- Setup Mode Password - This is changed by the procedure outlined below.

The **Reset NVM to Factory Defaults** field is password protected. Clicking on this field brings up a dialog box asking you to confirm this command and giving you a warning message.

Special considerations about changing the password apply when you use the Reset NVM to Factory Defaults field. This reset field is password protected, so you must enter the password to execute the command. This resets the contents of NVM, except for the password field (and the fields mentioned above). If you want to clear the password, you must follow these steps:

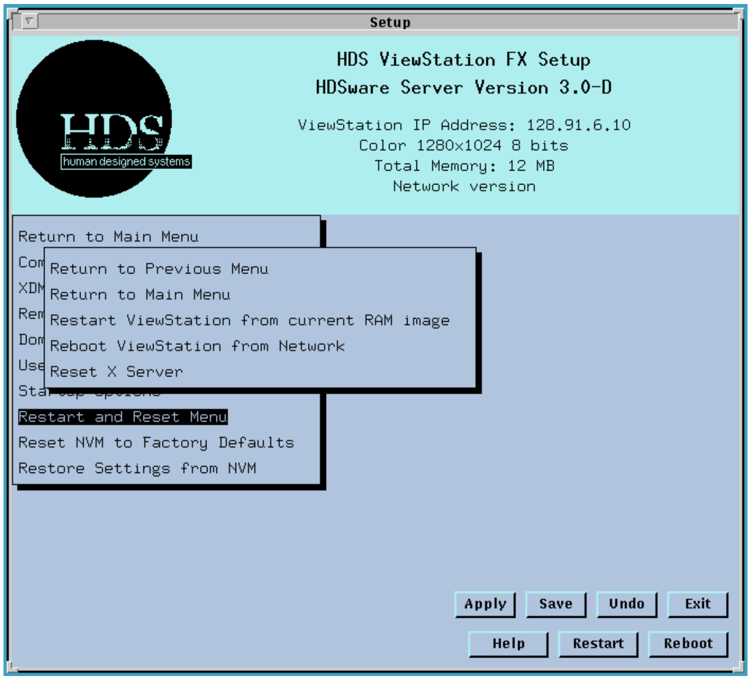
- Go to the User Preferences menu and use your password to edit the password field
- Enter an empty password (press the *Return* key) and confirm your selection
- Save the new (empty) password in NVM
- Run the Reset NVM to Factory Defaults command.

This procedure will clear the password from NVM and let you reset everything to factory defaults.

You can also reset your NVM to Factory Default settings from Monitor Mode with the "factory" command.

1.5.6.12 Restore Settings from NVM

This selection lets you reset your current NVM settings to the values you last Saved in NVM. This is a convenient way to undo all the temporary changes you might have made.



HDS ViewStation FX Setup
HDSware Server Version 3.0-D
ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

The **Restart ViewStation from current RAM image** option restarts the ViewStation using the server code located in its RAM memory. This selection is always present.

The **Restart ViewStation from ROM/Network** option goes to the boot file directory specified in the Startup Options Menu, either the ROM (the flashPROM board) or the Network, and loads the server code again, and then runs from the new code. In each case, this is a complete restart, just as if you had turned the ViewStation Off and On again.

The **Reset X Server** option lets you reset the ViewStation's server software. This command resets things the server has set up, like running clients, loading fonts, or assigning root window properties, but does not reset or reread internal server settings, like the Reset Server Command file, the Startup Command file, or the clients.config file.

1.5.6.11 Reset NVM to Factory Defaults Selection

The **Reset NVM to Factory Defaults** selection allows you to change your NVM settings to their original factory settings. This is a very drastic step and will erase all your settings, including the ViewStation's IP address. You would probably only do this if you were moving the ViewStation to a new location or had some problem with conflicting settings.

There are two fields which are not reset to "Factory Defaults", but retain their current NVM values:

- Screen Settings - The current monitor settings are preserved.

The **Server Reset Command File:** shows the path to your ViewStation server reset command file, which contains special commands and resources read by the ViewStation when it resets. This is the recommended place for local commands, like xmodmap, that you use to configure the ViewStation. This is discussed in more detail in Section 1.2.8.

The **Syslog Configuration File:** shows the host and location of your syslog.conf file, which specifies the type and destination for the ViewStation’s error reporting.

The next two fields contain settings related to the SNMP (Simple Network Management Protocol) protocol. If your network is running SNMP, you can set these fields. If you don't use SNMP, you can ignore these fields.

The **SNMP Trap host** field lets you enter the IP address of the host computer collecting SNMP information. This host collects and analyzes data about the network. The ViewStation sends its SNMP message (called a trap) to this location whenever the ViewStation is powered up or restarted, if the Send SNMP Traps field is set to Yes.

The **Send SNMP traps** field tells the ViewStation whether to send data to the indicated host. The values are Yes and No. If you select the Yes option, the ViewStation sends a "coldstart" SNMP trap to the SNMP host each time the ViewStation restarts. This is a message that the ViewStation is on the network and has just started up.

1.5.6.10 Restart and Reset Menu Selection

The **Restart and Reset Menu** option allows you to restart the ViewStation from the Main Menu. This closes all network connections and then restarts with the configuration you specify (RAM or ROM/Network). Restarting the ViewStation is required for registering some functions, like the IP address, entered from Setup Mode.

When you click on the **Restart and Reset Menu** field, a submenu appears with several options.

The **BOOTP** option (the default value) lets you use a BOOTP daemon running on a host on your network to find your IP address (and, optionally, download the server code). If the BOOTP daemon finds the IP address, it is used by the ViewStation. (If downloading the server code was specified, the boot file name and path are optionally supplied by the BOOTP daemon as part of its BOOTP response.)

The **RARP** option uses the RARP (Reverse Address Resolution Protocol) daemon to determine your ViewStation’s IP address at startup. (If the ViewStation knows the IP address of another network host, it uses ARP to find the host's hardware address. If the ViewStation knows its own hardware address, it uses RARP to find its assigned IP address.) The implementation of the RARP daemon varies from system to system and there are many ways of configuring RARP so different file names and syntax rules may apply.

The next field, **Get server code from:** has two options.

The **Network** option means that the ViewStation downloads its server code from the network and puts the server code in its RAM memory. Note that the Network option uses the file transfer protocol you’ve specified and sends a request to the TFTP or FTP daemons running on the network to send the bootfile. The download file name can be specified either with BOOTP (which finds the boot filename as listed in the */etc/bootptab* file) or from the default boot file designated in the next entry, the FX Server Code File.

Note that a ViewStation with a hard disk drive installed uses a Network boot, but uses the ViewStation’s loopback addresss (IP is 127.0.0.1) as the network destination for the file.

The **ROM** option means that the ViewStation uses the server code in its flash-PROM and loads that into its RAM memory.

The **FX Server Code File:** field specifies the location of the server image to be downloaded from the network. The path is interpreted using the Local Mount directory as described in the Remote Hosts menu section.

The **Configuration File:** line lets you enter the path to your configuration file. The path is interpreted using the Local Mount directory as described in the Remote Hosts menu section..

The default value is a path specifying your FXUtilities host and the sample configuration file supplied on the FX Utilities tape.

The **Client Configuration Path:** field shows the path to your HDSperx clients and their configuration files. The default value is specified by the FX Utilities feature and probably shouldn’t be changed. This clients.config file is discussed in more detail in Section 2.1.

The **Startup Command File:** shows the path to your ViewStation startup command file, which specifies special commands and resources used by ViewStation clients. This file is only read when the ViewStation is booted. More details are discussed in Section 1.2.8. of this manual.

word encryption are necessary for system security. These things are discussed in Section 1.11.1. The ViewStation server uses a built-in encryption utility to decode a password downloaded in an encrypted form.

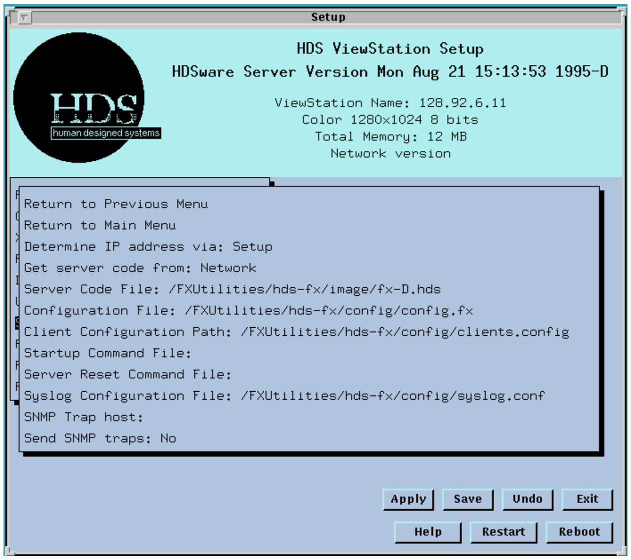
Special considerations about the password apply when you use the Reset NVM to Factory Defaults field. This field is password protected, so you must enter the password to execute the command. This resets the contents of NVM, except for the password field. If you want to clear the password, you must follow these steps.

- Go to the User Preferences menu and use your password to edit the password field
- Enter an empty password (press the *Return* key) and confirm your selection
- Save the new (empty) password in NVM

This procedure will clear the password from NVM.

1.5.6.9 Startup Options Selection

The **Startup Options** menu is shown below:



```
HDS ViewStation Setup
HDSware Server Version Mon Aug 21 15:13:53 1995-D

ViewStation Name: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Determine IP address via: Setup
Get server code from: Network
Server Code File: /FXUtilities/hds-fx/image/fx-D.hds
Configuration File: /FXUtilities/hds-fx/config/config.fx
Client Configuration Path: /FXUtilities/hds-fx/config/clients.config
Startup Command File:
Server Reset Command File:
Syslog Configuration File: /FXUtilities/hds-fx/config/syslog.conf
SNMP Trap host:
Send SNMP traps: No
```

This menu selects whether you operate the ViewStation with the server software stored in flashPROM or whether you load server software from the network as a boot file. The ViewStation’s boot up choices are discussed fully in Section 1.6.

The **Determine IP address via** line has three options: Setup, BOOTP, and RARP. This line lets you select how the ViewStation determines its IP address.

The **Setup** option lets you set your IP address in Setup Mode (on the HDSware or Ethernet communications menu) in the conventional way. The assigned IP address and the internal hardware address are registered on the network as needed (usually done automatically by the ARP protocol).

> The Default Backing Store setting "Always" is not supported, since it is contrary to the specification of the X Window System. Forcing Backing Store on client windows which are unmapped is not permitted behavior for an X server and may result in incorrect client behavior. The "When Mapped" setting is the strongest implicit behavior the server can impose on the client.

The **Screen Settings** field permits you to change the pixel resolution and the number of colors (or gray shades) your ViewStation uses. Your current settings are shown in the field and you can cycle through the permitted values. Of course, you must have sufficient memory installed for these changes to take place. If you don't have sufficient video memory installed, you won't be able to make any changes. For instance a ViewStation with 1280 x 1024 pixels can be used at lower resolution, such as 1152 x 900 or 1024 x 864, but a lower resolution ViewStation, such as a 1024 x 864, cannot be run at a higher resolution, such as 1280 x 1024. The same is true of the color depth. A 256 color (or gray-scale) ViewStation can be run as a monochrome unit, but the monochrome cannot be run at 256 colors.

Note that these changes require that you restart the ViewStation. Be sure you save this new value in NVM, then restart the ViewStation base from the Restart Menu.

Most users rarely use this feature. However, you might sometime need to change the **Screen Settings** field to accommodate clients that work only in one environment (such as **xgif**, which only runs on 256-color displays, or some SUN clients that only run on 1152x900 pixel displays). You could also make these changes to improve the execution speed, since 1 bit graphics run somewhat faster than 8 bit graphics. The lower screen resolutions permit a faster screen refresh and so might provide a display with reduced flicker. These are usually fairly subjective decisions and choices.

The **Reset server when last client exits** field is an important one. It determines whether the ViewStation server resets itself when its last client exits. This is often important for network operations and the orderly starting and stopping of processes on the host computer. Check with your system administrator to see if you need to set this to Yes. The default setting is No.

The **Display memory warnings at** field starts a local ViewStation client which monitors your installed memory and displays a low memory warning on the screen when your memory usage reaches the level you set in this field. You can also start another local ViewStation client, the Available Memory client, by using the **Available Memory** option on the Main Menu.

The **Configuration password** field lets you enter your password as protection for Setup Mode fields. Some important values, such as the IP address or Telnet host address, can be protected from unauthorized alteration by setting a password for Setup Mode with this field. If you don't enter a password here, any field in Setup Mode can be changed without password protection.

There are important considerations about the Configuration password when your system is using the remote configuration features of the ViewStation. The password is part of the configuration file, so questions of transport (TFTP) and passbacking store is used only if a clients specifically requests it, and "when mapped", which specifies that backing store is used for mapped windows unless the clients specifically sets the backing store attribute for this window "Not Useful". Clicking the mouse button cycles between these choices. The last line shows that the new value becomes effective only after restart.

Notes on Backing Store and Save Under Features

Backing Store is a server function that stores a copy of the contents of a window on the screen in the ViewStation's memory. When that screen window is covered by another window, its contents on the screen are erased. When the window is exposed again (requiring a screen refresh), the window contents are retrieved from the copy in the ViewStation server memory, rather than from the client (over the network). This function reduces network traffic and increases the speed of restoring the window.

Save Unders is a window storage utility similar to backing store, but typically applying to transient events, such as small pop up windows or child windows. Save unders specify that only the portion of a window under a pop up window are saved just before the child window appears, and are redisplayed when the pop up window disappears. This may be thought of as an operating property of the child window rather than the backing store memory storage, which is a property of the window whose contents are saved off screen.

In both cases, backing store and save unders are specified primarily by the client, but the capabilities must be enabled by the Server. If the fields are set to No, neither backing store nor save unders are used. If a client requests them, the Server indicates that they are not available. If the clients don't make specific requests, the ViewStation uses the setting selected in the Default Backing Store field, "never", and "when mapped". The "never" option means that backing store is not used. The "when mapped" option means that the ViewStation uses backing store on all mapped windows.

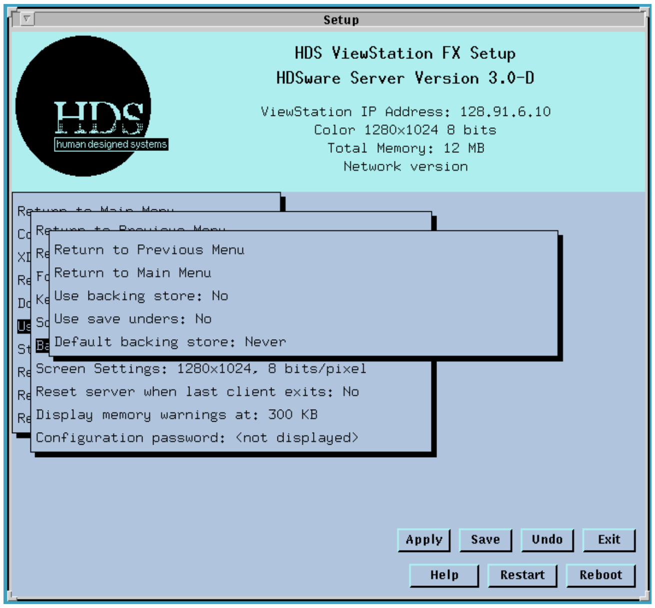
In practical terms, the speed of redrawing the window depends on the relative speed of reading from memory compared to the speed of redrawing the window from the client over the network. Redrawing from memory is adversely affected by memory fragmentation, especially with large and/or color windows, while redrawing from the network is very dependent on network traffic, host speed and loading, and so on.

Balancing all of these factors, the recommended setting for the ViewStation is both backing store and save unders Yes, but with the Default Backing Store field set to "Never". Your configuration or environment may make other choices more desireable. For example, setting the Default Backing Store to "When mapped" is useful with PPP connections, or with hosts located across one or more gateways.

This suggested setting provides the usefulness of backing store when the client requests it but minimizes the memory utilization on the ViewStation. A client request for (or prohibition of) a different type of backing store is processed correctly unless the previous field says No backing store is to be used.

You can also use the HDSperx Screensaver client as a screen saver. This has the added features of a screen lock and various animations for the saved screen. This is discussed fully in Section 2.6.8.

The **Backing Store/Save Unders** submenu lets you select options for the way these memory options are used on the ViewStation. These are important fields which affect the ViewStations’s memory usage and performance.



ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Use backing store: No
Use save unders: No
Default backing store: Never
Screen Settings: 1280x1024, 8 bits/pixel
Reset server when last client exits: No
Display memory warnings at: 300 KB
Configuration password: <not displayed>

The **Use backing store** field lets you select whether the ViewStation uses backing store. Another field selects which type of backing store is used and under what circumstances. The options are Yes and No; with a mouse click toggling between the two values. If you select a new value, the new value appears on the line with the note:

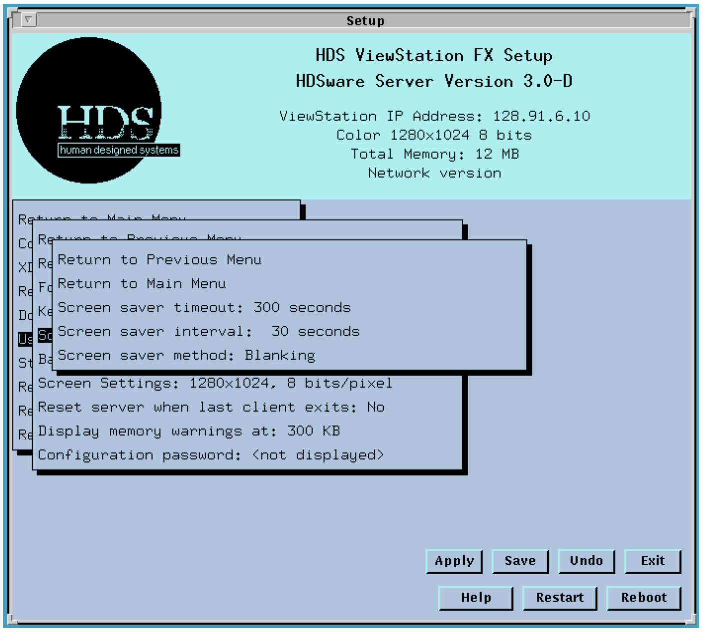
Use backing store: No (at reset: Yes)

to indicate that the new value will take effect only after the ViewStation server resets, or a restart occurs.

The **Use save unders** field specifies whether the save unders feature of the ViewStation is used. The options are Yes and No. Clicking the mouse button toggles between the two settings. A note is added to the entry line that the new value takes effect after server reset.

Note that backing store must be enabled to use save unders. If you select Yes to use save unders, backing store is automatically enabled. In a similar way, if you disable backing store, save unders are also disabled. You may enable backing store and leave save unders disabled.

The Default backing store: field selects the type of backing store function applied to the window on the screen. There are two options: "never", which specifies that



HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Screen saver timeout: 300 seconds
Screen saver interval: 30 seconds
Screen saver method: Blanking
Screen Settings: 1280x1024, 8 bits/pixel
Reset server when last client exits: No
Display memory warnings at: 300 KB
Configuration password: <not displayed>

The **Screen saver timeout** field sets the amount of time the ViewStation waits after the last user activity (keyboard or mouse) before activating its screen saver.

To enter a new timeout value, move to this field and click the mouse button. Disabling the screen saver means that it is never used and the screen stays visible. Selecting a timeout value of 0 disables the screen saver. If it is disabled, the value shown on the timeout line is "Disabled".

The **Screen saver interval** field lets you set the interval between the refresh of the X logo on the screen saver low intensity screen.

The **Screen saver method** field determines whether the screen saver feature uses a the Energy Star screensaver, a blank screen, or a low intensity X logo displayed randomly at various screen locations to minimize image burn in on the display screen. The selections are Energy Star (the default), Blanking, and X logo.

The Energy Star setting is recommended for ViewStations with an Energy Star monitor. The ViewStation with the Energy Star setting blanks the screen after the timeout value, then waits for the screensaver interval and goes to Energy Star mode (which allows the Energy Star monitor to go to a low-power setting). When the ViewStation is active again, the video signal “wakes up” the monitor and the screen display resumes. Setting the screensaver interval to 0 skips the intermediate blanking phase.

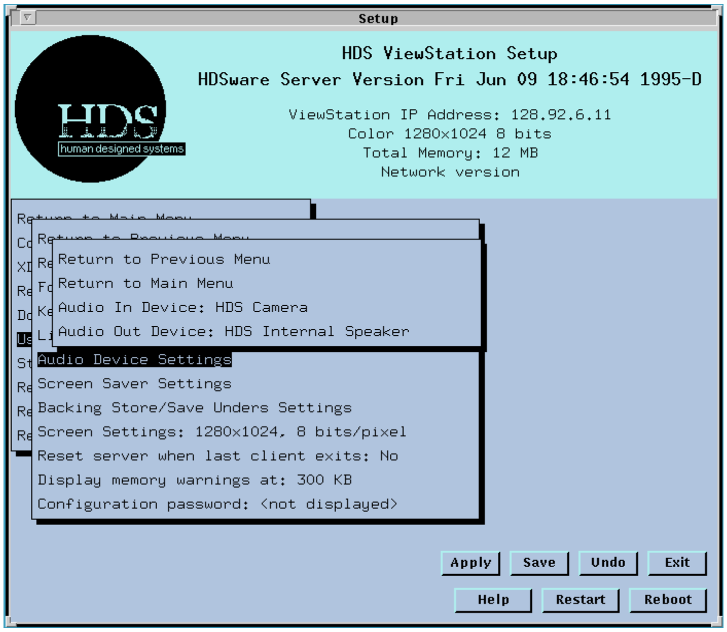
Monitors without Energy Star capability should use the ViewStation’s X logo screensaver (or one of the other screensaver images from HDS screensaver client), since the Energy Star setting turns the monitor Off and On, which gives the screen an unusual appearance while starting.

Using a screen saver is recommended since a monitor can be damaged by long term operation without an active video signal.

The **Bell duration** field lets you select the length of the bell sound. Values about 10 ms. are typical. To enter a new bell duration, move to this field and click the mouse button.

The **Lightpen Calibration** line lets you calibrate your FTG Data Systems lightpen if you have one installed.

The **Audio Device Setting** line brings up a submenu for selecting the audio input and output devices you are using on your ViewStation.



HDS ViewStation Setup
HDSware Server Version Fri Jun 09 18:46:54 1995-D

ViewStation IP Address: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Audio In Device: HDS Camera
Audio Out Device: HDS Internal Speaker

Audio Device Settings
Screen Saver Settings
Backing Store/Save Unders Settings
Screen Settings: 1280x1024, 8 bits/pixel
Reset server when last client exits: No
Display memory warnings at: 300 KB
Configuration password: <not displayed>

The **Audio In Device** line toggles between several input devices, HDS Camera (with built-in microphones), HDS headset, the CallPort integrated Speaker/ Microphone (with echo-cancelling), HDS microphone, HDS tuner, VCR, and Line Level Audio. This setting selects the appropriate input level for the HDS audio device. These settings can also be made in the HDS audio client, see Section 2.7.1.

If you are using your own audio equipment, you will have to determine which input level settings are appropriate.

The **Audio Out Device** line toggles between several output devices, HDS internal speaker, HDS external speakers, HDS headset, and the CallPort integrated Speaker/Microphone (with echo-cancelling). These settings can also be made in the HDS audio client, see Section 2.7.1.

If you are using your own audio equipment, you will have to determine which output level settings are appropriate.

The next line, **Screen Saver Settings**, brings up a submenu for your screen saver selections.The next submenu, shown below, lets you select options for the View-Station's Screen saver feature.

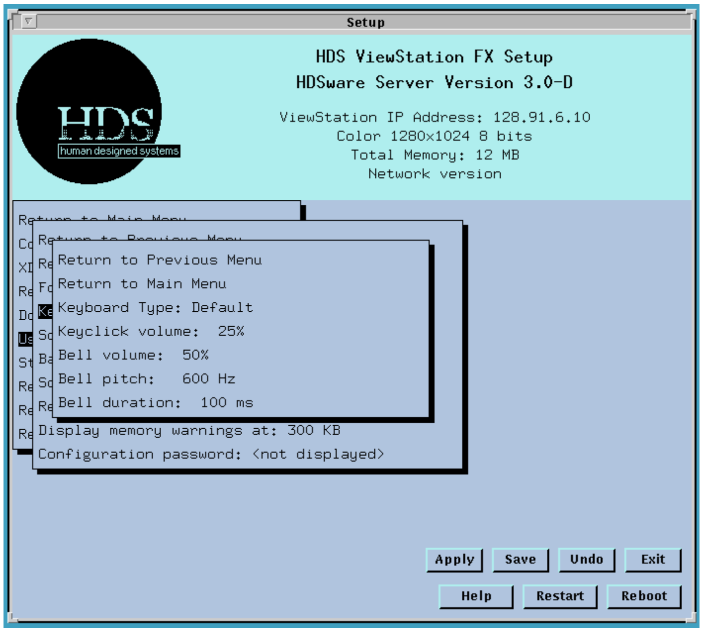
```
175     238     238       pale turquoise
```

These color names are part of the standard X11R4 color definition file. You use these names in a xterm command line to create a colored window.

These color names can also select gray shades on gray scale monitors. A gray shade is a color designated as a percentage of black/white, such as:

```
175      175      175      gray67
```

The next line brings up the **Keyboard and Bell Settings** submenu:



HDS ViewStation FX Setup
HDSware Server Version 3.0-D
ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

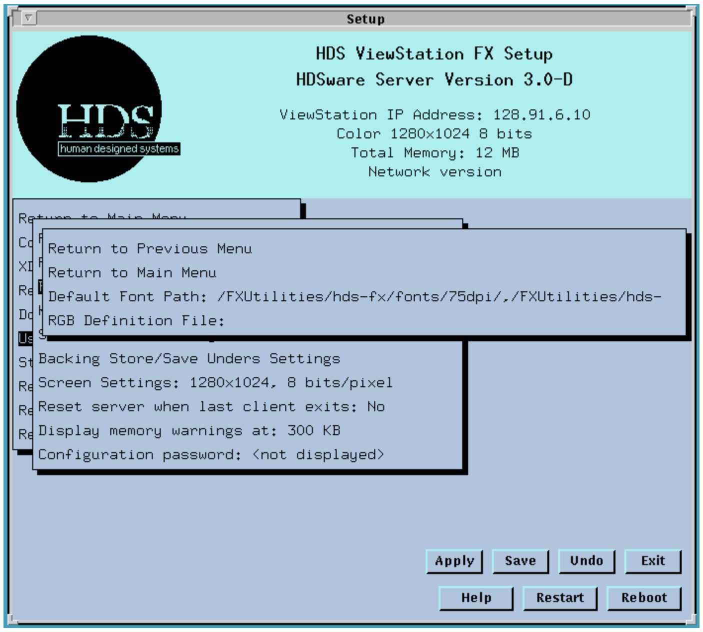
Keyboard Type: Default
Keyclick volume: 25%
Bell volume: 50%
Bell pitch: 600 Hz
Bell duration: 100 ms
Display memory warnings at: 300 KB
Configuration password: <not displayed>

The **Keyboard Type** field is for multinational keyboards. The settings select special keyboard types which have keyboard maps stored in the ViewStation firmware. If you want other keyboard settings, you can generate your own **xmodmap** file. These entries are a convenience to international ViewStation users.

The **Keyclick volume** field lets you set the volume of the keyclick. Values are 0, 25%, 50%, 75%, and 100%. Clicking the mouse button on this field selects each value in turn. When you select a value, the keyclick sounds so you know its volume and can make the selection.

The **Bell volume** field lets you set the volume of the bell. Values are 0, 25%, 50%, 75%, and 100%. Clicking the mouse button on this field selects each value in turn. When a value is selected, the bell is rung so you can see how loud the setting is.

The **Bell pitch** field lets you select the frequency of the bell tone. Values may be from 100 Hz to 10 KHz, but values around 600 Hz are typical. When you enter a new value, save it in NVM, then return to this menu and try it by selecting different Bell volume settings, which actually rings the bell.



Setup

HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Default Font Path: /FXUtilities/hds-fx/fonts/75dpi/,/FXUtilities/hds-
RGB Definition File:

Backing Store/Save Unders Settings
Screen Settings: 1280x1024, 8 bits/pixel
Reset server when last client exits: No
Display memory warnings at: 300 KB
Configuration password: <not displayed>

If you have problems registering the fontpath, or with loading fonts, refer to Section 1.9.2 and 1.9.3 where font handling is discussed in greater detail.

The **RGB Definition File** line lets you enter the path to your RGB color definition file (usually called rgb.txt). It works the same way as the fontpath field above.

Note on Downloading the RGB Color Definition File

The HDS ViewStation has the X11R4 standard color name definitions, consisting of more than 700 colors, stored in its server image. It also has the capability to download a user’s custom color definition file into memory.

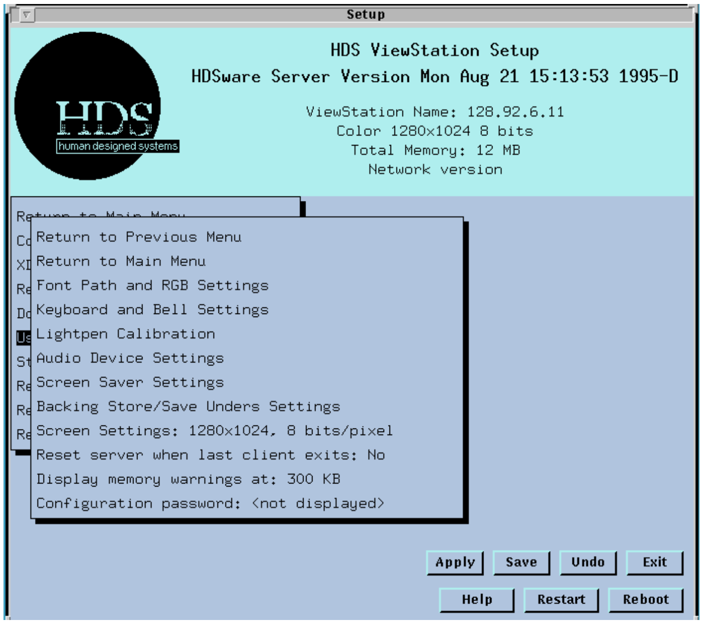
If you want to use a custom color definition file, follow these steps: First, create a text file containing your color definitions. This is usually named *rgb.txt*. Then load the text file into a convenient location on your system and enter the path in the RGB Server line in the User Preferences menu in Setup Mode.

A typical *rgb.txt* file has the following form:

```
<red>   <green>   <blue>       <name>

<red>   <green>   <blue>       <name>

<red>   <green>   <blue>       <name>

...

<red>   <green>   <blue>       <name>
```

where <red> <green> <blue> are intensity values for each of those colors in the range 0 to 255. The <name> is an arbitrary name given to the color. For example, the colors used for the HDS ViewStation Setup Mode screen are:

```
143    143    188     light steel blue
```



HDS ViewStation Setup
HDSware Server Version Mon Aug 21 15:13:53 1995-D
ViewStation Name: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Font Path and RGB Settings
Keyboard and Bell Settings
Lightpen Calibration
Audio Device Settings
Screen Saver Settings
Backing Store/Save Unders Settings
Screen Settings: 1280x1024, 8 bits/pixel
Reset server when last client exits: No
Display memory warnings at: 300 KB
Configuration password: <not displayed>

The **Font Path and RGB Settings** line brings up a submenu for specifying the paths to the font files and RGB color definition files you want the ViewStation to use.

The **Default Font Path** line lets you enter your fontpaths. You can enter the fontpaths with the hostname first, then the path name, including additional paths, separated by a comma or space. You can also use the Local Mount Directory and Remote Mount Directory features to specify fontpaths, see Section 1.2.5. The ViewStation supports a host-based font server simply by adding the font server to the fontpath. This is discussed in greater detail in Section 1.9.3.

The **Default Suffix** field gives the ViewStation information about your device names. A large system will have long host names, such as *hdssun5.softwarelab.hds.com*, so you may want to use the short name for convenience. In this case *hdssun5* would be the name you use and the rest of the name, *softwarelab.hds.com*, would be the suffix. The ViewStation automatically adds this suffix to the names you use when it sends the request to the name daemon on the network.

Be careful to name your hosts so you can communicate with other hosts in the local domain (all hosts with the same suffix) easily and not exclude other hosts and names by having the incorrect suffix.

The **Primary Resolver** field is the IP address of the host computer which is running the name daemon and will try to resolve the names you send on the network. This entry must be an IP address, not a name.

The **Secondary Resolver** field is the IP address of another host computer which listens for name queries and can interpret names. This host computer is a backup for the Primary resolver.

The **Host resolver file address** field gives the IP address of the host computer the ViewStation uses for its own address resolution. It will look at the hosts table, typically */etc/hosts*, on this computer for address resolution.

The **Host resolver file** field gives file name of the host resolver file, typically */etc/hosts*, on the specified host.

1.5.6.8 User Preferences Selection

This menu allows you to set some important user preference settings, such as fontpaths, keyboard settings, display configuration, and some memory options, such as backing store and save unders, as well as your Setup Mode password.

administrator (with root permission) but gives very powerful and fast file transfer responses. This protocol is recommended for large files and file systems.

The **Access Parameters** field brings up a submenu for entering the FTP username and password. If TFTP is selected, clicking on this line brings up a message box indicating that Access Parameters are not needed.

The **Local Mount Directory** field lets you specify a directory as a local mount point. Paths to files or directories on this remote host are then specified by prefacing the remote path with the Local Mount Directory. For example, if the Local Mount Directory is /fonts, and the remote path is given as /usr/lib/X11/HDS, then the actual search path is /fonts/usr/lib/X11/HDS. If you do not specify a Local Mount Directory, the default is "hostname", where hostname is the name given in the Host Name field above. A detailed example appears in Section 1.2.5 of this manual.

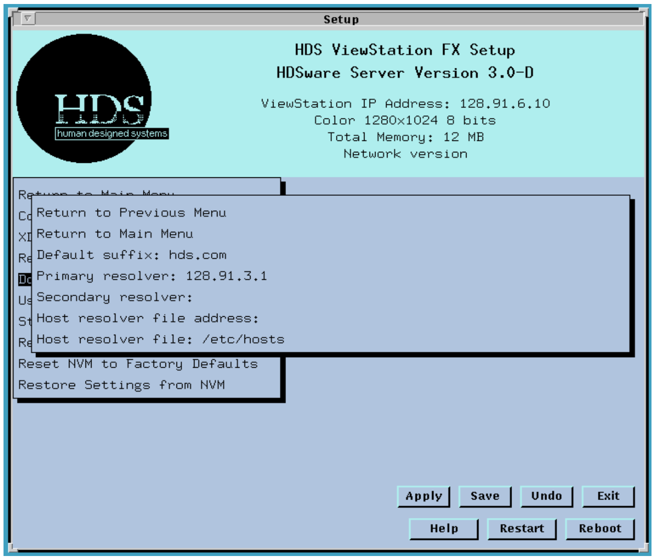
The **Remote Mount Directory** field specifies the path on the remote host corresponding to the specified local mount point. This is useful to simplify pathnames for fonts and server or configuration files.

1.5.6.7 Domain Name Servers Selection

The Domain Name Servers Menu is for users who have a Domain Name Server running on their network. The name server daemon reads data from a data file (typically */etc/named.boot*) which identifies a name with an IP address, and listens on the network for queries about names.

The ViewStation can use device names for the any of its remote hosts. If a field must have an IP address instead of a name, Setup Mode will prompt you for an IP address when you enter a name.

The Domain Name Server Menu shows:



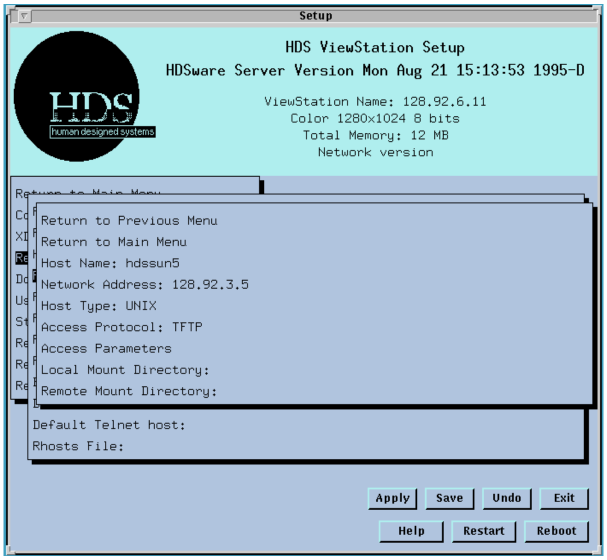
HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Default suffix: hds.com
Primary resolver: 128.91.3.1
Secondary resolver:
Host resolver file address:
Host resolver file: /etc/hosts

Remote Host Submenus

There are six submenus for remote host entries. These menus allow you to specify particular things for the six hosts you use most frequently. These six hosts appear on your Telnet selection menu. This is discussed below.



HDS ViewStation Setup
HDSware Server Version Mon Aug 21 15:13:53 1995-D

ViewStation Name: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Host Name: hdssun5
Network Address: 128.92.3.5
Host Type: UNIX
Access Protocol: TFTP
Access Parameters
Local Mount Directory:
Remote Mount Directory:

Default Telnet host:
Rhosts File:

The **Host Name** field is the name of the host. If you don't specify a Network Address, this name will be used as its address and must be a valid IP address or host name (if you are using Domain Name Service or NIS).

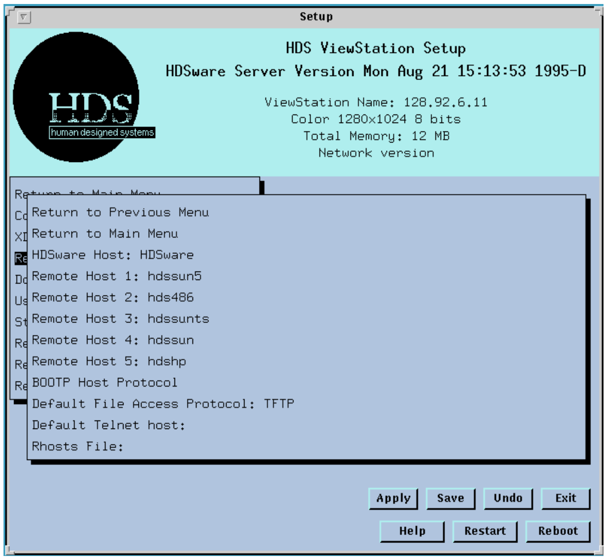
The **Network Address** field is the IP address of this host.

The **Host Type** field specifies whether the host is Unix-based or VMS-based.

The **Access Protocol** field specifies the type of file transfer the ViewStation uses for download processes (such as loading font files or boot files) on this remote host. There are three selections, TFTP, FTP, and NFS, for Trivial File Transfer Protocol, File Transfer Protocol, and Network File Service. The first two protocols are very similar; TFTP is a simpler version of FTP. The TFTP protocol requires only a host name and filename to execute the file download, while FTP requires a valid logon name, a password, and (optionally) an account name in addition. This extra material makes the FTP protocol more secure, but it may be somewhat slower for small files overall because of this logon verification process. TFTP may give a somewhat better response for simple file transfer (such as font loading), though performance depends on a variety of host and network factors. Other factors, such as system security, may also be important in your installation.

The selection of TFTP or FTP affects the next line item, Access Parameters. If FTP is listed as the Access Protocol, the FTP username and password must be entered on the Access Parameters submenu.

The NFS file transfer protocol is more involved and requires access permission to specified file systems on various hosts. It must be configured by the system



HDS ViewStation Setup
HDSware Server Version Mon Aug 21 15:13:53 1995-D

ViewStation Name: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
HDSware Host: HDSware
Remote Host 1: hdssun5
Remote Host 2: hds486
Remote Host 3: hdssunts
Remote Host 4: hdssun
Remote Host 5: hdshp
BOOTP Host Protocol
Default File Access Protocol: TFTP
Default Telnet host:
Rhosts File:

Clicking on one of these lines brings up another menu for individual host selections:

The **Remote Host** list gives you submenus for each of six hosts. See next section.

The **BOOTP Host protocol** field lets you specify the file transfer protocol for your BOOTP host. If you select FTP, you can also enter the FTP access parameters in this menu. The “/BOOTPhost/” is a ViewStation mount point, so “BOOTPhost” is a recognized hostname and path (/) in path entries.

The **Default File Access Protocol** field sets the file access protocol for hosts not listed in the Remote Hosts menu. This is the access protocol the ViewStation will use when connecting to those hosts.

The **Default Telnet host** field lets you specify the host computer you want to log onto when you open a Telnet window. When you run Telnet, this computer is the one whose address is automatically put in the Telnet connection field. If you want to log onto this host automatically, you can set the toggle button at the Setup Mode Main Menu and enter the IP address of the host computer you want as your primary connection (either an Ethernet or a SLIP host) in this field. If you have Domain Nameservice running on your system, you can enter the name of the host computer instead of its IP address. Refer to the Domain Nameserver Menu for more details on name server operation.

The **Rhosts File** field lets you enter a location for your ViewStation’s rhosts file. If you are doing the rhosts security yourself, it will probably be in your home directory. If the system administrator is managing the rhosts, this file will typically be in a privileged system directory. Refer to Section 1.11.2 for more details.

The **Retry Action** field shows whether you want the ViewStation to keep trying to get the xdm display manager to respond or not. The values are Persist and Stop. If you want to use xdm, you probably want the requests to persist until you get a response.

The **Minimum KeepAlive time** field gives the minimum time the ViewStation waits after it has received its last message (of any kind) from the host computer before sending a KeepAlive packet to the display manager. This lets the ViewStation continue its session even if there is no activity from the host computer. The value is an integer value in minutes, with a default value of one minute. This means that the ViewStation sends a KeepAlive packet to the display manager after 1 minute of inactivity. It sends another after 2 minutes, another after 3 minutes, and so on. Any ViewStation activity from the keyboard or the mouse will wake up the session again and reset the KeepAlive time to 1 minute. The net effect is that your session stays alive even if you leave for the weekend.

The **KeepAlive retry timeout** field sets the time the ViewStation waits for a response from the host after it has sent its KeepAlive packet. This is an integer value in seconds, with a default value of 20 seconds. The ViewStation waits 20 seconds after its request for a response; if it doesn't receive one, it closes the connection because the display manager hasn't answered. After it sends the first request (at one minute of inactivity) it sends another request after 2 seconds, another after 4 seconds, and so on until the retry timeout value is reached.

The **Default Access Control** field sets the ViewStation's Access Control security, also called MIT Magic Cookie. The default setting is Enabled. Access control means that Xdm establishes an .Xauthority file with the initial logon. This file is used for security control of other login connections. Refer to Section 1.11.3 for more details and methods of using or modifying Access Control security.

The **Reset Server at End of Session** field selects whether the ViewStation's server software resets itself at the end of an Xdm session. The default setting is Enabled. Depending on your system configuration, this may or may not be desireable, since a server reset removes a lot of the user's settings.

These settings and timeout values should be worked out with consideration of the settings for the corresponding values for xdm on the host computer.

Note also that all of these xdm variables are saved in NVM because they are used very early in the power-up process. If you change the IP Broadcast address value, which can be changed by Apply Changes for the current session only, xdm will use the IP Broadcast address set in NVM when it starts. If you are using the Broadcast address for xdm, you should save its value in NVM each time you edit the field.

1.5.6.6 Remote Hosts Menu

The Remote Hosts menu lets you specify six hosts, selecting their individual configurations, which then become the host entries on your "Chooser" Telnet menus. The menu is shown below:

Direct specifies that you want to communicate only with the xdm client running on the host shown in the XDMCP Server Address field.

Indirect specifies that you want the host given by the XDMCP Server Address field to act as an Indirect host. This Indirect host usually forwards the request to another host computer. You can also use the local HDS Chooser client to give you a menu of available hosts.

Hosts access method specifies a file of connection options in a host file. The "Hosts" access method allows you to specify multiple hosts with individual access methods for your XDMCP request. You can set up an Xdm Hosts file by selecting the Hosts access method and entering the path to your Xdm hosts file in the "Hosts File" line. A sample file is given below:

The Xdm hosts file contains a list of hosts, one per line. Each host entry can be one of three XDMCP query types - Direct, Indirect, or Broadcast. Host names starting with an asterisk ('*') are queried via Indirect requests. Host names not starting with an asterisk are queried via Direct requests. A host name of 'BROADCAST' specifies to perform a broadcast request. Each host entry also has an associated retry timeout. The timeout parameter specifies how many seconds to send requests to a host before trying the next host in the list. The default timeout is 0 seconds. Hosts are tried in the order in which they appear in the hosts file.

Characters after a '#' character are comments.

This is a sample XDMCP hosts file:

```
# XDMCP hosts example file

*hdssun1 # Indirect request to hdssun1, timeout=0

hds486 timeout=10 # Direct request to hds486

hdshp timeout=15 # Direct request to hdshp

BROADCAST # Broadcast request
```

This file specifies that at start_time + 0 seconds, an indirect request is sent to hdssun1 and a direct request is sent to hds486. At start_time + 10 seconds, a direct request is sent to hdshp in addition to requests to hdssun1 and hds486. At start_time + 25 seconds, a broadcast request will be sent in addition to requests to hdssun1, hds486, and hdshp.

The **Run Local Chooser** field lets you select whether you run the HDS ViewStation's local Chooser client. When you use the Indirect or Broadcast access for Xdm, this client puts up a menu of available Xdm hosts. It tests the network to see which hosts respond to your Xdm request and then lets you select the one you want. This is a client running on the ViewStation. It is described in detail in Section 2.6.4. It works with both R4 and R5 Xdm versions.

The **XDMCP Server Address** field shows the IP address of the Direct or Indirect Access host shown in the previous field. The default value is 0.0.0.0.

1.5.6.5 XDMCP Options Selection

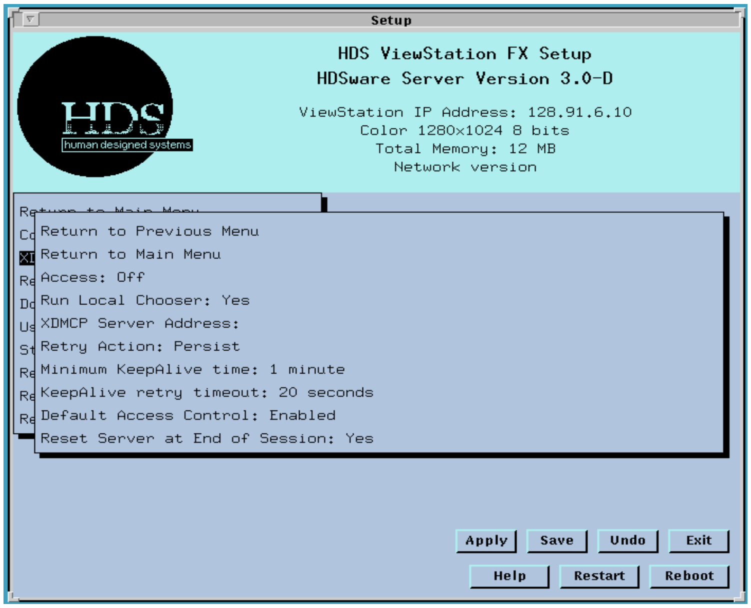
XDMCP (X Display Manager Control Protocol) is a host-based handshaking protocol to establish a connection with a host and to manage your display. It works with a host client to control your logon process, start the clients you specify, and set up configuration parameters whenever you turn on your ViewStation.

Xdm is a powerful client, and a very useful one. The X11R3 xdm managed all the displays listed in its Xservers file. With X11R4, xdm offers the user the choice of managing the display. With X11R5, additional command functionality and control is available with Xdm, now called XDMCP (Xdm Command Protocol).

Entering the ViewStation address in the Xservers file turns complete control over to xdm as with the previous version. But the XDMCP menu also offers the user the option of requesting xdm to control the display, or running without xdm. In this case, the ViewStation address should NOT be entered in the Xservers file, but these items selected in the ViewStation Setup Mode menu. With these settings the ViewStation automatically sends requests as specified to xdm to control its display whenever the ViewStation is turned on.

Using xdm and configuring its files is discussed in more detail in Section 3.3.

The XDMCP Options Menu is shown below:



HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Access: Off
Run Local Chooser: Yes
XDMCP Server Address:
Retry Action: Persist
Minimum KeepAlive time: 1 minute
KeepAlive retry timeout: 20 seconds
Default Access Control: Enabled
Reset Server at End of Session: Yes

The **Access Type** field specifies whether you use xdmcp and which host you want to have manage your display. There are five values for this field:

> **Off** (default value) specifies that you do not want to use XDMCP.
>
> **Broadcast** specifies that you want to accept an offer to manage your display from the first host that answers your broadcast request (your IP Broadcast Address is set in the Communications Options Menu). You can use the local HDS Chooser client to give you a menu of available hosts.

The Communications Menu gives you settings for all your ViewStation communications interfaces.

The **Ethernet Communications** menu lets you select settings for your Ethernet interface, including your IP address.

The **Configure Serial 1 Port** menu lets you to select the operation for serial port 1, the RJ11 port. These options are discussed in Section 1.4.4.

The **Configure Serial 2 Port** menu lets you to select the operation for Serial Port 2, the DB25 port on the optional Communications board. These options are discussed in Section 1.4.4.

The **Token Ring Communications** menu lets you set an IP address for your Token Ring interface as well as other settings for your Token Ring network.

The **Network timeout value** field sets the time interval that a request waits for a response. If you make a request to logon to some host on the network, the request will wait for the specified length of time before it either makes the connection, or gives up and ends the request process. If your timeout value is 15 seconds, a logon request will fail if it has to wait longer than 15 seconds. This value should be some brief time, 15 or 20 seconds, (based on the host's response time and load) so you will know a process has failed without too much waiting.

The **IP Broadcast Address** field sets the network wildcard address, typically 0.0.0.0 or 255.255.255.255. The system administrator sets the correct value for this field. Some systems prefer to use a local network broadcast, such as, 128.91.0.0 or 128.91.255.255. Your system administrator will choose this value.

The **Default Gateway address** field lets you specify a gateway host. A gateway host computer is a computer on your local network that connects to other networks. Refer also to network routing discussed in Section 1.4.5.

The **ViewStation Name** field lets you enter the ViewStation's name, which is used in name resolution on the network (if available to a name server or entered in the host's */etc/hosts* file) and also as the display name in the ViewStation's setting of the display environment variable (with keystrokes Alt-F12, etc. See Section 1.8.2.3 for more detail).

1.5.6.2 Ethernet Communications Menu

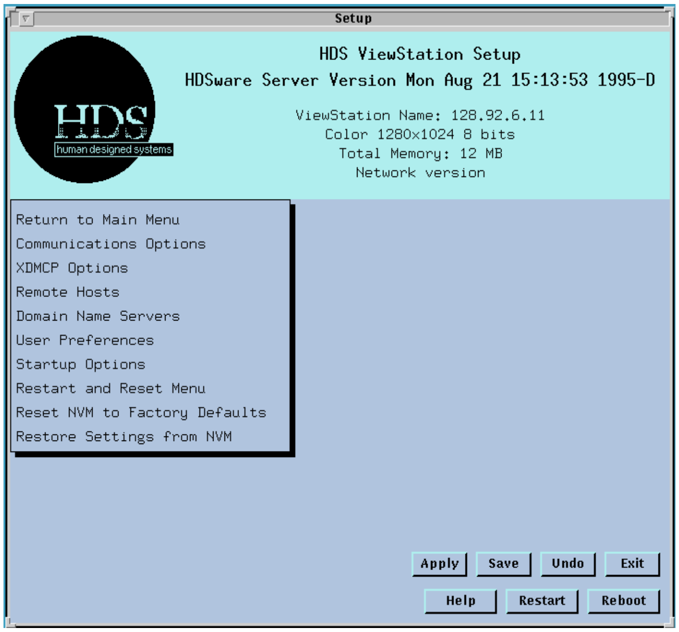
This menu lets you select settings for your Ethernet interface. Its contents are discussed in detail in Section 1.4.2.1.

1.5.6.3 Configure Serial 1 (2) Port Menu

This menu lets you configure your serial ports, either for direct serial connections or for PPP/SLIP/CSLIP communications. This menu and submenus for PPP/SLIP Options and PPP Options are discussed in Section 1.4.4.3.

1.5.6.4 Token Ring Communications Menu

This menu lets you configure your Token Ring interface. Its options are discussed in detail in Section 1.4.3.1.



HDS ViewStation Setup
HDSware Server Version Mon Aug 21 15:13:53 1995-D

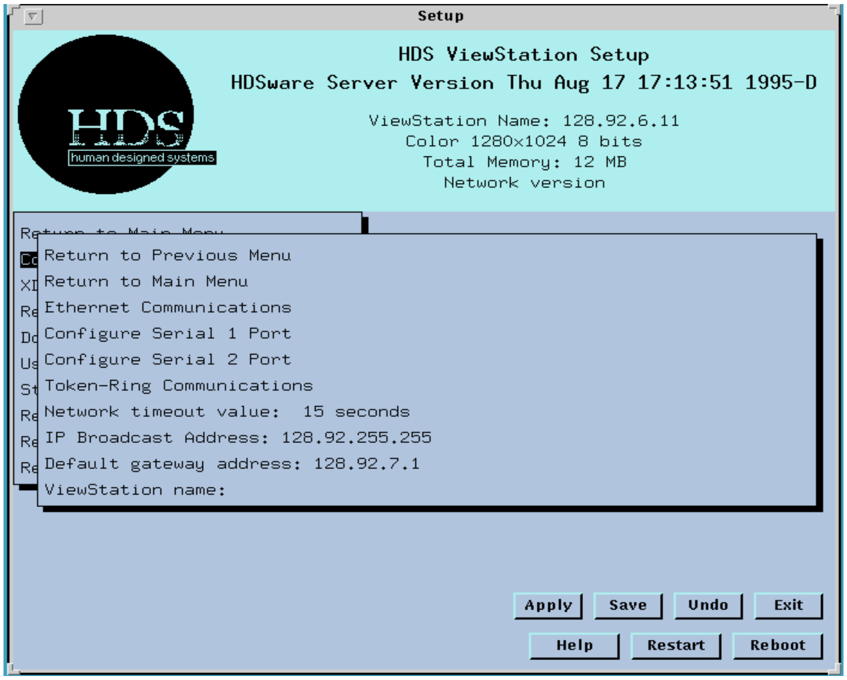
ViewStation Name: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Main Menu
Communications Options
XDMCP Options
Remote Hosts
Domain Name Servers
User Preferences
Startup Options
Restart and Reset Menu
Reset NVM to Factory Defaults
Restore Settings from NVM

Click on each of these menu lines to bring up submenus for those selections. These are discussed in detail below.

1.5.6.1 Communications Menu

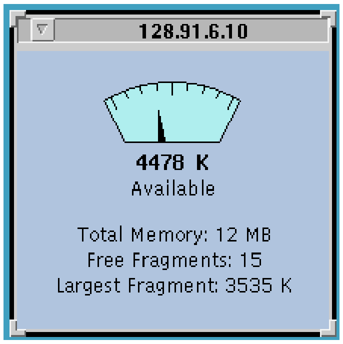
The Communications Menu is shown below:



HDS ViewStation Setup
HDSware Server Version Thu Aug 17 17:13:51 1995-D

ViewStation Name: 128.92.6.11
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Previous Menu
Return to Main Menu
Ethernet Communications
Configure Serial 1 Port
Configure Serial 2 Port
Token-Ring Communications
Network timeout value: 15 seconds
IP Broadcast Address: 128.92.255.255
Default gateway address: 128.92.7.1
ViewStation name:



4478 K
Available

Total Memory: 12 MB
Free Fragments: 15
Largest Fragment: 3535 K

1.5.5.5 Low Memory Warning Client

In the User Preferences menu you may start another local ViewStation client, the **Low Memory Warning** client, which displays a low memory warning whenever your memory usage reaches the value you specified in the Setup field. This is a convenient way to protect yourself from catastrophic memory failure.

1.5.5.6 Motif Window Manager

The ViewStation's local Motif window manager is currently version 1.2.3.

1.5.5.7 OPEN LOOK Virtual Window Manager

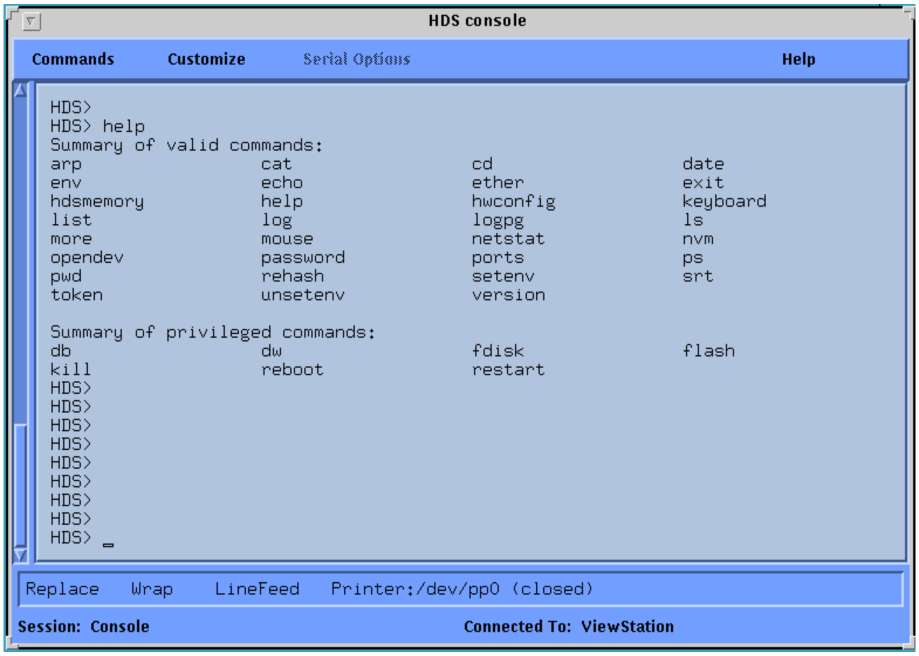
The ViewStation's local OPEN LOOK window manager is currently version 4.0 with HDSware version 3.2.

These window managers are full, licensed applications that run locally on the ViewStation. This capability is based on the power and memory of the ViewStation, and offers you considerable advantage by off-loading this important application from your host CPU and memory.

You can start the window managers by clicking on their buttons, or start them automatically by clicking on the "Run at Restart" button. Remote starting of the window manager is another option that offers additional power and flexibility. This is discussed in Sections 2.4 and 2.5 of this manual.

1.5.6 Setup Options Selection

Setup Mode menus are all available from the Setup Options menu. These are discussed individually below.



```
HDS>
HDS> help
Summary of valid commands:
arp                 cat                 cd                  date
env                 echo                ether               exit
hdsmemory           help                hwconfig            keyboard
list                log                 logpg               ls
more                mouse               netstat             nvm
opendev             password            ports               ps
pwd                 rehash              setenv              srt
token               unsetenv            version

Summary of privileged commands:
db                  dw                  fdisk               flash
kill                reboot              restart
HDS>
HDS>
HDS>
HDS>
HDS>
HDS>
HDS>
HDS>
HDS> _
```

1.5.5.4 Available Memory Selection

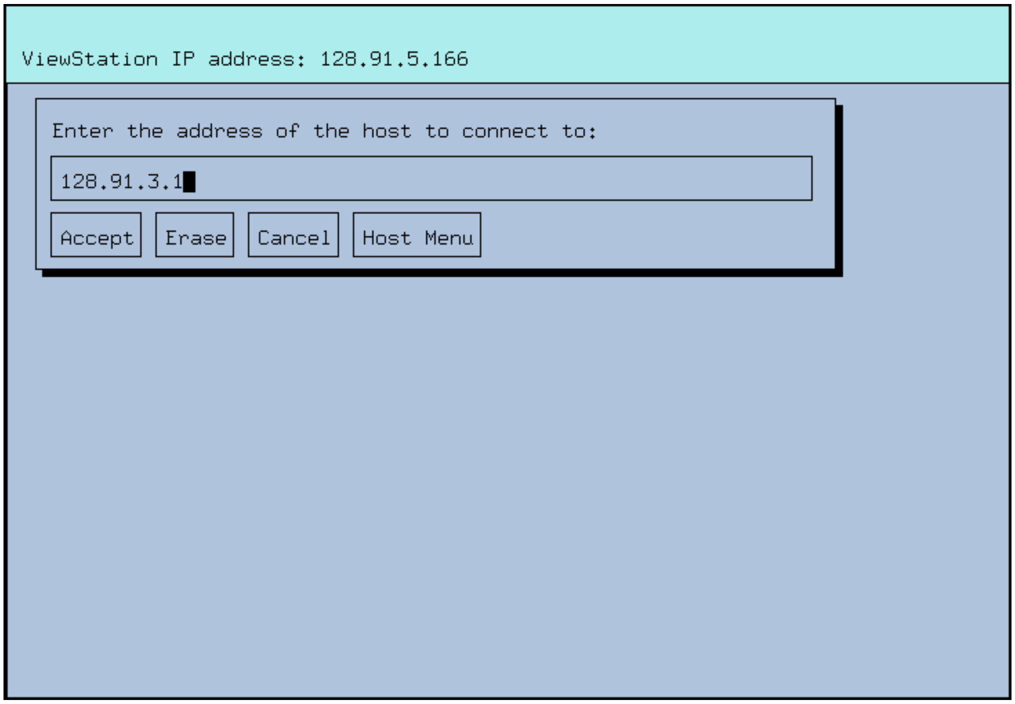
The **Available Memory** button starts a local ViewStation client. The memory window shows the memory currently available on your ViewStation; the IP address is shown in the title bar. The Available Memory client can run multiple sessions and can be displayed on other devices, so a system administrator can use this to monitor memory use.

The amount of memory installed in the ViewStation is shown along with the amount currently available. These values are reported as numbers and also with a "gasoline-guage" graph in kilobytes.

If you press “f” while the window has focus, the number of fragments and the size of the largest will also appear. Memory information about font caching can be seen in the Console Window with the “ps” command.

The available memory value can be somewhat misleading because of memory fragmentation. The observed effects of the number of memory fragments depend on the amount of memory you have installed, how long you have been running, your current settings (such as backing store), and the requirements of your clients.

The Available Memory window shows the size of the largest remaining fragment of memory, which is useful for clients which want a single block of memory. Memory fragments that are adjacent are coalesced into a single block, so you may see the number of fragments decrease when a memory block is freed.



ViewStation IP address: 128.91.5.166

Enter the address of the host to connect to:

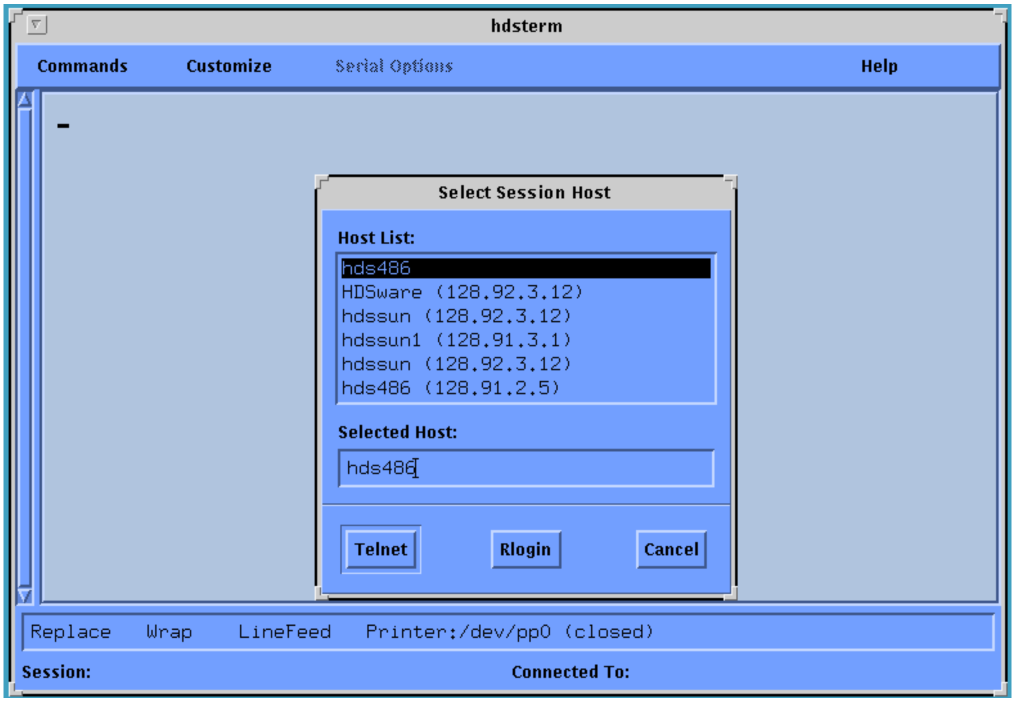
128.91.3.1

1.5.5.3 Console Window Selection

The Console Window button brings up a local ViewStation client which displays various diagnostic messages about the ViewStation operation and lets you run a number of ViewStation commands. This Console Window client uses an HDS-term window for its interface. This local client is discussed more fully in Section 1.2.1

The Console Window runs a shell task, providing a command line interface to the ViewStation’s internal operating system. This is a powerful and convenient way to use the ViewStation’s features.

The HDSterm window for Telnet is shown below:



Host List:

```
hds486
HDSware (128.92.3.12)
hdssun (128.92.3.12)
hdssun1 (128.91.3.1)
hdssun (128.92.3.12)
hds486 (128.91.2.5)
```

Selected Host: hds486

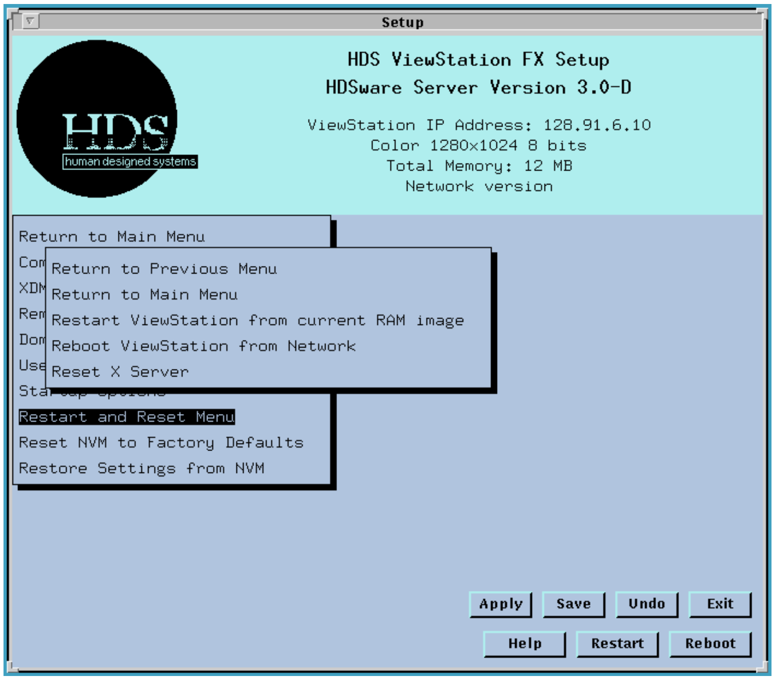
```
Replace   Wrap   LineFeed   Printer:/dev/pp0 (closed)
```

Session:

Connected To:

If you choose to load a server code file with no HDSterm client, the ANSI local client will be used. This is specified by the file name itself, as follows:

- Vnn-D.hds (the -D specifies “download” capability, which includes HDSterm, the Motif libraries for other clients (including MWM), and HDSperx clients.
- Vnn.hds uses the tty Telnet client with a more limited emulation and does not download clients. This server code uses less memory.



HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

1.5.5 Starting ViewStation Clients

The ViewStation has a number of internal clients which can be started from the Setup Mode menu. These are shown with large buttons on the Main Menu of Setup Mode. They are:

- Telnet Terminal Window (using the HDSterm or ANSI window interface)
- Serial Terminal Window (using the HDSterm or ANSI window interface)
- Motif Window Manager (if loaded with your server code choice)
- OPEN LOOK Window Manager (if loaded with your server code choice)
- Console Window (using the HDSterm or ANSI window interface)
- Available Memory

Where appropriate, there is a smaller toggle button below that lets you select automatic starting of that client when you restart the ViewStation.

Other ViewStation clients, such as HDSperx desktop tools, are available from the window manager menus.

1.5.5.1 Telnet Terminal Window Selection

1.5.5.2 Serial Terminal Window Selection

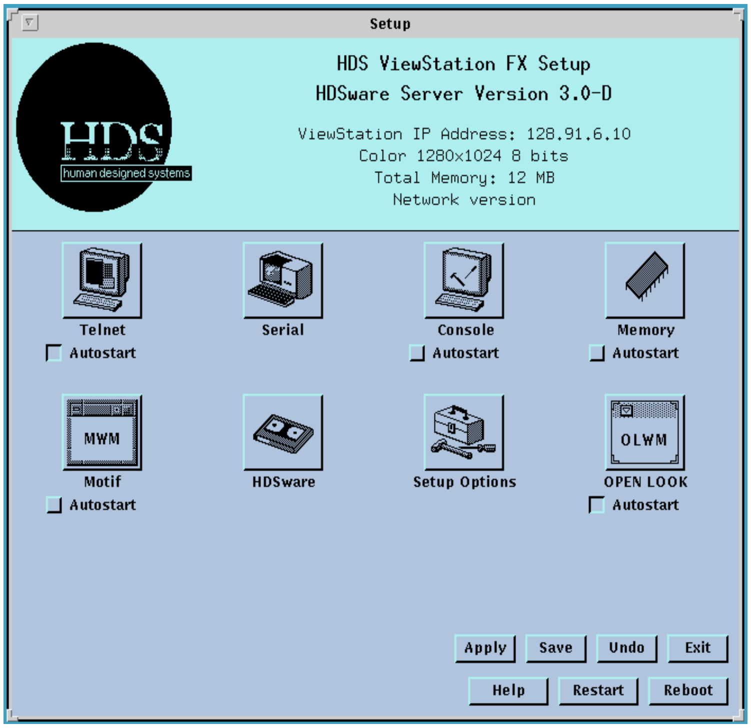
The Telnet and Serial Terminal Window buttons also use a local client, HDSterm, as their window interface. You can start individual sessions of the HDSterm client, either locally or remotely, by using shell commands. This is discussed more fully in Section 2.2 of this manual.

some NVM settings will be set from the Configuration file. These settings and the user settings will be merged at powerup, with the config file's settings overriding the corresponding NVM settings.

- The **Undo** button allows you to remove any changes you've made in Setup Mode since your last Save in NVM or Apply Changes operation and restores the settings which were in effect before you began your current Setup Mode session. You are asked to confirm this action with another pop-up dialog.
- The **Exit** button executes an Undo Changes command and allows you to exit the Setup Mode client and return to your other processes. When you exit Setup, the Setup icon again returns to the lower right part of the screen.

  Note that if your window manager uses icons as part of its graphical interface, the ViewStation's Setup Mode will be treated like any other X client, with a header bar and icon. In that case, you probably won't want to exit Setup Mode from this menu, but just iconify it.
- The **Help** button shows you how to use the Help function. If you want more information about any button or function, move the pointer to the button and press the right mouse button. A message will appear describing the button you've selected.
- The **Restart** button terminates all the ViewStation's current clients and starts the ViewStation again. A pop-up dialog offers several choices about how you want to restart the ViewStation. A pop-up dialog asks you to confirm the selection.
- The **Reboot** button reboots the ViewStation, either from flashPROM or from the Network, as you have specified in the Startup Options menu. A pop-up dialog asks you to confirm the selection.

A more complete set of restart and reboot options, including ROM or Network restart is available from the Restart and Reset menu shown below from the Setup Options menu.



Setup

HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

When you make changes to a Setup Mode field, in some cases the change will be effective immediately, such as User Preference items. In other cases, you must click on the Apply Changes button or restart the ViewStation for the settings to take effect, as with setting the IP address. The settings can be saved into Non Volatile Memory (using the Save button) so they are always available on power up.

A message line at the bottom of the Setup Mode window tells you what is necessary to make the changes effective, whether clicking on the Apply Changes button or restarting the ViewStation. A message also appears next to some fields indicating "At restart: <*this value*>".

1.5.4.3 Setup Mode Function Buttons

The cluster of buttons in the lower right corner of the Main Menu let you execute various functions, which are described below in more detail.

- The **Apply** button executes the changes you have made so they are effective immediately. Some settings, like the IP address, are only effective after you restart the ViewStation. The required action is shown on the bottom of the Main Menu. This button applies the changes, but you also may want to save them in NVM. If you don’t save them, these applied settings will stay set only until you turn the ViewStation off.
- The **Save** button applies the changes and saves the settings you have made in Setup Mode into the ViewStation's Non Volatile Memory. These settings will be used whenever you turn the ViewStation on. You are asked to confirm this action with another pop-up menu. If you use the remote configuration feature,

code is downloaded from a boot file. If you are not using remote configuration, you must change these settings.

Using the remote configuration feature is simple for the user, since all the settings are set automatically by the system configuration file. For the system administrator, it requires setting up a configuration file and making sure the various tools for downloading the configuration are in place, including the correct BOOTP files and so on.

1.5.4 Setup Mode Main Menu

Setup Mode is a Client application program run locally by the ViewStation. It is active all the time, acting either by itself or concurrently with other clients. The only difference is that Setup's window cannot be resized, though it can be moved or iconified with a window manager client.

1.5.4.1 Setup Mode Heading Bar

The top bar of the Setup Mode Main Menu contains configuration information about the ViewStation, including the monitor resolution, installed memory, the firmware version, whether the ViewStation is running from its flashPROM or from the network, and the assigned IP address (after you have entered it and rebooted).

1.5.4.2 Setup Mode Selection Buttons

Setup Mode has a Main Menu containing buttons to select various ViewStation clients, or to display information about the ViewStation. Selecting the Setup Options button from the Main Menu brings other pull-down menus onto the screen with more detailed information or options. You select an item by moving the mouse cursor to the item, which will be displayed in reverse video, and clicking on it with the left mouse button.

Each selection from the Main Menu will be discussed, and the pull-down menus shown with definitions and recommendations for settings for each field. The Setup Mode Main Menu is shown below:

1.5.2.5 Setup Mode Password Protection

The ViewStation Setup Mode has its own password protection for important settings. Some fields, such as IP address, logon information and passwords, etc. are protected from alteration by a user's Setup password. Commands in the Console shell can also be covered by this password, including all internal commands and downloadable clients. This is discussed in more detail in other sections (sections 1.2.1.5 and 1.11) of this manual.

The user password can be entered in Setup Mode from the User Preferences menu or by the remote configuration file; the security considerations of downloading the password from a configuration file are discussed in Section 1.11 along with a description of the remote configuration feature.

The User Preferences Menu has a line for entering the Configuration Password. Entering your password in this field protects your Setup Mode entries and clients from unauthorized use and alteration. If you don't enter a password here or enter an empty password, the verification process is not used.

If you have entered a password, a menu asking for your password appears whenever you try to edit a password-protected field. When you enter the correct password, you can proceed with editing the field. You may edit other protected fields in this Setup Mode session without reentering the password. If you exit Setup Mode, or iconify it, you must reenter the password in the next session to edit a protected field.

Setup Mode protected fields include most data for IP addresses, network settings like netmask and gateways, Telnet and auto-start settings, and all information for font and RGB host connections. Resetting NVM to Factory Defaults is also password protected. Specific protected fields are identified in the appropriate sections

1.5.3 Remote Configuration of the ViewStation

The ViewStation's remote configuration feature is for system environments where there are large numbers of ViewStations which need to be configurable from a remote location, either when first installed or updated or monitored at a later date by the system administrator. The remote configuration feature can also be used to specify or change things like IP addresses, RGB colormaps, fontpaths, etc. for every unit on the system at the same time without making the changes on each individual ViewStation. This is discussed in Section 1.7 of this manual.

Remote configuration allows the Setup Mode settings of any ViewStation to be downloaded from a file located on a host computer, designated the HDSware Host by default, when the ViewStation is turned on. This remote configuration feature uses the BOOTP protocol to determine the location of the configuration file, and the TFTP protocol loads the file from the configuration host to the ViewStation. These elements must be present to use the remote configuration features.

Note that the ViewStation is set at the factory to use these remote configuration feature. This means that default configuration specifies that the IP address is determined by BOOTP, that TFTP is the file transfer protocol, and that the server

1.5.2.2 Setup Mode Editing

The Setup Mode client has a number of user-defined fields. There is full keyboard editing capability for entries in these fields. The cursor keypad allows you to move the cursor left and right within a field and the up and down arrow keys move the cursor to the beginning and end of the field. The *Home, End, Page Up* and *Page Down* keys also move the cursor to the beginning or end of the field.

You can erase a field by pressing *Ctrl-U*. You can also use the *Backspace* and *Delete* keys to delete characters to the left. The *Insert* key toggles the keyboard into Insert mode. This is especially useful for editing long field entries.

1.5.2.3 Setup Mode Editing Keys

The editing keypads on the keyboards are active in Setup Mode on most keyboards.

Function	IBM kybd	DEC kybd	Sun4 kybd	Sun5 kybd
Cursor keys	yes	yes	yes	yes
Insert function	Insert	InsertHere	Ins	Insert
Delete function	Delete	none	Del	Del
Home/PageUp	Home/PgUp	Prev	none	Home/PageUp
End/PageDown	End/PgDn	Next	none	End/PageDown

1.5.2.4 File Names and Paths in Setup Mode

The ViewStation uses an internal file structure which is very similar to NFS, using host names and mount points for easier specification of file names and paths in a complex network environment. A detailed description of these meanings, as well as examples of usage, is found in Section 1.2.5.

In general, you can specify a file name or a path for Setup Mode fields by using a leading slash, then entering the host name (or IP address), the directory path, and the file name, with each field or directory level separated by a slash. For example,

```
/<hostname>/<path>/<filename>
```

or, more specifically,

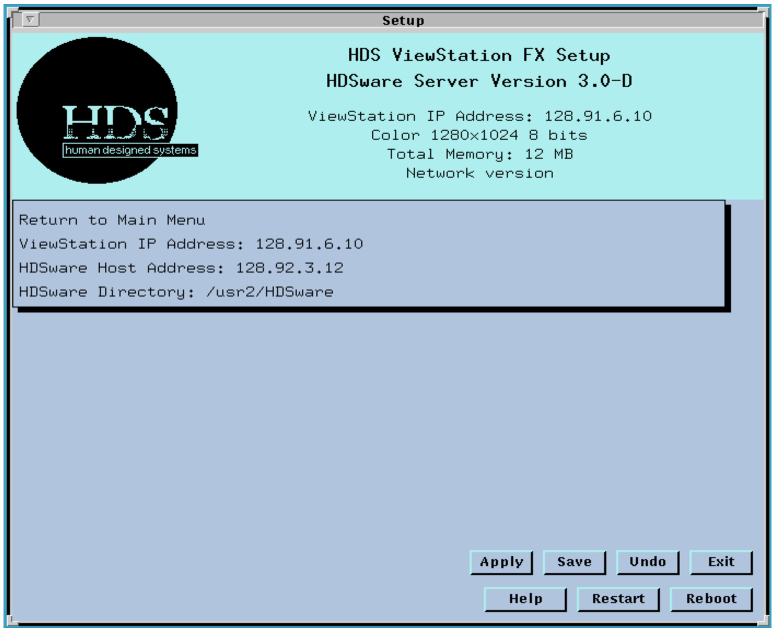
```
/hdssun5/usr3/home/openwin/bin/olwm/.openwin-menu
/128.92.3.12/home/usr2/john/budget.doc
```

The ViewStation understands file names containing all of these elements, with host names as specified in the Remote Hosts menu in Setup Mode (or by some network service) and other entries separated by slashes. Details about other permitted naming techniques, using mount points and Local and Remote Mount Directories, are contained in Section 1.2.5.

This naming structure has an important special case - “HDSware” or “FXUtilities”. The HDSware or FXUtilities abbreviation is used for the HDSware host and HDSware path you specified. This abbreviation is used in the configuration file for specifying the locations of the HDSware software.

1.5.2.1 Quick Starting with Setup Mode

The HDS ViewStation Setup Mode lets you configure your X terminal quickly and easily. The HDSware button of the Main Menu of Setup Mode (shown below) lets you enter your IP address, and your HDSware host and path, and the ViewStation does the rest automatically. This automatic configuration covers almost all of the important ViewStation settings.



HDS ViewStation FX Setup
HDSware Server Version 3.0-D
ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

Return to Main Menu
ViewStation IP Address: 128.91.6.10
HDSware Host Address: 128.92.3.12
HDSware Directory: /usr2/HDSware

Enter the IP address for your ViewStation. This IP address is assigned by the system administrator.

Enter the host address of the computer (the HDSware Host Address) where you loaded the HDSware tape.

Enter the directory location of the HDSware tape on the HDSware Host.

Click on the Save button to save the entries in NVM.

Restart the ViewStation. This is needed to register your new IP address. The ViewStation finds the HDSware host and path and then registers that location for all the files and paths it needs, such as for fonts, clients, etc.

The ViewStation automatically sets these fontpaths, paths to your HDSperx clients, configuration files, and other important data in your current Setup Mode selections. This makes setting up the ViewStation quick and easy. You should save theses settings in NVM.

Other important settings, such as gateways, Domain Name servers, etc., are not set this way. If you need these settings, you will have to enter them in the appropriate Setup Mode fields, as is discussed in the remainder of this section. These settings, and all settings in Setup Mode, can also be set automatically and remotely by using a Configuration file. This is discussed in Section 1.7.

```
hds.client.setup.defaultArgs: -xrm ‘*hotkey: Shift Alt<Key>F1’
```

In this example the new hotkey would be Shift-Alt-F1. The default assignments for the hotkeys are as follows:

Function	IBM kybd	DEC kybd	Sun4 kybd	Sun5 kybd
Setup Mode Hotkey	Alt-SysRq	Alt-Help	Alt-PrSc	Alt-PrintScreen

1.5.1.2 Remote Setup Mode Operation

You can enter a particular ViewStation’s Setup Mode from a remote device by making a rsh (remote shell) connection to that ViewStation, then starting the Setup client and specifying your device’s display for Setup Mode. The command line would be:

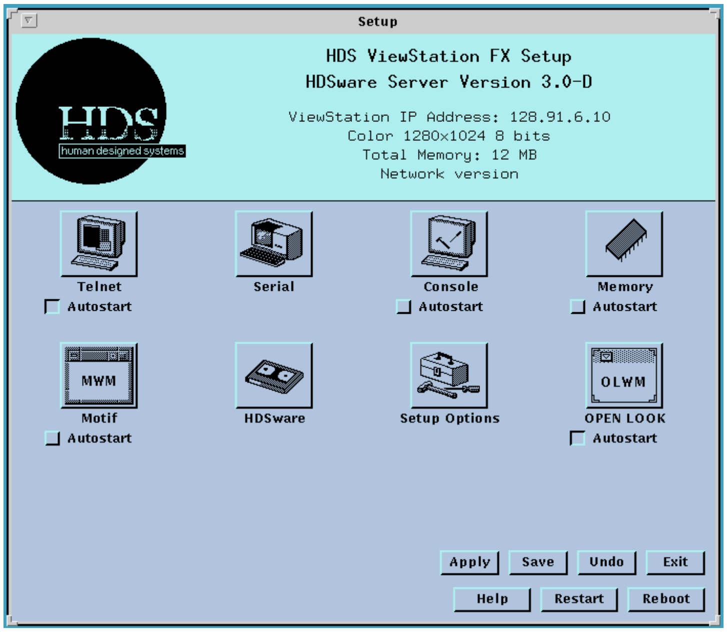
```
rsh <FXname> setup -display <remote_IP:0>
```

Note that only one Setup Mode can be active on a ViewStation, so any local Setup session will be be closed when the remote session starts. The local session will restart automatically when the remote session ends.

1.5.2 Setup Mode Operation

The operation of Setup Mode is intuitive, with a Main Menu showing buttons and boxes for ViewStation local clients and a Setup Options button containing layers of menus offering you choices and editing fields for other settings. Mouse movement selects different options and the left mouse button clicks select an indicated button or option. The selections are shown in reverse video and for important changes you are asked to confirm your selections with another submenu.

The discussion that follows helps you understand the contents of the fields and what selections are available. It can also help you see the forms addresses must have, the range of values permitted for a particular field, and so on.



Setup

HDS ViewStation FX Setup
HDSware Server Version 3.0-D

ViewStation IP Address: 128.91.6.10
Color 1280x1024 8 bits
Total Memory: 12 MB
Network version

HDS ViewStation: Setup Mode

This chapter describes the ViewStation's Setup Mode client and its menus and settings.

Section 1.0 - HDS ViewStation

1.5 Setup Mode

Setup Mode is a ViewStation client that lets you enter and modify ViewStation settings. Setup Mode provides a simple user interface to make these settings, with Help menus, editing tools, and so on.

Many of its settings can be entered automatically with the HDSware configuration feature. They can also be entered remotely by the system administrator by means of the ViewStation's configuration file. Setup Mode can also be run from a remote device on the network.

1.5.1 Entering Setup Mode

Entering Setup Mode is simple. An icon labeled "Setup" appears in the lower right corner of the root window screen each time you turn on the ViewStation. Moving the mouse to the icon and clicking the mouse button brings up the Setup screen.

1.5.1.1 Setup Mode with Hidden Icon

The Setup Mode icon can be removed from the screen by using the "Hide Icon" resource in the ViewStation's configuration file, *./hds-fx/config/config.fx*. This is sometimes useful for simplifying the user's screen or for reasons of security.

If you have the Setup Mode resource set to "Hide Icon", Setup Mode doesn't appear on the screen unless you hit the Setup Mode hotkey. This is a definable key sequence which you can set with the hotkey resource in the Setup client's defaultArgs table in the *./hds-fx/config/clients.config* file: