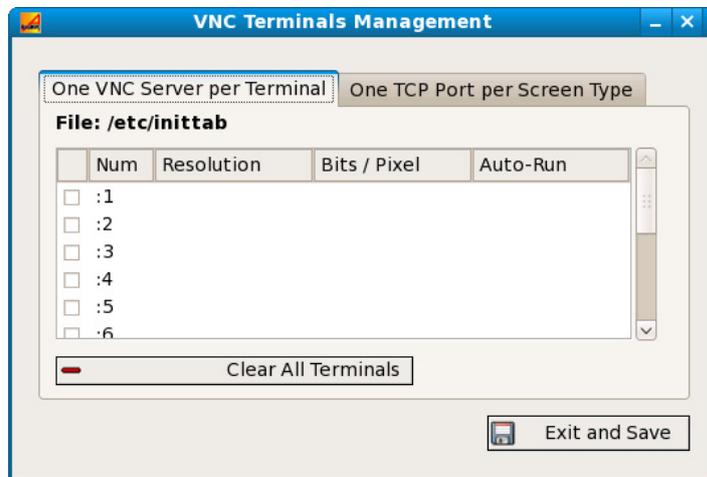
If needed, the VNC server filename can be modified from the AxGVNC preferences. (See Chapter 3.5.3)

**b) Distribution**

When the VNC Server is located the distribution is displayed (RealVNC or TightVNC).

**3.3 - VNC TERMINAL MANAGEMENT**

When the system analysis is correct, click the **[Next]** button to add, modify or remove VNC terminals. The following dialog box is displayed:



Two methods are available:

- **One VNC Server per Terminal:** when Linux is started, one Xvnc daemon per terminal is run. Each terminal will establish a connection to 'its' Xvnc daemon (identified by a different TCP port).

The main benefit is after an incident (network or other), the terminal will retrieve the lost session.

In addition with this method, the logon screen may be skipped and replaced by any application (Firefox for example).

- **One TCP Port per Screen Type:** an Xvnc daemon is run only when a VNC terminal opens a connection. The TCP port depends on both the resolution and the number of colors.

This mechanism is similar to telnet or SSH: all terminals can use the same TCP port but in event of problem the lost session can't be retrieved.

The benefit is saving resources: the number of running Xvnc daemons is the number of terminals currently in use.

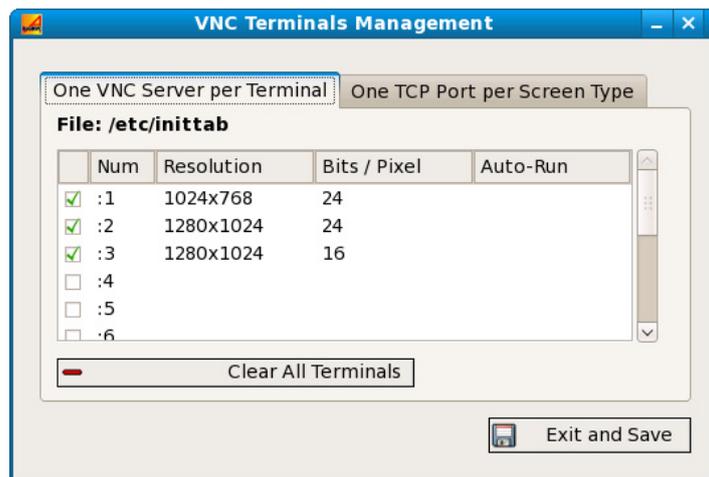
Click the tab corresponding to the preferred method.

**Note:** the two methods may be hosted on the same Linux server.

### **3.3.1 - One VNC Server per Terminal**

With this method, Xvnc daemons are launched when Linux is started. These launching are done through the /etc/inittab file. (Or though /etc/events.d for Debian and Ubuntu servers)

The configuration box is the following:



**Adding a terminal:** Check the box corresponding to the display number (from 1 to 49). The VNC terminal is added with the maximum resolution and the maximum number of colors. (These values are defined in the AxGVNC preferences - See Chapter 3.5.2) Default settings can be modified by double-clicking the terminal line.

**Removing a terminal:** Uncheck the box.

**Removing all terminals:** click the button [Clear All Terminals].

**Modifying terminal settings:** double-click the terminal line. The following box is displayed:



Both the resolution and the number of colours (bits/pixel) are selected through list boxes. The available values can be customised. (See Chapter 3.2.1)

The 'Logon' check box gives the option to display a logon screen when the terminal session is established.

**Note:** The 'Logon' capability can't be disabled without 'Optional Utilities'. (See Chapter 3.2.1 - sub-section f).

When 'Logon' is selected, the application settings must be entered (full pathname and the runtime option). For more information, see Chapter 5.4.

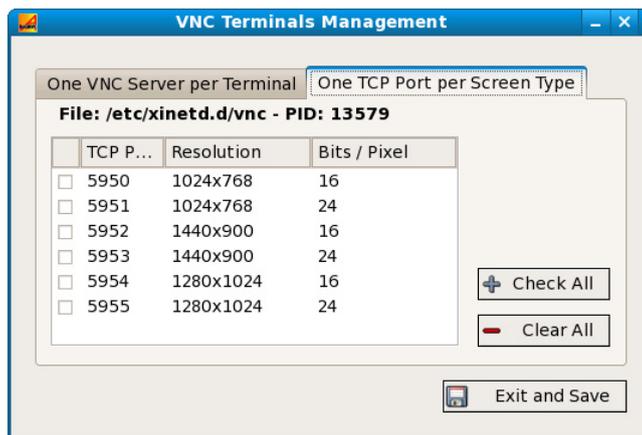
### 3.3.2 - One TCP Port per Screen Type

With this method an Xvnc daemon is launched only when requested (i.e when a VNC terminal opens a connection). This is done by the xinetd (or inetd) service. If this service is not running, this method is not available.

**Note:** this method will update the /etc/services file and the (x)inetd configuration:

- Either the /etc/(x)inet.conf file modification
- Or the creation of the vnc file in /etc/(x)inetd.d

The configuration box is the following:



The listed screen types are combinations between resolution values and bits/pixel values (see AxGVNC preferences). A TCP port is associated with each combination.

Check the screen type boxes to be activated. The **[Check All]** and **[Clear All]** buttons allows all screen types to be selected/unselected in one click.

### 3.4 - EXITING THE SOFTWARE

Click **[Exit and Save]** to exit the software.

If modifications have been made during the use of AxGVNC, confirmation is required to save them. In this case the behaviour depends on the terminal VNC management.

"One VNC Server per Terminal" method:

- Updating of /etc/inittab (or folder /etc/events.d) and sending a signal to Linux to force the read of this new information,
- Optional updating of /etc/govnc (terminals with logon),
- Optional updating of /etc/RunScriptVNC (terminals without logon).

"One TCP Port per Screen Type" method:

- Updating /etc/services,
- Updating (x)inetd configuration file and sending a signal to Linux to force this new information to be read.

### 3.5 - SOFTWARE PREFERENCES

The preferences are accessed from the **[File]-[Preferences]** menu. (Available only from the dialog box about the system analysis - see Chapter 3.2)

Preferences are composed of the following categories:

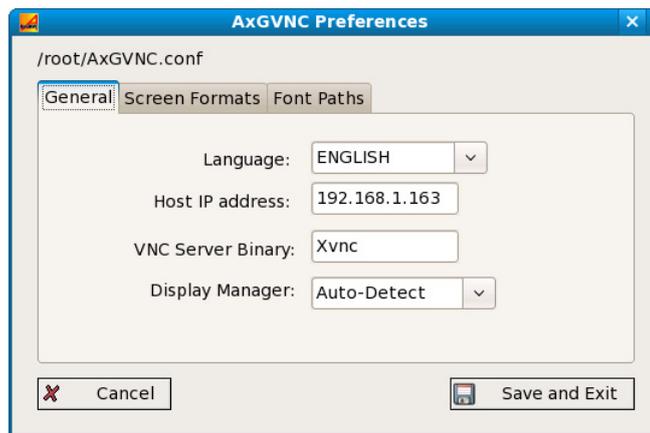
- General,
- Screen Format,
- Font Paths.

**Note:** Preferences are stored in the AxGVNC.conf file located in the user's "home directory". For example:

```
Version=V1.1
Language=English.lng
Resolution=1024x768 1440x900 1280x1024
Bpp=8 16
HostIPAddr=192.168.1.210
XvncBinary=Xvnc
FontPath=
```

### **3.5.1 - General**

The dialog box is the following:

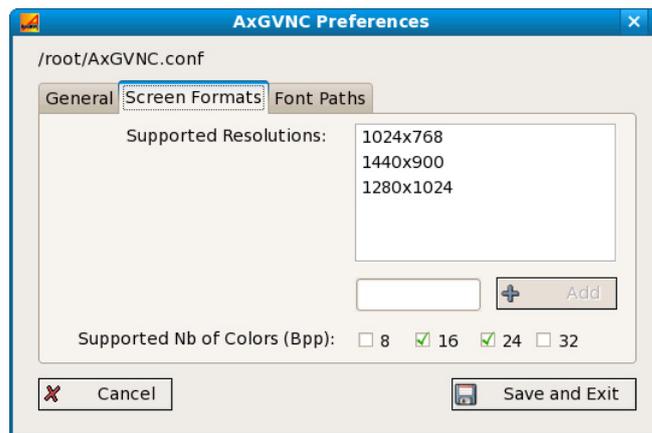


Available settings are:

- Language: Select preferred language from list. (This list is composed by LNG filenames located in the AxGVNC folder)
- Host IP Address: changed this address if not correctly detected.
- VNC Server Binary: this name is generally Xvnc. can be changed.
- Display Manager: by default the display manager is auto-detected by AxGVNC. But it also can be forced to KDM or GDM.

### 3.5.2 - Screen Format

As shown below, this option allows selecting resolution and number of colors:



Available settings are:

- **Supported Resolution:** available resolutions are displayed. To add a new resolution, enter it on the dedicated field and click **[Add]**. To remove a resolution, click it in the list and press the **<Del>** key.
- **Supported Nb of Colors (Bpp):** the available values are given in bit/pixel (bpp):
  - 8 bpp = 256 colors
  - 16 bpp = 65535 colors
  - 24 or 32 bpp = colors (true colour)

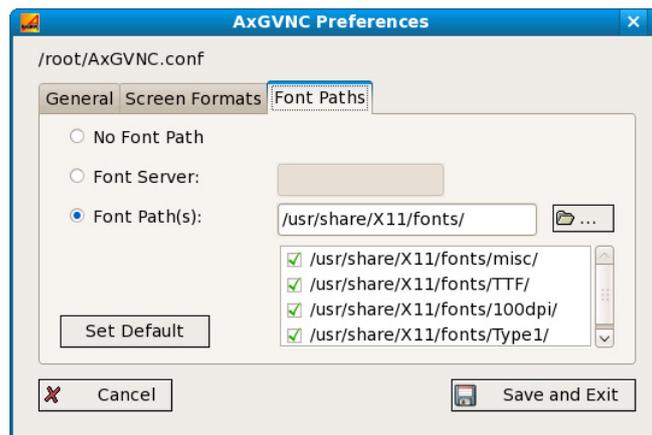
Check the preferred values.

### 3.5.3 - Font Paths

Font paths are required by the VNC server. These font paths can be:

- Specified as run-time option of the Xvnc daemon
- Dynamically loaded during of the Xvnc daemon

AxGVNC preferences allow customising fonts paths specified as run-time option of the Xvnc daemon:



**Note:** The default font path list is the same as the Linux server console (display :0).

Three options are available:

- **No Font Path:** empty list
- **Font Server:** font paths are available through a font server. Enter in the dedicated field the font server name: For example: unix/-1.
- **Font Path(s):** font paths are manually selected. Click the [...] button to select the font folder (for example /usr/share/X11/fonts). Available font paths are displayed. Check boxes to select font paths. Other font paths may be selected by selecting another font folder.

The **[Set Default]** button allows the font path list to be set with the Linux server console settings. (Use of the "xset -q" command).

**- 4 -**  
**CONFIGURING AND USING**  
**AXEL TERMINALS**

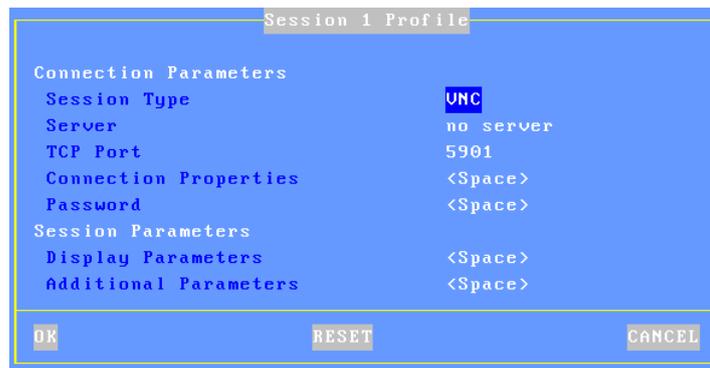
*This chapter covers the configuration and the use of the Axel terminal.*

**Note:** this chapter only describes the configuration of a VNC session. We assume the reader is familiar with the terminal set-up procedures. For more information about the terminal set-up, please consult *Axel Terminal - User's Manual*.

## 4.1 - CONFIGURING A VNC SESSION

### 4.1.1 - General Settings

To set-up a VNC session, select **[Configuration]-[Sessions]-[Session X]** (where X is the session number). The following dialog box is displayed:



The main parameters are the following:

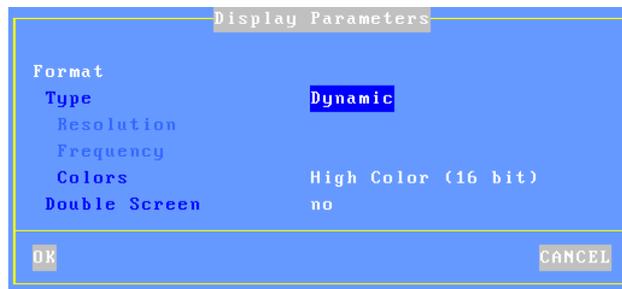
- **Session Type:** select 'VNC'
- **Server:** the server name on which the Xvnc daemon is run

- **TCP Port:** depending on the terminal management method:
  - One VNC server per Terminal: add 5900 to the display number (port 5901 for Display :1, 5902 for Display :2...)
  - One TCP Port per Screen Type: use the TCP Port corresponding with the screen type
- **Password:** this allows the optional VNC connection password to be stored (Note: this is the VNC password - not the user password).
- **Display Parameters:** pressing <Space> allows display settings (resolution and number of colors) to be set. See Chapter 4.1.2.
- **Additional Parameters:** pressing <Space> displays a dialog box which lets certain VNC parameters be changed. See Chapter 4.1.3.

**Note:** after exiting set-up, we advise power-cycling the terminal

#### **4.1.2 - Display Parameters**

Within the 'Session Profile' box, select 'Display Parameters' and press <Space>. The following box is displayed:



This box allows display settings (resolution, number of colors and frequency) to be set. The availability of these parameters depends of the **Type** value:

- **Dynamic:** The Resolution is given by the Xvnc server when the session is established. If supported, it's accepted by the terminal. Else default value (from general level) is used.
- **Default:** the three parameters (resolution, colors and frequency) are issued from general settings (see Chapter 3.2.2). When general settings are modified, these three parameters are automatically updated with new values.
- **Customized:** the three parameters are independent from general settings.

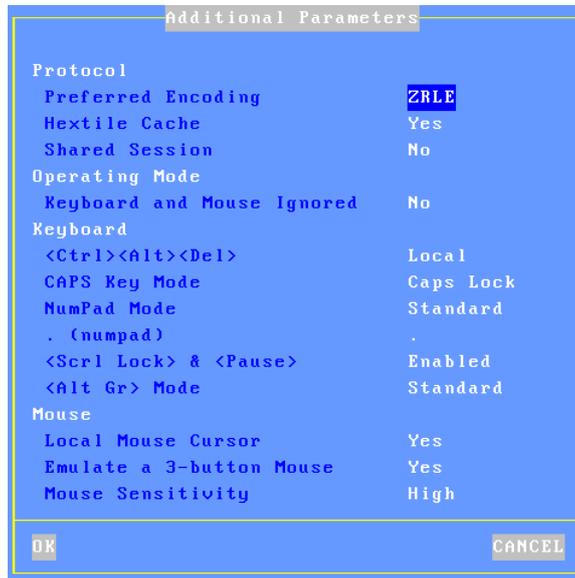
Two VNC terminals may be used to support a double-width display. The "Double Screen" parameter allows the mode of each terminal to be set:

- **No**: no double screen support
- **Left Part**: this terminal displays the left side of the large virtual screen. The 'Shared Session' option is forced to 'Yes'. See Chapter 4.2.
- **Right Part**: this terminal displays the right side of the large virtual screen. The 'Shared Session' and 'Keyboard and Mouse Ignored' options are forced to 'Yes'. See Chapter 4.2.

#### **4.1.2 - Additional Parameters**

The default VNC settings should be appropriate in most cases but can be customized

Within the 'Session Profile' box, select 'Additional Parameters' and press <Space>. The following box is displayed:



### a) Encoding

The 'encoding' is the data format used by the VNC server to send graphical data to the terminal.

All VNC Servers support Hextile (historical encoding). Other encodings may be supported. For example, the RealVNC 4 server supports ZRLE (graphical data may be compressed).

When the VNC session is established, the **Preferred Encoding** is negotiated by the Axel terminal. If this encoding is not available, Hextile will be used.

In event of Hextile is the 'Preferred Encoding', the '**Hextile Cache**' can be enabled. Without this capability, display updates are directly done on the screen itself. Else a display update is first built in memory and then displayed. The global performance is the same whatever the method. But the terminal is more comfortable to be used when the **Hextile Cache** is enabled.

### b) The Keyboard

The keyboard parameters are:

- **<Ctrl><Alt><Del>**: there are two modes for this keystroke:
  - Local: the keystroke is handled by the AX3000 and is used to shutdown the terminal (see Chapter 4.6)
  - Remote: the keystroke is handled by the VNC server.
- **CAPS Key Mode** : set the CAPS LOCK to behave in one of three ways:
  - Caps Lock: each alphabetical key sends the corresponding upper case letter. To unlock this mode press the <CAPS> key.
  - Shift Lock: each key sends the same character sent by pressing <Shift><This key>. To unlock this mode press the <Shift> key.
  - Uppercase: each key sends the upper character if it is present otherwise the lower character is sent.. <Shift> key acts in the standard way (whatever the CAPS key). To unlock this mode press the <CAPS> key.
  - Caps Lock +: same as 'Shift Lock'. But in addition ALL the keys supported (including <Esc>, function keys...).
- **Numpad Mode**: this parameter sets the type of keyboard event sent when pressing a key on the numpad:
  - Standard: keyboard events are thus defined by the RFB protocol.

- ASCII: keyboard events are the same than the top row keys (above QWERTY). With this mode an application can't detect if the pressed key belongs specifically to the numpad. This mode may be required for some JAVA-based applications.
- **(numpad)**: the two available values are the dot (.) and the comma (,).
- **<Scroll Lock> & <Pause>**: enable or disable these two keys
- **<Alt Gr> Mode**: this parameter sets the type of keyboard event sent when pressing <Alt Gr> (located at the right of the space bar):
  - Standard: the keyboard event is AltGr.
  - Ctrl+Alt: the keyboard events are <Ctrl> and <Alt> (left of the space bar).

### c) *The Mouse*

The mouse parameters are:

- **Local Mouse Cursor**: if 'no', the mouse cursor is fully handled by the VNC server. If 'yes', the behavior depends on the VNC server version:
  - Xvnc V3: as above the mouse cursor is handled by Xvnc. In addition the local mouse cursor location is indicated by a little square pointer (2x2 pixels). This can be useful when the local mouse cursor location is different from the VNC cursor location (for example when the Unix/Linux server or the network is overloaded).
  - Xvnc V4: the mouse cursor is handled by the AX3000. With a low-bandwidth, this allows the mouse cursor to be more reactive.
- **Emulate a 3-button Mouse**: if 'yes', the mouse middle button is emulated by clicking both left and right buttons.
- **Mouse Sensitivity**: This setting varies the sample rate of the mouse. If the sensitivity is increased the mouse movement will be more fluid, but also network activity is increased.

## 4.2 - DOUBLE SCREEN CAPABILITY

A 'double-screen' capability is supported by the terminal: the global display is composed by two monitors, one for the left part and the other for the right part.

Two terminals are needed for this function: one controls the left monitor and the keyboard/mouse, the others controls the right monitor.

#### **4.2.1 - Setting-Up Linux**

First a wide resolution must be added in the AxGVNC preferences. This width of this resolution is the double of a standard resolution. For example, add the resolution 2048x768 for controlling two monitor 1024x768

For more information about AxGVNC preferences consult Chapter 3.5.2.

Then add one or more VNC terminals with this new resolution.

**Note:** this feature is only available for the "One VNC Server per Terminal" method. See Chapter 3.3.1.

#### **4.2.2 - Setting-Up the Two Terminals**

On each terminal, enter the set-up and go the VNC session profile:

- Set the real physical resolution on both of them (1024x768 in our example).
- On the "Additional Parameters" select the "Double Screen" option and set "Left Part" for one and "Right Part" for the other.

**Note:** as no keyboard is connected to the "right terminal", set-up the auto-connection mode for the VNC session.

### **4.3 - STATUS LINE MANAGEMENT**

A local status line may be enabled (in the terminal set-up, menu **[Configuration]-[Sessions]-[Multi-session]**).

This status line is located on the bottom of the screen (16 pixel high) and allows:

- Session information to be displayed (session number, connected sessions, current session...).
- Session to be switched by the mouse.

If this status line is enabled, a specific resolution must be controlled at the Linux level.

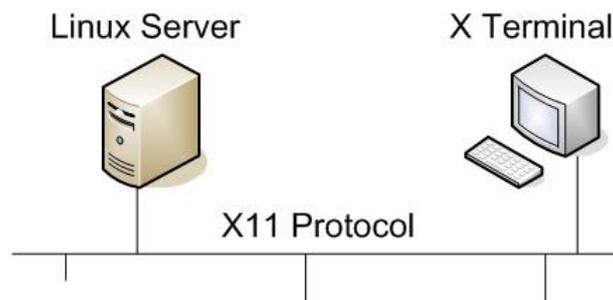
On the AxGVNC preferences a screen format where 16 pixels are removed from the height must be added. For example, with a 1024x768 monitor, a 1024x752 screen format must be added.

**- 5 -  
TO GO FURTHER...**

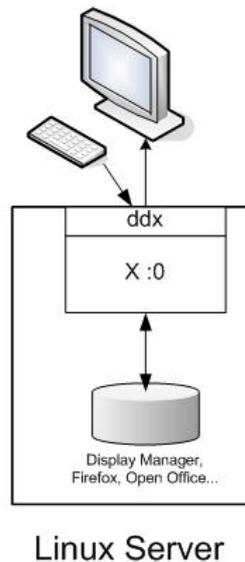
*This chapter gives more information about VNC server.*

## 5.1 - OVERVIEW ABOUT X11 TERMINALS

On Linux, TCP/IP graphical terminals are generally connected via the X11 protocol:



The main console of a Linux server (PC) is also considered as an X terminal (display number :0). This "terminal" uses the TCP/IP loopback interface and local keyboard/graphical drivers (dtx):



## 5.2 - XVNC: A VIRTUAL X11 TERMINAL

### 5.2.1 - Operating Mode

The VNC server acts as an X terminal located in the Linux server memory and using the Linux server resources. The graphical display is exported over the network.

The VNC Server (Xvnc daemon) is composed by:

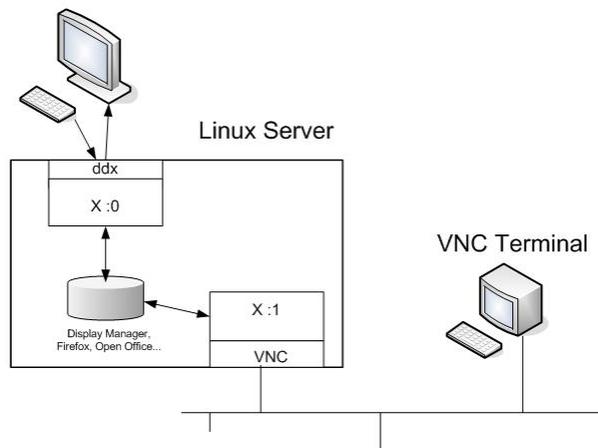
- A virtual X terminal running in the Linux server memory,
- A display export protocol: RFB (Remote Frame Buffer).

This virtual X terminal maintains in memory a graphical display (Frame buffer) which is the interface with software (display manager, desktop, Firefox...).

RFB protocol is in charge to:

- Maintain the display of the VNC terminal by sending over the network parts of the screens recently updated.
- Support keyboard/mouse events sent by the terminal.

This is shown by the following drawing:



A VNC terminal is 'seen' by the Linux server as an X terminal. Any software available on the Linux server can be run from the VNC terminal.

### **5.2.2 - Usage of the Xvnc Command**

A VNC server is run by invoking the Xvnc command.

The syntax is the following:

```
xvnc :display [options]
```

The ":display" parameter is the X11 display number (:1, :2...)

Other major options are the following:

- displayID name:** display identification
- geometry LxH:** screen format
- depth C:** bit/pixel number (i.e: number of colors)
- rfbport p:** port TCP to listen for RFB protocol
- query:** logon screen request (see next chapter)

**-fp x,x,x:** font path list

In addition, when the VNC server is RealVNC 4, the following options will be used:

**-SecurityTypes none:** no password for the VNC connection

**-ZlibLevel=0:** no compression for the ZRLE encoding

### 5.3 - OBTAINING A LOGON ON A VNC TERMINAL

A VNC terminal is seen as an X terminal. But an X terminal without any embedded software.

When the VNC server is run without any specific option, the display on the VNC terminal will be a grey background with an 'X' mouse cursor.

For example:



To get a logon screen, a specific request must be sent by Xvnc to the Linux server: an XDMCP request. This is done by the use of the Xvnc '-query' option.

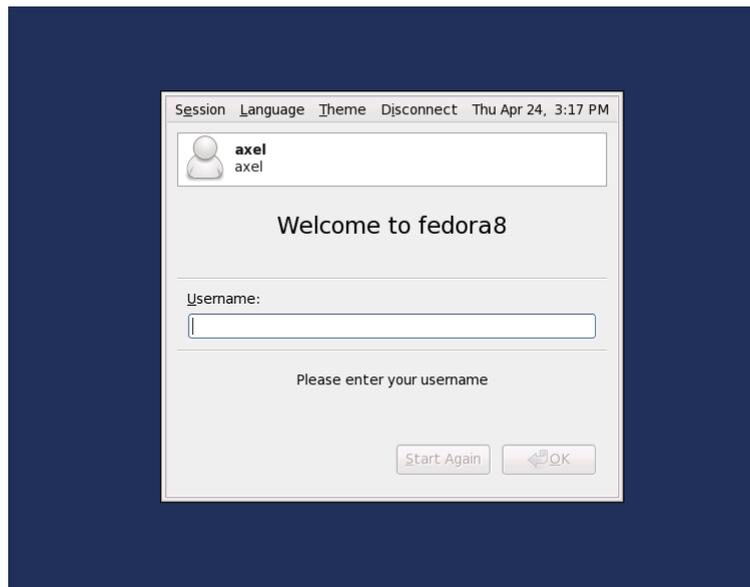
The XDMCP module is included as a standard feature of the X11 package but may be not enabled by default.

The XDMCP activation depends on the display manager (GDM or KDM). For example, with GDM, XDMCP activation can be done by the 'gdmsetup' system utility.

For security issue, the X terminal logon must be allowed. This is done by modifying the Xaccess file.

AxGVNC controls this: XDMCP activation, use of the '-query' option and Xaccess file update. (See Chapter 3.2.2)

This allows a logon screen to be conveyed to the virtual X terminal:

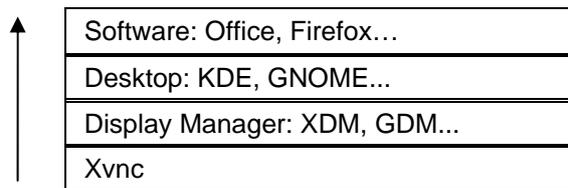


## 5.4 - RUN SOFTWARE WITHOUT THE LOGON SCREEN

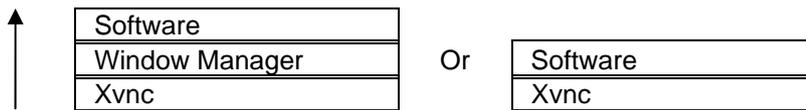
AxGVNC allows software to be directly run. (See Chapter 3.3.1) The main benefit is skipping the authentication step (logon with username and password)

and the desktop. This allows also saving significant CPU and memory resources on the Linux server.

For a "terminal with logon", the major processes are the following:



"Terminal without logon" processes are described below:



**Note:** depending of the software, the use of a Window Manager may be needed. A Window Manager allows windows to be controlled (moving, resizing, title bar with associated icons...). The major Window Managers are: twm, metacity, kwm, fcwm, icewm...

The software can be a binary file or a script shell. (A script allows environment variables to be set and Window Manager to be launched before running the software itself).

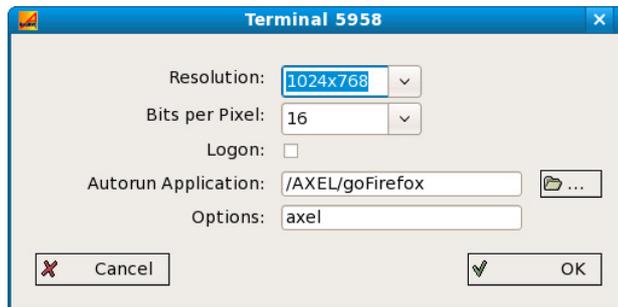
Example: running Firefox via the **goFirefox** script:

```
#!/bin/sh
MYUSER=$1
HOME=/home/$MYUSER
LOGNAME=$MYUSER
USER=$MYUSER
USERNAME=$MYUSER
/usr/bin/twm -f /etc/X11/twm/system.twmrc &
/usr/bin/firefox http://www.axel.com
```

Information about this script:

- The environment variable DISPLAY had been set and exported by the RunScriptVNC script (automatically created by AxGVNC and launched from /etc/inittab).
  - A username (given as a goFirefox option) is used to set some environment variables. This user profile has first to be created by usual Linux administrative tools.
  - A default WEB page is given to Firefox.
  - A Window Manager is used: twm. The twm configuration file had been updated to add two commands (**RandomPlacement** et **UsePPosition "on"**). The configuration filename is included in the twm option list.
- Note:** using the Firefox tab capability may allow to not use a Window Manager.

Example: Declaration of display number ":8" (where 'axel' is the username required by the goFirefox script):



## 5.5 - TROUBLESHOOTING...

### 5.5.1 - Black Screen with the Message "Connecting to..."

When a VNC session is opened, a black screen is displayed with these two lines:

```
Connecting to 192.168.1.150:5901 (Vnc)...
Session number: 1
```

After 30 seconds the session is automatically closed.

This indicates the Linux server IP address is unreachable. Check the cables and the terminal settings (IP address, netmask and router).

Check also the Linux firewall.

### **5.5.2 - The Session is Immediately Closed After Being Opened**

When a session is immediately disconnected this indicates the Linux server is not 'listening' on the expected TCP Port. In other words, the VNC server is not running.

To get an explanation a log file is available (only with the 'One Server per TCP Port' method). This log file is ***/tmp/axvnclogX*** (where X is the display number).

#### ***a) The Xvnc Binary is not Compliant***

An error message like the following is included in the log file:

```
-bash: /usr/bin/Xvnc: /usr/lib/libc.so.1: bad ELF interpreter:
```

To double check run the following command: "**Xvnc -h**". Either the binary is not compliant or libraries are missing.

#### ***b) The TCP Port is Already in Use***

An error message like the following is included in the log file:

```
Fatal server error:  
Server is already active for display 3
```

This port is already used by a VNC server (or another software).

#### ***c) Font Paths are Missing***

An error message like the following is included in the log file:

```
Fatal server error:  
could not open default font 'fixed'
```

A fixed-size font must be added to the font path list (Xvnc option **-fp**). For example "misc".

**Note:** the following fonts are generally included in the font path list: Type1, TTF, 75dpi (or 100dpi).

**d) SELinux prevents some programs to be run**

In event of problem, set the SELinux mode to 'permissive'. This allows to detect what programs are blocked by SELinux.

**5.5.3 - A Grey Screen is Displayed**

A grey screen display with a 'X' mouse cursor indicates a XDMCP problem: The Xvnc daemon is running (and controlling this minimal graphical context) but the logon screen had not been sent by Linux.

For more information, see Chapter 5.3.

**5.5.4 - No XDMCP Configuration File Detected**

If no XDMCP configuration file is detected by AxGVNC, a configuration file can be set-up in the AxGVNC preferences (in AxGVNC.conf located in the home directory).

For example with Mandriva 2010:

```
Version=V1.1
Language=English.lng
Resolution=1024x768 1440x900 1280x1024
Bpp=8 16
HostIPAddr=192.168.1.210
XvncBinary=Xvnc
FontPath=
XdmcPFile=/var/lib/mandriva/kde4-profiles/free/share/config/kdm/kdmrc
```

In this case, AxGVNC no longer try to detect configuration files. Only this one is used for the XDMCP activation.



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