Bell's Mind Markup Language
by dual

Foundation

Hand scanning is essential to phreaking. It is as essential to phreaking as punching and kicking are to martial arts. Only after thousands and thousands of punches and kicks can one build upon those subconscious skills and create new techniques. Phreaking is the same. After calling thousands and thousands of numbers, one begins to notice sounds, routing, systems and intercepts that one wouldn't be aware of otherwise.

Scanning is essential and propagating the knowledge gained from a scan is just as essential. Otherwise that knowledge is worthless to the phreaking community. Presenting scan information has been a varied affair for years. Until now, phreaks had to be sleuths to determine accurate information, dealing with incomplete scans, partial numbers, broken acronyms and other shortcomings. Not to mention the fact that so much hand scan information is recorded, and still remains, in paper notebooks to this day.

This article discusses a tool to assist phreaks in the creation and dissemination of scan information: Bell's Mind Markup Language.

Bell's Mind Markup Language (BM2L) is the standardization of hand scan presentation. Bell's Mind Markup Language standardizes hand scan layout, format and number descriptions. The standardized format that BM2L provides facilitates efficient hand scan generation and assures scan portability. More important, BM2L solidifies the phreaking community, bringing together disparate data, bringing new phreaks into the fold with a common language, and providing a record of scans that can stand the test of time.

The name Bell's Mind Markup Language comes from the website, Bell's Mind [1]. Bell's Mind is a feature-rich website hosting an impressive telecommunications database and other tools tailored for the phreak community. One of the capabilities of Bell's Mind is the submission engine for scanned numbers, of which there are over 30,000. BM2L not only pays homage to Bell's Mind, it also provides a standard for Bell's Mind number description and submission.

BM2L accounts for the scan file name, phone number and description, along with other facets of a scan. The BM2L specification is listed in eight numbered parts, much like an RFC. It begins with file name format. After the specification, application and BM2L's future conclude the article.

BM2L Specification

1. File Name Format

BM2L requires the file name to have the extension, .scan.txt. This obviates the fact that the file is an ASCII-text scan. It provides universal acceptance across operating systems, web

servers and browsers. It also provides a standard for other tools that expect a certain file name for scans. Of course, it is helpful to humans as well, letting them know that the file is indeed a hand scan.

Phreaks are free to use any format for the file name base, whether it is the numeric range of the scan, a proper noun, or simply the phreak's handle and an increment.

Examples
800-555-xxxx.scan.txt
pennsylvania.scan.txt

2. Number and Description Format

Scan entries must be in the format 'NPA-NXX-XXXX - DESCRIPTION'. This provides a common, easily read format, the full number for search tools like grep, and provides number and description standardization for other tools. Effort should be given to keep descriptions to one line for automated tools as well, though readability may necessitate wrapping. If a description wraps, indent to the beginning of the description to maintain readability.

Examples
800-851-6662 - "Thank you for calling. Due to extreme weather conditions, we are unable to answer your call at this time. Please try your call again later."
808-973-4381 - Oahu forecast

3. Standard Acronyms

These are the standard acronyms for commonly encountered numbers. Standard acronyms are most often used by themselves, though they may be included as part of a larger description. Special characteristics associated with the number may be included in parenthesis after the acronym. For example, the type of voice mail system or if an error message was recorded by telco personnel.

Note that it is helpful to provide an acronym legend with scans, the least of which should include the acronyms used in the file.

ACB - All Circuits Busy
ANAC - Automatic Number Announcement Circuit
CBCAD - Cannot Be Completed As Dialed
CBCAE - Cannot Be Completed As Entered
CBRFYCA - Cannot Be Reached From Your Calling Area
DATU - Direct Access Test Unit
DISCO - Disconnected
DTMF - Dual Tone Multi Frequency
HELO - "Hello?"
NAFYCA - Not Available From Your Calling Area
NIS - Not In Service
SIT - Special Information Tone

TTY - Teletypewriter
VM - Voice Mail

Examples
414-747-5399 - TTY NIS TTY
602-950-9993 - CBCAD (switchman)
808-485-5555 - SIT "Code 4 8 Your call has been connected to a vacant number series..."

4. Standard Descriptors

Standard descriptors are one or two-word descriptions of mostly common and some special numbers. They are lower case and most often used alone as a number's description. The descriptor "talkline" encompasses Talk Line, phone sex and other toll-free advertisements.

busy
carrier
extender
fax
milliwatt
quiet term
reorder
ring out
silent
talkline

Examples
505-292-9996 - milliwatt
623-566-9994 - silent

5. Secondary Phone Numbers

If a message reads another telephone number, include that number in the description within a quote of the message or simply at the end of the description. This provides a launching point for further exploration, or information for further investigation.

Example
800-483-6662 - Verizon West Network Control Center 972-615-6200

6. Message and Tandem Codes

Include message and tandem codes at the end of descriptions within parentheses, i.e. (004T). All tandem codes are capitalized and spacing is included so as to match the message.

Example
505-225-9901 - CBCAD (Leaco message 505-399)
800-224-3411 - DISCO (027T)

7. Carriers

When feasible, carrier connection data should be displayed as the description. If this is not possible, use the "carrier" standard descriptor discussed earlier.

Examples
281-230-3203 - carrier
505-541-9999 - CONNECT 31200/ARQ/V34/LAPM/V42BIS
C
UQKT2
User Access Verification
Username:

8. Other Numbers and Descriptions

Numbers and descriptions that do not fit in the above categories should be accounted for with the phreak's best judgment as to readability, accessibility and maintainability. Utilize the BM2L standard as much as possible and make change suggestions, especially when the special number or description is repeatable.

Application and BM2L's Future

BM2L's uses are immediate. For example, given a standard file name, format and descriptions, we can write our own text editor syntax highlighting. Appendix A shows BM2L syntax highlighting code for GNU nano[2], which makes scans more colorful and accessible. Carriers stand out as bright yellow in a black terminal, and faxes and standard error messages blend in with green and magenta. This demonstrates that using an open standard allows for the most personalization, i.e. an agreed upon standard allows tools and processes to be created with a correlated amount of customization.

Another example is number entry into a database. The BM2L scan format allows the simple creation of large scan databases. Again, the possibilities of what one can do with a relational database of thousands of scanned numbers are great. The example shown in Appendix B is a Perl script that creates the SQL statements necessary to enter scans into a MySQL database.

A Perl script, handscan.pl [3], and a website, handscan.net [4], are also available to generate BM2L-compliant hand scan lists.

Suggestions have already been made to BM2L and updates are maintained in the Old Skool Phreaking section at the Binary Revolution forums [5]. The addition of "resident" and "business" standard descriptors is being considered, both as discretion regarding personally identifiable information and as a way to speed scanning. The standard descriptor "pron" has also been suggested for obvious reasons.

References

[1] http://bellsmind.net/blog/
[2] http://www.nano-editor.org/
[3] http://dualisanoob.com/linux/perl/handscan.pl.txt
[4] http://www.handscan.net/
[5] http://www.binrev.com/forums/index.php?showforum=21

Appendix A - BM2L Syntax Highlighting

```
# BM2L syntax highlighting
syntax "handscan" "\.scan\.txt$"
color red "^[0-9]{3}"
color yellow "-[0-9]{3}-"
color cyan "[0-9]{4}\s-\s"
color green "(CBCA(D|E)|DISCO|(CBR|NA)YCA|NIS|SIT|TTY|VM)"
color magenta "(busy|fax|HELO|reorder|ring out)$"
color brightyellow "(ANAC|carrier|DTMF|extender|tones)"
```

Appendix B - Processing BM2L Scans for MySQL

```
#!/usr/bin/perl -w

# process4mysql.pl -

use strict;

my $scan = shift or die ">>> Need a scan...";
open my $file, '<', $scan or die ">>> Can't open scan: $!";

while (<$file>) {
      chomp;
      my @array = split(/ - /, $_);
      $array[0] =~ /^(\d{3})-(\d{3})-(\d{4})/;
      my $npa = $1;
      my $nxx = $2;
      my $ext = $3;
      $array[1] =~ s/\'/\\'/g;
      print "INSERT INTO phonebook (`npa`, `nxx`, `ext`, `description`,
`type`) VALUES ('$npa', '$nxx', '$ext', '$array[1]', '$scan')\;\n";
}
```