

## ‣ Instrumenting Eudora

### ‣ Motivation

#### ‣ Usage Studies

- By knowing how our users use the program, we'll better understand what works and what doesn't, and how to improve.

#### ‣ Adware Auditing

- In order to make sure that we're actually delivering what we promise, we will want to have statistics on what we actually do advise.

### ‣ General Principles

#### ‣ Collect log continually

- We will collect the information all the time, for all users. Even if we don't collect data from all users, it will be there for tech support, etc.

#### ‣ Send log voluntarily and at random

- At random, we will ask users if it's ok to send the log. If they assent, we'll format a message and ask them to queue it.

#### ‣ Send no personal information

- No personal information will appear in the log. We may note some settings, but not hostnames, names, etc.

#### ‣ Robust and extensible

- The log format should be simple and robust, but also extensible.

#### ‣ Deferred analysis

- The log is for gathering raw data. What it all means is left as an exercise to the log user.

### ‣ Log Format

#### ‣ General Layout

- Ascii file of lines of decimal numbers, each number separated by spaces

- Easy to mail
- Easy to interpret
- Easy to recover if only partially written
- Only twice as large as binary file

#### ‣ Common Elements

- Date/Time
  - Each line will begin with date & time in seconds since Jan 1, 1984
- Product code (1-byte unsigned)
  - The product code from the reg database will be listed next.
- Log code
  - The third number on each line will be a code identifying the particular kind of log entry

#### ‣ Variable elements

- Each log code will be allowed to have further information in it. That information will be specified on a code-by-code basis

#### ‣ Sample

- 9908311810 32 15 0 1056 77
- 9908311811 32 1 10 7

#### ‣ Individual Codes

- Codes marked with an asterisk force the log file to be flushed to disk.
- 1 - Shutdown\*

- ▶ Motivation
  - ▶ Along with Startup, monitor Eudora (or system) crashes.
  - ▶ Actually done at closing of settings file
- ▶ Custom Elements
  - ▶ Facetime (in seconds)
    - ▶ Number of seconds Eudora was the foreground application
  - ▶ Reartime
    - ▶ Number of seconds Eudora was not the foreground application
  - ▶ Connecttime
- ▶ **2 - Timestamp\***
  - ▶ Motivation
    - ▶ Keep track of long idle periods. Make sure log data is preserved.
  - ▶ Custom Elements
    - ▶ Facetime
      - ▶ Number of seconds Eudora was the foreground application and there was user activity
    - ▶ Reartime
      - ▶ Number of seconds Eudora was not the foreground application
    - ▶ Connecttime
- ▶ **3 - Mailcheck Initiated\***
  - ▶ Motivation
    - ▶ See how often mail is checked. With Mailcheck Complete, test for crashes during checks.
  - ▶ Custom Elements
    - ▶ Session ID (4-byte)
    - ▶ Personality ID (4-byte)
    - ▶ Type (1-byte) 0 for manual, 1 for automatic
- ▶ **4 - Mailcheck Complete**
  - ▶ Motivation
    - ▶ Keep track of mail volume. With Mailcheck Initiated, test for crashes during checks.
  - ▶ Custom Elements
    - ▶ Session ID
    - ▶ Number of Messages Received
    - ▶ Total Bytes Received
- ▶ **5 - Menu/Control Hit**
  - ▶ Motivation
    - ▶ Know what people use
  - ▶ Custom Elements
    - ▶ Modifiers (in order: shift, control, command, option, alt)
    - ▶ Control Id
    - ▶ Control Type (menu, button, toolbar, toolbar function key, etc)
    - ▶ Event Type (keyboard, mouse, telepathy, etc)
- ▶ **6 - Window Open**
  - ▶ Motivation
    - ▶ Know what windows people use
  - ▶ Custom Elements
    - ▶ Window Id

- Window Kind
  - Wazoo State (not, docked, floating)
- **7 - Window Close**
  - Motivation
    - Know what windows people use
  - Custom Elements
    - Window Id
- **8 - Ad Open**
  - Motivation
    - Know what ads we display
    - Measure user ad response
  - Custom Elements
    - Ad Id
- **9 - Ad Close**
  - Motivation
    - Know what ads we display
  - Custom Elements
    - Ad Id
- **10 - Ad Hit**
  - Motivation
    - Check on click-through stats
    - Measure user ad response
  - Custom Elements
    - Ad Id
    - Online or offline at the time
- **11 - Send Initiated\***
  - Motivation
    - See how often mail is sent. With Send Complete, test for crashes during checks.
  - Custom Elements
    - Session ID (4-byte)
    - Personality ID (4-byte)
    - Type (1-byte) 0 for manual, 1 for automatic
- **12 - Send Complete**
  - Motivation
    - Keep track of mail volume. With Send Initiated, test for crashes during checks.
  - Custom Elements
    - Session ID
    - Number of Messages Sent
    - Total Bytes Sent
- **13 - Personality Create**
  - Motivation
    - Keep track of how much use is made of the personality feature
  - Custom Elements
    - Personality ID (4-byte)
- **14- Personality Delete**
  - Motivation

- ▶ Keep track of how much use is made of the personality feature
- ▶ Custom Elements
  - ▶ Personality ID (4-byte)
- ▶ **15 - Startup\***
  - ▶ Motivation
    - ▶ Keep track of Eudora launches and version numbers.
    - ▶ Along with Shutdown, monitor Eudora crashes.
    - ▶ Along with Shutdown & Timestamp, monitor time Eudora is running.
    - ▶ Actually done at closing of settings file
  - ▶ Custom Elements
    - ▶ Platform (1-byte unsigned) 0 for Macintosh, 1 for Windows, 2 for Palm
    - ▶ Version (4-byte BCD)
    - ▶ Build # (1-byte unsigned)
- ▶ **16- Personality Rename**
  - ▶ Motivation - find out how often folks rename personalities
  - ▶ Custom Elements
    - ▶ Old Personality ID
    - ▶ New Personality ID
- ▶ **17 - Connection Event**
  - ▶ Motivation - figure out how much users are connected
  - ▶ Custom Elements
    - ▶ Connect or Disconnect - boolean