Release Notice:
DG/UX™ X Window System for AViiON® Systems

Release 5.4

Part number 085-600304-00

This release notice applies to the following model:

H001A

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Release 5.4

085-600304-00

August 1991

Contents

1 Introduction

This Release Notice describes the DG/UX™ Window System Revision 4 release and its installation. It also includes information not currently available in the product manual, such as the product directory tree.

Between releases, Data General may issue updates to the product. An update is essentially a partial release. This mechanism reduces the time needed to fix problems by providing a level of correction short of releasing the complete product. Each update of a product supersedes the previous update.

Additional copies of this release notice can be printed. Use the file /usr/opt/X11/release/X11_5.4.rn on the release tape. In the event of a difference between the on-line file and the hardcopy version of the release notice, the hardcopy notice takes precedence.

2 Product Description

DG/UX X Windows is a combination of the X Window System™ Release 4, Motif™ Version 1.1.1, and Looking Glass® Version 1.0C. The X Window System consists of an X server, a set of X clients, programming libraries, and on-line documentation. The X server manages a raster display and related input devices. X clients are applications which communicate with the X server to perform terminal emulation, window management, and other necessary functions. The subroutine libraries allow programmers to implement applications of their own.

Motif consists of the mwm window manager, a User Interface Language (uil) compiler, and subroutine libraries. Motif is a derivative product to Open Software Foundation, Inc's OSF/Motif™.

Looking Glass®, a desktop manager, provides an icon-based interface to DG/UX. Users can move and edit files, start programs, and view directories by using the mouse to manipulate icons.

3 Environment

3.1 Hardware

The DG/UX™ Window System is based on a client/server model. This model allows the DG/UX™ Window System to be run in two distinct environments, depending on whether both the client and server run on the same machine, or on different machines that are connected by a Local Area Network (LAN). In the first environment, where the client and the server are running on the same machine, they communicate using Unix sockets or shared memory. In this situation the minimum configuration for an AViiON® workstation is a keyboard, mouse, raster display, disk and tape or fileserver.

In the second environment, the server and clients execute on different machines connected by a Local Area Network (LAN). The machine running the server must have, at a minimum, the standard AViiON workstation configuration. The machine running the client can be any CPU connected to the AViiON workstation by the LAN.

3.2 Software

In both operating environments, revision 5.4 of the DG/UX operating system is a prerequisite. Consult the DG/UX release notice to determine its environmental requirements.

In the second environment described above, the DG/UX™ Window system requires revision 4.30 or later of DG TCP/IP (DG/UX), installed on the local machine to provide LAN support to the remote machine with the display. Consult the DG TCP/IP (DG/UX) release notice to determine its environmental requirements. The remote machine presenting the displays generated by the DG/UX™ Window System must be equipped with support for TCP/IP LAN as well as an X server that supports the version 11 protocol.

4 Enhancements and Changes

4.1 Enhancements

1. X11 has been updated to Release 4. It will be henceforth referred to as "X11R4".
    X11R4 was first released as part of DG/UX™ 4.32.

2. In addition to the standard static libraries, the following shared X libraries have
    been included in this release: libX11.so.1, libXaw.so.1, libXm.so.1, and
    libXt.so.1. The default build environment for X and Motif applications uses these
    shared libraries. Modifications to the libraries in subsequent releases typically
    will not require clients that dynamically link them to be relinked. However,
    changes that alter the programming interface will be released in a new "version"
    of the library, as indicated by the version suffix (libX11.so.2, for example).
    Clients that wish to incorporate the new library in this case would indeed have to
    be relinked. While these changes will be kept to a minimum, they are out of Data
    General's control; programming interface changes are dictated by the MIT X
    Consortium and/or OSF.

    Note that using any part of the libXm.so shared library also requires linking in
    the Programmer's Workbench library, -lPW. This is not required when using the
    static libXm.a unless you are using the FileSelectionBox Widget.

3. X11R4 utilizes the AView graphics daemon (grfxd) to control the display
    hardware. However, the AView package need not be loaded in order to run X,
    because a copy of grfxd is loaded as part of the X package into /usr/opt/X11/bin.
    Refer to the AView release notice for additional information on the AView
    product.

4. X11R4 includes an implementation of shared memory transport for client/server
    communication when both the client and server are executing on the same
    computer. This feature provides performance improvements of up to 100% for
    many X protocol requests. For details on using the shared memory transport
    consult the file /usr/opt/X11/release/DGShm.notes.

5. Two additional images have been included in this release: an Xserver
    development environment [X11.sde] and additional MIT documentation
    [X11.doc]. Note that these images are optional. See the Installation Instructions
    for more details on these images.

6. The MIT "shape" and "miscellaneous" extensions are supported.

7. The manual page browsing tool, xman, now searches all subdirectories in
    /usr/catman. Previously, xman only searched a_man, p_man, u_man, X_man,
    and M_man.

8. The manual browsing tool, xman, has been modified to display bolded and
    underlined text correctly. An additional option, -wantitalics, has been added if
    the user desires to italicize text instead of underlining it.

9. The X Display Manager (xdm) has been enhanced significantly. For more information concerning these new features, please refer to the document in /usr/opt/X11/doc/XDMCP/xdmcp.LP.Z.

10. The following clients are new to X11R4. Please refer to the online manual pages for a complete description of the application.

    ```
    appres      editres      listres      oclock
    telxdm      twm          viewres      xauth
    xditview    xfontsel     xlsatoms     xlsclients
    xman        xpref        xstdcmap
    ```

11. Mterm includes the following enhancements:

    ● Support for d410 emulation.

    ● A search facility to allow you to search the screen and history.

    ● Font sizes can be changed 'on the fly'.

    ● A new help system which includes a table of contents and 'links'.

    ● Support for more fonts and font sizes.

    ● Emulation mode can be changed 'on the fly'.

    ● If mterm is iconified, the icon will reverse color on a bell. This is useful for monitoring new e-mail.

12. Motif 1.1.1 uses Version 11, Release 4 of the X Window System™, including the X11R4 X Toolkit Intrinsics. The programming differences are described in /usr/opt/X11/release/motif_changes.

13. Enhancements to the Motif Window Manager (mwm) include these:

    ● New options exist to support multiple screens.

    ● **BDrag** in the title of a window drags the window and in an icon drags the icon.

    ● **BMenu** causes icon menus to pop up.

    ● New resources exist:

      ```
      enableWarp
      iconBoxSBDisplayPolicy
      raiseKeyFocus
      ```

    ● A new function, **f.normalize_and_raise**, causes the client window to be displayed in normal size at the top of the stack.

    ● The window manager uses the LANG environment variable to determine choice of language.

- A new environment variable, MWMSHELL, controls which shell is invoked by **f.exec**.

4.2 Changes

1. For Release 4, MIT has modified the header file directory structure. Instead of all header files residing under /usr/opt/X11/include/X11 (including Xt, Xaw, etc...), the directory has been further subdivided into subdirectories. This modification has in turn been included in Data General's X11R4, and is reflected in this release. Specifically, the /usr/opt/X11/include/X11 directory will contain all X11 and Xt header files. In addition, the following subdirectories have been created and contain their respective header files: Xau, Xaw, Xdmcp, oldX, Xmu. This may cause problems for clients that include these. Please note that this change is permanent for R4 as driven by MIT; adjust your clients as needed.

2. Keyboards other than US English are handled differently in the new revision of X Windows. X11R4 uses the new Mode_Shift feature to handle Alt key sequences. As a result, many applications built with X11R3 libraries will not interpret keyboard input correctly with foreign keyboards. Relink with X11R4 libraries for correct input.

3. The rgb.txt file has changed between R3 and R4 (as modified by MIT), changing and augmenting the list of colors supported. If the user wants to retain his original colors, then the rgb.txt, rgb.dir, and rgb.pag files (under /usr/opt/X11/lib) must be saved prior to loading this package, and restored upon completion. Note that in order to incorporate any user modifications to the rgb.txt file, the user must run the program "rgb" (rgb rgb < rgb.txt), available on the contributed software tape, to regenerate the rgb.pag and rgb.dir files. Merely modifying rgb.txt will not be sufficient.

4. The "vendor string" in the X server has been changed to *Data General Corporation*.

5. Modifications to the mailbox widget have been included in this release. The widget now checks the status of the user's mailbox every update interval, just like in previous versions. The widget now uses the mailbox file creation, modification, and access time in addition to the file's size to determine if the user's mail has been viewed. Note that this may result in the mailbox widget incorrectly reflecting no new mail, due to a possible mailbox file access occurring after mail was added.

6. The Athena widget set is now being released as part of the X11R4 image. This does not include, however, the manpages. Athena widget documentation can be found in the O'Reilly X Window System manuals, volumes 4 & 5 (see the order form enclosed with your shipment). Differences between the R3 and R4 Athena widgets are described in "Converting R3 Athena Widget Applications to R4" found in the X11/doc directory (loaded as part of the X11.doc image).

7. R4 includes a new implementation of the X Toolkit Intrinsic (Xt), making it different from R3. Refer to the O'Reilly X Window System manuals, volumes 4

& 5 for Xt documentation.

8. The xwd program by default does not include the window manager frame that encloses the window. You should use the -frame option to include the window manager frame in the dump file.

9. The X Window System Display Manager, xdm, no longer supports localTransient and transient sessions.

10. Several new options and resources have been added to the Display Manager. Although the standard installation of the Display Manager should be adequate for most situations, some of the new features may help you in customizing your X Window sessions. Please refer to the on line manual page for xdm as well as the documentation in /usr/opt/X11/doc/XDMCP/xdmcp.LP.Z if you wish to know about these additional features.

11. The MIT X Consortium no longer supports uwm. Uwm will appear on the next contributed software tape instead. The new supported window manager is twm. A complete description of twm is available in an on line manual page.

12. The X11R3 version of xterm supported the "-i" command line option that would start the xterm instance in the iconic state. This command line option is not supported in X11R4. The user is advised to use the "-iconic" command line option instead.

13. All of the clients supplied in this update have been relinked with the X library that supports the shared memory communication option that is proprietary to Data General.

14. The display manager does not run the Resource Database tool, xrdb, prior to executing the user's private session file. To load the resource data base, user's are advised to load the database in their own session scripts.

15. The default configuration files for xdm and xstart have been modified such that the X server started by these tools shall be in the backward compatibility mode. This will allow X11R3 clients to connect to the X11R4 server.

16. The X Display Manager starts the X Server with the backing store feature disabled by default.

17. This is Motif version 1.1.1. Motif version 1.0.3 was shipped with DG/UX™ 4.31, and version 1.1 with DG/UX™ 4.32. All libraries have been changed, as well as the Motif window manager, mwm.

18. The /usr/opt/X11/motif directory has been removed from the distribution. Demos will be placed on the AViiON Contributed Software tape.

19. Motif 1.1.1 is compliant with the Revision B of the User Environment Volume of the Application Environment Specification (AES/UE) and with the OSF/Motif Style Guide. We have made many changes in this release and incorporated changes in the AES/UE to achieve compliance.

5 Notes and Warnings

5.1 Notes

1. The Xlib and Xt online manual pages included in this release do not cover all of the Xlib and Xt functions available in X11R4, as not all were received from MIT. Refer to the file /usr/opt/X11/release/manpages.missing for a list of functions without manpages. The complete Xlib and Xt documentation is available in the O'Reilly X Window System manuals, volumes 2 and 5, respectively. Some of these functions are also discussed in the MIT online documentation as contained in the X11 documentation image [X11.doc].

2. When building X clients, the only compile environment not supported is the "-ansi" flag without one of the following source feature set macros defined: _DGUX_SOURCE,   _SYSV4_SOURCE,   _SYSV3_SOURCE,   or _BSD_SOURCE. Furthermore, both ELF and COFF executables are supported by X.

3. When X is terminated and the screen returns to the console terminal emulator window, no prompts will be displayed until the user presses <Enter>.

4. Mterm to an AOS/VS II machine will only work correctly if that machine also has TCP/IP II. Note, however, that mterm used over asynchronous lines does not require AOS/VS II and TCP/IP II.

5. A prototype session file is available in /usr/lib/X11/xdm/sample.Xsession. This file may be copied to the file .Xsession in a user's home directory where it may be customized to the user's needs. This prototype session file will load resources from a file called .Xdefaults in the home directory if it exists, and starts a console xterm (if the display is local), an analog clock, the mail notification tool, a standard xterm, and the mwm window manager. Mwm is the session process and as a result the session will terminate when mwm exits.

6. Users may start the X server in X11R3 backward compatibility mode through xdm and xstart. The default configuration files supplied with this release start the server in this state. Users that utilize customized configuration files for xstart may turn this feature on by adding the "bc" switch to the server resource command line. For instance, the following line in a user's .Xdefaults file will execute the server via xstart in the backward compatibility mode.

    ```
    xstart.server:  /usr/bin/X11/X bc
    ```

    Xdm starts the server in backward compatibility mode through adding the switch to the server command line in /var/X11/xdm/Xservers file. If you choose to preserve your custom configuration files then you will need to make these modifications through a text editor such as vi(1) or ed(1) if the backward compatibility mode is desired.

7. The Motif man pages have change bars on the right margin to indicate where the man page differs from the Motif 1.0 man pages.

8. The following new resource has been added to xterm: adjustCharacterCellSize (class AdjustCharacterCellSize). This resource specifies whether or not to increase the character cell size to include any ink outside the bounding box defined by the font. It only affects monospaced and proportional spaced fonts. Character cell fonts are not affected because, by definition, they do not have ink outside their bounding box. With the resource turned off, deleting these characters in an xterm (by backspacing, for example) causes the ink outside the bounding box not to be deleted. Note that this resource was added primarily for the international community, where characters commonly have ink beyond the bounding box. The default is "false."

9. In X11R4, MIT defined the semantics for '-rv.' Prior to that (ie. X11R3) it was up to the application progammer to define what '-rv' did. MIT has defined '-rv' to flip the values of the default foreground and background colors (black/white, or with '-rv' white/black). If both foreground and background colors are specified (ie. in an .Xdefaults file), then '-rv' will have no effect what so ever.

10 The Athena Widgets have not been compiled with the backward compatibility mode enabled; X11 Release 3 backward compatability is not supported.

11 Mterm does not inherit all the stty settings of its parent. In order to make mterm a "turn-key" client the delete key and backspace key are set to these specific actions, regardless of the original stty settings of the parent. If you desire to change the stty settings of an mterm you must do so manually within that mterm window.

12 Attempting to use the "Compose Key" menu from within mterm after using the toggle video menu option will cause mterm to abort with a segment fault.

5.2 Warnings

1. In previous releases (namely, 4.32), it was suggested that the documentation, X Server development, and Looking Glass® images, [X11.doc], [X11.sde] and [X11.lg], be loaded onto separate logical disks due to disk sizing constraints. In 5.4 there is no longer a need for separate logical disks since all of X (including the documentation and Server development) is loaded into the same LDU. These additional logical disks, therefore, should be deleted.

2. The base X11 package [X11] must be loaded before any of the optional packages (X11 man pages [X11.man], Xserver development [X11.sde], documentation [X11.doc], Looking Glass® [X11.lg]). Note that this happens by default if the selections are taken in the order presented or if "all" is selected during installation.

3. The client mterm is rev locked to the DG/UX™ OS revision. Use of earlier revisions of the mterm client may give undesirable results if used with the R4 server in this release.

4. The default display visual for the R4 Xserver on a 24-bit system is TrueColor. Applications that assume a display visual of PseudoColor may not work correctly. Such applications include Looking Glass® 1.0C. The user can set the default

display visual to PseudoColor, thus correcting this problem, through the server command line option "-cc 3" when initiating the server. (See Note 6.)

5. Due to the Data General shared memory transport implementation included in Version 4, data can only be written to the client's output buffer via the standard macros provided in the X library. These include GetReq (for getting the next available X request packet), Data (to place data in the buffer and pad appropriately), and others. Writing directly to the buffer and manipulating the buffer pointers (bufptr, buffer, bufmax) without using the standard macros will result in output buffer corruption and unpredictable failures. This applies mainly to writing X extensions.

6. Since this release is not certified BCS compliant, it is necessary to start the server with the "bc" option turned on in order to run 88Open BCS-certified clients. This is the current xdm default.

7. In general, R3 clients may not run on the R4 Xserver. With the "bc" switch turned on, previous clients provided by Data General will run with the R4 server. However, user-defined or outside clients still may require updating to be compatible with the R4 server, even with the "bc" switch turned on.

8. Note the following items that will not run correctly in X11R4 unless as described:

    *   Frame 1.3 will not run on a color system without specifying the foreground and background colors other than "black" and "white." We recommend using as a substitute for the defaults grey1 and grey100 (example: "maker -fg grey1 -bg grey100"). On a 24-bit color system it is necessary to set the default display visual setting to PseudoColor, as described above.

    *   The X Window System provided in this release will function correctly on 24-bit color AViiON systems. However, applications not specifically stated to run on 24-bit systems may not function correctly on such systems.

9. When using xpr or xprint to dump a full root window approximately 2MB of printer memory is required.

10. Xdmshell works properly if and only if the session is started on the local display. Xdmshell will not initiate a session on an AVX-30 because it is a remote display.

11. When using xterm if you specify

    ```
    XTerm*geometry: 80x56
    ```

    the geometry will be defined for the xterm window and for all the popup menus. This would make all the popup menus 80x56 pixels. To specify the geometry of the xterm window the specification XTerm*VT100.geometry:80x56 should be used instead.

12. X resource files, such as .Xdefaults in your home directory may not work properly because xrdb now preserves trailing spaces. For instance, the following line in an X resource file,

```
XTerm*foreground: black    /* set foreground */
```

would assign the value "black   " to the resource XTerm*foreground instead of "black" because the C preprocessor removes the C style comment from the line but preserves the spaces between the resource value and the original comment. This capability enables users to define prompts and labels inside of resource value strings that have trailing spaces. It is important that all white space sensitive resource values be checked for unwanted trailing spaces.

13. Users should discontinue use of C style comments (/* */) and C preprocessor style comments (#) inside of resource files and should begin to use exclamation marks (!) at the beginning of a line to denote the beginning of a comment line.

    The first reason for this warning is that proper interpretation of your resource file utilizing C style comments cannot be guaranteed across heterogeneous machines. This is due to the differences in C preprocessors being used.

    The second reason for this warning is that when an application that has been built upon the X Intrinsics begins execution, it will look for its resources in several places. When reading a file for its resources, it does not pass this file through the C preprocessor to expand macros, replace definitions, and remove comments. Therefore, if a C style comment is encountered, resources may not be interpreted correctly or execution may even halt.

14. The bell and keyclick selections in the user preference tool, xpref, do not work properly due to lack of server control over these features.

15. Xstart loads the X server resource manager property with the resources contained in /usr/lib/X11/app-defaults/Xdefaults. The user's resources from the file .Xdefaults in the user's home directory are then merged with the resource database. The X Display Manager does not perform either of these two steps by default. If the user wishes to load the resources in a fashion similar to xstart, then the user should make sure that the following commands are executed before other commands in the .Xsession file in the user's home directory.

    ```
    /usr/bin/X11/xrdb -load /usr/lib/X11/app-defaults/Xdefaults
    /usr/bin/X11/xrdb -merge $HOME/.Xdefaults
    ```

16. Using the xpr client with the -compact option will cause unpredictable results.

17. The sample Xsession and xstart files (sample.Xsession and xstart.Xsession) in /usr/opt/X11/xdm shipped with DG/UX™ 4.32 appended /usr/bin/X11 to your PATH variable as "$PATH:/usr/bin/X11". In the event of the PATH variable being null the session could be left with an undesired security breech. This problem is corrected in this release of the DG/UX™ X Window System by providing corrected sample files. System administrators are encouraged to have their users recreate their personal Xsession and xstart files using the corrected sample files.

18. The grfxd creates files in /tmp that are used in the transfer of information between the grfxd and the Xserver. If these files (/tmp/.gxinptd and /tmp/.gx[process pid #]) are deleted while the grfxd and the Xserver are running, then input device service will hang. This will give the appearance that X has

"locked up" with in use or with screensaver on. Be careful that crontab files that automatically clean up /tmp space to not delete the two files mentioned above nor files in the directory /tmp/.X11-unix.

19 In order to insure that windows are placed by Motif exactly where the user has specified in the geometry, the client should be started with a shell borderwidth of zero. This can be done with xterm, for example, with XTerm.borderWidth: 0 in the appropriate resource file or user's .Xdefaults file.

20 The TERMCAP entry for a xterm window is setup with the row and column size of the window when it is created. If the user resizes the window and then telnets to another system the TERMCAP entry will not reflect the true window size. This may cause applications run in the window from the other machine (such as vi) to run incorrectly. Use the resize(1) command to reset your xterm TERMCAP entry so that applications will run correctly within such a window.

21 If the user terminates a login session (by "exit session," mwm) with the Caps Lock key locked, and then logs in (via xdm), the action of the Caps Lock key is inverted.

22 Due to the implementation of mailx in DG/UX™ 5.4, xbiff no longer works correctly when mailx is used.

6 Documentation

6.1 Manuals

The following documents ship with the X Window System released with the DG/UX™ operating system:

Publication	Part Number
X Window System Release Notice	085-600304
X Window System User's Guide, OSF/Motif Edition	069-100229
X Window System Document Order Form	069-100392
OSF/Motif Document Order Form	069-100411

Additional manuals can be ordered directly from O'Reilly & Associates and from Prentice Hall. Order forms with descriptions of books are included with your shipment.

See also various on-line documents in /usr/opt/X11/doc.

6.2 Documentation-changes files

There are no documentation-changes files associated with this release.

 085-600304-00

7 Software Distribution

7.1 Media

Model Number	Part Number	Description
H001AZN20A	079-600020-03	QIC cartridge tape (150 Mbyte)

This release notice lists the model number for the DG/UX™ Window System package only. See the related media notice if the DG/UX™
Window System product is part of a composite package.

7.2 Files

For a complete list of files present in the DG/UX™ Window System Package, see the following files under /usr/opt/X11/release after the system is loaded (associated package in brackets):

```
X11_5.4.fl      [X11]
X11.doc_5.4.fl   [X11.doc]
X11.man_5.4.fl   [X11.man]
X11.sde_5.4.fl   [X11.sde]
X11.lg_1.0c.1.fl [X11.lg]
```

8   Installation Instructions

8.1   Introduction

This release of the DG/UX™ X Window System can be installed on both standalone
workstations and OS server-client configurations using sysadm. It contains Release 4
of the X11 product and will entirely replace the current contents of /usr/opt/X11.
Different actions will be required of the installer depending upon which prior revision
of X you are upgrading from. Before proceeding we recommend that you review
these installation instructions CAREFULLY!

8.2   Restrictions

This release of the DG/UX™ X Window System will run ONLY on DG/UX Revision
5.4; it will not run on prior revisions of the DG/UX ™ system. This release will
support installation via sysadm for standalone, OS server-client configurations off the
PRIMARY release area of a server, and installation (along with DG/UX™ 5.4) in a
secondary release area on a server.

Due to structural changes in the product requiring the addition of files in both root
and /usr space this release cannot be arbitrarily mounted from any file server and
expected to work correctly. The working premise is that the file system /usr/opt/X11
will be mounted from the same server where the client is getting its /usr file system.
If you have need of performing alternate configuration setups consult the manual
"Customizing the DG/UX™ System."

8.3   Installation Considerations

8.3.1   New Images from DG/UX 4.30 and 4.31 Releases

This release contains Release 4 of the X Window System from MIT. There are new
images (from those delivered with DG/UX™ 4.30 or 4.31) for the MIT X
documentation, the Xserver software development environment, and the X11 manual
pages. Images for Looking Glass (lg) and X11 are provided as in the past. Also
several new "prep" images (all ending in :prep) have been provided to assist in
preparing your DG/UX™ 4.3x system for overloading with DG/UX™ 5.4. Depending
upon the needs of your installation you may choose to load some or all of these
images:

● The X documentation image [X11.doc] is an optional image. It is not required in
  order for X to work. This image contains the MIT X documentation in both
  PostScript and printable format. This image loads in the directory
  /usr/opt/X11/doc, and will fit in the logical disk for X11. If you wish to use a
  separate logical disk for this image you should create a logical disk of 4,000
  blocks, using sysadm, to hold this image. This file system should be mounted at
  /usr/opt/X11/doc. All the files in this image are stored in compressed format. It
  will be necessary to use the uncompress(1) command to uncompress the files

before viewing or printing.

● The X Server software development environment is an optional image. It is not required to be loaded in order for X to work. This image contains necessary server libraries, header files, and other files for building a customized X server. This image loads in the directory /usr/opt/X11/Xserver, and will fit into the logical disk created for /usr/opt/X11. If you choose to put this image into a separate logical disk you will need a file system of 10,000 blocks to both load and have room to build an Xserver.

● The X Window System image [X11] must be loaded. This image contains the necessary files to support the DG/UX ™ X Window System. This image loads into the directory /usr/opt/X11. If you are installing the DG/UX™ X Window System for the first time, you will need to create a logical disk of 105,000 blocks using sysadm and mount it under the directory /usr/opt/X11 prior to loading this tape with sysadm. If you are updating a current DG/UX™ X Window System installation it will be necessary to delete the contents of /usr/opt/X11 after saving important files. Discussion of these details follow in the "Installation Steps" section.

● The prep images [X11:prep, X11.man:prep, X11.doc:prep, X11.sde:prep, X11.lg:prep] are scripts provided to support the new DG/UX™ 5.4 installation sequence. These scripts, which are automatically run as part of the 5.4 upgrade process, will prepare your /usr/opt/X11 directory to allow installation of this release of the DG/UX™ X Window System. If you are loading this product into a secondary release area of a 4.3x based server DO NOT load these images. Be sure to check the DG/UX™ 5.4 Release Notice and the manual "Customizing the DG/UX™ System" for other important details on setting up a secondary release area on a 4.3x based server.

● The Looking Glass® image [X11.lg] is an optional image. It is not required to be loaded in order for X to work. This image contains the files which support Looking Glass® 1.0c, and will fit onto the logical disk created for the directory /usr/opt/X11. However, if you wish to put Looking Glass® in a separate logical disk you will need to create a logical disk of 9,000 blocks using sysadm and mount it under the directory /usr/opt/X11/lg.

● The image for the X11 Manual Pages [X11.man] contains all the manual pages as supplied by MIT along with the additional ones supplied by Data General. This image is optional and will fit in the space allocated for /usr/opt/X11. If you choose to load this into a separate LDU you will need a logical disk of 9,000 blocks to hold the files. This logical disk must be mounted at /usr/opt/X11/catman.

8.3.2 Sizing Issues

Previous releases of the DG/UX™ X Window System requested that the user allocate a logical disk of 105,000 blocks to hold the product. This release has been structured so that the X Window System, along with all the optional images will adequately fit into an logical disk of this size. Data General recommends that you install the base X11 image and all optional images in the file system for /usr/opt/X11. If you wish to see the exact space requirements of each image on each file system please consult the

DG/UX™ 5.4 Media Notice that accompanied your release media.

8.3.3 Changes from the DG/UX 4.32 Release

The DG/UX™ 4.32 release of the DG/UX™ X Window System could not fit the base image and all the optional images into the logical disk for /usr/opt/X11 (105,000 blocks). Thus, the DG/UX™ 4.32 release notice recommended that the installer create separate logical disks for /usr/opt/X11/doc, /usr/opt/X11/lg, and /usr/opt/X11/Xserver. Now, due to our improved space requirements we recommend that the installer unmount and delete these file systems using sysadm prior to installation of this release.

The DG/UX™ 4.32 release of the X Window System required the installer to load the AView Graphics Library image [aview] in order to have the graphics deamon, grfxd, which does the hardware control for the X Window System. The graphics deamon has now been merged into the X release. This means that the installer is no longer required to load the aview image unless use of the graphics library is desired. If you do not intend to load the AView package then this logical disk can be unmounted and removed using sysadm prior to installation of this release. If you intend to install the AView package please consult the AView Release Notice for information about its space requirements and installation considerations prior to starting.

8.3.4 Upgrading from X11R3 (DG/UX 4.30, 4.31) to X11R4

This release of the DG/UX X Window System will upgrade your system to use Release 4 of the X Window System from MIT. Due to extensive changes in the file system layout of this release it is necessary to delete the complete contents of /usr/opt/X11 and all subdirectories, from a previous release, prior to loading this release. This step is performed automatically by the prep scripts if overloading DG/UX™ 5.4 on a 4.3x based system.

There are a number of files which may have been customized for your local site that will be destroyed during the installation process. We recommend these files be backed up to tape prior to start of the installation process. Note that this backup of selected files is in addition to the complete system backup discussed in a later section. A separate copy of these files (made with cpio or tar) allow a convenient means of restoring your customizations without the cumbersome process of restoring a few files off a complete system backup. The following is a suggested list of such files. It is not an exhaustive list, nor is it implied that the system administrator automatically save every item on the list. It is intended as a reminder of possible places where the system administrator may have customized the local environment:

/usr/opt/X11/include/X11/bitmaps (in this release, only the bitmaps received from the MIT distribution are included).

/usr/opt/X11/lib/fonts/misc (similarly, in this release, only MIT distribution fonts are supplied).

/usr/opt/X11/xtd/*

/usr/lib/X11/app-defaults/*

/usr/lib/X11/rgb.* (colors were added, others were slightly modified).

/usr/opt/X11/lg/*

/usr/opt/X11/lib/xpref/*

/usr/opt/X11/lib/sample.Xdefaults

/usr/opt/X11/lib/xstart

/usr/opt/X11/lib/xstart/xstart.sh

xdm:
        /usr/lib/X11/xdm/*
        /var/X11/xdm/*
        /usr/sbin/xdmstart

Any files which have been customized but are not included in the above list. Pay
particular attention to fonts and application resource files (app-defaults files)
supplied with other vendor products.

8.4 Installation Steps

8.4.1 Introduction

In this section we attempt to outline the steps necessary to install the DG/UX™ X
Window System. We will discuss the following installation models:

●   Standalone System: a system where the root, /usr, and /usr/opt/X11 file systems
    are located on a local physical disk.

●   PRIMARY Client/Server System: a system which is a diskless client where file
    service for the root, /usr, and /usr/opt/X11 file systems are being provided from
    the PRIMARY release area of the same server.

●   Secondary Client/Server System: a system which is a diskless client where file
    service for the root, /usr, and /usr/opt/X11 file systems are being provided from
    a secondary release area of the same server.

In our discussion we will attempt to define the steps in their proper order, pointing
out differences only when necessary. We assume that you are attempting to install the
DG/UX™ X Window System onto a system which already has DG/UX™ 5.4 and
TCP/IP installed and set up.

If you are doing this installation as part of a complete DG/UX™ system installation and not X alone use the manual "Installing the DG/UX™ System" as your installation guide. It demonstrates, with examples, the procedures to follow. Use the manual "Customizing the DG/UX System" to set up the X Window System for diskless clients on the PRIMARY release area of a server and for setting up secondary release areas.

8.4.2 Run Level

All the installation instructions outlined in this section must be performed with the system at run level 1. Use the command /etc/shutdown to shut the system down to single user mode. Then use the init command to bring the system back up to level 1. Consult the manual, "Installing and Managing the DG/UX System"(4.3x) or "Managing the DG/UX System"(5.4) for information on how to change run levels. Failure to perform this step will cause the installation process to go incorrectly.

8.4.3 System Backup

Data General recommends that prior to the installation of any release or update the system administrator should make a complete system backup using sysadm. A complete system backup provides the system administrator with a "backup copy" of the system prior to software installation. This backup allows recovery of critical data should a problem during the installation process result in data loss. Consult the manual "Installing and Managing the DG/UX™ System"(4.3x) or "Managing the DG/UX System"(5.4) for information on how to use sysadm to make a system backup.

8.4.4 Save Site Specific Files

If this is an overload of a DG/UX™ 4.30 or 4.31 installation you should carefully consider what files, if any, from the list mentioned in the "Upgrading from X11 Release 3 to X11 Release 4" section above that you want to save. These files should be identified and written to tape using either tar(1) or cpio(1).

8.4.5 Install DG/UX 5.4 and TCP/IP

Before attempting to install the DG/UX™ X Window System you must ensure that DG/UX™ 5.4 and TCP/IP have been installed on your system. Information on how to perform this installation is contained in the manual "Installing the DG/UX™ System". Be sure this step has been completed before continuing.

8.4.6 Installing a Standalone Workstation

The steps for installing a standalone workstation are outlined in this section. The steps you follow will depend upon whether you are overloading over DG/UX™ 4.30 or 4.31 or overloading DG/UX™ 4.32.

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8.4.6.1   Set Up the File System Structure

Verify that you have created a file system for /usr/opt/X11 and that it contains at least 105,000 blocks. If you are overloading a DG/UX™ 4.32 system and you had created separate file systems for any of the images X11.man, X11.doc or Xserv.sde now would be a good time to unmount and delete these file systems using sysadm.

8.4.6.2   Loading the Software

Load the tape into the tape drive and enter the menu "software->package->load" of sysadm. You will need to choose the images you want loaded based upon the information from earlier. The list will consist of:

X11 - This is the base X Window System image; it must be loaded.

X11.man - This is the manual page image; it is optional.

X11.sde - This is the X Server Development Environment; it is optional.

X11.doc - This is the MIT X documentation; it is optional.

X11.lg - This is the Visix Looking Glass® product; it is optional.

Select the images that you want loaded and let them load from tape. This process will take some time, typically an hour.

8.4.6.3   Setting up the Software

Once the software is loaded you must set it up using sysadm. Enter the menu "Software->Package->Setup". At the list of packages presented select all the packages which begin with "X11". Sysadm will automatically set up the packages. No user input is required.

8.4.6.4   Restarting the System

With the software loaded and set up, return the system to run level 3 using the init command. Once the system has finished booting to run level 3 it will automatically start the xdm process which will take control of the workstation monitor and bring up the xdm login banner. If you installed this software on a server it is now ready for the system administrator to add xterminals or diskless clients.

For more information about operating the DG/UX™ X Windows System in the xdm environment see the section on "Starting Up and Using the DG/UX™ X Window System" below and/or consult the xdm and Xsession man pages.

8.4.7   Installing a PRIMARY Client/Server System

The process of installing a PRIMARY Client/Server system assumes that the server has already had DG/UX™ 5.4 and the DG/UX™ X Window System installed and set up.

8.4.7.1   Setup the Diskless Client

Use sysadm to add a diskless client onto the server system. When complete you may set up the diskless client from the server using sysadm or from the client system itself. For more details on this process consult the manual "Customizing the DG/UX System".

In the case of setting up from the server go into the sysadm menu "Software->Package->Setup". Once there you will be asked which system to set up and which packages to set up. Choose the diskless client currently being installed and pick all related DG/UX and X packages.

If you are setting up X from the diskless client it will be necessary to first boot the client, set up all packages, build a custom kernel, and reboot the client (with the new custom kernel) to run level 3. All of this is done as a part of the install process (b inen()/dgux -i). Consult the manual "Customizing the DG/UX System" for details. The set up process for X requires no user input.

8.4.7.2   Restarting the System

With the software loaded and set up, return the system to run level 3 using the init command. Once the system has finished booting to run level 3 it will automatically start the xdm process which will take control of the workstation monitor and bring up the xdm login banner.

For more information about operating the DG/UX™ X Windows System in the xdm environment see the section "Starting Up and Using the DG/UX™ X Window System" below and/or consult the xdm and Xsession man pages.

8.4.8   Installing a Secondary Client/Server System

Installation of the DG/UX™ X Window System will work only on servers at DG/UX™ revision 4.32 or later. Instructions for how to perform this installation can be found in the DG/UX 5.4 Release Notice and in the manual "Customizing the DG/UX System". As before it is necessary that DG/UX™ 5.4 be installed in the secondary release area before attempt to install the DG/UX™ X Window System separately. If you are installing the X Window System as a part of the 5.4 installation use the information in the DG/UX™ 5.4 Release Notice and the manual "Customizing the DG/UX™ System" for details on how to perform a secondary release installation on a 4.32 or later release server.

Prior to starting the secondary release installation you must ensure that you have adequate disk space (105,000 blocks) in either the /usr or /usr/opt/X11 file system

(depending upon how you set up your secondary release space) to completely hold the X release. See the "Installation Considerations" section earlier in these installation instructions for further details. Place the tape with the X release into a tape drive on the server system and use sysadm loadpackage to load the software into the secondary release area. Load all the images whose names begin with "X", but be certain that you DO NOT load any of the prep images (images whose names end in :prep)!

Once you have loaded the software into the secondary release area, boot the diskless client and use it to set up the X software. Finally boot the custom kernel you built for the system and bring the system up to run level 3.

Once the system has finished booting to run level 3 it will automatically start the xdm process which will take control of the workstation monitor and bring up the xdm login banner.

For more information about operating the DG/UX™ X Windows System in the xdm environment see the section "Starting Up and Using the DG/UX™ X Window System" below and/or consult the xdm and Xsession man pages.

8.4.9   Starting Up and Using the DG/UX X Window System

Once the installation steps for your system are complete, bring the system back to run level 3 using the init command. Consult the manual, "Managing the DG/UX™ System" for information on changing run levels. During the process of going to run level 3 the graphics deamon (grfxd), the X server (X), and the X Display Manager (xdm) will be started. When the software packages were set up an entry was automatically added into /etc/inittab to startup the X Display Manager. Xdm will present the xdm login window which is used for login purposes. For more information about using and controlling xdm consult the xdm man page, and the file /usr/opt/X11/doc/XDMCP/xdmcp.LP.Z. NOTE: You will first have to use the uncompress(1) command to uncompress the document xdmcp.LP from its compressed form to read.

Xdm has replaced the xstart interface as the preferred method for starting up an X session. When a user first logs on the system using xdm, their private .xstart.sh (or other such startup file) will not be used. Xdm uses a .Xsession file to startup a tailored environment. The user can reestablish their environment in one of two manners.

Users can get backward compatibility with xstart(1X) by making a copy of the file /usr/lib/X11/xdm/xstart.Xsession into their $HOME directory as the file $HOME/.Xsession. The preferred method is for the user to make a copy of the file /usr/lib/X11/xdm/sample.Xsession into their $HOME directory as the file $HOME/.Xsession. Then using an editor (such as ed(1), vi(1), etc.) the user's standard client set should be entered into this file replacing the three clients (xterm, xclock, and xbif) provided by default. Consult the Xsession(5) manual page for further information about the usage of these two files.

Before the DG/UX™ X Window System can be used, /usr/bin/X11 must be in your path. Your path contains the list of ordered directories to search for programs to be executed. To check your path under the Bourne shell execute the DG/UX command:

echo $PATH

and from the C shell:

printenv PATH

If /usr/bin/X11 does not appear in your environment variable *PATH* then /usr/bin/X11 must be added to your search path. For the Bourne shell, use the following command to correctly set the *PATH* environment:

PATH=$PATH:/usr/bin/X11; export PATH

For the C shell, use the following command:

setenv PATH ${PATH}:/usr/bin/X11

You may want to edit your .login or .cshrc files to initialize this variable.

8.4.10 Reinstalling X Window System on a 5.4 System

If for some reason you feel it necessary to reinstall the DG/UX™ X Window System on your 5.4 server you should perform this operation in the following manner:

- First make a complete system backup. This will help to prevent any data loss should a problem occur. Consult the manual "Managing the DG/UX™ System" for information on how to use sysadm to make system backups.

- Save any site specific files. See the section entitled "Upgrading from X11 Revision 3 (DG/UX™ 4.30 & 4.31) to X11 Revision 4" earlier in these installation instructions for suggestions of files to save to tape prior to a reinstall.

- Bring the system down to run level 1. Consult the manual "Managing the DG/UX™ System" for information on how to properly change run levels.

- Delete the complete contents of the directory /usr/opt/X11 and all subdirectories. This can be accomplished with the following commands executed as the superuser:

  cd /usr/opt/X11
  rm -rf *

- Reload the X Window System using the instructions for your particular site configuration as provided earlier in this "Installation Instructions" section.

- Use sysadm to set up the packages related to the X window system.

- Reboot your system to run level 3. If your system is a workstation this will automatically start the xdm process which will take control of the monitor and bring up the xdm login banner.

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9 Preparing a Software Trouble Report (STR)

If you believe you have found an error in the DG/UX™ Windowing System or its documentation, or if you have a suggestion for enhancing or improving the product, use a Data General Software Trouble Report (STR) to communicate this to DG.

STR forms are available from the nearest DG office or DG representative, or the Software Support Center. Online STR forms are available in /usr/release/STR_form.

If your contract permits, you may report the information called for in this section to your Data General representative. To help us process STRs quickly, **please include only one problem or suggestion on each STR form.** Please follow these guidelines when filling out your Software Trouble Report:

1. List the product name, model number, and revision number as shown on the title page of this release notice. If you are running an update or patch, include its number as well.

2. Decide what kind of STR you are writing:

    ● Enhancement: describe the proposed enhancement clearly and tell why you want it. The better we understand your desire, the easier it is for us to evaluate your request.

    ● Documentation Error: list the title and part number of the document or man page and list the page and paragraph (or section) containing the error. Please state exactly why you think there is an error.

    ● Software Problem: clearly and specifically state the problem so that support personnel can try to reproduce it. See the section **Software Problems** below for more details.

3. On the STR form provide all of the following information:

    ● Date

    ● Name and revision of the product

    ● CPU type

    ● Hardware configuration (if relevant)

    ● Names and revisions of other software running on the system

    ● The command line or scenario that caused the problem

    ● The action(s) necessary to reproduce the problem

    ● How often the problem occurs and how serious it is

4. If the problem occurred soon after installing a new revision of software or new hardware, please note this.

5. If you received an error message, please write down the exact text (and number, if present) of the message.

6. Please see the DG/UX™ release notice for information on how to prepare a tape for STR submission.

9.1 **Software Problems**

Report any particular activity or program running on the system that seems to cause the problem. If the program is supplied by DG, report in detail the exact steps used to reproduce the problem. If the program is supplied by another vendor or written by an installation, include a copy of the program and its source code if possible. Again, report in detail the exact steps used to reproduce the problem.

If your system panics, hangs or halts, see the DG/UX™ 5.4 release notice for instructions on taking system dumps and submitting DG/UX™ STRs.

<p align="center">**End of X11 Release Notice**</p>

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