Ubuntu 6.06 Improvement Review

Introduction

Background
With the recent release of Ubuntu 6.06 LTS, "Dapper Drake", and the imminent planning phase for the next release, "Edgy Eft", I decided to take a tour through the whole operating system to look for possible improvements.

The main areas of this review are artwork, consistency and usability. For writing this review I used a default desktop installation using the officially released CD image as available on the 1st of June 2006. I did not apply any updates which were released on a later date.

All information in this review is a reflection of my personal opinion and should not be taken as an authoritative guide. Also noteworthy is that this review is intended to point out areas for improvement rather than offering a balanced view of the distribution, please take this into consideration while reading.

Structure of this document
I've divided this review into multiple chapters, each having a separate system component as the subject. I've tried to maintain a chronological order throughout the chapters, starting with the system boot-up, the login screen, initial desktop impressions and finishing with system shutdown. All applications installed by default are somewhere in between.

For completeness I tried to include several functions which are not really used for daily use by regular users, for instance remote logins using XDMCP. But because these functions are part of the core operating system installation I decided to include them so they do not get less attention than the rest.

Goal
I'm trying to increase awareness of several flaws in the current design of Ubuntu so that we can work on them for the next release. It might seem to be a bit of redundant effort to point out what is wrong with a version which was just released several weeks ago, but it provides a solid starting point for a review.

Being a member of the Ubuntu artwork team, I want to make the point that artwork is more than a GTK theme and a boot-up splash image. Throughout this review you will notice that a lot of areas of the operating system lack a consistent visual style and we should aim to improve that a lot for the next release.

I've also noticed that some problems, like different font sizes for certain aspects of the operating system, are only apparent in a subset of systems. I've tried to keep track of which problems are common to all installations and which problems are only noticeable on specific systems.

Boot-up splash screen

Introduction

After powering on the computer and executing the GRUB boot-loader, Ubuntu 6.06 starts up with a boot-up splash screen similar to the one displayed in figure 1. This boot-up splash screen is enabled by default for desktop installations.

Figure 1: The Ubuntu 6.06 boot-up splash screen.

Artwork

Because of technical limitations imposed by the usplash[1] software used for displaying the splash screen, the background of the artwork is solid black. The main reason for doing this is that a subset of computer screens will not stretch the boot splash image across the full display area which leaves a black border around the centered splash image.

The black background color which was chosen out of necessity does not match any of the other default background colors for other elements of the operating system and should be replaced with at least a color from the official Ubuntu color palette[2].

For implementing such a change, I see two options:

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[1] See https://wiki.ubuntu.com/USplash

[2] See Appendix A - Ubuntu color palette

- Make use of a different software package for displaying the boot splash image, maybe using a stripped down X server. Before deciding on this, we need some more information on graphics hardware compatibility and architecture support.

- Patch usplash to be able to define a separate background color for the boot-up text and the screen background, the so-called palette 0 color. This way we can add rounded corners to the splash image for graceful fallback on non-stretching screens and still have a non-black background behind the text.

This last option is probably more feasible as it requires less work and makes use of a tried and tested software base. Before going into details I'll first write about the other aspects of the boot-up screen.

Branding
Besides the black background, there are several other issues with the current splash image regarding Ubuntu branding. First of all, the Ubuntu circle logo is not displayed in its original colors, whereas it is on the login screen and the desktop "Applications" menu.

Because of usplash limitations the splash image is restricted to about 13 individual colors which makes it difficult to use the original logo colors without visible aliasing, so it's necessary to create a two-colored version of the logo. The current splash image attempts to do this, but does not take the official Ubuntu branding colors in account.

The orange, or tangerine, colors used in the splash image are not in the official palette and neither are the colors used for the progress bar foreground and background. The same colors are used for the text foreground and status messages, which aren't branded properly because of that.

We need to decide whether or not the tangerine colors are desired or if they are better replaced with proper colors from the Ubuntu palette. If the tangerine colors are desired, maybe we should think about updating the color palette or redefining it's scope.

Consistency
The font used for the boot and status messages is a pixel font with Helvetica shapes which is not consistent with the default font used for the login screen and desktop. Replacing this font with a pixel version of Bitstream Vera Sans would improve consistency and overall look of the boot-up splash a lot.

Creating this font will most likely involve creating a new pixel font from the Bitstream Vera Sans glyphs rendered at an eight, ten or twelve point size. Automating this process could probably be done using a combination of Imagemagick[3] and other graphics tools like Inkscape and The Gimp.

We might try investigating the process used by Ultrafonts[4] as they seem to be doing something similar for their font sets. The OpenLaszlo[5] team uses the freely available Verity font designed by Ultrafonts for displaying pixel clear text in their user interface.

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[3] See http://www.imagemagick.org

[4] See http://www.ultrafonts.com

[5] See http://www.openlaszlo.org

The Verity font seems to actually be an already available pixel version of Bitstream Vera Sans, so we might be able to reuse this work if the license if compatible. There's also a mention of a Verity Plus font which includes a larger set of glyphs for non Latin languages.

Usability

The text displayed while the computer is booting up is rather technical and does not really give a lot of usable information to the average non-technical end user. I think we should aim to decrease the amount of abundant information displayed to relieve the end user of having to cope with all these verbose technical messages.

My first idea was to drop all boot text except for the failure messages, this works great in practice[6], but it also introduces a problem for boot actions which take some time to complete.

Examples of these kinds of actions are obtaining a DHCP lease, mounting a remote NFS share or scanning for kernel modules dependencies. Even if these actions do not fail it would be wise to let the user at least know that something is happening.

There are also actions like synchronizing the clock to an NTP server which take a lot of time when no network connection is available, it would be helpful to show the user what is going on so that the action can be aborted in the absence of a network connection. To solve these problems I came up with a concept I call "delayed fade".

Delayed fade

To combine the advantages of a text-less boot splash screen with the error displaying capabilities of a verbose splash screen the "delayed fade" concept works as follows:

- If a request comes in to display a boot action description, which is the long text on the left hand of the screen, it is kept in memory but not immediately displayed.

- If a new request to display a boot action description or a successful status message comes in within a preset amount of time, for instance five seconds, the previous description is discarded and the new description is kept in memory, but also not immediately displayed.

This basic mechanism prevents messages from being displayed if they don't take more than the preset time, like five seconds, to complete. So, if all boot actions go smoothly the user won't actually see the text being displayed at all.

There are however two alternative cases which must be handled, first of all the long lasting actions like NTP synchronization or NFS mounting:

- If no new request to display a boot action description comes in within the predefined timeout, the description which is kept in memory gradually fades in from the background color to the text foreground color.

- Once a new description or a successful status message comes in, the description fades out quickly.

The other alternative is that the boot action fails:

- If one of the boot actions is followed by a failure status message we can immediately display the description kept in memory if it wasn't already faded in, along with the failure reason on the right hand of the screen.

Patching usplash to implement this behavior is possible and I think it would certainly not take more than two regular working days to get this working as intended. A prerequisite for this behavior is that the palette used in the splash image contains colors which can be used to fade from the background color to the text foreground color.

Recommendations
Summarized in a list, the recommendations for the boot-up splash screen are:

- Use a proper non-black Ubuntu palette color background with rounded corners.

- Make the circle logo use either its original colors or a two color version which uses proper Ubuntu palette colors.

- Investigate alternative boot-up splash software or patch usplash to make desired artwork changes technically possible.

- Use (a pixel version of) Bitstream Vera Sans for the boot text.

- Implement the "delayed fade" concept.

Local login screen

Introduction
After starting all necessary boot services, the local graphical login screen is shown. Installed and enabled by default on all desktop installations, it lets the user log in to the GNOME desktop environment. The actual login screen is displayed in figure 2.

Figure 2 - The default Ubuntu 6.06 login screen.

Branding
Before going into the details of the actual login screen I want to point out that in the few seconds while loading the login screen, the display first goes black for a split second, followed by a dark, reddish brown color, in RGB hexadecimal triplets #2B0600.

The black flickering is caused by technical reasons and I'm not going to discuss it because of that, but the dark brown color can be changed so we should try to make the color match at least something on the official Ubuntu color palette.

Considering the actual login screen abundantly uses the "Human" color from the Ubuntu palette we could try replacing the dark brown color by "Human" so that the transition between loading and displaying the login screen isn't as harsh.

Choosing the "Human" color for this loading screen would also make a smooth transition from a branded boot splash image, if we implement the changes I wrote down earlier and use the "Human" for the boot-up splash image.

It is unfortunate that the login screen does use the proper "Human" color for the largest part of the screen, but fails to use a proper color for the bottom bar. I think we could easily replace the bottom bar with the "Environmental Shadow" color.

Another small error is the fact that the main gradient doesn't use either "Human Highlight" or "Accent Yellow Highlight" as the center color. Instead, a slightly different color not in the Ubuntu palette is used.

Artwork
The rectangle behind the login credentials controls is slightly washed out compared to the background, see figure 3. I'm not sure if this intended, but I think we should drop this rectangle and make the controls stand out on the normal background instead of adding visual clutter in the form of a rectangle.
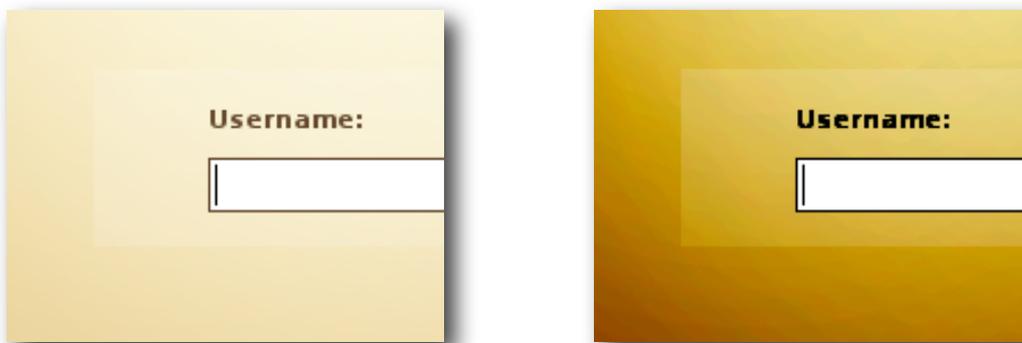
Figure 3 - The background behind the login controls is slightly lighter than the normal background, on the left is the unmodified version, on the right the colors are slightly adjusted to illustrate the problem.

Consistency
The login options menu seems to have a distinct visual style which isn't used anywhere else in the operating system. Figure 4 shows the default login options menu with a highlighted choice.
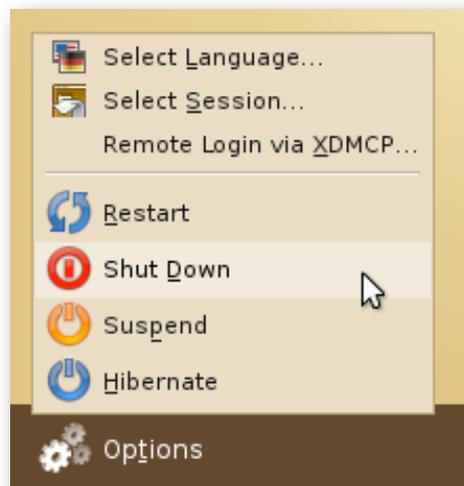
Figure 4 - The GDM login options menu with the "Shut Down" option highlighted.

There are several inconsistencies when comparing the GDM login options menu with the default desktop style. The problems with the login options menu are the fonts, the widget style and the available options compared to the desktop logout dialog.

First of all, the fonts on the options menu are smaller than those used on the desktop by default. It looks like the options menu uses an eight point version of Bitstream Vera Sans whereas the default desktop theme uses a ten point version of the same font. I could not reproduce this on all installations so this is issue is relatively minor.

Next up is the widget style, as it seems the options menu uses a custom style which doesn't match the default desktop style. Not only does this make the menu look out of place considering all the other applications look different, but this custom widget style is also less usable for visually impaired people.

The contrast difference between the default menu background and the highlighted selection background is almost negligible[7] which makes it very difficult to see which option is selected under less than optimal viewing circumstances. The same problem is visible in the language selection window, which seems to use the same combination of colors.

The session selection dialog, shown in figure 5, exhibits a different inconsistency because of the radio button style. The normal desktop theme uses a more orange shade for displaying the currently selected option, the session dialog uses a brown color.
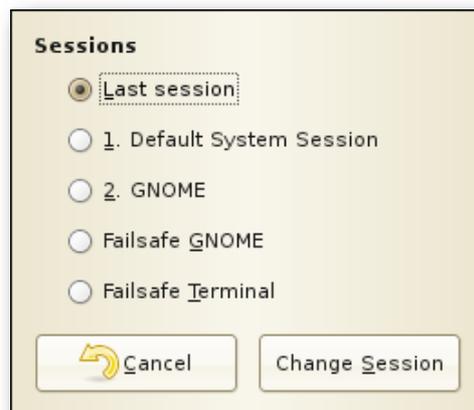
Figure 5 - The login screen session selection dialog.

The last inconsistency I indicated is in the options available from the login options menu. As you can see in figure 4, the login options menu offers the choice between "Restart", "Shut Down", "Suspend" and "Hibernate". The problem is with "Suspend".

The "Suspend" option is available from the login options menu, but it is omitted from the normal desktop logout dialog. I could not find any reason as to why the "Suspend" option is vital in the login context whereas it can be omitted from the regular logout dialog. To make things more consistent, we should either drop "Suspend" from the login options menu or add the option to the desktop logout menu.

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[7] The actual colors used are #E5D6B7 for the default menu background and #EFE6D4 for the selection background. The brightness difference for these two colors is only 15,6, while the default "Human" theme for GNOME has a brightness difference of 53,1 between the default and highlighted item background colors.

Usability

Logging in to the Ubuntu desktop is confusing for a large portion of the users I interviewed using the Ubuntu login window for the first time. The biggest problem is that there is no visual clue or discoverability on how to confirm the username entered in the text field.

The most common scenario I've witnessed is that the user enters his or her username and reaches for the mouse to press a non-existent on-screen button. After staring blankly at the screen for a few seconds the user turns to me asking for help.

Besides the total lack of discoverability on how to confirm the entry, entering a username makes the login process more laborious and error prone than I deem necessary. I've installed Ubuntu on a lot of machine with only one user and entering a username under such circumstances feels just wrong.

The way to solve this would be adding an account selector or a face chooser which displays all non-system accounts in an easily accessible way. The face chooser could display each account's full name and a picture alongside it.

After selecting an account from the list, the password prompt could be displayed either on a fixed position on the screen or in the vicinity of the select account. There should be an upper limit on the maximal amount of accounts shown, seven strikes a solid balance between offering easy access for small user groups and avoiding visual clutter.

To make this system work even more comfortably and accessible for users, the last selected account could be highlighted by default, so that only entering a password is sufficient to log in to the desktop.

If more than seven accounts are available for login, the login screen should revert to a setup similar to the current one, possible with the addition of a visual cue on how to confirm the desired username.

Showing account names and information could be considered a security risk, but as the login screen is only shown on the local, physical console, the system's security is already at risk once a malevolent person has access to this screen.

Recommendations

For improving the local login screen I would suggest the following actions:

- Drop the dark reddish brown background color for a proper Ubuntu palette color.

- Replace colors in the login screen background image with proper Ubuntu palette colors.

- Drop the washed out rectangle beneath the login controls.

- Investigate the use of regular sized fonts as used in the default desktop theme.

- Use the official GNOME theme for all login options controls and dialogs.

- Work out what to do with the "Suspend" option.

- Implement a face chooser with a memory function to select the previously used account.

Remote login screen for XDMCP

Introduction
From the local login screen a user can select to log in to a remote server using the XDMCP protocol. This option is available in the screen options menu under the name "Remote Login via XDMCP". Selecting this options starts up the remote login dialog, as shown in figure 6.
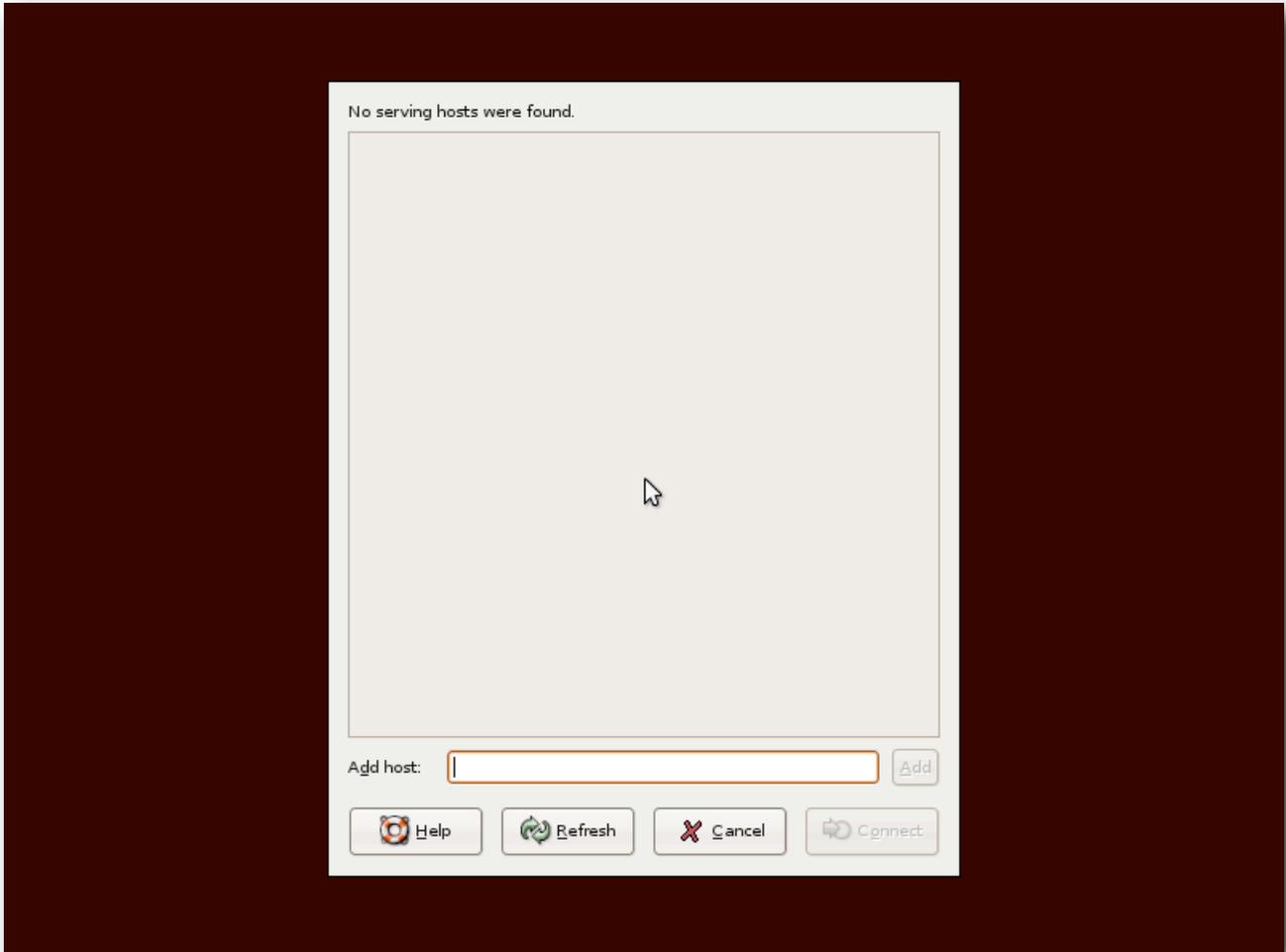
Figure 6 - The remote login dialog for logging in to an XDMCP server.

Branding
The background color used for the remote login dialog is the same reddish brown which is displayed while loading the local login screen. Right now the remote login dialog does not look properly Ubuntu branded, by changing the background color to "Human" several portions of the operating system, including the remote login dialog, will immediately look more consistent.

Artwork
The first impression of the remote login dialog is that it looks kind of unfinished with the solid background color. If possible we should try to add a background image similar to the local login screen background, using "Human" and "Human Highlight" colors as a base.

On a more thorough second look, the icons on the buttons are stock GNOME. These should be replaced with the proper icons used in the default icon theme.

Consistency

The font used for the remote login dialog seems to be an eight point version of Bitstream Vera Sans on some installations, while the default desktop theme uses a ten point version. This should be corrected for a more consistent look with the rest of the operating system. Again this issue is not apparent on all installations.

Usability

The wording of the "Help" dialog contains several technical terms which may not make sense to normal users. Right now, the wording is as follows:

> *The main area of this application shows the hosts on the local network that have "XDMCP" enabled. This allows users to login remotely to other computers as if they were logged on using the console.*

> *You can rescan the network for new hosts by clicking "Refresh". When you have selected a host click "Connect" to open a session to that computer.*

A suggestion for the new text would be:

> *The main area of this application shows the computers on the local network that allow you to log in remotely.*

> *You can rescan the network for new computers by clicking "Refresh". When you have selected a computer, click "Connect" to log in to it.*

By replacing the term "host" with "computer" the dialog is more accessible for the majority of non-technical users. I've also dropped the sentence written in third person perspective about users logging in as if using the "console".

Recommendations

Possible areas for improvement for the remote login dialog are:

• Replace the dark reddish brown background with either a proper Ubuntu palette color or a branded background image.

• Remove the stock GNOME icons and replace them with icons from the default desktop theme.

• Identify the font size issue and correct it if necessary.

• Reword the "Help" dialog to make it more informative for regular end users.

Appendix A - Ubuntu color palette

Introduction

The official Ubuntu color palette should be used as a guideline for branding elements, like icons, of the operating system. The palette is available for download in several different formats on the Ubuntu Wiki[8]. For completeness of this review, I added a pre-rendered version of the palette.

Palette

#eec73e	Orange Hilight		#aaccee	Environmental Blue Highlight
#f0a513	Orange		#6699cc	Environmental Blue Medium
#fb8b00	Orange base		#336699	Environmental Blue Base
#f44800	Orange Shadow		#003366	Environmental Blue Shadow
#fdff99	Accent Yellow Highlight		#b3defd	Accent Blue Highlight
#ffff00	Yellow		#0197fd	Accent Blue
#fdca01	Accent Yellow Base		#0169c9	Accent Blue Base
#986601	Accent Yellow Shadow		#013397	Accent Blue Shadow
#f44800	Accent Orange		#ccff99	Accent Green Highlight
#fd3301	Accent Red		#98fc66	Accent Green
#d40000	Accent Red Base		#339900	Accent Green Base
#980101	Accent Deep Red		#015a01	Accent Green Shadow
#fdd99b	Human Highlight		#002b3d	Ubuntu Toner
#d9bb7a	Human		#ff9bff	Accent Magenta Highlight
#816647	Human Base		#ff00ff	Accent Magenta
#565248	Environmental Shadow		#6600cc	Accent Dark Violet