

Mr.
Voice

IMPROV AUDIO SOFTWARE

How Perl Brought The Funny

Mr.Voice, Perl/Tk, and ComedyWorx

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<http://www.lunenburg.org/mrvoice/>

About Me

- Name: H. Wade Minter
- Originally from Virginia, graduate of William & Mary
- Unix sysadmin and geek-of-all-trades.
- Perl “street cred? Not much.
- Currently working for a consulting company on a contract with a soul-sucking State Government project.

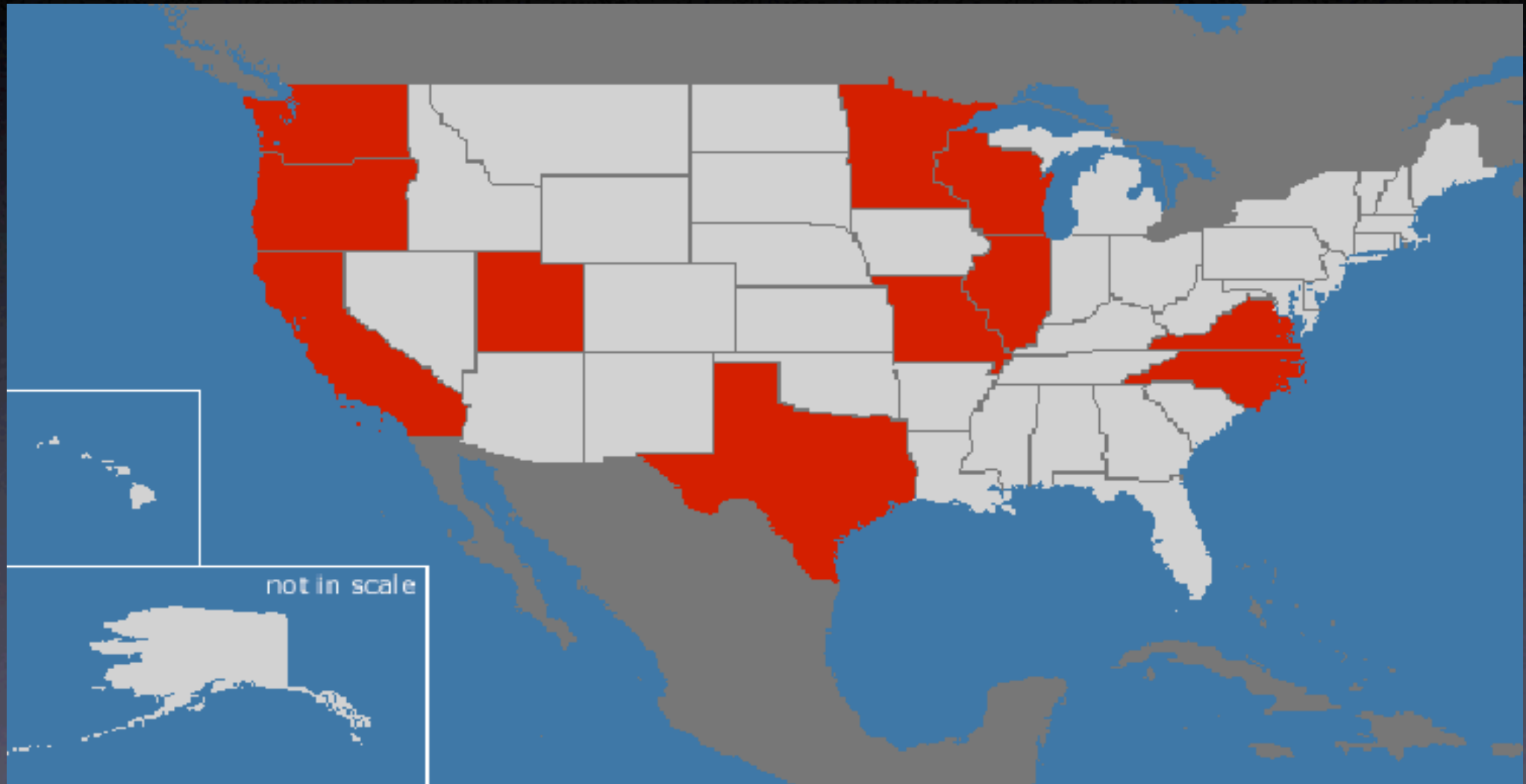
Background

- ComedyWorx used to run its sound system off of tapes and CDs.
- Tapes are prone to breaking.
- CDs are slow when switching tracks.
- Both are hard to find in a stack of media.

My idea - digital audio

- Quick access.
- Easy backup.
- Mmm ...geeky.
- Went into production in Raleigh sometime in early 2001.

How It's Grown!



Why Perl/Tk?

- Already comfortable with Perl.
- Consensus good choice.
- **Excellent documentation.**
- Happened to see a book in the bookstore.
- Other Options: wxPerl, Gtk-Perl, PerlQt.

Things On The Agenda

- Layout management
- Buttons as an example widget.
- Keyboard bindings.
- Cross-platform coding.
- Your questions (hopefully).

Useful Information

Widget Sampler

- Labels
- Buttons
- Radiobuttons
- Checkbuttons
- Listboxes
- Text Entry
- Frames

Layout Managers

- Choices: Pack, Place, and Grid
- Pack: The most common one. Uses the “allocation rectangle” system.
- Place: Pixel-level placement.
- Grid: Spreadsheet-like cells
- I chose Pack.

Pack

- Allocation rectangle system somewhat tough to grasp.
- Each widget you pack() has a virtual rectangle that extends horizontally or vertically across its containing widget.
- Once you get it, it's very powerful.

Window

```
$mw = MainWindow;
```

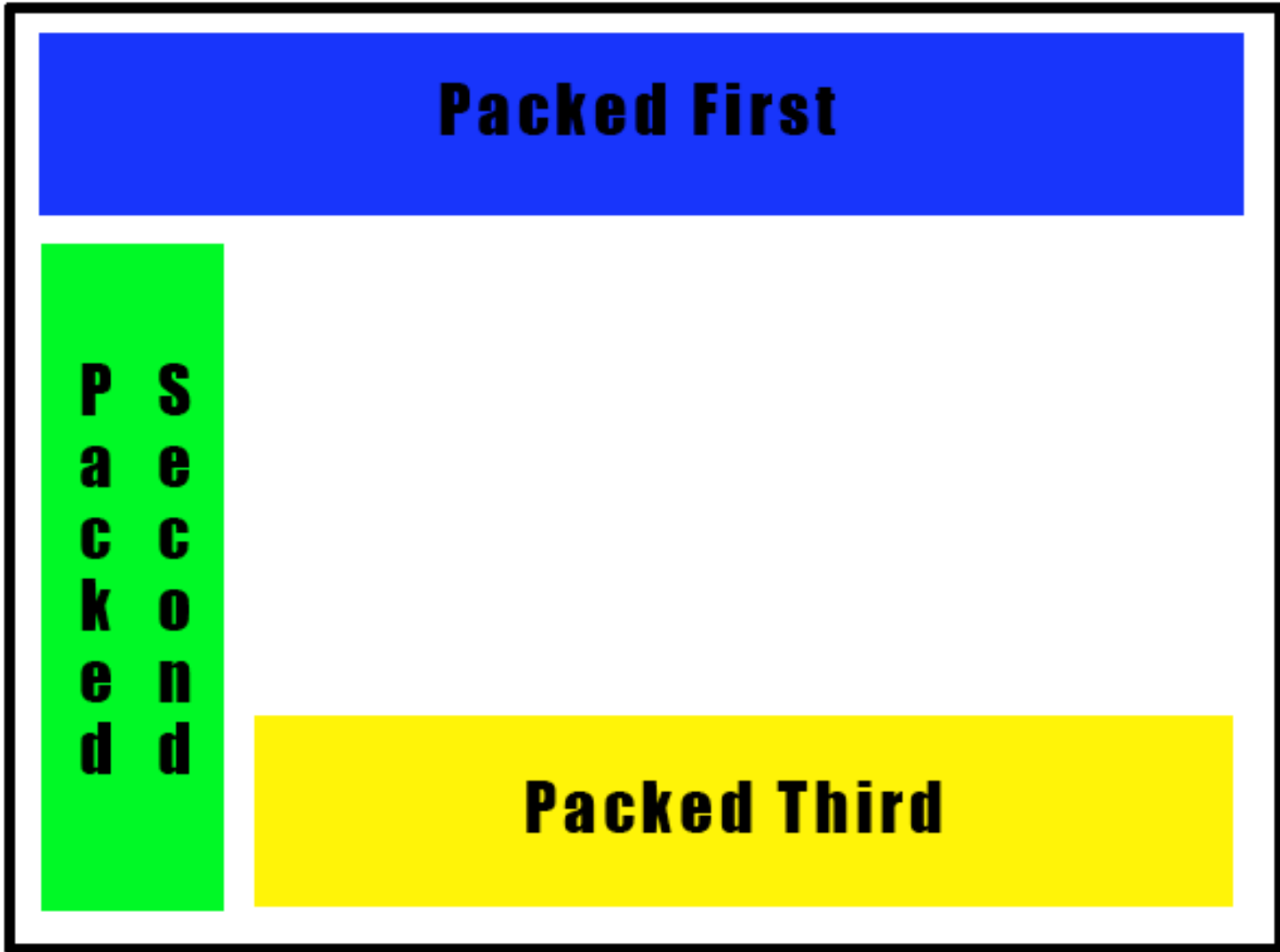
Packed First

```
pack(-side=>'top');
```

Packed First

**P S
a e
c c
k o
e n
d d**

```
pack(-side=>'left');
```



```
pack(-side=>'bottom');
```

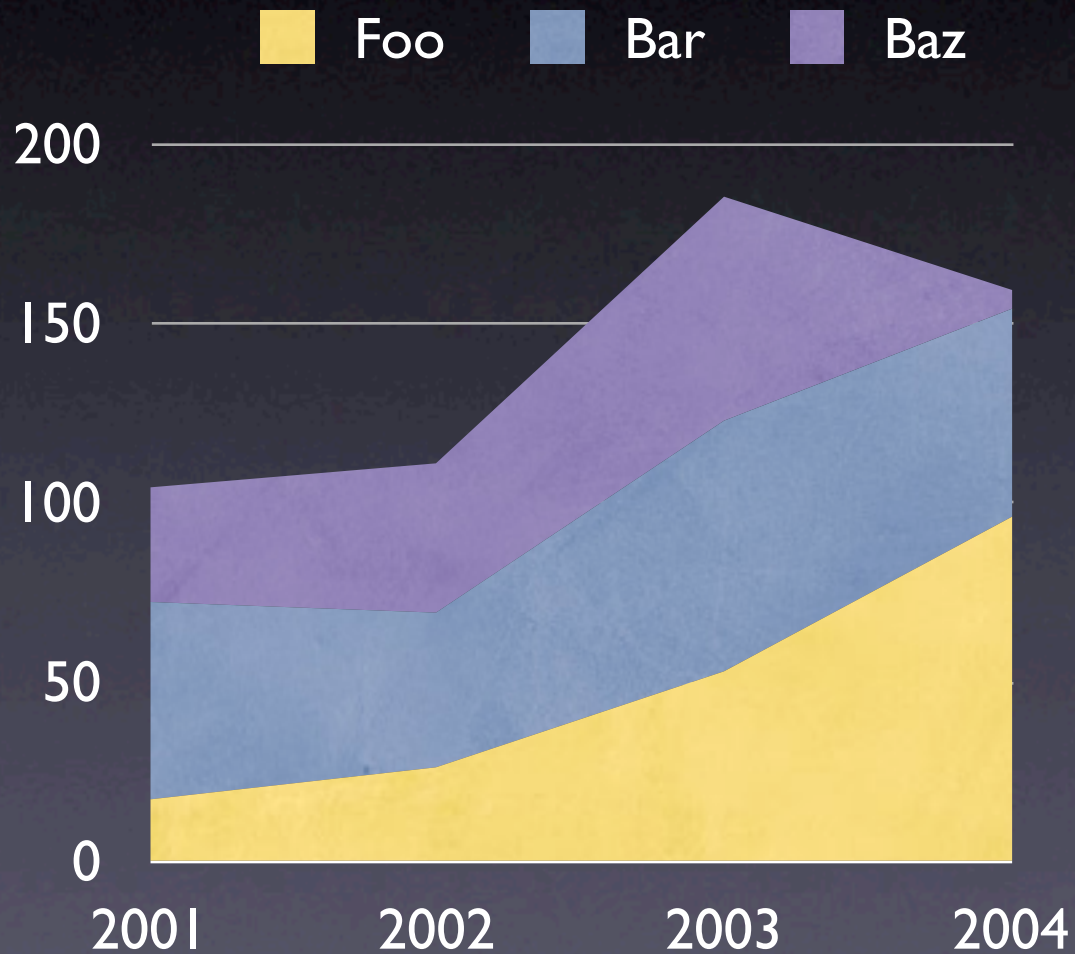

Advantages

- Very fluid layout.
- Easy to resize.
- How to line up multiple items (buttons, checkboxes, etc.)?

Frames

- Frame widget is simply a container for other widgets.
- `Pack ()` a frame, then pack other widgets inside the frame.
- Let's look at some example code:

This Chart Means Nothing



```
my $statusframe = $mw->Frame()->pack(
    -side      => 'bottom',
    -anchor    => 's',
    -fill      => 'x'
);

our $playbutton = $statusframe->Button(
    -text      => "Play Now",
    -command   => [ \&play_mp3, $mainbox ]
)->pack( -side => 'left' );

our $stopbutton = $statusframe->Button(
    -text      => "Stop Now",
    -command   => \&stop_mp3
)->pack( -side => 'right' );

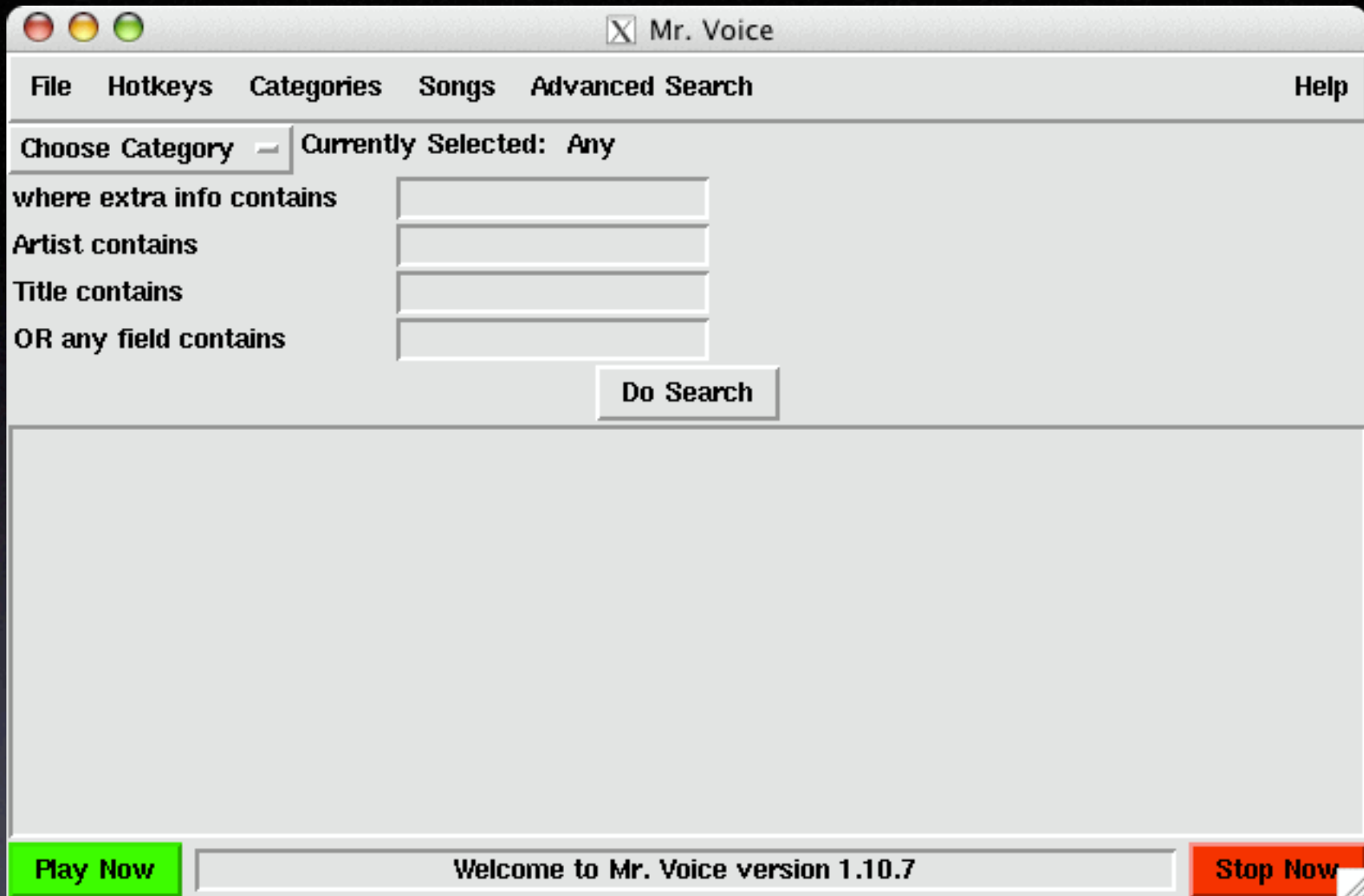
$statusframe->Label(
    -textvariable => \$status,
    -relief       => 'sunken'
)->pack(
    -anchor      => 'center',
    -expand      => 1,
    -padx        => 5,
    -fill        => 'x'
);
```

Play Now

Welcome to Mr. Voice version 1.10.7

Stop Now

Widgets



Mr.Voice - Main Window

Buttons

- Perl/Tk is event driven
- Clicky clicky do something
- Buttons are a familiar interface.
- Click on a button and execute a callback.


```
$summarybox->Button(  
    -text      => "Close",  
    -command => sub {  
        $summarybox->destroy if  
Tk::Exists($summarybox);  
    }  
)->pack();
```

- Inline anonymous subroutine
- When the button is pressed, it runs the subroutine, then goes back to waiting.
- The application (usually) blocks while the subroutine is running.
- You can also call named subroutines.

```
my $playlistbutton =  
$holdingtank->Button(  
    -text => "Launch  
Playlist",  
    -command =>  
&launch_tank_playlist  
)->pack();
```

```
sub launch_tank_playlist
{

    # Launch an m3u playlist from the contents of the
    holding tank
    my @indices = $tankbox->get( 0, 'end' );
    return if ( $#indices < 0 );
    my ( $fh, $filename ) = tempfile( SUFFIX =>
'.m3u', UNLINK => 1 );
    print $fh "#EXTM3U\n";
    foreach my $item (@indices)
    {
        my ( $id, $description ) = split( /:/, $item
);
        my $file = get_info_from_id($id)->{filename};
        my $path = catfile( $config{filepath}, $file
);
        print $fh "$path\n";
    }
    close($fh) or die;
    system("$config{'mp3player'} $filename");
}
```

- That subroutine just ran and exited.
- Can, of course, call subroutines with arguments.
- Can use an image as a button.

```
$holdingtank->Button(  
    -image => $arrowup,  
    -command => [ \&move_tank, "  
-1" ]  
)->pack( -side => 'left' );
```

```
sub move_tank
{

    # Blatantly cribbed from Mastering Perl/Tk's Tk::NavListbox example
    my $lb      = $tankbox;
    my $direction = shift;
    my (@selection) = $lb->curselection;
    my $index    = $selection[0];

    # Sanity checks
    return if ( $index == 0 && $direction == -1 );
    return if ( $index == $lb->size() - 1 && $direction == 1 );

    my $newindex = $index + $direction;

    my $item = $lb->get($index);
    $lb->delete($index);
    $lb->insert( $newindex, $item );
    $lb->selectionSet($newindex);
}
```

Binding Keys

Binding Keys

- Can map keyboard actions to events in the GUI.
- Mr.Voice uses hotkeys to play songs, as well as a few other key combos.
- Use the `bind()` method.

```
$mainwindow->bind( "<Double-Button-1>",  
\&play_mp3 );
```

```
$mw->bind( "<Control-Key-p>", [  
\&play_mp3, "Current" ] );
```

- First bind means that if you double-click in the \$mainbox (Tk::Listbox), it runs the play_mp3() subroutine.
- Second bind means that if you press Ctrl-P anywhere in the main window (\$mw), it will run the play_mp3() subroutine with an argument of “Current”
- Both binds pass a reference to their calling widget as the first argument.

Cross-Platform Coding

Cross-Platform Coding

- The Tk widget set doesn't look quite like native Win32, or quite like GTK/Qt, but is fairly close to both.
- Perl/Tk provides some functions (getOpenFile, getSaveFile) that use native widgets under Win32
- No native OS X port (yet).

Mr.Voice - Linux

The screenshot displays the Mr.Voice application interface on a Linux desktop. The main window, titled "Mr. Voice", features a menu bar with "File", "Hotkeys", "Categories", "Songs", "Advanced Search", and "Help". Below the menu is a search section with a "Choose Category" dropdown (set to "Any Category") and several input fields for searching by artist, title, or other criteria. A "Do Search" button is positioned below these fields. The search results list various songs, with "Go To The Penalty Box" by Carolina Hurricanes selected and highlighted in blue. At the bottom of the main window, a status bar indicates "Playing 'Go To The Penalty Box' by Carolina Hurricanes" with "Play Now" and "Stop Now" buttons.

To the right, a "Hotkeys" window lists currently defined hotkeys for function keys F1 through F12, such as "Long Vending" for F1 and "National Anthem" for F9. It includes "Close" and "Clear Selected" buttons.

Below the hotkeys window is a "Holding Tank" window, which serves as a playlist. It contains the text "I'm Mr. Holding Tank - you put your songs in me. Drag a song here from the main search box to store it" and a "Launch Playlist" button. A list of songs is shown, including "The Entertainer" by Scooby Doo and "The Police". It also has "Play Now", "Stop Now", "Clear Selected", and "Close" buttons.

In the foreground, an "About Mr. Voice" dialog box is open, displaying the application's logo and the following text:
Mr. Voice
IMPROV AUDIO SOFTWARE
Mr. Voice Version 1.10 (Revision: 1.328)
By H. Wade Minter <minter@lunenburg.org>
URL: <http://www.lunenburg.org/mrvoice/>
(c)2001, Released under the GNU General Public License

The system tray at the bottom shows several active applications: X-Chat, mail.hcssystems, Liferea 0.4.6, Gaim [2], XMMS - 1. Carolina Hurricanes, Mr. Voice, newsobserver.com, bbs.jsca.uiowa.edu, minter@localhos, VMware Workstation, and Toplevel [2]. The system clock shows 2:07 on 03/05/2004.

Mr.Voice - Win32

The screenshot displays the Mr. Voice Win32 application interface. The main window, titled "Mr. Voice", features a menu bar with "File", "Hotkeys", "Categories", "Songs", "Advanced Search", and "Help". Below the menu is a search interface with a "Choose Category" dropdown (set to "Any Category") and several input fields for "where extra info contains", "Artist contains", "Title contains", and "OR any field contains". A "Do Search" button is positioned below these fields. The search results list includes:

- 875:(Game) - "Beautiful [CLIP]" by Christina Aguilera [00:23]
- 874:(Game) - "Two Out of Three Ain't Bad [CLIP]" by Meatloaf [00:26]
- 121:(Game - ABC, Spelling Bee) - "ABC" by Jackson Five [00:21]
- 55:(Game - Animatronic Jamboree) - "The Entertainer" by Scott Joplin [04:18]
- 124:(Game - Animatronic Jamboree/Silent Movie) - "Speakeasy Rag" [02:13]
- 122:(Game - Animatronic Jamboree/Silent Movie) - "The Chase Begins" [01:28]
- 126:(Game - Animatronic Jamboree/Silent Movie) - "The Crazy Otto" by Johnny Maddox [03:03]
- 123:(Game - Animatronic Jamboree/Silent Movie) - "The Tramp" [02:23]
- 125:(Game - Animatronic Jamboree/Silent Movie) - "The Policeman" [01:47]
- 661:(Game - Arms Scene / Arms Expert) - "Keep Your Hands To Yourself" by Georgia Satellites [00:37]

At the bottom of the search results, it says "Displaying 1235 search results (1.81 seconds elapsed)". Below this are "Play Now" and "Stop Now" buttons. To the right, a "Hotkeys" window is open, showing "Currently defined hotkeys:" with a list of function keys (F1-F12) and their corresponding actions, such as "Beautiful [CLIP]" by Christina Aguilera for F1. A "Close" button and a "Clear Selected" button are at the bottom of the Hotkeys window.

In the foreground, an "About Mr. Voice" dialog box is displayed. It features the "Mr. Voice" logo in a stylized font, with "Voice" in red and "Mr." in black. Below the logo, it reads "IMPROV AUDIO SOFTWARE". The text continues: "Mr. Voice Version 1.10 (Revision: 1.328)", "By H. Wade Minter <minter@lunenburg.org>", "URL: <http://www.lunenburg.org/mrvoice/>", and "(c)2001, Released under the GNU General Public License". An "OK" button is at the bottom of the dialog.

At the bottom of the screen, the Windows taskbar is visible, showing the Start button, several open applications (including Winamp 5.02, Mr. Voice, and Holding Tank), and the system tray with the time 2:16 PM.

Cross-Platform Coding

- Use the `$^O` variable for OS-specific cases.
- Use `File::Spec` for path issues.
- Use `Win32::GetShortPathName` to avoid problems.
- That's about it, really.


```
# Check to see if we're on Windows or Linux, and set the RC file accordingly.
```

```
if ( ^O eq "MSWin32" )
```

```
{
```

```
    $rcfile = "C:\\mrvoice.cfg";  
    my $logfile = "C:\\mrvoice.log";  
    open( STDOUT, ">$logfile" );  
    open( STDERR, ">&STDOUT" );
```

```
}
```

```
else
```

```
{
```

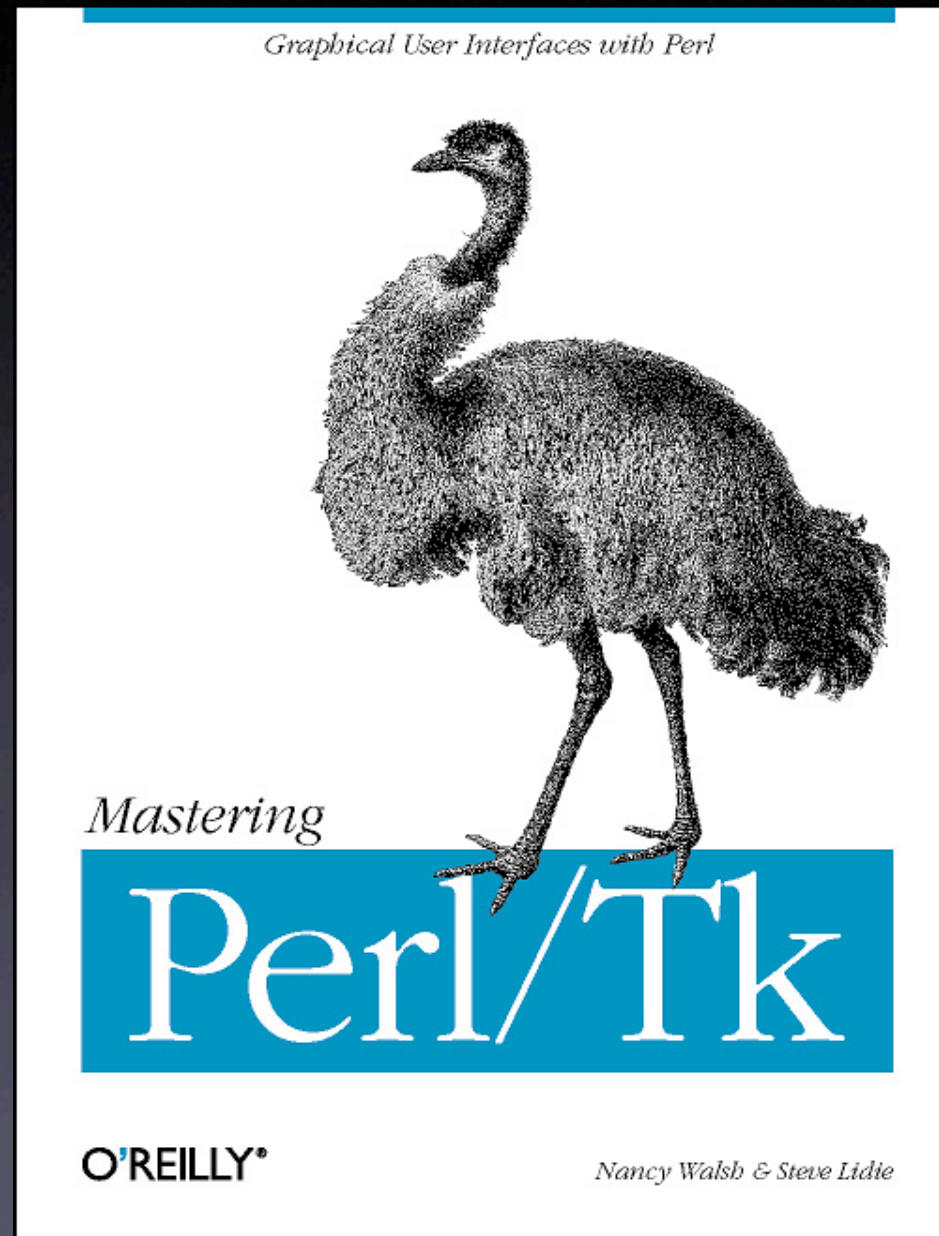
```
    our $homedir = "~";  
    $homedir =~ s{ ^ ~ ( [^/]* ) }  
        { $1  
            ? (getpwnam($1))[7]  
            : ( $ENV{HOME} || $ENV{LOGDIR}  
                || (getpwuid($>))[7]  
            )  
        }ex;
```

```
    $rcfile = "$homedir/.mrvoicerc";  
    my $logfile = "$homedir/mrvoice.log";  
    open( STDOUT, ">$logfile" );  
    open( STDERR, ">&STDOUT" );
```

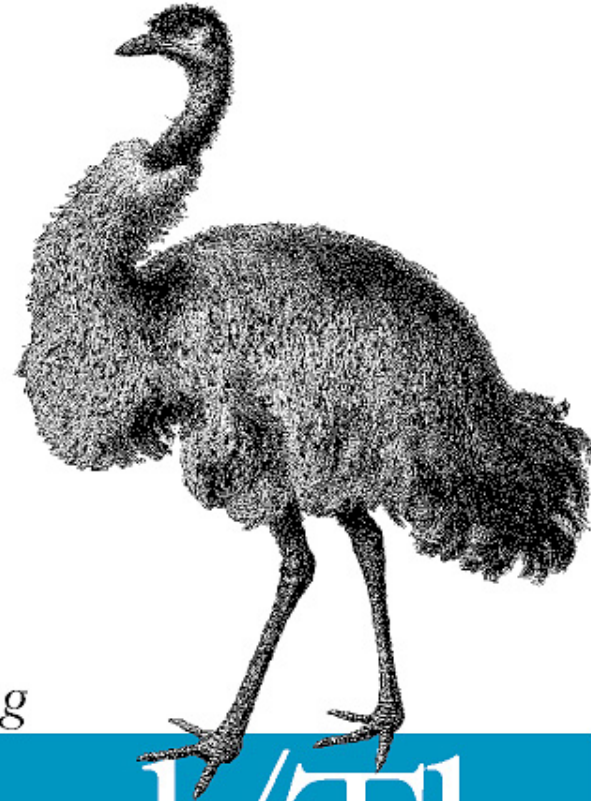
```
}
```

Resources

Your Best Friend



Graphical User Interfaces with Perl



Mastering

Perl/Tk

O'REILLY®

Nancy Walsh & Steve Lidie

Other Resources

- *The Perl Journal - April 2004*
- Usenet: `comp.lang.perl.tk` (*Extremely helpful!*)
- Mailing List: `ptk@lists.Stanford.EDU` (email `majordomo@lists.stanford.edu` with “subscribe ptk”)
- WWW: `http://www.perltk.org/` (*fairly crap-tastic*)

Thanks & Info

- Mr.Voice: <http://www.lunenburg.org/mrvoice/>
- Wade: minter@lunenburg.org
- Vote for me: <http://www.minterforhouse.org/>
</plug>

PGP Keysigning?

- pub 1024D/**24460EC7** 1998-08-20
Wade Minter
<minter@lunenburg.org>
sub 2048g/D43AD322 1998-08-20
- Primary key fingerprint: 8F2B
E420 9C05 05FC 5149 08C7 A380
F0B3 2446 0EC7

