

# Payphone World Tour

## Dominican Republic



In the province of La Romana, near Higüera.

## Cook Islands



A New Zealand Telecom phone in downtown Avarua on Rarotonga.

## Georgia



Yes, that part of the Peachtree State that somehow avoided Bell South. Found in the hospitable town of Tbilisi.

## Florida



Well, why not? This is our culture and we're damn proud of it. Found in Panama City Beach.

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*"They're self-described nerds, using one word names like "Mudge" or "Dark Tangent" and dressing all in black." - The Associated Press in a July 12, 1997 report using their insight to describe hackers at the Defcon conference.*

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Sometimes it seems as if the true driving force behind progress is sheer stupidity. Almost without fail, whenever something truly promising comes along, its true potential is either never realized or hopelessly crippled by fear, ignorance, or overregulation.

Anyone involved in the Internet will recognize this. Here we have something unprecedented in human history - the ability to communicate around the planet with people of all different varieties; to share knowledge in a way that has never been done before. It seems pretty apparent to us that this is a good thing. But fear and suspicion soon took control as the focus turned away from the amazing possibilities and instead centered on all of the worst case scenarios we were able to conjure up in our minds.

What if terrorists figured out how to send email? What if pedophiles communicated with children? What if copyrights became meaningless? What if we didn't know what the hackers were up to?

Just tune into your local evening TV news to get a taste of the fear mongering that takes place. If you find it funny and absurd, that's good. You recognize the mass media for what it is. But that's only the first step. Ridiculous as it may appear, the hysterical bravado that surrounds us is actually believed by a great many people, including those people with the power to change things.

The Clinton administration, for one. Here we have the first administration in the history of our country that actually had a handle on what high technology was all about. They used the net. They understood the potential of encryption. They quickly outlawed the antiquated communications systems that existed in Washington before their arrival. And then they tried to control it. They wanted encryption to be regulated and controlled by the government. They wanted digital phone systems to have monitoring capabilities built into them. They seemed to focus more on the potential misuses of the net and how to punish offenders rather than recognize it as the single most powerful tool of communication and free speech that has ever been known

to humanity. The lesson here is that power and awareness don't always add up to fairness. Regardless of what kind of political system is in place, such advances for the common people are almost always looked upon as a threat to those in power.

Of course we have people like Senator Exxon, who managed to get the Communications Decency Act passed into law by people in power too scared to stand up to this flagrant violation of the First Amendment. Everyone knew that this legislation went against the Constitution. But who in the government had the guts to stand up and say that indecency was protected speech? Only the Supreme Court, which threw the CDA out earlier this summer. Not the House, not the Senate, not the President. And certainly not the media. They were willing to throw it all

# The Neverending Story

away just to avoid being associated with something controversial.

This was a hollow victory because so much time and effort had to be wasted to fight something that was so obviously wrong in the first place. Meanwhile, people like Robert Thomas, Bernie S., and Kevin Minnick are persecuted with little attention because civil liberties groups have their hands tied with stupidity like the CDA and because the public has been conditioned not to care.

But the facts remain. Robert Thomas and his wife were taken away from their family and put in prison for three years because their adult bulletin board in California offended someone in Memphis who called it on their own volition. It could have happened to literally anyone. Those reading *2600* regularly should be quite familiar with the Bernie S. story, where the Secret Service managed to imprison Bernie for nearly two years for possession of electronic parts that almost any hacker would have and which could be used for all sorts of perfectly legitimate things. And, of course, Kevin Minnick's continuing plight which seems to have no end in sight: indefinite prison time not so much for anything he's done (more than two years later this has yet to be clearly defined) but for what the rest of us are afraid he *could* do.

Nothing we say can illustrate this as well as Minnick's conditions of supervised release, which will go into effect for a number of years after he's released from prison which, it would seem, the government believes should be never. Pay close attention to these restrictions because you will undoubtedly see more of them.

*The defendant shall not possess or use for any purpose the following: any computer hardware equipment; any computer software programs; any modems; any computer related peripherals or support equipment; any portable laptop computers; personal information assistants and derivatives; any cellular phone; any television; any instruments of communications equipped with online Internet, world wide web, or other computer network access; any other electronic equipment presently available or new technology that becomes available that can be converted to or has as its function the ability to act as a computer system or to access a computer system, computer network, or telecommunications network, except defendant may possess a landline telephone.*

*The defendant shall not be employed or perform services for any entity engaged in the computer, computer software, or telecommunications business and shall not be employed in any capacity where he will have access to computers or computer related equipment or software.*

*The defendant shall not access computers, computer networks, or other forms of wireless communications himself or through third parties.*

*The defendant shall not act as a consultant or advisor to individuals or groups engaged in any computer related activity.*

*and not use any alias or other false identity.*

Again, if you find this funny and absurd, that's good. But this is also scary as hell and something that should not be ignored by anyone. This is by no means an isolated case. Other people are being faced with these kinds of restrictions at an alarming rate. It tells us that the authorities are very wary of almost any form of technology (even a television set) and are prepared to restrict access whenever possible. We find the item about not being allowed to use encryption especially telling. It's no longer enough to confine someone to a certain space and to restrict their movements. Now, anything that can be used to achieve privacy is seen as a threat and something to be restricted. Even speech is being regulated - Minnick isn't allowed to advise people on the subject that he knows best. And, according to this, it would be a violation for him to use voicemail since he wouldn't be using a telephone "to speak directly to another person." We wonder just what it is they expect Minnick to do when he gets out. It seems that life in our society will be nearly impossible for him.

These conditions demonstrate an utter lack of understanding of technology and would seem to prove quite conclusively that the motivating factor behind them is fear. If you believe that someone like Minnick is capable of doing anything in the world with a telephone or an electronic device, then these words start to make a little more sense. But judges aren't supposed to think simply and in tabloid style like two-bit Hollywood directors out to make a quick buck by creating cheap fantasy. They should be attempting to grasp the basic concepts of the technology that now affects them, rather than letting their emotions and fears dictate their rulings. And we should be watching over them prepared to speak out when things like this occur. Because, eventually, one way or another, the rulings, short-sightedness, and fear will have a profound effect on our lives.

Kevin Minnick can be written to at: Kevin Minnick 8995D-012, PO Box 1300, Los Angeles, CA 90053-1500, or on the Internet at kminnick@2600.com. While he very much would like to send replies, Minnick has been advised by his attorney not to respond personally since virtually anything he says could be misinterpreted and used against him by the authorities who monitor everything he says.

## Cable Modem Security Holes

by Scott  
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*This article is a work in progress. The complete article, as well as any changes, updates, new references and related articles, can be found at <http://www.ldpht.com/~scrit/cable/>.*

*Note: All references to the specific Internet Service Provider affected have been censored and replaced with [ISP] due to the nature of this article.*

The advent of cablemodems has opened up a wealth of security nightmares for Internet users in this area. Unfortunately, most of these users have never touched a UNIX machine and have no idea how packet transport works over wide area public networks such as the Internet. Because of this, hundreds of new Internet users may be at risk from extremely old security issues.

In the past, virtually all home Internet users connected to their Internet Service Providers (ISPs) or colleges using standard modems and logged into UNIX or VMS shell accounts. Due to the fact that these shell accounts required at least a rudimentary knowledge of computers and networking, most users logging into these accounts had an understanding and respect for the Internet and its limitations. The majority of these users also understood the security issues at hand and took the proper precautions to safeguard their data.

Over the past few years, UNIX and VMS shell accounts have been slowly phased out in favor of SLP and PPP dialup connections. The advantage of this type of dialup protocol was that the Internet and its resources were now within reach of novice Windows and Macintosh users. The downside of this, however, was that many of these users didn't understand how the Internet worked and were ignorant of the dangers posed by sending confidential and private data over their connections.

The introduction of cablemodems and

WebTV has created a whole new breed of novice Internet users who no longer need to know how to set up a modem connection and, in a lot of cases, no longer even need to know how to use a computer. This trend is pushing the commercialization of the Internet and most companies and ISPs seem to be more interested in making a profit than making sure a secure and reliable service is being released.

Of all the security issues at hand today, the hottest topic right now seems to be the ability for malicious hackers to take advantage of problems with TCP/IP and sniff-network traffic going over the Internet and corporate Intranets. Companies such as Netscape Communications Corporation and Open Market, Inc. are pushing secure commerce servers so conducting transactions over the Internet and corporate Intranets can be safe and secure.

The problem with this approach is that only transactions via SSL equipped WWW browsers can take advantage of this security. Most other forms of connections are left unsecured because not all clients are capable of SSL or encryption. Another problem is that these extreme novice Internet users don't understand what sniffing is and don't know why they should only use SSL equipped WWW browsers to conduct transactions and send confidential data over the Internet.

In the past, the risk of someone sniffing Internet data was relatively low. In order for a sniffer to be successfully set up, a key gateway machine sitting in between the client and server had to be compromised and superuser access had to be attained. Once superuser access was attained, the intruder had to then hide their tracks from the system administrators and find a way to silently retrieve sniffer logs from that compromised host. Usually, these gateway machines were UNIX based and vast amounts of knowledge about the UNIX operating system were required in order to keep one-

self hidden.

The routing used by cablemodems in this area (Zentix HOME-Works Universal transceivers), however, completely bypasses the need to compromise a gateway machine in order to sniff. Each cablemodem network interface (NI) acts as an ethernet transceiver and directly connects each cablemodem user's machine to the Internet via 10BaseT. Because of this, each machine a cablemodem user has connected to the Internet is considered a local node on whatever subnet has been assigned to that user's geographical area.

This trend was first noticed when the cablemodem NI was installed and powered up at this site. The TX, RX, and NET-ACTIVE status LEDs had immediately lit up and started reporting network traffic even though the cablemodem NI had not yet been plugged into the ethernet card of the firewall/gateway machine. It was then hypothesized that it may be possible for cablemodem users to sniff all traffic passing over the same subnet.

Software such as sniffit and topdump was used to test this hypothesis and, not surprisingly, every other cablemodem user on the same subnet could, in fact, be monitored. Due to the fact that this type of major security hole could put the privacy of hundreds of cablemodem users at risk and quite possibly destroy the reputation of an ISP, it was decided that [ISP] should be contacted regarding the sniffing issues.

After playing phone tag and being on hold for nearly an hour, I was finally connected to someone within [ISP]'s security group and explained exactly what was being tested and the methods being used. I was then told that the ability for any cablemodem user to sniff network traffic on their subnet is a "known bug, and no fix is available at this time."

According to [ISP]'s security group, the fact that cablemodem users can sniff network traffic was not publicized because "this cablemodem service is not being sold as a secure service and no such claims are being made in the service agreement." Baffled by this, I posed the question that "since this isn't a secure service, [ISP] has decided

upon the policy that it's the sole responsibility of the end user or system administrator to make sure that all connections are secured and encrypted by third party software?" The response was, "Hrm... that's actually a pretty good way of phrasing it."

This is an extreme display of [ISP]'s inability to plan ahead and take steps to keep their networks reasonably secure. Topped off by a seemingly intentional coverup to keep cablemodem users from finding out that virtually every single keystroke that goes across their Internet connection could very well be monitored, it's frightening to think that most end users are ignorant to the fact that any problems such as this even exist.

With today's threats of credit card fraud and the widespread value of personal information, [ISP] should have taken all steps possible to make sure that cablemodem subscribers were educated and aware of these dangers. With more and more users transmitting confidential and personal information over the Internet and World Wide Web, more security issues need to be addressed and publicized.

The issue of sniffing does not stop here, however. With cablemodem technology being pushed as the next "big thing," ISPs and cable companies should take as many precautions as possible to make sure cablemodems become a secure and reliable service. If current technology is not updated to reflect these problems, thousands, if not millions, of future users could be at risk.

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# GSM

Comes to North America

by Philber Optik  
In this article, I will describe various aspects of GSM, the newly implemented Global System for Mobile communications. Groovy? Then let's begin!



**Just what is this GSM, anyway?**  
GSM started out in Europe as Groupe Special Mobile in 1982. Established by the European Conference of Post and Telecommunication Administrators (CEPT), it was to be the new standard for digital cellular. A newer, better network for mobile communications was needed. In comparison to the many nations' incompatible cellular systems, GSM would provide a standard for easy roaming, efficient use of available bandwidth, and privacy through encryption. By the mid-1980's, well over a dozen countries were committed to GSM, and in 1989, responsibility for GSM was transferred to the European Telecommunications Standards Institute (ETSI). In the early 1990's, the first public GSM network was put into place. As you can probably imagine, it wasn't easy getting everyone to agree on the encryption aspect, specifically the encryption used to deter eavesdropping. While the French and British spook agen-

cies wanted "adequate" encryption, the Germans argued for something much stronger, being that they bordered what was, at the time, the Eastern Bloc. A compromise was arrived at, the result being the "secret" A5 encryption algorithm. Two versions were drafted, A5/1 for Europe, specifically the members of CEPT, and A5/2 for export. (If you were a particularly nasty nation, the encryption would be totally disabled.) Anyway, we'll get into the security features of GSM later in this article, so remain calm.

**GSM comes to America**  
In the 90's, the industry began buzzing about Personal Communications Services, or PCS. PCS boasted, among other things, small communications gadgets crammed with neat-o-keen features to do all sorts of things. Or that's what they hoped. The FCC allocated the 1,900MHz band of the EM spectrum for PCS, and auctioned off frequencies (I often wondered if I could purchase that part of the EM spectrum known as "blue", or maybe "green", think of the royalties). Anyway, certain members of the telecommunications industry recognized GSM as a great technology, with which to build upon the PCS idea. The first GSM-

based PCS networks were designed, implemented and tested in the mid-90's, and by 1995 the first taste of GSM was available to the American public. Or at least, to those who lived in the larger cities where GSM was first being implemented. Now, one obvious problem arose that has yet to be resolved: GSM abroad uses the 900MHz band, Europe's version of PCS, known as DCS1800 or PCN, uses the 1,800MHz band. Due to the FCC's forward thinking, our GSM/PCS network is totally incompatible with the rest of the world's, simply because of the frequency. GSM phone manufacturers are scrambling to create hybrid phones that work both here and abroad, but are wrestling with the problem of combining all the needed circuitry while keeping the size and cost of the phone at a minimum. So, for the time being, we are restricted to SIM card "roaming," which is using your SIM in a foreign phone, one of the neat features of GSM. So let's get into the technology, shall we?

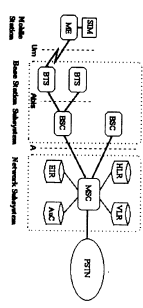
### SIM card blini!

At the core of GSM's security model is the SIM card, which is the Subscriber Identity Module. The SIM card can be found as either a full credit card-sized smartcard, or a smaller card (see picture) no bigger than the actual IC carrier. The former slides and stays in a slit in the handset, the latter in a small latched socket under the battery of the handset. The smaller SIM's can be popped into a credit card-sized "carrier," so it can be used with handsets that take the larger size SIM's. The idea is that a subscriber could insert his/her SIM card into anyone's GSM phone, and use the network, subject to the criterion stored on the SIM card itself. What's on the SIM card that makes it so special? The SIM card is actually a small "tamper-proof" microcontroller which is capable of performing one or two one-way-hash functions, stores the subscriber's unique secret key (K1) and IMSI (International Mobile Subscriber Identity) number, the subscriber's MSISDN (Mobile Station Integrated Services Digital Network number, which in English, is the subscriber's phone number), has some



EEPROM for storing a PIN to lock the SIM, the preferred language for the handset's menus, a speed dialing directory, station-to-station (SMS) text messages, etc. The IMSI, like the secret key (K1), is unique: its purpose is to identify the subscriber to the network. It has the following format: MCC-MNC-MSIN, where MCC is the 2 or 3 digit Mobile Country Code (typically the same as land-line country code), MNC is the two digit Mobile Network Code, indicating your home GSM provider, and MSIN is the Mobile Station Identification Number, often the same as the MSISDN number. The MCC-MNC together are called the network code, and uniquely identify a GSM provider. Some examples are 310-16 for Omnipoint, 310-15 for BellSouth Mobility, etc. (Why did we get 310 as our country code and not 001? That's probably payback for having country code 1 on the wired telephone network) You may notice the ISDN acronym in MSISDN; as you'll see, some of GSM's internal protocols were based on ISDN standards. It's hoped that GSM will be gateway to land-line ISDN, but I digress.

Provided the SIM was ever used on its home GSM network, a temporary IMSI known as the TMSI is issued by the switch and stored on the SIM. Whenever the SIM is interrogated by the network as to "who it is," it uses the TMSI instead of its IMSI to protect the identity of the owner over the air. A TMSI can be reissued at some interval, decided by the GSM provider. The secret key (K1) is considered a shared secret, it's locked away in the SIM, only to be used by the hashing functions. Not you, and not even your phone knows what this number is. The mobile switch that authenticates you and completes your call knows what it is. It has a database containing all the valid K1's, called the AUC, the Authentication Center database. The AUC also contains some other things, but we'll get to that shortly. The two hashing functions in the SIM are implementation specific, and are called A3 and A8, the authentication algorithm, and the ciphering key generating algorithm, respectively. Oftentimes, the recommended "official" A3/A8 COMP 128



**Enough, Philter, now tell me about the switch!**

algorithms are used, which are approved by the GSM Standardizations Group. (Just to satisfy your curiosity, the aforementioned A5 algorithm is implemented in the handset's firmware, and not on the SIM card.) The PIN is only used to lock the SIM, so when placed in a phone and powered up, the user must enter the correct PIN in order to make or receive calls. If the PIN is entered incorrectly, some predetermined number of times, the SIM is blocked from use, and only the Personal Unblocking Key (PUK, available from the GSM provider) can unlock the SIM and restore it to usefulness. If the PUK is incorrectly entered too many times, the SIM card is rendered useless. Understand, all billing stems from the SIM, the handset is simply an extension of the medium, nothing more.

**OK, so what about this handset?**

A GSM phone typically has all the normal touch-tone keys, and in addition, some mechanism to navigate a simple menu of options to configure the phone and use its features. Arrow keys for scrolling, YES and NO buttons for making choices, etc. The menu is viewed on a small, multi-line, LCD display. There are commonly undocumented keypad sequences for displaying information about the phone's firmware revision, and IMEI, among other things. The IMEI, or International Mobile Equipment Identity, is a unique ID for your phone. It has the following format: TAC-FAC-SN-X. The TAC is a 6-digit Type Approval Code, the FAC is a 2-digit Final Assembly Code, the SN is a 6-digit Serial Number, and X is a reserved "supplementary" digit. IMEIs are stored in the EIR (Equipment Identity Register) database. The IMEI is to the handset what the IMSI is to the SIM card. In this manner, someone attempting to use the network can be revoked by having an invalid SIM card, or an unregistered or stolen phone, or both. It should be noted that many GSM phones have neat features like firmware debuggers and call progress dumpers built in, accessible with a computer and a specially built serial cable.

OK, OK. The two most common GSM switches are the Ericsson AXE MSC, based on the AXE 10, and the Nortel DMS-MSC, based on the DMS SuperNode. MSC stands for Mobile Switching Center, which is what the switch is called in GSM lingo. The MSC is part of the network subsystem, and accesses four main databases: the Home Location Register (HLR), the Visitor Location Register (VLR), the Equipment Identity Register (EIR), and the Authentication Center (AUC) (3). The VLR is commonly integrated with the MSC (e.g. the DMS-MSC), leaving the HLR, AUC, and EIR as a separate physical entity (e.g. the DMS-HLR). There is at least one HLR on every GSM network, and commonly multiple MSC's. The MSC's talk to other nodes on the GSM network using Signaling System No. 7 (SS7). Smaller GSM networks which only serve a particular metropolitan area may only have a couple of MSC's, which would talk directly to the PSTN (e.g. NYNEX, Bell Atlantic) using SS7. Larger GSM networks, which serve entire countries, make use of Gateway MSC's, or GMSC's, which may need to gain access to other parts of the GSM network over an SS7 capable PSTN, because it would be impractical to have the entire GSM network directly and privately interconnected. The MSC/VLR and HLR together handle roaming and call routing; the HLR also stores all valid IMSI's and MSISDN's, while the EIR stores all the valid IMEIs. This leaves the AUC, which stores all the valid Kt's, generates pseudo-random numbers, and performs the A3 and A8 hashes for the network subsystem.

**What's up with those fat, funky new antennas on the fronts of buildings?**

Your handset and SIM make up the "mobile station." It talks to these antennas, which are hooked up to a Base Transceiver Station (BTS) commonly located either on the roof or in the basements of these buildings. BTS's are analogous to "cells," and are grouped together into "location areas," which are given location area identifiers (LAIs). These clusters of BTS's are linked to Base Station Controllers (BSC's), typically located in yet other buildings. The BSC's talk directly to the switch (MSC) over leased lines (see diagram, page 10).

**Coding and multiplexing in brief; from the handset back to the switch**

So now we have your phone sampling your voice at 13kops using the GSM protocol, the samples get packetized using a modified LAPD (a la ISDN) protocol known as LAPDM (Link Access Protocol for the D-channel, modified), and these packets are multiplexed into time slots (known as "burst periods"), eight of which make up a TDMA (Time Division Multiple Access) frame. The TDMA frames are bundled together into 26-frame multiframe, which are then modulated onto one of 124 carrier frequencies using GMSK (Gaussian-filtered Minimum Shift Keying). These 124 carriers, spaced 200kHz apart, are the result of dividing up either 30MHz or 10MHz of bandwidth using FDMA (Frequency Division Multiple Access) in the 1900MHz PCS band. The bandwidth sizes are granted by the FCC based on the service area requirements of the GSM company (i.e., metropolitan versus suburban, etc.), and are lettered A through F, largest to smallest. A, B, and C-blocks are 30MHz, and D, E, and F-blocks are 10MHz. One or more carrier frequencies are assigned to each BTS. The wireless path between your phone and the nearest BTS is referred to as a Um link. Your phone converses with BTS's using FDMA/TDMA over this link. The BSC's talk to the BTS's they control over what is termed an Abis link using the same Message Transfer Part (MTT) packets as defined by SS7 (see diagram, page 10). The highest layer of an SS7 MTP (akin to the "Application" layer in the OSI model) is known as the TCAP for Transaction Capabilities Application Part. In GSM nomenclature, the TCAP contains the MAP for Mobile Application Part, which can be rather complex. The MAP's contain the actual messages sent between the BSC and the MSC, and between the MSC and all other entities of the network subsystem.

**Authentication and Encryption**

The part you've been waiting for! Here's how it all works. The identity of a subscriber is authenticated to use the network using a challenge-response procedure, based on the security of a shared secret. As mentioned earlier, the shared secret is the subscriber's unique Ki, which is stored in the SIM card on the subscriber side, and in the AUC on the switch side. The AUC starts by choosing a 128-bit pseudo-random number (RAND) and hashes it with the subscriber's Ki, using the A3 algorithm, to form SRES ("signed response"), a 32-bit digital signature of Ki. Next, it uses the same RAND and hashes Ki using the A8 algorithm to form Kc, a 64-bit digital signature of Ki used as the ciphering key for AS. The process of generating RAND, SRES, and Kc is called "generating a triplet." This triplet is then cached by the HLR, and can be regenerated at some interval determined by the GSM provider. When a subscriber needs to be authenticated, his SIM tells the local MSC/VLR his TMSI, which the MSC/VLR uses to locate his HLR, which communicates back the subscriber's triplet, which is cached by the MSC/VLR. The RAND is sent to the subscriber's SIM by the MSC/VLR, and the SIM computes SRES and Kc. SRES is sent by the SIM to the MSC/VLR, which compares it to the SRES it has cached. If they match, the subscriber is authenticated! Now that the subscriber is authenticated, communication over the GSM network can begin. But first, a brief description of A5 is in order... A5 is a stream cipher consisting of three clock-

controlled linear feedback shift registers (LFSRs). Kc is used to initialize the three LFSR's then the 22-bit TDMA frame number is fed into A5, whatever the frame number happened to be at that moment. The output is two 114-bit values, one for the transmit channel, and one for the receive channel. Each "channel," frozen in time (burst period), consists of two significant sets of 57-bit data, for a total of 114-bits. The 114-bit transmit burst period is exclusive XORed (XORed) with one of the two outputs of A5, and the 114-bit receive burst period is XORed with the other output of A5. OK, so now, provided that all over-the-air communications between the subscriber and the BTS (cell) are to be encrypted, a "start ciphering" message is sent to both the BTS and the handset. This message also indicates whether to use A5/1 or A5/2. The Kc that the MSC/VLR got from the subscriber's HLR is passed to the BTS, which feeds it into its A5 engine, and the Kc generated by the SIM is used to initialize the handset's A5 engine. Since the authentication stage was successful, the BTS's Kc and the SIM's Kc would be identical. Encryption proceeds as I laid out in the A5 description. In this manner, all voice and data traffic in the form of TDMA frames is encrypted between the handset and the BTS. How often Kc is re-chosen is implementation specific. It could be multiple times during the lifetime of a call, or only once during call setup, or for every n-th call. In addition to the initial A5 authentication, the subscriber's handset could also be subjected to a test. The handset's IMEI is looked up in the EIR database, and would either be permitted or denied from using the GSM network, e.g., if the phone was reported stolen.

#### Handoffs and Roaming

As you may well know, the links used for a call are not static for the duration of that call. Handoffs (also called "handovers") typically occur for load balancing during idle points of conversation, or because the mobile user is in transit. Internally, the handoff would be between time

slots in the same cell (BTS), between BTS's connected to the same BSC, between BSC's connected to the same switch (MSC), or between BTS's ultimately controlled by different switches.

Roaming, or "location updating," is accomplished by the MSC/VLR and HLR. Location updating is a function of the GSM network that is performed for both home subscribers as well as subscribers from other GSM networks who are roaming partners. When a phone is turned on or is moved to a new location area, it registers its location information (LAI) and TMSI with the local MSC/VLR. The MSC/VLR deduces the subscriber's HLR from the TMSI, and sends it the subscriber's current LAI and TMSI, along with its own SS7 address. If this TMSI checks out with the HLR, the HLR sends some subscriber information (such as the tripled) to this new MSC/VLR. It also notifies any previously registered MSC/VLR to cancel its registration of the subscriber, who has relocated.

#### Call routing

I'll describe call routing using an incoming call from the PSTN as an example. On a large national GSM network, the first hop into a GSM network is the GMSC (Gateway Mobile Switching Center). The GMSC receives the terminating subscriber's phone number (MSISDN) from the neighboring PSTN switch over SS7. The GMSC has a table which contains the SS7 address (point code) of the HLR's for all MSISDN's on the network. The GMSC queries the proper HLR for a Mobile Station Roaming Number (MSRN). The HLR looks up the SS7 address of the MSC/VLR that the terminating subscriber is currently local to and, using the SS7 capable PSTN to bridge the distance, asks this MSC/VLR to give it a temporary MSRN. This MSRN is allocated from a pool of reserved, valid PSTN phone numbers which are used by the GSM network to "alias" MSISDN's to. This aliasing is only valid for the duration of the call. The MSRN is returned, via the HLR, to the GMSC, which can now use this

temporary MSRN phone number to route over the PSTN to the proper MSC/VLR and ultimately to the terminating mobile subscriber. On a smaller GSM network, the process is much simpler. An MSC/VLR is often the first and only hop between the PSTN and the mobile subscriber. The MSC/VLR simply asks the HLR for the IMSI that corresponds to the incoming MSISDN, matches the IMSI to its TMSI, and uses it to ring the proper subscriber's handset.

And there you have it. Consider it a primer on GSM. I know, a little technical for a primer. Well, what did you expect? This should prove ample information to satisfy your neurons for a while. If this article is well received and if I have time in the future, I may cover other topics such as custom calling features, billing, and assorted stuff. If you're looking for the GSM provider in your area, or even if there is one, look no further than the web sites of Omnipoint, Sprint Spectrum, Bell South Mobility, and Pacific Bell Mobile, to name a few. See ya!



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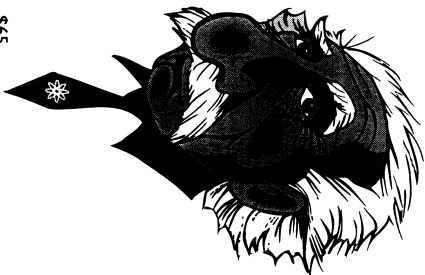
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# The Wonders of Net2Phone

By Terlan

Just the other day I was thinking to myself, "Boy, isn't technology just great?" Well, a new product by Net2Phone, a division of IDT (yes, the phone card people), reinforced my thoughts. This product that allows you to have "real-time uninterrupted voice communication between the two calling parties" and "tears down the international telecom monopolies" was just the thing to brighten up my day. So I downloaded it at their website at <http://www.net2phone.com> and installed it. The software immediately requires you to register your name and address and all the normal annoying information that every company must have to track you down for mass mail spamming. So I register and it gives me some hints and the normal installation garbage and then, all of a sudden, I have a graphical image of a nice digital phone on my desktop.

I was in heat to try this baby out, so I dialed up the first 800 number that came to mind and watched the software connect to one of IDT's phone switches. In under three seconds, ringing came forth from my PC speakers and I was connected to the party. I had called. I picked up my microphone and said hello. The operator responded. I was so shocked that this had worked. I accidentally hung up on her! "Wow, this is neat," I thought to myself as I proceeded to call other 800 and 888 numbers that I knew.

What if I wanted to call numbers that weren't 800 or 888 numbers? Well, they offer debit cards just like the ones you buy to make long distance calls on your regular phone. The way this works is to buy a card via a credit card either by fax or right off their website. They then give you a virtual card, i.e., a pin number via email after your card has been manually validated. The cards are all in 25 dollar increments and are debited by the minute

depending on the destination of the calls. Your calls originate in New Jersey, and are billed at IDT's rates from NJ to wherever you are calling.

The quality of the call is quite good if you realize what is being done in the background to facilitate the call. Net2Phone describes it as converting "the signal from the packet switch network Internet environment to the circuit switch network" telephone environment." The PTT (Push to Talk) module is seamless in operation and the VOX (Voice Activated) controls are a little rusty, but I suppose if you had a full-duplex sound card, it would be a lot easier to control. However, either way, you are talking from your PC to someone's phone either domestically or internationally.

So, like any true tester of software, I sat down and thought long and hard about the faults and shortcomings of this software, and lo and behold, I realized a couple of very important things.

The first thing I wondered was how they keep track of who is using what card where and how they keep track of all the calls. Jordan Katz, head of Customer Service for Net2Phone told me, "I have a terminal right here, I can see which account is making what call to where if I want to." I thought to myself, "Oh, that's nice." But I guess it's no different from AT&T operators seeing what calls you make. So I asked Mr. Katz, "What do you see as far as customer information?" He replied, "I see whatever they put in their registration."

What if people want to know who is calling them? What shows up in the ANI logs of the party receiving the call? "Well, it depends on what server they connect to, but what shows up (on ANI) is one of IDT's switches," says Katz. "Well, what if they want to find who actually made the call on a certain time or date?" I asked. Jordan replied, "Well again, we have their registration information."

Okay, so we get the idea that the registration information is passed by the software every time you make a call, or at least a signal is sent to the server to let them know that someone's registered software is making a call. I asked Ari Blech, head of marketing for Net2Phone, "What does it log in the way of IP addresses?" He thought for awhile and replied, "No logging of IP's, only logging of user registration, not to say that there isn't some sort of logging procedure." He later went on to say, "We do not know where the call originated from...."

I asked Jordan about his concern for hackers doing bad things with his software. He replied, "When we first started offering Net2Phone, we were worried about hackers getting someone else's PIN number, but now, since we have the secure web server up, the only way a hacker could get a debit card is to order one himself."

Jordan also told me of Net2Phone's plans to set up a complete on-line ordering system for the debit cards. "This will be totally automatic, you just input your credit card number on the web site and you automatically have a card. You can then add money to it as needed."

Upcoming plans for Net2Phone include Net2Phone Direct, a phone to Internet to phone based network. "This would allow a customer to call a local number and have one of IDT's switches place the call internationally, avoiding all international phone charges," says Ari. They are currently looking for international entrepreneurs who would be willing to join in the Net2Phone action.

This is a very interesting concept and IDT seems very "hush hush" about it for some reason. Ari seemed very careful when speaking of telco deregulation in other countries, but did tell me that they just won a major European battle recently. What this could mean is that via Net2Phone, you could connect to a European switch via the Internet and place a call to a local call in Europe.

This will certainly have AT&T, MCI, and Sprint's panties all up in a bunch, and I am sure there will be lawsuits. However, IDT has to buy blocks of long distance time from someone, so we shall see who they sell out to. To call Europe for virtually free just sounds too good to be true, but this is what they are proposing.

As far as the domestic market, IDT doesn't seem very interested in placing their switches in other states, and rightly so. If they were to do that, they would lose all the revenue from callers being forced to use a switch in New Jersey to make long distance domestic calls. This would be a good thing for consumers, but would make no money for a long distance company, and of course we can't have that.

Another interesting thing on the forefront of the IDT ranch is Phone2Phone, where someone would use the phone to call up a local, or WATS line and use the Internet to route a call to another switch to place the call. Again, the other long distance companies will love this. With the impending doom of metered internet use, this would just be another piece of kinking for the telcos and long distance companies fueling the fire to burn up more of the public's money.

Why not take advantage of this software while you still can? So far there is no charge to call 800 or 888 numbers and debit cards are for sale by fax or small mail. If you haven't already, I encourage you to download this new product and use it to its fullest extent. It certainly is a very useful product, if you are a creative person. I am sure you can find many uses for it.

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## TWENTY 20 USA THOSE PESKY MYLAR STRIPS USA 20 TWENTY

by Dave Matthews

I cannot remember the number of times I have had to cool my friend's emotions when they bring up the plastic anti-counterfeiting strips placed within US \$20 bills in the early 1990's. Now it seems most all of our major denominations have these barely visible strips of fine mylar plastic sandwiched between two layers of US regulation currency paper.

What gets most people in an uproar is the technologically unfeasible idea of the government being able to know how much money is in their wallets. My fear is that they watch the Weather Channel too frequently as they believe satellites are able to monitor their money far in the sky.

With technology comes paranoia, and with time comes more technology, which gives us the fact that the government can now detect large amounts of money right in our wallets. This technology is much closer to home than the birds orbiting us at 22,300 miles however, so don't convert your cash to gold bouillon just yet.

It seems that with a million volt power supply and some tuned gamma rays your money can now be managed by Uncle Sam himself! The first problem is the million volt power supply. These are getting smaller however, and now take up the same space as a college style refrigerator. No, AT&T is not bringing this to you, but Tri-

umf Laboratories in Vancouver, BC is.

Gamma rays are produced by using a particle accelerator to fire protons at a carbon target. These rays pass through just about everything but can be tuned to detect the mylar strips in bills, or the high levels of nitrogen present in drugs and explosives.

The range on these gamma rays is quite close however, so once the devices finally hit the streets they will be in the form of airport x-ray machines. Don't expect briefcase carrying kids to walk beside you with your US \$20's and \$100's registering on their counters however. These devices will look for large concentrations of the plastic strips leaving the country as it is illegal to transfer more than 10,000 dollars out of the United States without notifying the government of your actions.

Most of you red blooded, gun yielding citizens of this fine land will have nothing to worry about, as your palmy sums of cash will go undetected by the new airport machines. Those of you laundering cash or trafficking drugs however may want to avoid airports.

So if you're O.J. getting ready to leave the country, better not bring all that cash, but convert it to a VISA debit card instead. Once you get to Barcelona you can exchange your "plastic" cash to Spanish Peseta (EPT) without fear of getting nabbed in customs by the gamma gun.

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## Fortezza: The Next Clipper?

by Seraf

seraf@2600.com

In recent years, the U.S. Government has pursued a project aimed at secure communications on its new Defense Messaging System (DMS). The requirements have been for a system to serve as the standard for unclassified American military encryption, easily implemented on any system (servers, workstations, mobile units, etc.). The project began in 1991 as the *Pre-Message Security Protocol*, or *PMSP*. In 1993, the name changed to *MOSAIC*, and the associated device was introduced as the "Tessera Cryptographic Card."

The most recent incarnation of the project — now managed by the National Security Agency's *MISSY* (Multi-level Information Systems Security Initiative) — is called *Fortezza*, and the tiny device that does the dirty work is called the "Fortezza Crypto Card."

As we will learn shortly, Fortezza's purpose has grown beyond military encryption, and may pose a threat to our electronic privacy.

Fortezza usually takes the form of a PCMCIA card, comparable with a tremendous installed base of personal computer hardware and viable on most any modern computer. Inside, Fortezza embodies a full suite of cryptographic functions for secure communications. It provides symmetric encryption with Skipjack (or Clipper-chip fame), secure key exchange, digital signature, and secure timestamp functions.

With all its versatility, MISSY has recommended Fortezza for a number of applications. Security for both the storage and



transfer of files is an obvious one. Among the others: authentication of remote network hosts; secure communications with remote hosts; unforgeable (signed) directory services; encrypted web browsing; and secure electronic commerce. Fortezza applications have been developed to interface the unit with SMTP and MIME (Internet mail), ITU X.400, ACP-123 (the Allied Communications Protocol, a superset of X.400), ITU X.500, ASN.1 (ITU's Abstract Syntax Notation), and SDNS (the Secure Data Network System, an NSA standard).

Fortezza would blend in with countless other military programs, if it were being used exclusively for government communications. This, however, is not the case. Several companies now manufacture Fortezza cards, and their target is the mass market.

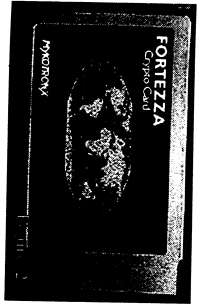
Fortezza represents an attempt to implement NSA-breakable cryptographic technology as widely as possible: a strategy we've seen before. The Clipper/Capstone project aimed to make the Clipper chip voluntary, and then to force it as the only option, either by further legislation or market dominance. Fortezza tries to implement this same strategy on an even greater scale. Rather than encrypting only telephone calls with its special brand of so-called security, the NSA is now aiming to dominate cryptography across the public's information frontier. It's rather telling that the heart of Fortezza is the Capstone chip.

Skipjack is an algorithm made to be cracked by the NSA. Like DES, it is a good algorithm for its time, but with weaknesses designed to be exploited by those in-the-know. Without a doubt, the Agency has

built machines dedicated to cracking Skipjack. A separate algorithm in Fortezza, the Digital Signature Algorithm (DSA), also has potential weaknesses introduced by and for the NSA. The consequences include a government capability to forge digital signatures with Fortezza. These weaknesses aside, Fortezza's key material is supplied and *encrypted* by something called the Certification Authority (CA), which reports back to the NSA. So, before you even receive your Fortezza card, your key is in a federal database.

The effect is that, when you use Fortezza (a) the National Security Agency knows your key; and (b) if for some reason it doesn't, it can crack it with relative ease.

How can we protect ourselves? The answer is simple — stay away from NSA crypto. If we examine the National Security Agency's persistence in introducing tainted cryptosystems and attempting to make them *standard*, we find that this strategy first appeared with DES in the 1970's. The Agency has no interest in standardizing cryptography for the good of the public — only for the good of Big Brother. We should all press for the continued right to make our own choices in cryptographic technology, and those choices should be informed ones. Fortunately, NSA technology is relatively easy to spot. All of the available Fortezza products (so far) have proudly proclaimed their Agency endorsement. There are some cryptologic firms with NSA affiliation which doesn't show on the surface, such as Cylink — but we must always be wary of our sources for crypto.



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### Available Products

The following products relate to the Fortezza project, and are available to the general public. Every hacker interested in this project should consider the purchase of a Fortezza card for experimentation. It is not a crime to reverse-engineer any of these devices, or to publish the results, unless you are a government employee or contractor involved with Fortezza or its sponsoring entities.

If you are very serious about hacking Fortezza cards, e-mail me ([seraf@2600.com](mailto:seraf@2600.com)) with what you've found out. Together, we can pool our resources and come up with additional information about the project and its systems.

Mykotronx, Inc. is the NSA's favorite MISSI contractor. The Mykotronx *Capstone MTK-80/82* (figure 1) is the heart of the Fortezza Crypto Card. The IC is a 144-pin TOPP package, with a clock speed of 20MHz. The 32-bit architecture runs at 18 MIPS, and performs Skipjack at up to 20Mbit/s. Mykotronx also manufactures the *Fortezza Crypto Card* (figure 2) and *Fortezza ISA Bus Crypto Card*. The *enigmatic Fortezza PLUS Crypto Card* is available as well, and supposedly suitable for classified communications (it is not based on the Capstone chip, but apparently does use Skipjack) — this item may be secret. Mykotronx also makes the *Cawdaptor*, a workstation for central management of Fortezza equipment, and the Mykotronx *Communicator Fortezza Modem*.

Mykotronx, Inc.  
337 Ivan Ness Way, Suite 200  
Torrance, California 90501  
Tel: +1 310 533 8100  
Fax: +1 310 533 0527

Group Technologies Corporation manufactures a Fortezza card.  
Group Technologies Corporation  
10901 Malcolm McKinley Drive  
Tampa, Florida 33612  
Tel: +1 813 972 6429

National Semiconductor also makes a Fortezza card.  
National Semiconductor  
Power Business Unit  
1090 Kifer Road, Mail Stop 16-225  
Sunnyvale, CA 94086-3737  
Tel: +1 408 721 8797

Sprys designed the original Fortezza crypto card, and sells its own. They also make the *HYDRA Privacy Card*, which implements key exchange, encryption, hashing, and digital signatures. For these functions, it can use either Fortezza algorithms (KEA, Skipjack, SHA-1, and DSA, respectively) or a less governmental set (RSA, [3]DES, MD-5, and RSA, respectively). If a stronger algorithm were substituted for DES in the latter set, it would provide formidable security — the NSA probably pressured Sprys into using DES.

2841 Junction Ave.  
San Jose, CA 95134  
Tel: +1 408 432 8180  
Fax: +1 408 432 8415

Information Resource Engineering, Inc. manufactures the *4400S Fortezza Serial Modem*. It is much like a regular 14.4Kbps modem (AT command set, R-232-C interface, etc.), but it offers some Fortezza

crypto services.  
Information Resources Engineering, Inc.  
8029 Corporate Drive  
Baltimore, MD 21236  
Tel: +1 410 931 7500  
Fax: +1 410 931 7524

### We Are Still Safe

With all this talk of government intervention in our lives, it's easy to forget that we can still make our own choices. Nobody is *required* to use NSA-sanctioned crypto today (other than our own government), and we can keep it that way if we don't start. Putting the NSA's agenda out in the open will, I hope, also help.

What options, then, do we have for strong cryptographic technology? IDEA, RSA, and MD-5 are what I use for almost everything. I also trust the recommendations of the Public-Key Cryptography Standard (PKCS), which has been adopted by numerous American corporations. (Information on PKCS can be obtained from RSA Data Security Inc.)

The lesson is that there's no shortage of powerful, untaunted crypto — make an informed decision when choosing your technology, and we'll all be able to enforce our electronic privacy.

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# Fast Food Phun

by VaxBuster

Before I start into having Phun with Phast Phood, I want to go over a few basic radio items. This will give you a general idea of the type of equipment involved and what kind of radio features you should look for to maximize your hacking potential.

The first thing you want to look for is a ham radio that is dual-band. Whenever you see this word in various ham radio magazines, they are referring to the fact that the radio supports two bands. These bands most often are the 2 meter band (approximately 140-148 mhz) and the 70 cm band (approximately 440-450 mhz). These are both amateur bands and you will mostly hear a bunch of old farts talking about how ridiculous the no-code tech license is.

The most important feature of the radio you're looking for is one that is easily modifiable. How do you know which are? Go look at oak.oakland.edu in /pub/hamradio/mods or check out <http://www.qrz.com>. See, even with a license, the FCC regulates where you can transmit and receive.

While looking through the mods, find one that you are technically capable of performing and also one that gives you transmit and receive capabilities in the following ranges. Note these ranges are approximate.

140-174 mhz TX and RX  
800-900 mhz RX (cellular)

Now although this might not seem like a big range, it is pretty much all you will need. These ranges are broken down into extremely small channels of only a few kilohertz wide. This will give you access to everything from handheld radios, police, fire, ambulance, fast food, cellular, I

could go on forever. Now cordless phones operate on 46/49 mhz but don't go looking for radios that will transmit on there, or transmit on cellular. In general, ham radios won't support these ranges, even after modification. Trust me, you can have a ton of fun if your radio supports the frequencies I listed above. A couple of other important features to look for are CTCSS (I'll explain this later), DTMF (touch-tone), lots of memory channels, and alpha tagging.

OK, you've bought your radio. It's modified. It works. Now where do you tune to? I'm not going to reprint the 19 lists that are out there on the net. If you do a web search for "Fast food frequencies" you'll get plenty of hits. I'll give you a basic idea on where to look when scanning. Remember, when scanning, that the output side of the repeater is almost always broadcasting, meaning that your scanner will stop and you will hear basically an open customer mic on the output frequency.

Scan 30.xxxx to 33.xxxx for the output side of repeater

Scan 151.xxxx for the input (clerk) side

Scan 154.xxxx for the input (clerk) side

Scan 157.xxxx for the input (clerk) side

Scan 170.xxxx to 173.xxxx for the input (clerk) side

Scan 457.xxxx to 469.xxxx for input/output FYI - 469.xxxx for OUTPUT and 464.xxxx for INPUT is popular

I realize this last range is pretty broad, and I apologize, but this list would be huge if I broke out each individual range. A radio repeater is basically a device that repeats a signal from one frequency to another. The repeater's antenna is usually placed high atop a mountain or building. The purpose of this is to get line-

of-sight to as many points on the ground as possible. Once a signal is received, it is then transmitted out the output frequency at a high rate of power. The purpose of this device is to allow communication among a bunch of low-power radios. Often, these low-power radios have much smaller antennas as to make them more portable.

Fast food repeaters in general operate in this fashion. There is one frequency in which what the customer says is broadcast as well as what the clerk said is broadcast. You'll see me refer to this as the *output* side of the repeater. If you tuned to that frequency on your radio, what you'd hear is the same as if you were standing right next to the speaker at the drive thru. You would hear the entire conversation. This will be your receive frequency.

Now the input side of the repeater is what you will be transmitting on. This frequency is what the clerk actually transmits on, both to talk to other clerks, and to talk to the customer. Now, the determining factor on whether or not the repeater transmits the signal to the customer's speaker is PL. This will be the transmitting frequency. Just FYI, if the repeater is using standard frequency pairing, the input frequency is 5 mhz below the output. This is true in the UHF (4xx mhz) band. So if you find the receive frequency at 469.0125, you know the transmit frequency is probably at 464.0125.

The "security" that exists is designed to keep unwanted noise and parties from interfering with the communications and is pretty basic. It is not at all built to withstand hacker attempts to transmit through the repeaters, as I'll show. CTCSS, continuous tone coded squelch system, or PL (Private Line), as it's more commonly known, is made up of a subaudible tone that is transmitted in-band along with the communication (usually voice). These

low frequency tones must be received by the repeater at the same time as the communication. If the repeater does not receive the proper PL, it in essence ignores your communication by not repeating the signal to the output side of the repeater. If you do transmit the proper PL with your transmission, it will break the repeater's squelch and it will pass on your voice to the output side of repeater. There are a total of 32 PL tones ranging from 67.0 hz to 250.3 hz.

As far as fast food is concerned, the PL tones vary from location to location. Since there is no standard, we need a method to find it. Sometime at dinner time, stop by your local joint, and tune to either the output or input side of the repeater. Once you've tuned there, set your CTCSS squelch to ON. We're telling the radio to *only* receive transmissions with the PL you've told it to receive. Since you can change the PL one at a time, you can go through all the possible PLs until you hear a transmission. To do this, select tone-select (or equivalent). A PL tone should appear. Spin your dial to select different PLs. Do this while they are transmitting of course. As soon as a transmission of theirs breaks the squelch, you'll hear the voice. Bingo, you have the proper PL.

Adjust your transmit shift to the proper frequency. Key up. You are now broadcasting loud and clear out the PA speaker. Your voice will definitely override the clerk's because of the fact that your signal is much stronger. Go capture effect!

From this point, feel free to add 20 burgers to the next order taking place, or curse at the customer. Feel free to use a crossband feature to link a McDonald's drive thru to a Burger King clerk. The fun here is endless.

*Standard disclaimers apply. Don't be stupid and you won't get caught.*

# Tricks and Treats of the AutoVON

by N-Tolerant

The AUTOVON (Automatic Voice Network) is the military's worldwide switch system used to link all DOD installations together on one telephone network. It is not a secure communications system. Classified information is discussed over the AUTOVON only when a secure telephone such as a STU-3 or a STU-5 is used. Otherwise, it works much like the normal telephone systems you use every day. The functional switching technology, however, is very similar to that of the outdated telephone networks of years long past. I recommend that you read ShADoWkUnHeR's "Intro to Automatic Voice Network" parts one thru three for more information, including an introduction, how to get into AUTOVON using a silver box, and a few tricks to do once you're inside. That article can be found at <http://ftp.fc.net/pub/phraxe/underground/misc>. In this article I will cover the following:

- I. Common Features
- II. "Area Codes"
- III. Installation Prefixes
- IV. Other Phone Stuff

**Disclaimer:** Information in this article is just that—information. You can use this information however you wish. That is your right. I take no responsibility for whatever you decide to do with the knowledge you gain from reading this material.

## I. Common Features of AUTOVON Systems

Once you are connected to the AUTOVON system, there are certain procedures that you can perform from your phone which activate and cancel functional features of the system. Some are trivial, but others can be fun if the user is creative enough. These are performed using a standard touch tone phone. Some commands vary from installation to installation, but

most are universal.

### Automatic Call Back

(If the number you are trying to call is busy, this will cause the other party's phone to ring once they hang up. Yours will also ring, and once both ends are off hook, the two phones will be connected.)

- Activate:
- (1) Lift receiver.
  - (2) Dial number.
  - (3) When busy signal is received, press and release the switchhook.
  - (4) When dial tone is received, dial "161".
  - (5) Listen for Positive Acknowledgement tone (waving continuous tone).
  - (6) Replace receiver.

- Cancel:
- (1) Lift receiver.
  - (2) Listen for dial tone.
  - (3) Dial "162".
  - (4) Listen for Positive Acknowledgement tone.
  - (5) Replace receiver.

- Call Transfer**  
(To patch someone who calls you to another number)
- (1) Press switchhook to put incoming call on hold.
  - (2) Listen for continuous dial tone.
  - (3) Dial desired number.
  - (4) At this point, you can, but don't have to, wait for the third party to answer and announce the caller before you hang up.)
  - (4) Replace receiver.

Note: When you have the third party on line and the original caller on hold, you can press and release the switchhook for a three-party conference.

### Malicious Call Identification

(Self explanatory. Most of us were busted with something like this in our younger years, before we got smart.)  
(caller still on line)

- (1) Depress switchhook.
- (2) Listen for continuous dial tone.
- (3) Dial "12".
- (4) Continue talking.
- (5) When conversation ends, dial "114".

### Call Forwarding

(Forward incoming calls to another number)

- Activate:
- (1) Lift receiver.
  - (2) Listen for continuous dial tone.
  - (3) Dial "131" and 2nd party number.
  - (4) Listen for wavering continuous tone (positive acknowledgment).
  - (5) Replace receiver.

- Cancel:
- (1) Lift receiver.
  - (2) Listen for intermittent tone.
  - (3) Dial "133".
  - (4) Listen for wavering continuous tone.
  - (5) Replace receiver.

- Deactivate (lock) phone**  
(No incoming or outgoing calls)
- (1) Lift receiver.
  - (2) Listen for dial tone.
  - (3) Dial "143".
  - (4) Replace receiver.

- Activate (unlock) phone**
- (1) Lift receiver.
  - (2) Listen for intermittent tone.
  - (3) Dial "142".
  - (4) Replace receiver.

## II. "Area Codes"

An AUTOVON telephone number is in the same format as a regular U.S. number [xxx] xxx-xxxx. The first part, which is the area code in normal numbers, identifies the theater to which you are calling. The AUTOVON codes are as follows:

- CONUS (Continental U.S.) (312)
- Canada (312)
  - Europe (314)
  - Asia/Pacific (315)
  - Alaska (317)
  - Caribbean (318)
  - Persian Gulf (316)/(318)

## III. Installation Prefixes

Each DOD installation has its own three-digit prefix (like cities on civilian systems). Some larger military bases or installations may have more than one prefix. It would take way too much space to list all of them, but here's an abbreviated list:

- CONUS (312)
- Ft. McClellan, AL 865
  - Yuma Proving Ground, AZ 879
  - Ft. Irwin, CA 470
  - Ft. Carson, CO 691
  - Ft. McNair, DC 227
  - Ft. Leavenworth, KS 552
  - Ft. Meade, MD 923
  - U.S. Military Academy, NY 688
  - Ft. Sam Houston, TX 471
  - Port Huemene Naval Construction Battalion Ctr. CA 551
  - Naval Security Station, DC 288
  - Key West Naval Air Station, FL 483
  - Great Lakes Naval Training Center, IL 792
  - U.S. Naval Academy, MD 281
  - McClellan AFB, CA 633
  - Los Angeles AFB, CA 833
  - U.S. Air Force Academy, CO 333
  - Mountain Home AFB, ID 728
  - Andrews AFB, MD 858
  - Hanscom AFB, MA 478
  - Nellis AFB, NV 682
  - Trinker AFB, OK 884
  - Lackland AFB, TX 473
  - McChord AFB, WA 984
  - Hill AFB, UT 777
  - The Pentagon, DC 227
- Canada (312)
- Air Command Winnipeg 826
  - Air Defense Headquarters, Ontario 628
  - Calgary CFB 620
  - Military Area Pacific Headquarters, Vancouver 252







# LUCRy Letters

## Injustices

Dear 2600:

What the hell is this world coming to? I tried a phf exploit in Netscape the other day, and I just randomly picked a address, then I was taken to a screen that said some smart-ass remark like, "Smile, you're on candid camera!" Why does everyone who writes an article on phf forget to mention that there is a newer version of phf which isn't always so blindly installed on the server. The phf and your email address. There might be a few more things that it writes down in the log, but then again this is only a guess. Remember this the next time you try this because I don't know all of the details. Can anyone tell me if using phf in any way is illegal?

The Homestead

*I don't believe testing a security flaw is something that people should get in trouble for. But rules vary depending upon where you are and who your enemies are. In theory we live in a fair-minded democracy, but in actuality our nation is comprised of smaller sections where democratic ideals are not necessarily held in high esteem - such as your school, your workplace, or Tennessee.*

Dear 2600:

As a consumer I read 2600 because I like to know the risks of being ripped off by a loophole in the system. Case in point: I just got my phone bill today and found that AT&T had tacked on an extra \$200 for multiple calls to the same 1-900 number. Each call was placed one minute apart, all on the same night. I immediately knew that this was bullshit, but the phone company customer service reps were trying to convince me that someone either used my phone to make the calls, or tapped the box in my basement, but I wasn't buying it. I was home that night and nobody was using my phone, in fact I was probably on the Internet at the time.

So I ask you, how else could someone have charged these calls to my phone? I am told that the phone company does not allow callers to forward the charges on a 1-900 call and I am also told that there have been a rash of people getting hit with 900 number charges because dial-up-junkies have figured out how to tap into other peoples lines using some kind of transmitter. Can you please explain to me what you think really happened there? Was it just a billing error? Thanks for looking out for us.

Kurt

*There are so many ways this could happen that it makes us laugh to hear a phone company say it's impossible. There are so many places where someone can tap into your phone line and make calls - the side of your house or the basement of your apartment, the junction boxes on the pole, the central office itself. Then there are those cordless phones that have an open guest policy (the phone company will blame this on you if it's true however - note how quickly they're willing to believe this is a possibility). And this doesn't even begin to get into the software approach, where 800 numbers are programmed to route as 900s or a collect or third number call shows up as directly dialed. It's anarchy and anyone claiming otherwise is in serious denial.*

Dear 2600:

I have a small problem. Actually the problem is quite large. It's the "hack-community" of today. I've been lingering around the scene for quite some-

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time now. I don't know very much, but what I do know, I try to help others with. One thing I have noticed is that if you don't know enough, you can't get help. I've especially noticed that in #2600 I don't ask questions for fear of being ostracized for life because that's how they are in there. I basically sit in and listen hoping to pick up useful information by osmosis.

My question is why are people so phfright? I though sharing information and teaching others was a good thing. It still may be, but I rarely ever see it. I also have yet to come across something for the beginners. I still consider myself a beginner because I usually have no clue what people are talking about during technical discussions. I want to learn, but whenever I try, I get laughed at.

Do you have any suggestions? Any phrases/terms to go to? People to talk to? I read 2600 as frequently as you guys release them, but I never understand many of the articles. I just want help and I want to know why everyone has to be a jerk about information. Thanks for your time and keep up the great work.

Hellhite

*We again have to point out that we don't control what people do in the IRC channel #2600 nor should we or any one entity. The direction the channel takes is linked to the community that is formed within it. You cannot change things overnight. There will always be people who judge others based on generalities and you as an individual have to figure out how to deal with them, just as you have to figure out how to obtain the knowledge you're interested in. There's not a lot of hand holding going on in the hacker world. Be careful not to fall into the same trap and judge everyone based on the antics of a few. IRC can actually teach you valuable lessons in that arena.*

Dear 2600:

Two people in my area (Ocala, Florida) have been caught for talking, that's right, just talking to 13 year old girls and making the mistake of letting them know exactly where they were going to be at a particular moment in time. While you may think this is "wrong" at best, buying into the socially acceptable and popular concepts of what is right and wrong, think first of the implications.

These two people have been arrested, not for their actions, but for what they have said. There are two people who do not have the resources for great lawyers that would eat the government alive for issues such as free speech and entrapment... but two regular people, much like ourselves were arrested for just speaking to a minor. Think about that: just speaking to someone online is enough to get you arrested and have the media speculate grossly about the so-called "porn" they've found on your hard drive. Talking to a minor and possessing legal pornography are enough to get you arrested with trumped up charges that "protect" the children.... I contended that it is the parents' responsibility to teach their children not to meet strangers, etc. They should teach the children logic instead of trying to stink off their responsibility to the government to the detriment to the rest of society.

Anonymous

*All of the sensationalism in the media has helped create this paranoia and suspicious ocean where the worst is always assumed of everyone. There are dangers to children and they should be addressed. But somehow, this kind of reactionary thinking is far scarier for all of us.*

Dear 2600:

I recently found myself in a disturbing situation. I was at a shopping mall and needed to make a phone call. I went to a pay phone, inserted the proper

coinage, then I used my Sony Magic Link as a phone dialer and proceeded with my call. Minutes later, I was approached by two mall security guards. One grabbed my Magic Link and the other grabbed the phone out of my hand and hung it up. They told me they were detaining me until the police arrived. At this point my head was spinning, when I asked them for what reason, they told me it was for illegal use of the pay phone. I could not understand what they meant. When I asked they stated that I used an illegal electronic device to steal telephone service. Then they proceeded to turn on my Magic Link, however, it was password protected. They told me to enter the password. I refused, stating that to do so is in violation of my right to privacy. Then they proceeded to escort me to the security office like a common criminal. When the police arrived, a videotape was reviewed showing me approaching the phone, inserting money, then using my Magic Link. When the officer saw this, he told them there was nothing that he could do and that it was incorrect to have apprehended me in the first place. They told me to leave. On my way out, one of the security guards yelled to me, "Don't let us catch you with that thing in our mall again!" What I really want to know is, was it actually a violation of my rights asking me to enter the password? Doing so would give them access to all of my personal information. Any help is much appreciated.

X-Flon Notice

*You absolutely do not have to show these idiots anything that's password protected. They can pursue it but to do so would involve their having knowledge of some sort of a crime having been committed. In this case, they had nothing. Phf's more, what they did to you could easily get them fired and the mall they're "protecting" sued for a very large sum. You have every right to use your device on these phones and we encourage you and others to do this whenever you wish. If you expect trouble from this, make sure there are witnesses and that everything you do is above the board, regardless of what they may do. This kind of thing happens far more often than most people think.*

## Numbers

Dear 2600:  
I found the ANI for PaeBelt: 211-2244.

Joah

Dear 2600:

If you care, the ANI number for the Willow Grove, PA area is (215) 958-4100.

Memory Overflow

Dear 2600:

Here are four more modern numbers: 800-546-4484, 800-555-6569, 800-472-4638, and 800-472-2863.

No Name

Dear 2600:

Here is a Toll free ANI number: 1-800-611-8791. It will read back your number, but only twice from the same number. The third try will refuse the connection to curb abuse....

Joe Mama

*It only worked once for us. It's getting so hard to abuse things.*

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Dear 2600:

Here is a list of some findback numbers for Germany: 0117755, 117755, 117752, and 0117752. You enter the ringback number plus your phone number. This works in all parts of the country.

Mindkiller

Dear 2600:

In Volume Thirteen, Number Four, a hacker by the name of sisfrs speaks of dialing his/her mother's office, and instead getting a test number. This person obviously misdialed 340 instead of 349. This number works throughout the Chicago/land area, and is a wonderful number for testing phone lines and red boxes. I believe it was originally developed for the testing of payphones, but it serves other nice purposes. Experimentation with it leads to many different uses.

Legha

Dear 2600:

This may be common knowledge, but the phone numbers that return spoken digits (like 800-654-7664) seem to be part of the RAS method to allow privileged employees (more) secure access to their companies' servers. The number changes every time you call it, it is entered into a portable translator, which provides a verification number, and the employee is given access.

Saab

Dear 2600:

I talked to a phone rep and he told me that those "theory" phone numbers that spit back semi-random numbers are really idle 800 numbers that are not being used, and they are able to activate them at a moment's notice for short-term seasonal customers like CDs at Christmas etc. He started to tell me about how their locations were coded (as area codes). Then he got real suspicious and wouldn't say anymore, leading me to think that it's possible to activate them from a regular touch tone phone.

No Name

Or perhaps he just ran out of bullshit to spew. It's possible he knew something but we've learned to take anything told us by a "phone rep" with a grain of salt.

Dear 2600:

In the Fall 1996 issue Shadowdancer wrote about a phone number 1-800-649-9097. It repeats the numbers 711325512 and starts with a different number. I got a range between 1 and 225. Shadowdancer also mentioned 1-800-649-9098 which did the same thing, only it repeated a different number. I found a new one! 1-800-688-9590 reads the

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numbers 711303584. I think there may be more of them so keep searching. I am eager to find out what these numbers are for. If you know please tell us.

Ted Merriman

Considering that not one of those numbers still does what you describe, it's a fair bet that the word mode is only a temporary condition.

### Off The Hook

Dear 2600:

I have a question for you people. I was informed by one of my friends of a radio show that you have for 2600. He said it was called WBAL. Is this true? Do you have a radio station or at least just your own show? If all this is true can I get it down where I live, right near Philadelphia? I love your magazine, so I would imagine that the radio show would be just as entertaining.

Brendon

We don't have a radio station of our own, at least not yet. But there are 2600 people involved in a radio show called Off The Hook on WBAL at 8 pm. For those of you not in the area, you can listen to past editions on our web site (www.2600.com) using RealAudio (available from www.realaudio.com). They're also available on CD-ROM through the magazine.

### Commentary

Dear 2600:

After reading Frequency Man's article on subscriber network intruders I had a comment to make. Frequency says that "if we didn't use our brains, we would all end up like our neighbors." Well, I seriously hope that people use their brains before attempting some of Frequency's Fun Things so that they don't end up in jail. Running a phone line to your house from your neighbor's SNL, as Frequency suggests doing in Fun Thing #2, is just stupid and asking for the feds to come and take you away. What do you think is going to happen when your neighbor gets back from Myanmar and notices all these phone calls on his bill, suspicion comes to investigate and finds a trail of bread crumbs leading right to your house. Not a good idea. On a second unrelated note, what's with all the cameo appearances Myanmar has been making in this issue? I noticed it turned up in a few articles and in the Psychology of the Planet section. Is Myanmar suddenly some happening place or something?

No, but it's so close to Bhutan.

YT

### Social Engineering

Dear 2600:

I live in a community of approximately 5000 people. The way of life here in Iowa is pretty simple, especially in the rural areas. The neighboring town just got local access to the Internet about six months ago. I was playing around with an account I had gotten by shoulder surfing at the Internet provider's computer store and I got a list of all the people logged onto the system at that moment. Later on that day I decided to do a little social engineering to get a few more accounts. I proceeded to call many of the users of the system, telling them that I was a computer tech from their ISP. I said that I had lost the password file and needed to create a new list by calling all of my customers and getting their user name/password from them again. Twenty-five out of twenty-five users were more than happy to give me the information I needed.

HP

I think I shall stay in this small town the rest of my life. Dumb-ass yokels!

Dear 2600:

Just picked up your Winter 96/97 issue at Borders and was flipping through the "letters" column when I noticed the letter regarding ISP password security and "secret words" (mother's maiden name, etc). After reading the letter, I actually expected your follow-up comment to offer this advice but for some reason it didn't, so I will.

Anyone whose ISP asks them for a "secret word" should immediately perform the following simple test:

1. Call your ISP.
2. Ask them for your password. Say you've forgotten it.
3. Give them the "secret word" if they ask for it.
4. See if they give you the password on the phone.
5. If they do, go somewhere else. Quickly. And choose a new password at the new ISP too.

The proper procedure in this case is for the ISP to send the password by the same method through which the initial connection information was originally sent. If your login and password info (along with phone numbers, server names, and all that good stuff) was faxed to you when you created your account, they should fax the password to the same number. If it was mailed, they should mail it. If you ask them to call you back, the only question to be asked should be "at home, or at work?" They shouldn't allow you to specify the number.

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If you have an experience different from this and yet you still feel secure, you're deluding yourself. There are certainly ways to compromise a password even if these precautions are taken (anyone who can't think of a few hasn't thought enough back issues), but it is nevertheless a reasonable compromise between security and convenience. Anything less should be considered intolerable.

PrivacyFreak in MI

Dear 2600:

I was happy to see the latest issue of 2600 on the shelves at Barnes, and as usual, spent the change to pick it up. I enjoy reading your magazine, and look forward to reading each new issue cover to cover. There is one thing however, that I would like to comment on. I am not intending to offend. With each new issue, I usually learn something new. I was happy to see your responses to the article on "How to Steal Things." I assumed that you were trying to make a point, which you did, and the latest issue confirmed my guesses. I am however a bit puzzled on the article by InVerse on how to socially engineer your way out of boot camp. How is this related to the 2600 format? In all reality, is this not just a case of someone unable to make a commitment? I'm not going to call it trash because, I'm sure that it will help someone out there, but is it related to your format? Is there a lack of worthy articles for your publication? I'm not going to fly off the handle and tell you guys that you suck, because you don't. I believe that you are doing a great job, but, wonder why you included this article. Because it has the term "Social Engineer" perhaps?

KpTone

Just because computers weren't involved doesn't make this irrelevant to our format. Much like past articles on defeating the detector tests, this article approaches a scenario where one is at a complete disadvantage and seeks to turn the tables.

### Defaming Our Good Name

Dear 2600:

I thought 2600 didn't affiliate itself and didn't promote hacking crimes, just exploration. By defaming Kevin don't you think you are giving a bad name for your magazine? The feds will see this and then go after your magazine and its members next.

greg

If you read the article you should understand why we're defaming him. At least part of the reason is so that people like you won't have to worry about getting prosecuted for expressing opinions.

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**Info**

**Dear 2600:**

In a previous issue a guy named Biohazard claimed that the satellite dishes on the top of Chevron stations were used for credit card verification. Actually, normal phone lines are used for credit cards. I've taken over the credit card lines in many different stores for my own use since those lines usually don't ever get incoming calls. The satellites are used for the lottery machines. Both lottery ticket validation and the Lotto TV that some stores have come through this dish. Also - could someone tell me what the hell 618-254-9952 is? I discovered it over five years ago and it seems to be some kind of room monitor. Sometimes it's silent, sometimes you hear machinery running in the background, and once I heard a guy whistling in the background. All the other numbers in that exchange are telco-related.

**Rhop**

**Meetings**

**Dear 2600:**

Exactly how safe are your meetings to attend? I've heard of the incident at the Pentagon Mall, and how cops will sometimes attend meetings. What is the possibility of a police raid, or of equipment being confiscated, or arrests made? What is safe to bring (tone dialers, laptops, pinpoints, etc.) and what isn't?

**Anonymous, NJ**

*Authorities of all sorts have a tendency to panic when a group of hackers are around. Which is exactly why we must continue. They want us to be driven underground and cannot understand why we insist on meeting in public spaces. They see us as criminals and want us to act that way. When we don't, it throws them off; they begin to question their beliefs, and fear takes over. That's why it's important that no matter what they do, we are completely accountable for everything we bring and everything we do.*

**Dear 2600:**

It was twenty years ago today... not really, it was only ten, but one fine day ten years ago I had the privilege of taking part in an historical event. On June 21, 1987 I was one of about thirty computer enthusiasts who made history by attending the first 2600 meeting in New York City. When I first became a computer enthusiast, the players had names such as Chenric, Chaslyn, Jim Phelps, Fred Steinbeck, and Cap'n Crunch. 2600 was about to become the undisputed champ as the new major conduit for the flow of data of what was to be called the Computer Underground. In 1987 I always read about the Friday

night meetings at their favorite watering hole, and how you could stop in the 74P office and help out with the publishing of the paper. I wanted to be at instead of read about the meetings, but with the demise of 74P I thought that it would never be. Now 2600 gave me a chance.

When the bus pulled out of the station, I had no idea what was in store for me. I knew no one in New York, and had never been there. From the stores I had heard about New York, I didn't know if I was going to make it back alive, but being the steadfast computer enthusiast that I was, I went anyway. I got up that morning at 1:30 am so I could catch the bus from Pittsburgh to New York. I should have known that it would be an interesting day when I stopped for a red light and was passed by a speeding stolen car and about four police cars. The bus pulled into the Port Authority station about 2:00 pm and since the meeting didn't start until 5:00 pm I decided to glimpse. As I walked the streets I met some of the most interesting mechanics I had ever seen in my life. I went into a couple of electronic stores that actually made me a deal on some of the stuff I bought. I know the old scam of raise the price and talk a deal, but the prices were still lower than those in Pittsburgh, so I bought. At 4:30 I caught a cab to get there. I walked around looking lost until I came across the tables full of 2600 buttons and fliers. I introduced myself by my handle and joined the group.

I have to admit that it was a total learning experience for me. Since I was the only black person there, I had the notion that maybe people wouldn't accept me for what I knew or for who I am inside. All of us different than anyone else. About a half hour after the meeting started something amazing happened. We all became a unit. If you ever wanted to see a collective of like minded individuals we were it. We talked about computer systems, computer security, each other, and so many other things that I can't remember them all. Things we didn't talk about were hatred, prejudice, and dislike for other groups of people. We were all going to stop at a Chinese restaurant afterwards but I had to catch my bus back to Pittsburgh. As I rode home I thought about the day's events and realized that I was very fortunate. I had met others just like me, maybe not the same color or background, but others with the same desires and spirit.

So I want to say thanks to the people I met that day for allowing me to share in what was later considered Computer Underground history. While we have since all gone our separate ways, I still look at the 2600 buttons and pamphlets (I still have all of the stuff given out that day) and feel proud that I was part of a group that helped lay another brick of what

was, and still is becoming the building of the computer revolutionists' structure. Some call us criminals, some call us heroes, but whatever you call us, there is no denying that because of us computer systems have and continue to become more secure. We are the watchdogs of Big Brother, and because of us, he can never get a good night's sleep. I will remember you all.

**Logging off,**

**The Hunter**

*Thanks for writing and remembering this important anniversary. A lot of us remember the magic of that first meeting and hope that the spirit remains strong at the many meetings we now have.*

**Dear 2600:**

In response to Curnub's letter in the Spring issue: What?? My good friend Trilobyte and I have been at every 2600 meeting in Buffalo since July 96, and we have never shunned Buffalo from the meetings for any reason. As a matter of fact, we've just started a widespread BBS publicity campaign. Are you sure that you went to the Eastern Hills Mall in Clarence, first Friday of the month, 5pm to 8pm, by the hockers in the food court? The only explanation that I can think of is that you came during August of 96 or January of 97 (Trilobyte and I weren't there those months) or that you didn't go to the right place at all. The Eastern Hills Mall is the only official meeting place in Buffalo, and I know all the people who go personally, and they would never do something like what you described. Actually, the meetings here only started to pick up in March of this year. Curnub, please send me mail on The Information Society BBS (716-822-1766), and we'll get it all straightened out. Thanks.

**Syphon Siege**

**Buffalo, NY**

**Dear 2600:**

I'm a hacker located in Atlanta who has been going to the 2600 meetings at Lenox Square Mall for some time. But the April 4 meeting was one of the most interesting I have been to. The meeting usually takes place on the second floor of the Lenox Food Court which happens to be a more secluded part of the food court (which is why we have selected it as our meeting place - there is always extra seating). It started out normally with some chatting here and there, and usually every month someone goes trashing and finds some interesting things (not always pinpoints in this case). One fellow hacker brought in some old computer equipment that he had found in a dumpster recently and was giving it out as frebies. Along with the stash of computer parts and magazines that was being passed around and given out were some in-

structural videos for some local computer companies in the area. Everyone was allowed to take as much as he would like to take as long as they left some for the others. Usually every month, no matter who passes by, either to sit and rest or eat, they don't care what we're up to or what we are talking about - maybe a little curious but never offended. Well for some reason, for the first time in three years the mall and its security decided that we hackers had posed some threat to them and the surrounding stores. A guard came near and saw some of the old computer equipment and videos that were sitting neatly in boxes on the tables. She said that we weren't allowed to do what we were doing. We asked what it was that she thought we were doing, but she just simply pointed to the boxes and said "that." We were all a little confused at why the boxes were causing a problem. She quickly radioed in something about computer equipment and "pornographic" videos and material (which there was absolutely no paraphernalia of the sort). We all sat back down and continued chatting. About 5-10 minutes later a large mall security guard and five or six backup guards came to the area. The large guard spoke to me and a few others who were the closest. He said that we couldn't do what we were doing. We again asked what, and he said that the equipment and boxes cannot be on the tables - they were for eating only. Getting bored with the guard we all simply complied to removing the equipment and boxes from the table tops. He told us to tell any one of our "kind of people" the same. He said the mall was private property and we had to obey. He and the other guards left moments later. We all took our bags and boxes of equipment off the table tops and put them onto the floor and began chatting, again. About an hour later the guard with a couple more mall security guards and a police officer returned. We all mumbled "not again." This time he seemed to have a more abusive attitude towards us. He said "I'm not going to warn you guys again! Get these boxes off of mall property!" I quickly stood up and said "You told us to get it off the table tops last time, not off of mall property." He grabbed two boxes, one in each hand, and asked whose they were. My friend stood up and said that they were everybody's. The guard responded "OK then, I'm detaining everybody here." My friend bravely took the blame and said that they were his. The guard said, "Fine, you are being detained. Everyone else here, leave!" Even the non-2600 goes got up and left with their dinners and snacks half finished. When some of the attendees were questioning whether or not they should leave the guard told them promptly to do so, but he would bar the way to the escalator. When some of the 2600 attendees tried to take some of their

equipment with them the guard said. "The staff stays here."

We all decided to meet at a popular Internet cafe to continue the meeting there. My friends were released an hour later. When I met up with them at the cafe I asked why they had released them. He said "they couldn't find any reason to arrest us, so they decided to waste our time." I later found out they searched through the equipment and returned it. Also my friend and the other two 2600 attendees that were detained were pinned up against a wall and searched. If they confiscated any of the old equipment or videos we do not know what has happened to them since there were so many of them.

Wed'd like to know if this sort of thing has happened to any other 2600 meeting.

### Hacked Web Sites

**Dear 2600:**  
Thank you for maintaining the "hacked sites" pages on your web site. I have been maintaining links to them from my web page. I find it difficult to put into words exactly why I think what you are doing is a valuable public service. I do, however, feel that people who have zero "hacker" in them are (at least partially) brain-dead sheep.

I'd just recently heard about the NASA sites link to my page when I today heard about the NCAA site. I did not like what I heard about that hack and was pleased to see that you had not added it to your site. I hope and pray that this condition persists. I am completely disinterested in ever seeing it. Those who hack motivated by hate are worse than brain-dead sheep, in my opinion.

### Boris

*I would be a disservice to those who hack web pages and communicate a real message if we put them side by side with any idiot who simply runs a script and then has no idea what they want to say once they have the power on, worse, simply tries to shock people with hate speech or pornography. Such people thrive on attention. They won't get it from us.*

### Mystery

**Dear 2600:**  
I would like to ask your readers if they have any idea why NTNEX disallows 0, 1, or 6 as the first digit in a calling card's PIN.

*This is the first we've hearing of this. We'd like to know if readers' experiences with NTNEX calling cards (not any other company) bear this out.*

### The AOL People

**Dear 2600:**  
I am writing in response to countless letters in countless issues from countless clueless people who call themselves hackers. I write in response to a disturbing number of people calling themselves hackers who insist on forming opinions of people based on how they get their Internet access - in this case, AOL. I am an AOL member. Saying this in the hacker community is tantamount to announcing that you are gay in the real world. There ought to be no stigma attached to either, but there is. I can think of few things that are in greater contradiction to what hackers are supposed to believe in, however, than judging someone by their ISP. In what was destined to become one of the most famous papers ever written by a hacker, Mentor once wrote in defense of his activities "...we explore, and you call us criminals. We seek after knowledge... and you call us criminals. We exist without skin color, without nationality, without religious bias... and you call us criminals..." But we have our own forms of bias, and this is one of them. I am sick of being banned from IRC channels, sick of having my emails deleted without being read, sick of having people snicker when I announce an @aol.com email address. AOL has problems. There is no hacker community to speak of on AOL. So why don't you try and change it? That's what a real hacker would do. So many of you think you're so free and so great, but you lower yourself to the same level as a KKK member with your discrimination. At least I try. I help people who post with problems. I let them know that not all people who call themselves hackers are out to wreak havoc. I show people that there is more to hacking than people who show up in chat rooms with AOLfile and FATE. That's more than I see those who bash AOL doing. You have no right to judge someone by what servers they go through to get online. If anything, AOL should be praised for helping to get more people on the Internet, to show more people the endless possibilities of cyberspace. Or do you think someone should be a Unix guru to be able to use your precious bandwidth? I'll stop here, as it would probably require a document of article length to fully explore this issue, but I hope I have at least given some of the people who read this food for thought. AOL members tend to be people too. Please try and remember that.

**Low Tek Atlanta**

### Wire Fatigue

*This is the first we've hearing of this. We'd like to know if readers' experiences with NTNEX calling cards (not any other company) bear this out.*

### Magnus

*AOL certainly deserves criticism, at the very least for its crazy system of rules and penalties. AOL users deserve to be treated as individuals. But this is admittedly hard when there are so damn many of them. Read on for another view.*

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### Dear 2600:

I would like to comment on people who call themselves "hackers" on the service of America Online. First off, if you were any kind of a hacker, you would not have gone with AOL in the first place. It has got to be the worst service of all time. In seventh grade my dad got it for research. *Ha!* So many things are restricted and locked out you can only find information on what they want you to AOL in a more scandalous operation than our US government! I got kicked off in less than a week for going into a room that was *publicly* available. AOL hackers are fucking retarded! You think hacking is scrolling a little picture in a chat room or trying to get others information by using annoying little phrases that have been around since 1983! You all think you are so cool because you can send mass amounts of email to people that takes them a whole five seconds to delete. *How!* News flash: that has nothing to do with hacking. To be an adequate hacker you should learn C, and at least get a substantial understanding of the Unix OS. You all disgust me and have no right to call yourself the earned title of a hacker.

**Dear 2600:**

### More School Stupidity

I am a student at Brewster Academy and we just recently linked our FC to OneNet. I am an advocate of both technology and the correct use of this technology but unfortunately the network administration here at Brewster is not using their technology correctly. Our technology director reads private email and deletes or edits posts with little or no moral compunction. In fact, if they know I was trying to speak out against them like I am doing now they would probably try to punish me. Recently someone gained administrator access and deleted some accounts on the server. They suspect that ResEdIt was used to do this but they supply no evidence for their claims. They have now gone so far as to make having ResEdIt, a harmless resource editor, an expulsion offense. This means the following: if you have ResEdIt you will get kicked out of the school. Kind of odd since this is the same punishment that you receive from getting caught doing drugs. Somehow ResEdIt is as dangerous as drugs.

### The AOL Rules

**Dear 2600:**  
In response to SW's letter (Spring 97 issue) I would like to say that in those AOL chat rooms, you will find nothing but idiots with programs used to screw around with AOL. Plus, sometimes very often a CabBot enters the room. Perhaps someone knows when I am talking about? CabBot boot you offline if you are in any colidice room (colidice2, colidice) and you get a message that says something like "You have been booted offline. Illegal Activity. Better yet, you get a TOS point on your account. Unless you are running on a fake AOL account, I would advise not going into these rooms for any reason."

### How Dare You

**Dear 2600:**  
Just one question. Why do you disrespect the very government agencies that keep every citizen safe? Why do you support criminal activities that disrupt the activities of government? And why do you relate the US Secret Service to the Nazi SS? You are simply a menace to society. The "hackers" who like to flatter themselves by replacing government pages with repulsive pieces of crap! You all deserved to be arrested and imprisoned for treason.

*First off, that wasn't one question. It was three. Maybe your definition of safe is closer to our definition of brain dead. If so, you're certainly safe from anything we can say to you. The people like you who are in power now and solve every issue by imprisoning people are a far greater menace than any hacker ever could be.*

### Dear 2600:

I bought my first issue of 2600 a year plus ago and was quite impressed with the variety and detailed information it held. Over the last several issues I have witnessed something, strange, uncanny even. 2600 has not just changed, but it's had its own revolution. Not only have the articles become so portable but many of the authors have become somewhat indignant in their writing, writing articles that

### The Decline of 2600

*These kind of stories no longer seem even surprising. We suggest getting some knowledgeable nice people aware of this situation. A little adverse publicity goes a long way.*

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back chatrains, detailed info, and that 2600 quality. But what has caused this change? Is it because 2600 has become the trendy thing for teenage hackers to do? That every kid using a computer has now got his 2600 stashed in his backpack, just waiting for the moment to pull it out and show his leet-o-mag to his friends? Or in all our wildest dreams has something more occurred, something no-one would even dream of, has 2600 become... consorted?

A friend pointed out to me that if I am that dis-satisfied with 2600's quality, then I shouldn't support their cause and buy it. There's a reason behind every action, and to tell you the truth, who am I to judge 2600, I'll probably get some wisecrack answer to this anyway, but hey, you're a publication. When people "suggest" something is wrong that they are dissatisfied with the quality, it's your job to fix it. Not mine.

**polks**

*There are all kinds of possibilities here, but one thing that's not uncommon among magazines, music, and nearly all other artistic/consumer items: Someone discovers something, it becomes more popular, the earlier people resent all the newcomers, and they redefine the item or the culture itself as 'just not the same.' We've seen this happen so many times over the last 14 years that there has to be some truth to it. Either that or we've been on the decline since day one. Whether or not this is the case, you seem to have some misconceptions about a few things. First, what appears on our pages comes from the hacker community. We don't write everything "in-house," like bigger publications. If it flourishes, here so do we. You also seem to think that because something isn't what you want, that censorship must be taking place. Censorship is something that is imposed upon people by powerful entities. If we don't print an article you wrote, it's an editorial decision, not censorship. If we are prohibited by law from printing our article, then that is censorship. The seriousness of this issue is undermined when the word is misused in this way.*

**An Australian Nightmare**

**Dear 2600:**

Greetings from the other side of the world. You may think that our lives would be completely different considering our different lifestyles, but I tend to disagree. We both eat fast food from the local Pizza Hut store, we both watch American sitcoms, and we both get hassled by our governments. That is why I am writing this letter to you. I have a story to tell you.

The circumstances outlined in this letter occurred less than 48 hours ago. It was a quiet

Wednesday afternoon, and I had nothing better to do than log onto the LAN at the local community college where I study part time. I had been using the Internet extensively for the college for some time and this was the first time that I had attempted to access the Internet internally using the crude Internet web browser that the administrator had designed and was trying to download the entire NASA web page. The PC froze and I was confronted with a dialog box which read: "The front-end cannot confirm your location. Please enter the administrator's password to continue."

Now this was strange. I'd never seen this dialog box before and being an avid user of the program, it came as quite a surprise. Myself, being no more than your average grade "hacker", had taken the liberty of finding out the college administrator's password some days beforehand, and promptly used it. Now, one of two things could've happened: 1) I could have mistyped the password accidentally and managed to hook into the wrong address by mistake, or (the explanation I tend to favor), 2) the administrator himself was into something he shouldn't have been, and I was automatically shunted to this new location.

Either way, I was in trouble. I was faced with a black screen with a rapidly blinking cursor at the bottom and a single word: "Login...". Fair enough. I thought it shouldn't be too hard to login under a visiting capacity. First, I tried the word VISITOK. "Un-recognized login. Please enter the correct login." The prompt returned once again. Simple, I thought. I tried the word QUEST. The cursor ran across the screen again with the same message. Just as I typed the word HELP, the door to the computer laboratory was slammed open and I was quickly grabbed by two men in suits. This scared me. In the U.S., you have the FBI and the Secret Service (two of everybody's best friends). In Australia we have the Federal Police. I was quickly arrested without being made aware of my rights for "Illegal Access of a Foreign Government with Intent to Defraud." My possessions were taken from me, in which was the address for your magazine. It seems that our Federal Police have heard of you guys. They seemed upset enough to "question" me for around three hours. I was imprisoned in the local police station with a buddy that had just been charged with "assault with a deadly weapon." He scared me, "wassuul" I quickly called my lawyer (thankfully a friend of my parents) as soon as a telephone was made available to me (over 10 hours later) and I managed to get out on a bail of over A\$15,000 (around US\$11,000) because I had no former criminal charges that against me. I was classified as an "understanding citizen in society" (I had won a local "Youth of the Year" prize three

years ago - big deal). The money for my bail was forwarded by my lawyer, being the family friend that he is. I was denied my possessions. I went home and found a copy of your address. I tried to gather my thoughts enough to write a letter to you guys explaining my circumstances. So here I am. I hope you can understand enough to let your members and subscribers in Australia know of this mockery of justice. Allow me one thing: Please do not use my real name. I would prefer to be referred to as my "professionals" handle: Cochrane. I say this for two reasons: 1) I know for a fact that the Australian Federal Police constantly examine your publication. I do not want any unwarranted attention for the publication of this account. 2) Hopefully, more people know of me by my handle than my real name. I hope they will learn of my plight and act accordingly.

I want the people of the world, especially in Australia, to learn of this travesty. This kind of activity happens all the time and a lot of people want it stopped. I am still awaiting trial.

**Cochrane**

**Corrections**

**Dear 2600:**

Thanks for the very editorially consistent Spring issue. Just got it today (it is now May) and noticed the schematic on page 57 to be seriously flawed. I only figure it is an April Fool's joke. In about 1984, I used a quite different approach, that worked to use the K1 as a device to control an answering machine. First the published schematic.

Using a LM386 as a preamplifier is simply not a good choice and powering it from nine volts to drive a five volt chip is looking at a blown IC! LM386 works perfectly at +5V. The 510K to +9V is also mysterious. With a dynamic mic, it will have no effect other than possibly damaging it. On a condenser mic, only 0.18V will be supplied, far below what is required to power it. The MX105A is a very poor choice for the detector, as it requires adjustment. Anyone who would attempt to build this should know that the LED will go on and off at every other pulse. Everyone should know that leaving unused inputs open on a CMOS device is a very bad idea that may cause unnecessary power consumption and leave the chip open to static discharge. OK, this circuit won't work! Here is how you can do it right.

Use an 8870 DTMF decoder with a 6.5MHz crystal. If pre-amplification is needed (won't be if coupled from the phone) use a CMOS gate in linear mode or a +5V op amp or a simple transistor stage. For a condenser mic, bias it properly with a 140 to 4k7 to +5 and capacitively couple to the level control/amplifier. (100nF is fine to 10K.) And Coll and

Rowd outputs of the 8870 to decode the "...". Post process as you choose. If battery powering, use 6V and an ordinary diode to drop the voltage 0.7V and protect against reversed conditions.

Look up the 8870 made by Telone and many others.

**Billif  
Amsterdam**

**Dear 2600:**

I don't mean to be a whiney-ass perfectionist, but at the bottom of your article entitled "Social Engineering Via Video" in the Winter issue it says "continued on page 26". This is kind of misleading because 1) the article seems done and 2) there is a different article on that page.

**Kapitan Kangaroo**  
*It was a layout error. If you move your eyes to the right a few inches, you'll see the article on page 27.*

**LED Sign Update**

**Dear 2600:**

In your Spring 1997 issue Bernes wrote a very interesting article on how to hack LED signs (something I've been waiting for ever since I heard about it on *Off The Hook*). As you've mentioned AMMS infrared-capable signs have optional password protection and that there was an undocumented master default password. Well, after a few seconds of searching the AMMS web site I found documentation for the infrared remote control programming unit. More specifically documentation on what to do if you "forget" your password.

On the remote unit press PROGRAM when you see "ENTER PASSWORD". Hold down SHIFT and press "L" six (6) times. I am not sure if this is what Bernes was talking about but according to the manual it works.

**Da Finder Man**

**Spy Hacking**

**Dear 2600:**

I don't know if you guys are that interested in this or not, but I thought if anyone should know, it would be you.

I was looking at a web site of funny answering machine messages, and one of them gave a U.S. Army hotline: 1-800-CALL-SPY. I called the number and it was pretty funny, it sounded way too serious to be real, you know? Well, this was last November, and I forgot about it for a while.

*(continued on page 48)*

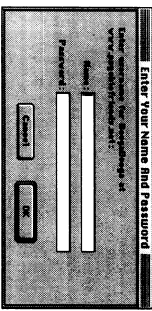
## http://www.Defeating\_HTTP\_Access\_Control.edu

by Ryan

By now, you've got your spirit web page all set up, and you've got your stouts going out to all your pals, and the picture of your cat is in its own frame, and he's an animated gif, and all is right with the world...

Now, you'd like to put up a picture of yourself shirtless with your rippling biceps (you have Photoshop, right?), so you can impress girls on IRC. But you'd just die if your friends saw it.

Enter HTTP access control.  
RFC 1945 (http://www.cis.ohio-state.edu/hbin/rfc/rfc1945.html) outlines the entire HTTP 1.0 specification, including how to write your HTTP server so it'll ask an HTTP 1.0 compliant browser for a username/password, which looks something like this:



The RFC is a good thing to read, but don't worry about it too much - you're not writing your own server. You're probably using something like NCSA's httpd, or more likely Apache (www.apache.org). They (and some others, including some of Netscape's servers) use an access control mechanism in the following way:

You have a directory you'd like to protect. We'll call it "/secret/". Inside the secret directory are your secret html files, images, or whatever. Also inside this directory, you should place an access-control file, named ".htaccess" (note that it starts with a dot). This is just a text file that should look something like this:

```
AuthUserFile /home/path/to/your/.secret/.passwords
AuthGroupFile /dev/null
AuthName Boogiebooga
AuthType Basic
```

```
[-f:Limit(=)]
require user 2Boogang ryan bob foo
```

Place the path to your directory where it says /home/path/to/your/secret/, and include the ".passwords" (again, starting with a dot) at the end. This is the

location of your passwords file.

Keep /dev/null as the AuthGroupFile, as we're not using groups in this example. (They're explained at the URLs at the end of this article.)

AuthName is whatever you'd like to appear in the dialog box (it's Boogiebooga in my file, and in the picture of the dialog box). It gives the requester some feedback as to whether they need to use their password for "PENTAAGON" or for "PLAIBOY".

The Limit section specifies that users named "2Boogang", "ryan", "bob", and "foo" are the only people allowed to see what's in this directory, and that they must have a valid password.

Next, you create a password file, using the program "htpasswd", which is distributed with apache, and is available online in various places. Its syntax is this:

```
htpasswd [-c] passwordfile username
The "-c" is only used the first time you use this command, as it creates a new password file. Using "-c" again will erase the password file, so be careful. Using the path and filename we specified in our .htaccess file, we'd type:
```

```
htpasswd -c /home/path/to/your/secret/passwords
yourname
substituting your name. You'll then be prompted for a password and asked to type it again, to make sure you didn't mistype.
```

My password file looks like this:

```
ryan:05:506044G10
bob:51V6YfWcM3G6
foo:4019d9wH1Z0Mk
```

These aren't the passwords I typed in - they're the encrypted output of the htpasswd program. Incidentally, that can be brute-force cracked by any of the "crack" type programs out there.

With these two files in place (your .htaccess and passwords files), you should get a box requesting a username and password before the webserver serves any files in that directory. Note that on a shared system (like on your service provider's machines) you should use common sense, and not allow world "listing" of your directory, and make the files readable only by you and by the web server, if possible. This access control only works with the webserver, not others on the system, and certainly not spiders.

### So How Does it Really Work?

Under the hood, things look like this:

```
First, your browser connects to the server, and sends this text, to ask for a document:
GET /~/ryan/webfiles/secret HTTP/1.0
Connection: Keep-Alive
```

```
User-Agent: Mozilla/4.0b5 (Macintosh; I; PPC)
Accept: image/gif, image/x-xbitmap,
image/jpeg, image/pjpeg, */*
Accept-Charset: iso-8859-1,*utf-8
HTTP/1.0 401 Unauthorized
Date: Sun, 15 Jun 1997 22:27:51 GMT
Server: Apache/1.1.3
WWW-Authenticate: Basic realm="Boogiebooga"
Content-type: text/html
```

This tells your browser to show up the Username/Password dialog box. After you fill it out and hit OK, your browser takes the username and password and manipulates it like this: it builds a string that looks like "username:password", then encodes it into "prunable text", as described in the RFC. Some sources refer to this as unencoding, but it's not quite the same as the unix command. The perl source accompanying this article includes functions for Base64 encoding and decoding.

This "encoding" is *not* "encrypting"! It's simply encoding it so it can be included in an HTTP header, much like you'd mime-encode an email message. If your browser-ified this is as good as plaintext. After this Base64 encoding, your browser sends back this request, including your encoded username/password:

```
GET /secret HTTP/1.0
User-Agent: Mozilla/4.0b5 (Macintosh; I; PPC)
Host: inch.com:2667
Accept: image/gif, image/x-xbitmap,
image/jpeg, image/pjpeg, */*
Accept-Charset: iso-8859-1,*utf-8
Authorization: Basic cnhby2puz29hd_==
```

The server then decodes your username/password pair, "cracks" it, and compares the goop that comes out of crypt with the goop that's in your password file. If they match, you're given the file.

This whole setup isn't very secure. In fact, it's only slightly more secure than having hard-coded URLs, and keeping them secret. This is coupled with the common usage of people picking an easy-to-guess (or easy-to-social-engineer) password, and a common word for a password. After all, it's not my email or anything....

Imagine this scenario: Bob's SecretPlans Inc. has a new widget that they're going to unveil at next month's WidgetWorld. They're showing it off to their world sales staff on a password-protected web page.

Now, it's a good bet that the username is gonna be "Bob". If it's not that, you can probably ask Bob's secretary for it on the phone. Given that it's

targeted for a sales-team, the password probably isn't that complicated, probably monosyllabic.

So, if we run a dictionary (like the one included in your UrF-X distribution) through a program that encodes the username/password and asks the webserver, we can do a quick-and-dirty, brute force attack.

This perl program asks the user for the username to try, then takes a user-supplied file of passwords to try. This "passwords to try" file can be a dictionary, a list of employee's names, or whatever. Anyone familiar with the basics of perl can modify this program to (for example) try all passwords five characters long.

Rather than use the normal GET method, like a normal web browser, this program uses the HEAD method to request the file from the webserver, which just returns the file's modification date, and other brief info, and not the actual HTML file. In order to keep down bandwidth, this prevents an HTML "You've been denied" message from being sent, over and over and over.... When the program gets a header with HTTP code 401, (the access denied code) it prints "...access denied" and goes on to the next password. Upon receiving an HTTP code of 200, 301, 302, 303, or 500, it tells the user, then moves on.

An Apache webserver is capable of handling hundreds of hits per minute, and quite frankly, Apache performs far better than my perl script, so your odds of creating a "Web Hammer" with this are low. With any luck, the server administrator won't even notice 100,000 or so hits in his error log. Obviously, an intelligent approach to this attack will save you hours, perhaps days, and tons of bandwidth. Try a small dictionary of proper names first. Then, maybe try out all the words of five characters or less from a dictionary file. Trying all the combinations of letters, upper and lowercase, for six letters at ten tries a second will still take about 34 years. However, used intelligently, with a few modifications, it can find a username/password like "jane:secret" pretty quick.

The new HTTP 1.1 specification looks forward to a new encrypted password scheme that prevents the plaintext transmission of passwords. I've also seen mention of modifications to webserver that lock out users after a certain number of failed passwords, or that alert admins in that case. These are a good step, but don't address the "dumb password choice" issue.

Final Note: webserver log, your IP, and usually your hostname for each request. You're not anonymous. Be careful where you launch this.

Props to the guy who wrote the padding fix for encode/decode Base64, wherever you are, and to Larry Wall, who wrote the perl skeleton that this program is based on. SOURCE CODE ON PAGES 42-43 for Necal, which made all this easy to figure out and write down. Winks to the Word to you and another.



# The Ins and Outs of Metrocard Gold

by blueski-mask  
and the wrapper

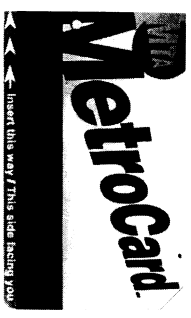
MetroCard Gold is a thin plastic credit card sized magnetic stripe card used in the New York City transit system. It was first offered for sale on May 27, 1997, replacing the original (blue) card. The Gold cards were introduced to provide free bus-bus, subway-bus, and bus-subway transfers (effective July 4, 1997), as they have the ability to store up to four free transfers. MetroCard Blue can only store one. The blue cards will be valid until the expiration date printed on the back of the card. Current Transit Authority (TA) propaganda calls for tokens to be completely eliminated in 1998.

Free transfers are valid for two hours after a passenger boards a bus or passes the subway turnstiles and are *only* available using MetroCard - no paper transfers will be given.

To use multiple transfers, the card has to be used at the same station or bus. First, swipe the card for as many passengers as are in your "group" (up to four). If you try to use the card a fifth time, you will get a "transfer limit exceeded" message on the turnstile. To transfer, swipe the card *one* time. Transfers for your party of up to four will be granted in one fell swoop.

If you ride the bus and don't pay with MetroCard, you'll notice that the bus-to-bus transfer you'll be given is now a magnetic-paper transfer which gets inserted into the farebox like a MetroCard. For more info on transfer details, check out <http://www.mta.nyc.ny.us/nacc/demo/metroeng.htm>.

*A passenger card looks like this:*



**The back of a MetroCard has printed on it:**  
the expiration date  
a six-digit batch number  
a ten-digit serial number  
instructions for use  
customer service phone numbers

**The front of a MetroCard has encoded on the magnetic stripe:**  
the expiration date  
a six-digit batch number  
a ten-digit serial number  
the type category of card (pre-encoded for \$3, \$5, \$15, \$40, or non-pre-encoded)  
the current amount on the card  
date, time, and four digit location code of last use  
how many times the card has been used  
how many transfers are available

The printed information on the Metrocard is visible. Internal informational material states that the card has a read/write magnetic stripe on it. The Token Booth Terminal (TBT) displays the above categories when a card is dropped into the TBT box or swiped through the Passenger Information Unit (PIU).

**How is this supposed to be used by passengers?**  
Passengers can buy \$3, \$5, \$15, and \$40 pre-encoded cards. These are wrapped in cellophane and have been encoded en-masse and shipped to the booths (and other retail outlets).  
Passengers can buy non-pre-encoded cards in any amount that they want, provided:  
a. the amount is equal to or over \$3.00,  
b. the amount is a multiple of \$1.50 or \$5 but no larger than \$80.

ESP 11-227-98 501791  
800-213-8843

Subject to expiration terms and conditions of use.



Please refer to the terms to use the card and expiration date. For Customer Service, call 800-213-8843. See also instructions.

Passengers can add to previously-purchased cards, provided:  
a. if the card amount is \$0 to \$1.49, the passenger can add enough value to equal one fare.  
b. if the card amount is over \$1.50, the previous listed rules apply, except that the maximum value of any fare card is \$100.  
c. the amount brings the card to a multiple of \$1.50.

**How does it really work?**

Pretty much as stated above except: a card can be encoded for any amount between \$5 and \$80 (even in increments of \$0.01, making possible such amounts as \$5.01, \$11.43, \$22.99, \$63.85, etc.). This wasn't true for most of 1995 and 96, but is now thanks to software "enhancements."

**What software glitches currently exist?**

Go back and re-read "How does it really work?"

Other glitches (past and present) include:

- A prohibition against multiple employees signing on at the same Token Booth Computer (TBC) used to exist. If multiple employees attempted to sign onto the same TBC, the TBC would freeze and go back to the original signon prompt. This problem was fixed late in 1994.
- However, multiple employees in the same "category" (i.e., Main Clerk (responsible for booth), lunch relief, side window) cannot all operate the TBC at the same time - only the most recently signed-in clerk can operate the TBC. That's why it's harder to get a MetroCard during shift changes - the guy counting the cash probably also has control of the computer.

The MetroCard Customer Service folks apparently cannot determine where, when, or by whom a card was "added-to." This could provide some interesting possibilities. There is some evidence that they can determine information on a card's first encoding. However, initial information about MetroCard stated that all transactions would be recorded in sufficient detail in a central

computer to allow for transaction tracking and problem resolution (and of course, fraud detection).

Although we don't yet have any further information concerning the "added-to" amount or location fields, at the beginning of 1997 about a dozen MTA employees were dismissed and criminal charges were brought against their relatives. Employees apparently let relatives use their employee passes while the employees were at work. Since most TA employees are at fixed work locations, or along a given subway line, repeated incidences of employee pass use in other areas of New York City were seen on the central computer, prompting the NYPD Transit Bureau to investigate.

**Are there any potential security holes?**

*Access to a TBT*

Um, well, we shouldn't be telling you this, but um, hmm... if access to a booth with a TBT can be "arranged," a valid Employee Metrocard combined with knowledge of the appropriate PIN would allow encoding of almost infinite numbers and amounts of fare cards. We estimate about 5000 current, valid Employee Metrocards can be used at TBTs. However, discovery would be quick, and invalidation of these cards would occur. We believe that they could still be swiped at the PIU (Passenger Information Unit - the refreshing device that tells you how much is on the card) and mislead potential marks for con artists. These "rubes" would then be persuaded to buy - at a deep discount - a \$20, \$50, or \$80 card which would *not* work in a turnstile.  
*Potential for Lost or Mis-appropriated Employee Cards*

ESPs will eventually be in the hands of all 40,000 NYCTA Employees as well as MetroNorth, LIRR, SIRTDA, MABSTDA, however, most will be valid for transportation only. Only some 3500 railroad clerks (RRCs) and 1000 station supervisors, managers, and supervisors will be able to encode fare cards. Employee cards look just like the old blue

# Subscribe to 2600





(continued from page 379)

Then I went home for Christmas break and I told my little brother to call the number for a laugh. He noticed that the beep on their answering machine played "Für Elise" by Beethoven. I noticed that my answering machine in my dorm room played the same thing, and I knew how to change the outgoing message from another phone, as long as I knew the code. The BellSouth company programs the same default code into all the machines, 6-8-9. You're supposed to change the code when you buy the machine, but most people are too lazy.

I waited about another week, and finally had to try it. I called the number, tried the code, and it worked. I just said, "Hello," with a Russian accent. But then I went back to school and my friends found out about it. We screwed with the hotline for about two weeks before anyone noticed. Then they changed it back every day, and I changed it back every night. If I wanted to, I could have changed the code, but I didn't want to get into trouble - this was the first phone prank I'd ever done.

So finally, they wised up and changed the code. I quit messing with it, although I tried a few codes, just in case they were as stupid as I thought they were. About two weeks later, the school I attend got a call from the FBI, and they were looking for me. All they did was take away my phone and made me write a letter of apology. I never mailed the letter.

It turned out that the number was a direct line to the FBI, and the machine was at Fort Meade, Maryland.... I was lucky something worse didn't happen as a result of my own stupidity in being traced. But still, we all got a kick out of leaving Russian obscenities on the FBI's outgoing message.

This supposedly made the TV news in Indianapolis, and the number was permanently blocked from the Ball State University switchboard. And the FBI is still using the same two-bit answering machine.

Just thought you might like to know.

**S** *Yeah, let's leave confidential information about spies on an answering machine with a default three digit code. Brilliant, guys. But somehow it's people like us who are depicted as threats to national security.*

### Chieless

**Dear 2600:** The June 1997 issue of *Linux Journal* has an article on SYN denial, complete with the Horror Story of the Evil Hacker whose thronom off his ISP for violating the rules, picks up a copy of *Evil 2600*, compares the Evil SYN program listed on its Evil pages, and ultimately causes the ISP to go out of business.

Oddly, the author never grasped that the problem with SYN denial attacks was only widely known after publication of the article, or that the software fixes he discussed were created and distributed once *2600* pointed out how easy it is to do this type of attack, etc.

I guess it's time to pass laws outlawing advertising by gun shops. If nobody notices how many of them there are, nobody will ever realize they can buy ammo and gun deaths will end!

*Just the kind of analogy we need.*

**Beard**

### Hopeless

**Dear 2600:** While filling out the subscription form in the back of my Winter 96-97 issue, I noticed that I was going to have to send you the way cool Payphones of the Planet that final page. This is not just a suggestion, but a plea. Do you think that you could somehow put the subscription form on another page? Thanks.

**Nameless** *You must be missing more than a name if you couldn't figure out how to subscribe without that page. All you need to do is send us your name and address and the right amount of US dollars. You can write it on a stone for all we care.*

### Pointless

**Dear 2600:** I am an avid reader of your zine. But I have noticed that most of your letters and articles seem to take a predominantly liberal/leisist approach. This both confuses and disturbs me. While it is true that the government as a whole does often try to suppress free speech, it is mostly its more liberal elements. It was the liberals who pushed the Clipper Chip and who hooked up at Waco. It would, in my opinion, be more beneficial to the hacker cause to give less lip-service to the socialists. They won't repay the favor.

**Rhyme-Chai**

*And the conservative/rightists try to ban flag burning, eliminate gay rights, and force "family values" down our throats. We can go around in circles forever. We don't think about what political stances we take when we spread information. We just spread information and try to wake people up. If that seems leftist to you, you're probably standing so far to the right that everything else does too.*

### COCOR Mysteries

**Dear 2600:** My parents own a payphone company in Los Angeles. They own about 50 phones right now. Here are some tips:

1. On the newer payphones the dial tone you hear when you pick up the handset is fake. The real one does not come on until you deposit a quarter.
2. Every payphone has a 1200 baud modem in it. You need a program called PNM to get into the payphone. Your computer also has to have a really really old 1200 or 2400 baud modem. 14.4 does not work.
3. Payphones are protected by a 4 digit ID number and an 8 digit password.

**Cheeto**

### Phone Tapping

**Dear 2600:** This letter is kind of in regards to the one written by Missfish in the last issue (Winter '96-'97) which stated that a certain number will produce a siren if the line is not tapped, a ring if it is a federal tap, or a busy signal if it's a local tap. Well the number that appears to be that number in my area, (602) 979-9993, for a while gave me a siren tone. But now after a close call of a partial trace on me I get a busy signal when I call that number... Could this mean anything?

**Mwasah**

*Yes. It means you're wasting your time. It also means you didn't read our reply to that other letter which said that these numbers have nothing to do with announcing taps. If you choose to continue believing in this silliness, ask yourself what kind of law enforcement clown would want to have a feature where people could find out if their phones are tapped. It makes no sense, technically or logically. But then, we got a siren when we called it so we can be cocky.*

### Conditioning Fraud

**Dear 2600:** I'm very disappointed in your magazine. Your article entitled credit card numbers via calculator is an obvious show of support for credit card fraud. I thought you guys over at *2600* didn't condone the use of credit card fraud. I don't know any other way of interpreting this article unless it's to show the algorithm of MasterCard. I really feel that a magazine that is based on hacking shouldn't print articles that encourage credit card fraud.

**the trailer park hero**

*As the article clearly stated, this knowledge is not for the use of credit card fraud, but rather as an exercise in algorithms and calculator programming. You can use knowledge in evil and stupid ways. Stopping the flow of that knowledge isn't the way to prevent this. This next letter should prove our point.*

*This next letter should prove our point.*

### Thanks for the Virus

**Dear 2600:** I'm writing this letter to respond to Sean Emerson's letter in Winter 96-97 issue in regards to his complaints about publishing virus information. As a network administrator I am faced with dealing with viruses as part of my job. But were it not for your magazine's information, and my having a background in virus writing and hacking, our systems would be at much greater risk. Perhaps you are not aware that viruses are not anything more than a program, and while a large number are malicious, some just cause damage due to poor programming. The idea that someone should be branded as unable to exist with others simply because he wrote a program that seeks to replicate itself is insane. If that were true shouldn't myself, along with a large portion of computer scientists and others, be locked up in a room without windows? As far as your magazine goes I sincerely hope you continue to publish that sort of information. If you don't, are we supposed to trust the anti-virus community to do it for you?!

**Misguided**

### Dangerous Info

**Dear 2600:** You have often been unjustly accused of teaching criminals how to commit crimes. Is *The National Locksmith* magazine doing this too? I enclose an article they published in the March 97 issue showing how to hack your way into a Diebold ATM machine. Well, not hack, but literally open it up and remove all the money.

**Tim Leary** *These locksmiths are getting out of hand. Where's Geraldine when you need him?*

### Arcade Facts

**Dear 2600:** Sorry to jump on this, but I had to reply to the letter written by NeoCzar about switches and codes on arcade games. In short, this is an idiot! I have been working with arcade games since the age of 12 (over 10 years), and own three uprights and more than 20 boards.

I can tell you from experience, no Namco/Midway/Bally games that I have worked on have any kind of (single) switch to put the game into "home use." Arcade games are not designed for "home use," as very few arcade games are used in the home, so there would be no need for this kind of

switch.

The only easily accessible switch in most Namco/Midway/Bally games is the one to put the game into Test Mode. Setting "Free Play" on most arcade games requires getting to the game's PCB and setting the DIP switches, provided you know which ones to set. On others (more modern ones), it can be done from the Test/Configuration Mode, as the settings are stored in some kind of battery-backed CMOS RAM, NVKAM, EEPROM, EAROM. I would like to see this person present a list of "basic arcade games" that can be "hacked" simply by entering codes on the inputs. What is said about SFII is almost correct: SFII does have a code that displays some of the game's stats, but nothing more. Upgrade via the "built in hard drive"? Bullshit! SFII does not have a hard drive in it! It all runs off of the board. (Note that I own three SFII CE Boards!) In fact, I can only think of one game that actually has a hard drive in it, and that is Killer Instinct (or KI 2). You can bet that getting these games into Free Play is a bit harder than NeoCzar suggests!

Granted, there are some games that you can somewhat "hack" without gaining access to the PCB. Tempest allows you to enter the Test Mode, erase stats, get free credits, etc., simply by getting the correct combination of numbers in your score. The Japanese version of Crazy Climber will give you two free credits for entering the correct entry into the High Score Table. But games like that are few and far between.

As for a method of getting free credits, an older friend of mine claims to have had a "gun" that when placed near a coin switch, and the trigger pulled, would "shoot-up" the game.

Most arcade switches work by pulling a signal to ground. Maybe someone out there with a little more electrical/electronic experience could figure this out. Would it be possible, via induction, to cause enough of a voltage shift to make the game think the input went low? These work via TTL, and the change might not have to bring the signal all the way to Ground/Reference.

James R. Twine  
Systems Developer

### Don't Steal Us

Dear 2600:

I started working for a small ISP about four months ago. I work the sales floor in a mall and we carry a few mags. 2600 included. I started reading it just the last issue (Spring '97) and I think it's way cool. The problem is, more than a couple of your readers just rip the thing off and call it even. We're restoring the number of display copies to one, and if they try and steal that, we'll hand em to the over-

zealous security guards and keep 2600 under the counter period. So could you maybe encourage some of your thrill seeking/cheaprate readers to save up some shiny nickels and shell out \$4.50 for it. Considering how interesting your mag is, I'd say they're getting it for a steal anyway.

ISP Sales Snake

*We don't doubt that people like this make stores more reluctant to carry us. And japping people off sure won't advance them very far into the hacker world, despite what the mass media might say. In a bizarre way, these misguided readers are doing exactly what the mainstream wants them to do.*

### Supervised Release Hell

Dear 2600:

On May 3, 1995 I was sentenced to 70 months in federal prison. The judge ordered that upon my release I shall not use the "Internet or any other computer network." I became the first person to be banned from the Internet. Additionally, the judge prohibited me from getting a job as a computer programmer (my hobby since age 9, and my career throughout high school and college). If I violate these conditions, I could be sent back to prison.

Although hacking was a "hobby" of mine for several years, I have never had a hacking-related criminal charge, and my current crime has nothing to do with computers or programming on the Internet. I admit that I have committed undisputed crimes involving theft and sale of telephone equipment (stolen from Southwestern Bell Telephone). And for this I will spend five years in prison as punishment. But banning me from the Internet and from programming computers when I am out of prison is unjust and will not help foster my rehabilitation into society.

So on April 22, 1997, I filed a Federal habeas corpus petition challenging my Internet ban on First Amendment (and other) grounds. I claimed that banning me from the Internet is a free speech violation in light of recent cases like *ACLU v. Reno*, recently in the Supreme Court. The government has been ordered to respond to my petition by July 11, 1997. If I do not win in the district court, I will appeal to the U.S. Court of Appeals and, if necessary, to the United States Supreme Court.

I am writing this letter for two reasons: (1) I need to find an interested lawyer to help me fight my computer restrictions pro bono; and (2) I want to publicize what the government is doing with this absurd "Internet ban" restriction as a Free Speech violation.

While I may be the first person banned from the Net, I won't be the last. Recently I learned through the Freedom of Information Act that the Department of Justice and the Parole Commission plan to add restrictions to ban parolees from the Internet

and to prohibit parolees from using or possessing encryption software (like PGP or even PKZIP since it has an encryption option).

If you are interested in helping, or want more information, please visit [www.paranoid.com/~mtrial](http://www.paranoid.com/~mtrial) on the Web.

Minor Threat

*You can write to Minor Threat by addressing your letters to: Chris Lampech, #61153-080, Houston Unit, PO Box 10110, Bastrop, TX 78602-1010.*

### Cellular Call Trace

Dear 2600:

I can't \*57 calls made from cell phones in the 716 area code! My friends and I have tried to use \*57 on calls made from several different types of cell phones from several different services and none of the calls made from any of them was traceable using \*57. The only thing that \*57 did was give us a recording that said "the last call made to this number cannot be traced this way." Is this common throughout NYNEX or just in certain areas? Also, we noticed that none of the cell phone numbers would appear on our Caller IDs no matter which cell phones were used or what area the call was initiated in. All Caller ID displayed was "out of area." Is this because the cell phones are outside of NYNEX? Will ANI display cell phone numbers?

KOBDALAN

*Not all cellular companies are having CID data passed through the local phone companies. In New York City, this has only started recently. And did we mention that \*57 is a great big ripoff?*

### The Mimick Case

Dear 2600:

In the Spring '97 issue, the article "Enough is

Enough", basically stated that Kevin Mimick has done nothing really wrong to be in jail at all. What the article did not state was that Kevin's apartment in California was searched by the FBI on suspicion of violating probation by hacking. And the California Department of Motor Vehicles also sought Kevin for posing as a law enforcement officer to gain classified information and possibly creating false identities or that he now is charged with many allegations that include theft of many files and documents including 20,000 credit card numbers from Netcom Online Services. Not to mention, what everyone knows, putting files, e-mail, and software belonging to Tsutomu Shimomura.

It's not that I am against Kevin Mimick, but the article seemed to be one-sided and painted a rosy picture that Kevin hasn't done really anything at all.

F. Lavenworth, KS









































*There are a great number of holes in the accusations hurled at Kevin. There are many suspicious elements to the "probation violation" aspect of this that suggest the authorities acted illegally and improperly and that Kevin was never even informed that there was a problem. A lot of what you say is also based on media fabrications that simply are not borne out with facts. And the one thing that is supported by facts - the possession of the credit card file - was soundly proven to be meaningless since we ourselves told everyone that exact file was being passed around all over the Internet and that Netcom did nothing to stop it for six months prior to Kevin's getting a copy. And furthermore, nobody is accusing Kevin of having seen a single one of those credit card numbers. And all of this into the equation and tell us if you think he should be imprisoned without bail or trial for two and a half years. Tell us if he should have gotten this kind of treatment even if he was guilty of everything you mentioned. It seems hard to believe we've become that callous a society.*



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**6.5536 MHZ CRYSTALS** available in these quantities **ONLY**: 5 for \$20, 10 for only \$35, 25 for \$75, 50 for \$125, 100 for \$220, 200 for only

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**CAP'N CRUNCH WHISTLES**. Brand new, only a few left. **THE ORIGINAL WHISTLE** in mint condition, never used. Join the elite few who own this treasure! Once they are gone, that is it - there are no more! Keychain hole for keyring. Identify yourself at meetings, etc. as a 2600 member by dangling your keychain and saying nothing. Cover one hole and get exactly 2600 Hz, cover the other hole and get another frequency. Use both holes to call your dog or dolphin. Also, ideal for telephone remote control devices. Price includes mailing. \$99.95. Not only a collector's item but a **VERY USEFUL** device to carry at all times. Cash or money order only. Mail to: **WHISTLE**, PO. Box 11562 ST. Clt, Missouri 63105.

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**CHARGED WITH A COMPUTER CRIME?** Contact Dorsey Morrow, Jr., Attorney at Law, at (314) 265-6002 or [cyberlaw@ornot.midspring.com](mailto:cyberlaw@ornot.midspring.com). Extensive computer and legal background.

**POC** When you call a cab, do you feel that it is being specifically sent to you by members of the Process? "H, later elongized about the Process, before flandering it to newspaper reporters." Have you spent a large amount of money taking legal action against the Process? Are you under

the impression that God is a member of the Process? You attribute evil powers to the Process. Do you feel that members of the Process are power-lusting megalomaniacs? Would you call the Process *facisz?* (Welcome to the Process.) Do you feel we're laughing at you? Welcome to the Process!

**ANARCHY ONLINE**. A computer bulletin board resource for anarchists, survivalists, adventurers, investigators, researchers, computer hackers, and phone phreaks. Scheduled hacker chat meetings. Encrypted e-mail/file exchange. WWW - <http://anarchy-online.com>. Telnet: [anarchy-online.com](http://anarchy-online.com). Modem: (214) 289-8328.

**FLUID BBS** is a bulletin board system created for conversation. One line. Call and post messages, download OWK packets, etc. No files, no doors (lg's) and no stupid renegade mods. A simple board that you call up to talk to each other and log off. HP/AVC related, somewhat. (303) 460-9632.

**MONTREAL'S/H/P BBS** and home of Hacknowledge zine. Last Territory (514) 565-9754.

**THE DEF CON VOICE BBS SYSTEM** (801) 855-3326 will be moving! The new location will feature NO phantom voice bridges, just 24 lines, and the same Voice BBS, VMIDs, and voice bridge structure. When the change happens the old number will refer you to the new one.

**THE ANSWER IS NO!** You CANNOT take out a classified ad in 2600 if you don't subscribe! You cannot pay us any amount of money to advertise either here or elsewhere in the magazine. So please don't ask - you probably won't even get a reply. If you do subscribe, you are entitled to a free ad in the Marketplace as space and standards permit. Send your ad to: 2600 Marketplace, PO Box 99, Middle Island, NY 11953. Include your address label or photocopy. Deadline for Autumn issue: 8/31/97.

**W**e may think things are bad here in the United States as far as threats to freedom of speech on the Internet go. But the truth is that there are much worse places where things are worse. Sometimes much worse.

In China, even meeting in an Internet cafe can be looked upon as a threat. And it's no wonder with enlightened laws that deter things like "Netlike" organizations nor individuals are allowed to engage in activities at the expense of state security and secrets. They are also forbidden to produce, retrieve, duplicate, or spread information that may hinder public order. Don't expect a flurry of 2600 meetings in China anytime soon.

Germany, however, does have 2600 meetings. And it claims to be part of the Western world. We're beginning to think they may be trying to gain admission into the deep South. The head of Compuser's German subsidiary was recently indicted for helping to distribute child pornography and violent computer games, by not doing enough to block offensive material. An individual was charged more recently with maintaining a link on her web page to a leftist newspaper in Holland. This is a country where people who access "violent" games like Quake are punished. Apparently the German government sees the Internet as a threat to their society. The Internet community is beginning to look upon the German government in the same way.

You can bet that the Exons, Helms, and even Clinton of our nation are looking at the situations in these two countries with great interest. And they're taking lots of notes.

As the net continues to grow, it was inevitable that existing top level domains would become inefficient. There is talk of expanding them to include things like .am (for business), .sew (for place to buy things), .web (for WWW-related activities), .art (for cultural and entertainment exp), .gov (for national activities), .info (for information service providers), and .com (for individuals). We're sure we have many more suggestions for a potential domain (eg. .golf, .beer, .snoopy).

But this is only part of the story. The more efficient of the net is the more interesting, and many people think this is the case. However, there are generally only one requirement for the expansion, and one domain as of April 1999 there will be a more complete anonymous anyone who can afford the \$10,000 application fee and demonstrate financial stability and net access can apply to become a registrar and register domain names all around the world. Customers will be able to keep their domain names if they switch registrars. The deadline to apply is October 16, 1997 and the form can be found at <http://www.gid-nou.org>. If you don't have net access and can't get to that site, why in the world would

you want to become a registrar in the first place? Incidentally, in the sucker of the century department, the domain business.com recently was bought for the cost of \$150,000!

International toll-free numbers are now a reality. It works like this: 800 is the country code and the number itself is eight digits in length. So to reach an international toll free number from the United States and Canada, you would dial 011-800-XXXX-XXXX. From Europe it would be 00-800-XXXX-XXXX. We will let you know if we find any of these magic numbers, and what kind of call accounting records are kept.

America Online strikes again. Word leaked out that AOL was planning on selling their customer data to telemarketers. The way they did it was particularly sneaky. Instead of mailing their eight million subscribers, they simply updated their Terms of Service without saying anything. Customers weren't too thrilled about this little maneuver and as a result, AOL cancelled plans to release their subscribers phone numbers only days after making the decision.

Cyber Promotions is undoubtedly one of the most hated organizations on the internet. Why? Read this little pitch that these sleazebags use to con other sleazebags into sending them \$1,000: "Cyber Promotions is now presenting three new technologies that will only work properly if used all together. The first technology can change the message ID before your email leaves your computer! The second technology allows you to send over 10,000 emails an hour - with a single computer and modem - without stealing other peoples' resources, and the third technology will help you send messages through Cyber Promotions' own proprietary high-speed relay network. Without identifying the domains more or IP addresses of the recipient, the mail goes right at lightning fast speed, from your own local dialup account without the risks of account termination.

Basically, they are forging email addresses so people can't reply to the sender with dark threats and spectacular threats justice. But any good hacker can get to the root of the problem one way or another. In May, cybepromo.com was hit by a relentless mail bomb campaign if only for a little while. It worked rather well although Cyber Promo claims it had little effect. In another action, one of the Cyber Promos machines was accessed and a list of customers, i.e. people who themselves are involved in unsolicited mailings on the net, was widely circulated.

Organizations like Cyber Promotions have practically destroyed the effectiveness of usenet and now they are clogging up individual user mailboxes with

unsolicited junk. The last thing we need are more laws designed to regulate the net. So the most effective way of dealing with people like these is to use the power of the net in a positive way. If someone makes the first strike, you are entitled to do what is necessary to get them to stop. Since, by forging their headers, they have made it impossible to be asked politely to stop, cutting it off at the source is the only action left. In addition, we as individuals can commit ourselves to wasting as much of these losers' time as possible. That means expressing an interest in whatever product they happen to be peddling and getting them to believe that you're really interested. At some point they will become vulnerable to your fall wrath. If enough of us do this, this problem will go away once and for all because of the massive amounts of money being lost.

In one of the funniest ads we've seen, in quite a while, KASPERC has been promoting GPS vehicle location that can attach to car phones as apparent safety devices: "Track yourself - or someone you love." "You'll never worry about Johnny on Saturday night!" We all know the scariest thing about new technology has always been the danger of parents figuring out how to use it. You can see what this is all about at [www.watvcomp.com/dadcomp](http://www.watvcomp.com/dadcomp).

E-ZPass is the latest system in use in New York for cars going through tolls. It sits on the inside of your windshield, receives a signal at the tollbooth, and "beeps" back a response that will then open the gate and charge your account. There are two different systems and they each have their own 800 number: 800-222-TOLL for the New York Thruway system and 800-333-TOLL for the New York City area. The two systems are still not connected to each other but one system is already being voiced over the potentials for tracking drivers. Records are obviously kept of what bridges and tunnels you drove through and when. Only a fool would think that this information wouldn't be handed over to law enforcement in a second. But there is at least one thing that seems to surprise most people. On the New York State Thruway, drivers are getting speeding tickets because of their E-ZPasses. And it's not because of a simple calculation between two toll points - that method has been used for years with the toll card system. Now it seems that they've installed secret detectors at certain points on the highway that exist for no other purpose but to calculate your speed and send a ticket to the address that your E-ZPass is registered to if you happen to be speeding. We should point out that the system is totally voluntary and, if you're interested in getting a couple of these units and maybe ripping one apart to see how it works, it's easy to accomplish by going through one of the above numbers.

In New Delhi, GSM phones are turning out to be as open to abuse as their more primitive cousins. This scary excerpt comes from the *New Delhi Statesman*: "In a gross invasion of the law and the citizen's right to privacy, the government is forcing private cellular telephone companies to provide the infrastructure to tap cellular phones.

"Cellular phone owners, confident that their phones have the latest automatically encrypted GSM technology, are blissfully unaware of the tapping.

"The cellular phone operator is also forced to maintain confidentiality of the names given to it by the authorities.

"Since the conversation is automatically encrypted, normal monitoring is not possible. Calls cannot be intercepted except after they have been decrypted at the switching centre. [Law enforcement] takes a line from the switching centre and then with the help of cables the call is taken to the nearest Maharashtra Telephone Network Limited exchange after which it goes to the secret central monitoring station in Mumbai.

"Another method to snare victims of the process involves a junior level official being sent to the switching centre with a tape recorder and a list of names to be monitored. He then simply taps the calls. Most private companies are too scared to object and do not even ask for the mandatory authorization.

"According to a Supreme Court order on the telephone tapping issue, phones can only be tapped on the specific authorization of the Union home secretary. In this case the Department of Telecom, in blatant disregard of the law laid down by the court, has forced the operators to agree to carry out tapping on the authorization of any government official."

The lesson to be learned here is simple. We can put in all the encryption we want but as long as government has the potential to work around that, this is exactly what will happen. There's no reason to believe anything will be any different here.

It now seems almost certain that Bell Atlantic will be replacing NYNEX as the local phone company in the Northeast. This comes as the merger between the two telecommunications giants somehow won approval from all of the regulatory bodies who really should have known better. Earlier, two other Baby Bells also merged: SWB and Pacific Telesis. And for a brief while, there was talk of that huge entity merging with none other than AT&T! That hasn't been merely short-lived but don't be surprised to see more mega-mergers.

It seems almost as if the great breakup of 1984 was little more than a trial separation. If we can stretch the analogy to make telco customers the children of this marriage, we had better start looking for a foster home.

Congratulations are in order for the city of San Francisco. They've managed to scare away drug dealers by ingeniously removing pay phones! "If looks like it could become a very important tool," says Chief Assistant District Attorney Richard Light. The concern was for the safety of people trying to make phone calls while all the drug dealers were milling about. Now they will have to walk to another street where all of the drug dealers have moved.

NYNEX has also made some changes to their payphones, specifically those annoying yellow prepaid card phones that didn't take coins or incoming calls and had a ten minute limit on all calls. In short, they're history. The NYNEX Change Cards, modeled after European phone systems, just never caught on. Restrictive phones are always a pain in the ass and we're glad to see these yellow things off the streets. But the new silver phones that are replacing them and the remaining coin phones are hardly much better. These "smart" phones cut off your touch tones shortly after connecting you to a number. Just like a COCOT! An annoying synthesized voice comes on after a total of around 20 digits are dialed and says, "No additional dialing allowed." Why this is needed is beyond us. Has NYNEX never heard of remote answering machines or voice mail? It doesn't matter if you dial direct, use a calling card, or call an 800 number. NYNEX will cut you off just the same. Apart from making people use NYNEX phones a lot less, this stupidity will get many people to journey to Radio Shack and buy more tone dialers.

One of Clinton's latest ideas is to have a three digit number for non-emergency police calls. That number will be 311, according to the Federal Communications Commission, in honor of the Chief Executive's favorite brand. Meanwhile NYNEX has replaced its easy to remember 611 repair service with 899-6611 allegedly because of local competition - having a three digit number constitutes an unfair advantage in the marketplace.

Those of you who think you're safe by dialing \*67 to block your number had better think again. Omnipoint, a new GSM provider in the New York area as well as other parts of the country, has an undocumented way of getting around those pesky Caller ID restrictions. If you call someone with an Omnipoint phone, your Caller ID data will be displayed on their phone. If you have blocking enabled, they won't see your number. But, if the person doesn't answer and the call goes to their voicemail, ANI is recorded onto the tin-die stamp. In other words, calling Omnipoint can be just like calling an 800, 888, or 900 number. Except you may not know when you're calling an Omnipoint phone. In New York City, they have bought the 917-770, 917-774, 917-

813 and 917-945 exchanges. Since all cellular/GSM City, you can just add 917 to the area codes not to call if you want to keep your privacy. But other parts of the country are a different story. In 516, for instance, if you don't know that the 516-512 exchange is Omnipoint, you could be in for a surprise.

In a revelation that startled the hell out of a lot of people, AT&T has been offering customers a dime a minute rate around the clock. The word thing is that they haven't been telling anyone about this rate, which is designed to compete with Sprint's dime a minute plan on nights and weekends. They only give it to those customers smart enough to ask for it. AT&T has gone on record as saying the best deal is to those who haggle best. We hear rumors of a nickel a minute deal....

Earlier this year, three teenage computer hackers in Croatia were reported to have broken Pentagon protection codes and gained access to highly classified files from military bases in the United States. The Pentagon angrily denied this saying that such a thing wouldn't be possible. Nevertheless, the U.S. Defense Department had contacted Croatian police through Interpol to demand an investigation while local police searched the youngsters. This and confiscated their computer equipment.

The sites that were compromised allegedly included the Addressbook, nuclear intelligence and an unnamed satellite research center. After the news broke, local reporters flocked to the high school in the Adriatic port of Zadar where the three teenagers, aged 15 and 16, specialize in mathematics and computer science.

Assistant Interior Minister Zeljko Sostar told state radio the incident had broken the U.S. Defense Ministry system of their base on Gornji and several other bases. In a way, they almost seem proud of these kids. Police here said that, while they were investigating any possible motives the hackers might have had, they would not be prosecuted because they were minors. And Zdravko Curko, principal of the Zadar high school that the three hackers attend, said they had no criminal intent and their feat was a compliment to their education. Such an enlightened outlook is something we could learn a lot from over here in paratroia land.

There's hardly a day that goes by where we aren't subjected to some new phone company, offering astronomically low rates for phone calls if we only use their carrier access code before dialing. They almost never want us to sign up as customers - they just want us to dial the first digit code first. We've been asked many times if these companies are rip-offs. We've looked into a few of them and invariably, there's a

catch of some sort that makes the offer not as good as it sounds.

103502 is Talk Cents and they offer an "unlimited 9 cents per minute" rate. But there's a \$4.95 charge which may catch some people by surprise. Even if you only make one phone call on Talk Cents and stay on for one minute, that call will cost you \$5.04. If you are always making calls on this system, it could pay off, even with the fee. But undoubtedly this fee from everyone who dials the code is helping this company stay afloat.

10297 is the Long Distance Wholesale Club. There are no fees or minimum number of calls. It looks pretty good on the surface. But the one thing they don't tell you is how much you're actually paying. All they keep saying is that you will save 15 to 50 percent on every call. That's a pretty wide range and it's bound to change radically depending on the calling plan you happen to be on. The truth is there's no guarantee you'll save anything and it's awfully hard to know for sure when the numbers just aren't there.

10811 is the Dime Line. Only 10 cents a minute, anyone. This is one of the worst ones around. Not only do they charge you \$5.00 a month but all calls have a three minute minimum! That means you will never spend just 10 cents on the Dime Line. It will always be at least 30 cents, even if you only stay on for three seconds. That's far worse than most companies.

Finally, 10457 is Dial & Save. This one is almost exactly the same as the Long Distance Wholesale Club. Except they'll only save you 25 percent. And again, no mention of the actual rates.

Every one of these companies sent us stickers to put on all our phones. The stickers never said anything about extra charges, minimums, or vague rates. We suspect many people are just dialing without thinking. And phone companies love that.

The Federal Communications Commission is on the verge of some more. In a memorandum dated February 13, 1997, they state angrily:

"It has come to our attention that entities are offering to modify scanning receivers (scanners) in order to receive frequencies allocated to the Domestic Public Cellular Radio Telecommunications Service. Such modifications are not permitted under Federal law and the Commission's rules."

See, first they made it illegal to listen to cellular frequencies back in 1986. Then, in April of 1993, they prohibited the manufacture and importation of scanners capable of receiving or being easily modified to receive those frequencies. Now, not being able to prevent people from figuring it out anyway, they're really pissed off. "The modification of scanners on a substantial scale to receive cellular frequencies will be considered to constitute manufacture of such equipment in violation of FCC Rules. Entities en-

gaged in such activity are cautioned to cease advertising and/or performing any such activity immediately."

So modifying a radio can get you up to \$75,000 in fines if you're visible enough. Encrypting the conversation in the first place would make all of this unnecessary. But then, how would the government listen in?

But it gets even worse. Our old friend in Congress, Edward Markey (D-MA) has introduced H.R. 1964 which would expand the prohibited frequencies to include "Commercial Mobile Radio Service." "Decoders that convert digital commercial mobile transmissions to analog voice audio" will also be banned on radios.

Commercial Mobile Radio Service (CMRS) has been redefined to include private paging services, Business Radio Service Systems, Specialized Mobile Radio, and Radiotelephone services, as well as the new Personal Communications Services (PCS). So what frequencies could Markey's latest little gem restrict? Private Carrier Paging Systems (PCPS) can be found at 929-930, 931-932 MHz. Business Radio Services are at 3076-3124, 3314-3316, 3340, 3502-3514, 3518, 357-3572, 3588-3598, 4296-4300 MHz. 151.625-151.955, 154.570-154.600 MHz, and 457.525-457.600, 460.650-462.1875, 465.650-467.1875, 467.750-469.925, 467.750-467.925, 463.200-465.000, 468.200-470.000 MHz. A number of frequencies between 470 and 512 MHz would also be removed. Specialized Mobile Radio (SMR) services are found at 851-866 (806-821 MHz), 935-940 (896-901 MHz). Land Mobile Services are in the 220-222 MHz region. Public Mobile Services include Paging and Radiotelephone Services (35.2-35.66, 43.2-43.66 MHz, 152.030-152.240, 152.480-152.840 MHz, 154.625, 157.740-158.100, 158.460-159.700 MHz). Cellular Radiotelephone Service from 869-894 MHz (824-849 MHz mobile), 454 MHz Air-Ground Radiotelephone Service from 454-455 MHz (459-460 MHz mobile), 800 MHz Air-Ground Radiotelephone Service from 894-896 MHz (849-851 MHz mobile), Offshore Radiotelephone Services (157.200-157.400, 161.800-162.000 MHz, AMTS 216-220 MHz). Satellite Mobile Services from 137-138 MHz NVNG (148-150.050 uplinks), 399.9-400.050, 1525-1529, 1610-1660.5 MHz, and Personal Communications Services (PCS) at 901-902, 930-931, 940-941, 1850-1990 MHz.

So all of these frequencies are on the verge of also becoming illegal to listen to. It really was inevitable. Once you allow one small part of the spectrum to be off limits, there's no telling where it will end, if it ever will. One thing is for certain. If this crazy Markey bill becomes law, scanning as we know it will be hopelessly crippled.

# 2600 Meetings

- NORTH AMERICA**
- Aaron, OH**  
Cater Gargay @ Lion on the corner of East Es- change and Union near Akron University.
  - Albuquerque, NM**  
Winnex Hall food court near payphones on the corner of Broadway and 2nd Street SW. Pay- phones: (505) 763-9111, 763-9135.
  - Anchorage, AK**  
Diamond Center food court, smoking section, near payphones.
  - Ann Arbor, MI**  
Gables on South University.
  - Atlanta**  
Lanier Hall food court.
  - Baltimore**  
Baltimore Inner Harbor, Harborplace food court. Ser- vice food, across from the Ketchikaner. Payphone: (410) 547-9341.
  - Baton Rouge, LA**  
In the LSU Union Building, between the Tiger Plaza and Jamboree Ice Cream, next to the payphone.
  - Bloomington, MN**  
Hall of America, north side food court, across from Burger King and the bank of payphones that don't take incoming calls.
  - Boise, ID**  
(See payphone at 207) Downtown.
  - Buffalo**  
Professional Center Plaza, 1st floor. Food court. Pay- phones: (415) 234-6581, 4583, 4584, 4585. Try to bypass the corner.
  - Charlotte, NC**  
South Park Mall, near payphones.
  - Chicago**  
3rd East Cafe, 1248 North Dearborn.
  - Cincinnati**  
Kremwood Town Center, food court.
  - Cleveland**  
Century Anchor, Cleveland Heights, back room smoking section.
  - Columbus, SC**  
Richland Fashion Mall, 2nd level, food court. By the payphones in the smoking section. 4 pm.
  - Columbus, OH**  
Columbus Center, lower level, near the payphones.
  - Dallas**  
Menas Plaza, northeast corner of Campbell Rd and Preston Rd. in North Dallas, first floor of the two-story shopping section. 7 pm. Payphone: (214) 971-3858.
  - Houston**  
Food court under the stairs in Galleria 2, next to McDonald's.
  - Kansas City**  
Food court at the Oak Park Mall in Overland Park, Kansas.
  - Los Angeles**  
Union Station, corner of Hope & Alameda, lower main entrance by bank of payphones. Payphone: (213) 973-9719, 9736, 625-9912, 9912.
  - Louisville, KY**  
The Mall at Meadowood, food court.
  - Madison, WI**  
Wilson South (227) 2 South St) in the main level.
  - Washington DC**  
Ritz-Carlton City Hall in the food court.
  - AUSTRIA/EUROPE/ASIA, SOUTH AMERICA**
  - Aberdeen, Scotland**  
Outside Marks & Spencer, next to the Georgian Transport Hotel.
  - Adelaide, Australia**  
Quade Cafe, corner of King and Gurnea, on the corner of Armstrong Street.
  - At the Gymnasium at the payphone closest to the cathedral.**
  - Belo Horizonte, Brazil**  
Rafael's Bar at building near the payphone. 4 pm. In the bar at 2pm per day.
  - Buenos Aires, Argentina**  
Buenos Aires, Argentina.
  - Chennai, India**  
Rafael's Bar at building near the payphone. 4 pm. In the bar at 2pm per day.
  - Granada, Spain**  
Carmen's Granada in Plaza Inman near the Campus de Granada.
  - Hamburg, Germany**  
At the end of the hallway (the hallway is the right of the library (the library is the payphone). In the Old City there, past the University of Hall 7 pm.
  - London, England**  
Trocadero Shopping Center (near Piccadilly Circus) next to the payphone. 7 pm.
  - London, England**  
Opera House, London. Cafe on Oxford Rd, next to St. Pe- ter's Church.
  - Melbourne, Australia**  
Melbourne Grand Shopping Centre at the Swanton Street entrance near the public payphone.
  - Moscow, Russia**  
Burger Queen cafe near MVD/MI (telephone agency of Russian Ministry of Internal Affairs) - 800 km from Moscow.
  - Munich, Germany**  
Hauptbahnhof (Central Station), first floor, by Burger King and the payphones. (One stop on the S-Bahn from Hauptbahnhof - Hauptbahnhof) Banknote of Deutsche Mark. Payphone: +49-89-591-4315, +49-89-538-941, 541, 541, 744, 545.
  - New Delhi, India**  
PVR Cinema Complex, near the main 5th floor show- room.
  - Paris, France**  
Place Foch III, in front of the Grand Canal. Ca- feteria, 4-7 pm.
  - Rio de Janeiro, Brazil**  
Rio de Janeiro Shopping Center, in the Old Night Club building. Payphone: (51) 442-5843, 4441. Bypass the cor- ner.
  - San Francisco**  
4 Embarcadero Plaza (under payphone: (415) 398- 4888, 3984, 3985, 3986).
  - Seattle, WA**  
Westinghouse Sun Convention Center, first floor.
  - St. Louis**  
Empire Mall, by Burger King.
  - St. Paul, MN**  
Pratic Center food bar, see list down from street level by payphones, 4 pm to 9 pm.

2600 Meetings, 2600 shirts, and 2600 consumables are available in the 2600 Store. The 2600 Store is located at 2600 26th Street, Suite 2600, San Francisco, CA 94118. For more information, call (415) 260-2600.

# Consumables

- 2600 Shirts**
- The new 2600 shirts have arrived!
- Version 1 has a nifty hacker headline on the front and the latest headlines from the hacker world on the back.
- Version 2 is only for those of you into cryptography. Others are prohibited from owning this shirt. Do not wear this around children or senators.
- This is your LAST CHANCE to get the old 2600 shirts (blue box and Michelangelo virus) because once this batch is gone, it's all over. We have been things to do than keep four different kinds of shirts in stock.
- All shirts are printed on high quality, 100% cotton. Available in L, XL, and XXL. \$15 each or two for \$26.
- New Stuff**
- And you knew THIS was bound to happen eventually. Yes, 2600 caps, suitable for raving, are finally out. Despite the wide disparity of heads, we're assured that this one can be adjusted to fit. Those of you who went on a different evolutionary route may have problems.
- Off The Hook**
- After many years, we've finally gotten off our asses and put together a collection of the
- hacker radio show "Off The Hook" so that people outside the New York metro area can join the fun! And we're doing it at a price that is almost as cheap as turning on your radio. Each CD-ROM holds nearly 100 hours of audio. All you need is a computer with a CD-ROM drive and browser software (available for free on the net) and a realaudio player (also available for free from www.realaudio.com). You do NOT need net access to play these files! And you can still download our shows one by one off our web site for free!**
- 10/88-12/91 \$20
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