

**GNOME on HP-UX**  
**Stormy Peters**  
**Hewlett-Packard Company**  
**970-898-7277**  
**stormy\_peters@hp.com**

## **THE GNOME DESKTOP COMES TO HP-UX**

*by Stormy Peters, Jim Leth, and Aaron Weber*

At the Linux World Expo in San Jose last August, a consortium of companies, including Hewlett-Packard, inaugurated the GNOME Foundation to further the goals of the GNOME project. An organization of open-source software developers, the GNOME project is the major force behind the GNOME desktop: a powerful, open-source desktop environment with an intuitive user interface, a component-based architecture, and an outstanding set of applications for both developers and users. The GNOME Foundation will provide resources to coordinate releases, determine future project directions, and promote GNOME through communication and press releases.

At the same conference in San Jose, Hewlett-Packard also announced that GNOME would become the default HP-UX desktop environment. This will enhance the user experience on HP-UX, providing a full feature set and access to new applications, and also will allow commonality of desktops across different vendors' implementations of UNIX and Linux. HP will provide transition tools for migrating users from CDE to GNOME, and support for GNOME will be available from HP. Those users who wish to remain with CDE will continue to be supported.

Hewlett-Packard, working with Ximian, Inc. (formerly known as Helix Code), will be providing the GNOME desktop on HP-UX. Ximian is an open-source desktop company that currently employs many of the original and current developers of GNOME, including Miguel de Icaza. They have developed and contributed applications such as Evolution and Red Carpet to GNOME.

This article describes the features of GNOME that system administrators, users, and developers will want to learn about. References for all of the Web sites mentioned here appear in the Additional Resources section at the end of the article.

### **WHAT IS GNOME?**

GNOME is a complete desktop environment that runs on top of the X Window System. In GNOME, windows are controlled through a window manager that deals with the placement, borders, and decorations of windows. The default window manager included with GNOME is called *sawfish*. While other GNOME-compliant window managers exist, or are in development, *sawfish* is currently the only window manager that will be supported on HP-UX.

GNOME contains nearly 100 packages comprising a desktop environment and a set of core applications built around it. All of the parts work together to provide a seamless user experience and a portable development platform. GNOME and all of its components are completely open-source software. There is a community of about 600 core developers who continue to enhance and improve the quality of GNOME, in addition to creating new GNOME-compatible applications. The open-source approach produces high-quality software through far more extensive peer review than can typically be obtained with proprietary software development techniques. By carefully controlling the adoption of new code and defect fixes, Ximian and Hewlett-Packard can ensure a stable release train for Ximian GNOME.

Independent software developers around the world have produced hundreds of applications designed for GNOME. New applications are constantly being developed. GNOME compatibility is a design requirement of many of the leading open-source application development projects. In addition, GNOME provides excellent support for applications designed for other desktop environments. GNOME supports the Motif drag-and-drop protocol, so that Motif and CDE applications are fully functional on GNOME-based systems.

GNOME is a development platform for both free and proprietary applications. GNOME supports and builds on many open standards, including CORBA, OpenGL, bonobo, and XML. These open standards provide a common framework that allows software developers to easily develop, integrate, and customize their applications within the GNOME environment.

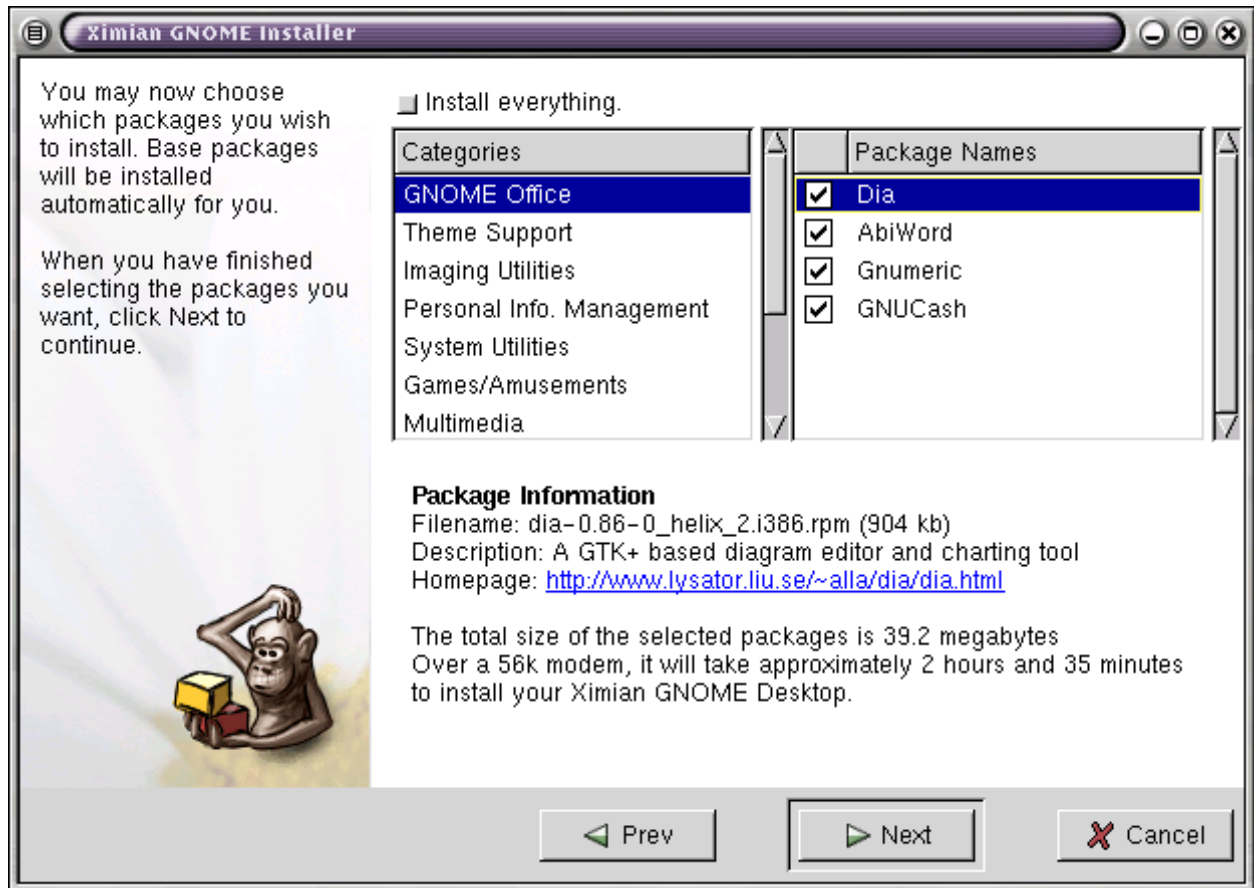
GNOME and its components are licensed under the GNU General Public License (GPL) and, for most libraries, the Lesser General Public License (LGPL). Code licensed under the GPL may be used only for open-source development. Proprietary applications may link against the LGPL-licensed code, including the bonobo component model, the GTK+ widget set, the GDK graphics library, the Glib library, and all of the core GNOME libraries.

## **INSTALLING XIMIAN GNOME**

GNOME is scheduled to ship with the next major release of HP-UX after release 11i. It will be available for download from the Web before the end of 2001. An early release for HP-UX 11.0 will be available soon on the Ximian Web site. Look for press releases and news about GNOME's availability at *www.hp.com*.

If you would like to begin familiarizing yourself with Ximian GNOME now, it is currently available for the majority of Linux distributions. Ximian provides a simple, automated way to install GNOME on a Linux system. Enter the following command from a root shell. This will download and execute the Ximian GNOME Installation Program:

```
lynx -source http://go-gnome.com/ | sh
```



**Figure 1: The Ximian GNOME Installation Program**

The Installation Program will guide you through the rest of the process in a few basic steps (see *Figure 1*). You can create a custom environment by choosing between individual packages and groups of packages, or you can choose to install all available features and applications by selecting the Install Everything button. The installer will resolve dependencies and download and install the selected software. When done, the Ximian installer will restart your X session. When you log in, you'll be running your customized GNOME environment. You can make further customizations using GNOME's configuration utilities, described briefly below.

### Installing Across a Firewall

In order to install from behind a firewall, you may need to set and export the `http_proxy` and `ftp_proxy` environment variables to the host name and port of your site's proxy server, e.g.:

```
export http_proxy=http://proxy-server:port
```

This should allow the automated installation process described above to work across the firewall. If you are still having problems, you can manually download the installation components from:

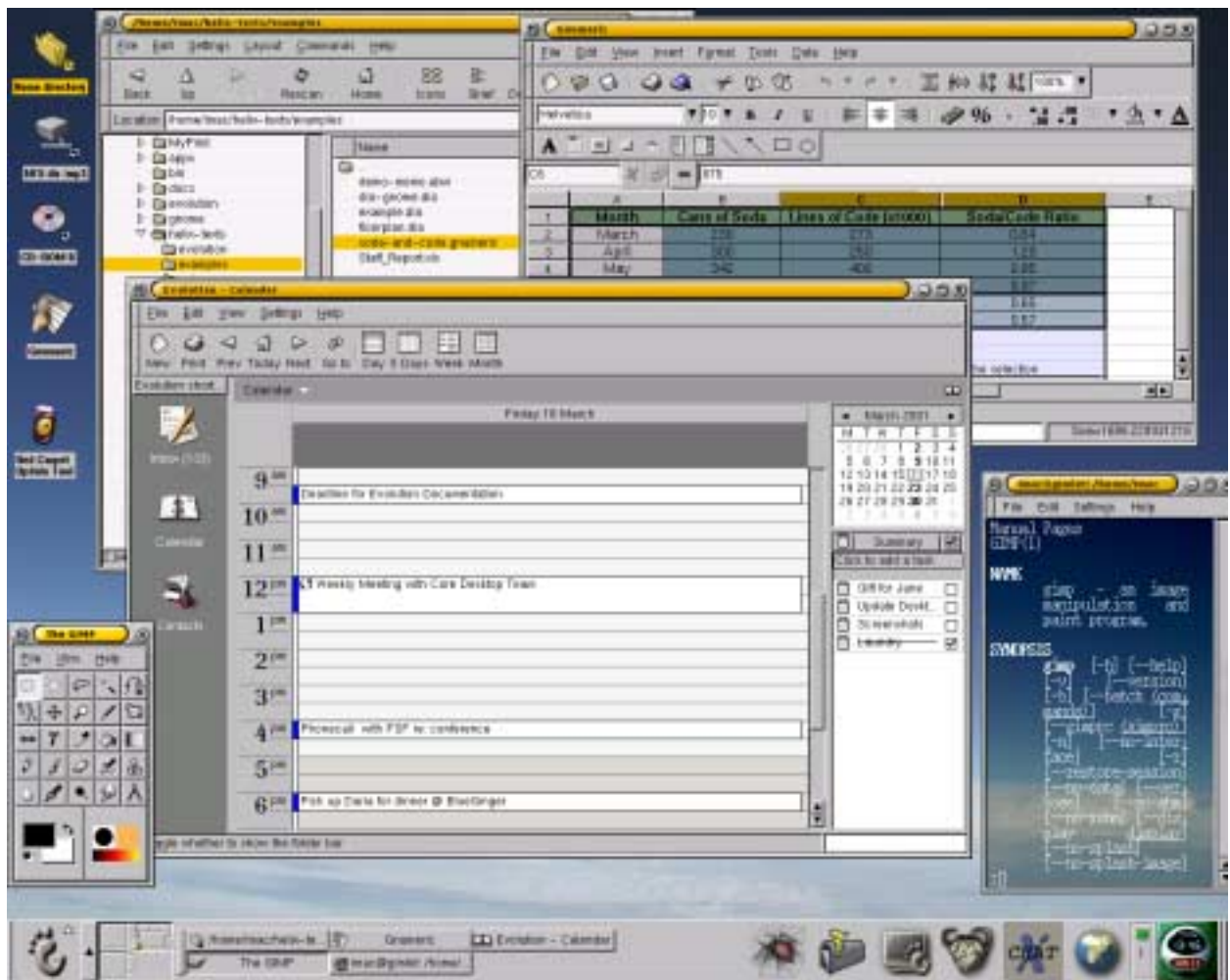
```
ftp://ftp.ximian.com/pub/ximian/
```

The installer is a gzip-compressed executable. Make sure that you download the installation binary appropriate to your operating system and hardware architecture. You must also download the *packages.xml* file and other components specific to your environment. For example, if you were installing to a Red Hat 7 system, you would need the following files:

`ftp://ftp.ximian.com/pub/ximian/installer-rpm4-intel.gz`  
`ftp://ftp.ximian.com/pub/ximian/distributions/RedHat-7/*`

## A BRIEF TOUR

The GNOME desktop has much in common with other familiar graphical user interfaces. Applications can be launched from menus, or by clicking on icons. Windows can be dragged, resized, minimized, and maximized. There are some differences between the GTK+ widgets used by GNOME and the Motif widgets used by CDE, but there is also a great deal of similarity. See *Figure 2*.



**Figure 2: A typical GNOME desktop**

The long grey bar at the bottom of the screen is a panel. Panels can contain icons and menus to launch applications, as well as applets. Applets are applications that display inside the panel when running, such as the clock. Another applet shown on this desktop is the Desk-Guide, with buttons to jump to any active desktop or running application. GNOME comes with many applets, including several clocks, a stock ticker, various CPU and memory load monitors, and the ever-popular eyes that follow the mouse around.

The panel button containing the GNOME "foot" logo opens up the Main Menu, which provides access to the core GNOME applications, tools, and utilities. The default desktop provides a single panel at the bottom of the screen, but you can create additional panels. You can customize what goes into each panel, orient them vertically or horizontally, and move them around as you like. Panels can be hidden and raised on demand, or whenever the cursor is moved to a screen edge.

Icons that launch applications can be placed directly on the desktop (outside of any panel). These launchers can be created by dragging and dropping from the GNOME File Manager. An icon for a file will launch the application appropriate to that file type, and an icon for a directory will launch the File Manager starting in that directory.

As with most graphical desktop environments, you can customize your desktop's colors, background images, screen savers, and other attributes. GNOME provides far more flexibility than CDE to customize your desktop environment.

## **CONFIGURING THE GNOME DESKTOP**

The GNOME Control Center allows you to configure aspects of the GNOME desktop, such as the window manager, or Palm Pilot synchronization controls. The tools that can be run from the Control Center are called capplets. Developers of any GNOME application can provide their own capplets, so that their applications can also be configured from the Control Center. To start the GNOME Control Center, click the toolbox icon in the panel, or run the command *gnomecc* from the shell.

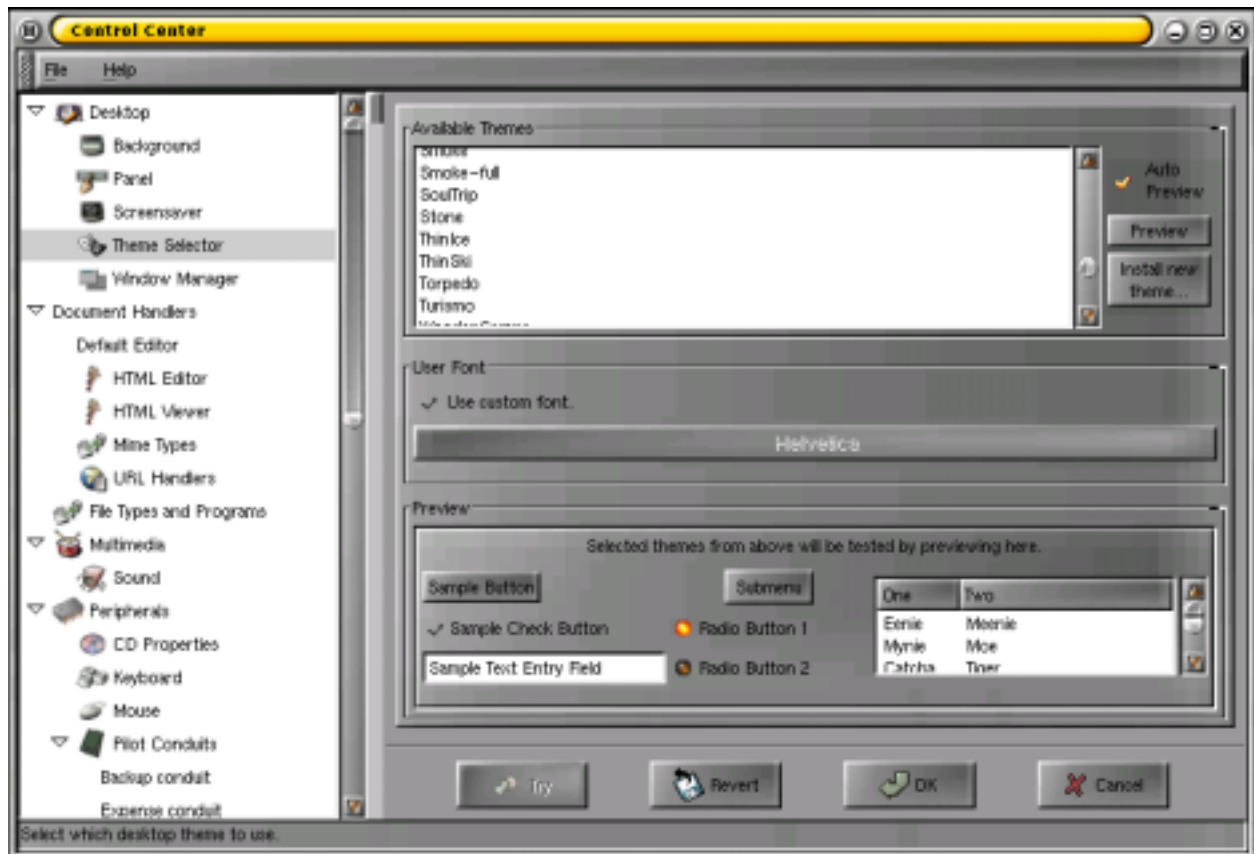
You can create and configure panels from the GNOME Control Center, or by right-clicking inside a panel. Panel options include sizes from 12 to 128 pixels, colors and pictures for the panel background, and hide/show policies. Panels can also be adjusted for location, width, and alignment. You can add applets, menus, and buttons to launch applications.

*Figure 3* shows an example of a customized floating panel, 80 pixels wide with green background. From top to bottom, it contains: Eyes, MemLoad, and ASClock applets, a screen-lock button, and a menu button.



**Figure 3: A Configured Panel**

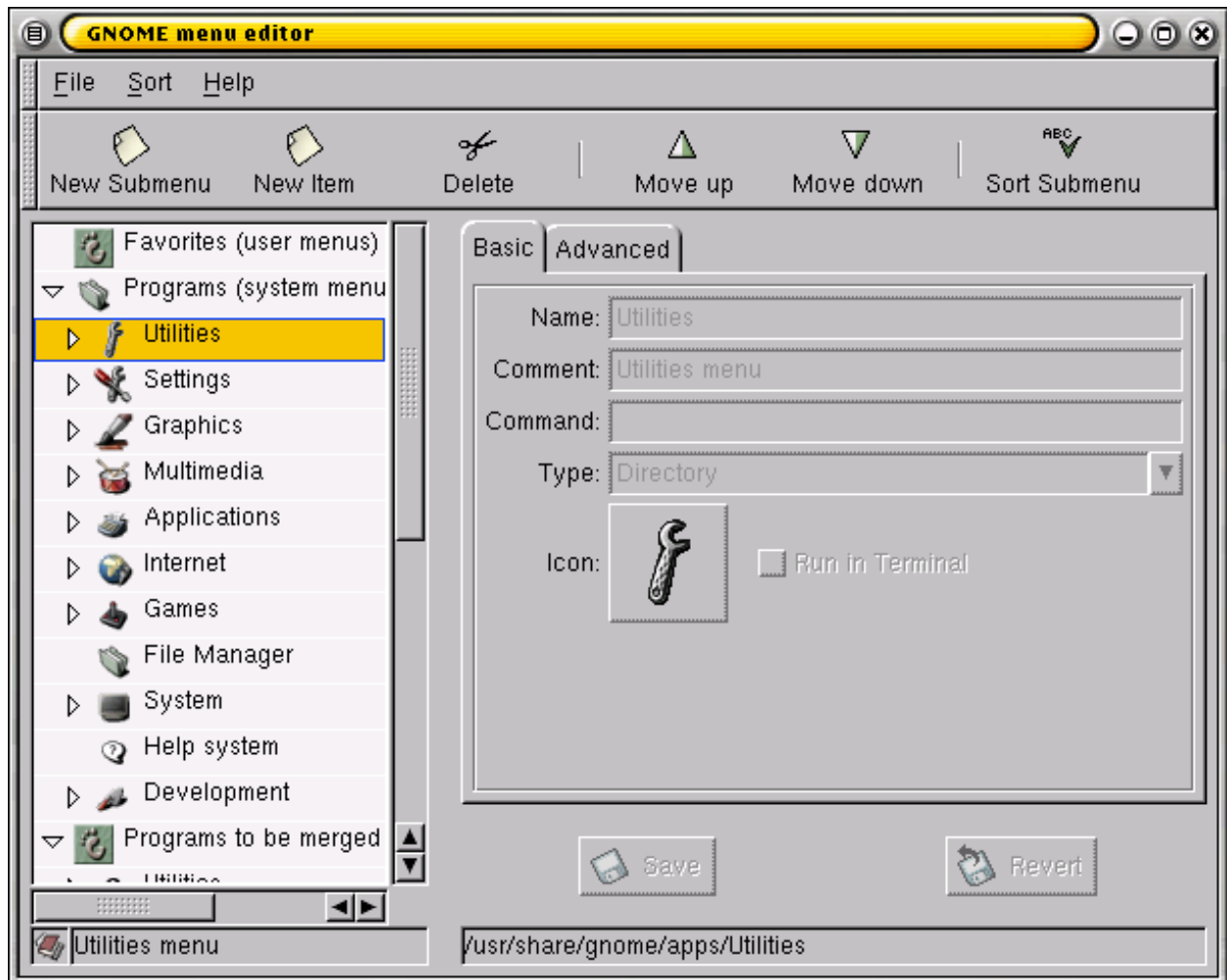
For CDE users, the least familiar feature of the GNOME desktop will be the ability to change the entire appearance of the desktop simply by selecting a theme. A theme configures colors, window decorations, and other attributes, affecting the way the desktop and applications will appear. A large assortment of predefined themes can be selected from the Control Center, and you can download or develop others that suit your personal taste and preferences. There are predefined themes with small and large widgets, themes that mimic other operating systems, themes to make widgets look like stereo buttons, and even one that looks like Swiss cheese. For example, *Figure 4* shows the shiny metal theme.



**Figure 4: Selecting a New GTK+ Theme**

### Menu Configuration

GNOME offers a Menu Editor that allows you to set menu icons and sort order, and remove or add menus and submenus with drag-and-drop ease (see *Figure 5*). As root, you can set system-wide default menus and give users direct control of their own menus.



**Figure 5: GNOME Menu Editor**

## DEVELOPMENT WITH GNOME AND GTK+

A number of useful guides to GTK+ and GNOME development are available, both online and in print. CDE/Motif developers moving to GNOME will be familiar with most of the concepts. For example, Motif call-backs are analogous to GTK+ object signals. However, CDE/Motif developers should be aware of a few major differences they'll encounter along the way.

GNOME uses a toolkit that shares none of Motif's roots in Xt. To increase portability, GNOME and GTK+ use the GDK layer instead of accessing the X server directly. This provides a simpler API that isolates applications from X server dependencies, while providing a more modern, more attractive widget set.

As with CDE/Motif, most of the GNOME libraries are written in ANSI C. Many of them, however, use a struct-based object system to gain the benefit of type inheritance without sacrificing C's traditional strength of accessibility from other languages. The GNOME libraries provide application developers with the most commonly used tools: printing subsystems, parsing and display for mark-up languages such as XML, and of course the creation, display, and usage of the GTK+ widget set.



Some of the most exciting work for GNOME is being done with network services. The bonobo component model allows applications to expose services to each other over a CORBA framework. GNOME's CORBA support is provided by bonobo and two additional libraries: Gnorba performs basic CORBA support functions, and ORBit offers a full CORBA ORB.

As with GNOME usage and configuration, however, the most obvious differences in GNOME development are in the user interface.

### **Interface Design**

GNOME interface design differs from CDE design because GTK+ widgets are not placed with absolute coordinates. Using relative widget layout, your applications can be built independent of the end user's choice of font sizes, screen sizes, or widget styles. This layout method can increase accessibility for the visually impaired, who may want to use large default fonts and widget themes, and for users with limited screen sizes, who may want to use smaller fonts and widget themes.

Most GUI design is done with Glade, a GUI-building tool. Glade can produce C code to draw windows and widgets, but more significantly, it can be used to build XML files which define the user interface. The application then links against LibGlade to read the XML files and lay out windows at run-time. Run-time interface layout allows some changes to the GUI to be made after compilation, giving you additional flexibility in your application development process.

### **WHAT APPLICATIONS ARE AVAILABLE FOR GNOME?**

There are several hundred open-source applications designed for GNOME. These programs include specialized math, scientific, and engineering applications; office utilities such as spreadsheets, word processors, and database systems; personal productivity tools; games; and multimedia applications. Many of these programs are available in packages already built for HP-UX, and can be downloaded from the HP-UX Archive And Porting Centre. Many others can be freely built for HP-UX by compiling the source code using the GNU tool chain, which is available for HP-UX from the HP Developer's Resource.

Listed below are a few examples of the applications freely available, or under development, for GNOME. A much more complete list of GNOME applications is maintained by the GNOME project at [www.gnome.org/applist/](http://www.gnome.org/applist/).

- gnozip—compression front end utility
- ORBit—high-performance CORBA Object Request Broker
- bonobo—the GNOME compound document system
- Gnumeric—sophisticated, professional-quality spreadsheet application
- the GIMP—GNU Image Manipulation Program, a world class graphics editor
- Evolution—integrated mail, calendar, and address book groupware suite
- Abiword—full-featured word processor
- Gnucash—easy-to-use, yet powerful personal-finance package
- Sketch—vector drawing program

- dia—tool for drawing diagrams using customized templates
- gdcalc—sophisticated RPN-style calculator with statistics, financial, programming, and scientific functions
- Oregano—schematic capture and simulation of electrical circuits (front end to SPICE)

When the GNU tool chain was ported to HP-UX, a wealth of high-quality, free software became available for this platform. Now, with the availability of GNOME and the GTK+, HP-UX users can take advantage of the latest and most sophisticated open-source applications, along with a "best in class" desktop environment.

### **FUTURE PLANS**

HP-UX will begin the transition toward GNOME with the use of the GTK+ libraries in upcoming releases of Mozilla and Javasoft during the first half of 2001. A complete GNOME desktop will ship with the next full release of HP-UX following release 11i. This release will include GNOME applications such as the GIMP, the Gnumeric spreadsheet, and the Evolution groupware suite. Support for the GNOME desktop will be available from HP.

In addition, HP will be providing a set of CDE-to-GNOME transition tools that will allow users to easily migrate their desktop customizations and preferences from a CDE-based environment to the GNOME environment. Hewlett-Packard will continue to deliver and support CDE and Motif, and Motif-based applications will run in a GNOME desktop environment.

With the GNOME desktop, Hewlett-Packard and Ximian deliver a modern and advanced user and developer environment. Built on open standards, and supporting a wealth of high-quality applications, GNOME will significantly enhance the HP-UX user experience. We hope that you will enjoy and benefit from the increased functionality and usability of GNOME.

### **ADDITIONAL RESOURCES**

#### **About GNOME:**

*[www.gnome.org](http://www.gnome.org)*

*[www.ximian.com](http://www.ximian.com)*

*[www.labs.redhat.com/gug/users-guide/](http://www.labs.redhat.com/gug/users-guide/)*

#### **GNOME Development:**

*[developer.gnome.org](http://developer.gnome.org)*

*[www.gtk.org](http://www.gtk.org)*

#### **GNOME Applications:**

*[www.gnome.org/applist/](http://www.gnome.org/applist/)*

#### **The HP-UX Porting And Archive Centre:**

*[hpux.connect.org.uk/](http://hpux.connect.org.uk/)*

#### **HP Developer's Resource:**

*[devresource.hp.com/](http://devresource.hp.com/)*

*[devresource.hp.com/OpenSource/Tools/OpenSourceLib.html](http://devresource.hp.com/OpenSource/Tools/OpenSourceLib.html)*

*[devresource.hp.com/Tools/ToolLibrary.html](http://devresource.hp.com/Tools/ToolLibrary.html)*

**The Sawfish Window Manager For GNOME:**

*[sawmill.sourceforge.net](http://sawmill.sourceforge.net)*

**The GPL and LGPL Licenses:**

*[www.gnu.org](http://www.gnu.org)*

**Open-Source Software:**

*[www.opensource.org](http://www.opensource.org)*

**The Linux Documentation Project:**

*[www.linuxdoc.org/](http://www.linuxdoc.org/)*

