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The drawings included in this report are in the default web-safe theme specified in chapter 8.

This document embraces Java Interfaces only. HTML interfaces are in no way affected by specifications listed herein.

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 This icon appears throughout the document. It details rules for the standard Lion default style sheet .

☉ preface

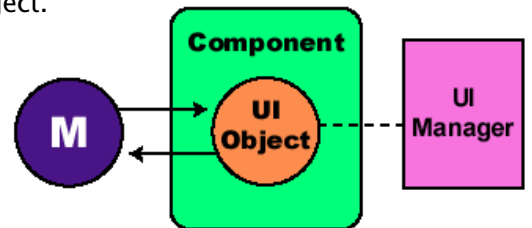
The Java™ Foundation Classes "Swing" user interface building blocks are designed around a Pluggable Look and Feel architecture that allows us for the first time to get away from interpreting the visual manifestations, and instead "plug in" a non-visual manifestation. This architecture separates the expression of the user interface from the underlying structure and data on a component-by-component basis. This is accomplished by separating the user interface of the component from the "model" of the component (the structure which encapsulates the state and information that the user interface portion presents to the user). For each component in Swing, there are actually (at least) five Java programming language objects that are needed to make that Swing component pluggable. These are: the component itself (e.g., a button); the Java programming language interface that defines the user interface (e.g., the button's UI); a default implementation of that user interface (e.g., the Basic Button); a Java programming language interface that defines the model of the component (e.g., the Button model); and finally, a default implementation of that model (e.g., the Swing Button model). For implementation of a custom look and feel only the second of those classes have to be changed for all components.

As the diagram illustrates, Swing architecture is loosely based -- but not strictly based -- on the traditional MVC design. In the world of Swing, this new quasi-MVC design is sometimes referred to a separable model architecture. Swing's separable model design treats the model part of a component as a separate element, just as the MVC design does. But Swing collapses the view and controller parts of each component into a single UI (user-interface) object.

(The UI delegate object shown in this picture is sometimes called a delegate object, or UI delegate.)

The superclass of all UI Delegate classes is

`swing.plaf.ComponentUI`. This class contains the primary "machinery" for making the pluggable look-and-feel work. Its methods deal with UI installation and uninstallation, and with delegation of a component's geometry-handling and painting. Many of the UI Delegate subclasses also provide additional methods specific to their own required interaction with the component; however, this document focuses primarily on the generic mechanism implemented by `ComponentUI`.



The UI classes for all Swing components are organized in packages. The UI classes for the default Java Look and Feel (Metal) can be found in the package `javax.plaf.metal`.

The LION Look and Feel is based on the Metal Look and Feel so that its implementation has to extend the existing Metal classes.

continued on next page

● preface

continued

Extension of legacy code for the LION Look and Feel implementation

An incomplete implementation of the LION L&F has been developed by NOUS Infosystems and extended by LION bioscience. As the starting point for this project, the implementation must be extended for completion in full the specifications of the requirements. The legacy source code is delivered by LION to NOUS Infosystems with the specifications.

Deliverables

- * a jar file containing the complete source code of the LION Look & Feel
- * a jar file containing the compiled source code of the LION Look & Feel
- * a jar file containing the Javadoc documentation of the LION Look & Feel implementation

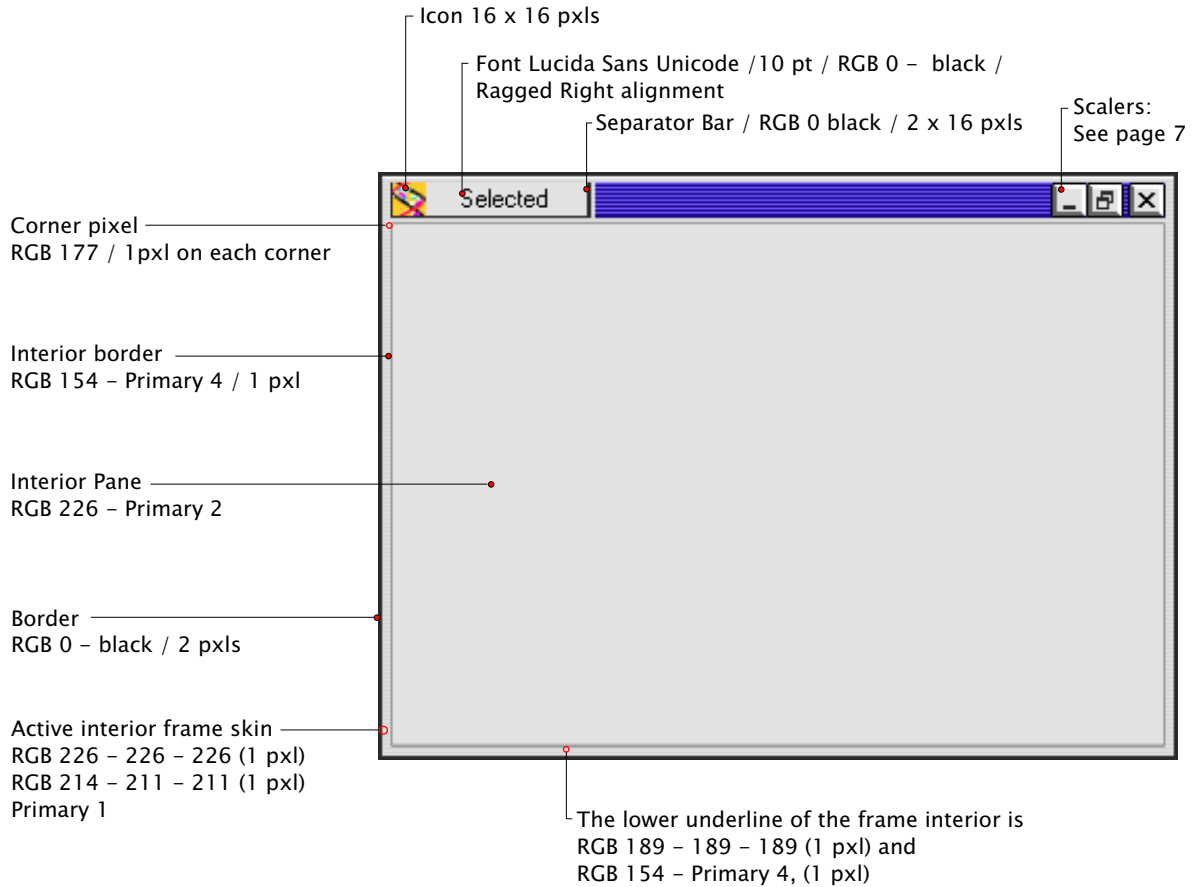
Acceptance criteria

- * The final delivery of the LION Look And Feel package must fulfill all specifications listed in the requirements.
- * The source code must be written according to the coding standards from SUN Microsystems. These conventions are available on the SUN Java webpage by following this link:
<http://java.sun.com/docs/codeconv/>.
- * The source code must be entirely documented according to the definition of the Javadoc system from SUN Microsystems. These conventions are available on the SUN Java webpage by following this link: <http://java.sun.com/j2se/javadoc/>.
- * The performance of the LION Look And Feel delivered must be measurably as fast as the Java Metal Look And Feel.

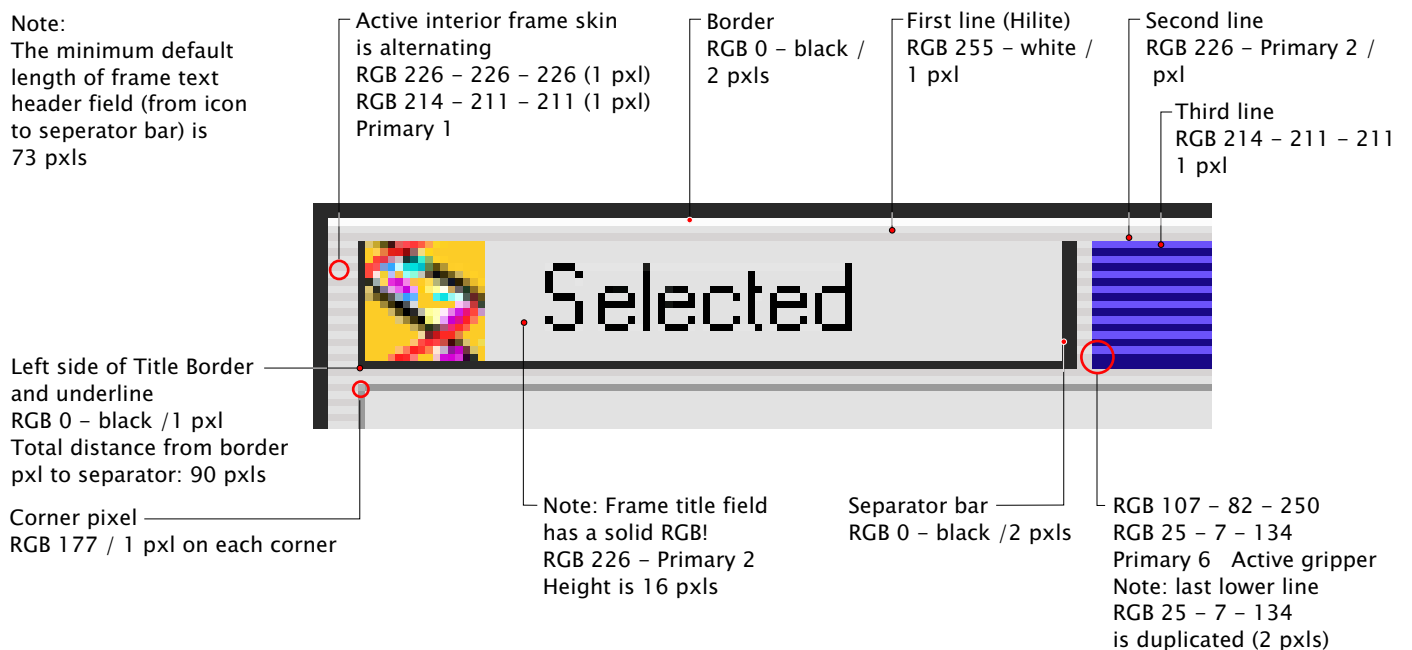
● windows

Internal frame – ACTIVE
 Internal frame title bar in detail

The basic window defines the Lion Look & Feel design and includes all the standard window functions: resizing from any side or corner; dragging from the title bar; and minimize, maximize, and close controls.

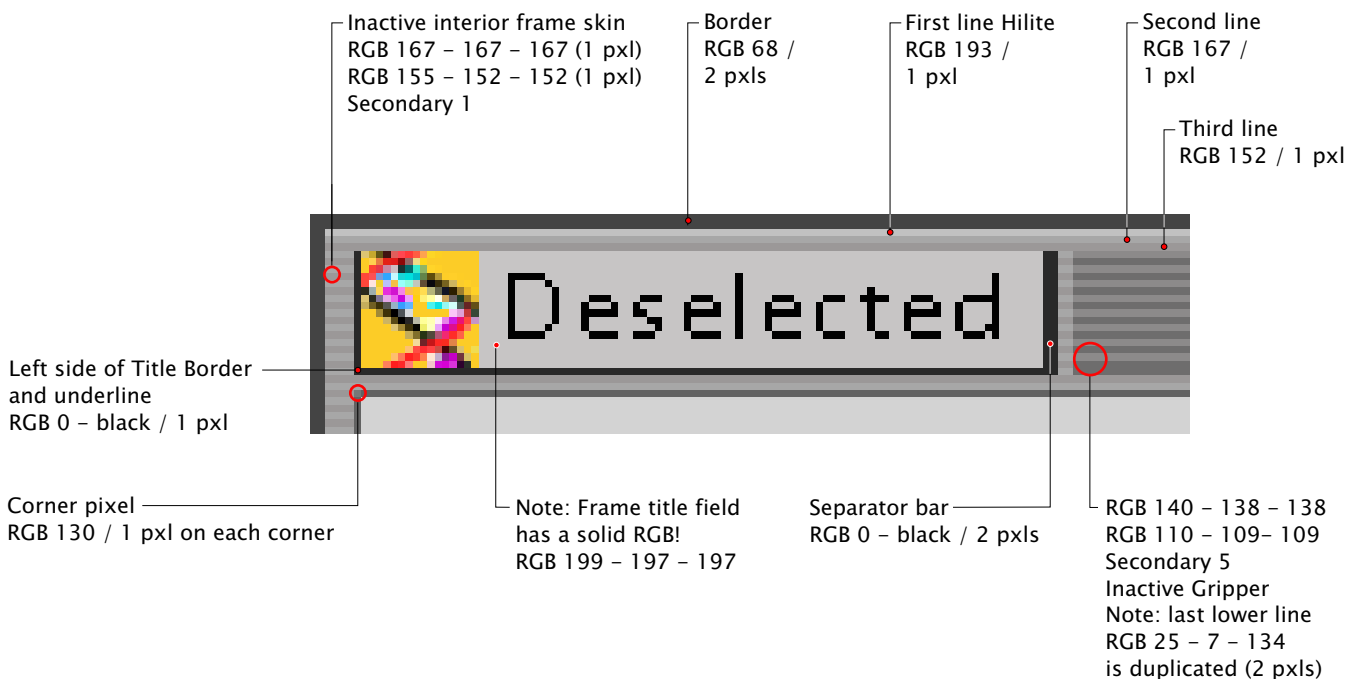
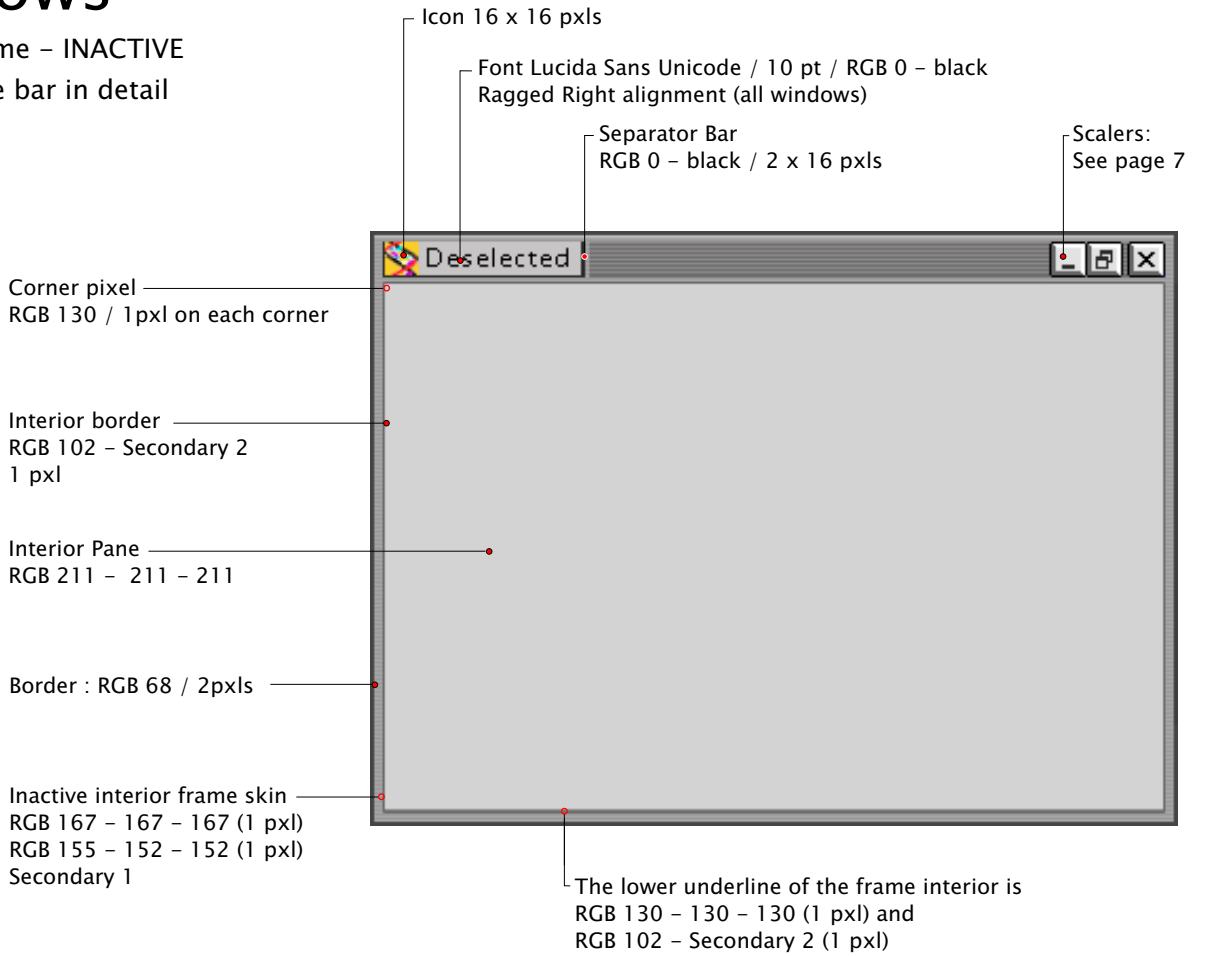


Note:
 The minimum default length of frame text header field (from icon to separator bar) is 73 pxls



○ windows

Internal frame – INACTIVE
Inactive title bar in detail



○ windows

construction specifications.



The Lion Style Sheet

Hilite line
RGB 255 – white / 1 pxl

This panel is
33 pxls high and
appears on all windows
where buttons are used.
Button placement
begins at the far right
as shown



Button is centered
3 pxls upr/lwr
in the panel

Distance between
buttons on interior
frames is 10 pxls

Buttons begin
4 pxls in from
frame inner border
placement is default
always flush right



Button Specifications: See chapter 3



The Lion Style Sheet

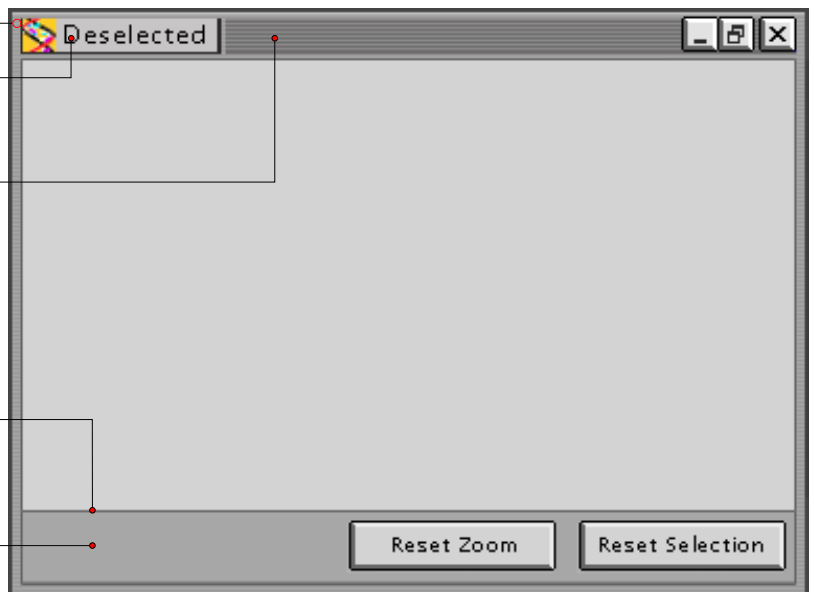
The INACTIVE interior frame
has three distinct pallet
combinations along the
upper part of the frame:

1. The frame skin itself
2. The title field where
the name of the window
is displayed.
3. The inactive gripper

See page 2 for detailed
RGB specifications on
these features

Grey separator line is
RGB 98 – 98 – 98 / 1 pxl

Panel is 33 pxls high



windows

Desktop icons, essential window elements, floating palette



The Lion Style Sheet

Desktop icons – Each minimized window is represented by a horizontally oriented "jlf tag". These tags have a default stacking order – for instance, top to bottom along the left edge of the screen – but can be rearranged by the user by dragging on the textured area (the tags snap to a grid). Shown here are two minimized applications on the Lion JDesktop Pane.



The RGB for a minimized window is identical to an inactive window – No colour change in the Inactive frame takes place. The minimized window is 217 pxls in width and 26 pxls in height

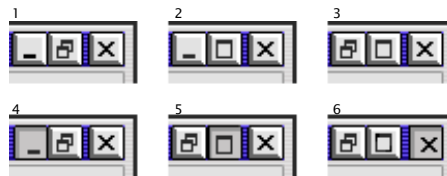


Scalers remain in an active state, as does icon.

The texture in the title bar indicates "draggability." Inactive windows use the colours which are typically grey (see colours). Texture and 3-D effects are maintained, as the inactive window accepts click-through.

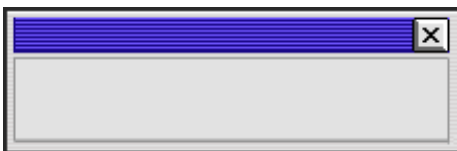
Shown below:

1. Maximized state;
2. Intermediate state;
3. Minimized state;
4. Maximized clicked;
5. Intermediate clicked;
6. To Close clicked.

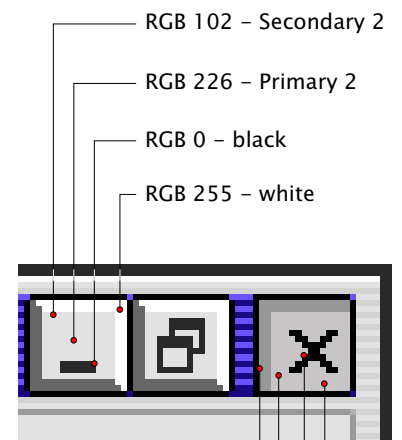


Please note: This sequence follows the Windows style sheet.

Palette windows float above other windows in their own layer.



Frame titles not to exceed 106 pxls (abbreviation begins).

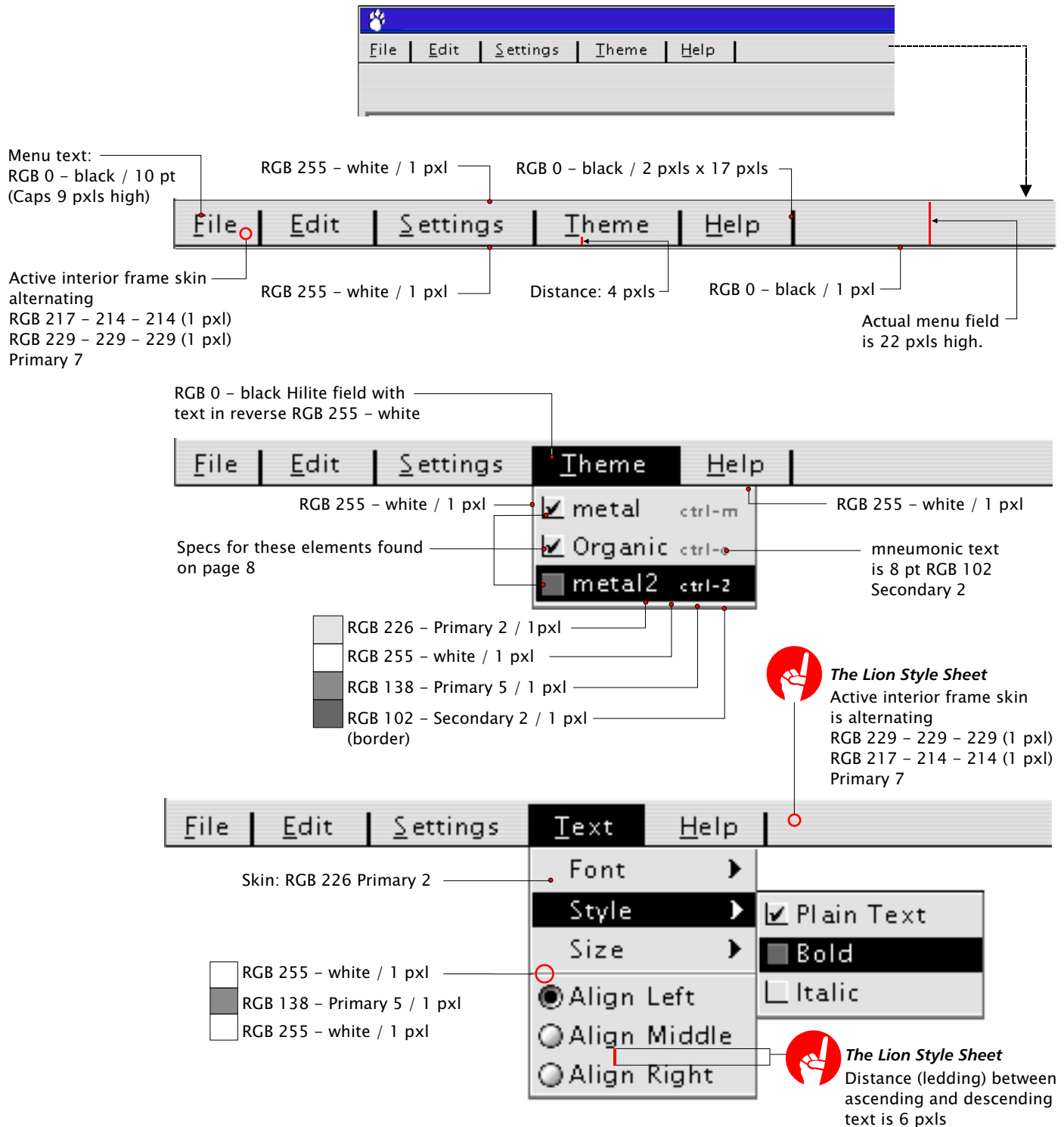


- RGB 151 – 151 – 151
- RGB 199 – 197 – 197
- RGB 0 – black
- RGB 255 – white

☉ menus

menu, menu bar, menu item, check box menu item, radio button menu item, pop-up (contextual) menu.

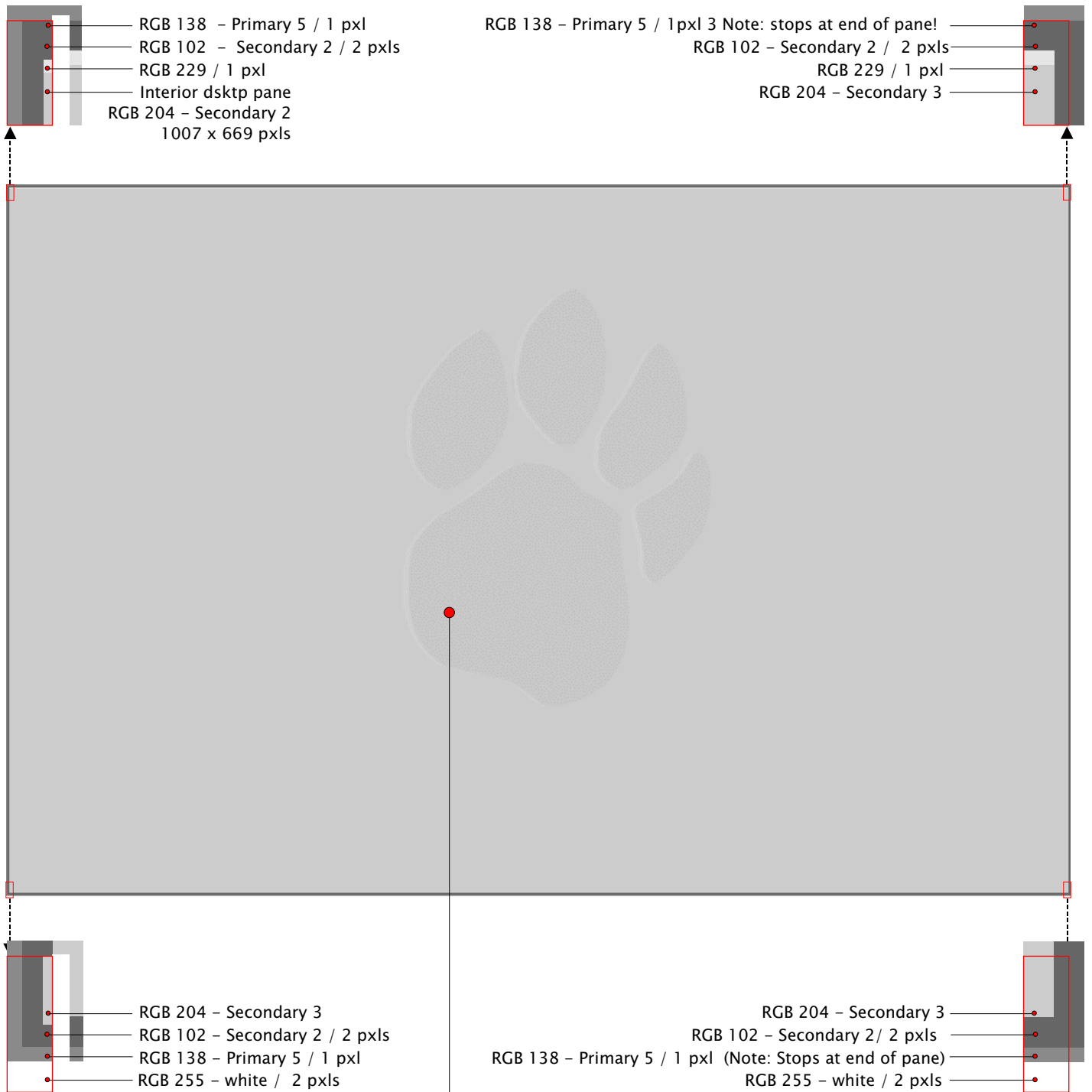
Lion Look & Feel menus use the mousedown appearance from buttons, along with black as a highlight colour, to show selected menu titles and menu items. Shown below are the menu bar; menu titles; menu items (including one which is selected); check box menu items; and keyboard equivalents. The following drawings show a disabled menu; a hierarchical menu; an item separator; and radio button menu items. Pop-up (contextual) menus look like hierarchical menus (they can have keyboard equivalents).



menus

desktop pane.

The Desktop Pane has a 3 colour border and the Lion Paw logo as watermark at center.



The Lion Style Sheet

The Lion paw logo is a graphic available as a separate file (Lionpawdesktop.gif) and consists of three RGB tones: RGB 187 - 187 - 187, RGB 201 - 201 - 201, and RGB 214 - 214 - 214. It appears in the center of all Lion program desktop panels. It is 292 pxls wide and 398 pxls high.

controls

buttons, check boxes, toggle and radio buttons.

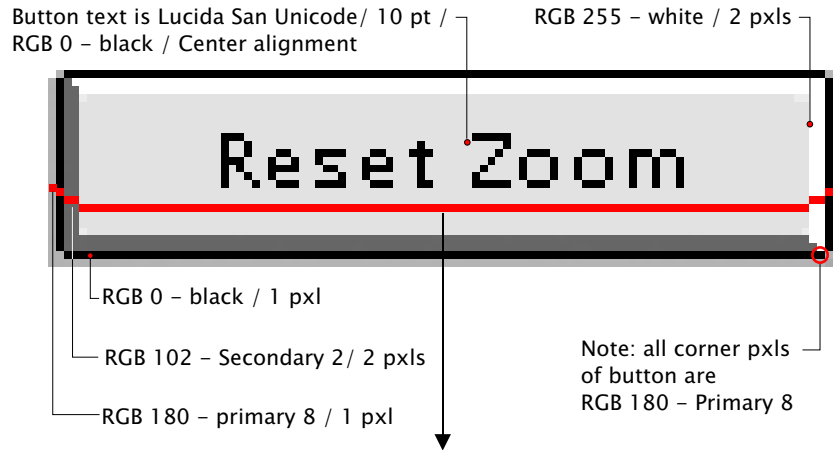


The Lion Style Sheet

There are only 3 sizes of buttons in the Lion L&F, only 2 of these contain text – the third supports an icon. The dimensions of these buttons are as follows and include the pxls that make up the shadow (these values give defaults for preferred minimum and maximum sizes) :

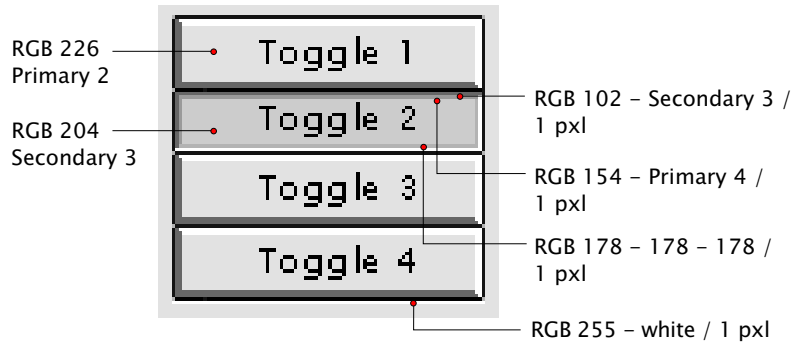
1. Max (shown above right)
Total :100 pxls x 25 pxls
(93 pxls x 18 pxls interior space / 16 characters at 9 pt)
2. Normal
Total: 86 pxls x 25 pxls
(79 pxls x 18 pxls interior space / 13 characters at 9 pt)
3. Icon button
Total 25 x 25 pxls
(18 pxls x18 pxls interior space)
Standard icon is 16 x 16 pxls)

Other items that appear as buttons:
 - Scaler buttons (see page 4)
 - Toggle buttons: Scaleable, but not to exceed 100 pxls total length.



Maximum interior width of a button is 93 pxls (allows for 16 letters at 9 pt) by default
 The total maximum width of a button including border and shadow: 100 pxls by default
 The height of all buttons is : 25 pxls by default
 RGB 226 – Primary 2

Toggle Button RGB specifications are same as all buttons type font is 9 pt. Height of button is 22 pxls including black border. Title shifts 1 pxl lower when selected

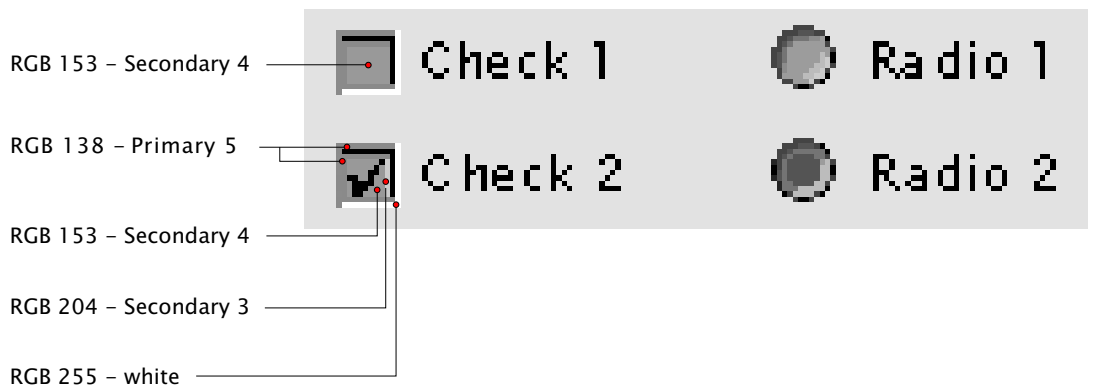
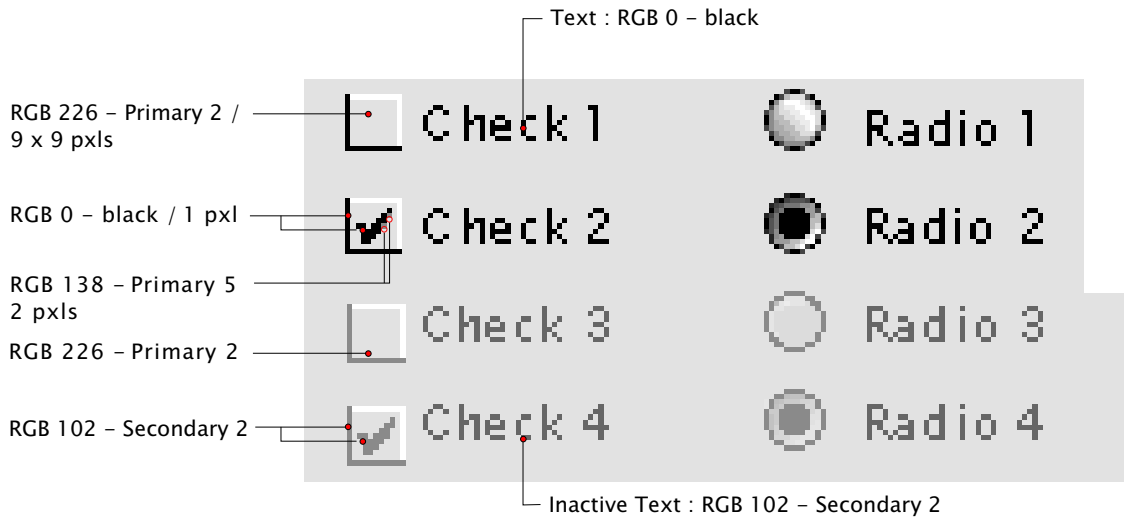
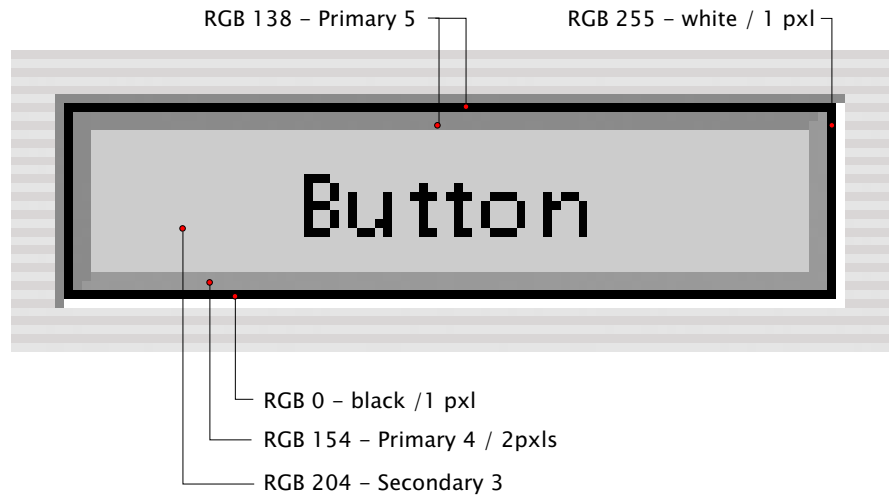


Shown here are check boxes and radio buttons in four states: unselected, selected, unselected and unavailable, and selected and unavailable; along with command buttons, the first of which "Create Gene List" at 10 pts, is the default. Below are the appearances on mousedown. Button text and/or graphics shift 1 pxl left & down on mousedown. A radio button in the "on" state gives mousedown feedback when clicked, as shown in "Radio 2," but remains in the "on" state (the selected button in the set) on mouseup.



controls

buttons, check boxes, toggle and radio buttons.




Accompanying text for Check Boxes and Radio Buttons 9 pt / Ragged Right alignment

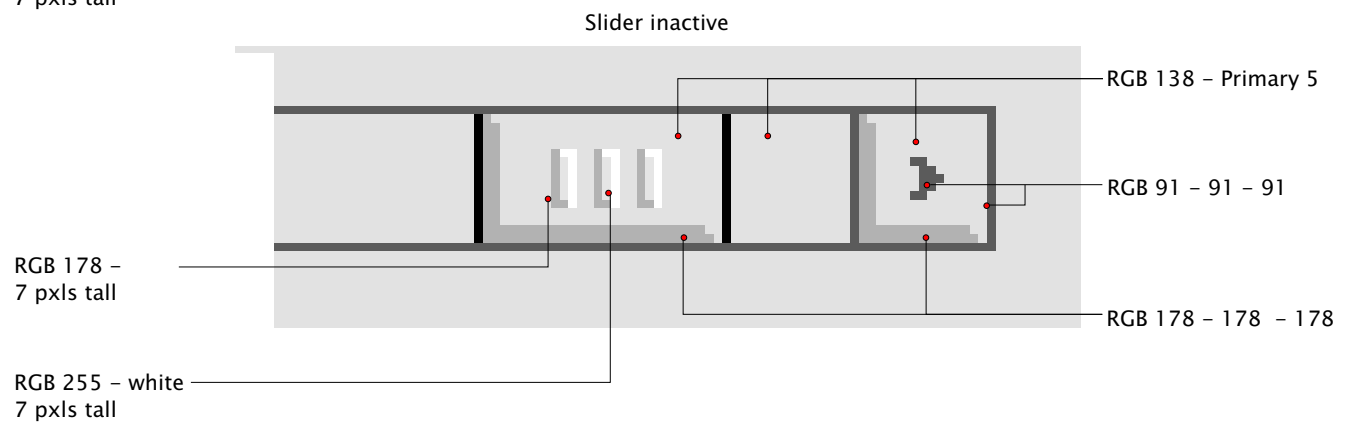
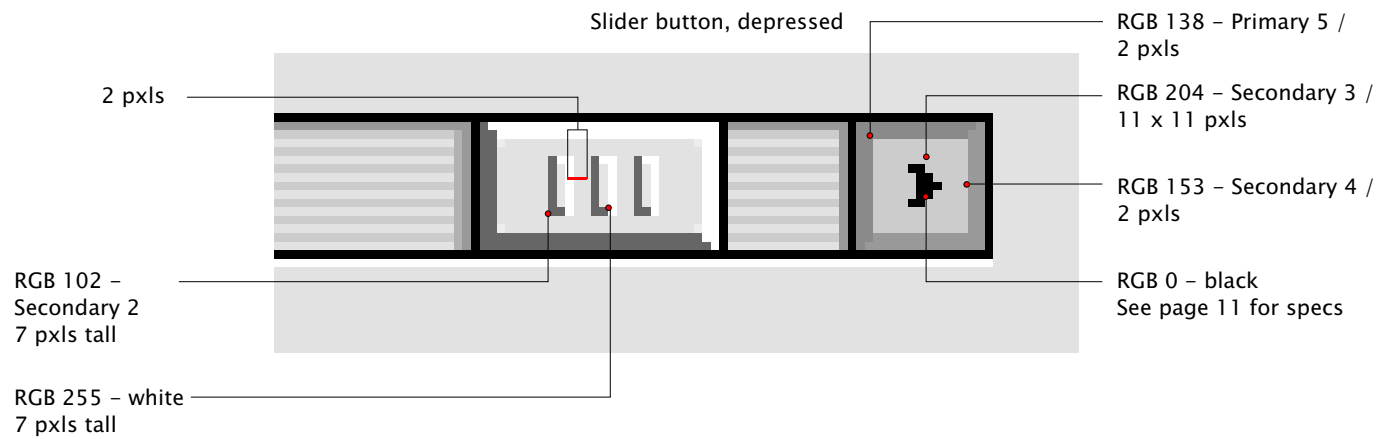
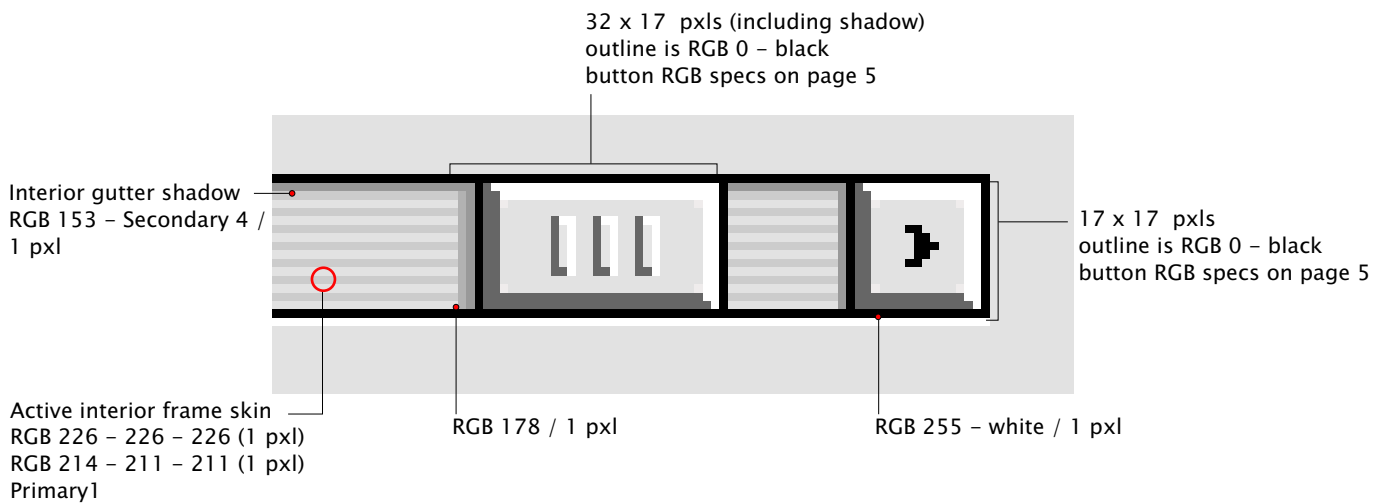
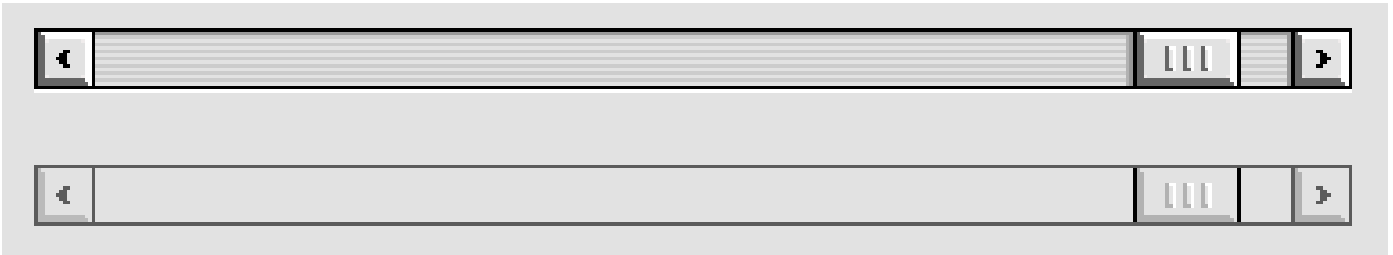
controls

scroll bars



The Lion Style Sheet

There is a white 1 pxl line that accompanies the slider (see below). This line is always appears to the right of the scroll bar or beneath. Scroll bars are always at right or below: 



text components

combo boxes, label, list box, JLabel



The Lion Style Sheet

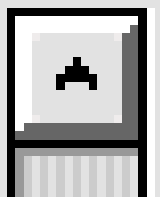
There are two sizes of directional arrows in the Lion L&F; a larger one (shown here in a combo box) that appears free floating i.e. with text.



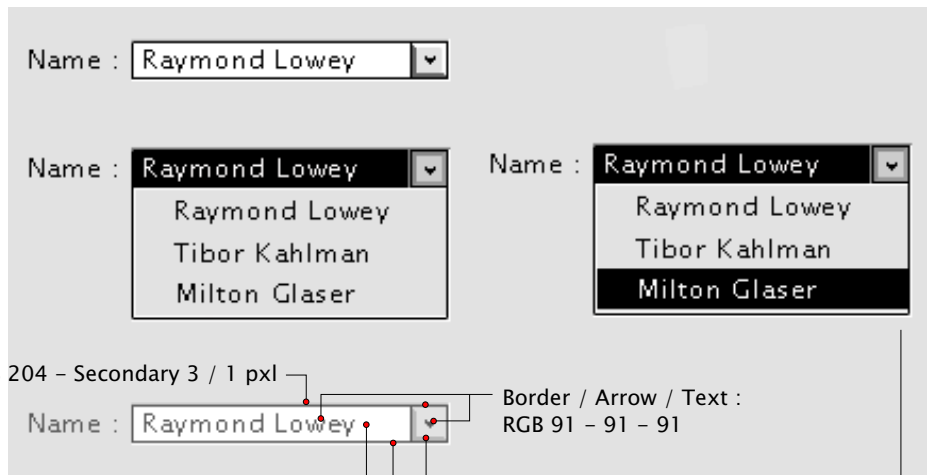
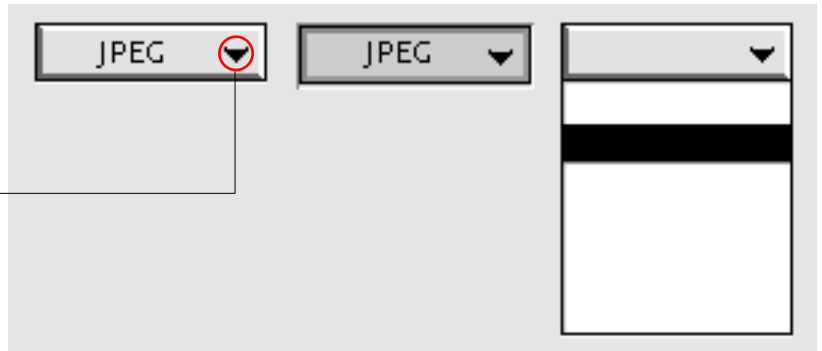
Large arrow:
27 stepped pxls

and a "boxed" smaller arrow that appears on sliders (example shown below) and editable combo boxes both arrows are standard RGB 0 - black or RGB 255 - white .

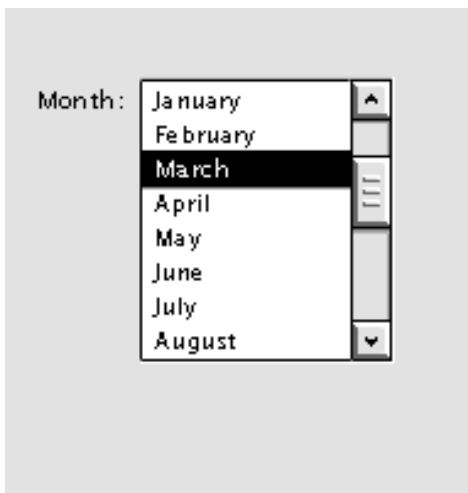
small arrow:
11 stepped pxls



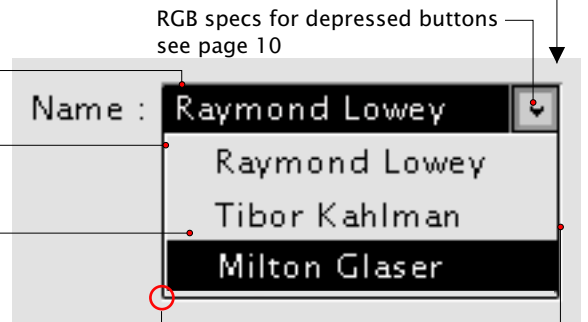
Inactive arrow is RGB 91
See page 10 for example



RGB 204 - Secondary 3 / 1 pxl
 Name : Raymond Lowey
 Border / Arrow / Text : RGB 91 - 91 - 91
 RGB 255 - white field interior
 RGB 178 - 178 - 178
 RGB 255 - white / 1 pxl underline and right side of border



RGB 138 Primary 5 / 1 pxl
 RGB 255 - white / 1pxl line on upr, lwr, and left of Interior
 RGB 226 Primary 2 Field Interior



Corner pxl is single RGB 102 - Secondary 2 (Border is RGB 0 - black / 1 pxl)

RGB specs for depressed buttons see page 10
 RGB 255 - white / 1 pxl underline and right side of border

jLabel1

high level

tabbed pane, tool bar



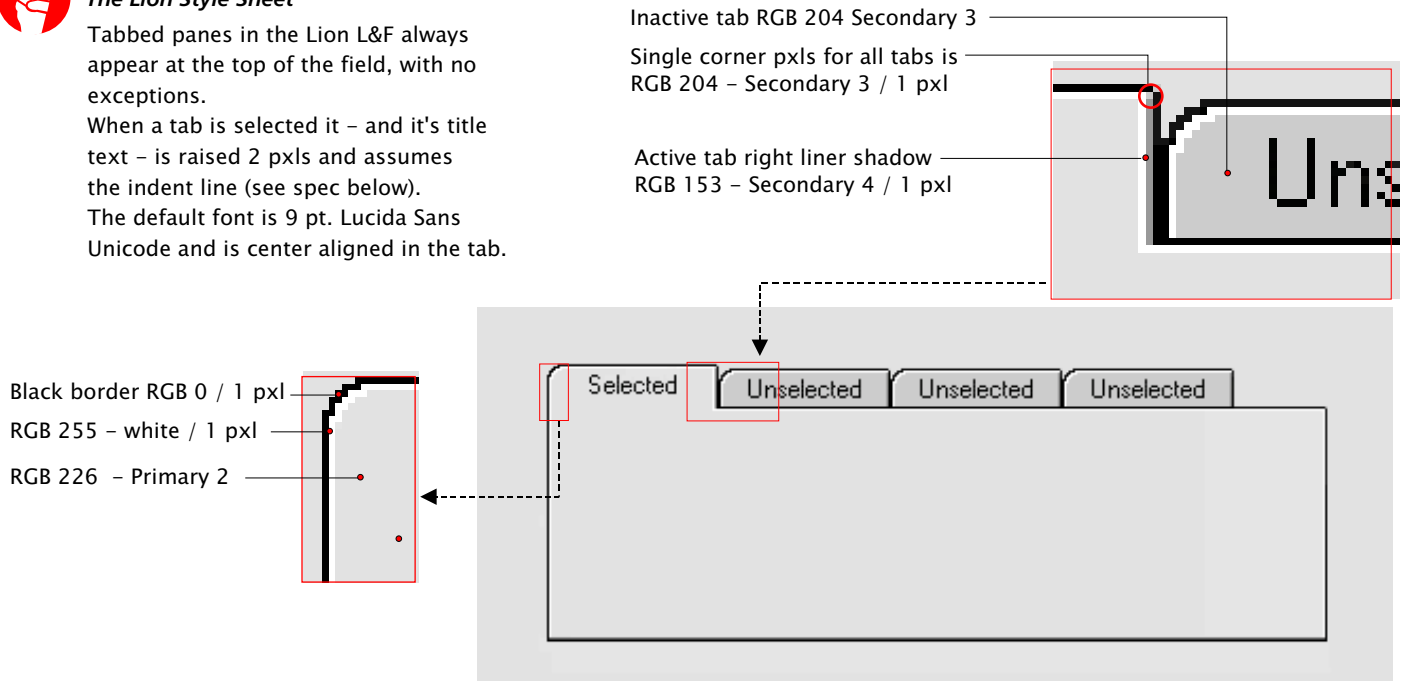
The Lion Style Sheet

Tabbed panes in the Lion L&F always appear at the top of the field, with no exceptions.

When a tab is selected it – and its title text – is raised 2 pxls and assumes the indent line (see spec below).

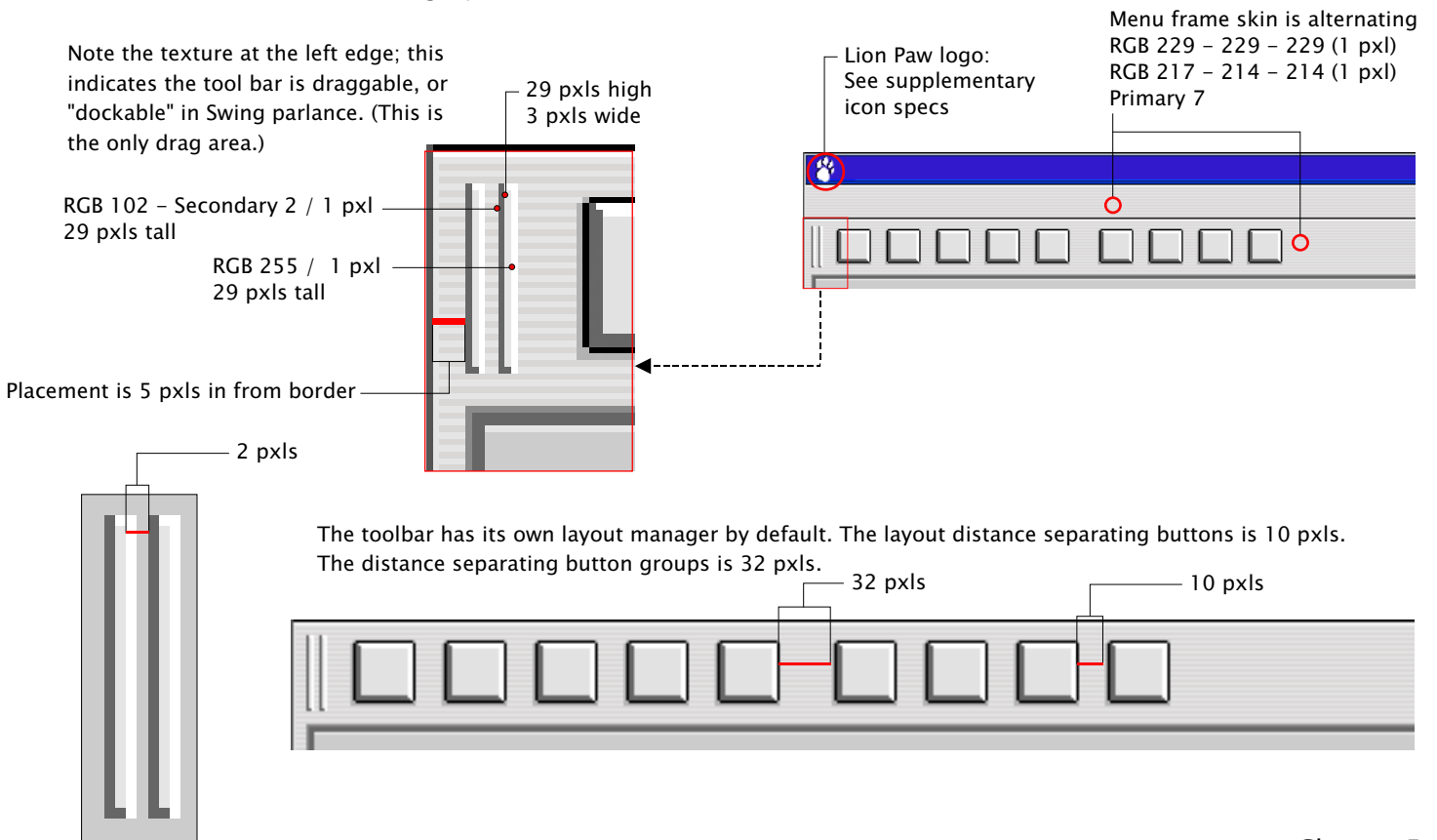
The default font is 9 pt. Lucida Sans Unicode and is center aligned in the tab.

Tabbed pane – This control allows the user to "switch panes." It is typically used in option dialogs. (Usages such as the SwingSet demo not encouraged!)



Tool bar –The tool bar is essentially identical to the menu bar (see menus), except it contains buttons (and, potentially, other controls such as toggle buttons and combo boxes). It is shown here with buttons borders but without button graphics.

Note the texture at the left edge; this indicates the tool bar is draggable, or "dockable" in Swing parlance. (This is the only drag area.)



high level

continued – text fields,
tree view, text table.

Text Fields – Shown here are editable, password, and non-editable text fields. The default font is 12 pt. Lucida Sans Unicode.

Specifications below (same as Tree view)

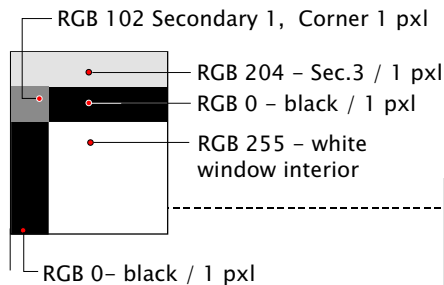
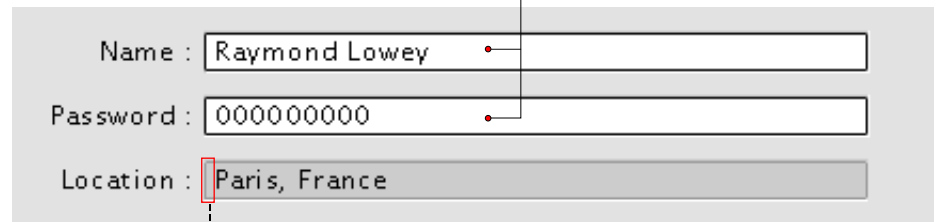
Non – Editable Text Fields

RGB 204/ 1 pxl Note: upper corner pxl is same RGB!

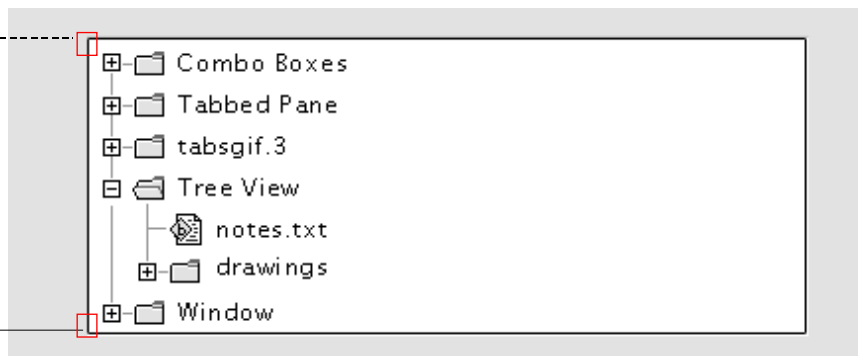
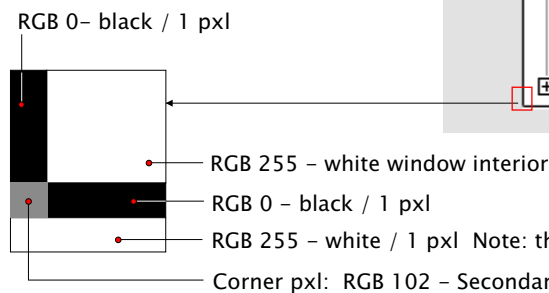
RGB 204 window interior

RGB 153 – secondary 4/ 1 pxl window border

RGB 255– white / 1 pxl



The Tree View uses icons to show open and closed containers. Separators can be drawn between top-level items. Also, hierarchy lines can be displayed (both separators and hierarchy lines are off by default). The icons shown are for example only. See supplementary icon specs.



Curve RGB of tableheader:

- RGB 153 Secondary 4 / 1 pxl
- RGB 102 Secondary 2 / 1 pxl

Note: Colour overlap at crux

RGB 0 – black table header 16 pxls high

RGB 102 – Secondary 2 / 1 pxl

RGB 0 – black border / 1 pxl

RGB 255 – white text field / 1 pxl

RGB 226 – Primary 2 / 1 pxl

RGB 102 – Secondary 2 / 1 pxl

Text is centered 5 pxls from top of field

Text is Center alignment in tableheader 10 pt Lucida Sans Unicode Bold / RGB 255 – white

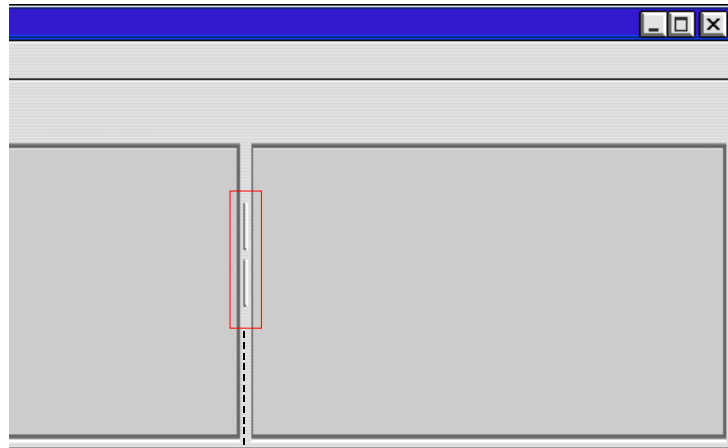
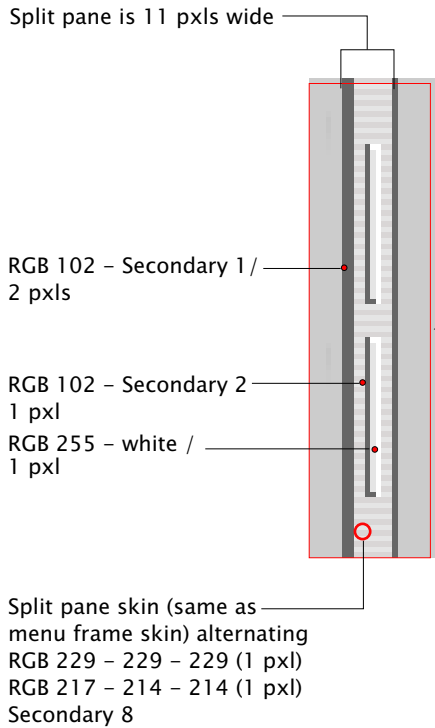
Text is Ragged Right alignment 10 pt Lucida Sans Unicode / RGB 0 – black

RGB 225– white text field is 18 pxls high

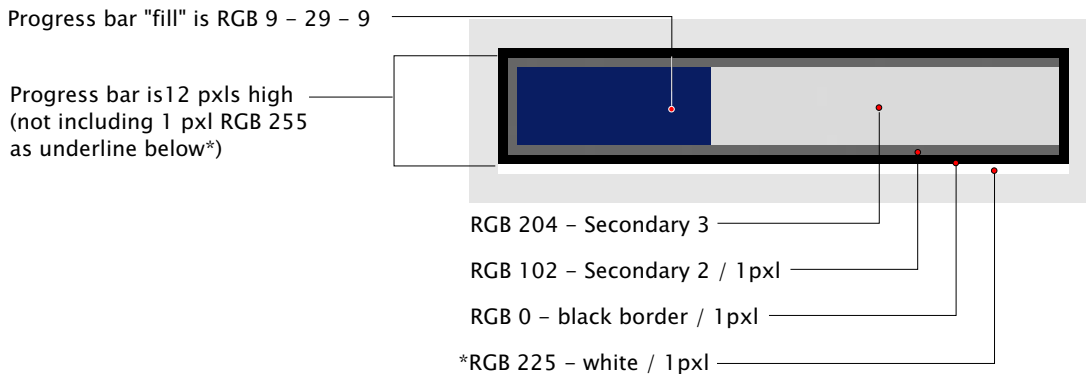
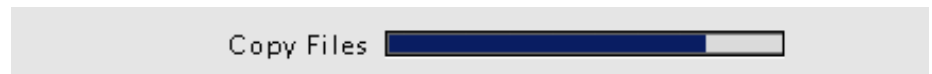
Title 1	Title 2	Title 3	Title 4
Entry 1234567			
Entry 1234567			
Entry 1234567			

other

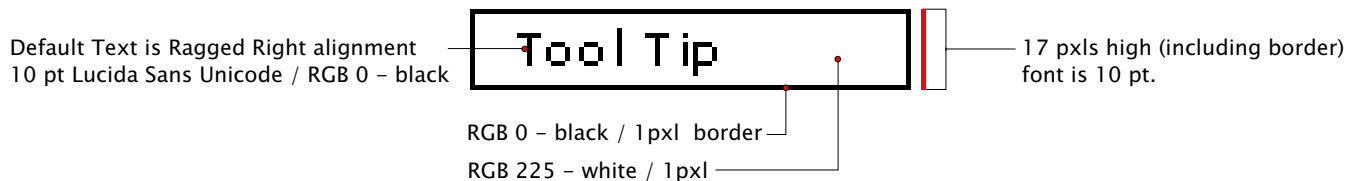
split pane, icons,
progress bar, tool tip.



Progress bar - The progress bar uses a subtle inset 3D effect, to differentiate it from "flush" user items, along with a specified non-primary colour (see colours page 10), to indicate "fill."




Tool tip - The tool tip is a small floating "tag" that indicates the functions of controls on screen. It uses black text for the label, and black for any keyboard equivalent (in a smaller font, 10 pt), on a white field.




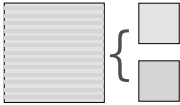
colours


the default colour theme


The default colour theme is presented here. Please note that printed copies will not appear true to actual screen appearance of these colours! The Lion Look & Feel uses 9 primary colours in addition to black and white for active items; a secondary group is used for basic drawing and inactive items. The default theme is as follows.


- 
Black : RGB 000 – 000 – 000
Used for active window borders, user text & user items; buttons outline; selection colour (not to include tree) .
Used sparingly in drawing.


- 
White : RGB 255 – 255 – 255
Used for highlights in 3D effects, and user text entry areas.

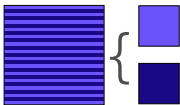
- 
Primary 1: RGB 226 – 226 – 226 & RGB 214 – 211 – 211
Active interior frame

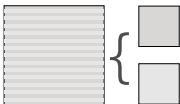
- 
Primary 2: RGB 226 – 226 – 226 solid


- 
Primary 3: RGB 214 – 211 – 211 solid

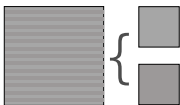
- 
Primary 4: RGB 154 – 154 – 154


- 
Primary 5: RGB 138 – 138 – 138
shadows


- 
Primary 6: RGB 107 – 82 – 250 & RGB 25 – 7 – 134
Active interior gripper


- 
Primary 7: RGB 217 – 214 – 214 & RGB 229 – 229 – 229
Tool Bars Main frame bars & split panes

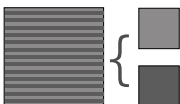
- 
Primary 8: RGB 180 – 180 – 180
Active button shadows


- 
Secondary 1: RGB 167 – 167 – 167 & RGB 152 – 152 – 152
Inactive interior frame.

- 
Secondary 2 : RGB 102 – 102 – 102
Disabled text

- 
Secondary 3 : RGB 204 – 204 – 204
Desktop background




















































- 
Secondary 4 : RGB 153 – 153 – 153
shadows

- 
Secondary 5: RGB 140 – 138 – 138 & RGB 91 – 91 – 91
Inactive gripper

- 
Selection color in Tree 0 – 0 – 255

colours

continued

 R=0 G=25 B=168	 R=89 G=255 B=51	 R=255 G=255 B=0	 R=255 G=178 B=0
 R=0 G=12 B=154	 R=47 G=164 B=0	 R=255 G=206 B=0	 R=255 G=0 B=0
 R=102 G=153 B=255	 R=102 G=51 B=255	 R=0 G=51 B=153	 R=0 G=0 B=255
 R=0 G=255 B=255	 R=0 G=204 B=255	 R=51 G=0 B=153	 R=51 G=0 B=204
 R=153 G=0 B=255	 R=204 G=153 B=255	 R=255 G=0 B=255	 R=153 G=102 B=153
 R=0 G=204 B=204	 R=102 G=255 B=204	 R=51 G=204 B=51	 R=0 G=204 B=102
 R=0 G=255 B=0	 R=0 G=153 B=51	 R=153 G=255 B=0	 R=153 G=204 B=0
 R=155 G=153 B=51	 R=255 G=153 B=102	 R=255 G=102 B=0	 R=255 G=102 B=0
 R=204 G=51 B=0	 R=204 G=0 B=102	 R=255 G=204 B=0	 R=242 G=202 B=22
 R=255 G=229 B=0	 R=255 G=255 B=153	 R=255 G=153 B=102	 R=255 G=255 B=204
 R=51 G=51 B=51	 R=76 G=76 B=76	 R=102 G=102 B=102	 R=127 G=127 B=127
 R=153 G=153 B=153	 R=178 G=178 B=178	 R=217 G=210 B=210	 R=229 G=229 B=229
 R=239 G=236 B=236	 R=204 G=204 B=204	 R=239 G=236 B=236	

● font

alphabet, numbers & markers,
font sizes specified.

The default font is SansSerf (aka Lucida Sans Unicode):

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
a b c d e f g h i j k l m
n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9 0
! @ # \$ % ^ & * () _ + =
, . : ; " ? / ' { } []

Inactive Window: 10 pt
Active Window Title Bar: 10 pt
Active Window: 10 pt
Active window Selected text: 10 pt
Inactive window Title Bar: 10 pt
Inactive Window: 10 pt

Window Text: 10 pt
Message Text: 8 pt

Icon Text: 10 pt
Tool Tip: 10 pt

Palette Title: 10 pt
Desktop Icon: 10 pt

Button text: 9 pt
Tab Title text: 9 pt

Table Header: 10 pt / Bold
Table Cell: 10 pt

Default Fixed Width Text : Lucida Typewriter

The current versions of the Java Runtime Environment define the Lucida font family as TTF default fonts. This behaviour is fine and will not be changed.