Extending BarnOwl

Nelson Elhage

Student Information Processing Board

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BarnOwl

- BarnOwl is a console IM client (not just Zephyr!)
- It's (secretly) extremely extensible and customizable
- It's works out of the box, but you can tweak it to your whims.

Two ways to customize

- BarnOwl's built-in command "language" and tools
- Perl extensions

Places to put code

`~/.owl/startup`	List of BarnOwl commands executed at startup • The `:startup` command adds code to this file
`~/.barnowlconf`	Perl code loaded at startup.
`~/.owl/modules`	BarnOwl Modules – more about this later.

BarnOwl's command "language"

- BarnOwl's functionality is exposed as a set of "commands"
- These commands are generally self-documented
- You can call commands interactively with '`:`' or '`M-x`', or programmatically in various ways.
- `:show commands` lists all commands
- `:show command` *`command`* documents a command

Aliases

- The easiest way to define new commands is with `:alias`.
- `:alias` *`command expansion`*
- Like shell aliases, arguments to the *`command`* are appended to *`expansion`*

- `:alias q error "I'm sorry, Dave, I can't let you do that"`
- `:alias v exec remctl zsr.mit.edu volume`

Filters

- You can define *filters* to match some subset of messages.
- These are most commonly used for coloring or limiting your view.

`:filter`	creates a named filter.
`:view`	restricts to a named filter.

Filters – Syntax

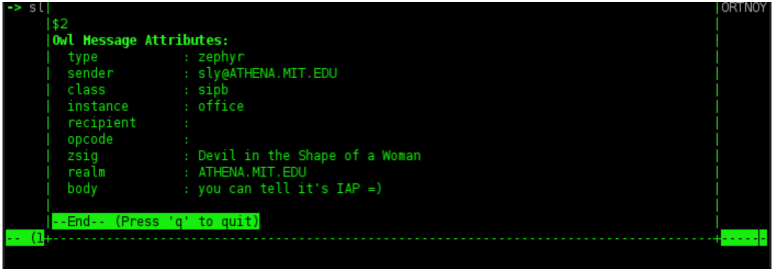
- Basic syntax is `*field regex*`
- POSIX regexes – see `man 7 regex`
- `and`, `or`, `not`
- Parentheses work but require spaces
- Filters can reference other filters using `filter` *`filter-name`*

Filters – Examples

- `class ^nelhage$`
- `filter zephyr and class ^(un)*nelhage$`
- `filter zephyr and filter personal and ( sender ^geofft$ or recipient ^geofft$ )`
- `filter user-geofft or filter user-broder`

What fields are available?

- Learn from BarnOwl's autogenerated filters
    - smartnarrow (`M-n` and friends) automatically generate filters.
    - `:show filters` will list all filters
    - `:show filter` *filter* to show a specific one
- Press `i` (`:show info`) and look at the "Owl Message Attributes"



```
-> sl|                                                                  |ORTNOY
     |$2                                                                |
     |Owl Message Attributes:                                           |
     |  type            : zephyr                                        |
     |  sender          : sly@ATHENA.MIT.EDU                            |
     |  class           : sipb                                          |
     |  instance        : office                                        |
     |  recipient       :                                               |
     |  opcode          :                                               |
     |  zsig            : Devil in the Shape of a Woman                 |
     |  realm           : ATHENA.MIT.EDU                                |
     |  body            : you can tell it's IAP =)                      |
     |                                                                  |
     |--End-- (Press 'q' to quit)                                       |
-- (1+------------------------------------------------------------------+-----|-
```

Special Filters

BarnOwl uses certain named filters for special purposes.

trash	Defines "trash" messages. `:delete trash` (bound to '`T`') will automatically mark all of these as deleted.
reply-lockout	`:reply` ('`r`' and friends) will not reply to any message matching this filter. Useful for lurking.
personal	Defines what a "personal" message is. Don't change this unless you know what you're doing.

Keymaps

- BarnOwl's key-bindings are completely customizable.
- BarnOwl defines 7 built-in hierarchical keymaps:

global	System-wide default key bindings
edit	Text editing and command window
editmulti	Multi-line text editing
editline	Single-line text editing
editresponse	Single-line response to question
popless	Pop-up window (e.g. `:show help`)
recv	Main window /message list

Manipulating Keymaps

Commands

- `:show keymaps` will show all keymaps and bindings
- `:show keymap` *`keymap`* will show a specific keymap
- `:bindkey` *`keymap key`* `command` *`command`* to rebind a key sequence.
- (Yes, that's a literal "`command`")

Examples

- `:bindkey recv s command pperl BarnOwl::getcurmsg()->zsig`
- `:bindkey recv E command show errors`
- `:bindkey edit C-w command edit:delete-prev-word`

BarnOwl Variables

- BarnOwl has its own system of configuration variables
- Use :`getvar` and :`set` to manipulate variables
- :`show variables` and :`show variable` *`variable`* for documentation.

Some Useful Variables

`appendtosepbar`	Add text to the bar between the edit window and the message list.
`colorztext`	Enable/Disable color.
`zsender`	Zephyr spoofing made easy!
`zsigproc`	Path to a program to generate zsigs.

Setting up logging

From a shell:

```
$ mkdir -p Private/zlog/personal
$ mkdir -p Private/zlog/class
```

In BarnOwl:

```
:set logpath  /Private/zlog/personal
:set classlogpath  /Private/zlog/class
:set logging on
:set classlogging on
```

BarnOwl Modules

- BarnOwl has an extensible module system
  - You can pick-and-choose perl plugins to import into your BarnOwl
- There are two supported module formats

PAR	Perl PAR files are essentially a `zip`'d directory tree
bare	An unpacked directory tree containing perl files.

- Modules can be installed locally or site-wide
  - Local modules go in `~/.owl/modules`

Using Modules

- (We'll talk about creating them later)
- Copy the `.par` or directory tree into `~/.owl/modules`.
  - The filename is important – keep it the same.
- To reload the module into a running BarnOwl:
  - :`reload-module` *`module`* to reload one module
  - :`reload-modules` to reload all modules
  - As the names suggest, these can also be used to update modules to a newer version without restarting.

Some modules we've developed. . .

ColorUtils	asedeno's module to make coloring classes easy.
VT_ASedeno	asedeno's VT-like style. I have my own variant of it.
Alias	Lets you change the displayed name of classes. Good for secret classes or ones with long names.
ZStatus	Send those silly Zephyr progress bars you may have seen all over Zephyr a while back
DevUtils	Provides a `:eperl` command to help developing perl in BarnOwl

Except for ColorUtils, these all live in my Public (`/mit/nelhage/Public/BarnOwl`).

Coloring Zephyrs

- Install ColorUtils from `~asedeno/BarnOwl/barnowl-native-modules`
- `:setcolor` *`color`* sets the color for messages "like" the current message (e.g. same class, or same user for personals)
- `:savecolors` and `:loadcolors` save and load your colors to disk.
- 'c' is bound to start a `:setcolor` command.
- (And all these commands are documented in BarnOwl!)

IRC in your BarnOwl!

- There is (somewhat minimal) IRC support for BarnOwl!
- The `IRC` module in my Public (and in the source tree)
- Set `irc:nick` to your preferred nickname
- `:irc-connect`, `:irc-join`, `:irc-msg`...
- Commands are designed to be similar to traditional IRC clients, but with `irc-` instead of `/`
- `:bindkey recv / start-command irc-`

Twitter in your BarnOwl!

- I hacked together a Twitter module for BarnOwl.
- This one isn't in the source tree – git module in my Public
- Send and receive Twitters (and Twitter direct messages)
- Set `twitter:class`, `twitter:instance` and `twitter:opcode` to mirror selected Zephyrs to Twitter!

Module Format

- A module is a perl module in the `BarnOwl::Module::`*`ModuleName`* package.
- And lives in *`ModuleDir`*`/`*`ModuleName`* (Or *`ModuleName`*`.par`)
- So a minimal module structure is:

```
[nelhage@phanatique:~/.owl/modules]$ tree DemoModule
DemoModule
`-- lib
    `-- BarnOwl
        `-- Module
            `-- DemoModule.pm

3 directories, 1 file
```

BarnOwl commands from Perl

- The most basic thing Perl can do is execute any BarnOwl command.
- `BarnOwl::command(`*`command, args...`*`)`
  - With one argument, it gets tokenized like `:` would.
  - With more than one argument, they're passed as the command's argument list.
- `BarnOwl::`*`foo`*`(`*`args`*`)` is autoloaded to call the `foo` command.
  - (Currently) the arguments are always joined with spaces and re-tokenized.
- `perlwrap.pm` in the source tree documents essentially everything else.

Module hook points

- There are several main things a module might do:
  - Register *hooks* to take action when some event happens.
  - Define new commands and variables.
  - Insert messages into the message list.
  - Define a new message style.

Taking action on events

- `BarnOwl::Hook` defines a class to register watchers for some event.
- Mostly you care about `$`*`hook`*`->add(`*`FUNCTION`*`)`
  - *`FUNCTION`* can be either a subref or the name of a function.

Available hooks

- These are all variables in the `BarnOwl::Hooks` module.

`$startup`	Called on startup *and module reload*
`$shutdown`	Called before shutdown
`$receiveMessage`	Called when a message is received
`$newMessage`	Called when *any* new message is added.
`$mainLoop`	Called at least once/sec.
`$getBuddyList`	Called to generate the buddy list.
`$getQuickstart`	Called to generate :`help quickstart`.

A tour of some source. . .

- I'll demonstrate some more of the API by doing some source-diving.
- If you want to follow along, the source is at `http://github.com/nelhage/barnowl/`

Idempotency

- Code in `$startup` is currently called whenever *any* module is reloaded.
- Code at toplevel is called whenever this module is reloaded
- So it's important that code in both locations be idempotent.

Some idioms

Instead of...	Use ...
`my $var = FOO;`	`our $var;` `$var = FOO unless defined($var);`
`$hook->add(\&mySub);`	`$hook->add( "BarnOwl::Module::" "MyModule::mySub");`
`&mySub`	`sub{mySub()}`