

## 8 Login and X Session Management

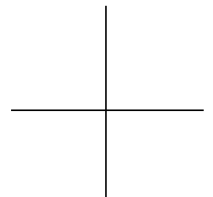
This chapter describes the X Display Manager (XDM), which supplies login and session management services.

The following topics are covered in this chapter:

- ❑ “XDM Default Actions” on page 8-2
- ❑ “XDM Overview” on page 8-3
- ❑ “Configuring XDM Hosts” on page 8-5
- ❑ “Starting XDM Manually” on page 8-15
- ❑ “XDM Access Control” on page 8-15
- ❑ “Configuring Terminals for XDM” on page 8-17
- ❑ “Using XDM—X11R3 Version” on page 8-19

The *NCDware System Administrator's Guide for UNIX Systems* describes the basic usage and configuration of XDM.

The NCD Display Manager is described in the *System Administrator's Guide*.



# XDM Default Actions

Table 8-1 lists the default XDM actions, the alternatives, and references for more information.

Table 8-1 Summary of XDM Defaults and Alternatives

Default	Alternative	References
After booting, the terminal broadcasts an XDM query to the network.	Use direct queries to one or more hosts or use indirect queries.	<i>System Administrator's Guide</i>
The terminal displays a login banner for the user to log into the boot host if you use <i>ncdinstall</i> . If you do not use <i>ncdinstall</i> , a Login Chooser is displayed, offering the hosts that responded to the XDM query.	Disable the login chooser.	<i>System Administrator's Guide</i>
	Disable indirect or broadcast queries.	<i>System Administrator's Guide</i>
	Configure the terminal to send direct or indirect queries.	<i>System Administrator's Guide</i>
	Configure the <b>Xaccess</b> file to customize the host's response to indirect queries.	"Configuring the XDM Xaccess File" on page 8-11
	Instead of using XDM, users log in through the NCD Terminal Emulator.	<i>System Administrator's Guide</i>
The user is not restricted to the hosts listed in the Login Chooser.	The user is not permitted to log into a host that is not listed in the Login Chooser.	<i>System Administrator's Guide</i>
Clients that run before the user logs in (such as the login box) have default characteristics.	Customize client X resources using the <b>Xresources</b> file.	"Configuring the XDM Xresources File" on page 8-14

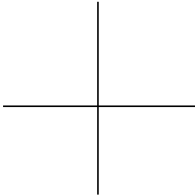


Table 8-1 Summary of XDM Defaults and Alternatives (Continued)

Default	Alternative	References
The default system-wide <b>Xsession</b> file sets up the default X session and looks for an individual startup script ( <b>.xsession</b> file) in the user's home directory.	Set up individual startup scripts for customizing user sessions.	<i>System Administrator's Guide</i>
	Customize the system-wide <b>Xsession</b> file.	<i>System Administrator's Guide</i> "Configuring the System-Wide XDM Session Management File" on page 8-7
XDM sets the terminal's <b>DISPLAY</b> variable.	None.	
When the XDM session ends, a dialog box is displayed giving the user choices about how to proceed.	Configure the terminal's behavior when the session ends and the user is logged out.	<i>System Administrator's Guide</i> "Configuring Terminals for XDM" on page 8-17
XDM parameters that control timeouts and keepalives have their default values.	Customize timeouts and keepalives.	<i>System Administrator's Guide</i> "Configuring Terminals for XDM" on page 8-17
Access control is not enforced. Users can run clients from unauthorized hosts on the terminal.	Configure access control on hosts and on the terminal.	<i>System Administrator's Guide</i> "XDM Access Control" on page 8-15

## XDM Overview

By default, **ncdinstall** checks for the presence of XDM software on the boot host. If XDM is not running, **ncdinstall** can install or enable it.

XDM runs on login hosts and terminals and manages the user's X session from login to logout. XDM can be configured to start clients automatically. When the user logs out, XDM resets the terminal for the next session. The following subsections describe XDM in more detail.

For hosts or networks on which XDM is not available, users can log in through the NCD Terminal Emulator (*ncdterm*). Using the NCD Terminal Emulator to log in is described in the *NCDware User's Guide*, and managing the terminal emulator is described in the *NCDware System Administrator's Guide for UNIX Systems*. Advanced configuration and management of the NCD Terminal Emulator are described in this manual in Chapter 12, Configuring the NCD Terminal Emulator.

### Components of XDM

XDM consists of both host and terminal software:

- ❑ Hosts (called managers) that run the *xdm* daemon and offer login services
  - ❑ NCD terminals that run XDMCP (X Display Management Control Protocol)
- Terminals send XDMCP queries requesting display management, and hosts respond to terminal queries.

On XDM manager hosts, configuration files control how XDM works. The X11R5 and X11R6 versions of XDM provide the *chooser* program, which can be configured to display a choice of login hosts on the terminal.

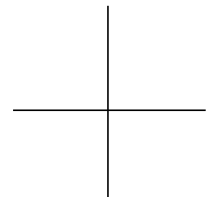
### XDMCP Queries and Host Responses

An NCD terminal can send three different types of queries. Depending upon the type of query and the host and terminal configuration, either a login banner or a Login Chooser appears on the terminal.

The three types of terminal queries are:

- ❑ Broadcast query—the terminal sends a general query to the network for any host running XDM to answer
- ❑ Direct query—the terminal requests connection to a specific host
- ❑ Indirect query—the terminal requests connection to a specific host; this host may forward the request to another host, answer the request, or offer a list of hosts

Configuring terminal queries is described in the *NCDware System Administrator's Guide for UNIX Systems*.



## XDM and the DISPLAY Variable

The **DISPLAY** environment variable identifies the terminal on which clients display their windows and must be available to all clients when they start. This variable is set automatically by XDM for clients started on the login host. You must, however, specify the **DISPLAY** variable for clients started on other hosts.

## The NCD Login Chooser

The Login Chooser is an NCD local client (**login**). Using the **login** client, you can configure the terminal to offer a choice of login hosts to the user. After the user selects a host, the host displays a login banner, which requests the user's account name and password. You can also configure the terminal so the host displays a login banner immediately and does not offer a choice of hosts.

## The NCD Display Manager

The NCD Display Manager (**ncddm**) works with XDM to provide environment variables to local clients that require this information. The environment variables set are the username, the user's home directory, and the UID and GID. The Display Manager is installed by **ncdinstall**; the terminal must be configured to use the Display Manager. For information on the Display Manager, see the *System Administrator's Guide*.

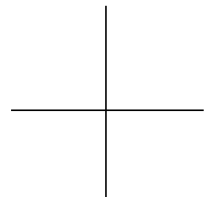
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## Configuring XDM Hosts

This section summarizes the configuration requirements of X11R4, X11R5, and X11R6 XDM on manager hosts. For more detailed information, see the *X Window System Administrator's Guide* from O'Reilly and Associates. For information about X11R3 XDM, see "Using XDM—X11R3 Version" on page 8-19.

All manager hosts require:

- ☐ XDM configuration files installed. Installing XDM binaries and configuration files is an **ncdinstall** option, so you may have already installed the files. If you are already using XDM or you have installed files from other sources, you do not need to reinstall them.
- ☐ A system-wide session management file



- ❑ An operating XDM daemon. System files should be configured to start the daemon automatically when the host reboots
- The following are optional on manager hosts:
- ❑ Customized XDM configuration files
  - ❑ Access control to authorize clients to connect to the terminal
  - ❑ Individual session management files for users

Installing the XDM Binary File

The *x*dm(1) program binary is installed in the */usr/bin/X11* directory and must be installed on each XDM manager host.

Installing XDM Configuration Files

XDM binaries and configuration files must be installed on each XDM manager host. Configuration files are installed in the */usr/lib/X11/xdm* directory.

Table 8-2 lists the files on the NCDware distribution, along with the function of each file and whether it is required.

Table 8-2 XDM Binary and Configuration Files

File Name	Function	Optional or Required
<i>x</i> dm	Host software	Required
Xsession	Startup script used by all terminals to manage the X session	Required for all versions of XDM
.xsession	Startup script for an individual user	Optional
xdm-config	Resources for XDM, some of which are pointers to the other configuration files in this table	Required for all versions of XDM
Xaccess	Controls how XDM responds to the different types of queries from the terminal and implements the Login Chooser	Required for X11R5 and X11R6 <i>x</i> dm only
Xresources	Resources that specify the characteristics of the login banner and Login Chooser	Required for all versions of XDM
Xstartup	A script that runs before starting user sessions	Optional

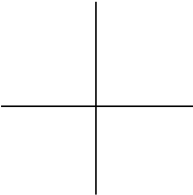


Table 8-2 XDM Binary and Configuration Files (Continued)

File Name	Function	Optional or Required
<b>Xreset</b>	A script that runs before ending user sessions	Optional
<b>Xservers</b>	A list of terminals to be managed by XDM	X11R3 XDM only

## Configuring the System-Wide XDM Session Management File

This section describes the system-wide **Xsession** file, which typically performs the following functions:

- ❑ Establishes a default X session for all users who log into the host where the file is installed
- ❑ Checks for **.xsession** files in user home directories, in case the user prefers an individual X session
  - If **.xsession** files are present, the **Xsession** file executes them
  - If **.xsession** files are not present, the **Xsession** file defines the user's session

For information about **.xsession** files, see the *NCDware System Administrator's Guide for UNIX Systems*.

- ❑ Invokes **xrdb(1)** to load client resources into the X server, where they are available for all clients. If you do not use **xrdb** to load resources and you have not cross-mounted user home directories, then users must have separate resource files (such as **.Xdefaults**) in their home directory on each host.

You must use **xrdb** to load resources for NCD local clients into the X server; local clients do not read resource files.

- ❑ Starts the initial clients, including a window manager.

If you want to edit the default **Xsession** file:

1. Make sure the file permissions are correct. The **Xsession** file must be world-executable.
2. Edit the file, if necessary, following these general rules for **Xsession** files:
  - Clients that must take effect before starting subsequent clients are executed in the foreground. For example, clients such as **xrdb**, **xset**, and

**xmodmap** run in the foreground because subsequent clients may need the output of these programs.

- All other clients are executed in the background.
- The last client executes in the foreground, the script exits, and the user is logged out.

In NCDware, users can log out by using the Logout utility in the Console menu. If you do not want to use the Logout utility, you can use the logout method described in “The Default Xsession File” on page 8-8.

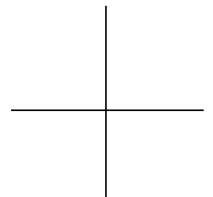
**Note** If your **Xsession** file does not execute properly, you may not be able to log in through XDM. You must log in through the NCD Terminal Emulator. For more information about XDM troubleshooting, see the *NCDware System Administrator's Guide for UNIX Systems*.

### The Default Xsession File

The default **Xsession** file included on the NCDware distribution follows. Note that:

- ☐ The file is executed by the Bourne shell.
- ☐ The file must be world-executable.
- ☐ The if-then-else clause attempts to run a **.xsession** file in the user's home directory; if no **.xsession** file is found, the remaining commands in the **Xsession** file are executed.
- ☐ The file starts the **twm** window manager and an **xterm** window on the login host.
- ☐ The last client runs in the foreground; when the user exits from this **xterm**, the X session ends and the user is logged out.
- ☐ Using **exec** to start clients saves a process slot on the host.

```
#!/bin/sh
# Xsession
if [ -f $HOME/.xsession ]; then
    if [ -x $HOME/.xsession ]; then
        exec $HOME/.xsession
    else
        exec /bin/sh $HOME/.xsession
    fi
fi
```





```

else
    twm &
    exec xterm -fn 10x20 -geometry 80x24+20+20 -ls
fi

```

### Example Xsession File for the Local NCD Window Manager

The **Xsession** file shown in this section is designed for using the default local NCD Window Manager (*ncdwm*[1]). Note the following:

- ❑ The variable **NCDNAME** (the terminal's hostname) is extracted from the **DISPLAY** variable and is used later in the file in a remote shell command.
- ❑ By exporting **NCDNAME**, you can use it in other commands, for example, in the window manager's menu configuration file.
- ❑ The **PATH** variable must be correct for applications that users need to run.

```

#!/bin/sh
NCDNAME=`echo $DISPLAY | awk ' {FS=":"; print $1}'`
PATH=./usr/local/bin:/usr/local/bin/X11:/usr/bin/X11:$PATH
export NCDNAME PATH

if [ -f $HOME/.xsession ]; then
    if [ -x $HOME/.xsession ]; then
        exec $HOME/.xsession
    else
        exec /bin/sh $HOME/.xsession
    fi
else
    # Start the ncdwm local window manager
    ncdrunwm -d $NCDNAME &
    # Start an xterm
    xterm -sb -geometry 80x24-5-150 -fn 9x15bold &
fi

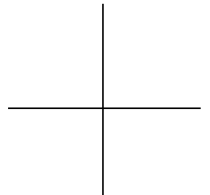
```

To start the local Motif Window Manager instead of the NCD Window Manager, use the **-mwm** option to **ncdrunwm**; for example:

```

# Start the mwm local window manager
#
ncdrunwm -d $NCDNAME -mwm &

```



### Sample Xsession File for OpenWindows

For OpenWindows, you can change the default **Xsession** file so the environment is OpenWindows or you can install user-specific **.xsession** files to establish the OpenWindows environment.

If you set up an **Xsession** file tailored for OpenWindows, only users who are not using OpenWindows should have **.xsession** files in their home directories. As an alternative, you can leave the default **Xsession** file unchanged and set up **.xsession** files for users who run OpenWindows.

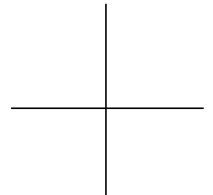
For information about **.xsession** files, see the *NCDware System Administrator's Guide for UNIX Systems*.

The following **Xsession** file is designed for use with the OpenWindows environment. The script starts a command tool and the **olwm** window manager.

```
#!/bin/sh
NCDNAME = `echo $DISPLAY | awk ' {FS=":"; print $1} ' `
#
# Set up variables for running OpenWindows
OPENWINHOME=/usr/openwin
export OPENWINHOME
OW=$OPENWINHOME
export OW
LD_LIBRARY_PATH=$OW/lib:/usr/lib
MANPATH=$OW/man:/usr/man
PATH=$OW/bin:$OW/bin/xview:$OW/demo:/usr/local/bin:/usr/local/bin/X11:/u
sr/bin

export NCDNAME LD_LIBRARY_PATH MANPATH PATH

if [ -f $HOME/.xsession ]; then
    if [ -x $HOME/.xsession ]; then
        exec $HOME/.xsession
    else
        exec /bin/sh $HOME/.xsession
    fi
else
    fi
#
```



```
# Start a cmdtool session
$OW/bin/cmdtool &
#
# Start OpenLook Window Manager
exec olwm
```

## Individual XDM Session Management Files

For information on creating *.xsession* files, see the *NCDware System Administrator's Guide*.

## Configuring the XDM Xaccess File

The **Xaccess** file is used only by the X11R5 and X11R6 versions of XDM and is required on all hosts running X11R5 or X11R6 XDM. Its function is to control access to the host.

If you are using the Login Chooser, you do not need to configure this file unless the terminal is sending an indirect query and you want to configure the host's response.

The default file provided on the NCDware distribution is shown here. This file allows all terminals to connect to the host:

```
# XDMCP access file

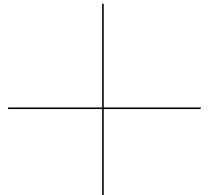
*          # allow everybody
```

If you edit the **Xaccess** file while XDM is running, XDM automatically re-reads the file and uses the new information the next time a terminal connects to the host.

### Contents of an Xaccess File Entry

File entries consist of hostnames, patterns, and macros:

- ❑ Hostnames are simple names or complete domain names. To omit a terminal from the list of those allowed to connect to the host, put an exclamation point (!) in front of its name.
- ❑ A pattern includes one or more wildcard characters, which are compared with the hostname of the terminal sending the query. The wildcard characters allowed are the asterisk (\*) to match any number of characters



and the question mark (?) to match any single character. For example, *ncd\** matches all terminals whose names begin with *ncd*.

- ❑ A macro definition consists of a macro name followed by a list of hostnames. The macro expands to these hostnames when you use it in another entry. Macro names begin with a percent sign (%). For example:

```
%HOSTS atlantic.oceans.com pacific.oceans.com \
        antarctic.oceans.com
```

### Types of Xaccess File Entries

Xaccess files have two types of entries:

- ❑ Entries that control XDM's response to direct and broadcast queries
- ❑ Entries that control XDM's response to indirect queries

In all cases, XDM uses the first entry that matches the terminal name. If the terminal sends an indirect query, only indirect entries in the file can match. If the terminal sends a direct or broadcast query, only direct and broadcast entries can match.

### Direct and Broadcast Entries in the Xaccess File

In a direct query, the terminal sends a request directly to a host. In a broadcast query, the terminal sends a request to all hosts on the network.

Direct and broadcast entries consist of a terminal hostname or a pattern representing one or more terminals.

#### Example Entries

The following entry permits direct and broadcast connections to this host from all terminals on the network:

```
*
```

This entry allows direct or broadcast access to this host from the terminal *ncdu10*:

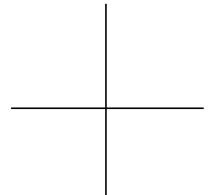
```
ncdu10.oceans.com
```

This entry allows access from any terminal in the oceans domain:

```
*.oceans.com
```

This entry prevents direct or broadcast access by the terminal *ncdu11*:

```
!ncdu11.oceans.com
```



## Indirect Entries in the Xaccess File

Indirect entries are forwarded to another host or list of hosts.

Indirect entries consist of terminal hostnames or patterns followed by a list of XDM manager hostnames, macros, or the keyword BROADCAST.

### Example Entries

To force a terminal to connect to a specific host, you can assign the terminal sending indirect queries to this host. For example:

```
ncdu12    atlantic.oceans.com
```

This entry disallows indirect access by `ncdu13`:

```
!ncdu13.oceans.com    dummy
```

The following example forwards queries from all terminals with names beginning with `ncdu` to the hosts listed in the `%HOSTS` macro.

```
%HOSTS    atlantic.oceans.com pacific.oceans.com \
           antarctic.oceans.com
```

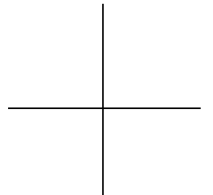
```
ncdu*.oceans.com    %HOSTS
```

## Configuring the xdm-config File

The `xdm-config` file is the master XDM configuration file. The functions of this file are to set some resources for the `xdm` client and specify the names and locations of all of the other configuration files XDM uses.

You can substitute your own files for the default configuration files. The following is an example.

```
DisplayManager.servers:      /usr/lib/X11/xdm/Xservers
DisplayManager.errorLogFile: /usr/lib/X11/xdm/xdm-errors
DisplayManager.forwardingMode: false
DisplayManager*resources:    /usr/lib/X11/xdm/Xresources
DisplayManager*startup:      /usr/lib/X11/xdm/Xstartup
DisplayManager*reset:        /usr/lib/X11/xdm/Xreset
DisplayManager*session:      /usr/lib/X11/xdm/Xsession
DisplayManager*pingInterval: 60
DisplayManager*pingTimeout:  720
DisplayManager.keyFile:      /usr/lib/X11/xdm/xdm-keys
```



Each resource in the **xdm-config** file has one form for setting the resource for all terminals and another for setting the resource for an individual terminal. For example, the **authorize** resource enables or disables user-based access control. The two lines below disable user-based access control for all terminals and enable access control for the terminal **ncdu15**:

```
DisplayManager*authorize:           false
DisplayManager.ncdu15_0.authorize:   true
```

**Note** Instead of the colon (:) normally used in specifying the terminal's display name, an underscore ( \_ ) is used in the **xdm-config** file. This is because of the colon's special meaning in resource specifications.

### Configuring the Polling Interval

The **pingInterval** resource controls how often XDM polls terminals to see if they are still running. The units are minutes.

```
DisplayManager*pingInterval:        60
DisplayManager*pingTimeout:         720
```

### Configuring the Version of *xrdb* to Use

For OpenWindows, add the following line to the **xdm-config** file so XDM can find the correct version of **xrdb**, the utility used to load client resources:

```
DisplayManager*xrdb: /usr/openwin/bin/xrdb
```

## Configuring the XDM Xresources File

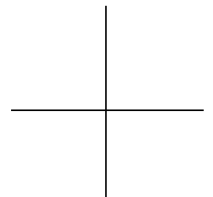
The **Xresources** file sets resources for clients that run before the user logs in (such as the login banner) and is read by each X server as it connects to XDM. The class name for the login prompter is **xlogin**.

You should edit the following entry in the file so the desired greeting is displayed in the login banner:

```
xlogin*greeting: your greeting
```

## The XDM Error Logging File

The **xdm-errors** file logs errors reported by XDM. It must be world-writable.



## Starting XDM Manually

If you did not use *ncdinstall* to configure system files to start the *xdm* daemon or you need to start the daemon on additional hosts, you can start it manually. To start the daemon on each manager host from a command line, type:

```
# /usr/bin/X11/xdm
```

To determine whether the *xdm* daemon is running, type:

```
# netstat -a | grep xdm
```

To start the daemon automatically when the host reboots, complete the following steps:

1. Make sure there is an entry in a startup file (for example, */etc/rc* or */etc/rc.local*) on each manager host to automatically start the *xdm* daemon. For example:

```
# Start the xdm daemon
if [ -f /usr/bin/X11/xdm ]; then
    /usr/bin/X11/xdm; (echo -n ' xdm') >/dev/console
fi
```

2. On SunOS hosts that have only OpenWindows software (no MIT X Window System software), set *LD\_LIBRARY\_PATH* in the */etc/rc.local* file to point to *openwinhome/lib:/usr/lib*.
3. Make sure there is an entry for *xdm* in the */etc/services* file on each manager host. For example:

```
xdm 177/udp  xdmcp  # X11 Display Manager
```

---

## XDM Access Control

This section describes how XDM access control works. The *System Administrator's Guide* describes how to configure the host and terminal for XDM access control.

The XDM access control mechanism ensures that only clients started by authorized users from authorized hosts can connect to a terminal.

Access control under XDM employs an authorization key known to the X server running on the user's terminal and to clients started by the user. The

authorization key is generated by XDM, given to the X server, and placed in a file in the user's home directory (the **.Xauthority** file) each time the user logs in. XDM creates this file automatically.

When the user starts a client, the client obtains the authorization key by reading the user's **.Xauthority** file. Before connecting to the X server, clients must present the correct key.

NCDware uses MIT-MAGIC-COOKIE-1 and XDM-AUTHORIZATION-1 authorization methods:

- ❑ XDM-AUTHORIZATION-1 requires X11R5 or X11R6 XDM; this form of authorization uses the DES (Data Encryption Standard) method of encryption to encrypt the key. Encryption prevents anyone from reading the authorization key as it is passed between the X server and clients.
- ❑ MIT-MAGIC-COOKIE-1 does not use encryption and can be used with X11R4, X11R5, or X11R6 XDM.

Both authorization methods are enabled automatically. The XDM-AUTHORIZATION-1 method requires additional configuration steps; you put an encryption key for each terminal in a special file (**xdm-keys**) and enter the same key on the terminal. If a key is present in the file and entered on the terminal and you are using X11R5 or X11R6 XDM, XDM-AUTHORIZATION-1 is used as the authorization method. Otherwise, MIT-MAGIC-COOKIE-1 is used.

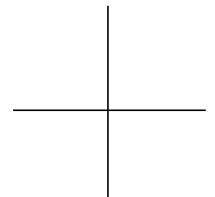
For XDM access control to be effective, you must make sure that X server access control is in effect and the list of hosts having access to the X server is empty. X server access control is described in the *NCDware System Administrator's Guide for UNIX Systems*.

### If XDM Cannot Write to a User's Home Directory

If XDM is not permitted to write to the user's home directory on your network, you must specify a different directory for storing the **.Xauthority** file. To do this, set the **userAuthDir** resource in the **xdm-config** file to specify the alternate directory. For example:

```
DisplayManager.ncdu85_0:userAuthDir: /u1/xdm.dir
```

This results in creation of an **.Xauthority** file in the alternate directory with the environment variable **XAUTHORITY** pointing to the alternate directory.





## Configuring Terminals for XDM

This section describes remote configuration parameters that affect XDM and are not documented in the *NCDware System Administrator's Guide for UNIX Systems*. The *System Administrator's Guide* has instructions for configuring how XDM displays the login banner and Login Chooser.

### Configuring the Login Chooser Redisplay

The **login-window-delay-time** parameter controls the amount of time to wait for a host to display a login banner after the user selects the host from the Login Chooser (Setup ⇒ Change Setup Parameters ⇒ Login ⇒ Window Delay Time). After this time period elapses, the Login Chooser reappears and the user can choose again.

Table 8-3 login-window-delay-time Parameter

Possible Values	Results
default	3
<i>integer</i>	The amount of time (in seconds) to wait before redisplaying the Login Chooser after selecting a login host. Range: 0 - 4294967295.

### Configuring the Terminal's Action when XDM Terminates

The **login-xdm-action-on-disconnect** parameter controls the terminal's behavior when XDM exits (Setup ⇒ Change Setup Parameters ⇒ Login [XDM section] ⇒ What to do when XDM disconnects). The default action is to present choices to the user. The program may exit for the following reasons:

- ☐ The user is trying to log out.
- ☐ XDM quits unexpectedly.
- ☐ The login host is no longer available.

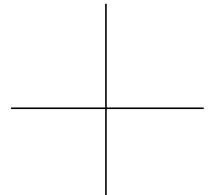


Table 8-4 login-xdm-action-on-disconnect Parameter

Possible Values	Result
default	prompt
prompt	The terminal displays a dialog box when the <i>x<sub>dm</sub></i> control program exits. The user can display the current X connections, continue with the session, or log out.
logout	The session ends without displaying a dialog box.
ignore	The terminal does not log the user out and does not display a dialog box. Clients may continue to run unless they were started by XDM.

Configuring XDM Keepalives

Keepalives are messages that NCD terminals send to verify that the host providing the XDM session to the terminal is still functioning. If the host is unavailable, a dialog box is displayed.

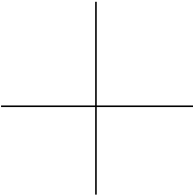
If the terminal has received no client input for a configurable amount of time, the terminal sends an XDMCP keepalive. If the host fails to respond, the terminal takes the specified action.

Complete these steps to configure terminal keepalives:

- 1. The **login-xdm-keepalives-begin-time** parameter specifies the amount of time after which the terminal verifies that the login host is still running (Setup ⇒ Change Setup Parameters ⇒ Login [XDM section] ⇒ Begin Sending Keepalives after).

Table 8-5 login-xdm-keepalives-begin-time Parameter

Possible Values	Result
default	3
<i>integer</i>	The amount of time (in minutes) the terminal waits before sending an XDMCP keepalive. Range: 0 - 4294967295.



- The **login-xdm-keepalives-wait-time** parameter controls the amount of elapsed time from the start of dead session testing (set in the **login-xdm-keepalives-begin-time** parameter) before the terminal declares the session dead (Setup ⇒ Change Setup Parameters ⇒ Login [XDM section] ⇒ Wait for Keepalive Responses for).

Table 8-6 login-xdm-keepalives-wait-time

Possible Values	Result
default	30
<i>integer</i>	The amount of time (in seconds) from the start of dead session testing until a session is declared dead. Range: 0 - 4294967295.

## Using XDM—X11R3 Version

If any of your XDM manager hosts are running X11R3, you can configure them as described in “Configuring XDM Hosts” on page 8-5 with the following additional steps:

- Place an entry for each terminal in the **Xservers** file. Entries in this file have the following syntax:  
**hostname:0 foreign comment**  
 where **hostname** is the IP address or hostname of the terminal and **comment** is any word. For example:  
 ncdu10:0 foreign magic-cookie
- Make sure **login** is not included in the **exec-startup-commands** table (Setup ⇒ Change Setup Parameters ⇒ Commands and Startup ⇒ Startup Commands).

