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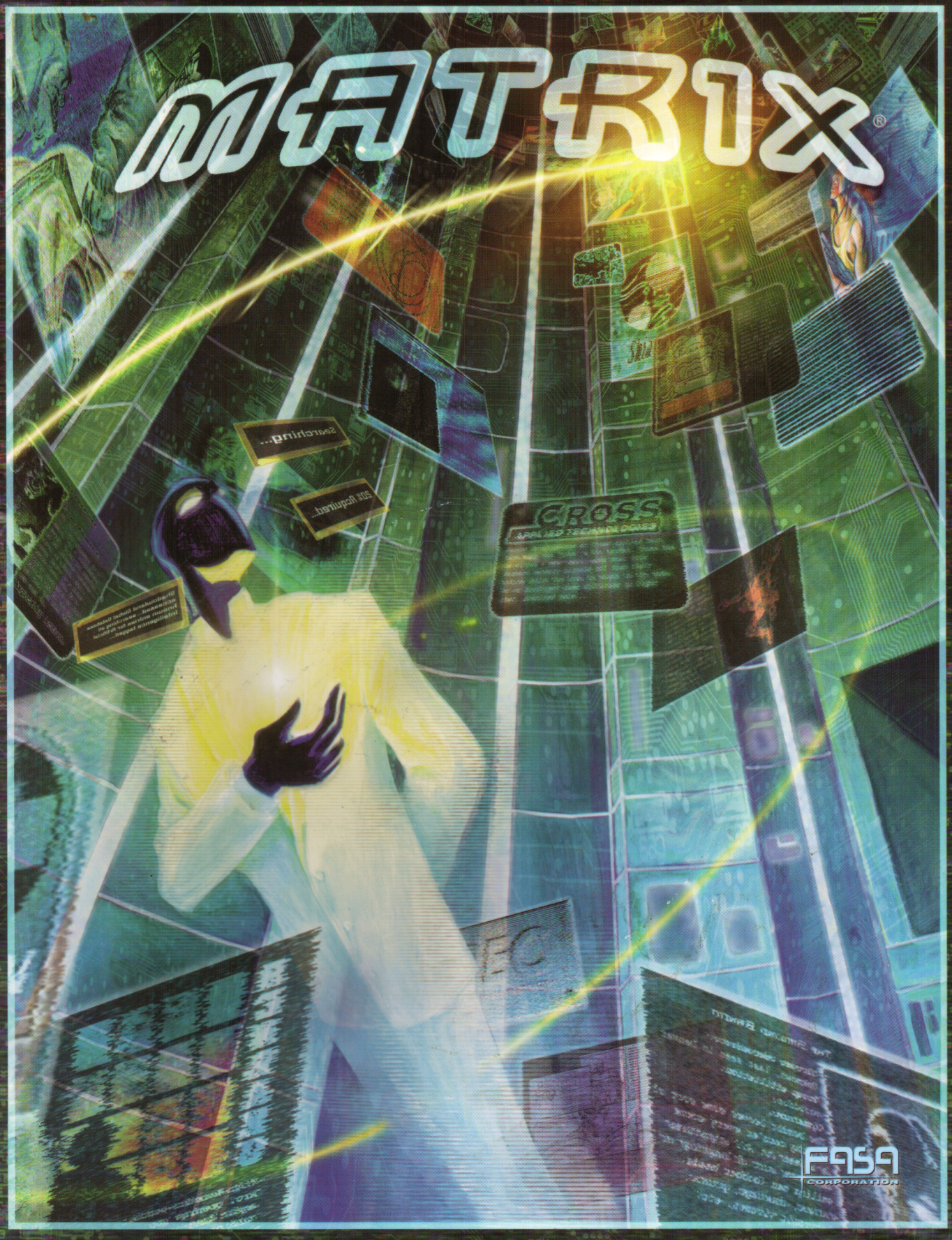
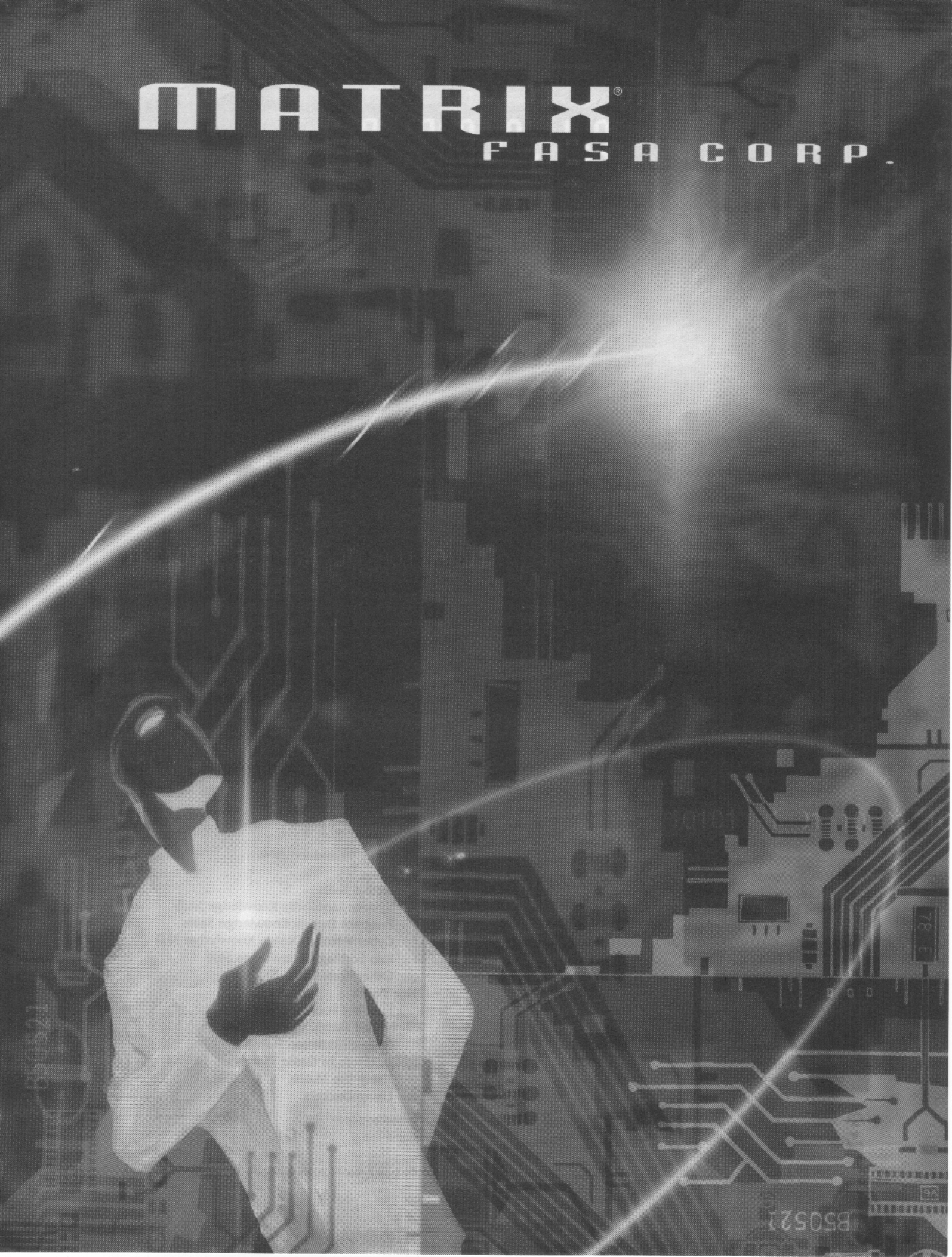


MATRIX®

FASA CORP.



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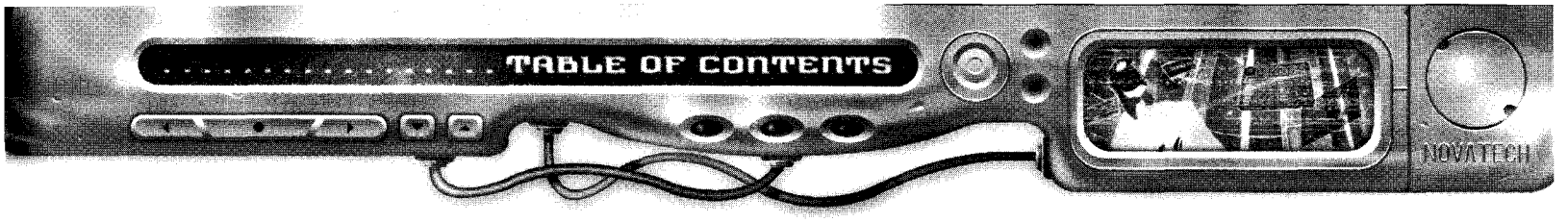

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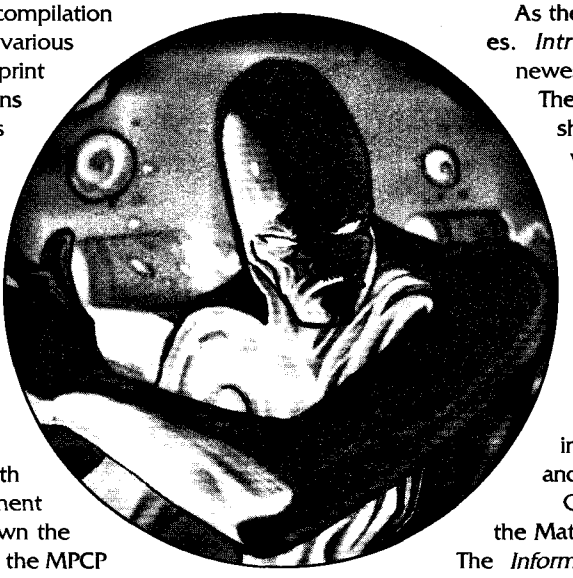
INTRODUCTION

The Matrix is the advanced book for deckers and other users of the Matrix, and is full of options and expansions for the *Shadowrun* game system. *The Matrix* expands on the decking and Matrix rules that are presented in *Shadowrun, Third Edition* (*SR3*). It also offers an entirely new take on what non-deckers can do using the Matrix—including basic and advanced information searches.

In addition to containing a significant percentage of new material, *The Matrix* represents a compilation of material originally published in various *Shadowrun* books that are now out of print or that were based on previous editions of the *Shadowrun* rules. This includes material from *Virtual Realties, Virtual Realities 2.0, Renraku Arcology: Shutdown, Brainscan, Shadowbeat, Neo-Anarchist's Guide to Real Life* and *Denver.* Any references in this book to the *Shadowrun* rules refers to *SR3.*



The Matrix begins with *The Matrix World,* where we present how the Matrix factors into everyday life, as well as its history.

The Computer Interface deals with the cyberterminal, the machine element of Matrix use. This chapter breaks down the cyberterminal and its properties, from the MPCP to reality filters to Response Increase.

All of the attributes, skills, edges, flaws and dice pools important to a Matrix-using character, whether a decker or a non-decker, are discussed in *The Matrix User.* This chapter also includes new active and knowledge skills, a new Matrix Addiction Flaw and ways that Matrix users can be incorporated into game play.

Accessing the Matrix goes over the various ways to get online, from illegal jackpoints to wireless links. It also covers the accounts and passcodes Matrix users use to get online, and all the ways deckers access the Matrix illegally. Tortoise mode, visibility and sensors and iconography are also presented.

Grids and Hosts covers the architecture of the Matrix, from its technical aspects to the ways it is used. Satellite constellations, ultraviolet hosts and paydata are also detailed.

Cyberterminal Construction breaks down how to modify or create from scratch a cyberterminal or cyberdeck. Rules for upgrading, hardwiring and customizing a deck are included, as are rules for cyberlimb and cranial cyberterminal construction.

Utilities are the programs used to operate, attack and defend in the Matrix. This chapter includes a host of new utilities as well as advanced rules for utilities presented in *SR3.*

Programming provides all the information a player needs to create a program, including utilities, command sets and frames and agents (programs that have a degree of independence from the user). Options that modify how a program functions are also detailed for both utilities and intrusion countermeasures.

System Operations are how Matrix users take action in the Matrix. New operations are presented here, as well as advanced rules for operations presented in *SR3.*

As the deckers get better, so do the defenses. *Intrusion Countermeasures* covers the newest IC and options for dealing with it. The *Matrix Security* chapter that follows shows how to use this IC in a system, with an in-depth breakdown of the security sheaf and random-generation tables for IC. Also included are special rules for grid security and host shutdowns.

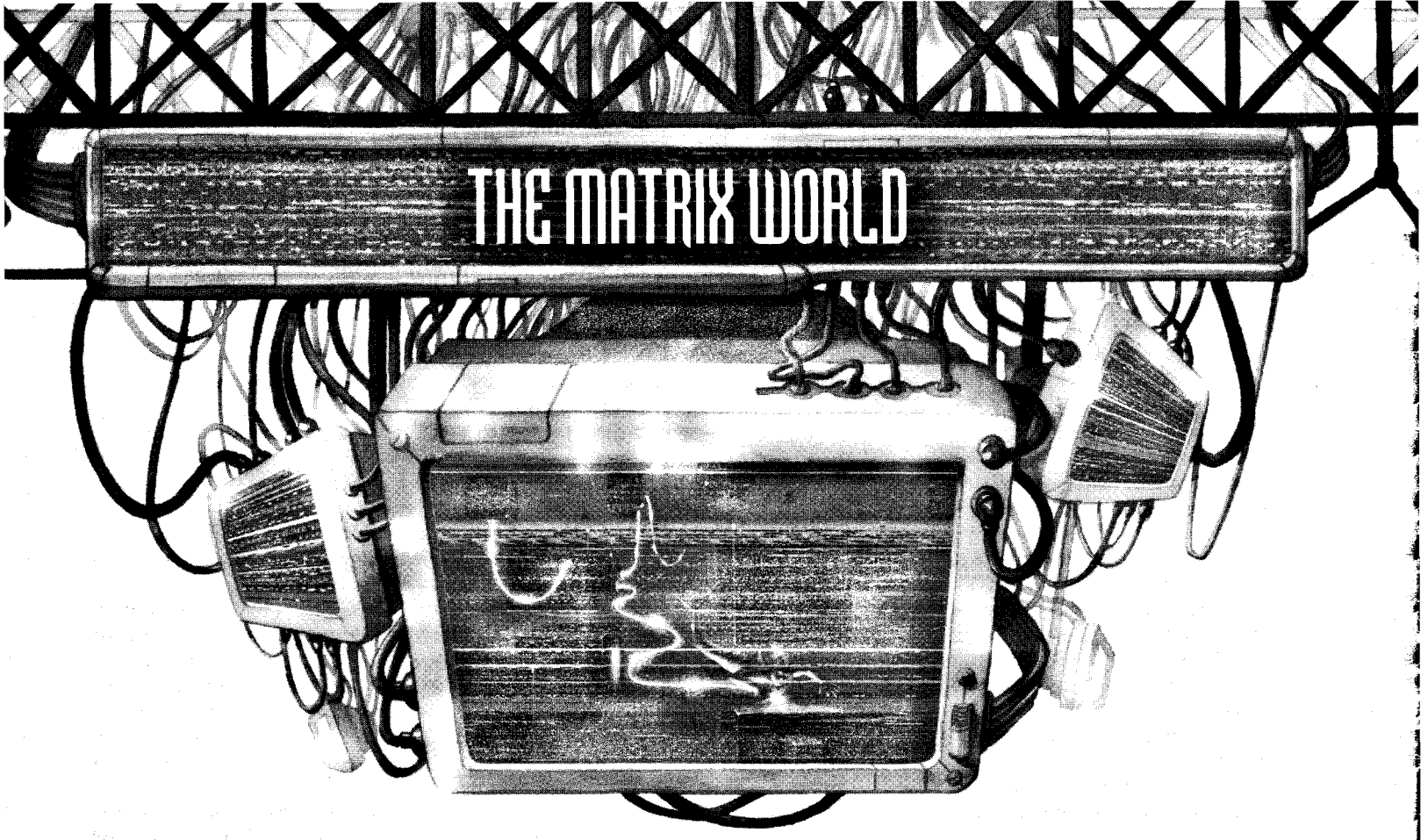
System Tricks takes it all a step further, showing what grids, hosts and deckers can do to stay ahead of the competition—from comcall traces, chokepoints and virtual machines to improvised attacks, rerouting comcalls and spoofing frame commands.

One of the most underused aspects of the Matrix is the ability to gather information. The *Information Searches* chapter shows how deckers and non-decker Matrix users can take advantage of this facet of the Matrix, including using Matrix contacts and searching databases and archives, using either Etiquette (Matrix) or Computer skill.

The chapter on the *Otaku* brings this player character type up to date, using the rules for *SR3. Autonomous Programs* breaks down the powerful Matrix entities that may or may not actually be alive: knowbots and artificial intelligences. Updated information on the three AIs known in the world of *Shadowrun* is included.

Finally, all the grid providers, deckmakers, Matrix-security experts, gridhounds and other power players are given their due in the chapter *Matrix Players.*

A number of useful tables are also included in the back, breaking down all of the gear, operations, utilities and IC. Record sheets are also included for a character's cyberdeck and programs, an otaku's living persona and abilities, or a character's frame or sprite.



The Matrix is the infrastructure. It's what's behind the "interface." It is literally everywhere, runs everything, and yet for all of that, it's as close as anything comes to being invisible without being magically active first.

People don't think about the powergrid and how it works when they plug in a hair dryer or drive their car to work, they just use it. It's the same with the Matrix: they make phone calls, send email, ask their car for directions and perform a million other little tasks, never thinking about how the connections are made and data is transferred. There is almost no place on the planet that isn't connected to someplace else via the Matrix: from phone calls to videoconferencing, credstick transfers to security systems —any time information moves anywhere in the world, it does so over the Matrix. *The Matrix World* describes how that seamless integration has changed life in 2061.

COMMUNICATION

LIFE AT THE SPEED OF LIGHT

By the late 1990s, electronic devices such as pagers and cell phones had already moved down from the ranks of the tech-elite into the pockets and belt-loops of the busy middle class. Everyone from salesmen working out of their cars to working parents trying to juggle grocery shopping and picking up high schoolers from late-running track practice took advantage of the convenience they offered. It only took a little cultural adjustment for that convenience to become a mandatory condition. "Phone numbers" became associated with people instead of addresses, and combined with email to derive one do-it-all number with 24-hour access to anyone you want to talk with (see p. 35, *Matrix Services*, for more information). As people got used to that state of constant "connectedness," they began demanding more information in a timelier manner, and the marketing gurus responded. In 2061, there are pagers the size of a credstick that let you read—or listen to—everything from email to headline news, as well as wristphones that you wear instead of a watch. Both receive their data via the Matrix.

Any home in 2061 that can boast of even a modest income can also boast of some form of cyberterminal. The cyberterminal takes care of the computing needs of the


P.PRESCOTT

household, as well as any form of communication: television/trideo, email, phone and simsense. To put it in technical terms, the cyberterminal serves as the portal for all data transfer to and from the home, from all different sources: your simsense channel provider, your phone company, your messaging service—all converge on this one box in your living room. Depending on what subscriptions you have (p. 35), you can even do library research and visit other public sites (such as online malls and corporate ad-space) through friendly icon-based menus. The broadcast and simsense stations send their signal over the Matrix to those telecom boxes whose hardware addresses show up in their subscription database. The phone companies use the Matrix, too.

The Matrix is even available from the road. Let's say a car has a flat tire. A call for "roadside assistance" goes out from the vehicle through a satellite uplink, along with its location and a brief description of the problem, to the processing host of the auto service with which the person has an account. The nearest tow truck is dispatched, along with a notation that it would be worth several customer service points (because the driver is diabetic and it will have been two hours by the time he gets there in traffic) if the driver brings a *Soyspree* energy bar with him. Today we do this sort of thing by phone and radio using a real, live operator, but in the Sixth World, all this is transmitted directly to the wireless terminal mounted in the dash of the tow truck nearest you. Most importantly, once the car is up and running again, the power-utility company uses the Matrix to transmit the data that the car generates regarding its power consumption, so that the owner's monthly bill can be updated appropriately.

PLEASE LEAVE A MESSAGE AT THE BEEP

There are as many different ways to trade information in the 2060s as there ever were, if not more. Time and technology have served to make some of them seem very different from how we use them today. The following list is a few of the common methods used to "reach out and touch someone" in 2061.

Phone Calls

In 2061, a phone call is generally understood to be any real-time communication, whether by video/trideo or voice. It's still called a phone call, even though the actual event is only distantly related to what we consider a phone call today. Voice-only calls are still more common than trideo calls, primarily due to concerns about anonymity and privacy. While adding a visual component might not seem like much, how many people really want to answer a visually-enhanced phone call early on a Sunday morning, especially if the previous night wasn't too kind? Some higher-level executives have avoided the problem of wanting to be heard and not seen by purchasing lifelike Matrix-based personas that stand in for an actual image.

Faxes

Faxes are still around, though their use is much more limited. The paper trail required for legal documents at the beginning of the twenty-first century has been completely replaced with an electron trail, so the legal issues that required faxing are no longer a factor. Faxes are normally used for sending copies of something that doesn't have an electronic form, such as historical documents or handwritten notes.

Email

Email is the primary method of sending information from one person to another, whether text, trideo or audio. For legal purposes, electronic signatures, verified by credstick information, are legally binding, so contracts are almost entirely handled through email. Email scams in the Sixth World take advantage of this fact, so consumers are careful about responding to unsolicited offers.

Message Boards

Message boards are used to conduct conversations that occur at the speed and convenience of the participants. The modern message board doesn't resemble its twentieth century ancestors very much, but the concepts are still similar. Message boards can hold text, digital music, trideo, simsense and so on. They are commonly found throughout the Matrix, generally appearing as kiosk and newspaper-stand icons in public areas.

Web Pages and Chat Rooms

In the twentieth and early twenty-first century, "web" pages were used as a primary means to distribute information across the Internet and the World Wide Web. In 2061, the idea has evolved considerably, driven by the advance of iconography on the Matrix. Now what used to be a corporate web site will be a public-access area on the corp's host. If it's a personal site, the individual has a "room" on his Matrix Service Provider's (MSP) host (p. 36) where they can make personal information available by "decorating" their space however they see fit.

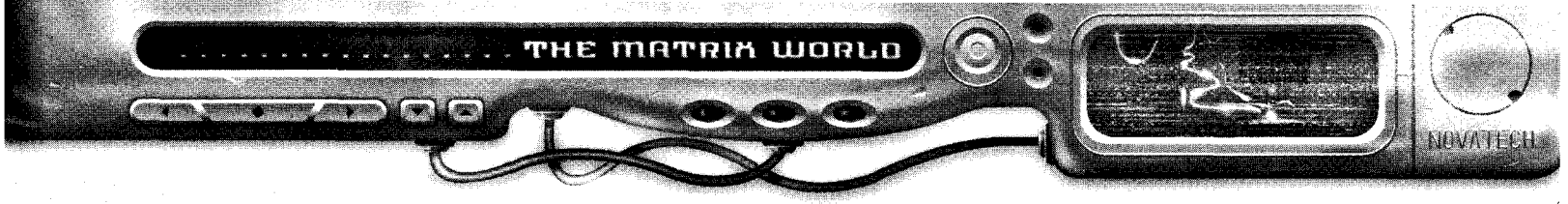
Chat rooms are much the same, except that the "room" in question is devoted to conversation. A chat room has gone from being a limited text-based interchange, as it was in the twentieth century, to being a fully interactive immersive 3-D experience, especially considering the current simsense technologies. There are both public and private chat rooms and the content of each type varies, though there is usually some theme involved.

Instant Messaging and Paging

In a Matrix-connected world, people are usually available to some degree at any time of the day or night. Because of this, instant messaging and paging have blurred together. A message which is sent to the user appears as an instant message if they're logged onto the Matrix and pages them if they aren't. Of course, the user can turn their messaging and paging features off, but most people just accept communications as they come.

THE WIRED LIFE

In 2061, the Matrix isn't just something you look at occasionally. It makes sure the lighting in your living room is just at the level you prefer. It's the reminder in your pocket secretary that there's a special on pink roses for your date that you should take advantage of, because she doesn't like red ones.



There is almost no period of time, day or night, when the Matrix is not in use in some way in the major metropolitan areas. In your home, car, or office; whenever you carry a cellphone, wristphone, pager, pocket secretary or any other device that transmits or receives data; whenever you go out and watch the latest concert on live trid-feed at your local nightclub: you're using the Matrix. It has become the universal constant in a world of uncertainty, crossing every social and economic class barrier. Even the homeless can use the Matrix through street corner public-access terminals. It does not require literacy, technical knowledge, money or status. It is the ultimate social service.

BUSINESS AND THE MATRIX

THE BOTTOM LINE

The Matrix has transformed business in the Sixth World. It introduced businesses to a whole new way to cut overhead, increase productivity, lower operating costs and raise profits. The business world has embraced the Matrix and forever changed the working experience.

Virtual offices are one of the best examples of businesses using the Matrix to the utmost. A virtual office is a computer-generated construct of a physical office. The employee connects through their cyberterminal from home, works their shift, and then logs out. This has obvious benefits for both the employer and the employee.

Employees don't have to commute, arrange for lunches or maintain a professional wardrobe. Employers cut time lost to socializing between employees, as well as reducing their overhead to equip an employee. When you add up the cost of the desk that an office worker sits at, the chair they sit on and the vidphone that you can't seem to keep them from using, not to mention the electricity to provide them light, heat and air conditioning, a business can reduce overhead by some 10 percent in the short term and 20 percent over the long term. A "virtual" employee can still write up proposals, design new products, send and receive faxes and inter-office memos, attend meetings and so on. Ultimately, the benefits are substantial.

The downside of the virtual office is that by providing off-site access (i.e. cyberterminals), there are increased security risks. This concern is handled using a few different methods, including secure corporate housing units, the most luxurious of which are in an arcology-type setting. Other corporations delegate only non-sensitive business endeavors to virtual offices, including public relations and advertising. Corporations that make use of virtual offices often keep them separate from the rest of the corporate grid, so that any damages from unauthorized access are kept to a minimum.

In addition to virtual offices, corporations have also turned to the Matrix to handle the production of actual goods. Like a virtual office, workers at a virtual production facility jack in from home and "go to work," directing heavy assembly-line machinery or nanites to build everything from cars to missile warheads. The benefits of this arrangement for a corporation are numerous. It allows them to cover shifts more easily, as well as giving them the ability to hire from anywhere in the world without having to pay for relocation (especially if the facility is an orbital one).

This doesn't mean that office buildings and production plants are empty. You still need technicians on-site, both for the facility and the computer systems. Given the number of virtual employees that are relying on the host computer, a serious software or hardware problem can cost hundreds of thousands of nuyen for every hour that workers are sitting idle. As a result, the number of technicians on-site has doubled and in some cases even tripled. Corporations have also moved to address the problem by implementing secondary backup hosts and archives.

INVESTING IN THE SIXTH WORLD

Corporate finance has also made use of the Matrix, as one would expect. Virtual stock exchanges are every bit as cut-throat as anything you will find on Wall Street. The traditional markets are still around and have been joined by the Denver Matrix Exchange (or the DME), among others. All of the stocks and bonds exchanges have turned to doing business wholly through their hosts in the Matrix, allowing investors from all over the world to not only view the trading but to participate as well. The markets have also gone to longer hours to allow additional investors to conduct business in the stock market. Virtual investors can observe the virtual traders and the market as a whole, then send in their orders via Matrix commands that the traders act upon.

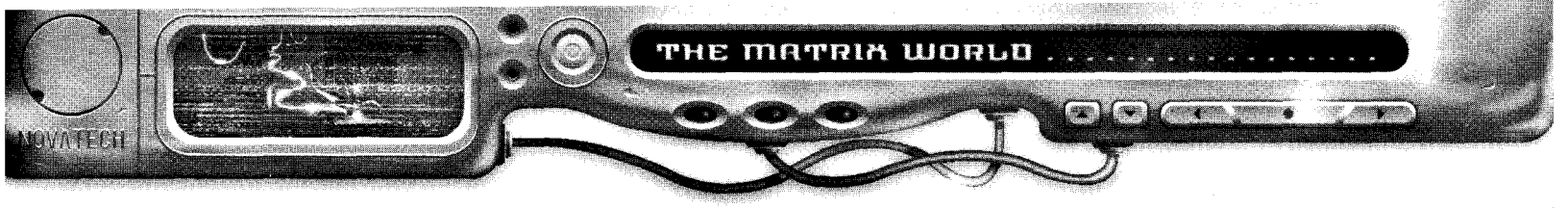
ELECTRONIC FUNDS

HAVE CRED, WILL TRAVEL

Over the centuries, metahumanity has used all kinds of things for money: beads, gold, jewels, cattle, grain and paper, among others. In 2061, it's all electrons. This is not to say that cash is no longer used, especially for those day-to-day small expenditures such as tips. However, for larger purchases, bills and so on, everything a credit card is used for today and more, electronic transactions are accepted as the standard.

To get technical, a nuyen is a unit of currency that is universally used, which exists primarily in electronic form and is issued and backed by the Zurich-Orbital Gemeinschaft Bank, the worldwide financial authority. Nuyen are accepted everywhere, by corporations and governments alike. Nations also issue their own currency, which is accepted within their borders and must be exchanged (a process made painless by the advent of credsticks) when you enter another country. The only other type of currency in wide use is corp-scrip, issued by a corporation and only good within that corp and its holdings. All of these are available in both a physical form and an electronic form, the latter accessed by means of credsticks.

A credstick is a pen-sized tube that serves as a simultaneous ID and credit card (see p. 238, *SR3*). In addition to allowing someone access to their bank account, it also works as the key to their house, their official identification, their emergency medical and contact information source and their drivers license, all in one. To access your bank account, you would insert your credstick into a credstick reader, provide your pass-



code, thumbprint, retinal print and/or voiceprint, verify the transaction you wish to make (which is verified by the ID in your credstick, proving you are who you claim to be), and then remove your credstick from the reader. Every register in a store or restaurant, bus, pay phone, or vending machine has a credstick reader built-in, along with accepting cash or coin. It is *the* monetary standard in the Sixth World.

A personal credstick is not the only way to go, however. In the twentieth century, when you wanted to send or give money to someone without writing a check, you would get a money order, cashier's check or bearer bond. Now, you get a certified credstick. A certified credstick is a plain credstick with no identification or other information required for its use. It simply holds the amount of nuyen assigned to it, which can then be transferred into a personal account or used right off the stick. Certified credsticks are not commonly used among your average citizenry, as everyone who has a bank account has a credstick by definition. They are useful for gift giving, however, or for those rare instances when a cred reader is not available.

The final place in which a credstick is used is the Matrix. The 1990s saw the birth of a new era, when E-commerce was invented. In 2061, it's just commerce. Every brick-and-mortar store of any size that wants to stay in business has a Matrix counterpart in the 2060s, and many exist only in the Matrix without any physical storefront to speak of. Most manufacturers are also retailers, and most retailers keep their customers by the range of products they have to offer or other special services. However, they all have the credstick in common. Any home telecom unit, pocket secretary, or other general-use cyberterminal used to access the Matrix has a credstick reader built-in for convenience. Going shopping is as simple as finding what you want, slotting your credstick (to use the vernacular term) and making the exchange. If it's digital goods you want, then you have instant gratification. If it has to be shipped, it will be invoiced first thing and go out the next day, keeping in mind the shipping method you selected. If you want to hang out and grab a soy-kaf, go to your local mall. If you want to shop, log on to the Matrix.

BEYOND THE INFORMATION AGE

RELEVANCE OF AN INFORMATION-SATURATED SOCIETY

The Sixth World is powered by data. Nearly everything you could possibly want to know can be found somewhere on the Matrix. You might need a passcode or a valid credstick to get some of it, but there's very little that's not digitized, stored or transmitted. With computing power getting cheaper and cheaper, the state of information overload is long past. Every day, citizens of the plex are bombarded with information: store displays, phone calls, emails, traffic updates, talk radio, music, walk/don't walk signs, pop-up ads, giant screens in public squares, 24-hour news channels and targeted advertising. It all adds up.

This begs the question of how much information is too much? Where is the line drawn? In truth, the line varies depending on your level of techno-comfort. People who aren't comfortable with technology in every aspect of their lives tend to tune things out, turn them off, and otherwise find ways to quiet the background noise in their world. Many of the magically active find themselves in this category, though that is hardly a blanket statement. Still, the level of technology and information dissemination for even the least-willing individual is at least twice what it was at the beginning of the century.

On the other hand, there are those who can't get enough information and technology. These are the people who have three or more 24-hour streaming news channel subscriptions for their telecom and pocket secretary. They receive the electronic versions of their newspapers daily and read them all. They seek out niche information through the Matrix, and participate in numerous discussion groups and newsletters. Just keeping up with their "information addiction" is a full-time job, much less keeping up with their real job and family, too. Unfortunately, even staying connected 24-7 does not allow you to know everything that happened, so some people constantly feel behind the curve.

Illiteracy

What does illiteracy mean in an information society? The world in 2061 is a a more iconographic world, designed that way so people could tell at a quick glance what they were seeing, thereby overcoming language barriers. As a result, functional illiteracy in 2061 is rather high by traditional standards; yet with modern information technology, a great deal of knowledge can be gained even if one cannot read. People can still see pictures, watch video and understand audio information. Simple charts can usually be comprehended even without traditional language skills. In a sense, the drive to become a wholly literate society has vanished, replaced by the goal of rendering data into a form that everyone can understand, a sort of universal icon-based language.

SEARCHING FOR DATA

Having all that data to work with means that there needs to be methods of finding what you need in a useful amount of time. Search engines, the tools of the World Wide Web, were impractical when dealing with the scope of the Matrix. Instead, sophisticated programs are used that can sift data much faster than a human ever could, retrieve the information you wanted, then report back to you. These programs are usually called "searchbots," though their technical names can vary. A searchbot can retrieve information on almost every topic imaginable, including other people.

PERSONAL DATA AND PRIVACY

As the ease of gathering personal information has grown, the concern about its use and abuse has increased as well. It's often been said that the first casualty of an information-based society is privacy, and whether that is necessarily true or not, it is certainly applicable to the Sixth World. Like it or not, having more information out there means there is also more information about you, and sometimes information you'd rather not have made public. On a Matrix-based search starting with only a name, the information collected can include your place of employment, parents' names, home address, what degrees

were earned and where, publications subscribed to, SIN, criminal record and more. And that's a very casual search—if someone was really interested in finding information, there are almost no limits.

While a free search will only turn up a moderate amount of information, more is available to those who are willing to pay for it. There are many fee-for-search services out there that collect information, and many traditional information-businesses, such as credit bureaus, will sell nearly anything in their database for the right price. All people do not have their privacy invaded equally, though.

Those in the upper classes are the safest, because money can buy some privacy. For the right amount, you can hire individuals to remove your name from sales lists, screen access to your SIN and associated individuals, and otherwise keep your name out of the limelight.

Those in the middle classes are the most vulnerable to having their lives completely exposed, because they are of the most interest to the business world. The middle-class consumer has money to spend and makes up the majority of the consumer population. They also can't afford the type of privacy countermeasures that those with more wealth typically employ. Therefore, they are the prime targets.

The lower classes are not of nearly as much interest to business as a whole. They typically are not heavy consumers, given the lack of disposable income common to their situations. Also, they use the Matrix actively to a lesser degree. Those that are heavy Matrix users rarely enter useful data when asked, because their physical location and situation can change very rapidly, rendering the information useless. Therefore, there is very little incentive to track them closely.

School, immunization, public assistance, welfare, unemployment, tax records, immigration, customs, flight records, car rentals, trideo and sim rentals, gun registration, vehicle registration, permits of every kind, professional certifications, zoning variances, police activity summaries in the daily paper, credstick purchases and more: all of it is out there just waiting to be sorted and sifted and analyzed.

Still, while all this information is being gathered and used, the average individual never notices an effect. Big Brother may know everything down to your underwear size, but if the only result is being non-obtrusively offered a special sale price on underwear, you aren't likely to complain too much. So while privacy may be an imaginary concept in 2061, no one has yet gone out of their way to disprove the myth ... except in the shadows.

MATRIX CULTURE

CULTURE SHOCK IN 3-D

At the turn of the century, one of the biggest concerns that existed regarding the Internet was the amount of time people seemed to be spending on it, to the exclusion of other activities that were regarded as healthy and normal. Online games, chat rooms, themed text-based environments: these were just a few of the available entertainments to which people had access. Compared to what was to come, they hadn't seen anything yet.

In 2061 there are a myriad of different sim-based and trid-based entertainments out there whose addictive powers blow anything previously encountered completely out of the water. Escapism and the tools to make it happen are at an all-time high in the Sixth World, thanks to the Matrix. However, it says something about the degree to which the Matrix has been incorporated into society that such activities, even regarding their addictive qualities, are not feared, but embraced. The Matrix world is real enough that becoming immersed in the Matrix is viewed as a common, everyday occurrence.

Trideo and Music

Some of the entertainments available haven't changed substantially in decades. Chief among these are forms of recorded entertainment. Recorded entertainment on the Matrix can take many forms. Digital music, usually with a trideo

MATRIX MILESTONES

The sheer scope of the infinite cyberworld known as the Matrix precludes the compilation of a single, definitive history of its evolution. However, certain events are recognized as milestones in the continuing growth of the Matrix.

Matrix Timeline

pre-1980s: The Internet is created, beginning with ARPAnet and NSFnet, originally military and academic communications networks respectively. They are combined and, with the invention of the TCP/IP network protocol, became a popular commercial medium as well.

1990s: The World Wide Web comes into being and expands rapidly throughout the decade, becoming arguably the most important component of the Internet, largely due to its visual nature.

1990s: Hacker groups dedicated to exposing security holes and flaws in the Internet become more aggressive. Other groups form as well, using similar techniques but bound together by a social or political agenda, or simply for their own gain. Virus creation begins to proliferate across the Internet.

2018: Dr. Hosato Hikita creates the first-generation ASIST (Artificial Sensory Induction System) technology, making simsense a reality.

2022: The Internetwork Transmission Control Council (ITCC) is formed from the remains of the FCC as a self-regulating oversight body for the responsible management of the communications industry. This comes to include the networks that made up the Internet as well as the content.

2024: The U.S. presidential election is held across the Internet for the first time, using the experimental "remote-vote" system.

2026–2029: Sony Cybersystems, Fuchi Industrial Electronics and RCA-Unisys all develop prototype cyberterminals that allow users to interface with the world data network via the central nervous system.

2028: The U.S. government creates Echo Mirage, a "cyber-commando" group intended to take advantage of cyberterminal technology.

Feb 8, 2029: A computer virus unlike any seen before crashes the international computer network, causing widespread chaos as systems worldwide crashed irretrievably, including air-traffic control, communications, financial and other critical systems. Echo Mirage is called into action.

2031: Echo Mirage eradicates the last trace of the virus.

2032: The Corporate Court spearheads an effort to rebuild the grid, creating a fully immersive VR-based network that becomes known as the Matrix.

2032: The Corporate Court takes over the ITCC, placing RTG regulation firmly in its jurisdiction. The name of the authority is changed to the Corporate Court Matrix Authority (CCMA).

2033: Damien Knight executes the Nanosecond Buyout, gaining 22 percent of Ares Macrotechnology stock in the space of 63 seconds, thereby demonstrating the unprecedented possibilities of the Matrix.

2034: Boston-based Matrix Systems releases the first gray-market cyberdeck, called the Portal.

2036: The UCAS passes the 14th Amendment, which establishes the System Identification Number (SIN) and requires all citizens to be registered. Anyone not possessing a SIN is designated a "probationary citizen"

visual feed, and trideo or simsense films are the most popular. These are available with a standard MSP account (see p. 36, *MSP Accounts*), or through a pay channel. At last count, there were over a hundred thousand different channels available on the Matrix.

Simsense Recordings

Simsense entertainment is in a class by itself. The movement from trideo to sim was a giant leap in recording technology, allowing someone to record not only a visual image, but also the sensory and emotional input associated with it. Needless to say, this form of entertainment has become extremely popular.

The rise of sim technology has also set off a new life for both sports features and pornography. The chance to experience the power and emotion of your favorite urban brawl player or a cliff diver from Aztlan is a powerful draw, as are the opportunities afforded by full sensory-immersion pornography films. The ability to get the sensations without any of the risks is a rush to many people, so films such as these have skyrocketed in sales (legality notwithstanding, in the case of pornography).

Online Games and VR Settings

Other popular entertainments on the Matrix are online games. For those to whom a pre-programmed sim flick is boring, there are the interactive possibilities of the online experience. These are almost always sim-enabled, and being jacked-in gives you a definite advantage. Most of these are combat-based games with a variety of settings, and they're pretty popular among the young single male demographic. For those who don't enjoy shoot-'em-ups, there are also VR settings. These are sculpted environments that are modeled on a theme, often a historical period or a popular film or fiction setting. The participants act out the lives of a persona they create, with the specific possibilities limited only by the environment.

VR settings can also be modern-day settings. Virtual bars are a popular type of setting, with "food" and "drink" available through the wonders of sim technology. These settings have become the lonely Matrix-addict's dating service, and more than one couple has been set up that way. The possibilities of sim and VR settings have also given rise to virtual bordellos, which have caught on as well. The cottage industry of Matrix prostitution is now a growing one, and due to the fact that their sites are invariably on private hosts, the legal issues have been tricky to sort out. Still, virtual sex has become commonplace since the turn of the century, if still a poor substitute for actual human contact. It is, perhaps, unreasonable to expect that one of metahumankind's most basic urges wouldn't find an outlet on the Matrix somewhere, especially as it grows to mirror the real world in greater and greater detail.

Children's Areas

The last area of Matrix entertainment belongs to the children. The education of children has fallen to a greater and greater degree into the realm of the cyberterminal. Matrix education programs focusing on reading comprehension, mathematics, computer and technical skills and hand-eye coordination are considered a necessity by every school. Additionally, many "spare-time" entertainments heavily feature these aspects as well. There are clubs and hosts set up especially for children and their interests, and the average child is involved with them to a moderate degree.

SPRAWL MANAGEMENT

THE NECESSITIES OF LIFE

A lesser-known but vitally important function of the Matrix is in the area of sprawl management. When you take a few million people and cram them into a space the size of the plex, it takes in-depth coordination to keep all those essential systems functioning. The Matrix is responsible for telecom service, traffic manage-

ment, power management, police and emergency communications and tracking, and remote drone operations (such as cleaning streets and picking up garbage).

Telecom Service

The Sixth World relies on communications. If the info ever stops, then everyone's in big trouble. Thus, the Matrix carries a heavy load in its telecom service duties. Phone service today is handled through private companies that either own or lease telecom services on the Matrix. So, no matter who you have your phone service through, it all comes down to the same thing. Those same companies are responsible for the public access telecom units you see on almost every street corner, with the maintenance of any specific unit falling to the company that owns it.

Grid-Guide

The Grid-Guide™ is the glue that holds traffic together in the Sea-Tac 'plex. Most of the cars sold for urban travel today are fitted with this intelligent traffic management system. Grid-Guide roads are standard throughout Seattle, with the Barrens area being the exception. When a car enters a Grid-Guide compatible highway and activates its Grid-Guide system, the system sends the car on the most efficient and timely route possible. Grid-Guide will even assist the vehicle's autonav system in avoiding collisions and allowing emergency vehicles to pass, as well as manage power consumption through the Gridlink induction-coil system.

Power and Utilities

The Matrix is also responsible for keeping the lights on, as well as keeping the gas and the water flowing. All of these systems use the Matrix to read meters, measure consumption, arrange for maintenance and troubleshoot computers. The use of natural gas has decreased, given the rise in cost and the increasing rate of natural resource depletion, so more homes and businesses are turning into all-electric facilities. This means that most modern structures are completely wired for the Matrix, giving a homeowner a previously unmatched level of control over her environment. The Matrix also issues the commands for the remote drones, units that handle many of the routine physical jobs of city management, such as trash collection and superstructure maintenance.

Law Enforcement

While you might not think of Lone Star having much, if anything, to do with the Matrix, a high level of interaction actually occurs. The Matrix is responsible for the information gathered during the thumbprint searches done on suspects, including warrants, criminal record and missing-persons information, all while they're still on the scene. They use the Grid-Guide system to track vehicles, sometimes overriding the standard routing protocols to direct the car into a waiting road block or a dead end. Alarms on private property, silent or otherwise, alert Lone Star through the Matrix, including the security information the system has been able to gather on the intruders during the intrusion.

MATRIX LAW

THE LAW OF THE LAND

Matrix law is a murky area, with misunderstandings common. Most users are confused about Matrix law, to say the least. It's not unheard of for a user to get caught up in red tape because he did the wrong thing in the wrong host. To clarify the issue, it is best summed up in this statement: the laws of whatever host you're logged into apply to what you do there, not the laws of your physical location. With corps able to enforce their own laws, as well as hosts in other nations that may have very different laws from what you're used to, it's good to keep this in mind. There are some things that are almost universally illegal, such as piracy, trespassing and hacking.

with sharply curtailed rights. Non-metahumans (such as dragons and sasquatch) are ineligible for SINs without an act of Congress.

2037: Fuchi releases RealSense™ technology, introducing emotive signal-processing for the first time in commercial simsense recording.

2037: The Denver Data Haven goes online, becoming the largest data haven in existence.

2039: Fuchi sponsors the Universal Matrix Specifications conference to determine the details of Matrix programming. The Universal Matrix Standards (UMS) are adopted world-wide.

2049: The first semi-autonomous knowbot (SK), an expert system program with a sophisticated holographic neural network, is unveiled by Renraku.

2050: The seventh-generation cyberdeck is produced and mass-marketed, now keyboard-sized and portable.

2055: Otaku, also known as the children of the Matrix, first appear.

2057: An elf decker calling himself Leonardo begins a series of successful runs and blackmail threats against Renraku, resulting in a deal with the megacorp exchanging financing for his technical breakthroughs. Renraku proceeds to skyrocket ahead of its competition.

2057: The assassination of the dragon Dunkelzahn following his inauguration as the president of the UCAS sends shockwaves through the Matrix and the rest of the world. The contents of his will set the corporate world on its ear, as the carefully maintained balances of power are shattered. Nadja Daviar, Dunkelzahn's assistant, is made Vice President to the President Elect.

Under her leadership, the 14th Amendment is amended to allow non-metahumans and other probationary citizens legal SINs when vouched for by a UCAS citizen in good standing.

2058–59: Dunkelzahn's bequests of lead to a significant shift of power within Fuchi, setting off a power struggle that results in the dissolution of the corp. Richard Villiers, once owner of a third of Fuchi, founds Novatech, Incorporated.

Dec 19, 2059: The artificial intelligence (AI) named Deus seizes control of the Renraku Arcology, closing it to the outside world.

2059–61: Otaku tribes beginning clashing both in the Matrix and the real world. The source of the conflict seems to be religious-oriented disputes between tribes that worship Deus and tribes that promote the Deep Resonance.

Mar 19, 2060: The Seattle RTG goes down for a span of eight minutes, dumping most users and driving some insane. Originally thought to be the result of a viral attack, rumors later point to an AI being responsible.

2060: The Council of Denver signs a treaty to integrate the respective RTGs of the Denver Matrix into a single Denver RTG.

Mar 19, 2061: A citywide power failure cripples the Seattle RTG for a short period, forcing many users and hosts offline and impeding other Matrix functions.

2061: The CCMA creates a new Matrix policing agency in response to the arcology situation and grid shutdowns, called the Grid Overwatch Division (GOD).

Software and Intellectual Property Piracy

Piracy laws are based on the idea that it is (or should be) illegal for an individual to copy and distribute a work (be it text, music, video, or software) that another individual created and sells. That's a pretty simplified definition, but it covers the basic idea. So, making a copy of the music file of the latest release by your favorite band and putting it on your pocket player for your own use is okay. Putting that same copy in a public file and making it available to anyone who comes in contact with it, whether for free or at a cost, is illegal. The same applies to anything that could be considered intellectual property. This is also sometimes called copyright infringement.

The penalties for this crime vary greatly. Not all copyright owners pursue infringement with equal fervor, though violating the law with material that belongs to a corporation is likely to carry a stiff sentence. If someone pursues the case and you're found guilty, you can probably count on a heavy fine, possibly along with probation or suspension of Matrix access.

Trespassing

Most hosts that are open to public visitors have a public-access area in their host for just such a purpose. Trying to get from that public-access area into the off-limits places is called trespassing, and most corporations look on it with an unkind eye. Again, it is best to keep in mind that if you are in an extraterritorial corporation's property, whether virtual or physical, they have the right to prosecute you according to their own laws. Most off-limits areas are clearly marked, and nearly all of them require effort to get into. It is unlikely that the average user will be able to simply wander into an area that will get him into trouble.

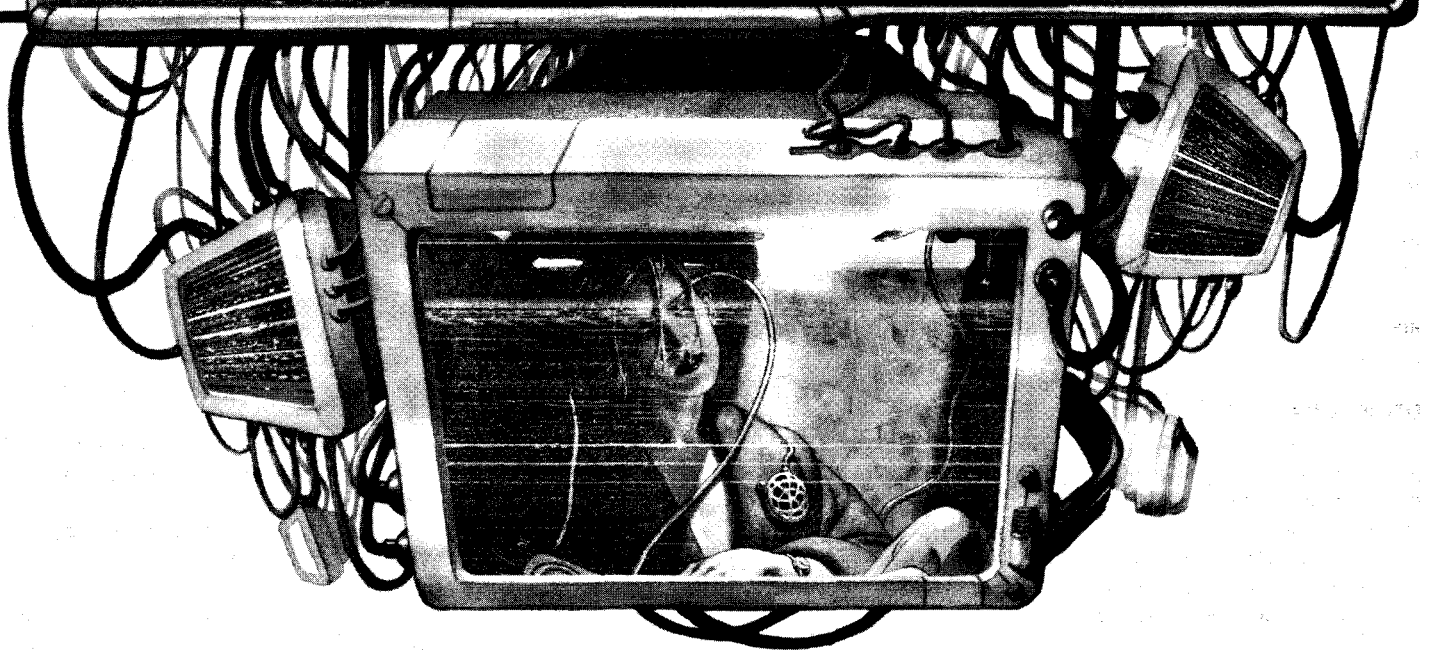
Hacking Laws

Hacking is defined as using a cyberterminal to willfully deface, destroy, or tamper with Matrix property belonging to another individual or corporation. In simpler terms, you aren't allowed to mess with someone else's hosts, icons, data, and so on without permission. It is also defined as using a cyberterminal equipped with Masking or Evasion programs (in other words, a cyberdeck) without the licenses to do so. Those utilities block the tracing procedures used by the Matrix and hosts connected to it. Because of what they do, those utilities are heavily restricted and require licenses for legal use, which are given only to security deckers and those with a similar professional requirement. Hacking is something that is almost always prosecuted, if the suspect is traced and apprehended. It is not taken lightly, and penalties are harsh, to say the least. Thankfully, this is an area of law that most legal users never encounter, as hacking is difficult to do accidentally.

Privacy and Identity Laws

All lawfully registered UCAS citizens have a SIN. This SIN is attached to their bank account, medical records, school transcripts, licenses, print and DNA records, and anything else for which they have to fill out paperwork. That information is how we prove who we are these days, and as such, it's very important to protect it. That's why we have privacy and identity laws in place. Privacy laws are intended to keep anyone from modifying your information without your permission. To do so is considered a serious crime, and incarceration is usually the sentence handed down. Hand-in-hand with the privacy laws are the identity laws, which make it a crime for any individual to steal or delete the identity of another. This is also counted as a serious crime, and often the guilty party is not only sentenced to incarceration, but is forced to make restitution to the victim, up to and including the costs associated with starting a new legal identity, if necessary.

THE COMPUTER INTERFACE



To access the virtual reality of the Matrix, three things are required: a specialized computer called a *cyberterminal,* a *jackpoint,* and either an account with a Matrix Service Provider (MSP) or programs that will allow you to fake an account. The computer interface is detailed in this chapter; the latter two requirements are discussed in *Accessing the Matrix* (p. 30).

A cyberterminal is a computer with an ASIST interface and a suite of specialized programs called the *persona.* A persona allows the user to interact with other icons in the Matrix. In effect, a cyberterminal allows the user to experience the sensory input of the virtual world. (Note that the cyberdeck commonly used by deckers is merely a souped-up cyberterminal. For clarity and ease of use, cyberterminal will be used to refer to both cyberterminals and cyberdecks, except where the rules specifically apply to cyberdecks only.)

It is possible to access the Matrix without using simsense and virtual reality (in fact, millions of people do it everyday when they make telecom calls). This use is described under *Tortoise Mode* (p. 42).

The following rules describe the use of cyberterminals and cyberdecks.

JACKING IN

In the world of *Shadowrun,* manually accessing a computer via a keyboard and monitor or other low-tech tools is considered quaint. Most users prefer to access computer systems by creating a direct link to their brain, which allows for high-speed mental control. To interface one's brain with a computer, one must first have some way of linking the two together. Two devices may be used to create this link: *trodes* and *datajacks.*

USING TRODES

Trodes are simply electrode nets that are slipped over a user's head. Trodes have numerous contact points that are suctioned onto the user's head over various nerve clusters. These contact points read and send electronic impulses to the brain and nervous system. Trodes come in various styles, from simple, functional nets to discreet and fashionable hairnets and headbands to flashy, stylized designs; trodes are often built into wigs and helmets as well.

Trodes are connected to the cyberterminal through a simple fiberoptic cable. Removing the trodes from someone's head will cut the connection (and may subject the user to dump shoc:, see p. 227, *SR3*).

Trodes are commonly used by the Awakened and others who avoid cybernetic implants.

Disadvantages: Trodes are not as efficient as datajacks in transmitting data to and from the brain, so they impede the user's speed within the Matrix.

In game terms, using trodes reduces a character's Reaction in the Matrix by half (round down, to a minimum of 1). A trode user receives a maximum Matrix Initiative dice of 2D6.

It also takes a bit of time to adjust trodes for a proper fit and to calibrate them. Trodes require 3 full Combat Turns to position on a user's head.

USING A DATAJACK

If trodes allow access to the Matrix superhighway, datajacks put the user in the express lane. Perhaps the most common implant in the world of 2061, the datajack allows the user to mentally link himself to devices that are equipped for direct neural input (DNI). The datajack must be connected to the cyberterminal via a fiberoptic cable.

Datajacks are fully described on p. 298, *SR3*.

Pure DNI

Even with a datajack, most users still use keyboards, touchpads and other manual controls when interfacing with a computer. Many expert users consider any manual tools to be a crutch, however, and prefer to run by "pure DNI"—engaging all their commands and operations through mental input.

A user who runs by pure DNI uses his Intelligence attribute as his Matrix Reaction. Physical impulses don't apply to a user running pure DNI.

Additionally, a pure DNI user can achieve significantly faster speeds if they are also operating with a hot ASIST interface (see below). In game terms, the user receives +2 to his Matrix Reaction and +1D6 Matrix Initiative.

Switching from pure DNI to standard partial-manual mode (and back again) requires only a Simple Action. The user's Matrix Reaction and Initiative will not be modified until the beginning of the next Combat Turn, however.

THE ASIST INTERFACE

The *ASIST interface* controls the simsense experience of cyberspace. The signals transmitted from computer systems are translated into simsense, allowing the user to directly experience the Matrix via virtual reality. The ASIST interface maintains a complex and interwoven relationship with the user's persona (see p. 20), in essence allowing the user to "become" their icon.

Because simsense signals tend to hog bandwidth, each ASIST interface control program comes with a compressed library of standard recorded sim sensations. Rather than transmitting direct simsense to the user, the accessed system transmits instructions to use and combine these sim samples to help create an experience; non-standard sim sensations are transmitted directly. Because the sim samples are recorded in ACT format, they are slightly less "real" than Dir-X feeds. Thus, it is easy to distinguish between a basic system that takes advantage of sim samples and a novahot system that has the processing power to feed all its simsense direct to the user.

The majority of cyberterminals and some cyberdecks are equipped with the standard ASIST interface (also called "cold ASIST"). Many deckers and security specialists prefer to crank up the sim by using an advanced "hot ASIST" interface. ASIST interfaces also integrate two important components, the *RAS override* and the *reality filter*. All of these are described below.

COLD ASIST

The standard ASIST interface is not that different from the ASIST interface found in home simsense players and rigger remote control decks. In effect, it uses the legal levels of simsense. Legally purchased cyberterminals are equipped with this interface.

Advantage: A cold ASIST interface protects the user from taking lethal damage from black IC, because the interface cannot amplify biofeedback to brain-frying levels.

Treat lethal black IC as non-lethal black IC (p. 230, *SR3*) for attacks against a user with cold ASIST. Psychotropic black IC and other IC effects are not changed.

HOT ASIST

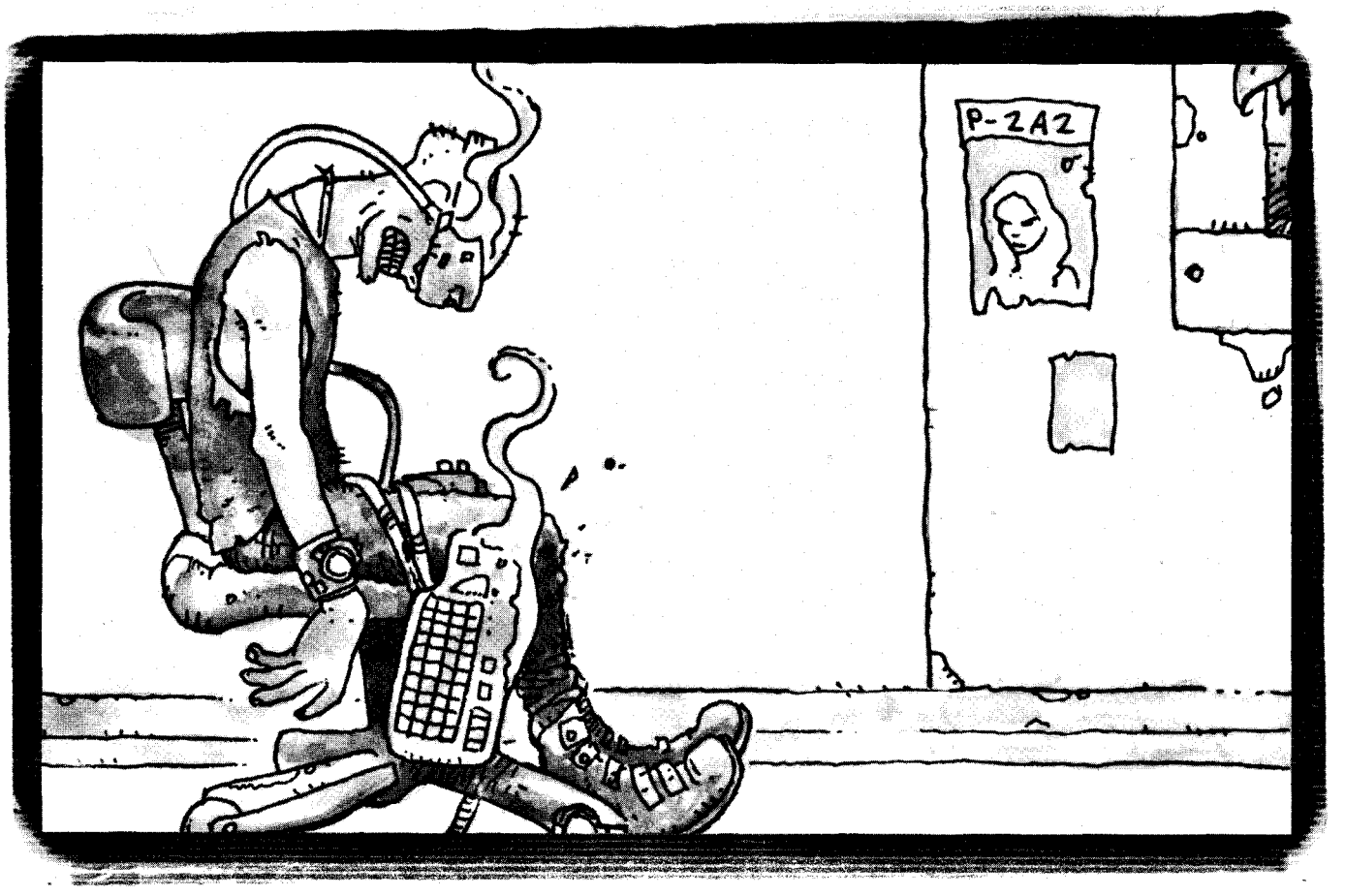
The signal strength of a hot ASIST interface is on par with the brain-kicking current a wirehead gets from a BTL chip. The intensity of this input allows the user to experience the Matrix in better-than-real conditions.

It may seem like sheer madness to redline an ASIST interface this way, because even random line noise could potentially be translated into lethal amounts of feedback. Many deckers, however, rely on the boosted signal strength to provide them with the speed they need. Simply put, the human mind is not designed to comprehend data at a rate fast enough to be competitive with a computer. With a hot ASIST, the user becomes hyper-alert, as every sense and every neuron become sensitive to the translated machine code coming through the Matrix. The user can literally feel the code of a program running under his fingers, as the persona translates a wider degree of data that simply could not be perceived through the basic senses alone. In addition to the standard methods of visual and auditory clues, relevant data may be felt as other sensations. For example, the warning message about an incoming attack program may be experienced by the user as if his skin were on fire.

Running with Hot ASIST

Hot ASIST provides several bonuses to the user. First, it allows the user to take advantage of Response Increase. Second, it allows the user to gain an extra speed bonus by running pure DNI. Third, it provides the user with Hacking Pool (see p. 26).

Disadvantages: It also has two drawbacks. First, the user becomes vulnerable to lethal damage by black IC. Second, hot ASIST interfaces are also illegal, and so the user risks legal problems if caught using one.



Hot and Cold

A hot ASIST interface may be switched to run as a cold ASIST interface (and back again) with a mental command that counts as a Complex Action. The new interface kicks in at the beginning of the next Combat Turn. Switching interfaces while under attack by black IC requires the same tests as attempting to jack out (see *Black IC,* p. 230, *SR3*).

RAS OVERRIDE

ASIST circuitry includes a *reticular-activation system override* (RAS). The RAS override suppresses sensory signals from the user's meat body, freeing him to concentrate fully on the simsense experience of the Matrix and preventing him from flailing about in the real world.

Real World Interaction

Acting in the physical world while an RAS override is active is quite difficult. Apply a +8 modifier to all physical actions and Perception Tests while affected by an RAS override. Interacting with the real world will also inhibit a user's speed in the Matrix (see *Initiative and the Physical World,* p. 223, *SR3*).

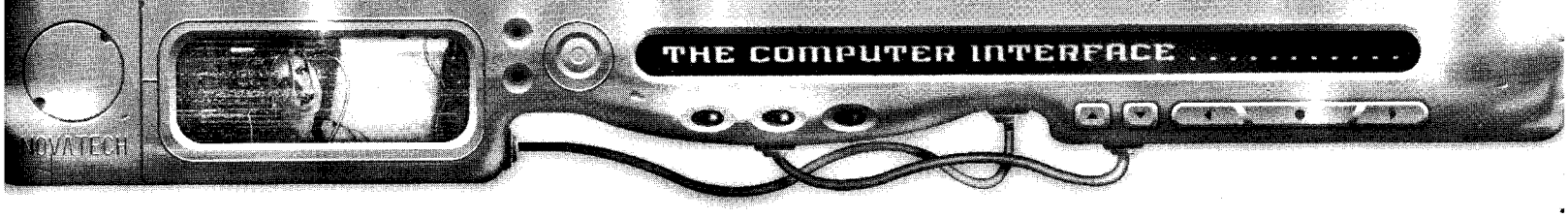
It is possible to build a cyberterminal without an RAS override or to disconnect one already in place. However, attempting to function in two sensed environments simultaneously is extremely disorienting. A user doing so suffers a +8 Perception Test modifier and a +4 modifier to all other target numbers for tests in the Matrix and the physical world.

REALITY FILTER

A reality filter is an ASIST-interface accessory that intercepts the sensory input from the system being accessed and replaces or modifies the input according to a template and library designed by the user. In other words, the reality filter imposes a metaphor on the Matrix. The user does not see the system and icons as they are designed to appear. Instead, the reality filter translates appearances and sensations so that they appear and feel like whatever "reality" the filter has been programmed to simulate. For example, a user with strong Christian beliefs may program their reality filter so that icons appear as angels or devils, hosts appear heavenly, and menus appear as scrolls written in Latin. A user with a taste for early twentieth-century airplanes may design a reality filter so that she experiences movement through the Matrix as flying a propeller plane through the clouds (grids) or barnstorming (hosts); naturally, Matrix combat would be represented by dogfighting.

The Reality Filter Advantage

Because reality filters are personalized to the user, they allow the user to operate in the Matrix more quickly and effi-



ciently. A user with a reality filter can more easily conduct operations within the Matrix because the iconography and command metaphors are always translated the same, according to the user's style.

In game terms, using a reality filter provides the user with an additional +2 to Matrix Reaction and +1D6 Matrix Initiative. A user may turn a reality filter on and off using a Complex Action; the user's Initiative Score will not be affected until the next Combat Turn.

Reality filters are custom-designed for each user. If a character uses a reality filter designed for someone else, he will suffer a +2 target number modifier and will not receive the Reaction or Initiative bonus from the filter.

Reality filters consume an enormous amount of the processing power of a cyberterminal's master persona control program (MPCP). As a result, whenever a reality filter is active, the cyberterminal's effective MPCP is reduced by 1. The user may have to reduce his persona and utility programs to keep them within acceptable limits. (See *The MPCP* below for more information.)

Note that certain sculpted systems may interfere with the function of a reality filter. See *Sculpted Systems and Reality Filters*, p. 42.

RESPONSE INCREASE

Response Increase is a boost to the processing power of the hot ASIST interface. In effect, it heightens the sensitivity of the user and the translation speeds for ASIST signals. Response Increase boosts the user's speed within the Matrix, allowing him to interact with the computer code more quickly and efficiently than normal.

Response Increase functions only with a hot ASIST. It provides no bonus when used with a cold ASIST.

Speed Bonus

Each level of Response Increase adds +2 to Matrix Reaction and +1D6 to Matrix Initiative. The maximum level allowed is 3, and a cyberterminal can only support a level of Response Increase equal to its MPCP ÷ 4 (round down). The speed bonus provided by Response Increase is cumulative with the bonuses from reality filters and running pure DNI.

MEET YOUR PERSONA

A *persona* is an array of programs used by a cyberterminal user to interact with the Matrix. While the ASIST interface allows the user to experience virtual reality, the persona allows the user to interact with it. In effect, the persona powers the icon that represents the user.

The persona itself is really a combination of processes and programs. The attributes of the persona icon are defined by several *persona programs* as well as the cyberterminal's other options, such as Response Increase. The persona is also controlled by the cyberterminal's operating system, the master persona control program (MPCP).

THE MPCP

The MPCP runs on a set of dedicated processing chips and is the central component of the cyberterminal. The MPCP is the heart of the circuitry, like the motherboard in a standard microcomputer. All other programs on the cyberterminal, including persona programs and utilities, execute under the MPCP's control. Therefore, the MPCP determines the maximum ratings for these subordinate programs. No utility or persona program run on the cyberterminal can have a base rating greater than the MPCP. Additionally, the total ratings of the cyberterminal's persona programs cannot exceed the MPCP x 3.

In most locales, the MPCP of a cyberterminal is legally limited to rating 4 or less.

SIGNATURE

Each MPCP has a serial number embedded in its programming that is used to identify the cyberterminal. This serial number—called the *signature*—is required for almost all interactions between the cyberterminal and other computers. Aside from numerous authentication and accounting purposes, this signature also creates a detailed datatrail. Matrix systems log all operations conducted on them; every time a user logs on, edits a file or touches a control system, the system queries the MPCP for its signature and logs the event, recording it alongside a timestamp and code indicating the operation performed.

Every legally manufactured cyberterminal MPCP contains a unique signature that cannot be removed. However, deckers equip their cyberdecks with masking persona programs to conceal their MPCP and inhibit, alter and otherwise meddle with the signature's use (see *Masking*, p. 21). Many deckers manufacture their own MPCPs and leave out the damning signature. However, as the majority of systems will simply refuse to interact with an MPCP that lacks a signature, even these decks require masking programs to forge a signature (or something equivalent) when necessary.

PERSONA PROGRAMS

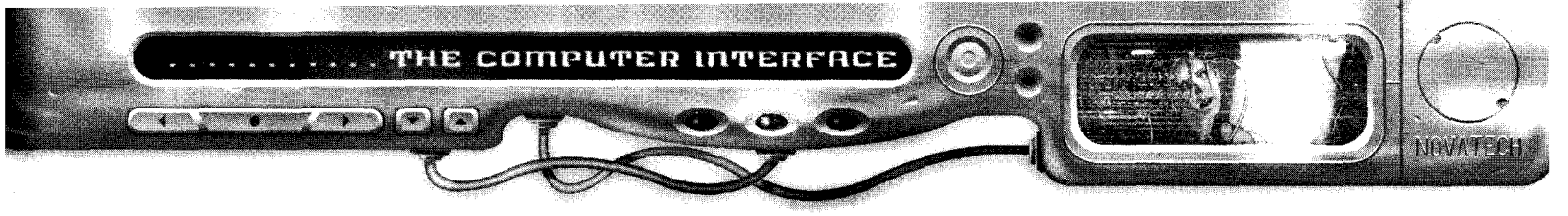
The persona programs define the characteristics of the persona and icon. All cyberterminals have bod and sensor programs; in fact, these persona programs are required at a minimum rating of 1 to access the Matrix's virtual reality. Evasion and masking are programs only used by those trying to conceal their identity and datatrail or who are expecting to engage in cybercombat.

Bod

Bod measures the stability and structural integrity of the persona. It represents the persona's resistance to attacks against its error checking, logic functions and Matrix connection paths.

Evasion

Evasion defines the agility of the persona—its ability to maneuver in cybercombat and escape the attentions of trace IC. Evasion works by constantly changing and altering the memory space used by the persona as well as rerouting connections, generating false log entries and creating misleading trace paths.



Evasion is legally restricted to use by Matrix security specialists (Legality 3P–S). It is not installed in standard cyberterminals, though no decker would be caught without it.

Masking

Masking performs a variety of functions, all designed to interfere with any process that requires the cyberdeck's signature. Masking helps to conceal the persona from the system and other personas, intercept and either mislead or redirect signature requests, appease verification processes, and also to alter the user's datatrail.

Masking is usually illegal (Legality 2–S), and is the prime element used to distinguish a cyberdeck from a cyberterminal. It is by far the most useful illegal modification made by deckers.

Some security deckers are required by their employers to use their signatures on home systems. These security specialists make use of system-aware signature suppression (SASS) masking programs, so their signatures are automatically used on some systems and masked on others.

Sensor

The *sensor* persona program translates the crushing amount of data flowing through the Matrix into a form understandable by a metahuman user. A high rating denotes advanced signal discrimination features, the capability to monitor system processes for changes and new features, and excellent machine code and simsense translation speeds.

The sensor program allows users to "talk" to each other within the Matrix, as if they were both standing next to each other in the real world. The program translates mental speech and transmits it to other specified icons, whose sensor programs then translate it to their users as if they were hearing it spoken. Many users intentionally instruct their sensor programs to "listen" only to specified icons, to avoid background noise and harassment from the icons of strangers.

THE ICON

The persona is virtually represented within the Matrix by an *icon*. The appearance of this icon depends on the icon chip within the cyberterminal. It may be a factory default UMS icon, a custom-ordered creation or a self-programmed representation of the user.

The resolution and general design quality of the icon's appearance, motions and so forth depend on the icon's rating. A Rating 1 icon is going to look like a bad, low-res black-and-white photocopy at best; a Rating 12 icon is going to move seamlessly and look more real than real. An icon's rating cannot exceed the MPCP rating of the cyberterminal.

PROTECTIVE SYSTEMS

The Matrix can be a dangerous place, as anyone who's ever had their persona shredded by an attack program or their brain melted by IC will testify to. To lessen these dangers, many deckers and security sysops take steps to include defensive measures in their cyberterminals, primarily hardening and an ICCM biofeedback filter.

HARDENING

Hardening is a catchall term that refers to a range of subroutines and hardware used to defend the cyberterminal and persona against offensive code (see p. 206, *SR3*, for more details). Hardening includes programs that redirect attack code and restore glitched programs, as well as built-in redundancy and electrical surge protection systems.

ICCM BIOFEEDBACK FILTER

Intrusion counter-countermeasures (ICCM) biofeedback filters protect users from the worst effects of black IC. They protect the user by blocking dangerous high-level ASIST signals and interfering with unsafe biofeedback.

Advantages: An ICCM filter increases the user's chances of jacking out successfully when under attack by black IC. Apply a –2 modifier to the target number for the Willpower (IC Rating) Test (see *Black IC in Combat*, p. 230, *SR3*).

The filter also allows a user to make two separate Damage Resistance Tests against lethal and non-lethal black IC—one test with Body and one with Willpower. The player may choose the test with the best result to use as the character's resistance. Karma Pool dice added to the test are rolled separately and augment the chosen Resistance Test. Hacking Pool dice cannot be used for these tests.

The ICCM filter is not effective against the psychological effects of psychotropic IC. However, it does buffer the decker from the physical side effects of sparky IC programs (see p. 229, *SR3*), the same as it does against black IC.

TRANSMISSION SPEEDS

Each cyberterminal has an I/O Speed that measures the rate at which it transmits data. This figure represents the speed at which utilities and datafiles are uploaded and downloaded, in Mp per Combat Turn.

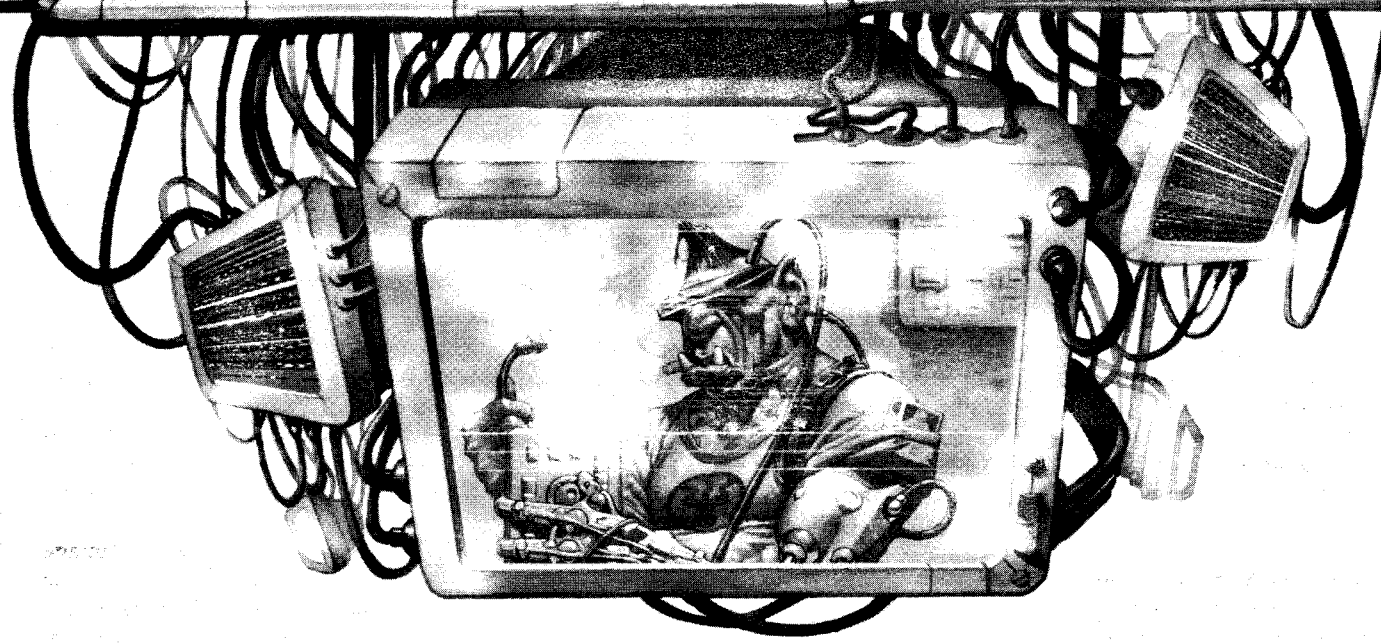
Because any data passing to or from the cyberterminal must also pass through the jackpoint, the jackpoint's I/O Speed may affect the user's transmission rate (see *The Jackpoint*, p. 30). Use the lowest I/O Speed, whether jackpoint or cyberterminal, when determining how fast data is uploaded and downloaded.

MULTIPLEXING

Multiplexing enables a user to upload multiple utilities or upload and download files or programs simultaneously. To multiplex, the user divides his I/O Speed between different jobs any way he likes. For example, a user with a cyberterminal that has an I/O Speed of 100 could download files at a rate of 25 Mp per Combat Turn and upload utility programs at a rate of 75 per Combat Turn.

Multiplexing does not use any extra actions other than that required by the system operation and requires no tests.

THE MATRIX USER



In the world of *Shadowrun,* almost everyone uses the Matrix. Whether you're a telecommuting office worker, a student online researcher, a Matrix socialite or an IC-smashin' hacker, you're likely to spend a big chunk of your life in the Matrix.

While there is no "typical" Matrix user, there are some definite differences between types of Matrix users. Joe Cyberterminal is going to look like a retrograde loser when compared to Jane Decker, with her slick moves, sleek icon and blistering utilities. While the two are bound to hold several characteristics in common merely by their joint use of virtual reality, deckers and security sysops are much more focused and specialized.

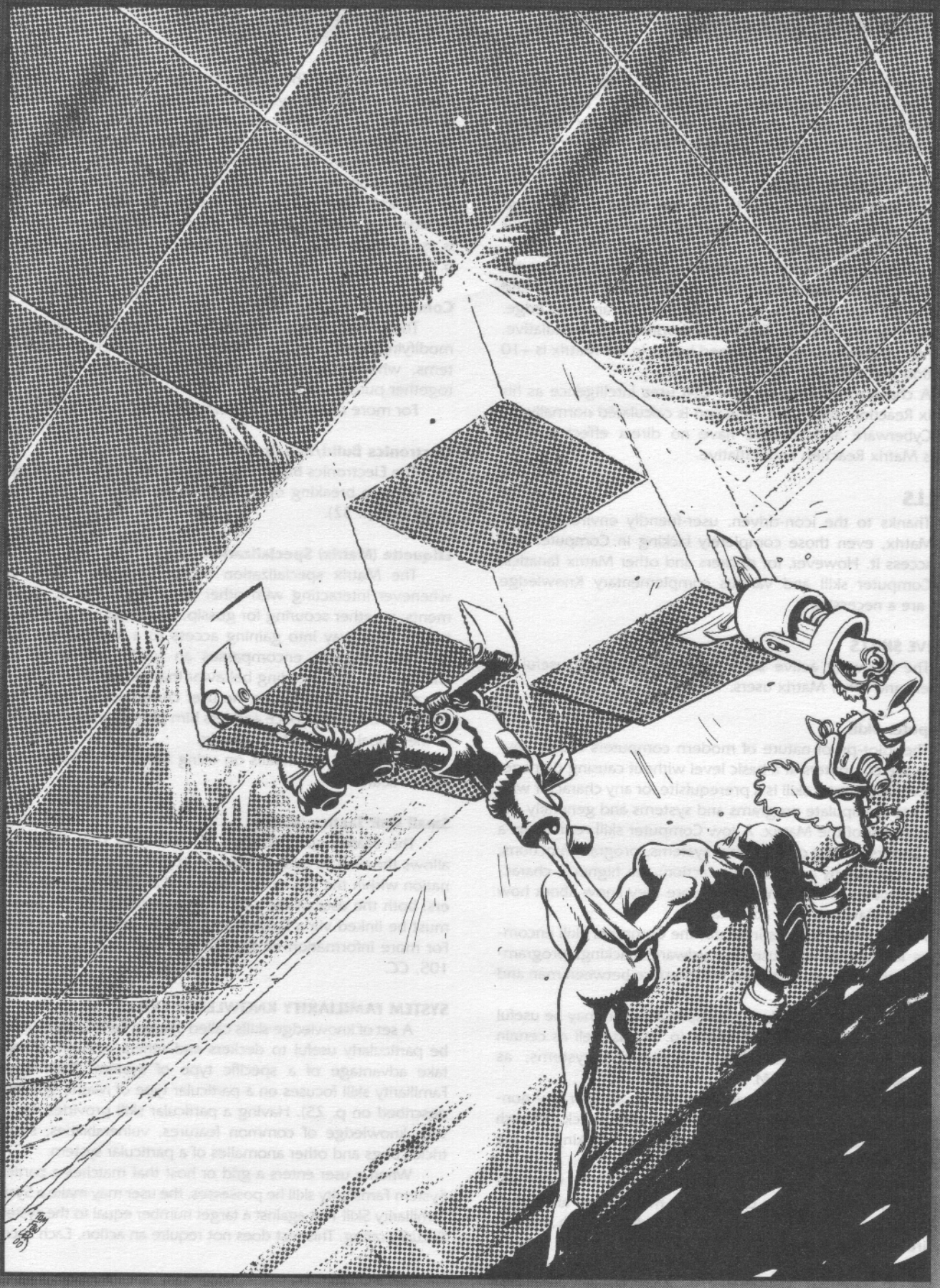
This chapter describes the relevance of certain attributes, skills, dice pools and other factors to all Matrix users, but to deckers in particular. Any character who plans on using the Matrix should take note here, especially those who enter the realm of hacking and cybercombat.

The children of the Matrix known as *otaku* are described in the chapter beginning on p. 133.

ATTRIBUTES

The Matrix is a unique environment that presents challenges quite different from those found in the physical world. Consequently, certain character attributes take on extra importance and others become less important when a character operates in the Matrix.

Physical attributes have little effect when operating in the Matrix—after all, in cyberspace it's your persona, not your meat body, that counts. This holds true even for deckers. Though a high Body rating may be useful when it comes to shrugging off black IC, ICCM biofeedback technology (p. 21) allows deckers to depend on their Willpower instead. Enough Quickness for a decent Reaction is useful, but frankly, most hot deckers depend on their decks, not their meat, for speed.



Mental attributes, on the other hand, become more important. Intelligence is especially important, because all technical and knowledge skills are linked to it. And for deckers, Intelligence is crucial to their Hacking Pools.

REACTION AND INITIATIVE

The average Matrix user lacks a hot ASIST interface and doesn't usually need the acceleration bonuses required for decking or Matrix combat.

However, any decker or security sysop worth his reputation will operate with a hot ASIST and Response Increase and may run by pure DNI or with a reality filter for an extra edge. The bonuses provided by these speed options are cumulative, but the maximum cumulative speed bonus in the Matrix is +10 Reaction and +5D6 Initiative.

A character running by pure DNI uses Intelligence as his Matrix Reaction; otherwise, Reaction is calculated normally.

Cyberware and bioware have no direct effect upon a user's Matrix Reaction and Initiative.

SKILLS

Thanks to the icon-driven, user-friendly environment of the Matrix, even those completely lacking in Computer skill can access it. However, for deckers and other Matrix fanatics, the Computer skill and various complementary Knowledge skills are a necessity.

ACTIVE SKILLS

The following active skills may be particularly useful to deckers and other Matrix users.

Computer Skill

The idiot-proof nature of modern computers allows anyone to use computers at a basic level without causing damage. However, Computer skill is a prerequisite for any character who wishes to manipulate programs and systems and generally get the most out of the Matrix. A low Computer skill represents a basic understanding of operating systems, program functions, Matrix topography and icon interaction; the higher a character's Computer skill becomes, the more they know about how to use the Matrix to their advantage.

As the specializations indicate, the Computer skill encompasses knowledge and use of hardware, hacking, programming, conducting searches and the interface between man and machine.

Cybernetics: The Cybernetics specialization may be useful in creating ICCM biofeedback filters (p. 21) as well as certain surgical operations involving computerized systems, as described on p. 136, *M&M*.

Decking: The Decking specialization is used for any non-authorized system operation or improvised attack, though deckers will suffer if they increase skill in Decking at the expense of programming ability.

Hardware: The Hardware specialization is useful when the character is using regular computers, mainframes and other computer devices. Actually building or modifying such systems requires the Computer B/R skill.

Programming: The Programming specialization is the best friend of deckers and sysops everywhere. The maximum rating of any utility a character can design is equal to her Computer (Programming) skill. The ratings of character-designed MPCPs and frame cores may not exceed the character's Computer (Programming) Skill multiplied by 1.5 (see *Programming*, p. 76).

Search Operations: The Search Operation specialization includes the mastery of search engines and databases. The skill is used whenever conducting Matrix information searches (see p. 124).

Computer Build/Repair Skill

The Computer Build/Repair skill encompasses building and modifying cyberterminals, cyberdecks and other computer systems, whether assembling them from scratch or slapping together purchased parts.

For more details, see *Cyberterminal Construction*, p. 52.

Electronics Build/Repair Skill

The Electronics Build/Repair skill is primarily used by deckers who are breaking open a device to create an illegal jackpoint (see p. 32).

Etiquette (Matrix) Specialization

The Matrix specialization of the Etiquette skill is used whenever interacting with other personas in virtual environments, whether scouring for gossip, shopping for programs or talking your way into gaining access to a Shadowland node. This specialization encompasses an understanding of basic "netiquette" and avoiding behavior that would be improper or out of place. It also keeps the user current on who the major players are in cyberspace and lets him pick up the latest rumors in the global gossip of the Matrix.

See p. 124 for details on using Etiquette (Matrix) during Matrix searches.

Small Unit Tactics (Matrix)

The Matrix specialization of the Small Unit Tactics skill allows the user to take advantage of group tactics and coordination within the Matrix. To use this skill for the benefit of others, both the user of the skill and the recipient of the bonuses must be linked via a BattleTac Matrixlink program (see p. 71). For more information on the use of Small Unit Tactics, see p. 105, *CC*.

SYSTEM FAMILIARITY KNOWLEDGE SKILLS

A set of knowledge skills called System Familiarity skills may be particularly useful to deckers and others who are trying to take advantage of a specific type of system. Each System Familiarity skill focuses on a particular type of Matrix system (as described on p. 25). Having a particular skill provides the user with knowledge of common features, vulnerabilities, security tricks, bugs and other anomalies of a particular system.

When a user enters a grid or host that matches a particular System Familiarity skill he possesses, the user may make a System Familiarity Skill Test against a target number equal to the system's Security rating. This test does not require an action. Each success

provides the user with an additional Hacking Pool die for the duration of the user's stay within that system. Only one System Skill Test may be made per system, and the test must be repeated if the user leaves and returns at a later point. The number of additional Hacking Pool dice provided by this test may not exceed the user's original Hacking Pool.

System Familiarity skills may have specializations. Generally, these relate to the owner, maker or Security Code (color) of the host.

Note that System Familiarity skill knowsofts may be used in the same manner, but their use incurs a +4 modifier to the Skill Test.

In addition to the System Familiarity skills described below, gamemasters may allow players to use skills that focus on other types of systems.

Automated Factory Familiarity

The Automated Factory Familiarity skill applies to any host that primarily manages and controls the functions of automated and robotic factory systems.

Cellular Network Familiarity

The Cellular Network Familiarity skill makes the user aware of the ins and outs of the Matrix host portion of cellular networks. This skill allows the user to more easily access the Matrix via cellular networks, tap and triangulate cell phones and so on.

Chat Room Familiarity

The Chat Room Familiarity skill imparts a knowledge of the hosts and software typically used for Matrix chat and meeting rooms, persona social clubs, message boards and other systems created specifically for interaction via persona.

Chokepoint Familiarity

A user with Chokepoint Familiarity is accustomed to the features and idiosyncrasies of firewalls, killing jars and other chokepoint hosts that act as security checkpoints against users attempting to access the next host down the line.

Communication Satellite Familiarity

The Communication Satellite Familiarity skill gives the user an edge when hacking and manipulating satellites and satellite constellations that manage data traffic. Note that this skill does not apply to the hosts of orbital habitats and factories.

Data Archive Familiarity

The Data Archive Familiarity skill applies to any host that acts as a database or information archive, whether a virtual library or searchable host of a data haven. Use of this skill can also help the user in data-oriented Search Tests (see p. 124).

Game Host Familiarity

The Game Host Familiarity skill is prominent among the virtual heroes who spend hours each day playing in one of the multitude of commercial virtual-reality game universes.

LTG Familiarity

The LTG Familiarity skill supplies the user with useful facts about and tricks for LTG software and hardware, providing an advantage for operations conducted there. This skill is also useful on PLTGs, though gamemasters may rule that some private networks use proprietary systems that require their own System Familiarity skills.

Matrix Bank Familiarity

A user with the Matrix Bank Familiarity skill knows all about the structure, organization, protocols and security of hosts that deal with the accounting, transferal and issuing of credit and virtual bank accounts.

RTG Familiarity

The RTG Familiarity skill gives the user an advantage whenever operating within an RTG.

Security Network Familiarity

A user with the Security Network Familiarity skill is acquainted with the inner workings of hosts specifically designed to monitor and control the security of an installation.

PROGRAM DESIGN KNOWLEDGE SKILLS

When a character sets out to write a program, knowledge about designing that particular type of program will come in handy. Program Design Knowledge skills allow a character to create a program plan, which is an invaluable first step to creating a new program of any kind (see *The Program Plan*, p. 78).

A separate Program Design Knowledge skill exists for each type of program: Defensive Utility Design, Offensive Utility Design, Operational Utility Design, Special Utility Design, Cyberterminal Code Design, White IC Design, Gray IC Design, Black IC Design, Trace IC Design, Frame Core Design, IC Construct Design, Worm Design, Application Design, Programming Suite Design and so on.

CYBERTERMINAL DESIGN KNOWLEDGE SKILL

The Cyberterminal Design skill includes knowledge of constructing cyberterminal components, including the user's ability to outline and prepare for the task. This skill is used for the Design Test when a character builds their own cyberterminal parts (see *Design Test*, p. 55).

INFO SORTILAGE KNOWLEDGE SKILL

This skill is only available to otaku who have learned the info sortilage echo (see p. 55). It allows the otaku to recognize patterns, associations and hidden details when sorting through massive amounts of data.

OTHER KNOWLEDGE SKILLS

A wide range of other knowledge skills may prove useful to a character in the Matrix. These include but are not limited to: Data Brokerage (see *Evaluate*, p. 70), Matrix Gangs, Data Havens, Legendary Deckers, Matrix Security Procedures, Corporate Hosts, Jackpoint Locations, Deckmeisters, Matrix Topography, Databases, Otaku, Artificial Intelligence, Satellite

Networks, Virtual Meeting Spots, Iconography, Chat Rooms, the Seattle LTG and so on.

DICE POOLS

The only dice pool that affects Matrix use is the Hacking Pool, described below. Certain pieces of cyberware may affect this pool.

HACKING POOL

Hacking Pool is only available to characters using a hot ASIST interface (see p. 18). The character may be using a cyberterminal or cyberdeck, trodes or datajack—all that matters is that the sensory input and biofeedback are cranked to the max.

Hacking Pool is calculated by adding the user's Intelligence Rating and cyberterminal MPCP, then dividing the total by 3 (round down). Any modifiers to the user's Intelligence will affect this calculation, whether originating from cyberware, bioware or magic.

Hacking Pool dice may be added to any test conducted in the Matrix (System Tests, Attack Tests and so on,—including Attribute Tests) with the exception of Etiquette (Matrix) Tests and Body or Willpower Tests made to resist the effects of gray or black IC that is damaging to the decker.

The maximum number of Hacking Pool dice that may be used for any test is equal to the base number of skill or attribute dice in use. The Hacking Pool refreshes in accordance with standard dice pool rules (see p. 43, *SR3*).

Hacking Pool may also be used for improvised attacks and defenses (see p. 122).

Hacking Pool Modifiers

Only two cyberware devices directly affect the Hacking Pool: the encephalon and the math SPU. Both increase the user's Hacking Pool by a number of dice equal to the encephalon or math SPU rating. The Task Pool provided by a chipjack expert driver with a Computer activesoft would also be used as additional Hacking Pool dice.

The only bioware that may affect Hacking Pool is the cerebral booster (p. 72, *M&M),* which adds its level to the user's Intelligence.

The only spells that affect Hacking Pool are Increase Intelligence and Decrease Intelligence. Adept powers such as combat sense have no effect on Matrix interactions.

In certain situations, System Familiarity skills (see p. 24) may also be used to temporarily increase a user's Hacking Pool in an appropriate system.

All of these Hacking Pool modifiers are cumulative.

Optional Rule: Hacking Pool and IC Suppression

Under this optional rule, a character can sacrifice a die from his Hacking Pool, rather than a point of his Detection Factor, to suppress a crashed piece of IC (see *Suppressing IC,* p. 212, *SR3*). This allows the character to continue operating without increasing the risk of raising his security tally. Hacking Pool dice sacrificed in this way cannot be used again until the IC is unsuppressed.

Optional Rule: Hacking Pool and Detection Factor

If the gamemaster allows this rule, a character can increase his Detection Factor on a temporary basis by sacrificing dice from his Hacking Pool. A character who wishes to do this must announce that he is allocating Hacking Pool dice at the beginning of the Combat Turn. Hacking Pool dice allocated in this fashion cannot be used for anything else that turn.

For every 2 dice allocated, the character increases his Detection Factor by 1. The maximum increase a character can achieve is +3 (6 allocated dice).

EDGES AND FLAWS

A wide range of edges and flaws (as presented on p. 15, *SRComp)* may affect a character's Matrix use. In addition to Matrix edges and flaws such as Codeslinger and Jack Itch, the Attribute edges may affect a user's Hacking Pool. Flaws such as Simsense Vertigo, Blind, Deaf and Gremlins may prevent a character from using the Matrix at all, while Home Ground or Sensitive Neural Structure may affect how the character uses the Matrix.

MATRIX ADDICTION FLAW

Value: –2, –4 or –6

As many computer users have learned over the past century, immersing one's self into a virtual reality can be quite addictive, leading to obsessive and anti-social behavior. This

MATRIX ADDICTION TABLE

Severity	Value	Description
Mild	–2	The character must spend a minimum of 4 hours per day online or suffer a +1 modifier to all target numbers. Each day the character is deprived of his online time, the modifier increases by 1, to a maximum +8.
Moderate	–4	The same as Mild, except the character must spend a minimum of 6 hours per day online. Additionally, the character must succeed in a Willpower (6) Test to jack out (this test is not required if the character is under attack from gray or black IC), or spend at least another hour online (at which point he may make another Willpower Test).
Severe	–6	The same as Moderate, except the character must spend a minimum of 8 hours per day online. Also, the character suffers a +1 target number modifier to all tests involving Charisma or Charisma-linked skills in the real world.

hazard is particularly heightened by the realistic nature of many Matrix systems and the use of hot ASIST interfaces.

A character with the Matrix Addiction flaw is addicted to spending time in the Matrix. On a basic level, the character attempts to jack in as much as possible, often for a length of time considered unhealthy. The character becomes adept at finding excuses for spending time online and easily becomes cranky if deprived of Matrix access. Because the character spends so much time in the Matrix, he or she also tends to let their real-life social skills lapse.

Matrix Addiction comes in three severity levels—Mild, Moderate and Severe—as indicated on the Matrix Addiction Table (p. 26).

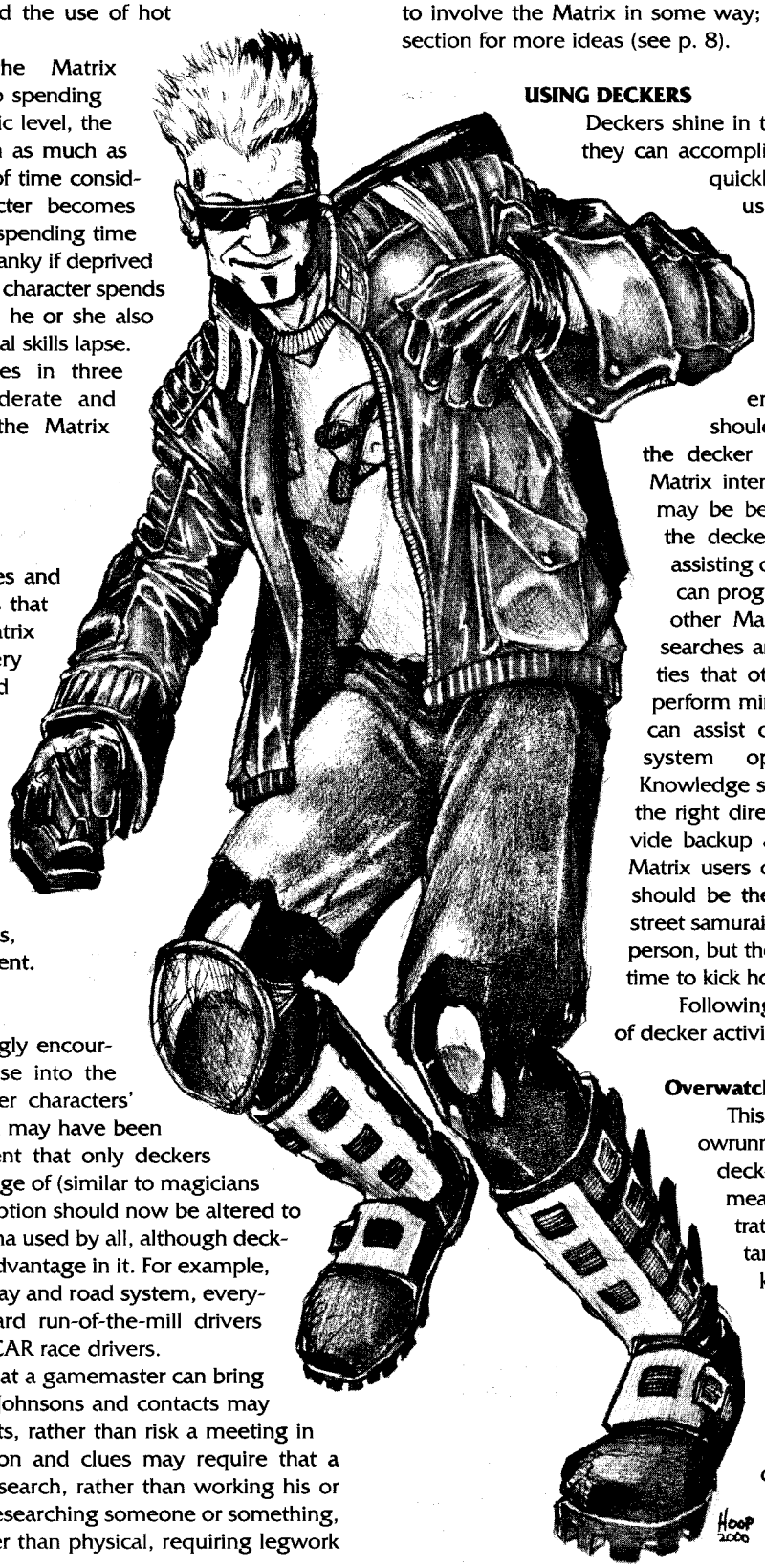
MATRIX USERS IN GAME PLAY

Except for technophobes and those with debilitating flaws that prevent them from using Matrix technology, almost every *Shadowrun* character should be a Matrix user. At the very least, most characters will be accustomed to using the Matrix for email, news services and basic information searches. Most characters will also be accustomed to using the Matrix for meetings, business, games and basic entertainment.

USING THE MATRIX

Gamemasters are strongly encouraged to integrate Matrix use into the daily routines of their player characters' lives. In the past, the Matrix may have been presented as an environment that only deckers traveled in and took advantage of (similar to magicians and astral space); that perception should now be altered to present the Matrix as an arena used by all, although deckers should retain a distinct advantage in it. For example, if the Matrix were the highway and road system, everyday users would be standard run-of-the-mill drivers and deckers would be NASCAR race drivers.

There are many ways that a gamemaster can bring the Matrix into game play. Johnsons and contacts may request virtual meeting spots, rather than risk a meeting in the flesh. Finding information and clues may require that a character perform a Matrix search, rather than working his or her contacts. If runners are researching someone or something, the trail may be virtual rather than physical, requiring legwork in the Matrix. Almost any aspect of the world can be tweaked to involve the Matrix in some way; consult the *Matrix World* section for more ideas (see p. 8).



USING DECKERS

Deckers shine in the Matrix—in cyberspace they can accomplish tasks more easily and quickly than non-decker Matrix users. Deckers are also capable of hacking, a task that even the most intrepid non-decker Matrix user should approach carefully.

Given these considerations, gamemasters should be careful to ensure that the decker does not monopolize all Matrix interactions. While the decker may be better at Matrix operations, the decker is also quite suited for assisting other Matrix users. Deckers can program frames and agents for other Matrix users to use for info searches and can also program utilities that other characters can use to perform minor hacking tasks. Deckers can assist other users in conducting system operations, using their Knowledge skills to point other users in the right directions and otherwise provide backup and "overwatch" as other Matrix users do their thing. The decker should be the virtual equivalent of the street samurai—not necessarily the point person, but the one you call up when it's time to kick hoop and take names.

Following are just a few examples of decker activities.

Overwatch

This is the reason most shadowrunning teams include or hire a decker. Working overwatch means that the decker infiltrates the host controlling the target of a shadowrun and keeps an eye on the run from this inside vantage point (often through the site's own security cameras). From this position, the decker can react quickly to squelch alarms, open locked doors, warn the runners that security guards are closing in and

otherwise cover the runners' backs. Running overwatch can be more complicated than it sounds, because the decker must also fend off Matrix security while watching out for others. If the host is not accessible from the Matrix, it means that the decker will have to infiltrate the site as well and physically hide out once he jacks in.

Lurking

Lurking is the favorite pastime of security deckers. With their security passcodes and cranked-up masking, a security decker can cruise through the system, snooping over the shoulders of legitimate users to make sure no one's breaking the rules. Naturally, many security deckers enjoy the voyeuristic aspects, though corporations naturally frown upon and limit this activity when possible (after all, executives don't want their employees to be accumulating spicy blackmail material).

The highlight of lurking is when an unauthorized user busts into the system. That's when the security decker pulls out all the stops and brings all his dirty tricks to bear against the intruder.

Searches

Given that information is the new currency of the Sixth World, most deckers spend the majority of their time online scrounging for paydata—or at least data that will lead to getting paid. While anyone with a cyberterminal can dig for data, deckers do it faster and better. Searches can be crucial for a runner team, as the decker digs up clues, chases down leads or turns up the real identity of their mysterious Mr. Johnson. Most deckers have a variety of tools to aid them in searches, from browse utilities to smart frames. Searching also involves a social element, as many deckers will have a network of Matrix contacts that they can work, in the same way that other runners hit the streets and chat with their pals. For more details on *Information Searches,* see p. 124.

Phone Games

With the Matrix at their fingertips, free phone calls are just the first advantage of having a decker around. Given the prevalence of surveillance gear and hostile hackers, deckers can ensure that phone calls remain untapped and untraced. They can also generate free phone service under assumed names, or use their skills to monitor the communications of opposing forces.

Free Stuff

Nothing will get that package of hard-to-find gear to your doorstep faster than a healthy dose of Matrix credit fraud. When cred is tight, it's often cheaper to pay off a decker than to purchase restricted items at standard prices. With their ability to alter payment records and shipping instructions, a decker can acquire the goods and charge it all to some suit's bank account.

Even more to the point, deckers also have access to the online black market, where just about anything imaginable is for sale to the highest bidder.

Information Falsification

It's hard to function in modern society without a valid SIN, but a decker can usually alleviate such problems. This same principle can also be useful for planting misleading data in order to confuse anyone trying to track you down. Likewise, by accessing and altering the proper datafiles, a runner team can gain entrance to an otherwise secure site by masquerading as something they're not, such as a cleaning service, work crew or "special guest."

USING NON-DECKER MATRIX USERS

Characters who aren't deckers and who lack cyberdecks should still have plenty of opportunity to access the Matrix. Almost every home and business has a basic MPCP Rating 1 cyberterminal, allowing non-decker members of a runner team to take on easier Matrix tasks, freeing up the decker for the hard stuff. Non-deckers could even accompany the decker on hacking runs, serving as a distraction or even performing critical operations while the decker scrapes away the IC. Though slower, Matrix users who run with a cold ASIST interface have the advantage of being less susceptible to black IC or dump shock.

RIGGERS AND THE MATRIX

Though riggers also use datajacks to interact with machines, the nature of rigging and vehicle control rigs makes them an entirely different animal from standard deckers. Because rigging focuses on the brain's thalamus and on knee-jerk instinctual reactions, riggers are impeded by the intense cerebral concentration necessary for decking. To reflect this, a rigger suffers a +1 modifier to all target numbers when in the Matrix. Additionally, any Hacking Pool the rigger may have is reduced by the level of his VCR.

A rigger can bypass these negatives by installing a reflex trigger (see p. 301, *SR3*) on his VCR, allowing him to turn the VCR on and off with a Simple Action.

AWAKENED MATRIX USERS

Contrary to popular stereotypes, Awakened characters suffer no handicap to Matrix or simsense use based on their magical natures alone. However, Awakened characters may have flaws or traits that inhibit their Matrix use. For example, most Awakened avoid the damaging effects of implanted datajacks, instead preferring to use trodes.

Because the Matrix is a virtual reality that does not physically exist in the normal sense and cannot be seen, magic does not work there. Despite the claims some otaku make regarding "spirits of the Matrix," magicians cannot summon spirits within the Matrix. However, physical spells that affect a user's Intelligence or Reaction will impact the user's attributes and dice pools in the Matrix.

NON-METAHUMAN MATRIX USERS

To date, only metahumans (including infected metahumans such as ghouls) have the correct neural physiology to access the virtual reality of the Matrix. Creatures with the power of regeneration, such as vampires, are forced to use trodes rather than datajacks. A number of corps are racing to be the first to develop usable Matrix interfaces for non-metahumans, specifically dragons, satyrs, shapeshifters, materialized spirits and so on. In the meantime, most of these creatures are capable of using the Matrix in tortoise mode only (see p. 42).

OPTIONAL RULE: SOTA

Tech doesn't stand still. The deck that cracked a mainframe wide open last month might not even get past the access node today. To stay on the edge, a decker has to stay current with the "state-of-the-art," the *SOTA*.

When using the optional SOTA rules, as described on p. 84, *SRComp*, the gamemaster should roll 2D6 and consult the Matrix SOTA Table for Matrix advances.

MATRIX SOTA TABLE

2D6 Result	Result
2	Advance SOTA for specific persona program
3–5	Advance SOTA for specific type of utility
6–8	Nothing changes (must be a slow month in R&D)
9–11	Advance SOTA for specific type of utility
12	Advance SOTA for MPCP

SOTA FACTOR

When the SOTA advances, deckers must spend money, time and/or Karma Points to keep the specified software or hardware current (see *Maintenance Costs*, below, for details.) The rating of any component that is not maintained drops 1 point. This is a permanent loss. The decker has to upgrade the program or component per standard rules to restore its original rating. The program size stays the same, even though the rating has dropped.

The SOTA Factor measures the amount of maintenance required to keep software and hardware current.

If the MPCP advances, the SOTA Factor equals MPCP Rating x 2.

If a persona program advances, the SOTA Factor equals its rating.

If a type of utility program advances, calculate the SOTA Factor as follows: First add all the ratings for the affected utility types for which the decker has the source program. Divide that total by 2, rounded down. Add the ratings for any other utilities of the same type. The final sum is the SOTA Factor.

Do not include in-progress programs and components in these calculations. The decker is presumed to update the technology for ongoing projects while the task is still going on.

If a decker has used a copy of a utility in a frame as well as on her deck, it counts as a single copy—don't count the same program twice if the decker is using it for different purposes. Frame cores count as utility programs, but again, if a decker has the same core in multiple frames, count its rating only once.

Selena has Computer-6 and an MPCP-8/6/6/6/6 deck. She has attack utility ratings totaling 86 points, but her source code accounts for only 49 points of that sum.

If the MPCP advances, her SOTA Factor is 8 x 2, or 16.

If a persona program advances, the SOTA Factor is 6.

If her attack utilities advance, take 49 ÷ 2, rounded to 24 (utilities with source code), plus 37 (other utilities), for a total of 61.

LIFESTYLE AND SOTA

A decker who maintains a High or Luxury lifestyle receives partial "automatic" maintenance for his gear and programs. High lifestyle reduces the SOTA Factor by 25 percent, Luxury lifestyle by 33 percent (round down). Middle lifestyle or lower does not offer this SOTA advantage.

MAINTENANCE COSTS

Deckers can pay for their SOTA maintenance costs with skill, money, or Karma Points.

First, the decker makes a Computer (MPCP rating) Test. If maintaining MPCP or persona programs, characters may use the Hardware specialization. For utilities, the Programming specialization may be substituted. For every success, reduce the SOTA Factor by the rating of the skill used for the test.

Remaining points in the SOTA Factor may be paid off with money at 500 nuyen per point. Alternatively, a decker can spend Good Karma to reduce the SOTA Factor. Each point of Good Karma reduces the SOTA Factor by the rating of the decker's Computer Skill or the relevant concentration or specialization.

However the decker chooses to pay off the SOTA Factor, he must pay before the next game or suffer the specified penalties. The decker also may pay off only part of the SOTA Factor and decide what components to leave out of the calculation. Any equipment not upgraded at this time suffers the specified penalties.

Selena must pay off a SOTA Factor of 61 to maintain her attack utility programs. Her deck has an MPCP Rating 8, so she makes a Computer (8) Test. She achieves 2 successes, so she reduces the SOTA Factor by 6 x 2 = 12 points. Her SOTA Factor is now 49.

She spends 4 Karma Points to reduce it by another 24 points, to 25. But now there's a problem. Selena has only 10,000 nuyen to spare for the SOTA. That means she'll be able to pay off all but 5 points of the SOTA Factor.

Selena may leave 5 points worth of object-only attack utilities or 8 points of source code attack utilities unpaid. She has a Black Hammer-5 (no source code) she hasn't used much lately, and so drops it from the SOTA Factor. That program drops to Black Hammer-4.

Gamemasters may wish to modify the frequency of SOTA Factor increases, depending on their games. If a decker is working constantly, near-weekly SOTA Factor increases may not be plausible. Instead, the increases may occur every three months or so.

The SOTA rule is recommended for gamemasters who have a problem with over-wealthy decker characters. The rule enables gamemasters to extract excess nuyen from such characters and prevent them from buying every advantage a decker could possibly have without having to resort to cheap tactics.

ACCESSING THE MATRIX

Accessing the Matrix seems like an easy process. You plug in your terminal, slip on the trodes, slap the power stud and sit back as the icons of your local system blaze to life around you. Behind the scenes, though, the actual procedures involved are quite complex. It takes no small amount of special hardware, authentication schemes and background processes to bring that virtual world to life.

This section discusses the hidden technical aspects of accessing the Matrix, beginning with every decker's point of entry: jackpoints and wireless links. This is followed by specifics on commonly available Matrix services, including types of connections and features as well as Matrix accounts. It then moves into a discussion of what those Matrix accounts cover and how they work, including passcodes, access privileges and the incriminating datatrail, as well as how deckers subvert these systems. Next, the section covers perception within the Matrix, dealing with the iconography of both UMS (standard) and sculpted systems. The chapter wraps up with information on using tortoise mode to get online, for those times when jacking in isn't an option.

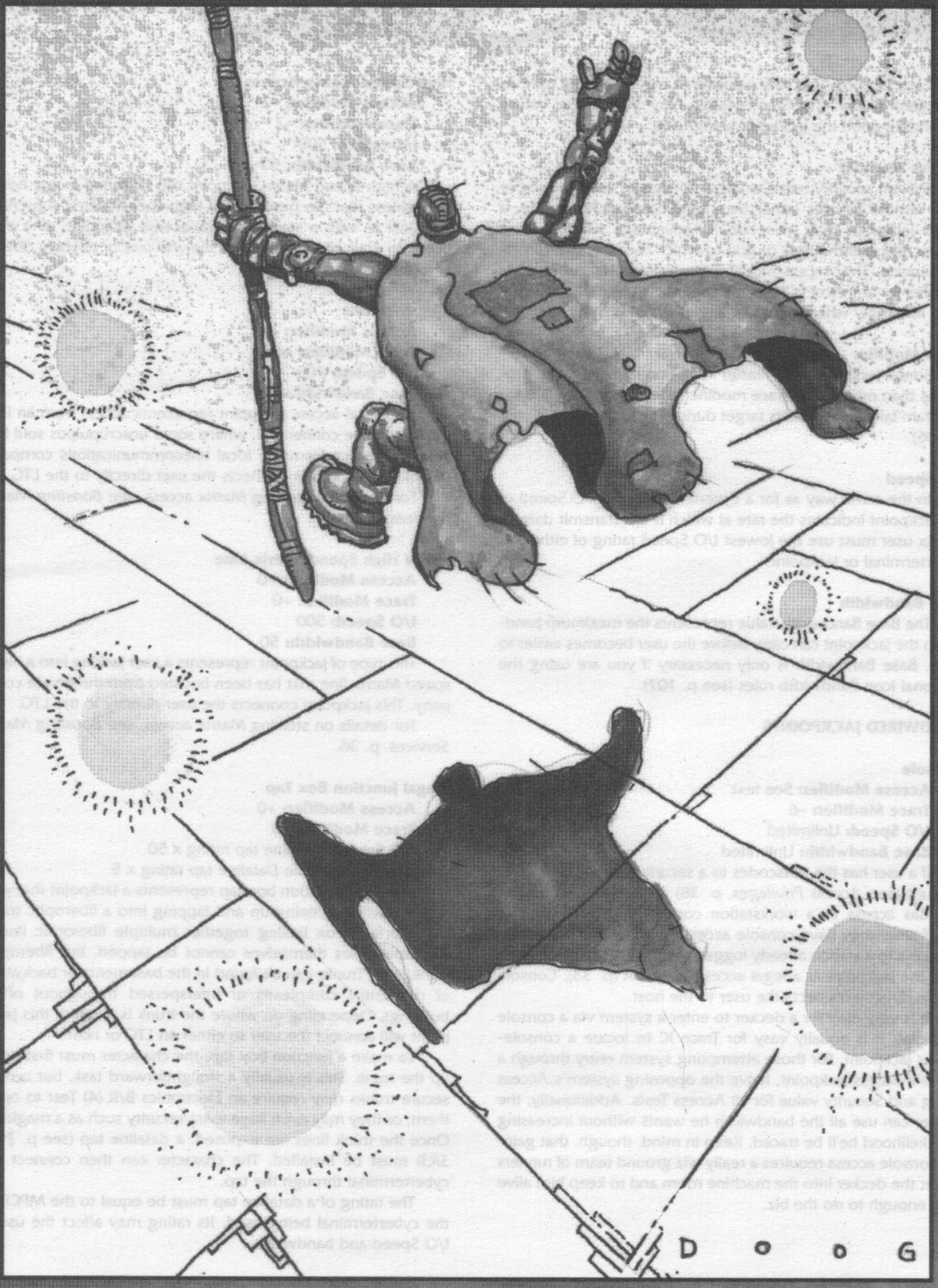
THE JACKPOINT

The first step for any Matrix user is to physically connect their cyberterminal to the Matrix. This connection is called the jackpoint. This section provides parameters for a variety of jackpoint types.

Note that it is also possible to connect to the Matrix through broadcast wireless transmissions (see *Wireless Links,* p. 33).

JACKPOINT VALUES

On the surface, most jackpoints look the same. They are roughly circular in shape, featuring a locking couple-top to secure the connected cable and an LED that flashes to indicate active data traffic. This appearance is where the similarity ends. The actual tech involved can differ widely from one jackpoint to another and depends on the type of Matrix connection being made. These connections can range from standard hardwired Matrix lines to wireless links. Aside from the everyday legal connections, there is also a wide range of illegal jackpoints possible, though they require a bit of set-up work.


D o o G

Each jackpoint has four values that may affect the user, as described below. The gamemaster may vary these values depending upon the jackpoint being used.

Access Modifier

System security tends to be suspicious of users jacking in from remote devices rather than legal consoles. Therefore, a user's jackpoint may give him an advantage when making Access Tests on the host or grid to which the jackpoint directly connects. The Access modifier is used as a target number modifier for any Access Tests the user makes on that system. It does not apply when accessing any other grids or hosts.

Trace Modifier

Some jackpoints are easier to pinpoint with trace programs than others. The Trace modifier affects how long a trace program takes to locate its target during the location cycle (see p. 106).

I/O Speed

In the same way as for a cyberterminal, the I/O Speed of the jackpoint indicates the rate at which it can transmit data. A Matrix user must use the lowest I/O Speed rating of either his cyberterminal or jackpoint.

Base Bandwidth

The Base Bandwidth value represents the maximum bandwidth the jackpoint can carry before the user becomes easier to trace. Base Bandwidth is only necessary if you are using the Optional Icon Bandwidth rules (see p. 107).

HARDWIRED JACKPOINTS

Console

Access Modifier: See text
Trace Modifier: –6
I/O Speed: Unlimited
Base Bandwidth: Unlimited

If a user has the passcodes to a security or superuser-level account (see *Access Privileges*, p. 38) on a host's mainframe and has access to a workstation connected directly to that mainframe, they have console access. Without the passcodes or access to a station already logged in under those passcodes, treat the jackpoint as a legal access jackpoint (p. 33). Console access directly connects the user to the host.

It is very easy for a decker to enter a system via a console jackpoint; it is equally easy for Trace IC to locate a console-access jackpoint. For those attempting system entry through a console-access jackpoint, halve the opposing system's Access rating and Security value for all Access Tests. Additionally, the decker can use all the bandwidth he wants without increasing the likelihood he'll be traced. Keep in mind, though, that gaining console access requires a really wiz ground team of runners to get the decker into the machine room and to keep him alive long enough to do the biz.

High-Speed Matrix Access

Access Modifier: –2
Trace Modifier: –2
I/O Speed: 500
Base Bandwidth: 50

A high-speed Matrix jackpoint can be found in any home or business that has purchased a high-speed Matrix subscriber line. Just as with a standard legal-access jackpoint, all a user needs to do is connect through the wall jack or telecom directly to the LTG.

Illegal Access

Access Modifier: +0
Trace Modifier: +0
I/O Speed: 300
Base Bandwidth: 20

An illegal-access jackpoint represents access from an illegal Matrix line connection, where some unscrupulous soul has boosted service from the local telecommunications company (telco). This jackpoint connects the user directly to the LTG.

For details on stealing Matrix access, see *Boosting Matrix Services*, p. 36.

Illegal High Speed Matrix Line

Access Modifier: +0
Trace Modifier: +0
I/O Speed: 500
Base Bandwidth: 50

This type of jackpoint represents a user jacking into a high-speed Matrix line that has been boosted from the phone company. This jackpoint connects the user directly to the LTG.

For details on stealing Matrix access, see *Boosting Matrix Services*, p. 36.

Illegal Junction Box Tap

Access Modifier: +0
Trace Modifier: +0
I/O Speed: Dataline tap rating x 50
Base Bandwidth: Dataline tap rating x 5

An illegal junction box tap represents a jackpoint that was jury-rigged by opening up and tapping into a fiberoptic trunk (an interface box linking together multiple fiberoptic lines). Fiberoptic lines themselves cannot be tapped, but fiberoptic trunks can. Trunks can be found in the basements or backyards of residential complexes or interspersed throughout office buildings. Depending on where the trunk is located, this jackpoint will connect the user to either an LTG or host.

To make a junction box tap, the character must first open up the trunk. This is usually a straightforward task, but certain secure trunks may require an Electronics B/R (4) Test to open them, or they may even have extra security such as a maglock. Once the trunk lines are exposed, a dataline tap (see p. 290, *SR3*) must be installed. The character can then connect his cyberterminal through the tap.

The rating of a dataline tap must be equal to the MPCP of the cyberterminal being used. Its rating may affect the user's I/O Speed and bandwidth.

Legal Access

Access Modifier: –2
Trace Modifier: –2
I/O Speed: 300
Base Bandwidth: 20

A legal-access jackpoint represents access from a legally registered trideo unit, telecom, public dataterm, home computer or the common wall jack found in most homes and business offices. This jackpoint connects the user directly to the LTG.

Maser Power Grid Connection

Access Modifier: +0
Trace Modifier: –2
I/O Speed: 400
Base Bandwidth: 25

The maser power grid connection jackpoint is only found in high-tech corporate compounds and other areas that use maser Matrix networks (see p. 44) through their power grid. To use this jackpoint, the character must have a maser interface (see p. 57) for his cyberterminal.

Remote Device Tap

Access Modifier: +4
Trace Modifier: +4
I/O Speed: 100
Base Bandwidth: 10

Remote devices represent the classic sneaky, back-door intrusion method. Any device that has a Matrix connection can be jacked into, from an automated factory or security terminal to a maglock or vending machine. This allows a decker to slip past the massive grid defenses or gun-toting workstation guards and penetrate straight into the guts of the system.

A remote device jackpoint tends to be harder to trace. Most trace programs focus on established commlines first, and don't start to interrogate other input sources until they come up empty. However, remote device connections are usually limited in scope, restricting both the user's I/O Speed and making unauthorized logons more difficult. In many cases, the I/O Speed and Base Bandwidth may be even lower than the values listed.

Some remote devices have actual external jackpoints that allow a character to jack right in, though this is rare. To tap into most remote devices, the character will need to access the device's internal electronics. This usually requires an Electronics B/R (4) Test, though some devices may be more difficult or may have added security such as a maglock. Once inside, the character can install a dataline tap (see p. 290, *SR3*). The cyberterminal can then access the Matrix through the dataline tap. The rating of a dataline tap must be equal to the MPCP of the cyberterminal being used.

WIRELESS LINKS

Rather than using a hardwired jackpoint, a Matrix user can forge a Matrix connection through wireless transmissions such as cellular, radio or even microwave. Such connections allow the user greater mobility, but they typically suffer from slower transmission speeds. All wireless links require special cyberterminal software and hardware in order to translate signals to and from the transmission medium.

WIRELESS LINK VALUES

All wireless links use the same values as jackpoints: Trace and Access modifiers, I/O Speed and Base Bandwidth. In addition, wireless links also suffer from less stable connections than hardwired jackpoints, and may be impeded by electronic countermeasures or other interference (see *Signal Strength*).

SIGNAL STRENGTH

Radio-based wireless links (including cellular, radio and satellite, but not laser or microwave) are considered to have a Flux rating equal to the rating of their interface hardware. (Flux is described on p. 137, *SR3*.) The signal quality is subject to jamming and other forms of electronic interference, as described on p. 138, *SR3*.

Laser links are secure against electromagnetic jamming and interference, but heavy rain, fog or smoke blocks them. Laser links do not have Flux or ECCM ratings.

Microwave links do not have Flux or ECCM ratings and are immune to both jamming and weather conditions.

Interference and Matrix operations

If something interferes with a user's wireless link, the disruption of signal quality will affect the user's Matrix actions. This is true regardless of the source of the interference, be it intentional jamming, weather conditions or other factors. For each net success a jammer achieves, apply a +1 modifier to any tests the user makes within the Matrix and a –1 modifier to the user's Matrix Reaction. Likewise, if other factors impede a wireless link's quality (such as smoke partially blocking a laser link), the gamemaster should increase the above modifiers appropriately.

Marco is decking the Matrix via a laser link, doing overwatch for his runner team. In the middle of the action, the gamemaster tells Marco that it has started to rain heavily, interfering with the laser connection. Marco starts experiencing lags and glitches as he decks, sometimes causing icons around him to flicker or de-rezz with static. The gamemaster decides the heavy rain is enough to inflict a +2 modifier to all of Marco's actions within the Matrix, and it also reduces his Reaction by –2.

WIRELESS LINK TYPES

High-Speed Cellular Link

Access Modifier: +3
Trace Modifier: –3
I/O Speed: 100
Base Bandwidth: 5

A high-speed cellular link allows the user to connect to the Matrix through the cellular network. The cyberterminal must be equipped with cellular interface hardware (see p. 60) and a cellular link utility (see p. 72).

A cellular link connects the user to a host of the cellular telecommunications company. From there, the user can access the LTG or RTG (and usually the telco's PLTG). Cellular telco hosts tend to be classified as Orange-Average or Orange-Hard systems.

While cellular links are relatively easy to trace, at the location cycle's completion the cellular link's actual physical location will not yet be identified. Determining the user's physical location requires a Triangulate system operation (see p. 101). The cyberterminal still suffers other effects of being traced, and the cellular link's serial number and commcode will be known.

Note that the user cannot merely link his cyberterminal to a standard cellphone; they are not configured to handle the bandwidth and multiple frequencies necessary for full-sim Matrix access. He must connect to the cellular interface hardware. However, a user accessing the Matrix using tortoise mode (p. 42) could establish a wireless link using a cellphone.

Laser Link

Access Modifier: –2
Trace Modifier: –2
I/O Speed: 300
Base Bandwidth: 20

A user whose cyberterminal is equipped with the laser interface hardware (see p. 60) and utility (see p. 72) can connect to any laser link receiver within line of sight. To correctly line up the beam, the user must succeed in an Electronics (Linking Between Devices) (4) Test. Heavy rain, fog or smoke will inhibit laser communication (see *Signal Strength*, p. 33) and may inflict a modifier on this test. For more information on laser link networks, see p. 46.

A laser link connects the user to whichever host or grid the laser link receiver is connected. A trace program will only determine the location of the receiver, not the laser link itself. All other effects of being traced apply.

Microwave Link

Access Modifier: –2
Trace Modifier: –2
I/O Speed: 200
Base Bandwidth: 10

A user whose cyberterminal is equipped with the microwave interface hardware (see p. 60) and utility (see p. 73) can connect to any microwave link receiver within line of sight. To correctly line up the beam, the user must succeed in an Electronics (Linking Between Devices) (4) Test. For more information on microwave link networks, see p. 46.

A microwave link connects the user to whichever host or grid the microwave link receiver is connected. A trace program will only determine the location of the receiver, not the microwave link itself. All other effects of being traced apply.

Radio Link

Access Modifier: +2
Trace Modifier: –2
I/O Speed: 200
Base Bandwidth: 2 x radio's rating

A radio link jackpoint represents access through a digital radio transceiver, connected to the Matrix through a repeater network and/or radio towers. Radio links have a slightly faster transmission rate than cellular links and are unlikely to have their physical location triangulated, if only because most radio networks do not have the software for doing so.

A radio link connects the user to a host of the radio telecommunications company, from which the user can access the LTG or RTG (and often the company's PLTG or other hosts). Radio telco hosts tend to be classified as Orange-Average or Orange-Hard systems.

To use a radio link, the user's cyberterminal must be equipped with radio interface hardware (p. 61) and the appropriate utility (see p. 73).

Note that the user cannot merely link his cyberterminal to a standard radio transceiver, because they are not configured to handle the bandwidth, multiple frequencies and digital packets necessary for full-sim Matrix access. He must link to the radio interface hardware. However, a user accessing the Matrix using tortoise mode (p. 42) could establish a radio link using a standard radio transceiver.

Satellite Uplink

Access Modifier: +2
Trace Modifier: +0
I/O Speed: 500
Base Bandwidth: 50

To access the Matrix via a satellite, a user must have a cyberterminal equipped with the satellite interface hardware (p. 61) and satellite link utility (p. 73). The user must first attempt to locate an orbiting commsat and lock onto its transponder. This requires a Computer (Hardware) Test with a base time of 1 minute (20 Combat Turns). The target number and modifiers can be found on the Satlink Connection Table (p. 35).

The target numbers given assume that the user is attempting to link to any satellite available. If the user is attempting to locate a satellite from a specific constellation, they may suffer a modifier depending on the density of that constellation (see p. 47).

If the user achieves no successes, the user fails to locate/lock onto any satellites. The user may try again immediately.

Once the user has successfully locked onto a satellite, the user can perform a Logon to RTG operation to access the constellation to which the satellite belongs (see *Satellite Constellation RTGs*, p. 47). From that RTG, the user can attempt to access any RTG on Earth. They can also access other satellite constellation RTGs, systems in near-Earth orbit or even certain PLTGs aligned through a satlink with that constellation.

Satellite RTGs are typically classified as Orange-Average or even Orange-Hard systems. Rate military and private corporate comsats as Red-Hard.

Security tallies generated on a satellite carry over to the next grid that the decker accesses.

Satellite links generally suffer from signal lag, thereby affecting Matrix operations. Reduce the Matrix Reaction of a user accessing via a satellite link by –2.

While trace programs can locate the satellite to which a character is linked, they cannot pinpoint the user's physical

location, making physical response to the Matrix intrusion impossible. The other effects of a successful trace still apply (see p. 104).

DAISY-CHAINED WIRELESS LINKS

It is possible to establish a Matrix connection through two or more combined wireless links and jackpoints. For example, a decker could use his laser-link interface-equipped cyberterminal to communicate with a laser-link-equipped dataline tap plugged into an illegal junction-box tap—and even more links can be added to the chain. For example, a user could access the Matrix through a radio link connected to a microwave link connected to an illegal access jackpoint. Or a user could jack in legally at home, access an illegal jackpoint attached to a cellular link, and connect through the cellular network to the Matrix.

When making a connection chain like this, the user is limited to the lowest I/O Speed and Base Bandwidth of all the devices that are part of the chain. Additionally, any Trace modifiers provided by any of the links are cumulative.

Gordie is preparing to deck into a system that he knows is loaded with trace IC. He knows they'll probably tag him before he has time to accomplish everything he needs to do on the host, so he takes some extra precautions when arranging his jackpoint. He's also looking to inflict some revenge on a guy who used to pick on him in high school, so he decides to take care of both items at once.

Breaking into the old bully's classy new apartment, Gordie wires a radio-link receiver into the guy's telecom unit. He then takes up position in a van down the street, where he jacks into his cyberdeck. Gordie uses his cyberdeck's radio link to connect to the radio receiver, which routes him through his old nemesis' telecom. Logging onto the LTG, Gordie zeroes in on his target host, happy in the knowledge that the trace IC will nail his old friend when the time comes.

Gordie has daisy-chained his connection through one radio wireless link and one legal access jackpoint. Despite the chain, only the Access modifier from the legal jackpoint applies (–2). However, the modifiers for being traced are cumulative, therefore he suffers a –4 Trace modifier (–2 from each). Additionally, Gordie's I/O Speed is limited by the lower of the two or his cyberdeck (in this case, the radio link's I/O Speed of 200). The same also applies for the Base Bandwidth; because he is using a Rating 4 radio link interface, the lowest bandwidth is 8.

SATLINK CONNECTION TABLE

Location	Target Number
Open country, clear view of horizon	2
Open country, some obstructions	3
Open country, mountains or heavy forest	6
Suburban	3
Light Urban	6
Downtown Urban	8

Conditions	Modifier
Bad weather (heavy or electrical storm)	+2
ECM in use	+ECM rating
Using large portable dish	–1
Using large fixed-base dish	–2
Specific Satellite Constellation Density	Variable

MATRIX SERVICES

In the old days, the standard household would get their TV channels via radio waves, their phone service through copper wire phone lines, their cable channels by cable, and their internet access through a leased DSL line. In the world of 2061, all these services are provided through the fiber-optic cable lines of the Matrix. Conventional broadcasting of TV and radio is quite rare and generally restricted to less prosperous nations, public access channels and pirate stations. Even these tend to broadcast trideo or HDTV at the very least.

SERVICES AND COSTS

The various Matrix services offered by Matrix Service Providers (MSPs) are detailed below.

Cost: Each service lists two prices. The first is for legal users with SINs. The second price in parentheses is the going rate that most SINless pay for an illegal hookup, either by bribing someone at the MSP or by paying a decker to boost the services. The gamemaster should feel free to alter these prices as appropriate for her game. Players may also make Negotiation Tests to reduce the fee for illegal services.

The costs listed are per month, with a typical 10 percent overdue charge. If the bill is not paid within one week of its due date, access is terminated and a reconnect fee amounting to 300 percent of the original hookup service fee will be charged.

Lifestyle: Each service may be factored into a character's lifestyle, as long as the character possesses at least the lifestyle listed. Note that a SIN is required for each of these services; if the character lacks a SIN, whether real or fake, the option is only included at the next highest lifestyle. For example, basic Matrix service is automatically included in a Low lifestyle if you have a SIN, or a Middle lifestyle if you don't.

Basic Matrix Service

Cost: 30¥ (100¥)

Lifestyle: Low

Basic service includes a basic MSP account and a single commcode. It also includes services such as commcalls, email, faxes and the common local trideo channels and Matrix audio feeds (no premium or sim channels). Additional commcodes can be purchased for a nominal fee (usually 10 nuyen).

Premium Matrix Service

Cost: 60¥ (200¥)

Lifestyle: Middle

Premium service is a step up from basic service. It provides everything basic service does, but also includes access to

2 "pay" channels or 1 sim feed channel per lifestyle level above Low. Additional channels may be purchased at a cost of 10 nuyen per channel per month (20 nuyen for sim).

Premium Matrix service also includes service and a commcode for one wireless access device such as a cell phone, pager or pocket secretary. Additional wireless service may be purchased, usually costing approximately 25 nuyen per device.

High-Speed Matrix Service

Cost: 100¥ (300¥)

Lifestyle: High

A high-speed Matrix connection represents a dedicated leased line purchased from either the MSP or LTG vendor, allowing higher file-transfer speeds. High-speed service includes everything premium Matrix service provides, with four premium or two sim channels per lifestyle level above Medium. Additional channels may be purchased at a cost of 5 nuyen per month (10 nuyen for sim).

High-speed Matrix jackpoints provide increased I/O speeds (see *Hardwired Jackpoints*, p. 32).

Satellite Channel Reception

Cost: 80¥ (250¥)

Lifestyle: None

This is basic satellite trid reception. It includes every channel normally available on the local networks as well as broadcasts from around the world. Satellite channel broadcasts can be picked up by anyone with a satellite dish, but the transmission will be scrambled unless you are a paid and registered subscriber.

BOOSTING MATRIX SERVICES

In order to steal Matrix services (called "boosting"), a decker must hack the telco or MSP's database and insert information to create a bogus Matrix Services account. Depending on the system's security, this is usually a risky endeavor. Most MSPs are Orange-Average systems, and typically have high levels of Probe IC. To create the account, the decker must first logon. Then she must make a successful Locate File operation to find the account listings and a Validate Passcode operation to input the new account passcode. If the decker wants to link the account to a jackpoint and activate it, he must also make a Control Slave operation. If the decker doesn't have a bank account set up (real or fake) he will need to periodically hack back in and perform Locate File and Edit File operations to alter the billing records so that it looks like the bill is being paid. The decker may make additional Edit File operations to activate additional commcodes or Control Slave operations to register additional jackpoints.

Boosting Subscription Channels

In order to boost the pay channels available through premium Matrix services, the decker must hack the media company (typically Green-Hard or Orange-Easy systems) and perform a Validate Passcode operation for each desired channel. The decker will also need to perform an Edit Files operation on a monthly basis to simulate payment, just as with boosting other Matrix services.

Rather than hacking the media source of a satellite channel, a decker can take an easier route and simply break the encryption scheme. Depending upon the rating of the encryption (gamemaster's discretion) and the booster's decryption software, however, this may be easier said than done (see *Broadcast Encryption*, p. 289, *SR3*). Most channels change their encryption schemes once a month.

MSP ACCOUNTS

Every legal user of the Matrix has an account with a Matrix Service Provider (MSP). This account is called an MSP account. The MSP account provides the space for the user to load his persona into the Matrix. It also provides the user with a commcode so that others may reach him through the Matrix.

The main MSP for any given area is the telco responsible for running the local LTG. Most private Matrix users purchase their accounts directly from the telco; thus, when they log into their account, they log onto the LTG. Aside from the telco, many other MSPs also sell and provide MSP accounts to users. Large MSPs such as UCAS Online run their own PLTGs, while smaller outfits provide accounts from a host, or series of hosts. Most businesses provide MSP accounts to their employees; logging into these accounts at the workplace places the user in the business' host or PLTG. Accounts with smaller MSPs are also registered in the databases of the closest telco.

Every host and grid on the Matrix requires the user to log onto their system using an account. Many public commercial hosts accept the user's basic MSP account as a login, while others require you to access an additional account specific to that system.

In order to access an MSP account, the user logs on with a passcode (see *Passcodes*, p. 37). This allows the individual to use the account and log on to the LTG (or host)—the Logon system operation automatically succeeds. Most users operate through a personal account, but certain types of accounts provide extra privileges (see *Account Privileges*, p. 37). Whenever a user logs on, he also creates a datatrail (p. 38) through which his activity can be logged and traced.

REGISTERING AN MSP ACCOUNT

To register an account with an MSP, the user must provide a SIN and information on the user's bank account for automatic billing purposes. The user also provides the serial numbers of any jackpoints and wireless devices (usually cellphones, pagers or pocket secretaries) he owns or is assigned to use (see *The Datatrail*, p. 38).

A commcode is assigned to each of these jackpoints or devices; often a single commcode will cover several jackpoints. The commcode is essentially a phone number and an email address rolled up into one.

In order to access an MSP account, the user chooses a passcode. For extra security, some MSP accounts can only be accessed with a cyberterminal bearing the correct MPCP signature.

MSP Accounts in Everyday Use

When a user wishes to legally access the Matrix, he mere-

ly plugs his cyberterminal into a jackpoint and logs onto the LTG using the passcode for his MSP account. If at work, the employee jacks in and logs on to his employer's host or PLTG.

Whenever someone calls, faxes or sends email to the user, the transmission is directed through the Matrix to the jackpoints and wireless devices associated with the commcode. The attached device then rings (phones and telecoms), prints out (fax machines) or logs the message (computers, pagers and phones) as appropriate.

PASSCODES

A passcode is a security device intended to keep unauthorized users out of a system and allow the authorized user to access an MSP account. In effect, passcodes are access codes that guarantee automatic success when attempting certain tasks or manipulating specific files on a system. Any activity not authorized by the passcode requires System Tests (see p. 209, *SR3*) and can jeopardize the passcode. In other words, a passcode is a key that allows a user to open up certain locked doors within a house; depending on the privileges assigned to the passcode, the key will not work on certain doors, requiring the user to pick the lock (what deckers do).

Passcodes come in various formats depending on the security needs of the provider. These can range from very simple to exceedingly complex, though system designers have to keep in mind that the more complex the passcode, the less user-friendly the system. Creating a good passcode system is therefore often a struggle to find a compromise between security and ease-of-use.

Basic Passcodes

Simple passcodes consist of sets of symbols that the user enters when he wants to log on. If entered correctly, the system grants the user access. The most common passcodes are alphanumeric strings. Because the Matrix is a virtual reality, passcode symbols can also consist of images, tunes or even specific movements.

Linked Passcodes

A linked passcode requires an extra bit of input from the user—an extra level of identification specific to a person or a cyberterminal. This can be a scan from a security scanner (retinal, fingerprint, palmprint and so on) linked to the cyberterminal or the correct signature from the cyberterminal's MPCP. If the scan or signature doesn't match the records, access will be denied.

Passkeys

One of the most secure ways of controlling access to a system is by means of a passkey—a module that plugs into a cyberterminal. Many corporations require this accessory for telecommuting workers. When a logon is attempted, the system queries the module in the cyberterminal. If it doesn't receive the proper code, the user is denied access.

ACCOUNT PRIVILEGES

Most accounts have some sort of limitation; after all, it doesn't make sense to allow every user to read every other

user's email and access their personal files. Likewise, system administrators and security deckers should have privileges above and beyond that of the basic user. Four types of account privileges exist: personal, group, security and superuser.

Automatic System Tests: Having the passcode for an account allows the user to automatically succeed in their Access Test to logon to the system. Depending upon the privileges assigned to the account, the user may also be able to perform other operations without having to make System Tests. For these automatic System Tests, the user does not need to roll any dice, nor does the system make a Security Test against the user to increase the Security Tally. The user must still take the appropriate action (Free, Simple or Complex).

For System Tests where the number of successes achieved is important, allow the user to make a System Test as normal to achieve more successes. Keep in mind that because the operation is considered legal, the system still does not make a Security Test.

Each type of account privilege lists the system operations that are considered legal and that succeed automatically. The gamemaster should modify these depending upon the account and system in question. Many systems are more restrictive, while some give users more access. If a system operation is marked with an asterisk, the operation is only automatic if the passcode gives access to the particular file or subsystem.

Personal

The standard personal account authorization provides the basic privileges available to most users. Personal status allows the user to access the hosts, files and/or slave systems that they need to do their job, but that's about it. The extent of access also depends on the user's position in the organization: a supervisor will have wider access than a lowly office temp.

Automatic System Tests: Analyze Icon, Control Slave*, Decrypt File*, Download Data*, Edit File*, Edit Slave*, Graceful Logoff, Locate Access Node, Locate Decker, Locate File*, Locate Frame, Locate Slave*, Locate Tortoise Users, Logon to Host*, Logon to LTG*, Logon to RTG*, Make Commcall*, Monitor Slave*, Send Data, Swap Memory, Upload Data

Group

Users are often linked together in groups. These groups are then given access as a whole to files or slave systems. This allows the system to easily control access to specific areas as well as allowing the users to share files with other users who will need them. For example, all public relations staff will be part of a group that has access to public relations files, but their group will not be able to access files pertaining to the company's financial records.

Group access is not a higher level than personal access—rather, they exist side-by-side with a degree of overlap. As an example, even though two wageslaves may be in the same group, they cannot access each other's personal files. Both of them, however, can work with the files marked for access by their group (and they both can mark some or all of their own files for group-level access).

A user who logs on with a group passcode can only gain access to the files that are "shared" in the group—not to any "private" files marked as belonging just to an individual. In most cases, it is more advantageous to log on with a personal account, as that gives access to both the user's private files and the files of the group (or groups) to which the user belongs.

Automatic System Tests: The same as personal privileges.

Security

A security account passcode allows more privileges than those available to run-of-the-mill users. Security accounts are typically given to senior management and the mid-level technical staff. Most security deckers also have security passcodes, though some have been known to hack themselves up to superuser access, depending on how strongly their corporation feels on this issue.

As with normal users, security users are often part of one or more user groups.

Automatic System Tests: The same as for personal privileges, plus Abort Host Shutdown, Analyze Host*, Analyze Operation, Analyze Subsystem*, Block System Operation, Crash Application*, Encrypt Access*, Encrypt File*, Encrypt Slave*, Locate IC, Restrict Icon, Scan Icon, Trace MXP Address

Superuser

Most systems will have a few users that are granted superuser status. Also known as "root privilege," superuser privilege allows the user total access, so that any problems that come up in the system can be solved. Superuser access authorizes almost any activity, including destruction of important data or actions that damage the system or render it inactive.

Automatic System Tests: The same as for security privileges, plus Crash Host, Disinfect, Dump Log, Intercept Data, Invalidate Account, Tap Commcall, Validate Account. Note that as long as the system is not under active alert, superuser status provides the user with a –2 modifier to all System Test target numbers.

BILLING

The fees for an account with an MSP are deducted automatically on a monthly basis from the bank account provided. If you don't have the cred, your Matrix account will be shut down.

The fees for Matrix use are based on a monthly basic access charge. Unlike in the old days of telecommunication, users are no longer charged according to their time online or even for "long-distance" calls (in the Matrix, anywhere in the world is just an RTG away).

Matrix users typically rack up extra Matrix charges by paying to access certain hosts, downloading sims or software, playing virtual games or otherwise using a commercial Matrix service. Aside from the basic Matrix news, trid and sim channels, many users also subscribe to additional Matrix newsfeeds or entertainment channels. For more information, see *Matrix Services*, p. 35.

THE DATATRAIL

Whenever a Matrix session is initiated, a series of invisible processes take place to identify, track and log the user. Originally for administration and billing purposes, these processes are now frequently used to track computer criminals.

Jackpoint ID

In order to allow access to the Matrix, each jackpoint must be registered with the telecommunications company that runs the grid. The actual jack itself has a hardwired, unique identification number built in by the manufacturer. All commercially produced jacks are required to have this serial number, including jackpoints built into computers, telecoms and so on. Matrix-attached wireless link receivers also have their own serial numbers (and, in some cases, the wireless link interface device, such as a cell phone, may have one as well). Every jackpoint within a typical home will have its own serial number. Even illegal Matrix taps have a serial number, because each remote device and access port on a fiberoptic trunk is assigned one.

The MXP Address

When a user begins a Matrix session, he is assigned a numerical code called a Matrix protocol address (MXP address). This MXP address incorporates the jackpoint's serial number. All traffic that passes into the Matrix through the jackpoint is "tagged" with this MXP address to show its origin.

The telco operating the grid logs each MXP address. In addition to the jackpoint's number and physical location, this log includes information on the MPCP's signature, the MSP account used, the assigned commcode, and the time the Matrix session begins and ends. The bank account information linked to the MSP account is also listed for billing purposes. Depending on the telco, the log may also include other information, such as what LTGs and RTGs were accessed and when.

Trace programs operate by locating the MXP address and checking its reference in the telco's database to determine the physical location. Masking and camouflage utilities are used to conceal this number and interfere with its transmission.

DECKING AND UNAUTHORIZED ACCESS

Naturally, unauthorized users such as deckers prefer not to leave incriminating datatrails. Aside from the wonders of the masking persona program and the use of wireless links that make it difficult for programs to trace back to their actual location, deckers use several methods to protect their privacy.

ACCESS THROUGH DECEPTION

The primary way deckers gain access is simply using a deception utility and faking their way in. In truth, modern deckers don't actually need the passcode to an MSP account to get online—this is what deception programs do (p. 220, *SR3*). A decker without the passcode to an MSP account must perform a standard Logon to Host/LTG/RTG operation, using deception and hacker tricks to fool the system into believing a legitimate logon has been made.

Of course, some deckers believe any extra advantage they can get over trace programs and the like is worth having. These deckers may employ any of the following options.

SPOOFING JACKPOINTS

Deckers cannot use a jackpoint that does not have a serial number—the telco will simply refuse to allow access, and it cannot be forced. However, there are several options for "spoofing" a jackpoint's serial number.

The first is to simply use a number from an existing jackpoint—either by filching the number or actually ripping out a jackpoint's interface and hooking it back up in a different location—so that the telco's information on the jackpoint's actual location will be incorrect. However, the telco will know if two jackpoints are registered with the same serial number and immediately disable both. Also, the telco's software will quickly realize that that the data is being transmitted through a different chain of Matrix relay nodes than is appropriate for its location and will disable it after D6 minutes. If the appropriate relay node (or nodes) can be located and hacked, the decker can hide this discrepancy, thus giving the jackpoint a longer life span (gamemaster's discretion).

The second option is to hack into the telco's database and edit the location of an existing jackpoint. This option is also undermined by the conflicting data from Matrix relay nodes and so suffers the same short lifespan (D6 minutes, longer if the relay nodes are found and fooled). Because this entry must be hacked anyway in order to create an illegal access jackpoint, some deckers intentionally insert fake locations when boosting service.

USING A THROWAWAY MSP ACCOUNT

Many deckers prefer to save the hacking for the hard hosts, resorting to "throwaway" MSP accounts to gain easy access. Called throwaways because they are generally only useful for a single decking run before they are invalidated, a throwaway is simply the passcode to an MSP account that the decker uses to gain easy access.

There is a thriving market is throwaway accounts among the decker community. Typically they are sold for 100 nuyen apiece for basic personal accounts, though prices may vary. Accounts that provide access to specific hosts (rather than just the LTG) sell for at least double or triple that amount.

Bogus Accounts

One way of obtaining a throwaway account is to register one using false information. This generally requires the decker to have a bogus bank account and SIN set up beforehand, neither of which are easy tasks.

A second option is to hack the telco's database (or whomever) and create accounts and passcodes by inserting information. This is done using roughly the same tasks as when setting up a fake MSP account (see p. 36).

Stealing Passcodes

Stealing the passcodes to existing accounts is always an option for enterprising deckers. In the case of users who are absent-minded, lazy or just generally not security-minded, this may be quite easy. Often times, these users will have their passcode written down nearby or even easily found on their computer. Otherwise, the decker may have to get the passcode out of a person the hard way: using interrogation or intimidation. This has the drawback that the person knows their account is going to be compromised. Most users choose passcodes that

are easy to remember (their birth date, their car's license plate, their pet's name and so on), so a decker who researches a user may be able to more easily deduce the passcode.

It is also possible to steal passcodes online, either by hacking the MSP's database or by using a sniffer utility (p. 71) to monitor a user logging on. In the case of users with linked passcodes or passkeys, stealing the passcode itself will be useless unless the decker can also forge the required scan, signature or passkey. Forging a signature requires the decker to burn a new MPCP with that signature, while forging a scan requires the same effort as to fool a scanner on a maglock (see p. 235, *SR3*).

Copying Passkeys

To take advantage of an MSP account that requires a passkey (see p. 37), a decker can attempt to copy a legitimate passkey. To do this, the decker will need either the schematics for a passkey or access to one with enough time to thoroughly analyze it. Analyzing a passkey requires a successful Computer (B/R) Test with a target number equal to the passkey's rating and a base time of 4 hours (divide this time by the successes achieved). The decker will also need a computer kit for this task.

With the necessary information obtained, the decker can then make a copy of a passkey. This task requires both an electronics shop and a programming suite. To succeed, the decker must make an Electronics B/R Test with a target number equal to the passkey's rating and a base time of (passkey rating) days. A passkey algorithm program is typically only 10 Mp in size.

PASSCODE SECURITY

As the "virtual keys" to an account, passcodes need to be secure. Unfortunately, users often handle them irresponsibly. This means that system administrators need ways to plug holes that are created either inadvertently by users or deliberately by hostile deckers.

Activity Logs

Depending on the level of security, almost any activity that occurs in a host or grid can be logged. Because it can be easy to create huge logs full of banal data, most systems only keep logs of error messages, logons and suspected security breaches. More paranoid sysops may choose to log all operations and manipulated files, including the time, date, account, MPCP signature and MXP address. Ultimately, it is up to the gamemaster to decide how carefully a system tracks its users.

Security and superuser level users can check these logs using the Dump Log operation. Logs exist as files on the system, and they can be found with the Locate File system operation or changed with the Edit File operation.

Periodic Changing of Codes

To prevent people who have gained access to a passcode from using it indefinitely, many systems automatically require users to change their passcodes on a regular basis, typically weekly or semi-monthly. This is typically only enforced on security-conscious systems, as Joe User often has trouble remembering a good passcode, much less one he has to change every week.

To change a passcode, the system's supervisor must use the Validate Account system operation. Before the new one is set, however, the old passcode is first deactivated with the Invalidate Account system operation.

Certain systems go to extreme measures to change passwords on a daily basis. Many passkeys are in fact designed to do this, by combining the date and time with a specialized algorithm so that the passcode actually changes every time the user logs on. Other companies require their users to carry pagers so that new codes may be periodically (on a random basis) transmitted to them, or else some variation of these procedures is used.

Deactivating Abused Codes

Once an MSP account has been identified as being used in a hacking incident, the MSP will immediately disable the account. If the legitimate owner can prove their innocence, it may eventually be reactivated with a new passcode. The MSP may also launch an investigation, depending on the damage inflicted by the decker. Most investigators, however, have learned that if they don't trace and catch the intruder right away, they probably aren't going to find him or her. For this reason, investigators are often less than zealous in resolving cases unless the stakes are high.

VISIBILITY AND PERCEPTION

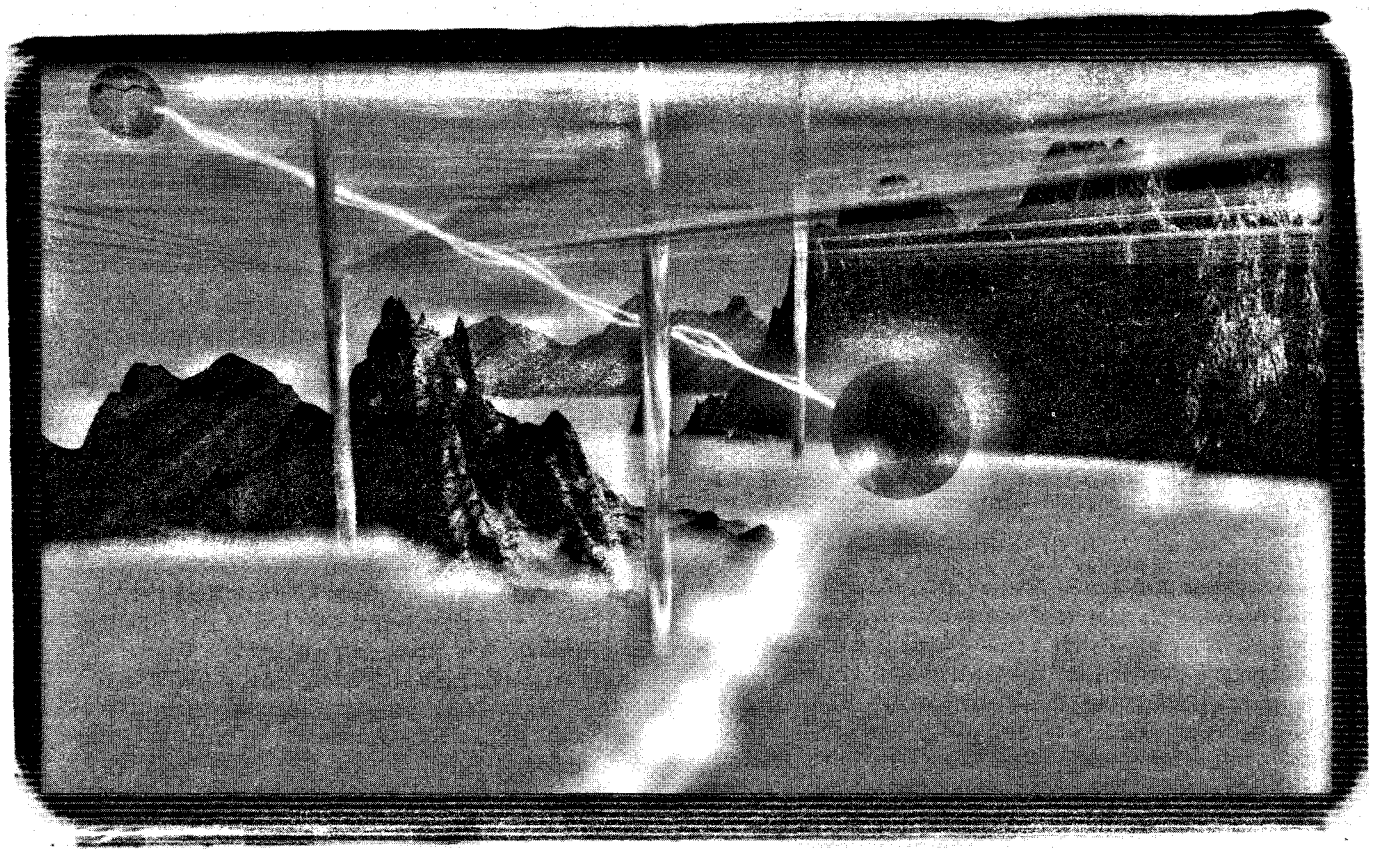
When you jack in to the Matrix, the RAS override and the ASIST interface kick in. The sensory signals of the system you've logged into quickly subsume physical sensations. For all the user can tell, he has become his icon. He interacts with the virtual reality around him as if he were really there.

BEHIND THE SCENES

Within the Matrix, a user will sense whatever his sensor persona program is capable of detecting, within certain limits. Because there is no physical space in which to actually see or sense anything, this sensory input is actually defined by the data each feature and icon "broadcasts" to identify itself. The user's ASIST interface translates this data into actual sensations (perhaps modified according to the user's reality filter), so that the user perceives icons and other Matrix landscaping.

For example, a user who logs onto the Seattle LTG will find his persona floating in virtual space. The user will "see" a range of icons representing the access nodes to hundreds (perhaps thousands) of hosts, stretching away towards the horizon. The user is, of course, not actually seeing anything. His sensor programs are picking up the broadcast from each icon on the grid and translating them into the appropriate images.

The majority of minor background processes do not, as a matter of course, "broadcast" sensory details unless someone is specifically looking for them. For example, the various phone calls, email and so forth that pass through a system usually go by unseen. If all of this data were visible, the sensory input would be overwhelming. Instead, most ASIST interfaces intentionally filter out background clutter. In some systems where they wish to show data traffic it is represented by stylized streams of light or other, similar icons.



Some features within the Matrix may attempt to remain hidden. This is done either by not broadcasting any iconography instructions (in the case of hosts that attempt to be invisible) or by using masking programs to conceal themselves (in the case of deckers). Sensor programs that are good enough will notice their presence anyway and will depict them with default icons if they do not broadcast any of their own.

For more details on Matrix perceptions, see *Seeing the Matrix* (p. 202, *SR3*) and *Matrix Perception* (p. 209, *SR3*).

SYSTEM ICONOGRAPHY

Within the Matrix, every host and grid uses icons to symbolically represent their inner workings. Usually, the icons within a system will follow the same style or metaphor. These styles generally fall into one of two categories: UMS or sculpted systems.

UMS Systems

A system with Universal Matrix Standards (UMS) iconography uses standardized icons for each of its programs and features, making that system look the same as every other UMS system. Most UMS icons are rather uninspired in terms of design. For example, datastores typically appear as square blocks of data, slave units appear as spheres and scramble IC appears as a snake constricting around a datafile. While systems with UMS icons tend to be easier to use and navigate (thanks to icon familiarity), they are also considered to be extremely dull because everything looks the same. For this reason, very few systems use UMS imagery anymore, opting instead for the more visually appealing sculpted system.

Whenever a sensor program fails to ascertain an icon for a program, persona or other feature, it depicts it using the most appropriate UMS icon. If it is completely unknown, the UMS icon shown is that of a three-dimensional blinking X-shape.

Sculpted Systems

Sculpted systems use custom-designed imagery rather than UMS icons. Unlike UMS systems, sculpted systems possess a central metaphor. All or most of the things a user experiences within the system will conform to that metaphor.

The central metaphor of a sculpted system defines the virtual reality of the system. For example, the Mitsuhama primary host is designed around the metaphor of a medieval Japanese milieu. Within the host, subsystems are depicted as virtual villages where application icons that appear as peasants toil away patiently in the rice paddies. The sensitive data held within the system is stored within fortresses that make Osaka Castle look like a kiddy toy, guarded by dangerous-looking samurai IC.

The central metaphor can literally revolve around anything, limited only by the designer's creativity. Most metaphors revolve around some sort of historical or literary setting, but in recent years there has been an explosion of metaphors focused around completely new art styles and orig-

inal universe concepts. Many of the historically oriented sites do not bother conforming to complete historical accuracy, and often will throw out certain conventions altogether, meshing normally unrelated styles just because it's wiz.

Hosts in a linked network, certainly those sharing host-host access, usually share the same metaphor. Keep in mind that these metaphors are not just to look impressive. They are usually intended to make day-to-day work easier and more intuitive for the people who use these computers.

Effects of Sculpted Systems

When a user logs on to a sculpted system, everything he does or senses is explained in terms of the system's central metaphor. He has to act as if the metaphor were his reality. If his icon is in a virtual corridor, for example, he cannot walk through the walls. If a user insists on describing his actions in terms that do not conform to the system's central metaphor, apply a +2 modifier to all target numbers for tests he makes in the system.

Sculpted Systems and Reality Filters

The imposed iconography of certain sculpted systems may cause problems for users with a reality filter. The ASIST interface can become overloaded, unable to process and translate conflicting metaphorical images and actions.

The gamemaster decides when a reality filter and sculpted system are in conflict (usually immediately after the character logs onto the system). When this occurs, the character must make an MPCP Test against a target number equal to the system's Security Value. If the test fails, the character suffers –2 Reaction and –1D6 Initiative as long as he remains within the sculpted environment. System sculpture can extend over linked hosts in a network, even over an entire PLTG and its attached hosts. As a result, the character may suffer the penalties for quite awhile.

If the character succeeds, his ASIST interface keeps a tight reign over the system and reality filter translations, keeping intact his Reaction/Initiative bonus for using the filter.

MATRIX MOVEMENT

In the Matrix, there are no real spaces to move between. What a user does determines where she is. In other words, a user's "location" is defined by the dataspace, data pathways and elements of a system to which she has immediate access.

For example, a decker who logs on to a host from a grid will pass through into the dataspace of the system's access node. If she then makes an Index Test to locate a specific file, she is making a query to the address tables and file system architecture for the computer. Once the file is located, the decker will have moved to the datastore in which the file is kept. From the decker's point of view, she will be "moving" through different parts of the system as she conducts these operations. The exact sensations of movement and the changing scenery will depend on both the system sculpture and her own reality filter (if any). If there is another decker currently accessing the file subsystem, there is the distinct possibility that the two might notice each other ...

TORTOISE MODE

It is possible to access the Matrix without using simsense, a persona or an ASIST interface. Rather than experiencing the Matrix through virtual reality, the user interacts with the Matrix through a simple text- or graphics-based interface. Rather than using a datajack or trodes, the user uses VR goggles and gloves, holo-display screens or even flatscreens, as well as trackballs, touchscreens, keyboards and other low-end tools. In effect, the user accesses the Matrix in the same way a turn-of-the-century user accessed the Internet's World Wide Web. This method of operation is typically called "tortoise mode," in comparison to the typically faster Matrix-use methods.

A user can access the Matrix using tortoise mode from a cyberterminal (or any other computer attached to the Matrix) equipped with a basic interface. This includes pocket secretaries, laptops, street corner dataterms and so on. Tortoise mode is commonly used for quick information searches when jacking in just isn't convenient.

TORTOISE OPERATIONS

A character using a tortoise interface does not have a persona, nor is their presence within the Matrix indicated by an icon. Tortoise users can be located within a system by using a Locate Tortoise Users operation (see p. 100) and can be dumped with a Crash Application operation (see p. 96). A tortoise user can use utilities, though he must load them into active memory.

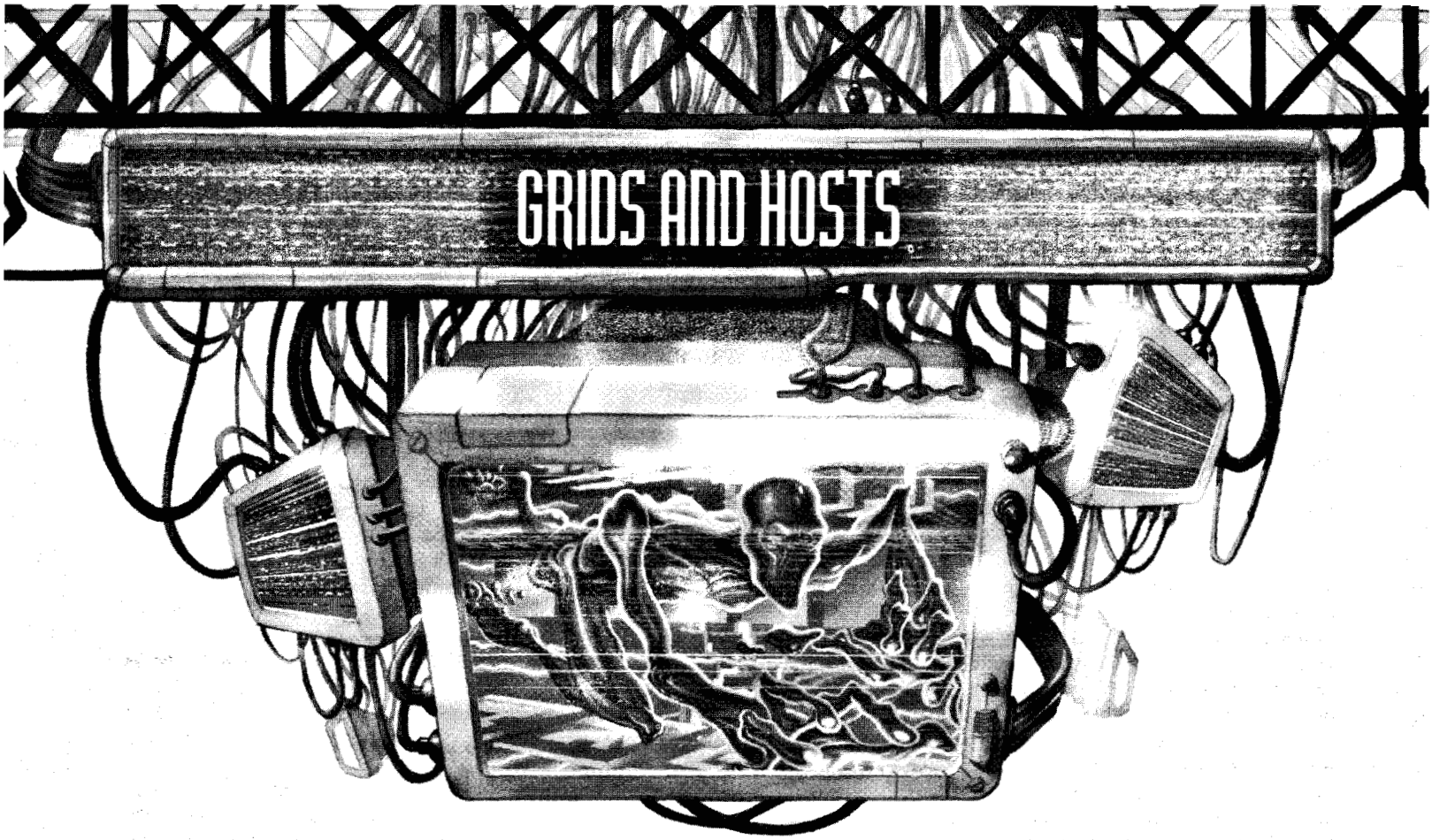
Though a tortoise user does not receive the simsense experience of being in a Matrix system, they do receive a graphic display (flat or holo, depending on their gear) of the system's appearance. This "persona's eye" view is extremely limited (the equivalent of a Rating 1 Sensor persona program) and rarely picks up anything beyond the system's prominent icons. The tortoise user will not detect any persona icons unless he conducts a system operation.

From tortoise mode, a user can conduct almost any system operation with only a few exceptions. None of the following operations may be used from tortoise mode: Decoy, Null Operation, Redirect Datatrail and Relocate Trace.

Tortoise users can build up a security tally rather easily—tortoises have an effective Detection Factor of 1. Tortoise users will not trigger any IC. However, their MXP address will be logged with each trigger step, and a trace will be launched against their address on the third trigger step. As soon as a tortoise user triggers a passive alert, the host or grid will immediately terminate their session.

A character using the Matrix in tortoise mode moves at their normal meat-body speeds. However, during combat they can only perform computer-related actions during one Combat Phase per Combat Turn. For example, a fully wired street samurai trying to locate a file on a computer system from tortoise mode while in the middle of a gunfight can use the computer during one Initiative pass only; he must shoot at opponents or perform other actions for the rest of his Initiative passes.

GRIDS AND HOSTS



The world telecommunications network, referred to as the "Matrix," is often compared to the twentieth-century Internet in its scope and design. While such comparisons are inevitable, there are vast differences between the two.

Unlike the networks of the late twentieth and early twenty-first centuries, the Matrix is broken up into dozens of semi-independent regional telecommunication networks, or RTGs. The world was still recovering from the Crash of 2029 when the Matrix was being built, and the world powers were wary of another disaster. To combat this problem, in place of the decentralized systems and protocols that typified the old worldwide information systems, a system of tiered access was developed. In that way the local and regional communications systems could operate independently, and thus potentially quarantine a future info-plague.

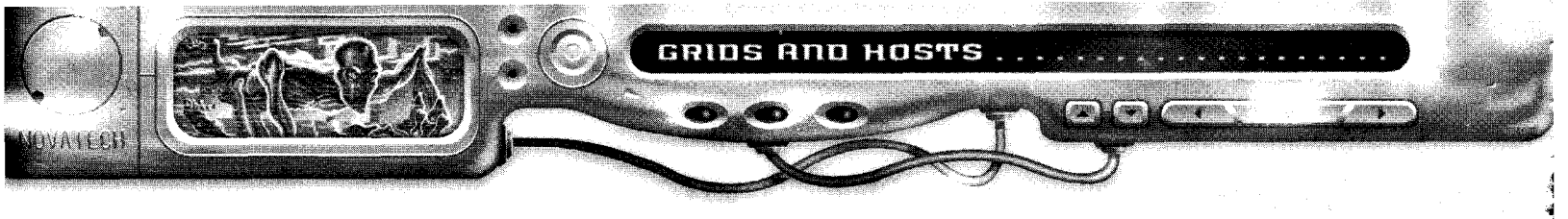
In addition to grids, the other integral part of the Matrix is the host. Hosts are the servers and mainframes of the Sixth World. Through these computer installations flow untold trillions of megapulses, containing everything from Grandma's favorite recipes to bank transactions worth millions of nuyen. Hosts are the true holders of wealth and power in the Sixth World, for they contain information—the little ones and zeros that make the world go round.

CONNECTIONS

The Matrix runs over a multitude of different connections, but for most Matrix traffic in 2061, the data moves over high-density fiberoptic lines laid down from the late twentieth century to the present day. These lines are capable of handling an incredible amount of data, an amount almost inconceivable to a user of the Internet in the 1990s. It is this backbone that makes the Matrix possible. There are hundreds, if not thousands, of separate parts that go into the running of the Matrix, but these can generally be broken up into a few broad categories.

WIRECOM

Whether you're discussing old-fashioned copper cables or the newest fiberoptic trunks, wires of one sort or another constitute the bulk of the modern telecommunications infrastructure. Wirecom covers the range from the few strands that run to your trideo box



to the foot-thick trunks that link the major communications hubs together. They even run under the ocean to link the continents.

Direct Cable

This is the standard method of connecting to the Matrix. Fiberoptic cables link your house, business, cyberterminal and so on to the Matrix.More impoverished countries often use copper wire cable instead of fiberoptic. The copper wire is older, however, and less capable of handling the information loads the Matrix requires.

Maser Power Grid Connection

Maser, or microwave laser, is a highly effective but seldom used telecommunication system using a city's or country's power grid as a carrier device. Using a maser, an encoded signal is placed on the magnetic field surrounding power lines. This type of service has the potential to replace even fiberoptic cables. It is very secure, able to handle the highest density data signals with an almost instantaneous I/O speed and requires the installation of only a single mid-sized maser to service a large area.

The problem lies in reliability. Though the transmission itself is secure, the signal is at the mercy of local power grids which, even in 2061, have frequent black outs—both accidental and intentional—which will corrupt any information in the process of transmission. Add to that the inertia built up by the manufacturers and service providers of the world's fiberoptic cables (similar to vacuum tubes vs. transistors in the mid-twentieth century), and it is easy to see why this superior technology languishes in obscurity. This type of service is very rare as a consequence, and usually reserved for areas such as megacorp and governmental facilities—some delta clinics, for example, are rumored to use this type of connection—where power service is never interrupted and a back-up provider is always at hand.

WAVECOM

This category covers wave-based transmissions, from low-power shortwave radio to world-spanning cellular radio networks. Wavecom is perhaps both the most limited and the most versatile category of communications. It has a wide variety of uses and services available, but it is hampered by restrictions on bandwidth and power.

FM/AM Radio

This is by far the oldest mode of broadcast communication still in active use. Digital broadcasting has expanded the capabilities of these transmissions, enabling stations to mix a data channel into the audio signal with subcarriers. This data is usually the title of the song that is playing, weather information and newsbytes.

Most modern radio programming is done at a regional level, with the music and audio programming being fed via satellite to local affiliates. These local stations usually add commercial programming and local information subcarriers to their transmission.

Shortwave Radio

Shortwave transmissions are rarely used in the modern age; even hobbyists have largely abandoned this part of the spectrum. Shortwave broadcasts have great range, but their signal quality is less than ideal. Still, the presence of a virtually unused, viable form of transmission might appeal to some people. Keep in mind that the bandwidth of transmissions over shortwave connections is usually measured in fractions of a megapulse, so its uses are limited.

VHF/UHF TV

Broadcast television stations once transmitted VHF/UHF signals using FM radio bands. The format's severe limitations, however, led to most stations switching to Matrix broadcast format. In most developed areas, the resulting unused frequencies were given to advanced cellular services. Public access stations, independents or pirates trying to get a message out use the rest of the old television spectrum.

Radio Cellular

Modern cellular networks are still organized into "cells" as they were in the twentieth century, but their "cells" are vastly more flexible now. The small size of modern equipment means cellular networks are both more dense and capable of handling much more traffic at higher speeds.

One of the interesting components of conventional cellular networks is that the physical location of users can be easily triangulated (see *Triangulate*, p. 101). Even having a cellular-capable device turned on means that it is broadcasting a status signal to the local cellular network. Technology can be readily applied to triangulate the user's location, or even track the users' movement by checking the connectivity logs of the cell towers his phone has communicated with as he has moved through an area. For these reasons, security conscious people are loath to use cell phones in situations where their location is a secret.

BEAMCOM

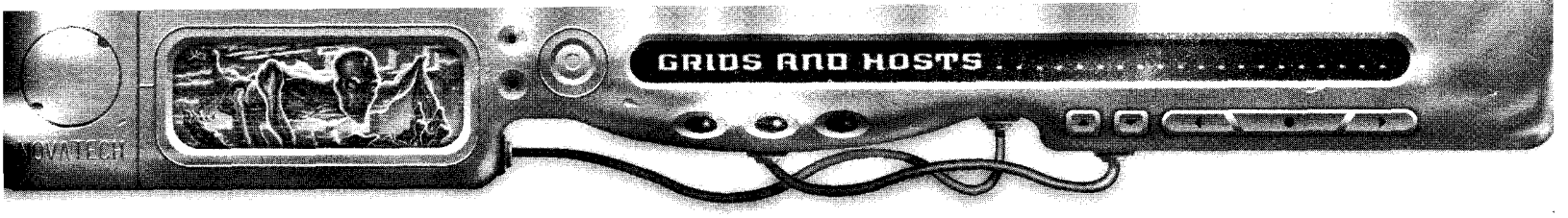
Beamcom transmissions share many characteristics with wavecom transmissions, but they are not the same. Each of the following systems uses a tight beam transmitter and corresponding receiver to connect two sites. Though the normal configuration is for each site to have separate transmitters and receivers, many sites have begun to upgrade to a single unit that acts as both.

Infrared

Infrared systems are not very precise, because they experience a lot of scatter in actual transmission. Much of that scatter is intentional, however, so that the alignment of transmitter and receiver don't have to be precise. The drawback of such ease of use is that anyone who can see the transmitter has a fair chance of eavesdropping. As a consequence, almost all transmissions via infrared are encrypted.

Infrared networks are only found in select interoffice networks; they are never used on any large-grid scale. Infrared networks are incapable of the bandwidth security that full simsense interfaces require, and so are not used for cyberterminal connections.

APPROVING ACCESS
TIRNA NOG



Laser

Laser systems, unlike infrared transmitters, have very little scatter, making transmissions much more secure without the need of additional encryption, though the truly paranoid are still likely to take such precautions. This security is bought with a price—exacting precision. Unlike infrared systems, laser systems require the receiver to be precisely aligned with the transmitter or the system will not function. An additional drawback is that if the laser beam is located, it is very easy to break transmission by blocking the beam. Additional weather elements, such as fog, heavy rain or smoke, can also interrupt transmission.

Laser networks are typically used in corporate compounds or for connecting downtown high-rises.

Microwave

As with laser systems, microwave transmission takes place between a transmitter and receiver that are precisely aligned with one another. Though they do not have to deal with the inherent problems of atmosphere , microwave transmissions are also subject to blockage if the location of both units can be determined.

SATCOM

Satcom transmission covers the orbital satellite relays that link much of the planet. Comsats in 2061 typically use one of four main frequency bands. Generally, the higher the frequency range, the smaller the receiving dish or antenna needs to be.

Cellular Satellite Service (CSS)

Cellular satellite services use large networks of satellites to send data throughout the world from any point on the globe. These networks are often referred to as "constellations." This allows a CSS subscriber to send Matrix-quality transmissions anywhere in the world without signal loss. It also limits the ability of others to trace his signal.

To use this method, a CSS subscriber activates his cell phone and locks onto the signals being broadcast by his constellation's satellites. If he has a valid account, the signal is decoded and he can begin to transmit to the constellation using his own cell phone transmitter. The signals are routed through the constellation to a ground station in the area the user wishes to contact, and then onto the conventional land-based networks. All responses are routed back over the satellites and broadcast to the user, changing the satellite routing path as specific satellites move out of range.

Direct Broadcast Services (DBS)

Most DBS satellites are used for network media broadcasts to regional stations, or by telecommunications companies to route traffic over long distances that cannot be covered by wire networks or ground-based microwave transmissions.

While many DBS systems are set up for transmission of media or data, they are not generally accessible by anyone other than their subscribed broadcasters. In order to cover as wide an area as possible, the DBS satellites are placed in the most distant orbit possible, a geo-synchronous orbit. Their distance from the Earth ensures that there is a substantial signal delay and relegates this broadcast method to preprogrammed, non-interactive data.

REGIONAL TELECOMMUNICATIONS GRIDS (RTG)

RTGs are macro-grids, covering large areas such as an urban sprawl, several rural states or even an entire small country. The RTG is the top layer of tiered access, and each RTG has several LTGs underneath it. Each RTG is also connected to every other RTG in the world.

The primary function of RTGs is to act as a glorified SAN, a gateway from which a user can access other RTGs or the LTGs beneath it. RTGs manage the bulk of long-distance and foreign-country calls, email and data transmissions, as well as entertainment and news channels.

RTGs are also responsible for the maintenance and continued operation of the LTGs under their sphere of operation. For the most part, RTGs perform system administration functions, controlling information flowing into the system, maintaining the regional databases and performing load balancing for LTGs that exceed their processing limits.

A sample list of the world's RTGs can be found on pp. 160–1.

ICONOGRAPHY

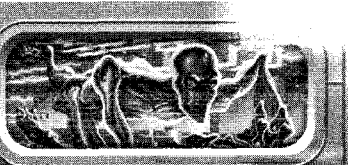
Most RTGs are designed to appear as a vast universe of gateways, portals or highway off-ramps, each leading to an RTG, LTG or the occasional PLTG. While most RTGs use only minimal sculpting, preferring UMS icons for ease of use, variations on this theme are not uncommon, ranging from a smaller-sized "transporter room" to a retro-feel busy train station. Doorways to other grids are clearly labeled in the language for which the user's sensor program is customized, and the massive amounts of data passing through an RTG on its way to other grids are rendered invisible by most users' sensor programs.

It is rare for a host to be connected to an RTG, though occasionally an RTG provider or grid tourist agency will have one accessible to the public. Most of the directory services, newsfeeds and other services of RTG providers are offered at the LTG level.

RTG POLITICS

Tiered Matrix architecture allows a great degree of flexibility in building networks, as they can easily be structured to conform to constantly changing political borders. In effect, this also provides a unique method of "border control." The administrating body of an RTG essentially has "life or death" power over the information and communications capability for any LTG, opening the doorway to a very effective tool for ensuring the compliance of the users of the LTGs in question. Thus, what was originally intended to be a defense against a future worldwide computer crash has became a political tool.

Naturally, such strategic uses of Matrix access could lead to open hostilities, which would be incredibly bad for business. To avert such manipulations, the Corporate Court created a regulatory body under its jurisdiction, called the Corporate Court Matrix Authority (see p. 150). To date, the Authority has kept RTG providers from using their monopolizing position reckless-



SATELLITE RTG TABLE

Satellite Constellation	Security Code	Access Rating	Control Rating	Index Rating	Files Rating	Slave Rating	Density Modifier
Angel SatCom	Orange-4	10	8	8	8	7	+0
Ares SkyFire	Red-6	11	11	11	9	9	+2
FreeSat	Green-3	6	7	7	6	6	+1D6
NewsNet SatNet	Green-6	9	8	9	8	8	−1
Nova Teledyne	Red-4	11	9	8	7	7	+1
Orbital Dynamix	Red-5	12	12	12	11	9	−1
Protocol	Red-6	10	13	10	9	9	+1
Renraku GlobalLink	Red-5	11	9	8	9	8	0
TriCom Global	Orange-5	10	10	9	8	8	+0
Tricom Prime	Red-6	12	10	10	9	9	−1
UCAS Skylink	Orange-5	9	9	10	10	8	+1

ly, lest they risk censure or even the dreaded Omega Order. However, there have been a few cases in which the Court has ordered RTGs to suspend or filter Matrix access to apply pressure to nation states that failed to recognize its edicts.

SATELLITE CONSTELLATION RTGS

Communication satellite constellations operate in much the same manner as RTGs, though they usually do not have LTGs underneath them. Satellite RTG providers who also own orbital habitats are an exception to this rule, as each habitat is included as an underlying LTG. It is not uncommon for each individual satellite to have its own host that can also be reached directly through the RTG. Without exception, however, these hosts are exceptionally difficult and dangerous to access.

Users who connect to the Matrix through a satellite constellation must follow the rules for satellite links (see p. 34).

Iconography

Satellite constellation RTGs each have a unique look and feel, depending upon their provider. Some of them prefer to present the RTG as the interior of a satellite, even including "windows" that depict real-time video feeds of space or the Earth below. Others tend to follow traditional RTG iconography.

Security Tallies on Satellite Grids

Due to the high levels of information security maintained on satellite constellations, security tallies generated by a user on a satellite RTG carry over to any other RTGs he accesses. Satellite RTGs are also very suspicious of ground-based transmission, so any security tally generated on an RTG will carry over to a user who then accesses a satellite RTG.

Uplinking to a Specific Constellation

The Satellite RTG Table lists the statistics for some of the more common satellite constellations. If a character is attempting to uplink to a specific satellite constellation, he must apply the Density Modifier from the table to his Computer (Hardware) Test (see p. 34). This represents the ease or difficulty of locating and locking onto a satellite from that specific constellation.

LOCAL TELECOMMUNICATIONS GRIDS (LTG)

LTGs are analogous to "area codes" in the old communications architecture. They are responsible for all the grunt work of the Matrix. For the most part, LTG providers operate in much the same way as their phone company and Internet service provider counterparts did in the twentieth century. They are responsible for repairing and upgrading the communications infrastructure in their area of control, maintaining the free information databases and providing the security and host space for systems logging onto the Matrix.

The area an LTG covers depends entirely upon the density of connections. For areas of low population or connections, an LTG may cover a geographic area of hundreds or even thousands of square miles. These low-density LTGs tend to be more limited in processing power than their high-density counterparts, such as those centered around major cities, because they do not handle the massive amounts of traffic that high-density LTGs generate. In cases where these LTGs experience large increases in bandwidth, the RTG will perform load balancing to make sure the LTG does not collapse.

ICONOGRAPHY

The standard visual representation of an LTG is of a gridded plane that extends in all directions. The actual "size" of this plane is entirely dependent on the number of systems connected to it. As more systems connect to the LTG, the "space" expands to accommodate them.

Each LTG is a pocket universe unto itself. Other LTGs cannot be seen, even if they are "adjacent" (both under the same RTG). There is also no portal connecting the LTG to any other LTGs; to travel to another LTG, a user must first ascend a level to the RTG above. From the RTG, the user can then either hop directly to the LTG (if it is also controlled by the same RTG), or move to another RTG and then descend into one of the LTGs beneath it.

The SAN portal for an LTG's dominant RTG is usually located at the top of the LTG space, like a planet in the sky. It is not

uncommon for the RTG SAN icon to be designed like the sun, the moon or some other heavenly body.

Hosts

Each host connected to an LTG is represented by an icon within the LTG "space." These icons float at varying heights above the gridded plane on the LTG's "floor." Many hosts, especially those used for commercial or entertainment purposes, represent themselves with highly stylized icons. Typically, larger corporations pay extra to have their host's icons rendered larger than the rest, so that they stand above the teeming virtual landscape. Most corporations place great stock in the appearance of their systems on the Matrix and many are quite startling in their design. Many other hosts opt instead for simple UMS polyhedron icons, usually because they wish to look innocuous and blend in with their surroundings.

PRIVATE LOCAL TELECOMMUNICATIONS GRIDS (PLTG)

Private LTGs (PLTGs), as described on p. 203, *SR3*, represent independent, restricted-access global grids that are closed to the general public. In twentieth century terms, they would be referred to as "intranets" or "extranets." Most large corporations and all megacorporations maintain at least one PLTG for internal communication and data access. Most governments also maintain several PLTGs, though in many cases these are actually separate networks not connected to the normal Matrix. These corporate and government networks often extend to sites spread throughout the world, bringing them all together into one easily accessible grid.

ICONOGRAPHY

PLTGs are usually designed along the "pocket universe" style used by most LTGs. Because they are privately owned and used, PLTGs are much more likely to use system sculpting than their public counterparts. For example, the PLTG within the Renraku arcology was sculpted to appear as a series of interwoven tubes, bunched together like a large ball of string.

HOW HOSTS WORK

Hosts are computer systems, what we refer to in the twentieth century as servers or mainframes. While the two types of computers are fairly different today, they are much closer in function and design in 2061 due to the advances in computing technology. The host deals with all system requests, such as logons, browsing, data retrieval, task prioritizing, alerts, running applications and so on. The technology used by hosts allows the sysadmin, or system administrator, almost complete control of all aspects of the computing environment, letting the sysadmin expand or customize the system as necessary. The sysadmin can add desired features, customizing the system to the local environment or adapting to a changing series of events. For example, if an administrator wants more security, he can simply link more security and tracking objects to the system or load in more IC as needed.

One of the capabilities of host systems is that they can be partitioned into multiple logical computers (i.e., virtual machines; see p. 121). This means a system can have whatever logical layout the administrator wants regardless of the physical layout of the hardware. A single mainframe can appear in the Matrix like a little network all its own, or look like five machines that don't know about each other.

ULTRAVIOLET HOSTS

Ultraviolet (UV) systems are extremely rare systems that have such immense processing power that they create a virtual space that borders on reality. To most Matrix users, ultraviolet hosts are a mere myth. Those that have experienced them, however, know otherwise. UV hosts aren't merely virtual reality; they approach a different level of existence.

A user connected to a UV host cannot differentiate between virtual and physical reality. Rather than his ASIST translating data received from the host and then providing a simsense stimulus, a UV host uses a direct simsense connection, bypassing the usual filtering and analysis done by the interface. Ultraviolet systems are so powerful that they can create a sculpted environment that mixes Full-X simsense in real-time, setting them apart from standard hosts.

Like other sculpted systems, UV host iconography is based on a specific metaphor or style. This imagery will completely overwrite all other iconography and interpretive interfaces, including a user's persona, reality filter and utilities.

CONNECTING TO A UV HOST

UV hosts do not conform to any standard for data transfer. They interpret the user's actions directly and feed a simsense signal in response. Because of this, only a cyberterminal with a hot ASIST (see p. 18) can interact with a UV host. If a user attempts to connect using a cold ASIST interface or in tortoise mode, the connection will simply fail.

MORE REAL THAN REAL

On a UV host, normal Matrix rules do not apply. Instead, the gamemaster should treat the characters in a UV host (including autonomous programs and IC) as if they were using physical bodies in a physical world.

A character's appearance will change radically as soon as he enters a UV host. He will no longer appear as his Matrix icon, but will instead appear as his normal, physical-world self.

Though the user is still interacting through his persona, the persona is altered drastically to conform to the rules of the UV system.

Attributes

On a UV host, a character's persona ratings are no longer used; instead, the character will use Physical and Mental attributes as in the real world. The character's Mental attributes will remain unchanged, but their Physical attributes will depend on their cyberterminal's ratings. The UV Host Statistic Conversion Table indicates how to determine a character's attributes in the UV host.

A character's Reaction is calculated as normal. They receive the standard bonuses to Reaction and Initiative from Response Increase and/or running pure DNI. The bonus from a reality filter is not applicable.

Dice Pools

The only pools a character may use within a UV host are Hacking Pool and, in the case of technical tasks only, their Task Pool. No other dice pools apply.

Damage

Because of the intense nature of the UV system's virtual reality and the direct simsense feeds, a user may experience life-threatening damage. All damage that a character suffers (whether Physical or Stun) is applied as actual damage to the character's meat body, not their icon or cyberterminal.

Skills

Characters may use their normal skills within a UV host (with the exception of Magical skills, which simply do not work). Characters may also substitute half their Computer (Programming) skill (round down) for any skill they lack.

If a character has a skillsoft plugged in, they may use the skill(s) it provides on the UV host. They may not use Hacking Pool with skillsoft-provided skills (unless the skillsoft has the DIMAP option; see p. 61, *CC*).

Utilities

Any utilities a character has running in active memory will appear as physical tools and trappings within the UV host. The exact way in which these programs convert into objects will depend on the program, what it normally appears as and the UV system's dominant metaphor. For example, an attack utility could translate as a machine pistol, laser pistol or a katana, depending upon whether the UV host metaphor is modern, futuristic or fantasy-oriented. These weapons would have the same statistics as normal weapons of that type, and would require similar skills to use.

At the gamemaster's discretion, some utilities may provide a character with a skill equal to their rating. For example, a medic-6 utility may give the character a Biotech 6 skill.

The functioning of other utilities will depend on how and when the character uses them. The gamemaster may decide that some utilities provide a target number modifier for certain actions, or they may provide extra or complementary skill dice.

System Operations

If the gamemaster chooses, he can continue to use the system operation game mechanics for certain actions, to judge how well the character succeeds. In this case the gamemaster should generate subsystem ratings for the UV host, which should be at an appropriately difficult level.

UV HOST STATISTIC CONVERSION TABLE

Attribute	Equal To:
Body	Bod rating
Quickness	Evasion rating
Strength	Bod rating
Charisma	Charisma
Intelligence	Intelligence
Willpower	Willpower

Winging It

Ultimately, it's up to the gamemaster to decide what can and can't be done in a UV host, and what game mechanics should be used to judge success. The gamemaster should feel free to alter the reality and rules effects within a UV host to fit the metaphor, advance the adventure and reward player/character ingenuity.

Subjective Time

Time spent on a UV host is totally subjective. A minute spent on a UV host could feel like hours. The gamemaster is free to have trips in a UV host take as little or as much time as he desires.

BACK TO REALITY

UV hosts are so powerful and overwhelming that characters within them are unable to perceive the real world or even feel their physical bodies. The character becomes so oblivious to real world events that an enemy could walk up to their body, sit on their chest and cut their throat without the character ever noticing (until he bleeds to death of course).

In a UV system, the character's RAS override is strengthened to the point that their bodies are incapable of physical movement while they are jacked in. This usually leads to a fair amount of muscle cramping, stiffness and soreness if the character stays jacked in for too long. If a character is decking without an RAS override, the UV host compensates and disables their physical movement abilities anyway.

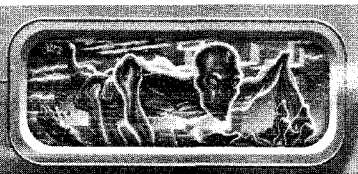
Characters will also find that they are "disassociated" from their cyberterminals while in a UV host, meaning that they are unable to mentally access and manipulate them as they would normally. In effect, this means that the character cannot switch modes, swap out utilities and so forth. At the gamemaster's discretion, the character may be allowed to perform these actions on an intuitive basis, perhaps requiring a Willpower (Security Value) Test for success.

Jacking Out

Characters will find it next to impossible to jack out of a UV host. Any character that wishes to do so must succeed in a Willpower (Security Value + 4) Test. Apply a –2 modifier if the character has ICCM. Jacking out will also submit the character to the worst case of dump shock they've ever experienced; a character who jacks out must resist (Security Value + 4)D Stun (reduce the Power by 2 and the Damage Level to S for a character with ICCM).

PAYDATA

Virtually all host systems contain datafiles of one kind or another. The vast majority of these files offer nothing of relevance to shadowrunners, consisting of meaningless databases, personal mail, graphic files and other esoteric information. Every once in a while, though, a system will contain the



proverbial nugget of gold, an answer to a crucial question or data that will fetch a high price on the black market. This information is called paydata.

Paydata can be anything from new R&D toys from the big brains upstairs, business plans worth big nuyen to inside traders or competitors, incriminating information useful in blackmail and so on—anything with value to someone has a demand on the black markets.

Characters must use the evaluate utility (see p. 70) to locate paydata. Guidelines for retrieving paydata appear below.

PAYDATA POINTS TABLE

System Security Code	Paydata Points	Data Size
Blue	1D6 – 1	2D6 x 20 Mp
Green	2D6 – 2	2D6 x 15 Mp
Orange	2D6	2D6 x 10 Mp
Red	2D6 + 2	2D6 x 5 Mp

NATURE OF THE DATA

When determining paydata, the gamemaster should try to fit it into the nature of the system being raided. For example, a corporation with major interests in Matrix security and fiscal operations would logically have paydata relating to those areas.

From these bare bones, the gamemaster is encouraged to improvise. For example, a decker who snatched valuable paydata files from an Aztechnology host may be in possession of datafiles describing research into using animals as Matrix security agents. Aztechnology's competitors, such as Novatech, would be very interested in such information.

RANDOM PAYDATA GENERATION

Gamemasters may determine the exact nature of the paydata contained in their game's hosts and roleplay a character's attempts to sell it on the black market. Alternately, gamemasters may use the following random method for determining paydata and its value.

Paydata Points

The random paydata-generation method uses Paydata Points to measure the value of paydata. When a character performs a Locate Paydata operation (see p. 100) on the system, the gamemaster can use the table below for guidance.

A host's Security Code determines how many Paydata Points its files contain. Less secure systems contain fewer Paydata Points, and more secure systems contain more points.

Data Size

As stated above, characters must download files to retrieve Paydata Points. The size in Mp of each paydata point is determined by its data size, which varies according to the system's Security Code.

Gus logs on to a Green host and performs a Locate Paydata system operation.

Charlie, the gamemaster, consults the Paydata Points Table and rolls 2D6 – 2 to determine how many Paydata Points the system contains. He rolls a 5, so the system contains 3 Paydata Points.

Gus achieves 2 successes on his Locate Paydata operation, so he locates 2 of the Paydata Points. He decides to download the worthwhile files. Charlie again consults the Paydata Points Table to determine the data densities of the files containing the paydata. For the first Paydata Point, he rolls 2D6 for a 6. He multiplies that by 15 and finds that Gus has to download a 90 Mp file to get the first Paydata Point. For the second point, the gamemaster rolls again and scores 12. So for the second point, Gus has to haul down a 180 Mp file. The decker decides the paydata is not worth the effort and logs off.

PAYDATA DEFENSES

Generally, host operators do not leave paydata files lying around unprotected. If it's valuable to an intruder, it's probably valuable to the host operators as well. Paydata files may be linked to data bombs, scramble IC or other defenses.

The gamemaster may design such protections or roll 1D6 and consult the Paydata File Defenses Table to determine the defenses attached to paydata files on a system.

FENCING PAYDATA

The base street price of a Paydata Point is 5,000 nuyen. The final price varies, however, as paydata must be fenced like any other stolen property (see p. 237, *SR3*, for rules on fencing loot).

Characters must move fast when selling stolen paydata. The needs of the black market change very quickly indeed, and today's nova-hot datafile is tomorrow's worthless drek. To reflect this condition, reduce the decker's stock of Paydata Points by 1 for each day they remain unsold, starting from the least valuable Point and working up. This reduction does not apply to specific files invented by the gamemaster as part of the adventure. Mr. Johnson's prices are usually set in advance, and the time-sensitivity of such files depends on the story.

Excessive Rewards

Some characters may decide to spend every waking hour

PAYDATA FILE DEFENSES TABLE

System Security Code	No Defense	Scramble IC	Data Bomb IC*	Worms**
Blue	1–3	5–6	—	—
Green	1–2	3–4	5–6	—
Orange	1	2–3	4–5	6
Red	Never	1–2	3–4	5–6

* Roll 1D6: On 1–4, use standard data bomb IC; on 5–6, use Pavlov IC.

** Roll on the Worm Table (p. 116)

cracking every system they can in the LTG, hauling out enough paydata to retire by the end of the week. While a noble cause, the gamemaster should not be afraid to nip this in the bud.

The simplest way is to reduce the paydata's value. If a character starts flooding the market with information, it will drive the price down. Needless to say, this will do nothing to endear him to his fellow deckers, who may start plotting something nasty if he keeps ruining the market. Start tacking on penalties to the character's Etiquette Skill as a start.

The corporations and governments will also take an interest in any rash of host compromises. A certain amount of data theft is expected, but if the character is breaking into every system within reach someone is going to start sending out investigative agencies, both in the Matrix and in the real world, to track where this data is going to. And the first place they will look is in the black market.

An excessively greedy character will also start to attract a lot of unwanted attention from other denizens of the shadows. Amassing a lot of wealth very quickly is bound to raise some eyebrows, and that means people will start thinking of ways to relieve the decker of his ill-gotten gains. Suddenly he'll find his bank accounts are being hacked, his apartment keeps getting broken into, and muggers will be so familiar they'll start calling him by his first name.

ARCHAIC SYSTEMS

Though most of the world's telecommunications traffic passes over networks built after the Crash of 2029, this is not always the case. In some areas, archaic grids and hosts can be found, operating with outdated operating systems and protocols. A character who attempts to access an outdated system may find that he is unable to use anything other than tortoise mode, or is otherwise limited by the system's dated capabilities.

LIMITATIONS

For the most part, archaic systems follow the standard Matrix rules, though they are restricted by sets of limitations that reflect their incompatibility with modern computer systems.

No archaic system can have a Security Code higher than Green, or a Security Value higher than 6. Subsystem ratings may not exceed 10.

The gamemaster may choose a set of appropriate limitations from the options below, or randomly select 1D6 ÷ 2 limitations for the system.

ASIST Feedback

The system's ASIST protocols are antiquated and clash with current standards. Any user who accesses the system using an ASIST interface must resist 4M Stun damage at the end of the first Combat Turn. The character must continue to resist this damage at the end of every Combat Turn, but the Power increases by 1 each subsequent turn. An ICCM filter reduces the base feedback damage to 2L.

Incompatibility

The system operates using protocols and languages that are considered extinct in most computer programmer circles. All Computer Tests on this system will suffer a modifier of between +1 and +6 (the gamemaster can randomly roll 1D6 to determine the modifier). If the gamemaster allows it, a character may make a Knowledge Skill (4) Test using a skill appropriate for the archaic system; each success reduces the character's modifier by 1.

Pre-Simsense

The system was developed before the advent of ASIST and simsense. It may only be accessed in tortoise mode (see p. 42).

Otaku may not access such a system.

Poor Tracking

The system's methods of tracking users are far behind current standards. Any track utilities or trace programs suffer a trace modifier between +1 and +6 (the gamemaster can randomly roll 1D6 to determine the modifier). This trace modifier functions exactly like the trace modifier applied from certain jackpoints (see p. 32).

Weak Bandwidth

The system's processing capabilities and speed are antiquated. The maximum I/O Speed allowed for any user is 100, and the system has a base bandwidth of 5.

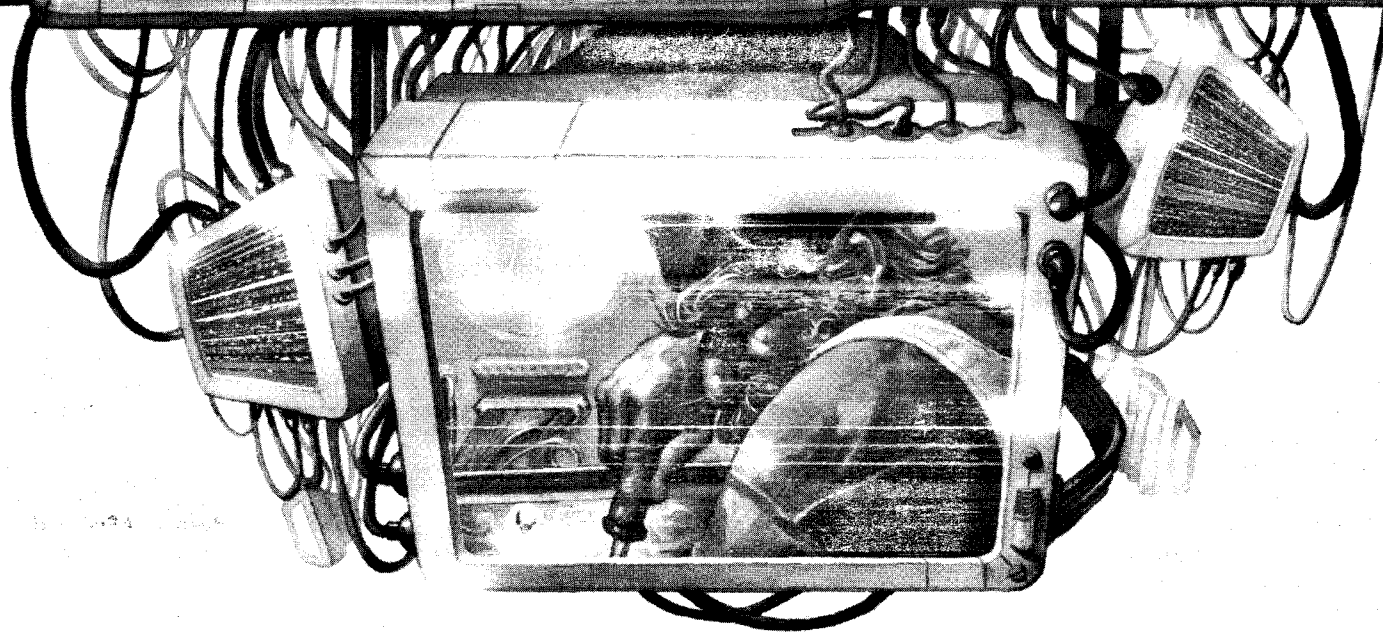
Weak Interface

The system's simsense capabilities are quite limited, effectively forcing any user who accesses the system to operate with a cold ASIST or possibly even in tortoise mode.

An otaku who accesses such a system will find his Reaction reduced to 1D6, and will suffer an additional +2 to all actions within the system.

This limitation cannot be used with the pre-simsense limitation.

CYBERTERMINAL CONSTRUCTION



The Matrix's reliance on technology sets the stage for a constant race against time. Corporations upgrade their equipment constantly to keep pace with new technological trends, leaving their workers to relearn how to do their jobs with the new programs and new cyberterminals. Deckers must upgrade their tools as well in order to stay ahead of the constantly changing landscape and IC. This gives security deckers the impetus to upgrade so they can meet their opponents head on, and so the race for superiority continues.

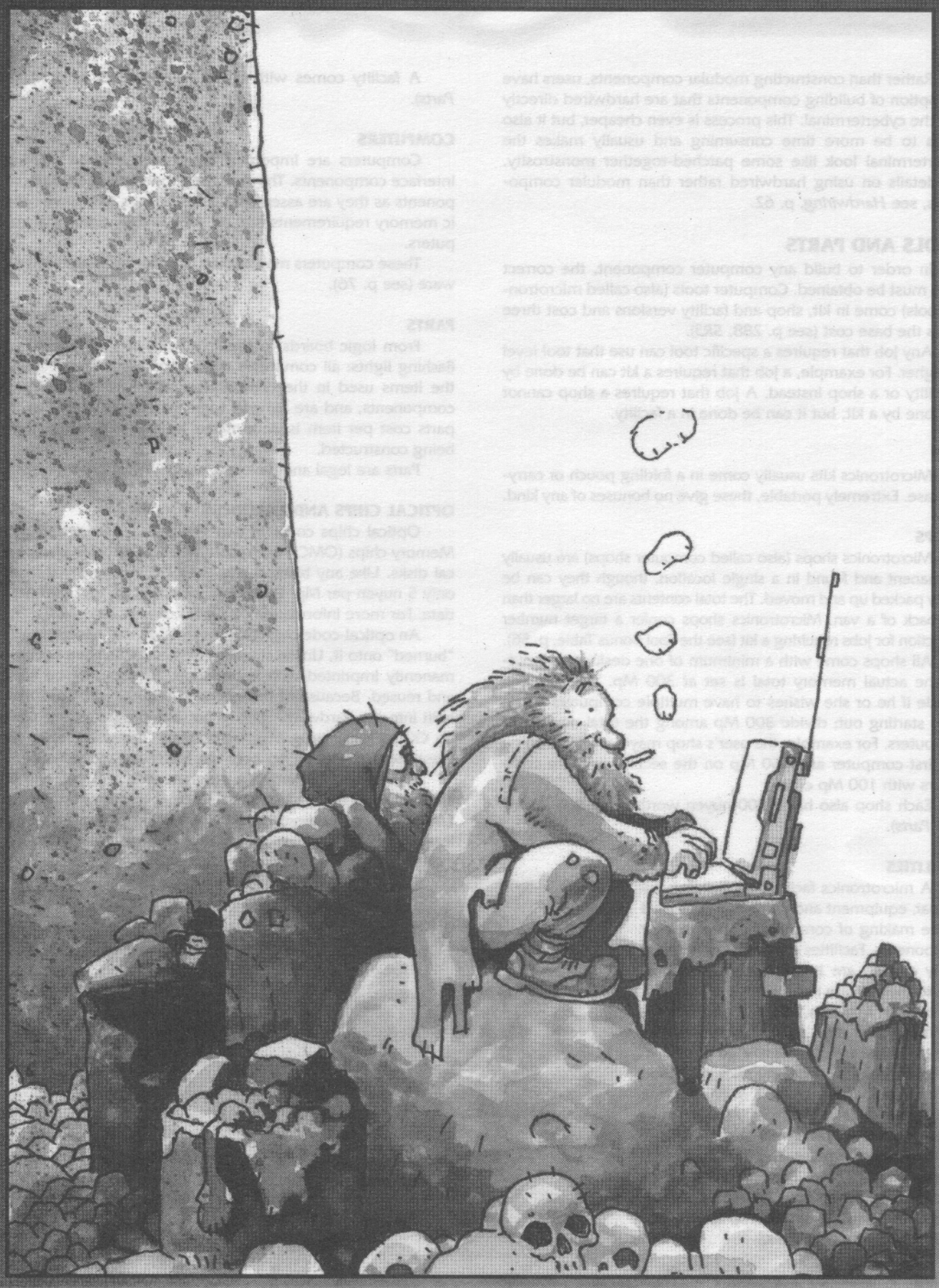
As the primary weapon on this battleground, the cyberterminal is first in line for improvements. With the right skills, tools and nuyen, any user can upgrade and create their own hardware, whether they're a legal user or a criminal decker.

The following section details the process of constructing a cyberterminal (both legal cyberterminals and illegal cyberdecks), whether building one from scratch or just upgrading components. If the character is buying components completely assembled and ready for use, skip ahead to the *Custom Designed Cyberterminals* section, p. 66.

COMPONENTS

In 2061, most computer components are designed as modular, snap-in-and-use units, allowing a user to easily switch out parts and reconfigure the computer. These modular components are mass-produced by various corps and are readily available both legally and through various shadow contacts. These plug-and-use units usually have a high fixed cost, but they allow the user to customize his cyberterminal by choosing components that suit his needs rather than purchasing a standard pre-made model.

Users can also construct these modular components themselves, using the process outlined under *Constructing Components,* p. 56). The process involves planning the project, writing the software, burning the chips, and then installing the components. The final homemade component is a custom-made, modular snap-in unit. While this method may take more time than finding the nearest deckmeister and dropping a credstick into her lap, it is cheaper in the long run and often more personally satisfying to have a self-made machine. In many ways, it allows the user to push the state-of-the-art levels without having to wait for the rest of the world to catch up.



Rather than constructing modular components, users have the option of building components that are hardwired directly into the cyberterminal. This process is even cheaper, but it also tends to be more time consuming and usually makes the cyberterminal look like some patched-together monstrosity. For details on using hardwired rather than modular components, see *Hardwiring*, p. 62.

TOOLS AND PARTS

In order to build any computer component, the correct tools must be obtained. Computer tools (also called microtronics tools) come in kit, shop and facility versions and cost three times the base cost (see p. 288, *SR3*).

Any job that requires a specific tool can use that tool level or higher. For example, a job that requires a kit can be done by a facility or a shop instead. A job that requires a shop cannot be done by a kit, but it can be done in a facility.

KITS

Microtronics kits usually come in a folding pouch or carrying case. Extremely portable, these give no bonuses of any kind.

SHOPS

Microtronics shops (also called computer shops) are usually permanent and found in a single location, though they can be easily packed up and moved. The total contents are no larger than the back of a van. Microtronics shops confer a target number reduction for jobs requiring a kit (see the Tool Bonus Table, p. 56).

All shops come with a minimum of one desktop computer. The actual memory total is set at 300 Mp. The user can decide if he or she wishes to have multiple computers in the shop starting out; divide 300 Mp among the total number of computers. For example, the user's shop may have 150 Mp on the first computer and 150 Mp on the second or three computers with 100 Mp each.

Each shop also has 1,000 nuyen worth of parts included (see *Parts*).

FACILITIES

A microtronics facility is a building full of gear, equipment and hardware dedicated to the making of computers and computer components. Facilities are too large to move easily and so are in permanent locations. Due to the delicate nature of the equipment and tools in question, it would take numerous trucks and days to load or unload the gear if it became necessary to move it. Facilities confer a target number reduction for jobs requiring a kit or a shop (see the Tool Bonus Table, p. 56).

All facilities come with a minimum of one desktop computer. The actual memory total is set at 750 Mp. The user can decide if he or she wishes to have multiple computers starting out; divide 750 Mp among the total number of computers.

A facility comes with 5,000 nuyen worth of parts (see *Parts*).

COMPUTERS

Computers are important to the construction of Matrix interface components. They are used to troubleshoot the components as they are assembled. Specific jobs may have specific memory requirements that must be met by additional computers.

These computers may also be used for programming software (see p. 76).

PARTS

From logic boards to circuitry, from copper wire to cool flashing lights: all computers need parts. Parts are defined as the items used in the construction of the various computer components, and are lumped together into a single cost. The parts cost per item is determined by the component that is being constructed.

Parts are legal and have an Availability of 2/24 hrs.

OPTICAL CHIPS AND ENCODERS

Optical chips come in two varieties: memory and code. Memory chips (OMCs) are recordable and erasable blank optical disks. Like any blank media they are inexpensive, costing only 5 nuyen per Mp. Each OMC can hold up to 1,000 Mp of data. For more information on OMCs, see p. 295, *SR3*.

An optical-code chip (OCC) is an OMC that has information "burned" onto it. Unlike standard OMCs, OCCs have been permanently imprinted with information. They cannot be erased and reused. Because of this encoded security, software that is built into the hardware, such as persona programs, are placed on OCCs. These programs are dubbed "firmware" since they cross the ever-thin barrier between hardware and software.

The process of placing a program onto an OMC and creating an OCC is called cooking. Cooking requires an encoder. Encoders have a rating that adds a number of dice equal to or less than the skill rating of the user to the Cook Test.

OPTICAL CHIPS AND ENCODER COSTS

Optical Chip Encoders	Rating	Cost	Availability	Street Index
Sony Encoder I	0	500¥	4/24 hrs	1
Cross Cooker 1000	1	2,000¥	4/72 hrs	1.5
Novatech Burner	2	2,700¥	6/24 hrs	1
Transys T-1000	3	3,400¥	8/24 hrs	1.5
Sony Encoder II	4	6,000¥	8/72 hrs	1.5
Novatech Novahot	5	7,500¥	10/72 hrs	2
Hitachi RM-AX	6	9,500¥	10/7 days	2
Cross Angelic	7	12,000¥	10/7 days	3
Transys Quantum 1	8	15,000¥	10/1 mo	3

Chips	Cost
Optical Memory Chip (OMC)	.5¥ per Mp

Information cooked onto an OCC can only be written to the chip once, but it can be accessed any number of times.

Once cooked, OCCs cannot be reprogrammed. Upgrading and repairing OCCs requires a whole new Cook Test.

Encoders weigh three kilograms and are about the size of a shoebox. Any number of encoders or chips can be purchased separately.

CONSTRUCTION TESTS

Constructing a cyberterminal requires a series of tests, whether you're upgrading a current system or building components from scratch. Each of these tests is viewed as one stage in the four-stage construction process. The stages are, in order: design, software, cooking and installation.

Rather than having the character make a test for every wire connected or every chip inserted, each stage of the process is reduced to a single test that represents the many small tasks involved.

If a Success Test fails, the gamemaster rolls 2D6 and divides the base time by the result, rounding fractions up. This result equals the amount of time that the character must put in on the task before discovering that the design is irretrievably flawed and that he must begin again.

SKILLS

Computer B/R is the primary skill used to construct computer components. Some components may require additional skills as listed in their descriptions.

TIME

A single workday for any task is defined as 8 uninterrupted hours. A character spending a full workday on component construction is doing only that task and cannot do anything else. A character can work 8 hours a day and still meet his obligations—contacts, shadowruns, legwork, social events and so on. A character may attempt to put in more than 8 hours of uninterrupted labor at the job in one day. Overtime work isn't mearly as effective, as the character gets worn out. Each hour worked over 8 only reduces the time required by half an hour. For example, someone who works 10 hours (2 hours overtime) only reduces the time remaining by 9 hours total (1 additional hour). After 15 hours the work produced by each hour only reduces the overall time by 15 minutes.

Characters may complete work in shifts, rather than as a a single, unbroken effort. For example, a character attempting a task with a 20-hour task period may perform 5 hours of work, go off on a run, do another 8 hours of work, work on another task for another component, and then do 7 more hours of work to complete the task.

HEALTH AND TASKS

Characters suffering from Light wounds may work at tasks unimpeded. Characters suffering from Moderate wounds may perform tasks, but only accomplish half the work for any given time. A character with a Moderate wound would have to work 2 hours to accomplish 1 hour of work on a task.

Characters with Serious wounds have the same penalty as Moderate wound characters but cannot work for more than 2 hours without resting. The rest period must equal the time they worked.

DESIGN TESTS

Before any component can be made, a design plan must be worked out. To design a component, the character must make a test using the Cyberterminal Design Knowledge skill. This test represents the user's ability to plan, outline and prepare for the actual job of making the component. If the character does not have that skill, he or she can default to Intelligence at a +4 modifier to the target number.

The base target number is the MPCP rating of the cyberterminal the component will be installed in divided by 2 (MPCP ÷ 2), rounded down. Many components have additional modifiers listed under the actual components description.

The base time for the test equals the MPCP rating of the cyberterminal the component will be installed in multiplied by 2 (MPCP x 2).

Successes from the test can be used in two ways. Every 2 successes from this test can be used to reduce the target number for either the Cook or Installation Tests by –1. The successes can be divided between these two tests as the player desires. Alternatively, the successes from the test can be used to reduce the task period by dividing the base time by the successes, per the standard rules (see *Taking the Time*, p. 92, *SR3*). The character may only choose one of the two applications.

If the character gains no successes on the Cyberterminal Design Test, he can still make the component but suffers a +2 target number modifier to the other tests required.

SOFTWARE TESTS

If the hardware component requires a computer program to run, then a Programming Test must be made using the rules for programming (see p. 76). The program's effective rating and size multiplier are listed in the description of the component.

Characters can instead purchase an already existing software package (see *Buying Programs*, p. 94).

If a component requires software, it must have the software to be used.

COOK TESTS

Once the software has been written or purchased, it must be cooked onto an optical code chip (OCC). This requires a Cook Test.

The tools needed for a Cook Test are an optical chip encoder (see p. 54), a computer with memory equal to or more than the program size to be encoded and a number of OMCs with enough Mp to hold the program.

The Cook Test is the same for all components. It is a Computer B/R (4) Test, with a base time equal to the MPCP of the cyberterminal in days. The player can add the rating of the encoder in dice to the test, up to the rating of their skill.

INSTALLATION TESTS

Once the programs and the chips have been created, the next step is putting it all together. This step is called the

Installation Test. Aside from the programs and chips, this test requires a set nuyen amount of generic parts as listed in the component's description.

Installation Tests are always Computer B/R Tests. Other skills may be needed for connecting outside devices. If two tests are required both must succeed for the component to work.

TOOL BONUS TABLE

Task Requires	Using a ...	Target Number Reduction
Kit	Kit	None
	Shop	–1
	Facility	–3
Shop	Shop	None
	Facility	–1
Facility	Facility	None

Better Tool Bonus

If a character is using superior tools for a job (for example, using a shop where a kit would suffice), he will gain a bonus on the Installation Test for which he uses those tools. A tool bonus reduces the base target number for the test, as shown on the Tool Bonus Table.

REQUIREMENTS

Each type of Matrix connection needs specific components in order to function in the way the user expects.

Cyberterminals and cyberdecks can be constructed as cranial or cyberimplants.

CYBERTERMINALS

As described on p. 17, cyberterminals require an ASIST interface and persona programs. Cyberterminals may have a variety of components installed but they must contain the following elements: MPCP, persona programs, ASIST circuitry, I/O Speed and active memory. If these components are not there, the Matrix interface is not considered a cyberterminal and, in nearly all cases, would not work (see *Constructing Components*).

A cyberterminal only has Bod and Sensor persona programs. A legally sold MPCP has a rating limit of 4. The MPCP can be modified after the sale.

CYBERDECKS

A cyberdeck follows the same rules as a cyberterminal, except that it has four persona programs (Bod, Evasion, Masking and Sensor).

Cyberdecks are considered illegal because of the inclusion of the Evasion and Masking programs. A decker could purchase a legal cyberterminal and add Evasion and Masking to the machine to turn it into a cyberdeck.

CONSTRUCTING COMPONENTS

Even the simplest Matrix interface is made up of components, so whether you are building an entire unit from the ground up or upgrading a single part, the same rules apply. Each of the components below includes a description, as well as the cost, time and skills used for the various tasks. The component descriptions assume the user is making the item from scratch; if not, consult the Partial Construction rules on p. 62.

As long as the component is not completely assembled by others (see *Custom Designed Cyberterminals*, p. 66) use the costs and times for each task listed under the component.

ACTIVE MEMORY

Active memory is the cyberterminal's "RAM," to use the old-tech term. A cyberterminal's active memory limits the number of utility programs the cyberterminal can run and have ready for use by the persona at any one time. For example, a cyberterminal with 100 Mp of active memory can run no more than 100 Mp of utilities at any one time.

Active Memory Installation
Design Test: None
Software Test: None
Cook Test: None
Installation Test
Time: (Memory Size ÷ 200, rounded up) hours
Test: Computer B/R (4) Test
Parts: OMC @ (memory size x 2), plus 1.5¥ x memory size
Tools: Microtronics Kit

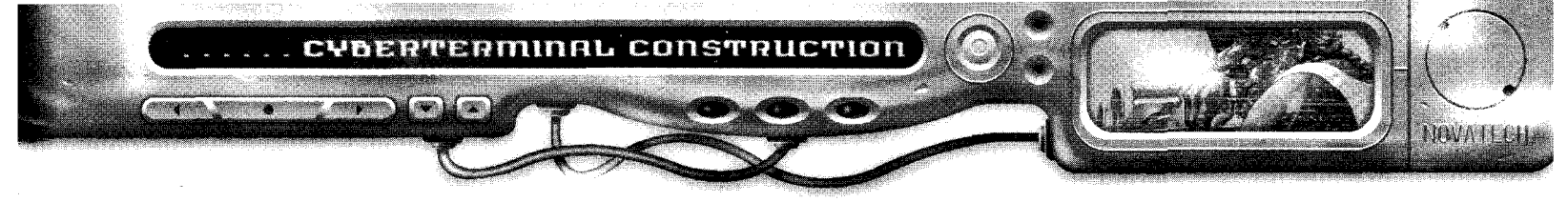
ASIST INTERFACE

The ASIST interface component controls the sensory experience in cyberspace and the user's DNI (direct neural interface) connection to the Matrix, as routed through the interpretative software coded into the MPCP. The interface also has a control program of its own to handle the data exchange.

The user can choose to put in a cold ASIST interface (see p. 18) or a hot ASIST interface (see p. 18). The hot interface can run cold.

ASIST interface units do not come with constructed RAS override units. They must be added separately (see p. 19).

Hot ASIST Interface Construction
Design Test
Modifier: +2
Software Test
Rating: MPCP rating
Multiplier: 4
Cook Test: Required
Installation Test
Time: (MPCP rating) days
Test: Computer B/R (MPCP rating) Test
Parts: 25¥ x (MPCP rating^2), plus ASIST Processor Unit @ 1,250¥
Tools: Microtronics kit



Cold ASIST Interface Construction
Design Test
Modifier: +2
Software Test
Rating: MPCP rating
Multiplier: 2
Cook Test: Required
Installation Test
Time: (MPCP rating) days
Test: Computer B/R (MPCP rating) Test
Parts: 25¥ x MPCP rating, plus ASIST Processor Unit @ 1,250¥
Tools: Microtronics kit

HARDENING

Hardening requires some programming—designing corrective subroutines to rewrite damaged persona programs, redirect attack code and make code rerouting decisions—and some hardware work to reinforce the cyberterminal's resistance to invasive code such as viruses, gray and black IC, and other Matrix hazards.

Hardening Construction
Design Test
Modifier: +3
Software Test
Rating: Hardening rating
Multiplier: 8
Cook Test: Required
Installation Test
Time: (MPCP rating x Hardening rating) days
Test: Computer B/R (MPCP Rating) Test
Parts: 35¥ x (Hardening rating^2)
Tools: Microtronics shop

ICCM BIOFEEDBACK FILTER

Intrusion counter-countermeasures (ICCM) technology protects the user by increasing her chances of jacking out successfully when under attack by black IC (see *Protective Systems*, p. 21).

Installing an ICCM filter requires both Computer B/R and Computer (Cybernetics) skills.

ICCM Filter Construction
Design Test
Modifier: +1
Software Test
Rating: MPCP rating
Multiplier: 4
Cook Test: Required
Installation Test
Time: (MPCP rating x 2) days
Test: Computer B/R (4) Test and Computer (Cybernetics) (MPCP Rating) Test
Parts: 35¥ x MPCP rating plus a bio-monitor @ 1,000¥ (p. 303, *SR3*)
Tools: Microtronics shop

ICON CHIP

A user's icon is what others see in the Matrix. The MPCP can only run a single icon chip at any one time, but users learned long ago to modify and rework their images, or to create all new ones to keep their enemies on their toes. The rating of the icon cannot be higher than the MPCP rating of the cyberterminal. The higher the rating, the more detailed and realistic the image is.

If the user is building an MPCP component from scratch, this chip must be created separately. Purchased cyberterminals and MPCP units come with a standard UMS (rating 1) icon. There are off-the shelf icons of everything from cartoon characters to celebrities, but most are for cyberterminals and are not higher than rating 4.

If a cyberterminal does not have a functioning icon chip, the MPCP defaults to a rating 1 standard UMS icon for its persona.

Users may maintain a library of icon chips, each designed for a different situation.

Icon Chip Construction
Design Test
Modifier: None
Software Test
Rating: Icon rating
Multiplier: 2
Cook Test: Required
Installation Test
Time: 1 hour
Test: Computer B/R (Icon Rating) Test
Parts: 35¥ x Icon rating^2
Tools: Microtronics kit

I/O SPEED

Increasing the I/O Speed of a cyberterminal helps with speedy transfers of information. I/O Speed must be built in multiples of 10. The maximum I/O Speed of a cyberterminal is equal to its MPCP rating x 100 Mp.

I/O Speed Construction
Design Test
Modifier: None
Software Test: None
Cook Test: None
Installation Test
Time: I/O Speed ÷ 100 days (round up)
Test: Computer B/R (I/O Speed ÷ 100, round up) Test
Parts: 35¥ x (I/O Speed ÷ 10, round up)
Tools: Microtronics kit

MASER INTERFACE

A maser interface transmits and receives data over a power grid via maser signals (see *Maser Power Grid Connection*, p. 33). This interface requires the maser link utility, p. 72, to use.

Design Test
Modifier: +0
Software Test: None
Cook Test: None
Installation Test
Time: MPCP rating + 4 hours
Test: Computer B/R (MPCP Rating) Test, plus an Electronics B/R (4) Test
Parts: 3,000¥
Tools: Microtronics Kit

MATRIX INTERFACE

The Matrix interface allows the cyberterminal to be linked to a jackpoint using a fiberoptic cable (see *The Jackpoint*, p. 30). The ASIST Interface is already set to accept such a device and needs no special software or firmware.

Matrix Interface Construction
Design Test: None
Software Test: None
Cook Test: None
Installation Test
Time: 1 hour
Test: Computer B/R (4) Test
Parts: 35¥ plus the cost of the fiberoptic cable (p. 63)
Tools: Microtronics kit

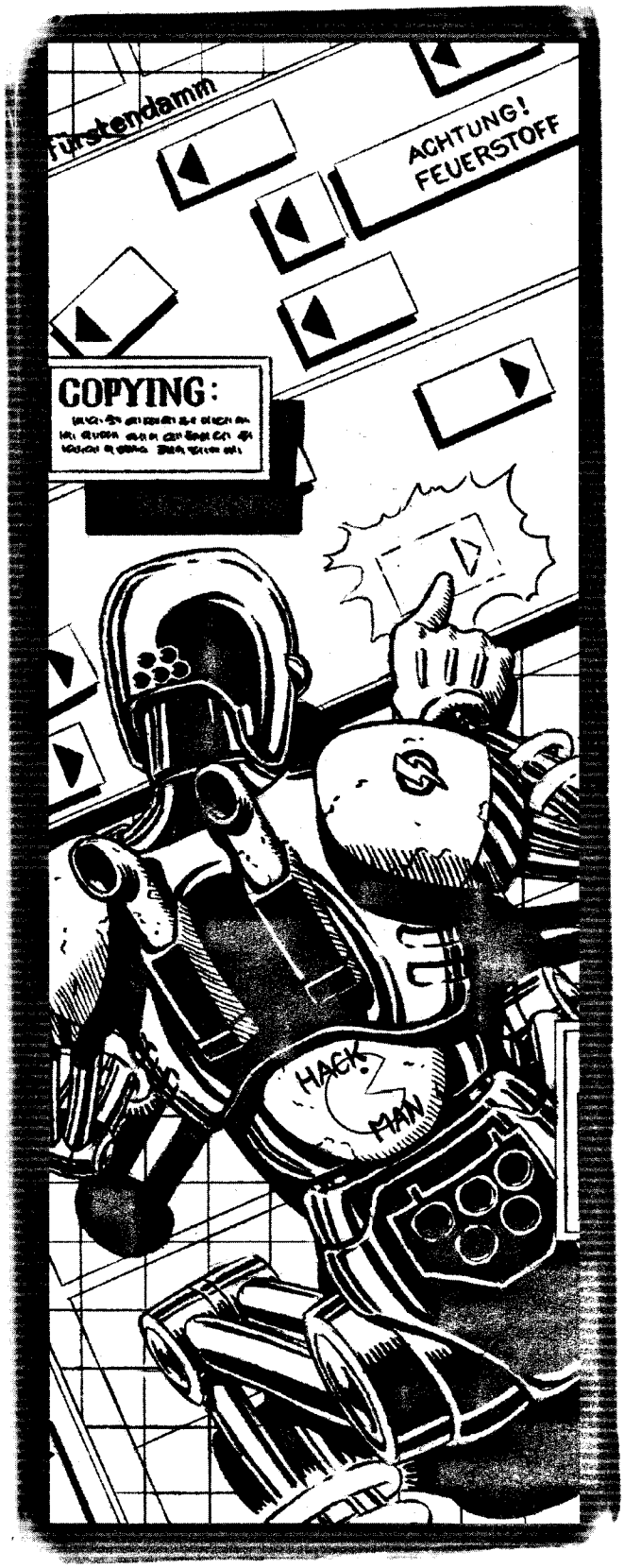
MPCP

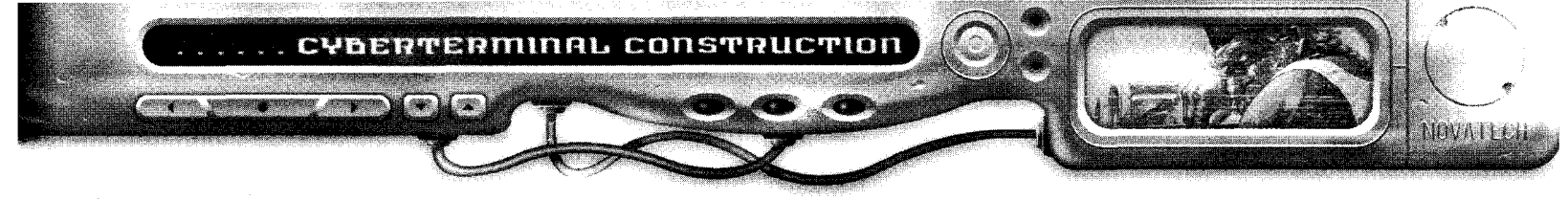
The Master Persona Control Program is the base operating system for the cyberterminal.

No persona program may have a rating higher than the MPCP rating of the device. Additionally, the combined ratings of the device's persona programs may not exceed the MPCP rating multiplied by 3. Each MPCP is programmed with a default Rating 1 icon (see *Icon Chip*, p. 57). See *The MPCP* on page 20 for additional rules.

If a character replaces a cyberterminal's MPCP with an MPCP of a different rating, the ASIST interface, ICCM, reality filter, Response Increase and RAS override must all be replaced with components made for the new MPCP rating; the old components will not work with the new MPCP.

MPCP Construction
Design Test
Modifier: The target number is the actual MPCP rating.
Software Test
Rating: MPCP rating
Multiplier: 8
Cook Test: Required
Installation Test
Time: MPCP rating in hours
Test: Computer B/R (MPCP Rating) Test
Parts: 35¥ x MPCP rating^2
Tools: Microtronics shop





PERSONA CHIPS

The persona programs are the attributes of the user while jacked into the Matrix. Each of the four is programmed separately (see *Persona Programs*, p. 20).

No persona program Matrix interface may have a rating higher than the MPCP rating of the device. Additionally, the combined ratings of the device's persona programs may not exceed the MPCP rating multiplied by 3.

System-aware signature suppression (SASS) may be installed along with the Masking program (p. 21). SASS only affects the Masking persona chip construction.

Persona Chip Construction
Design Test
Modifier: 0 (Bod and Sensor), +1 (Masking and Evasion), an additional +1 if SASS program is installed with Masking
Software Test
Rating: Program rating
Multiplier: 3 (Bod and Evasion), 2 (Masking and Sensor), an additional +1 if SASS program is installed with Masking
Cook Test: Required
Installation Test
Time: 1 hour
Test: Computer B/R (Program Rating) Test
Parts: 35¥ x Program rating^2
Tools: Microtronics kit

PORTS (FUPS)

Named after Fuchi Industrial Technologies, the inventors of the cyberterminal, Fuchi Universal Ports (FUPs) are universal port slots that allow for a wide range of gear to be easily connected to a cyberterminal, such as speakers, vidscreens, hitcher jacks and even electrode units. The device merely needs to be plugged into the FUP slot and it's ready to go.

An MPCP comes with a number of ports equal to its rating, but it can accept additional ports up to twice its rating.

A partial list of what can be added to the cyberterminal can be found under *Miscellaneous Components*, p. 61.

Port Construction
Design Test: None
Software Test: None
Cook Test: None
Installation Test
Time: 1 hour
Test: Computer B/R (4) Test and Electronics B/R (4) Test [wired] or Electronics B/R (Device Rating) Test [wireless]
Parts: 235¥ per port
Tools: Microtronics kit

RAS OVERRIDE

The reticular-activation system (RAS) override is standard in every simdeck, cyberdeck and remote control deck. Accessing the Matrix without a RAS override (or with it turned off) will subject the character to high target number penalties. For more information on the RAS override, see p. 19.

RAS Override Construction
Design Test
Modifier: None
Software Test: None
Cook Test: None
Installation Test
Time: MPCP rating in hours
Test: Computer B/R (4) Test
Parts: 1,000¥ for the RAS override unit and 35¥ x MPCP rating for the connections
Tools: Microtronics kit

REALITY FILTERS

Reality filters impose a sensory metaphor on the Matrix, which is chosen by the user and programmed into his cyberterminal's ASIST interface. The reality filter usually matches the icon chosen by the user. A user who likes baseball can model an entire Matrix run on a hard-fought game. A user with a taste for swashbuckling can swagger his way through the world of a cybernetic musketeer or duelist. Reality filters must be personalized to each specific user's neurological system. A reality filter designed for one user cannot be easily used by another. For more information, see p. 19.

Reality Filter Construction
Design Test
Modifier: +2
Software Test
Rating: MPCP rating
Multiplier: 10
Cook Test: Required
Installation Test
Time: MPCP rating in days
Test: Computer B/R (MPCP Rating) Test + Computer (Cybernetics) (MPCP Rating) Test
Parts: 70¥ x MPCP rating
Tools: Microtronics shop, Biotech kit

RESPONSE INCREASE

Response Increase is the Matrix equivalent of wired reflexes. The Response Increase cannot exceed a cyberterminal's MPCP ÷ 4, rounding fractions down (i.e., a cyberterminal with MPCP Rating 3 or below cannot sustain any level of Response Increase). A cyberterminal cannot have more than 3 levels of Response Increase.

Response Increase is cumulative with reality filters and pure DNI bonuses (see p. 19 and p. 18 respectively).

Response Increase Construction
Design Test
Modifier: +1
Software Test
Rating: MPCP rating
Multiplier: Response Increase x 2
Cook Test: Required

Installation Test

Time: (MPCP rating + Response Increase rating) in hours
Test: Computer B/R (Response Increase Rating x 2) Test
Parts: 135¥ x Response Increase rating
Tools: Microtronics shop

SIGNAL AMPLIFIER

A signal amplifier is a device used to increase the flux rating of a wireless interface. For more information on signal amplifiers, see p. 289, *SR3*. These rules are used only when building a signal amplifier into the cyberterminal.

Signal Amplifier Construction
Design Test: None
Software Test: None
Cook Test: None
Installation Test

Time: 1 hour
Test: Computer B/R (4) Test and Electronics B/R (Device Rating) Test
Parts: 35¥ plus signal amplifier (see p. 290, *SR3*).
Tools: Microtronics kit

STORAGE MEMORY

Storage memory is analogous to the hard drives on old-time computers. Any program in a cyberterminal's storage memory can be loaded into the cyberterminal's active memory by using the Swap Memory operation (see p. 219, *SR3*).

Storage Memory Construction
Design Test: None
Software Test: None
Cook Test: None
Installation Test

Time: Memory size ÷ 200 hours (round up)
Test: Computer B/R (4) Test
Parts: OMC at desired Mp plus 0.5¥ per Mp of memory (rounded up).
Tools: Microtronics kit

WIRELESS INTERFACES

There are five types of wireless interfaces (not counting the basic Matrix interface, p. 58). For more details on wireless interfaces, see *Accessing The Matrix*, p. 33.

When creating a wireless interface, all units need a device to broadcast or project the desired transmission. These devices must be purchased separately and can be found on the Transmission Device Table, p. 61. The cost of those units must be added to the Parts cost when installing the unit. The transmission device's rating cannot be higher than the MPCP rating. The rating is used to determine the Flux of the unit and its range. A signal amplifier can be installed into the cyberterminal (see above) or used as a separate external unit. ECCM can also be added to satellite, radio and cellular interfaces (use the rules and cost on p. 289, *SR3*).

Any other needed gear is noted under the specific description of the interface.

Cellular Interface Construction

Cellular interfaces use cellular radio transceivers to connect directly into a cellular network. A cellular link utility (p. 72) is required to use this interface.

Design Test

Modifier: +1
Software Test: None
Cook Test: None
Installation Test

Time: MPCP rating + device rating in hours
Test: Computer B/R (MPCP Rating) Test, plus an Electronics B/R (Device Rating) Test
Parts: 35¥ x device rating^2 plus device Cost
Tools: Microtronics kit

Laser Interface Construction

A laser interface uses a laser transceiver to transmit data via the infrared spectrum of light to another laser transceiver within line of sight that is connected to the Matrix. A laser link utility (p. 72) is required to use this interface.

Design Test

Modifier: +0
Software Test: None
Cook Test: None
Installation Test

Time: MPCP rating + 4 hours
Test: Computer B/R (MPCP Rating) Test, plus an Electronics B/R (4) Test
Parts: 560¥ plus device cost
Tools: Microtronics kit

Microwave Interface Construction

A microwave interface uses a microwave transceiver to connect to any microwave transponder connected to the Matrix. Additional fiberoptic cable can be purchased to set the dish up further away from the cyberterminal. A microwave link utility (p. 72) is required to use this interface.

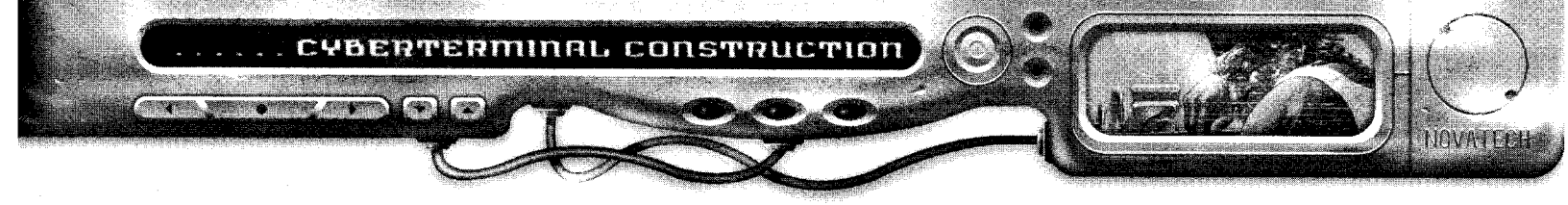
Design Test:

Modifier: +1
Software Test: None
Cook Test: None
Installation Test

Time: MPCP rating + 4 hours
Test: Computer B/R (MPCP Rating) Test, plus an Electronics B/R (4) Test
Parts: 560¥ plus device cost and cost of microwave dish (p. 63)
Tools: Microtronics shop

Radio Interface Construction

The radio interface uses radio transmission to connect directly to a radio network (see *Accessing the Matrix*, p. 34). A radio link utility (p. 73) is required to use this interface.



TRANSMISSION DEVICE TABLE

Device	Cost	Availability	Street Index	Legality
Cellular	Rating x 500¥	Rating/24 hrs	1	Legal
Laser	2,500¥	8/1 wks	2	Legal
Microwave	5,000¥	14/3 wks	2	8P-U
Radio	Rating x 250¥	Rating/12 hrs	.5	Legal
Satellite	Rating x 1,000¥	Rating/3 days	2	6P-U

Design Test
Modifier: 0
Software Test: None
Cook Test: None
Installation Test
Time: MPCP rating + device rating in hours
Test: Computer B/R (MPCP Rating) Test, plus an Electronics B/R (Device Rating) Test
Parts: 35¥ x device rating^2 plus device cost
Tools: Microtronics kit

Satellite Interface Construction

A satellite interface uses high-spectrum radio waves to connect to a satellite transponder. All satellite interfaces require a satellite dish to send and receive the signal. Additional fiberoptic cable can be purchased to set up the dish away from the cyberterminal. A satellite link utility (p. 73) is required to use this interface.

Design Test
Modifier: 2
Software Test: None
Cook Test: None
Installation Test
Time: MPCP rating + Device rating in hours
Test: Computer B/R (MPCP Rating) Test, plus an Electronics B/R (Device Rating) Test
Parts: 35¥ x device rating^2 plus device cost and satellite dish
Tools: Microtronics shop

MISCELLANEOUS COMPONENTS

Many standard devices can be directly hooked up to a cyberterminal by a user with little to no technical knowledge. Most of them may simply be connected to one of the FUP ports (see p. 59) on the cyberterminal. The devices listed below are some of the most common ones that can be connected to a cyberterminal. Any device may be adapted for a cyberterminal as long as the gamemaster approves and it can be wired in somehow to a cyberterminal connection.

If the user wants direct neural control of the device while jacked in, the device must be modified for DNI control (see *Direct Neural Interface*, p. 303, *SR3*).

An MPCP cannot have more accessories active than twice its rating at any given time.

Micellaneous components can be hardwired into a FUP or patchwork hardwired.

FUP Attachment

If using a FUP port, there is no actual time involved to install the unit.

Patchwork Attachment

Patchwork attachment refers to installing items without a FUP port. To install an item this way, the player must make a successful Electronics B/R (4) Test and a successful Computer B/R (4) Test. Both tests must succeed for the item to work. Successes can be divided into the base time. The base time is 1 hour and the player must have a microtronics kit. There is an additional Parts cost of 75 nuyen.

Components List

The quality, brand and status of many components is taken into account by their varied cost range.

Audio Speakers allow a jacked-in user to talk to those in the physical world. The speakers can be attached to the cyberterminal or in a remote location connected by a port interface. Add +1/+6 hours to the Availability rating for every 225 nuyen added to cost of the speakers.

A **Battery Pack** allows a user to use her cyberterminal for 6 hours without charging or connecting the Matrix directly. Battery packs are a necessity for anyone using a wireless connection. Battery packs can be recharged fully in 1 hour. Batteries last for about 500 hours of use before they must be replaced.

Cameras allow real-time imaging to be stored to the cyberterminal. Cameras come in either video or trideo feeds.

Casings protect the internal components of a cyberterminal. Basic casings come with a Barrier Rating of 3 (see pp. 124–5, *SR3*, for resolving damage to a cyberterminal), though casings with higher Barrier Ratings may be purchased for additional cost. The maximum Barrier Rating available is 12. Casings do not need a FUP port; they must be added as a patchwork attachment.

A **Chip Reader** is an access port for optical memory chips.

A **Credstick Reader** allows the user to slot a credstick and verify, manipulate and even forge credstick information. For more on credsticks and readers, see pp. 286–7, *SR3*.

A **Credstick Slot** is a simple device that reads credstick data and allows the user to make credit transactions.

A **Disk Drive** is an access port for optical disks.

A **Display Screen** is a small, portable display for video images or trideo projections.

Fiberoptic Cable is the standard cabling used with cyberterminals and accessories.

Hitcher Jacks allow a person to "jack in" and shoulder-surf along with a user. The user connects a hitcher jack unit to his cyberterminal, which the hitcher uses by means of trodes (see p. 17) or a datajack to ride along. The information is one-way.

The hitcher can see everything the user can, but cannot control any action while jacked in. For more information on hitcher jacks, see p. 208, *SR3*.

A **Keyboard** allows the user to type manually.

A **Micro-Camcorder** is a small unit that can record and transmit images. See p. 290, *SR3* for more information.

A **Microphone** allows the user to verbally give commands to the cyberterminal. A microphone can also be used by outside individuals to speak to the user.

Microwave Dishes are used to transmit microwave communications (see p. 34). Microwave dishes cannot be made with temporary dish components.

A **Monitor** is a larger, usually external display unit that accepts all kinds of video or trideo input. Add +1/+6 hours to the Availability rating for every 1,000 nuyen added to the cost of the monitor. It is not uncommon to have wall-sized monitors in some higher luxury-rated places.

Off-line Storage is a memory storage unit. It has no processor.

A **Passkey Reader** is a security module used by corporations and other private institutions to make sure that cyberterminals logged-on from remote sites are authorized (see *Passkeys*, p. 37). Since these are only available from the issuing corporation, the gamemaster must decide the actual value of a working device on the streets.

A **Power Cord** is used to hook up a device to an electrical outlet.

A **Printer** prints information to paper. All printers in 2061 are color and can make nearly perfect photocopies.

Scanners are used to enter pictures or other visual media to the cyberterminal. This includes but is not limited to fingerprint, retinal and basic picture/text/print scanners. For more information on ID scanners, see p. 292, *SR3*.

Satellite dishes are used to project radio waves in order to communicate with satellite transponders (see p. 34).

A **Signal Locator** picks up tracking signals from either a standard or activate-on-demand (AOD) transmitter (see p. 291, *SR3*).

A **Simlink** transmits and receives simsense signals (see p. 289, *SR3*). A simlink consists of a transmitter, receiver and recorder.

Temporary Satellite Dish Components are used to put together a temporary satellite dish, which can be quickly set up and broken down (see p. 55, *CC*).

A **Touchpad** allows the user to manipulate information using their finger or a special pen to make commands on the cyberterminal. Touchpads can be adapted to use a mouse or trackball instead of a pen or finger.

A **Transceiver** allows the cyberterminal user to communicate with others via two-way radio (see p. 287, *SR3*).

Trode Jacks allow a person to enter the Matrix by means of an electrode net (see p. 17).

A **Vid-link Transmitter** is used to transmit captured video and trideo footage. It is described on p. 289, *SR3*.

The **VR Kit** includes a set of goggles and gloves in order for a person to physically manipulate information in the Matrix. In 2061, they are nearly always used in conjunction with low-res holo-projectors or by children learning Matrix iconography.

PARTIAL CONSTRUCTION

While most users want to create their cyberterminals from scratch to save costs, they can purchase partial components to save some time and money. Characters may purchase software programs for the component based on the cost of the programming (see p. 78). They can also take the next step and purchase pre-cooked OCCs from an outside source.

While both of these are faster, they also carry the risk of hidden or damaging code, inexact programming and other dangers. Most users purchase these from very reliable sources and only do so for brief periods when they can't take the time during a run to do it all themselves. The cost for pre-programmed OCCs is equal to the program's cost times 1.1 (see *Buying Programs*, p. 94).

HARDWIRING

The rules for constructing components deal specifically with creating a piece from scratch and connecting it to an "empty" MPCP, either due to a piece being removed or a new MPCP being constructed. The assumption is that the user is making a portable (only a bit bigger than a standard keyboard) Matrix interface that is made specifically for decking. Hardwiring allows a user to install a component into the cyberterminal without making a modular, snap-in component.

Hardwiring is more time consuming but much less expensive. In order to hardwire a component to the MPCP, double the Installation Test's base time.

The Parts cost of the Installation Test is reduced by 50 percent (round down). If a separate unit is needed, the cost of that unit is not reduced. For example, the cost of an ASIST interface or RAS Override Unit would still remain if hardwiring those into a MPCP.

Hardwired units do not fit into standard casings (see p. 61). The casing must be purchased separately at a mark-up of 10 percent per hardwired unit.

The MPCP cannot be hardwired to itself.

Upgrading

The other benefit of hardwiring is the ability to upgrade a component. Any hardwired component can be upgraded one time and only by 1 rating point.

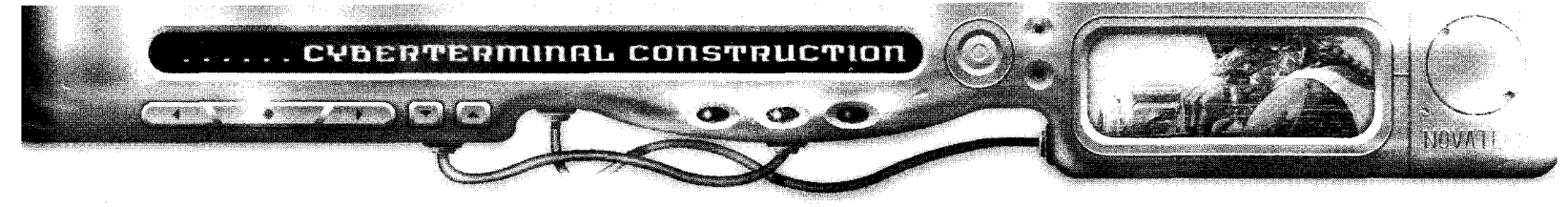
In order to upgrade the component, use the construction process with the following exceptions:

A Design Test can be made, but only half of the successes (rounded down) can be used to obtain a target number reduction on the Cook or Installation Tests.

For the Software Test program size, use the rules for program upgrades, p. 81.

The Installation (Upgrading) Test takes 1 hour and the target number for the test is reduced by 2.

The MPCP cannot be upgraded.



MISCELLANEOUS COMPONENT TABLE

Component	Cost	Availability	Index	Street Legality
Audio Speakers	25–2,500¥	2/12 hrs	1	Legal
Battery Pack	25¥	Always	1	Legal
Camera				
Trideo	200–2,000¥	Always	1	Legal
Video	100–1,000¥	Always	1	Legal
Casing (Rating 3)	100¥	2/12 hrs	.5	Legal
Higher Barrier Rating	500¥ per extra point	Rating/(12x rating) hrs	2	Legal
Chip Reader	200¥	Always	.75	Legal
Credstick Reader				
Rating 1	12,000¥	Always	1	Legal
Rating 2–3	60,000¥	Always	1	Legal
Rating 4–5	100,000¥	Always	1	Legal
Rating 6+	Restricted	Restricted	NA	Restricted
Credstick Slot	50¥	Always	1	Legal
Disk Drive	200¥	Always	.75	Legal
Display Screen	100¥	2/24 hrs	1	Legal
Fiberoptic Cable	1¥ per meter	Always	1	Legal
Hitcher Jack	250¥	2/48 hrs	1	Legal
Keyboard	50¥	Always	.5	Legal
Micro-Camcorder	2,500¥	6/48 hrs	2	8P-U
Microphone	50¥	Always	.5	Legal
Microwave Dishes				
Standard portable	5,000¥	6/1 wk	1	Legal
Large portable	10,000¥	8/2 wks	1	Legal
Fixed-base	2,500¥	8/1 mo	1	Legal
Monitor	100–25,000¥	2/12 hrs	.5	Legal
Off-line Storage	50+(5 x Mp)¥	2/24 hrs	1	Legal
Passkey Reader (Blank)	250¥	2/24 hrs	2	9P-V
Power Cord	150¥	4/48 hrs	1	Legal
Printer	100¥	Always	1	Legal
Satellite Dishes				
Standard portable	800¥	5/48 hrs	1	Legal
Large portable	1,200¥	6/48 hrs	1	Legal
Fixed-base	900¥	5/1 wk	1	Legal
Scanners				
Finger/thumbprint	Rating x 200¥	Rating/72 hrs	1	Legal
Palmprint	Rating x 300¥	(Rating +1)/72 hrs	2	Legal
Retinal	Rating x 1,000¥	(Rating +2)/72 hrs	3	Legal
Text/Picture	100¥	Always	1	Legal
Signal Locator				
Standard	Rating x 200¥	Rating/48 hrs	1.5	8P-U
AOD	Rating x 500¥	Rating/48 hrs	1.5	8P-U
Simlink	25,000¥ + (rating x 5,000¥)	8/2 wks	2	8P-U
Temporary Satellite Dish Components				
Electronics	1,000¥	4/24 hrs	.5	Legal
Plastic webbing	5¥	4/24 hrs	.5	Legal
Spray polymer (1 use)	1¥	4/24 hrs	.5	Legal
Touchpad	50¥	Always	.5	Legal
w/Mouse adapter	+10¥	Always	1	Legal
w/Trackball adapter	+10¥	Always	1	Legal
Transceiver	Rating x 500¥	Rating/48 hrs	2	8P-U
Trode Jack	500¥	Always	NA	Legal
Vid-link Transmitter	Rating x 2,000¥	4/1 wk	2	8P-U
VR Kit	250¥	Always	1	Legal

SALVAGING

Components from a cyberterminal can be removed and either installed inside another cyberterminal or sold. This is called salvaging a component. Both modular and hardwired components may be salvaged.

Characters can try to get a discount when purchasing components by buying salvaged components. The cost for salvaged components ranges from very cheap to very expensive if the demand is great enough. Gamemasters set the scale that items are worth in their game. You can calculate the cost to a user by constructing the part and using an hourly wage based on your campaign's economics.

Modular Component Salvage

Modular components are easy to remove from a cyberterminal, because they usually simply snap out. At the gamemaster's discretion, removing a component may take a bit of time or even require a test (based on the Installation Test, with a –4 target number modifier and half the base time).

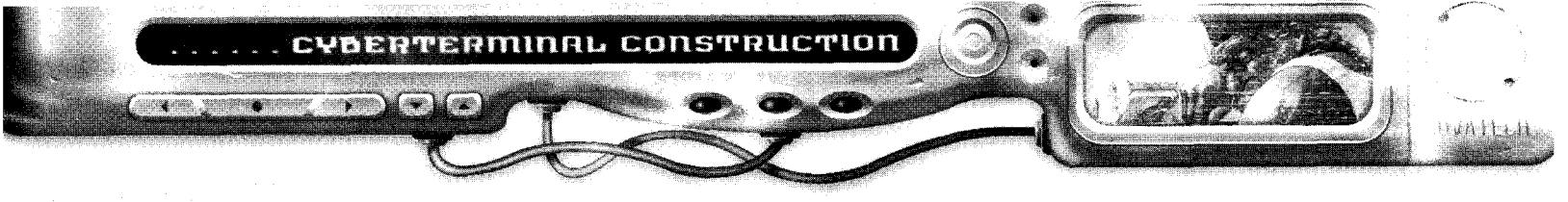
To install the modular component inside another cyberterminal, a character must make a standard Installation Test for the component. If the cyberterminal has a different MPCP rating from the component's original cyberterminal, problems may occur (see *Mismatched Components*, p. 65).

Characters can also salvage components for parts. A player can get 50 percent of the total cost of a component back in parts. The parts can be used again in other components. OCC chips can also be sold (see the costs under *Buying Programs*, p. 94).

Hardwired Salvage

To remove a hardwired component, the user must perform a Removal Test, which is the same as the Installation Test for the same component with the target number reduced by 2. The time is also reduced by half. There is no Design Test to help lower the removal target number, though a modifier for using a shop or facility would apply.

Salvaged hardwired components may not be hardwired into a new cyberterminal, but the OCCs can be reclaimed and used to construct a similar hardwired component for a new machine. If the new cyberterminal has a different MPCP rating than the original, problems may occur (see *Mismatched Components*, p. 65).



The removed OCCs can also be sold and the component salvaged for parts, the same as a modular component above.

MISMATCHED COMPONENTS

Many components are constructed for a cyberterminal with a specific MPCP rating. These components include: the ASIST interface, ICCM, reality filter, Response Increase and RAS override. If any of these components (or OCCs for a component) are installed in a cyberterminal with an MPCP other than what it was made for, problems will arise.

First, mismatched components are more difficult to install in cyberterminals with the wrong MPCP rating; apply a +4 modifier to the Installation Test. Once installed, every time the cyberterminal or persona takes damage the gamemaster should roll 2D6. On a result of all ones, the mismatched component refuses to work, claiming incompatibility, system error or any other tech-interface term the gamemaster wishes to use. The gamemaster can determine if this is enough to dump the user from the Matrix. Use the rules for *Dump Shock*, p. 227, *SR3*.

CRANIAL CYBERTERMINALS (C^2)

Cranial cyberterminals (C^2) must use cranial cyberterminal parts, not standard ones. Only the parts listed below can be constructed. Other cyberware can be used as long as routers (see p. 22, *M&M*) are installed. The parts are not modular and are considered hardwired units (though they do not get the cost reduction of hardwired units). They cannot be installed in standard cyberterminals. Implanted cyberterminals must contain the same components necessary for a cyberterminal in order to function: MPCP with icon, persona programs, ASIST circuitry, I/O Speed and active memory.

C^2 cyberterminals use the standard rules for cyberterminals and cyberdecks.

Pre-constructed C^2 cyberdecks appear on pp. 20–21, *M&M*. Note that active memory is not included in those costs, nor do the costs include ICCM filters or reality filters. The listed cyberdecks in *M&M* are built with hot ASIST interfaces.

A C^2 component requires the same tests to construct as normal components, following all of the standard rules. However, the installation must occur during the same time as an implant surgery procedure (see p. 147, *M&M*), as the recipient must be "opened up" to have the parts put into place.

C^2 PARTS

Only the components listed below can be constructed for a C^2 cyberterminal. The costs below are to be used if purchasing a custom designed unit. The following rules apply to items being constructed as well as pre-constructed components. As per the Partial Construction rules (see p. 62), users may purchase part of a component or the entire component as long as they install the component to the MPCP themselves.

Essence Costs: The costs listed for the I/O Speed and Response Increase modules are a flat rate. The costs for persona chips and icon chips are per chip.

Memory: The active memory described here basically serves as implanted RAM, in twentieth-century terms. It cannot be used for anything other than active utilities; it cannot be used as storage memory.

Note that headware memory (p. 298, *SR3*) can be used for both active and storage memory. Other linked memory sources may also be used for storage memory (but not active memory).

External Jackpoint: Cranial cyberdecks are built with a dedicated jackpoint so that the cyberdeck may be connected to the Matrix via fiberoptic cable. Unlike normal datajacks, this specialized jack only connects directly to the cranial cyberterminal (it does not contain ports for linking to other implants). This allows others to access an unconscious or restrained person's C^2.

Wireless Matrix Interfaces: To use wireless interfaces the user must have an external linking device (see *Wireless Interfaces*, p. 60) to connect to his C^2. The cost for these devices appears in the Transmission Device Table on p. 61.

Other Cyberware: The standard rules for linking cyberware (see *Interconnectivity*, p. 46, *M&M*) apply to C^2 cyberterminals. Items such as data compressors, headware memory, RAS override units, eye cameras and simlinks can be connected to the C^2 cyberterminal.

CYBERLIMB CYBERTERMINALS

Cyberlimb cyberterminals are normal cyberterminals that are installed in a cyberlimb. They follow all the rules for cyberdeck construction with the following exceptions. They can only be plug-and-use systems. They cannot be hardwired

Cranial Cyberterminal	Essence	Cost	Availability	Street Index	Legality
Active Memory	Mp ÷ 1,000	200¥ per Mp	6/2 wks	1	4P–S
Cold ASIST Interface*	.2	Construction Cost	6/2 wks	.5	4P-S
Hot ASIST Interface*	.4	Construction x 1.2	6/2 wks	1	4P–S
External Jackpoint	.1	500¥	6/2 wks	1	4P–S
Hardening	(Rating ÷ 10)	Construction x 1.2	6/2 wks	1.5	4P–S
ICCM Filter	.2	Construction x 1.2	6/2 wks	1.5	4P–S
Icon Chip	.1	Construction x 1.2	6/2 wks	1.5	4P–S
I/O Speed Module	.1	Construction x 1.2	6/2 wks	1	4P–S
MPCP	(Rating ÷ 10)	Construction x 1.2	6/2 wks	1	4P–S
Persona Chips (each)	.2	Construction x 1.2	6/2 wks	1	4P–S
Reality Filter	.2	Construction x 1.2	6/2 wks	2	4P–S
Response Increase	.2	Construction x 1.2	6/2 wks	1	4P–S

* Includes RAS override

or have any kind of casing as the cyberarm itself is the casing. For more information see *Cyberlimbs*, p. 35, *M&M*.

CUSTOM DESIGNED CYBERTERMINALS

There are three choices for the user when deciding to get a new cyberterminal. The first is to purchase one of the stock name brands (they appear on p. 167). The second would be to build one him or herself. The third is to purchase a customized cyberterminal. This order can be placed with a deckmeister or through a shadow organization like Hacker House. The stock brand companies do make custom cyberterminals, but they require proof of SIN and the requisite permits before construction will begin.

Each custom designed cyberterminal includes the cost of the components, including software, hardware and installation.

STEP ONE: CHOOSING THE OPTIONS

All of the components listed in the *Component Construction* section (beginning on p. 56) are available as a custom design option. All of the standard rules apply to a custom designed cyberterminal as they would for construction and upgrading. Custom-designed cyberterminals can also be C^2 or cyberlimb cyberterminals.

STEP TWO: CALCULATING THE COST

There are two different factors in determining the cost of a custom designed cyberterminal: the software and the hardware/installation. Not everything needs software, and in those cases the software cost is zero.

All hardware and software are broken down into a simple costs based on the $MPCP^2$ of the cyberterminal.

Hardware

To calculate the hardware cost, consult the Cyberterminal Component Prices Table (p. 67). Each piece of hardware has a multiplier. Add the multipliers together and then multiply that sum by $MPCP^2$. to get the total hardware cost in nuyen.

Software

For software costs, add the ratings of all the software together. For items without a rating such as reality filters and specific interfaces, use the base rating of the MPCP as its rating. If Response Increase is included it also uses the base MPCP as its rating. If a cold ASIST only is purchased, its rating is MPCP ÷ 2 round up).

The total for the component software is then multiplied by the $MPCP^2$.

That number is multiplied by a flat software multiplier based on the MPCP rating. This multiplier is found in the Software Multiplier table. The result of that calculation is the total software cost in nuyen.

SOFTWARE MULTIPLIER

MPCP Rating	Multiplier
1	10
2	25
3	60
4	65
5	70
6	90
7	100
8	110
9	120
10+	140

Others

Some items like memory, I/O Speed and RAS overrides are individual items that do not fit neatly into software or hardware categories. These must be calculated separately, as would the cost of any Miscellaneous Components.

Note: The icons that come with customized cyberterminals are usually standard, store-bought icons at a rating of 1/2 (round down) of the MPCP. They are usually tossed in for free.

Final Tally

Once the software, hardware and other items are added together, the final cost of the cyberterminal can be determined. Remember, some places may have sales and discounts, or the deckmeister may want to get rid of older stuff and toss those items in for free.

After a particularly lucrative run, SuzyQ decides to treat herself to a new cyberdeck. She orders an MPCP-8/6/6/6/6 deck with Response Increase-2, an I/O Speed of 480, Hardening-4, an ICCM filter, 1,000 Mp of active memory, 1,500 Mp of storage memory, and a hot ASIST interface with the basics of a wired interface connection (3 meters of fiberoptic cable and a spooler) and RAS override.

The price breakdown for SuzyQ's new deck looks like this:

Component	***Hardware Cost***	***Software Cost***
MPCP	*8*	*8*
Bod	*1*	*6*
Evasion	*2*	*6*
Masking	*2*	*6*
Sensor	*1*	*6*
Response Increase	*2*	*8*
Hardening	*8*	*4*
ICCM Filter	*4*	*8*
Hot ASIST	*2*	*8*
Multiplier Totals	***30***	***60***

The base cost of the hardware is 30 x 64 (8^2) = 1,920 plus 1000¥ for the biomonitor = 2920¥

The base cost of the software is 60 x 64 (8^2) = 3,840 x 110 = 422,400¥

The non-software driven components are ...

Active memory:	*1,000 x 7.5 = 7,500*
Storage Memory:	*1,500 x 6 = 9,000*
I/O Speed:	*35¥ x 480 = 16,800*
Matrix Interface	*35 + 3 + 50 = 88*
RAS Override	*(35 x 8) + 1,000 = 1,280*
The base cost of other options is	*34,668*

Adding up all the costs, SuzyQ's deck comes to: 2,920 + 422,400 + 34,668 = 459,988¥

She gets a standard Neil the Ork Barbarian icon chip at a Rating 4 and her deck has 8 FUPs. Her deckmeister sees that half-million cred rolling his way and decides to offer Suzy a 5 percent discount (bringing the cost down to 436,989¥) and gives her a keyboard and monitor he had lying around for free (they would take up 2 FUPs).

SHOP INSTALLATION

If a user wants a stock component installed by someone else, the cost is determined by using the custom design rules, above. The rules for Partial Construction (p. 62) are only to be used if the character is making or installing any part of the cyberterminal themselves.

A few months later SuzyQ wants her deckmeister to install a reality filter on her deck. If she wanted to save herself some nuyen, she could try to purchase or cook the OCCs and install them herself. By investing nuyen in her own shop and other tools she could install one pretty cheaply. But right now she doesn't have the time or inclination to spend hours programming and installing. Paying is good enough for her.

The hardware multiplier for a reality filter is 8. The total hardware cost is (64 x 8) = 512¥. The software cost is 512 (64 x 8) x 110 or 56,320¥. The total SuzyQ pays is 56,832¥.

CYBERTERMINAL COMPONENT PRICES TABLE

Components That Need Software

Personaware	**(MPCP Rating)^2 x Multiplier of ...**
MPCP	8
Bod or Sensor	1
Masking or Evasion	2
Masking w/SASS	3

Deck Features	
Cold ASIST	1
Hot ASIST	2
Hardening	8
ICCM Biofeedback Filter*	4
Reality Filter	8
Response Increase	Response Increase x 2

* Cost does not include biomonitor

Components That Do Not Need Software

Components	**Cost**
Active Memory	Mp x 7.5¥
I/O Speed	I/O Speed x 35¥
Maser Interface	3,000¥
Matrix Interface	35¥ + cost of cable
Miscellaneous Components	add 10 percent to the cost (see p. 63)
Ports (FUPs)	235¥
RAS Override	(35¥ x MPCP) + 1000¥
Signal Amplifier	35¥ + Signal Amplifier
Storage Memory	Mp x 6¥
Wireless Interface	
Cellular	(35¥ x device rating^2) + device cost (p. 61)
Laser	3,060¥
Microwave	5,560¥
Radio	(35¥ x device rating^2) + device cost (p. 61)
Satellite	560¥ + device cost (p. 61)

Other Options	
Ordering everything at one time	up to 25 percent off
Hardwired components	+10 percent per the cost of the component hardwired or +50 percent for the entire cyberterminal, whichever is cheaper

Utilities are the lifeblood of deckers, and are quite useful to non-decker users as well. This section introduces a number of new utilities and describes new uses for utilities originally presented in *SR3*.

Multiplier: This value is used during programming (see p. 76) to determine the size of the program.

Options: These are the utility programming options (see p. 83) that may be used to modify the utility.

NEW UTILITIES

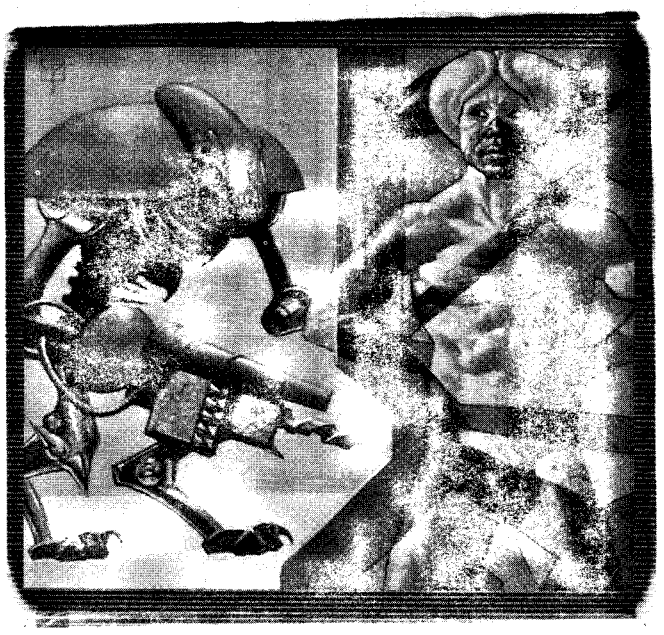
These utilities follow the same rules found under *Utilities*, p. 220, *SR3*.

OPERATIONAL UTILITIES

Operational utilities assist a user in conducting system operations. For more details on the nature and use of operational utilities, see p. 220, *SR3*.

Options: All operational utilities may use the adaptive, bug-ridden, crashguard, DINAB, noise, one-shot, optimization, sensitive, sneak and squeeze options (see *Utility Options*, p. 83).


DEVILS TOWER
27L*5562
TS
DTS
DTS
DTS
DTS
DTS
DTS
DTS
PRESCOTT



Camo

Multiplier: 3

System Operations: Redirect Datatrail

The camo utility confuses any program attempting to lock in on the user's datatrail through a variety of techniques, including hiding the user's tracks and laying false trails. The camo utility rating is added to the base number of turns it takes for the location cycle of trace IC or a track utility to locate a user. For more details, see *Trace IC,* p. 104.

This utility also reduces the target numbers for System Tests for the Redirect Datatrail operation.

Crash

Multiplier: 3

System Operations: Block System Operation, Crash Application, Crash Host

The crash utility helps the user to undermine other programs, issuing cancel commands, introducing errors and causing them to seize up. The crash utility reduces the target numbers to crash an application or host.

Defuse

Multiplier: 2

System Operations: Disarm Data Bomb

This utility is designed to disable data bombs (see p. 103), reducing the target numbers for System Tests to disarm them.

Doorstop

Multiplier: 2

System Operations: Freeze Vanishing SAN

This utility is designed to lock open a vanishing SAN so that it cannot completely close and cut the user off. The doorstop utility also convinces the SAN that it has actually closed, so as not to set off any alerts. See *Vanishing SANs,* p. 120.

Encrypt

Multiplier: 1

System Operations: Encrypt Access, Encrypt File, Encrypt Slave

This utility encrypts electronic data, transforming it into an format which is unreadable without the cryptographic key (or a good decrypt utility). Encrypt reduces the target number for System Tests involving encryption.

For more information on data encryption, see p. 292, *SR3.*

Evaluate

Multiplier: 2

System Operations: Locate Paydata

The evaluate utility sifts through large data samples to find valuable information, reducing the target number for attempts to find paydata on a host.

Because evaluate utilities are programmed to search out data that is currently hot on the market, the utility degrades rapidly as market demands change. On a periodic basis (one month of game time or after every Matrix run), the gamemaster should roll 1D6 ÷ 2 (round down) for each evaluate utility possessed by the team and reduce the effective rating of the program by the result of the roll.

Users with source copies of evaluate utilities can upgrade them with new search parameters. This upgrade represents time spent programming stock market analyses, rumors, news stories, shadowtalk and other data into the evaluate program's parameters. However, unlike standard upgrading (see p. 81), upgrading an evaluate utility requires the Knowledge skill Data Brokerage (or equivalent). Use Data Brokerage in place of Computer (Programming) when upgrading the utility.

Alternately, the gamemaster may allow a character to spend Karma Points to restore the evaluate utility. One Karma point restores one rating point.

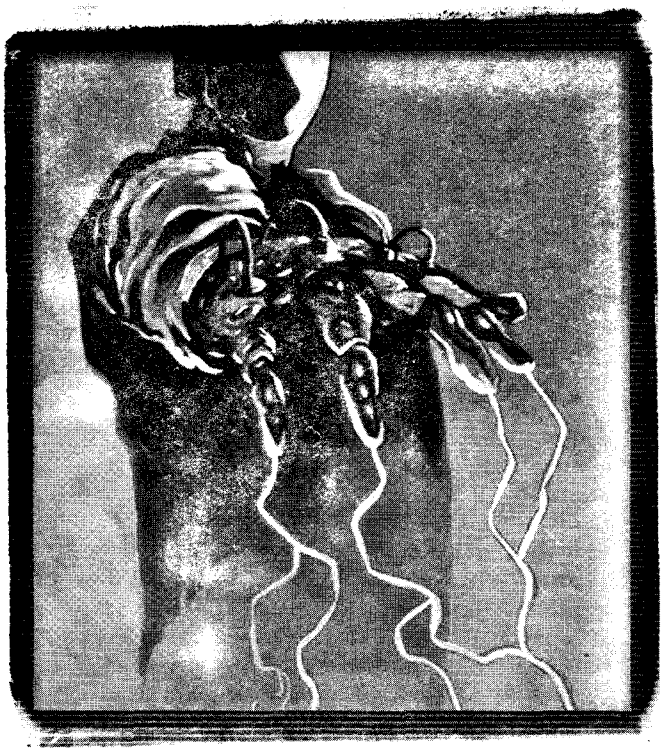
A character who programs his own evaluate utility (see *Programming*, p. 76) cannot program it at a rating higher than his Data Brokerage skill.

Mirrors

Multiplier: 3

System Operations: Decoy

The mirrors utility allows the user to clone his icon, reducing the target numbers for System Tests used in the Decoy operation.



Purge

Multiplier: 2

System Operations: Disinfect

This utility searches through systems infected with worm programs and eradicates the worms. Purge reduces the target number for Disinfect system operations, and tests to remove worms from programs, files or MPCPs (see *Worms*, p. 92).

Redecorate

Multiplier: 2

System Operations: Alter Icon

Derived from the programs used by system designers to create sculpted environments, the redecorate utility enables the user to creatively change an icon's appearance, reducing the target numbers for tests to do so.

To alter the icon of another persona, frame, agent, sprite, daemon, otaku or SK, a character must attack the target in cybercombat using the redecorate utility. The target makes an Icon Rating Test against the redecorate utility rating; successes from this test reduce the attacker's successes. Each net success allows the attacker to alter one aspect of the icon's appearance (for example: color, texture, facial feature, resolution).

Sniffer

Multiplier: 3

System Operations: Intercept Data

This utility is designed to monitor all data traffic flowing through a subsystem, selectively searching for keywords or other set parameters. Sniffer reduces the target number for Intercept Data System Tests.

Snooper

Multiplier: 2

System Operations: Analyze Operation

This program allows the user to spy on a target icon and reduces the target number for an Analyze Operation System Test.

Swerve

Multiplier: 3

System Operations: Abort Host Shutdown

The swerve utility is used to avoid a system crash, and reduces the target number for the Abort Host Shutdown System Tests.

Triangulation

Multiplier: 2

System Operations: Triangulate

The triangulation utility simultaneously queries several wireless link relays for information on signal strength and quality to and from a particular remote device. It then analyzes this data and calculates the physical location of the remote device. On a cellular network's system, this utility can be used to pinpoint the location of a powered cell phone. When triangulating a location, the triangulation utility reduces the target number for Triangulation System Tests.

Validate

Multiplier: 4

System Operations: Dump Log, Invalidate Account, Restrict Icon, Validate Account

The validate utility is especially useful for making administrative-level changes and accessing system logs, reducing the target number for System Tests for these type of operations.

SPECIAL UTILITIES

Special utilities perform specific tasks and do not affect system operations.

Options: All special utilities may use the adaptive, bugridden, crashguard, optimization and squeeze options (see *Utility Options*, p. 83).

BattleTac Matrixlink

Multiplier: 5

The BattleTac Matrixlink program allows two or more

Matrix users to quickly exchange data to facilitate team operations in Matrix combat. Information on the status of the user and his cyberterminal, as well as any information acquired through the use of sensor programs, system operations and so on, is instantly transmitted to other users who are part of the BattleTac network. Information sent to a BattleTac network is automatically accessible to a user with a BattleTac Matrixlink.

To initiate a Matrixlink, each user that plans on being part of the network must be linked via a Make Comcall operation (p. 218, *SR3*). However, unlike normal Make Comcall operations, the monitored operation is maintained by the Matrixlink utility rather than the user. Communication via Matrixlink may be monitored via a Tap Comcall operation.

A BattleTac Matrixlink also allows a user to use their Small Unit Tactics (Matrix Tactics) skill to gain an Initiative bonus for their Matrix teammates. To do so, the user must take a Complex Action and communicate orders during their last action of a Combat Turn, as described on p. 47, *M&M*. The target number for this test is 2, modified by wounds and Perception modifiers.

A character in the Matrix may not give a bonus to characters *not* in the Matrix through the BattleTac link, and vice versa.

A character using BattleTac Matrixlink can only exchange data with a number of others equal to the Matrixlink's rating or less.

Cellular Link

Multiplier: 1

The cellular link utility is necessary for any character who wishes to establish a wireless cellular communications link with his cyberterminal through a cellular interface (see p. 60). The rating of the interface must be less than or equal to the link program's rating.

Compressor

Multiplier: 2

The compressor utility reduces the size of data being uploaded or downloaded by 50 percent. A 100 Mp file would be compressed to 50 Mp, cutting the upload or download time in half. The maximum file size the compressor utility can handle is the rating of the compressor utility x 100 Mp.

Cyberterminals must have enough active memory to accommodate the decompressed size of a compressed utility being uploaded. If the cyberterminal does not have adequate active memory, it cannot perform the Swap Memory operation. For example, uploading a compressed 100 Mp utility requires 100 Mp of free active memory, even though the program is compressed to 50 Mp for the upload.

Decompressing a file or program on the Matrix requires a Complex Action. Compressed files and programs must be decompressed before they can be read or used.

Guardian

Multiplier: 2

The guardian utility is an access control program intended to prevent unauthorized people from using a cyberterminal.

For every two full points of this utility's rating, the user can

choose one of the following ways to identify and authenticate the user:

- Passcode or passkey.
- Biometric scan (fingerprint, retinal and so on)—requires an attached scanner.

If someone attempts to access the cyberterminal but fails the authorization, the guardian utility will automatically deny them access. In addition, the user can also specify one of the following responses to an attempt to access the cyberterminal without authorization:

- Transmit an alarm via the Matrix or wireless link.
- Trigger an attached device (such as a mine).
- Jolt the unauthorized user with electricity, inflicting (guardian rating)M Stun damage.

Laser Link

Multiplier: 1

The laser link utility allows a user to connect his cyberterminal to a laser interface (p. 60) and establish a communications link with a laser receiver (see p. 34). The I/O Speed through this link cannot exceed the utility rating x 100.

Maser Link

Multiplier: 1

The maser link utility allows a user to connect his cyberterminal to a maser interface (p. 57) and establish a communications link through a maser power grid connection (see p. 33). The I/O Speed through this link cannot exceed the utility rating x 100.

Microwave Link

Multiplier: 1

The microwave link utility allows a user to connect his cyberterminal to a microwave interface and establish a communications link with a microwave link receiver (see p. 34). The I/O Speed through this link cannot exceed the utility rating x 100.

Radio Link

Multiplier: 1

This utility is necessary for any character who wishes to establish a wireless radio link with his cyberterminal through a radio interface (see p. 61). The rating of the interface must be less than or equal to the rating of the link program.

Remote Control

Multiplier: 3

This utility, when used in conjunction with a rigger protocol emulation module, allows a user to control his drones or the drones and components of a rigged security system. The user must have a communications link with the drone, either through CCSS (closed circuit simsense), a rigger remote control deck or a wireless link.

A user who controls a drone through this utility can only command it in the "captain's chair" mode. The user cannot use either Hacking Pool or Control Pool when controlling the drone. For more information on computer users and rigging, see p. 28.

Satellite Link

Multiplier: 2

The satellite utility contains a database of satellite positions and transponder protocols, allowing the user to connect his cyberterminal to a satellite link interface and establish a communications link with an orbital satellite (see p. 34). The rating of the interface must be less than or equal to the rating of the link program.

OFFENSIVE UTILITIES

Offensive utilities are viral programs intended for use against another icon. A desperate user can program the Attack utility (p. 221, *SR3*) on the fly (p. 122), but cannot program any of the other offensive utilities during a run.

Target: Specifies the targets each utility program can attack. "Frames" refers to dumb frames, smart frames *and* agents.

Erosion (Blinder, Poison, Restrict, Reveal)

Multiplier: 3

Target: Frames, Personas, SKs

Options: Adaptive, area, bug-ridden, crashguard, DINAB, one-shot, optimization, selective, targeting

The erosion utility attacks a specific persona rating of targeted icons, similar to crippler IC. Erosion has four variants (each variant is a separate utility):

- Blinder attacks the Sensor rating
- Poison attacks the Bod rating
- Restrict attacks the Evasion rating
- Reveal attacks the Masking rating

If the attack succeeds, the target must make a test using the affected persona rating against a target number equal to the rating of the erosion utility. Successes from this test reduce the attacker's successes; if reduced to 0, the attack has no effect.

Reduce the persona rating of the target by 1 for every 2 net successes the attacker achieves (if only 1 net success is achieved, the attack fails to reduce the appropriate persona rating of the target).

The armor utility does not protect against erosion.

Hog

Multiplier: 3

Target: Personas

Options: Adaptive, bug-ridden, crashguard, DINAB, one-shot, optimization, selective, targeting

The hog utility bombards the target cyberterminal with system requests, pings, data packets and other transmissions. This flood of incoming data swamps the active memory of the cyberterminal, forcing it to juggle a barrage of meaningless input. This active memory drain begins crowding any running utilities, forcing them to crash.

Whenever an attacker makes a successful attack using a hog program, the target makes an MPCP (Hog Rating) Test; Hardening reduces the target number for this test. Any successes achieved on this test reduce the attacker's successes; if reduced to 0, the hog attack has no effect.

If the attacker achieves any net successes, divide them by 2 (round down). The result is the number of running utilities the hog has forced to crash. The highest-rating program will crash first, followed by the program with the next highest rating and so on. For utilities with the crashguard option, consider their

rating, as equal to their normal ratings minus the crashguard ratings. If two utilities have the same rating, randomly choose which one fails.

Users can use the Swap Memory operation to reload programs crashed by a hog utility. The armor utility has no effect against the hog program.

A Matrix gang member jumps Grid Reaper while he's cruising through a public host, attacking him with a rating 6 hog utility. The gang decker gets an amazing 7 successes on his Attack Test. Grid Reaper rolls his MPCP of 8 against a target number 3 (hog rating 6 – his hardening of 3). He rolls poorly, getting only 4 successes. The gang decker has scored 3 net successes, meaning he crashes 1 of Grid Reaper's utilities.

Grid's highest utilities are his sleaze-8 and deception-6. His sleaze utility has a crashguard rating of 2, however, so its effective rating against the hog is 6 (8 – 2). Because both utilities are effectively the same, he rolls randomly. The sleaze utility bites the dust.

Steamroller

Multiplier: 3

Target: Tar Baby IC, Tar Pit IC

Options: Adaptive, bug-ridden, crashguard, DINAB, one-shot, optimization, stealth, targeting

The steamroller utility is designed to destroy tar IC programs. A successful attack against tar IC with this utility inflicts (rating)D damage. Tar IC crashed with this program will increase the user's security tally unless the steamroller program is equipped with the stealth option or the user suppresses the IC per standard rules.

The steamroller program is immune to the destructive effect of tar programs.

DEFENSIVE UTILITIES

Defensive utilities are designed to protect the user in cybercombat.

Restore

Multiplier: 3

Options: Adaptive, bug-ridden, crashguard, DINAB, one-shot, optimization

The restore utility is designed to shore up and reconstruct persona programs. In effect, it repairs damage to an icon's attributes, such as the damage caused by crippler IC or certain offensive utilities. The restore utility cannot repair any permanent damage to the actual persona chips caused by gray or black IC.

To use the restore utility, the user takes a Complex Action to make a Restore Test against a target number equal to the rating of the program that caused the damage. If the icon suffered damage from more than one program, such as acid-4 and poison-6 crippler IC programs, use the higher rating.

The utility repairs 1 point of damage for every 2 successes achieved on the Restore Test.

Shield

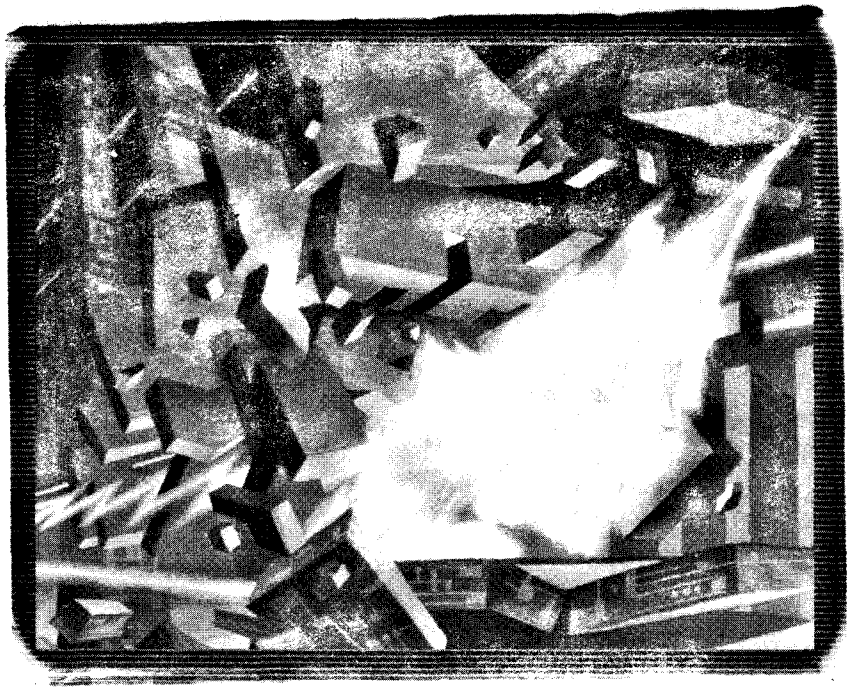
Multiplier: 4

Options: Adaptive, bug-ridden, crashguard, optimization

The shield utility enables a user to parry attacks in cybercombat. Whenever an attack strikes the user's icon, he may make a Shield Test against a target number equal to the skill of the attacker (Computer skill for a decker, the Security Value of a system for IC programs, the DINAB value for a frame and so on). Reduce the attacker's net successes by the number of successes achieved on the Shield Test.

The shield utility is effective against all offensive utilities and attacks by IC programs.

A shield utility loses 1 Rating Point every time it is used, whether or not the Shield Test succeeds. Users may load fresh copies of the utility by performing Swap Memory operations.



ADVANCED USES FOR SR3 UTILITIES

Many of the utilities presented in *SR3* have advanced applications based on the new rules and Matrix features presented in this book. The advances are listed below.

OPERATIONAL UTILITIES

Options: All operational utilities may use the adaptive, bug-ridden, crashguard, DINAB, noise, one-shot, optimization, sensitive, sneak and squeeze options (see *Utility Options*, p. 83).

Browse

This utility may also be used to modify the target number for the Trace MXP Address system operation.

Relocate

In addition to its uses against the track utility, the relocate utility also reduces the target numbers for System Tests made to defeat trace IC programs that have begun their location cycles (see *Trace IC,* p. 104).

Scanner

The scanner utility may also be used to reduce the target number of System Tests for the Locate Frame, Locate Tortoise User and Scan Icon operations.

SPECIAL UTILITIES

All special utilities may use the adaptive, bug-ridden, crashguard, optimization and squeeze options (see *Utility Options,* p. 83).

Track

The track utility may be used to trace frames, agents, sprites, daemons and even SKs and AIs, in the same way it is used against personas.

OFFENSIVE UTILITIES

Attack

Target: This utility may also be used to target frames, agents, sprites, daemons, SKs and AIs.

Options: Adaptive, area, bug-ridden, chaser, crashguard, DINAB, limit, one-shot, optimization, penetration, selective, stealth, targeting

Black Hammer

Target: Personas

Options: Adaptive, bug-ridden, crashguard, one-shot, optimization, selective, targeting

The black hammer utility is incredibly difficult to program. The maximum rating that can be programmed is equal to half the Computer (Programming) skill of the programmer, rounded up.

This utility may be used by SKs, but may not be loaded into a frame, agent, sprite or daemon.

Killjoy

Target: Personas

Options: Adaptive, bug-ridden, crashguard, one-shot, optimization, selective, targeting

As with the black hammer utility, killjoy is difficult to program. The maximum rating that can be programmed is equal to half the Computer (Programming) skill of the programmer, rounded up.

This utility may be used by SKs, but may not be loaded into a frame, agent, sprite or daemon.

Slow

Options: Adaptive, area, bug-ridden, crashguard, DINAB, one-shot, optimization, selective, targeting

Trace IC is only vulnerable to the slow utility during the hunting cycle.

DEFENSIVE UTILITIES

Armor

When used against offensive utilities with the area option, increase the armor utility's rating by +2.

Options: Adaptive, bug-ridden, crashguard, optimization

Cloak

Options: Adaptive, bug-ridden, crashguard, one-shot, optimization

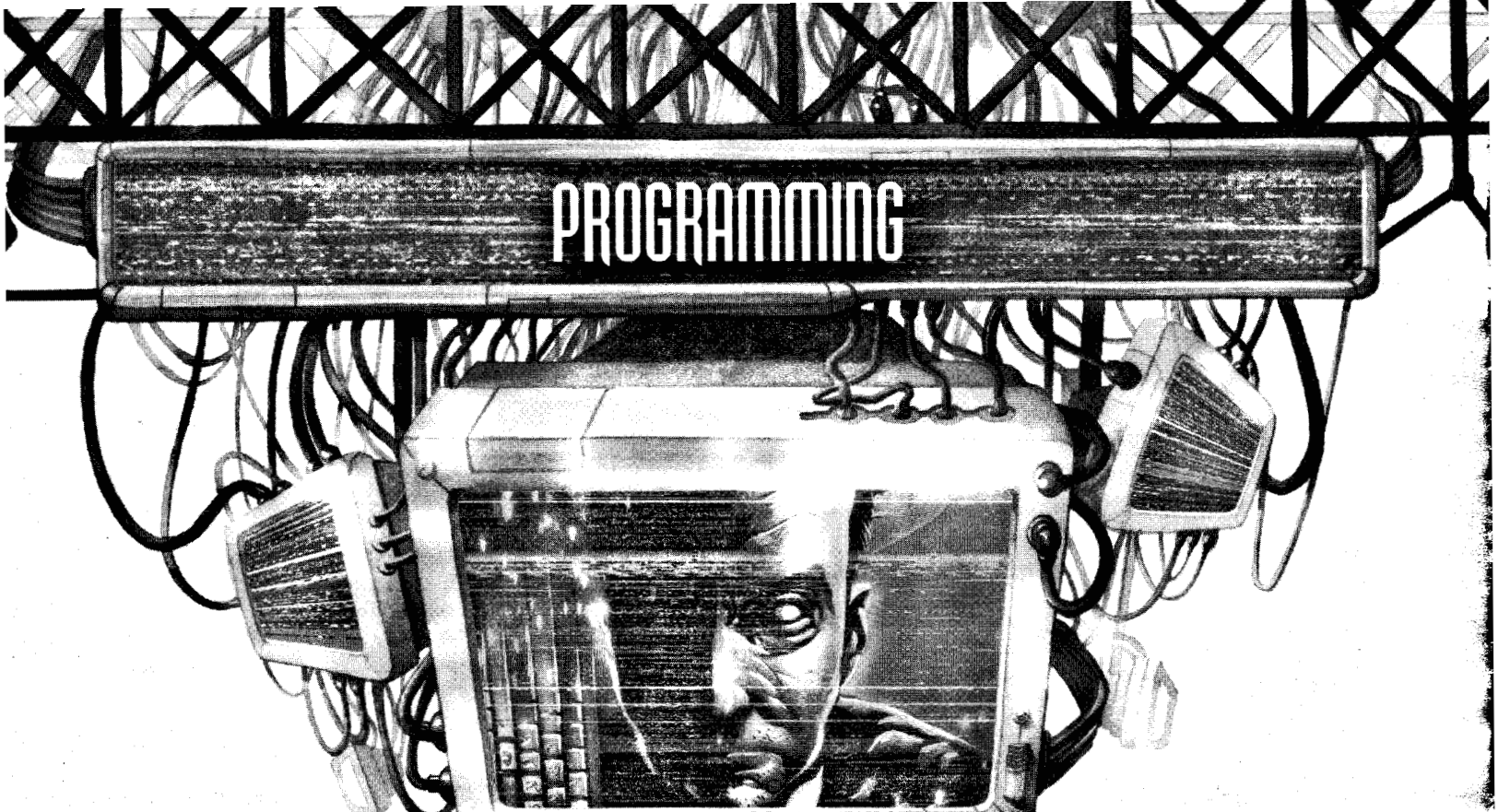
Lock-On

Options: Adaptive, bug-ridden, crashguard, one-shot, optimization

Medic

Options: Adaptive, bug-ridden, crashguard, DINAB, optimization

PROGRAMMING



To create a program, whether a decker utility, a home-brewed application or a wiz piece of IC, the user must spend the time to crank out the code. This typically involves days or even weeks of jacking in, constructing the code, debugging, rewriting and testing before the program is finalized and ready to use.

Aside from a breakdown of the programming procedure, this section also details options available to certain types of programs, command sets, worms, frames and agents.

THE PROGRAMMING TEST

Programming requires a Computer (Programming) Test to complete the work. Each programming task has a base time to finish, and the use of a program plan, certain tools and programming environments may modify the test. The inclusion of specified program options may also affect the test.

PROGRAM RATINGS

Except where noted, a programmer cannot write a program with an unmodified rating higher than his Computer (Programming) skill.

The ratings of a cyberterminal or cyberdeck's persona programs may not exceed the programmer's Computer (Programming) skill multiplied by 1.5 (round down).

PROGRAM SIZE

A program's size is determined by squaring its rating and multiplying the result by the program multiplier supplied in the program description. The Program Size Table (p. 78) provides precalculated sizes for programs of ratings 1 through 14 and multipliers up to 10.

If modifiers of some kind reduce the effective rating of a program to less than 1, use a rating of 1 to determine design time and memory requirements.

IDIC-I-NITE
PLOG

Megapulses

All program sizes are measured in megapulses (Mp). The exact definition of a megapulse (aside from a million pulses) is intentionally left abstract, and serves as an arbitrary measurement of computer memory.

BASE PROGRAMMING TIME

The base time required to write a program is equal to the Mp size of the program in days. When calculating the base time, include any size increases from program options in the program size.

THE PROGRAM PLAN

A program plan is an outline generated by a programmer to detail the steps that will be necessary to create a solid and efficient code structure. To generate a program plan, a character must use an appropriate Program Design Knowledge skill, such as Combat Utility Design, Operational Utility Design, Cyberterminal Code Design and so forth (see p. 25). The character makes a test using this skill against a Target Number 4, applying modifiers from the Program Planning Table (p. 79).

Each success achieved on creating the program plan provides a –1 target number modifier to the Computer (Programming) Test.

Creating a program plan takes a number of hours equal to the program's rating, +1 for each option, multiplied by the program's size multiplier. A program plan requires a number of Mp equal to the program's size ÷ 10 (round down).

PROGRAMMING TOOLS

At minimum, a character needs a computer with both active and storage memory equal to or greater than the size of the program being created in order to program. Any computer will do, from a cyberterminal to a desktop, as long as it has the memory.

If the computer being used has double the required memory, it provides a –2 target number modifier to the Computer (Programming) Test.

Programming Suite

A character can also enhance his programming by using a software programming suite. These suites must be run on a computer, and they provide a number of programming tools such as smart editors, library packages, code optimizers, dynamic compilers, source code debuggers and other virtual assistants. Most programming suites are designed as an actual virtual environment for the character to jack into, allowing him to program by manipulating menus and icons that represent basic functions, code and features.

Programming suites each have a rating, which is applied as complementary dice to the programmer's Computer (Programming) Test. A character cannot receive more complementary dice than he has Computer (Programming) skill.

Note that the memory taken up by a programming suite is considered available when determining if the computer has double the program's memory.

Note that because the programming suite is a program unto itself, it is possible for a character to program his own programming suite. A character may not program a programming suite with a rating higher than his own Computer (Programming) skill. Programming suites have a multiplier of 15. Note that programming suites may also be programmed with the self-coder option (see p. 87).

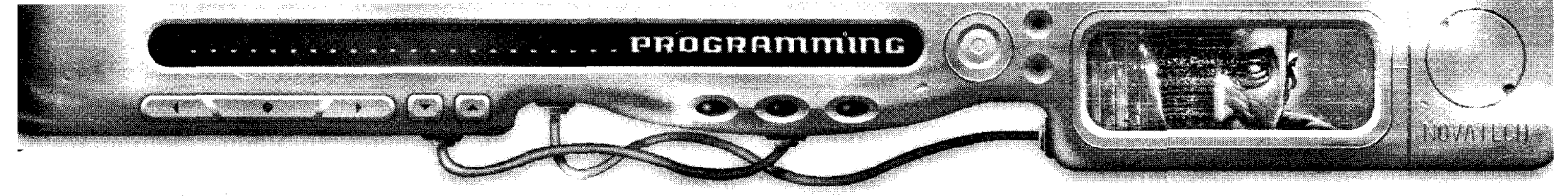
The size for programming suites rated 1–10 are listed on the Programming Suite Table (p. 79). See *Buying Programs*, p. 94, for determining a programming suite's cost and availability.

Mainframe Programming

A programmer can also take advantage of a programming environment on a mainframe computer host. Programming environments are basically programming suites designed specifically

PROGRAM SIZE TABLE

Program Rating	Multiplier 1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	4	8	12	16	20	24	28	32	36	40
3	9	18	27	36	45	54	63	72	81	90
4	16	32	48	64	80	96	112	128	144	160
5	25	50	75	100	125	150	175	200	225	250
6	36	72	108	144	180	216	252	288	324	360
7	49	98	147	196	245	294	343	392	441	490
8	64	128	192	256	320	384	448	512	576	640
9	81	162	243	324	405	486	567	648	729	810
10	100	200	300	400	500	600	700	800	900	1,000
11	121	242	363	484	605	726	847	968	1,089	1,210
12	144	288	432	576	720	864	1,008	1,152	1,296	1,440
13	169	338	507	676	845	1,014	1,183	1,352	1,521	1,690
14	196	392	588	784	980	1,176	1,372	1,568	1,764	1,960



for mainframe hosts. Unlike suites, environments do not have ratings of their own; the Security Value of the system they are run on is used instead.

To gain access to a mainframe programming environment, a character must either pay for programming time or hack the system and steal the time.

The typical charge for one day of programming is equal to the host's Security Value x 100¥. Naturally, mainstream hosts will require proof of identification (including SIN) and will demand certain waivers be signed; some will even require contracts or payment in advance. Some have also been known to monitor those who use their systems, either to prevent deckers from writing illegal code or to steal the code for their own purposes.

To steal programming time, the character must deck into the system and validate an account that allows them to use the programming environment. The decker can then use the host until the system's security notices something is wrong with the account.

Like programming suites, a programming environment adds complementary dice equal to the host's Security Value to the character's Computer (Programming) Test. Mainframe programming also reduces the target number by an amount based on the host's Security Code: –1 for blue, –2 green, –3 orange and –4 red. Because mainframes usually have memory to spare, they also provide a –2 extra memory modifier.

A character can use a programming environment on a mainframe as long as its rating is not higher than twice his Computer (Programming) skill.

PROGRAM PLANNING TABLE

Situation	Modifier
Program rating 1–4	–1
Program rating 5–9	+0
Program rating 10+	+1
Each program option	+1

PROGRAMMING SUITE TABLE

Rating	Size (in Mp)
1	15
2	60
3	135
4	240
5	375
6	540
7	735
8	960
9	1,215
10	1,500

THE COMPUTER TEST

To determine how successful the programming is, the character makes a Computer (Programming) Test against a target number equal to the unmodified rating of the program (do not include changes in the rating due to options). Apply any appropriate modifiers from the Programming Modifiers Table.

Complementary dice may be added to this test equal to the rating of the programming suite or Security Value of the programming environment being used. Hacking Pool may not be used for this test, but a character with Task Pool may use it.

If the character fails the test, the gamemaster rolls 2D6 and divides the base time by the result (round up). This number equals the number of days the character programs before he realizes the design is inherently flawed and must be remade.

PROGRAMMING MODIFIERS TABLE

Situation	Modifier
Computer has double the needed memory	–2
Each success achieved from program plan	–1
No program plan was prepared	+2
Mainframe Programming	
Blue host	
Green host	–2
Orange host	–3
Red host	–4

THE TASK PERIOD

Divide the base period by the number of successes on the Computer (Programming) Test. The result is how long the programming takes, expressed in days.

Just as with cyberterminal construction, this task period considers a day of work to be 8 hours of labor. For more details, see *Time*, p. 55.

Note that a character will not know how long the programming will take, even though the player might. The character can only guess. In fact, the gamemaster may choose to roll the test for the player, to keep him in the dark as well.

Jeff decides to whip up the best attack-S utility he can create. His Computer Skill is 6, so the maximum rating he can program it with is 6. He decides to give the utility the targeting option, which increases its design rating by 2 to 8. Attack-S utilities have a multiplier of 4, so the program's design size is 256 Mp. The base time to write the utility is 256 days.

The first step Jeff takes is to create a program plan. He uses his Combat Utility Design Skill of 4 against a target number of 4, modified by the program's rating to 3. He scores 3 successes, which will reduce his Programming Test by –3. Creating this plan takes Jeff 28 hours (rating 6 +1 option = 7, 7 x the multiplier of 4 = 28). When it is finished, the plan takes up 25 Mp (256 ÷ 10 = 25.6, rounded down).

To begin writing the utility, Jeff needs a computer with enough memory—256 Mp minimum. He already owns a computer with 1,000 Mp (both active and storage), so he's set. Because he has double the required memory, he will receive another –2 modifier to his Programming Test. Jeff also has a Rating 5 programming suite on his computer, which will provide him 5 complementary dice on his Programming Test.

Jeff has a Computer 6 skill, so he rolls 6 dice (plus 5 complementary dice) when making the test. His target number is the unmodified rating of the program—6—modified by his program plan successes (–3) and double memory (–2) to 2 (6 – 5 = 1, raised to the minimum target number of 2).

Jeff scores 8 successes. The task period will be 32 days (256 ÷ 8). It will take Jeff a little over a month to complete the utility.

PROGRAMMING TEAMS

Characters may also work together in teams to produce programs. The maximum size of a team equals half the Computer (Programming) skill, rounded down, of the team member with the highest skill. The maximum rating of programs the team may produce equals the Computer (Programming) skill of the team member with the highest skill.

When the time comes for the team to make a Computer (Programming) Test, make only one test for the entire team. Use a number of dice equal to their average Computer (Programming) skill, rounding down. If any of the team members have Task Pool, add the Task Pool to the character's skill before calculating the average.

Divide the task period for team programming by the number of team members +1, rounding up. The result is the minimum number of days each team member must work on the programming. Each team member must have the minimum required computing resources to work on the program.

Four characters decide to get together and work on a program. Their individual skills are Computer 5, Computer 2, Computer 6 (Programming 8) and Computer 7. The highest skill rating of their group is 8, so the team can have 4 (8 ÷ 2) members, and the maximum program rating they can produce is 8.

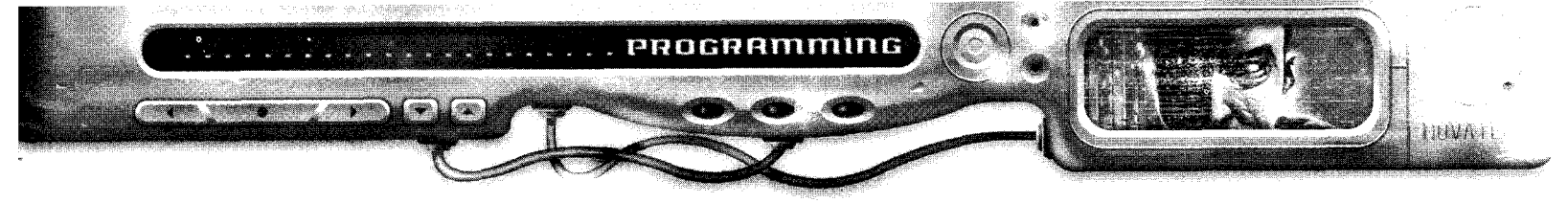
The team decides to write an armor-8 utility, which has a size of 192 Mp. Each of the team members has a computer with over 384 Mp (192 x 2) of free memory, and they each have a copy of a rating 2 programming suite (most have a higher rating suite, but the team member with Computer Skill of 2 can't use one with a rating over 2). They also have a program plan to work from that was generated by one of the team members with 2 successes (–2 to their programming target number).

The base time to program the utility is 192 days. The team's average Computer (Programming) skill is 5 (5 + 2 + 8 + 7 = 22, 22 ÷ 4 = 5.5, rounded down to 5), so the team rolls 5 dice for the test, plus 2 complementary dice. The target number is 4 (8, –2 for having double the necessary memory and –2 again for the program plan). The team gets 6 successes, so the task period is 32 (192 ÷ 6) days.

Each team member must work on the program for a minimum of 7 days (32 ÷ [4 + 1], rounded up).

THE FINISHED CODE

Once a programmer completes the task period, the work is done and he now has a copy of the program's source code. As described on p. 295, *SR3*, the source code must be used to cre-



ate object code copies, which are what actually get used by the character. Object code is usually cooked into optical memory chips, which requires a Cooking Test, as described on p. 55.

In order to copy, upgrade or modify the program, a character must have the program's source code.

BUG TEST TABLE

Situation	Modifier
Program difficulty	–(Rating of program ÷ 2, round up)
Program's rating is less than half character's skill	+3
Program options	–(number of options ÷ 2, round up)
Programmed by team	–(number of team members ÷ 2, round up)
Programmed on mainframe	–2
Each success not used to reduce base time	+3
Programming language	See below

Programming Language	Bug Test Modifier	Other Effect
HoloLISP	+0	None
InterMod	+4	–1 to the program's effective rating
MatComDev	+2	+1 to Computer (Programming) Test
MCT Iconix 7	–1 per option	–1 to Computer (Programming) Test
Metacomm	–3	–2 to Computer (Programming) Test
Novatech VRDrive 3	+1	+2 when using Glitch Table
Oblong	+3	+2 to Computer (Programming) Test
Renraku Teng	–5	Base time ÷ 2

UPGRADING

If a character has a program's source code, he can attempt to increase a program's rating by upgrading it. A character may also upgrade a program by adding options rather than increasing the program's rating. A character can also decrease a program's rating if he chooses, or remove options. For game purposes, all of these procedures are considered "upgrading," and require a Programming Test.

To determine the base time for an upgrade, first determine the base time for the program as if creating the program from scratch (see *Base Programming Time*, p. 78). Then calculate the base time for writing the current program version. Then subtract the current version base time from the upgraded version base time. The result is the base time needed for the upgrade.

The minimum base time for upgrading is equal to 25 percent of the base time it would take to write the program from scratch. If a program upgrade would result in a program size equal to the program's original size, use this minimum base time.

The character makes a Computer (Programming) Test for the upgrade, using the programming rules detailed above.

OPTIONAL RULE: BUGS

As every commercial software developer can tell you, it's practically impossible to write code that is completely free of errors. One claim states that there are 15 bugs for every 100 lines of code. Commercial vendors will usually run their software through a testing phase to work out the most heinous bugs, but characters who are cranking out their own code at home rarely have this luxury. Such characters typically find out their coding errors the hard way.

If this optional rule is used, every time a character writes a program there is the possibility that it will be bug-ridden. Naturally, these bugs will surface at the most inopportune times.

The Bug Test

Whenever a character programs a piece of software, the gamemaster makes an Open Test using the character's Computer (Programming) skill; for programming teams, use the average of their skills. The result is the Occurrence factor—how frequently the program's bugs will cause problems during execution. Every (Occurrence) use of the program, the gamemaster rolls on the Glitch Table (p. 82).

A character can intentionally take longer when programming to develop a product with fewer bugs. Instead of using Computer (Programming) test successes to reduce the task period, successes can instead be sacrificed to debugging. Each success used in this way adds +3 to the Open Test.

The gamemaster can apply several additional modifiers to the Open Test, as shown on the Bug Test Table.

Programming Language

Software developers in 2061 use a wide range of programming languages, each with their own benefits and faults. Some programming languages are known to be more efficient and less "buggy" than others, but they typically have other drawbacks, such as taking longer or being more difficult to use.

When using these optional rules, the character must state which language he will program the software in. The character must know the programming language; each language is governed by an equivalent Language skill.

Each language provides a modifier to the Open Test for bug occurrence, and may also have other effects on the programming process, as listed on the Bug Test Table.

If a program is created using a specific language, then the program can only be upgraded using the same programming language.

Using the Glitch Table

When a character uses a program for the nth time (where n = the Occurrence factor), the bugs in the program cause a glitch to occur. Sometime during the program's period of use,

GLITCH TABLE

Result	Effect
2	**Minor Glitch.** The program runs, but at reduced effectiveness. Reduce its effective rating by 1 (minimum Rating 1).
3–4	**Major Glitch.** A more serious glitch occurs, impeding the program's performance. Reduce its effective rating by half (round down) to a minimum Rating 1.
5–6	**General Protection Fault.** The program crashes. To be used again, it must be reloaded.
7–8	**Run-time Error.** The program crashes from an unrecoverable error and cannot be reloaded (the computer must be rebooted). Treat this result as if the program were crashed by tar pit IC (see p. 229, *SR3*).
9–10	**Resource Allocation Error.** The program crashes, taking some of the computer's active memory with it. The program cannot be reloaded, but it still takes up the same amount of active memory; this lasts until the machine is rebooted.
11+	**System Crash!** The program causes a fatal operation in the computer. For cyberterminals, divide this result by 2 (round down) and apply that many boxes to the persona's Condition Monitor. Other computers immediately crash with this result.

the gamemaster should roll on the Glitch Table. Exactly when to make the roll is up to the gamemaster, but it is suggested that this roll be made when it will create the most drama or amusement.

When rolling on the Glitch Table, the gamemaster uses 2D6 and adds the results. The Rule of Six applies to both dice.

Debugging

A character can attempt to reduce the bug Occurrence factor of a program by performing a debugging session. To do this, the character must have access to the program's source code.

Debugging has a base time of the program's Mp size in hours. To debug, the character makes a Computer (Programming) Test against the program's rating. Apply a +2 target number modifier if the character is not an original author of the code.

Each success may be used to increase the Occurrence factor by 1. Successes may instead be used to divide into the base time.

Bug Free?

At a certain point (left up to the gamemaster, though 12+ is recommended), a program's Occurrence factor becomes so infrequent that the gamemaster can stop keeping track and calling for glitches. Though the program is not bug-free, and probably never will be, it has been ironed out well enough that glitches are rare and not disastrous.

PROGRAM OPTIONS

Program options are modifications to a program that alter its basic operation. Generally, an option enhances a program's performance in one way but limits its performance in some other.

Options dramatically increase the complexity of the Matrix rules. The interaction of options and programs can become quite intricate, and so gamemasters and players should become thoroughly familiar with the standard Matrix rules before introducing options into their games. As always, gamemasters may modify these optional rules to best fit their games.

Two types of program options are described below. The first, *Utility Options,* describes options available only to Matrix utilities (see *Utilities,* p. 68). The second, *IC Options,* details options available only for intrusion countermeasures programs (see *Intrusion Countermeasures,* p. 103). Options for skillsofts and BTLs are described on pp. 60 and 66, *CC.*

Gamemasters may also choose to only introduce specific options into their games. However, gamemasters should keep utility and IC options balanced. Many of the utility options are designed to counter specific IC options (see *IC Options,* p. 85), and allowing IC options without providing the means to combat them may produce unbalanced and unsatisfying game play.

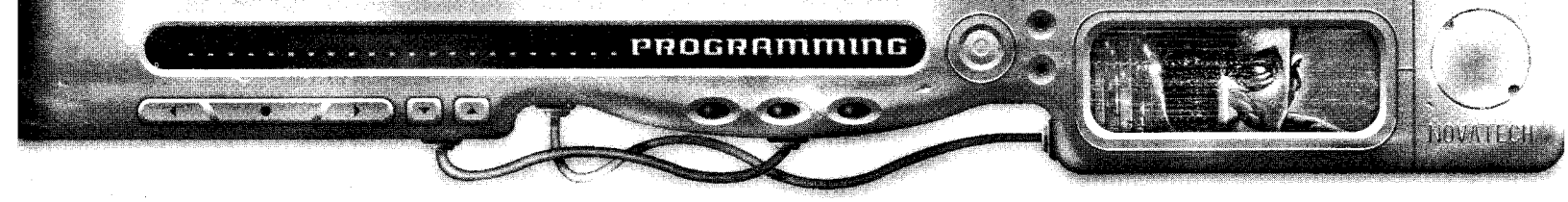
OPTIONS AND SIZE

Under the standard Matrix rules, program size is fixed. The size that governs the base time to write the program is the size that the program occupies on a cyberterminal.

When using options, programs have two separate sizes. The *actual size* measures the space the program occupies on a computer. The *design size* is used to determine the programming base time for the program.

Options may change the size of a program in one of two ways. First, adding an option to a program may alter the program's rating, thus altering its actual size. Or an option may increase a program's actual size by a percentage of its original size. In certain cases, an option may reduce the actual size of the program but increase the design size because it requires hyper-efficient code.

When layering multiple options on a single program, apply any changes to the program's rating before calculating any percentage changes in its size. For example, if a set of combined options add +2 and +3 modifiers to the program's rating and a 50 percent increase in its design size, apply the rating modifiers first. Calculate the program size based on the new rating and then apply the percentage increase. Cumulative percentage changes are applied sequentially. For example, if a 180 Mp program receives two 50-percent size reductions, first reduce the 180 Mp to 90 Mp. Then reduce the 90 Mp to 45 Mp.



OPTIONS AND RATINGS

Changes in the effective rating due to options do *not* count against the maximum rating that a programmer can design. For example, a programmer with a Computer Skill of 8 can design any utility with a rating of 8, even if options raise its effective rating for programming purposes.

Changes in the rating due to options also do not affect the target number for the Programming Test. A slow-4 utility with an area-4 option would have a Target Number of 4, not 8.

The maximum rating for options that themselves have ratings, such as the area utility option, is the base rating of the program. A slow-4 program can have no more than area-4, even if the programmer's skill is higher.

OPTIONS AND COST

The price of a program depends on its base rating and design size. For example, an attack-6M program without options has a base rating of 6 and a design size of 108 Mp. The program's street price equals its size, 108 Mp, multiplied by 200: 108 x 200 = 21,600 nuyen.

An attack-6M (stealth-4) program has an effective rating of 10 and a design size of 300 Mp, for a price of 60,000 nuyen.

UTILITY OPTIONS

Utility options may only be applied to utility programs. Many utility options are only available to specific utilities. The list of options available to each utility is described in the utility's description (see *Utilities*, p. 68).

Adaptive

Design Rating Modifier: +2

An adaptive-equipped utility can run at any rating up to its base rating. This is a common feature for utilities used by people who possess multiple cyberterminals of variable ratings, but who want to be able to use the utility to maximum effectiveness on each.

Area

Design Rating Modifier: +area rating

The area option enables a utility to engage multiple targets at once (all targets must be in the same system). The utility may engage a number of targets equal to the area option rating. The user makes one Attack Test and applies the result to all specified targets. Increase the target number for each target by the total number of targets.

The armor utility, as well as the armor IC option, protects against utilities fitted with the area option. Persona and IC protected by armor add +2 to their effective armor ratings when attacked with utilities bearing the area option.

While intruding onto a green host, the decker Grid Reaper is engaged by two security deckers, Lone Ranger and Serpico. A Matrix dogfight breaks out, and Grid Reaper brings his scythe icon—an attack-8 utility with area-2—to bear on his foes.

As legitimate icons on a green host, the base target number to attack either security decker is 4. By using an area-2 utility, Grid Reaper can hit both, but since he's targeting 2 deckers he receives a +2 modifier to hit each (raising the target numbers to 6). Serpico has already successfully performed a parry attack maneuver, scoring 2 successes, which makes the target number to hit him an 8 (6 + 2).

Grid Reaper rolls 8 dice for his attack utility, adding 3 dice from his Hacking Pool, for 11 total. He rolls, and gets three 6s, so he hits Lone Ranger with 3 successes. Rolling those 6s again, he gets a 7, 8 and 10—2 successes against Serpico.

Both security deckers are running Rating 4 armor utilities, which are effectively rated at 6 against the area attack utility.

Bug-Ridden (Optional)

Design Rating Modifier: None

This option should only be used if the optional bug rules (see p. 81) are also being used. Obviously, no decker would ever choose this option—it is intended for use by gamemasters who wish to surprise characters buying utilities.

A bug-ridden utility is a program that still has a relatively frequent bug Occurrence factor. To determine the utility's Occurrence factor, subtract the bug-ridden rating from 12.

Chaser

Design Rating Modifier: +1

The chaser option enables a utility to home in on an IC program, negating the +2 target number penalty for attacks against IC programs with the shift option (see p. 86). However, the chaser option adds an additional +2 target number penalty to attacks against IC programs with the shield option.

The chaser and penetration options cannot be placed on the same utility.

Crashguard

Design Rating Modifier: +crashguard rating

This option makes the utility more resistant to crash attempts. If tar baby or tar pit IC attacks the utility, apply a –1 modifier to the utility's Opposed Test for each point of crashguard rating.

Crashguard only works if the utility is in active memory.

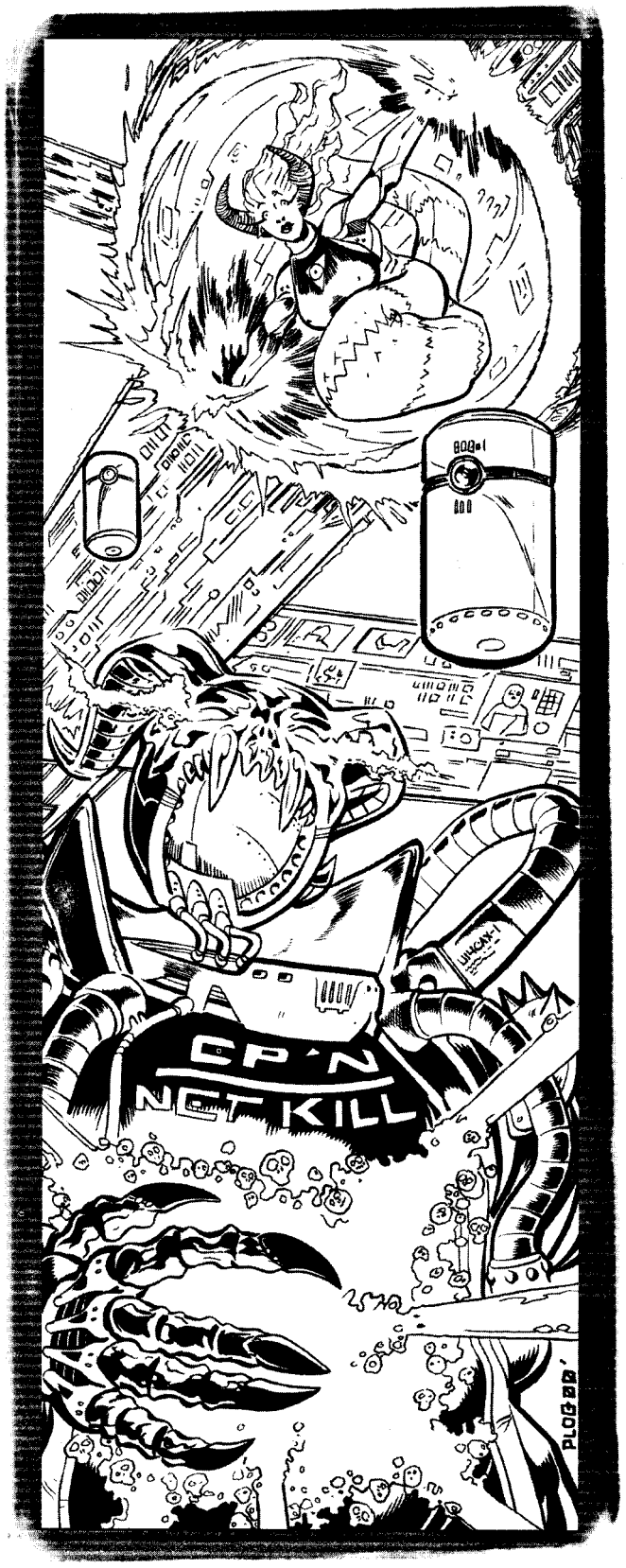
DINAB

Design Rating Modifier: +(DINAB rating ÷ 2, round up)

DINAB (pronounced die-nab) stands for "decker in a box." The DINAB option gives a utility program a built-in Computer skill equal to the DINAB rating. By spending a Free Action, a user can activate a utility with DINAB and the utility will run itself.

A utility running under DINAB control performs whatever operations the utility needs to do its job. DINAB-controlled utilities receive one full Combat Phase per Combat Turn. This Combat Phase is taken immediately when activated; the utility receives 1D6 for Initiative on subsequent turns.

Once a utility is running under DINAB control, the user must override the DINAB if he wishes to issue commands or use his own Computer skill in its place; this takes a Free Action (plus any actions normally required for using the program). A



DINAB-controlled utility will turn itself off immediately after it finishes the task it is designed to do.

DINAB is notoriously unreliable and prone to crashing over time; the program's decision tree simply can't accommodate all situations and things that might go wrong. The DINAB option degrades—loses 1 rating point—every time it *fails* a test. For these purposes, a test is failed any time the DINAB option is defeated in a System Test, whenever it fails to hit a target in cyber-combat or the target reduces to zero all damage the utility inflicts.

Whenever a program under DINAB control fails a test with results of all 1s, the utility crashes. The user must reload a fresh copy before he can use it again. A Swap Memory operation restores degraded DINAB options and crashed DINAB-equipped programs.

Limit

Design Rating Modifier: –1

The limit option restricts the utility to a single type of target, such as personas, IC programs, frames or SKs. The program is useless against any other type of target.

Noise

Design Rating Modifier: –noise rating

An operational utility with the noise option doesn't bother with subtlety, instead using direct, brute-force measures to get the job done. The Detection Factor of a character using a noisy utility is lowered by the noise rating for the System Test in which the operation is used. Security deckers often use noise-equipped utilities.

One-Shot

Design Rating Modifier: Special

The one-shot option turns the utility into a single-use program. After the utility executes once, it vanishes. To use the utility again, the decker must reload it with a Swap Memory operation.

The one-shot option reduces the actual size of the utility by 75 percent, but it increases the utility's design size by 50 percent.

A decker can carry multiple copies of one-shot programs in his deck's active memory, but tar baby and tar pit IC programs are extremely effective against that trick. Whenever a tar program trashes a utility carrying the one-shot option, it wipes out *all* copies of the program in active memory.

Optimization

Design Rating Modifier: Special

The optimization option reduces the actual size of a program by 50 percent and increases its design size by 100 percent.

Penetration

Design Rating Modifier: +1

The penetration option is designed to defeat the shield IC option; a utility with penetration does not receive the +2 target number modifier against IC with the shield option.

The penetration option is exceptionally ineffective against shifting IC. Against IC programs with the shift option, a pene-

tration-equipped utility suffers an additional +2 target number penalty for tests against the IC target (cumulative with the +2 modifier for shifting).

The penetration and chaser options cannot be placed on the same utility.

Selective

Design Rating Modifier: +1

When used against a target icon, a utility with this option first checks to see if the icon is using a special passkey. If the icon is bearing this passkey, the program will not work against that icon; otherwise, it targets the icon as normal. Some corps are known to include this option on attack utilities they sell so that the utilities cannot be used against their security deckers.

Sensitive

Design Rating Modifier: Special

The sensitive option renders programs effective only on systems of a particular type. These may be systems made by a particular manufacturer, hosts using software written in a particular programming language or systems using a particular style of sculpted iconography. For example, utilities equipped with the Mitsuhama sensitive option work fine on computers manufactured by MCT but are useless on computers manufactured by anyone else.

Writing sensitive-equipped programs requires in-depth knowledge of the particular type of system. For the Computer Test required in the programming task, use an average of the programmer's Computer (Programming) skill and a Knowledge skill appropriate to the system (for example, an MCT Matrix Architecture Knowledge skill).

The sensitive option reduces both a utility's actual size and design size by 50 percent.

Sneak

Design Rating Modifier: +2 per sneak rating point

This option gives an operational utility sly and covert means to conduct an operation, so that it is less likely to be noticed or blocked by a system's security. Each point of sneak rating adds +1 to the user's Detection Factor when making a System Test with the sneaky utility.

Squeeze

Design Rating Modifier: +1

The squeeze option creates a self-compressed program. The option reduces the utility's actual size by 50 percent for purposes of uploading, as if it had been uploaded under the compressor utility. However, a squeezed program cannot be used until the decker spends a Complex Action to decompress it. Decompressing the program requires no test.

If a program is both compressed and squeezed, it receives the benefits of both—its size is reduced by 75 percent. However, the user must decompress the program twice—one Complex Action to undo the compressor utility's effects, and a second Complex Action to undo the effects of the squeeze option.

The squeeze design rating modifier affects the utility's design size only, not its actual size. In order to upload a squeezed utility, the cyberterminal must have enough free active memory to accommodate the utility in its decompressed form.

Stealth

Design Rating Modifier: +stealth rating

The stealth option enables the user to eliminate or decrease additions to his security tally prompted by crashing IC programs (see p. 212, *SR3*). Whenever a decker uses a stealth-equipped utility to crash an IC program, reduce the resulting security tally increase by the stealth rating.

Targeting

Design Rating Modifier: +2

The targeting option enables an offensive utility to zero in on a target and pinpoint its weaknesses. A utility with this option receives a –2 target number modifier for attacks in cybercombat.

IC OPTIONS

Like utilities, IC may be programmed with options. Most of these are defensive in nature. Unless otherwise noted, each of these options is available to any IC program. Some options are also incompatible with others, such as shield and shift.

Armor

Design Rating Modifier: +2

This option strengthens the defenses of the IC, hardening it against attacks. Armor reduces the Power of any attack against the protected IC by 2. For example, armored IC hit by an attack-6M utility would make its Resistance Test against a Target Number 4.

If a utility with the area option is used against armor-equipped IC, the armor rating is increased by 2.

Cascading IC

Design Rating Modifier: +3

IC with the cascading option is able to analyze a target's defenses, pinpoint weaknesses and improve its attacks to better exploit those weaknesses. When cascading IC misses a target in cybercombat or fails to damage a target when it scores a hit, it allocates more system resources to future attacks. Any proactive IC program may be programmed to cascade.

If cascading IC misses on an attack, increase the Security Value used for its attacks by 1 for each subsequent Attack Test. This increase is cumulative—each time a test fails, add an additional point to the Security Value.

If the IC program attacks successfully but the target resists all of the damage or otherwise neutralizes the IC's effect, increase the IC's rating by 1 for subsequent attacks. These increases are also cumulative.

The maximum increase depends on the Security Code of the system, as shown on the Cascading IC Table (p. 86).

FastJack is under attack by a cascading killer-5 program on a green-6 host. The IC's first attack uses dice equal to the Security Value of 6. The Attack Test fails, and so the next time it makes an Attack Test it rolls 7 dice. If the test

CASCADING IC TABLE

System Security Code	Maximum Increase
Blue	1
Green	25 percent of original rating or 2, whichever is higher.
Orange	50 percent of original rating or 3, whichever is higher.
Red	100 percent of original rating or 4, whichever is higher.

fails again, the value rises to 8—which represents a 25-percent increase over its original rating, and the maximum increase possible.

Finally, the IC connects with a hit but FastJack reduces his damage to nothing. The IC's rating, which is the Power of its damage, starts to cascade. Because the IC is a killer-5 program on a green host, its rating may increase by as much as 2.

Eventually, FastJack will find himself facing the equivalent of killer-7 on a green-8 host!

Expert Defense

Design Rating Modifier: +1

IC that is programmed with the expert defense option is quite good at defending itself, at the cost of a weaker attack overall. Each point of expert defense adds an additional die to Damage Resistance Tests by the IC. However, for each point of expert defense, the IC rolls 1 less die on Attack Tests.

The maximum expert defense rating IC may have is 3. Expert defense is incompatible with expert offense.

Expert Offense

Design Rating Modifier: +1

IC that is programmed with the expert offense option can make more effective attacks, though it is also less able to defend itself. Each point of expert offense adds an additional die to the Security Value for the IC's Attack Tests. However, for each point of expert offense, the IC rolls 1 less die on Damage Resistance Tests.

The maximum expert offense rating IC may have is 3. Expert offense is incompatible with expert defense.

For an expert offense-2/blaster-5 IC program on a red-6 host, the Attack Test would use 8 dice (Security Value of 6 + expert modification of 2). The gamemaster would roll only 4 dice for any Damage Resistance Tests made for the IC.

Optimization

Design Rating Modifier: Special

This IC option functions exactly like the optimization utility option (p. 84).

Party Cluster

Design Rating Modifier: +3

IC with the party cluster option is designed to coordinate with similar pieces of IC, attacking targets in tandem. This makes attacks by party IC more effective. Unlike IC constructs (p. 91), each piece of party IC remains distinct, forcing the intruder to defeat each piece of IC separately.

IC with the party cluster option are intended to be grouped together and activated on the same trigger step, as part of the same "cluster." The total ratings of the party IC in a cluster may not exceed the system's Security Value x 2.

Because the system is more concerned with throwing IC at the intruder and overwhelming him with attacks than with accuracy, attacks by party IC suffer a +1 modifier for each additional piece of party IC that is part of its cluster.

However, party IC programs are harder to hit because they surround the decker's processing space with rapidly shifting target addresses. Increase the intruder's target number to hit any component program in the party cluster by the total number of IC programs in the party cluster. Utilities equipped with the area option defeat this feature, however, and the penalty does not apply to tests made with such utilities.

These modifiers continue to apply even if the intruder crashes one of the component programs of the party IC.

Sensitive

Design Rating Modifier: Special

This IC option functions exactly like the sensitive utility option (p. 85).

Shield

Design Rating Modifier: +2

The shield option makes it more difficult for attacking utilities to cause damage. Shield adds a +2 target modifier to all tests to hit the protected IC in cybercombat.

Offensive utilities with the penetration option defeat the shield defense automatically and do not receive the +2 penalty. However, the shield option is extra-effective against utilities with the chaser option, which must add a +4 modifier to the target number rather than the standard +2.

Shift

Design Rating Modifier: +2

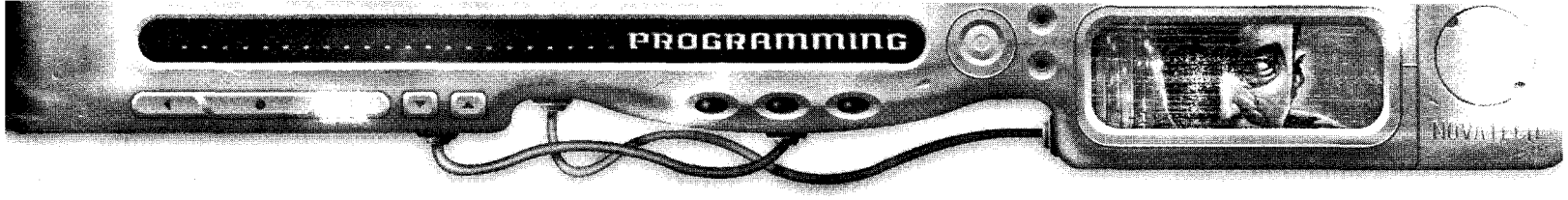
The shift option enables an IC program to constantly relocate its memory space and system addresses, making it difficult to target. Shift adds a +2 target modifier to all tests to hit the protected IC in cybercombat.

Offensive utilities with the chaser option defeat the shift defense automatically and do not receive the +2 penalty. However, the shift option is extra-effective against utilities with the penetration option, which must add a +4 modifier to the target number rather than the standard +2.

Trap

Design Rating Modifier: +1 per linked IC program

IC with the trap option is designed to trigger one or more pieces of IC (usually gray or black IC) if it is destroyed in cyber-



combat. The triggered IC immediately pursues the offending icon. If the IC is neutralized without being destroyed, it does not trigger any other IC.

Only the IC that triggers another piece of IC needs this option; the triggered piece of IC does not (though it may have this option and trigger IC of its own when destroyed as well).

PROGRAMMING SUITE OPTIONS

The following option is the only option available to programming suites.

Self-Coder

Design Rating Modifier: +self-coder rating

A programming suite with this option includes a semi-expert system capable of programming on its own, without direct supervision. This option gives the suite a Computer skill equal to the self-coder rating which can be used to help write programs.

Users who don't have enough time to whip up a whole program themselves usually employ the self-coder option. When a user works with the self-coder option to program, follow the rules for programming teams (p. 80), as if the self-coder were on a team with the user.

Because the self-coder itself is only a program option, it is less than perfect. If a self-coder-equipped suite is used to program more than half of a program (determined by programming days), the completed program will function at a rating one lower than that for which it was programmed.

COMMAND SETS

A command set is a simple program—a set of instructions, really—that a decker can leave on a host to be executed at a later time. In other words, a command set is a small script to carry out a series of timed system operations. Command sets can be programmed to make multiple system operations, but they are not loaded with utilities of any kind.

MAKING A COMMAND SET

To load a command set onto a host, a character must first gain access to the host. Simple command sets, consisting of a number of system operations equal to the character's Computer (Programming) skill ÷ 2 (round down) or less, may be composed on the fly. Composing a command set on the fly takes one Complex Action for each operation the command set will perform.

If the command set includes more system operations, the character will first need to write a small program in advance and upload it. The design size of such programs is 1D6 x 5 Mp. For programming purposes, consider a command set to have a rating equal to the number of operations it holds. The maximum number of operations a pre-programmed command set can hold is equal to the programmer's Computer (Programming) skill.

When a command set is composed, the character must detail what system operations the command set will call for, in what order and at what times.

ACTIVATING A COMMAND SET

Once a command set has been designated or uploaded onto a host, the character must succeed in a Null Operation system operation to activate the command set so that it stays resident on the host. Modify the Security Value for this test based on the time period before the command set performs its last operation (see *Null Operation*, p. 218, *SR3*).

If the operation fails, the host will discover the command set before it does anything and it will be removed. If the operation succeeds, the command set is running and counting down; note the number of net successes the character achieved.

COMMAND SET OPERATIONS

Once the command set is activated, the gamemaster can determine how well the command set will do when it is triggered. Immediately make a System Test for each operation the command set is programmed to undertake. Note that the character is not actually performing the operations right then, he is merely determining how successful the command set will be when it is triggered. Because of this, these tests do not require any actions on the character's part, nor will they raise his security tally. The results of these tests should be kept secret from the player.

Any utilities the character has loaded into active memory when the command set is activated may be used for these tests. However, because the character will not be there to actually direct the operations, apply a +1 target number modifier to each test. Hacking Pool may not be used for these tests.

Keep track of the successes achieved by the host on these tests, similar to counting a security tally. As the command set is triggered and makes operations, it will build up this tally. When this tally reaches a number equal to the number of successes achieved in the character's original Null Operation, the host discovers the offending command set and shuts it down.

SHUTTING DOWN COMMAND SETS

Any character that performs a successful Analyze Subsystem operation on the Control subsystem will detect any command sets active on the system. Command sets can be easily removed with a Crash Application operation.

If the host shuts down, any command sets on it are lost.

Some shadowrunner friends have asked Slamm-0 to provide Matrix cover while they break into an Ares facility. But Slamm-0's got a hot date that night, so he can't run Matrix overwatch during their run. Instead, he tells them he'll break into the host in advance and plant a command set to give them cover.

Slamm-0 doesn't want to bother writing a program, so he keeps the command set simple. Breaking into the host the night before the run, he composes a simple command set to perform three system operations at certain times the following evening. Composing this set takes three Complex Actions.

Slamm-0 then makes a Null Operation to activate the set. First, he rolls his Computer Skill of 8, plus 4 Hacking Pool dice, against the system's Control rating of 10, mod-

ified by his Deception utility of 8 to 2. Slamm-0 doesn't roll that well, getting only 7 successes. For the host's System Test, it receives +5 to its Security Value (normally 5) because the command set has a delay period of just less than 24 hours. It rolls 10 dice against Slamm-0's Detection Factor of 8, achieving only 1 success. So the command set is running smoothly with 6 net successes.

The gamemaster then has Slamm-0 make System Tests for each of the operations, with a +1 target number modifier and no Hacking Pool allowed. Because Slamm-0 won't know how successful his command set will be, the gamemaster keeps the results a secret.

Slamm-0 then logs off and calls his shadowrunning chums to tell them everything's in place. While he's out on the town, they show up to hit the site right on time.

As the runners approach the site's back entrance, the first system operation of the command set is triggered on schedule—Edit Slave. (Slamm-0 saved himself some trouble by locating the slave icon for the site's back door cameras before activating the command set.) What the gamemaster knows is that this operation was successful, and that the host scored 1 success against the command set. The command set successfully loops the video feed on the site's back door so the guards don't see the runners approach the door. The players don't know this, and so they sweat a little as they get close. The command set's tally is 1, with 5 to go.

The command set then performs a Control Slave operation to open the back door for the runners. Though successful, the command set's tally raises to 5. This isn't enough for it to be shut down, however, so on schedule it performs its last operation: Crash Host. This distracts the security enough so that the runners are able to grab what they need and get out without trouble.

Meanwhile, Slamm-0 enjoys the night out with his new significant other, knowing that he's causing trouble elsewhere without having to lift a finger.

FRAMES AND AGENTS

Frames and agents are programs designed to carry utilities around and act semi-autonomously. Matrix users typically use frames and agents as assistants, watchdogs or even weapons platforms.

Frames and agents have varying capabilities and degrees to which they can act autonomously from a user. At the low end are *dumb frames,* which are linked to the user's persona and only exist as long as the controlling user remains active on the system. Dumb frames have no decision-making capability, and can only respond to direct commands or certain trigger conditions. *Smart frames* are capable of independent existence in the Matrix, whether or not their user is logged on. Smart frames are roughly equivalent to Matrix drones; they are capable of piloting themselves to a degree and can comprehend more complex orders than dumb frames. *Agents* are a step above frames, with a higher capability for self-direction. Agents are roughly equivalent to robots, and are capable of learning and adapting their behavior to suit new conditions.

Each frame and agent has a controlling program called the frame core, which determines the program's statistics and abilities. Like personas, frames and agents are represented by their own icons.

FRAME CORE

The frame core is the master control program for the frame or agent, similar to the MPCP of a persona. In fact, the frame core can be programmed to simulate persona programs. The frame core also determines how many utilities the frame or agent can hold and how fast the program reacts within the Matrix. On smart frames and agents, the frame core also acts as the "brain," piloting the program and interpreting orders.

Like other programs, each frame core has a rating. The core rating is used in place of an MPCP rating for any test requiring an MPCP rating.

Frame cores also have several attributes, which are described below.

Persona Attributes

Like a persona, a frame core may have attributes like Bod, Evasion, Masking and Sensor. These attributes are not separate programs as with an MPCP, but are instead part of the frame core. In effect, they function the same as their equivalent persona programs.

Reaction and Initiative

Dumb frames do not have a Reaction or Initiative of their own; instead they use that of the persona that is controlling them.

Smart frames and agents have their own Reaction and Initiative ratings, separate from their controller's. Their Reaction is equal to their frame core rating, and they roll 1D6 for Initiative. When designed, their Initiative dice can be increased with the expenditure of Frame Points (see *Designing Frames and Agents*, p. 89).

Utility Payload

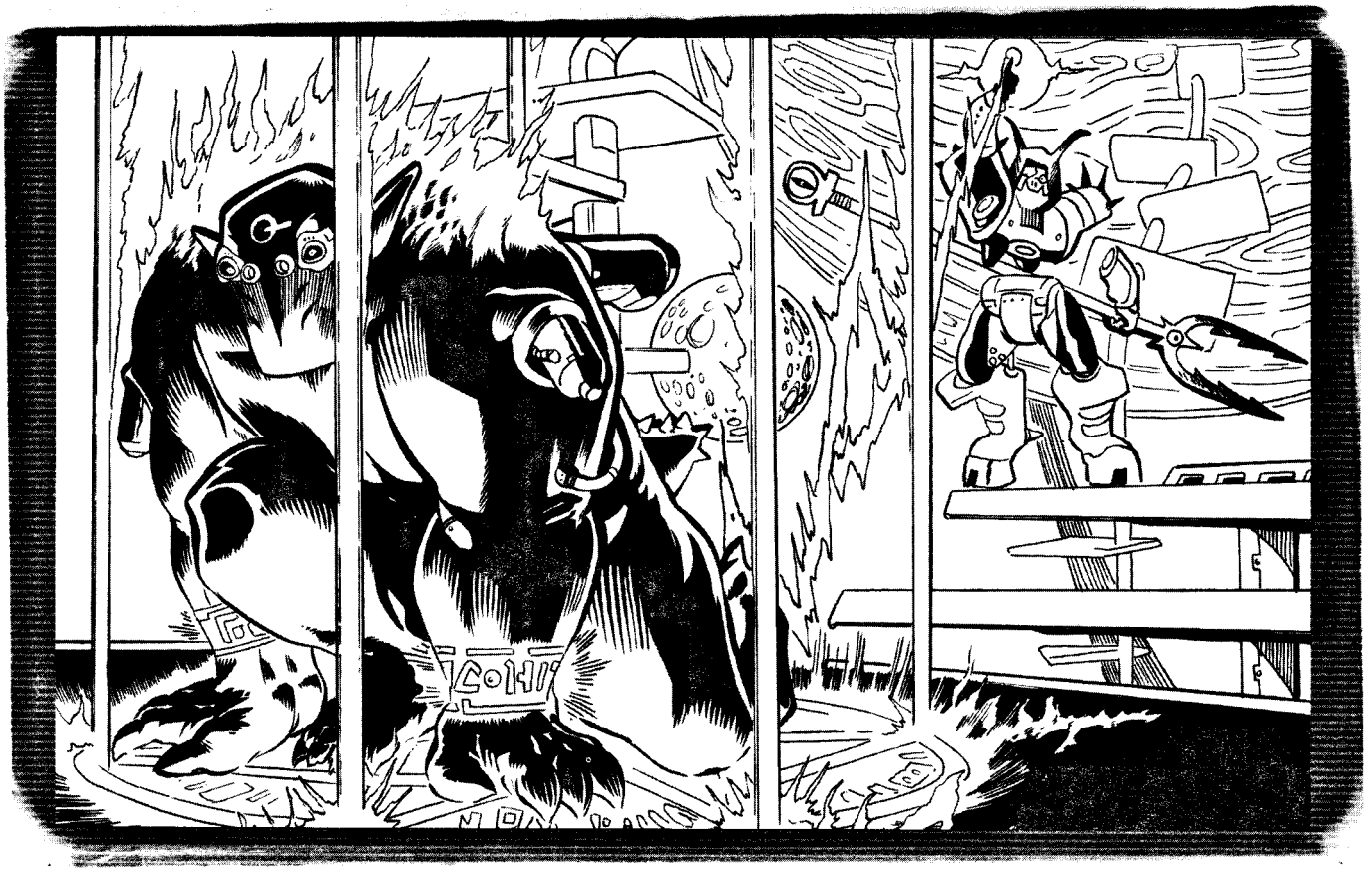
Frames and agents are intended to carry and use utility programs. The Utility Payload is the number of utilities, counting by combined ratings, that a frame core may carry. For example, a frame with a Utility Payload of 10 can carry two rating 5 utilities, one rating 10 utility or even three rating 3 utilities plus a rating 1. No utilities may be loaded that have a rating higher than the frame core rating.

Pilot Rating

The Pilot rating represents the frame's or agent's autonomous decision-making capability and ability to interpret commands. The Pilot rating also acts as the program's built-in Computer skill for any tests it must make.

Dumb frames only follow direct orders and so do not have a Pilot rating. A dumb frame cannot perform any action on its own that requires Computer skill.

Smart frames and agents do have a Pilot rating, allowing them to take actions that dumb frames cannot.



Hacking Pool

Because agents possess the ability to learn and adapt, they receive a Hacking Pool, which they can use in the same way as a decker. An agent's Hacking Pool equals its core rating. Frames do not receive Hacking Pools.

Note that even though this represents an agent's ability to act on its own and obtain a better understanding of a situation, agents are not artificial intelligences and their autonomy is limited. See *Autonomous Programs,* p. 147, for more information on true AIs.

DESIGNING FRAMES AND AGENTS

When a frame or agent is purchased or programmed, its attributes must be assigned. Use the following guidelines when constructing a frame or agent. Any unassigned points are lost.

Frame cores may only be equipped with the optimization and squeeze utility options. Agents may be equipped with IC options, with the exception of cascading, party cluster and trap.

Frame Core Ratings

A dumb frame core's rating may not exceed the programmer's Computer (Programming) skill x 2. A smart frame core's rating may not exceed the programmer's Computer (Programming) skill x 1.5 (round fractions down). An agent's frame core may not exceed the programmer's Computer (Programming) skill.

A frame or agent's icon rating (see p. 57) is also equivalent to its frame core rating.

Size Multipliers

Dumb frames, being relatively simple programs, have a size multiplier of 3. Smart frames are more complex and so have a size multiplier of 6. Agents are even more so, with a size multiplier of 10.

To determine the Mp size of a frame core, cross-index the rating and size multiplier of the core on the Program Size Table, p. 78.

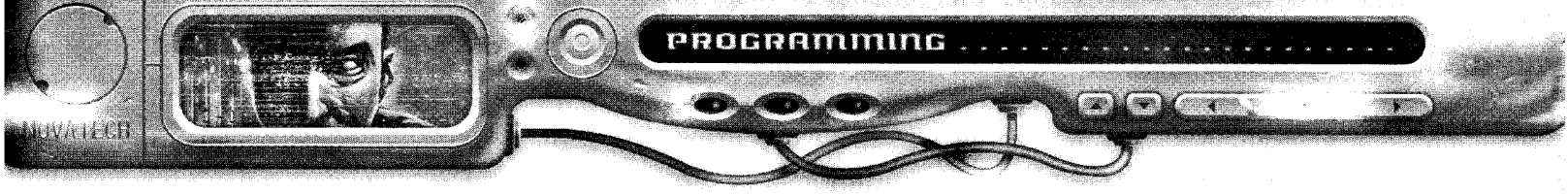
Assigning Persona Attributes

Each frame or agent has a number of Persona Points that may be divided up among the four persona attributes as the designer wishes. Dumb and smart frames have a number of Persona Points equal to their frame core rating. Agents have Persona Points equal to their frame core rating x 2.

No single attribute may have a rating higher than the frame core rating. Any attribute may be set to 0, if the programmer desires.

Frame Points

Each frame or agent also receives a number of Frame Points that are used to determine the program's Utility Payload, Initiative dice bonuses and Pilot rating. The number of



Frame Points the program has available to distribute among these areas depends on its type. Dumb frames get their frame core rating x 2 in points. Smart frames get rating x 4 points. Agents receive frame core rating x 6 points.

The cost for each area is detailed below.

Determine Pilot Rating

Dumb frames may not be given a Pilot rating, but smart frames and agents can be assigned a Pilot rating less than or equal to their frame core rating. Each point assigned to the Pilot rating costs 2 Frame Points.

The Pilot rating may not exceed the programmer's Computer (Programming) skill.

Smart frames and agents must be given a minimum Pilot Rating of 1.

Determine Initiative Bonus

A smart frame or agent can be given extra Initiative dice at a cost of 3 Frame Points per die. The maximum number of Initiative dice allowed (total) is 4D6 for smart frames and 5D6 for agents.

Determining Utility Payload

A frame or agent can purchase Utility Payload at a cost of 1 per Frame Point.

Size

The actual size of a frame or agent is the actual size of the frame core plus the actual size of all programs and options loaded on it.

LOADING UTILITIES

Once a programmer has created a frame core, he can load it with object-code copies of any programs he has available. These programs may be "plain vanilla" or equipped with options.

Programmers may *not* load only part of a utility—the whole utility must be added. For example, if the programmer has deception-6, he cannot use it to give a frame a copy of deception-3. A partial copy of a program isn't smaller—it is incomplete and will not work.

Unlike a frame core's attributes, the utilities it carries may be changed. To stock a frame or agent with utilities requires a Programming Test (see p. 76). The target number is equal to the average rating of the utilities being loaded (round up). The base time is equal to this average rating, squared, times 2, in days (average rating^2 x 2 days).

Smiling Bandit decides to create an agent to assist him in his various nefarious activities. Bandit has a Computer (Programming) Skill of 8, so the maximum frame core he can create is rating 8. With a multiplier of 10, that's a 640 Mp program. It looks like it will take Bandit a few months at least to finish churning out the agent's code.

While designing the agent, Bandit must determine the agent's persona attributes. He has 16 (8 x 2) Persona Points to divide among them, so he gives it a Bod 4, Evasion 4, Masking 5 and Sensor 3 (4 + 4 + 5 + 3 = 16).

Bandit also has 48 Frame Points (8 x 6) to assign. He maxes out the agent's Initiative by purchasing 4 extra Initiative dice, costing 12 (4 x 3) points. He also maxes out its Pilot rating at 8, costing another 16 (8 x 2) points. That leaves him with 20 points left, for a Utility Payload of 20.

The agent's base Reaction equals the frame core rating of 8 and it receives +5D6 for Initiative. It also receives a Hacking Pool equal to its frame core rating of 8.

Once he finishes programming the frame, Bandit needs to choose its utilities. He decides to go with deception, sleaze, browse and attack-D, all at rating 5. With these programs, the agent will be able to break into systems on its own, snoop around and defend itself if attacked.

To load all these utilities, Bandit must make a Computer (Programming) Test against their average rating of 5, with a base time of 50 days (5 x 5 x 2 = 50).

RUNNING A FRAME OR AGENT

To run a frame or agent, the controlling character must first log on to a host or grid and then upload the frame or agent. As soon as the upload completes, the frame or agent starts running. Running frames and agents do not take up any of the controlling character's active memory. Compressed or squeezed frames must be decompressed before they can run.

Frames and agents will only take orders from their controlling persona, unless another persona spoofs an order (see *Spoofing Commands to Frames*, p. 123). If the controlling character chooses, he can instruct the frame or agent to receive orders from other specified personas.

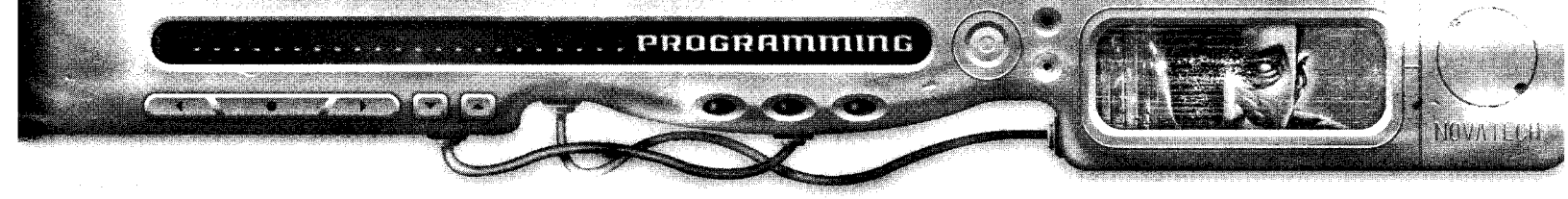
Security Tally and IC

As an independent icon, each frame or agent generates its own security tally; any security tally they generate does not affect the controlling character's tally. If a frame or agent's actions trigger IC programs, the IC programs go after the frame or agent, not the controlling persona.

Note that a frame or agent will have the same datatrail as the user who loaded them onto the Matrix, so trace programs that go after a frame or agent will be tracing the user's datatrail. Any Redirect Datatrail operations the user performed before launching the frame or agent will apply to attempts to trace the frame or agent. If a trace against a frame or agent succeeds, it will locate the user's originating jackpoint. However, in the case of smart frames and agents, the user may no longer be online.

Overriding Frame or Agents

Whenever a user issues a command to a frame or agent, he may choose to use his own Computer skill and Hacking Pool in place of the program's. When a user does this, he does not have to spend the Simple Action for issuing the command, but he must spend the action required by his command as if he were performing the operation himself (which he is). This allows a user to directly use a utility carried by a frame or agent. Any security tally generated this way applies to the frame or agent.



DUMB FRAME RULES

Dumb frames are not so much commanded as they are "triggered" (or, more accurately, a utility it carries is triggered). Activating a utility carried by a dumb frame is a Simple Action—even if the program is used to perform a Complex Action. For example, if a frame includes a medic utility, the user could use the frame to regenerate damage to an icon (normally a Complex Action) as a Simple Action.

Dumb frames carry out their orders immediately, and they will not repeat an action. For example, a decker cannot tell a dumb frame to attack an IC program until it wins—he can only tell it to attack once. A second attack requires a second command to the frame.

A frame can only take one full action each Initiative pass. If a controlling user were to take two Simple Actions and trigger two utilities that both take Complex Actions to operate in the same pass, the frame would use the first utility immediately that pass and then use the second utility during the next pass using the controlling user's Initiative Score.

If a user logs off a host (or is dumped), any dumb frames he is running crash. Dumb frames will only follow a user to another system if he performs a Logon operation for it (see p. 102). Any dumb frames left behind in a system immediately crash when the user leaves.

Dumb frames may serve a number of purposes, including functioning as a decoy, triggering an event or carrying a weapon.

Decoy Frames

A character can use the Decoy system operation (p. 98) to direct a system's security measures against a dumb frame rather than himself. The operation works as described, except that the frame is the decoy. Once a decoy frame crashes, the host system and any active IC programs react to subsequent actions by the decker per standard rules.

Event Triggers

If a dumb frame carries any utilities equipped with the DINAB option (see p. 83), these utilities can be ordered to "scan" for a specific event condition and to trigger another utility when that event occurs. For example, a dumb frame with a DINAB-equipped analyze utility could be ordered to regularly perform an Analyze Security operation and to trigger another utility (say, a DINAB-equipped crash utility to crash the host) when the system goes on active alert.

Weapon Carriers

The most common use for dumb frames is to load them up with memory-hogging attack utilities, to serve as auxiliary weapons in cybercombat.

SMART FRAME AND AGENT RULES

A character can issue commands to a smart frame or agent with a Simple Action; both the character and program must be in the same system. A character can only issue commands to a single smart frame or agent at a time, unless all the programs involved are receiving the same commands.

A character can issue commands ranging from simple one-liners ("Attack the black IC") to complex orders ("Find the Main Street Grocery's private host, break in, locate their catalogue price files, find the entry for cherry tomatoes and lower the price by 75 percent—and crash anyone that tries to stop you"). The more intricate and detailed the order, the greater the likelihood that the program's Pilot will get confused.

The gamemaster should rate each order's complexity using the Difficulty Number Table (p. 92, *SR3*). The smart frame or agent should then make a Comprehension Test using its Pilot rating against that target number to determine if it understands the command. If the test generates at least 1 success, the program understands the command and executes it. The more successes the program generates, the more leeway it has in "interpreting" the command.

A character who is issuing an order to a smart frame or agent can also use their Computer (Programming) skill to help the program understand the orders. The character may add a number of dice from this skill (equal to or less than the Pilot rating) to the Pilot rating for the Comprehension Test.

Agents can add Hacking Pool to their Comprehension Tests.

Smart frames and agents can be used as decoys in the same way as dumb frames.

IC CONSTRUCTS

IC constructs are similar to smart frames and agents. Rather than being loaded with utilities and directed by a character, IC constructs are loaded with IC programs and directed by the host itself. While IC constructs have more limited autonomy than frames and agents, they are easier to program because they require less decision-making capability. With the processing power of the host behind them, they also tend to be tactically smarter and more dangerous.

CONSTRUCT CORES

Each IC construct has a core that follows all the same rules as for frame cores (p. 88), with the following exceptions:
Its core rating may not exceed the programmer's Computer (Programming) skill or the host's Security Value.

- Its size multiplier is 3.
- It has no persona attributes or Persona Points.
- It has no Pilot rating or Frame Points.
- It has an IC Payload equal to its core rating x 2.
- Its Initiative is calculated as for other IC, using its core rating.
- It has a Hacking Pool equal to its host's security code (0 for blue, 1 for green, 2 for orange and 3 for red).

Constructs may be programmed with any of the options normally available to IC programs (see *IC Options*, p. 85). These options apply to the construct as a whole, including each of the IC programs it carries. The individual IC programs carried by a construct may not have their own options.

OPERATING CONSTRUCTS

IC constructs are usually part of the host's security sheaf and triggered at a certain step. As with individual IC programs,

constructs use the host/grid's Security Value when making Attack Tests and Damage Resistance Tests. The ratings of the individual IC programs are used to determine their effects only.

In cybercombat, a construct is treated as a single entity. During its Combat Phase, the construct acts as a whole; each piece of IC loaded onto it does not act separately. The construct decides which particular IC will be used from action to action.

Likewise, attacks against the construct are resolved as if it is a single icon with one Condition Monitor.

IC constructs typically take advantage of combat maneuvers in cybercombat, and are often designed with a basic combat approach: stand-up-and-slug; sneaky, popping in and out of detection; going for killer positions in Matrix dogfights; and so on.

IC constructs have one advantage that normal IC programs do not: target selection.

Target Selection

Constructs are designed to be proactive and to catch intruders by surprise. Unlike other IC programs, constructs can attack any icon that has built up a security tally, even if they are not responsible for triggering the construct's appearance. Constructs may even attack more than one target in the same Combat Phase.

As a safety precaution, most constructs will only attack icons that have triggered an active alert (or at least a passive alert) to avoid attacking legitimate users who have built up a security tally by accident.

Note that if a construct carries probe IC, it may probe only one intruder at a time (switching to another user requires a Simple Action).

WORMS

Worms are reactive virus programs used specifically to target cyberterminals. Worms have no effect on other computers or programs, though they are typically left as booby traps on files, programs or Matrix subsystems. Any cyberterminal that accesses such a file, program or subsystem risks infection.

Worms are stealthy—many cyberterminal users will not even realize they've been infected. Once a worm has penetrated a cyberterminal's MPCP, it may take several courses of action, from erasing files to logging everything the persona does, depending on the type of worm.

Hosts may infest their subsystems with worms in order to catch intruding deckers unaware. Hackers will sometimes attempt to infect others in order to log their actions or get revenge. Some Matrix gangs seed worms throughout the Matrix just to wreak havoc.

THE BAIT

Any file, program or subsystem may be laced with worms in the hopes of infecting an unsuspecting user.

To seed worms throughout a subsystem, the character with the worm program must succeed in an Infect operation (see p. 99).

To infest a program, the character must succeed in a Computer Test against a target number equal to 10 minus the worm's rating. He must achieve a number of successes equal to the target program's rating to succeed.

To lay booby traps in files that have no rating, the character follows the same rules for infesting programs, but only 1 success is necessary.

INFECTION

Any cyberterminal user who accesses a worm-infested file, program or subsystem risks infection as the worms attempt to infiltrate the MPCP. This includes reading or opening an infested file, running an infested program or performing any operation on the infested subsystem.

To determine whether a worm successfully infects a cyberterminal's MPCP, make a test using the worm's rating against a target number equal to the MPCP. On 1 success, the worm has invaded the MPCP. If the cyberterminal has hardening, this test must result in a number of successes greater than the cyberterminal's hardening to infect the MPCP.

If an infected cyberterminal is linked to another cyberterminal for some reason, the worms will try to infect the connected cyberterminal.

Worms add their size to the size of any files or programs they are infesting.

PREVENTION

A user can detect the presence of worms on a subsystem by performing an Analyze Subsystem operation. However, if a worm inhabits the subsystem, it tries to infect the user when he analyzes it.

Files and programs can also be checked for worms before they are accessed. If the file or program is in the Matrix, an Analyze Icon operation must be performed. Offline, the character must analyze the contents of the software (see *Verifying Software Contents*, p. 94).

Worms can be cleaned out of a subsystem by successfully performing a Disinfect (see p. 98) operation. To remove worms from a program or file requires a Computer Test against a target number equal to the program's rating plus the worm rating and minus the rating of a disinfect utility (if used). If the test succeeds, the worms are removed.

INFECTED CYBERTERMINALS

If a character wants to analyze a cyberterminal MPCP to determine if it has been infected, make the same test as if checking a program for infestation.

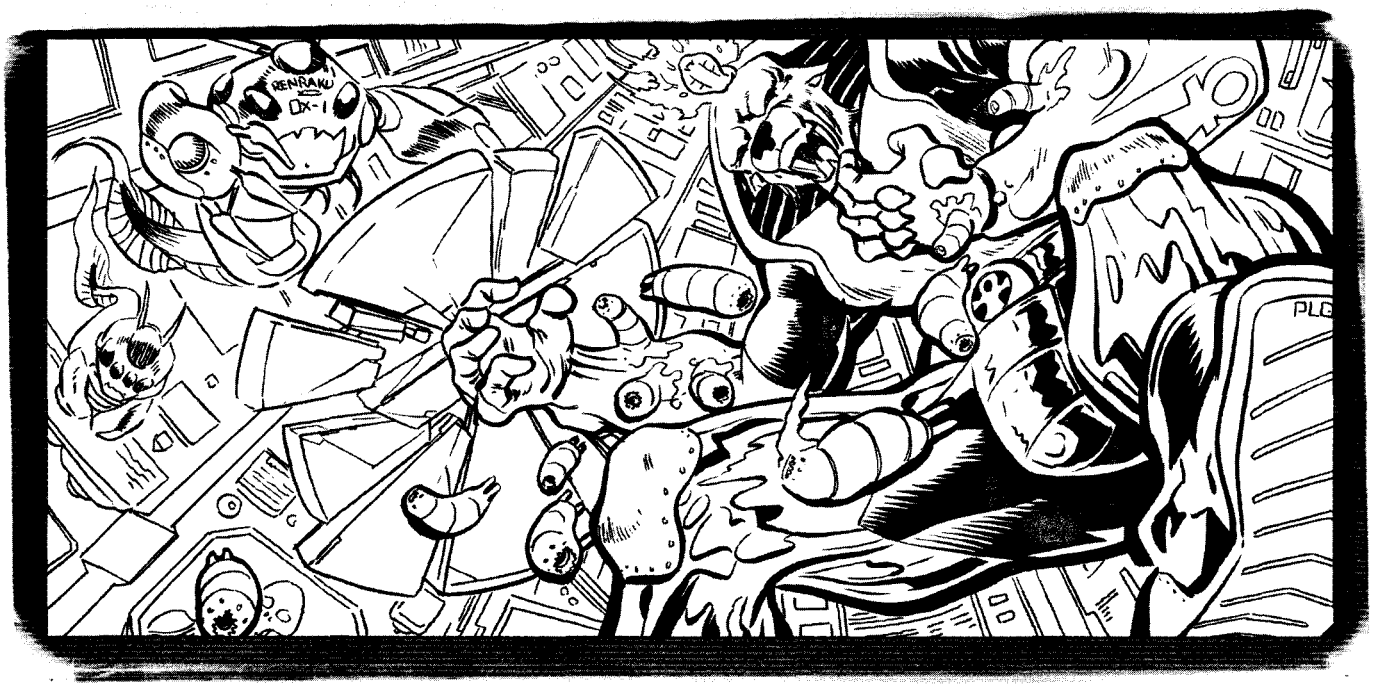
If a cyberterminal MPCP has been infected, it can be disinfected just like other programs.

When worms infect a cyberterminal, they immediately set about doing whatever they were programmed to do.

TYPES OF WORMS

Many types of worms exist, though only three varieties are commonly used: dataworms, deathworms and tapeworms. Worms follow the same rules for size and programming as other programs.

Options: Worm programs can use only two of the utility options: optimization (p. 84) and selective (p. 85).



Crashworms
Size Multiplier: 2

Crashworms seek to undermine the integrity of utilities, causing them to crash or suffer from induced errors. Whenever a utility is activated on a cyberterminal infected with crashworms, make a Worm Rating Test against the rating of the utility. If the utility has the crashguard option (see p. 83), add the crashguard rating as a target number modifier. If successful, the utility suffers errors and must roll on the Glitch Table (see p. 82).

Dataworms
Size Multiplier: 3

Dataworms reside on a cyberterminal and carefully log everything the persona does: the jackpoints it uses, the systems it logs onto, the accounts and passcodes it uses, the files it accesses, the utilities it uses (including ratings and options) and so on. The dataworm secretly accumulates all of this data in a hidden file on the cyberterminal and seeks to transmit it to a predetermined destination on a periodic basis.

Each time a dataworm-infected cyberterminal logs on to a grid, roll 1D6. On a result of 1, the dataworm tries to send a report chock-full of incriminating evidence back to its owner. At the same time, make a Sensor (4 + Worm Rating) Test for the cyberterminal's user. If the test fails, the data payload is sent away without being discovered. If the test succeeds, the user notices the dataworm report and may engage it in cybercombat to destroy it before it gets away.

In cybercombat, dataworm reports act as standard icons with rating +3D6 Initiative and an effective Evasion rating equal to the worm rating. They possess no offensive capabilities, but will maneuver to evade detection (see *Cybercombat*, p. 224, *SR3*). If the dataworm report has evaded the user at the end of any Combat Turn, it escapes. Dataworm reports are always considered to be illegitimate icons for purposes of cybercombat.

The effects of dataworm reports depend on the events in the adventure. Depending on the information logged and who receives it, the user may find himself targeted for arrest or assassination, his Matrix haunts under surveillance or raided, and/or his associates killed or chased underground.

Deathworms
Size Multiplier: 2

A deathworm infection impedes the cyberterminal's functioning from within. All tests made by the persona, including Attack and Resistance Tests made during cybercombat, suffer a target number modifier equal to the deathworm rating ÷ 2 (round down).

Spawnworms
Size Multiplier: 2

When a spawnworm invades a cyberterminal, it immediately begins to produce self-replicating code that rapidly consumes the cyberterminal's active memory. This drain on the cyberterminal's available memory inhibits the operation of active utilities.

When a spawnworm infects a cyberterminal, make a Worm Rating (MPCP) Test. The worm reduces the rating of the highest-rated program running on the targeted cyberterminal by 1 point for every net success the worm achieves. The worm will continue to drain the same number of rating points from that program at the end of every subsequent Combat Turn until it has crashed the program. The spawnworm will then repeat the process with the next highest-rated utility. It will continue in this manner until it has crashed every program on the targeted cyberterminal.

If a program has the crash-guard utility option, consider its rating to be reduced by the crash-guard rating when selecting the highest-rated utility.

Programs infected with the spawnworm operate at their reduced ratings until the worm crashes them completely.

Note that a spawnworm will not affect persona programs.

Ringworms
Size Multiplier: 2

Unlike their counterparts, ringworms are relatively benign; they are primarily used as a prankster tool. Ringworms are programmed to alter the coding of a persona's icon to change its appearance. These changes can be minor (perhaps causing the icon to flicker or buzz with static) or drastic (changing an imposing samurai warrior icon to a fluffy pink kitty).

When a ringworm invades a cyberterminal, make a Worm Rating (Icon Rating) Test. If successful, the ringworm alters the icon as it has been programmed; use successes to determine the extent of these changes.

Tapeworms
Size Multiplier: 2

Tapeworms erase files downloaded onto the cyberterminal. Whenever the user downloads a file, make a Worm Rating (MPCP) Test as soon as the download is complete. If successful, the tapeworm corrupts the information and renders it irretrievable.

BUYING PROGRAMS

Characters can purchase any of the programs described in this book. A program's price is determined by its rating and design size, as shown on the Program Prices Table. Option ratings do not affect these prices.

All prices given represent the cost of object code and a copy of the source code. Reduce prices by 25 percent for object-code-only programs. Add 10 percent to the cost if the object code is already burned onto an OCC. For agents, constructs and IC programs, double the Availability (both target number and time period).

PROGRAM PRICES TABLE

Program Rating	Price (in nuyen)	Availability	Street Index
1–3	Size x 100	2/7 days	1
4–6	Size x 200	4/7 days	1.5
7–9	Size x 500	8/14 days	2
10+	Size x 1,000	16/30 days	3

VERIFYING PROGRAMS TABLE

Successes	Information Learned
1	The nature of the program and its actual size in Mp
2	The program's rating
3	A single programming option
4	The option rating
5+	Any further options or option ratings (1 per additional success)

VERIFYING SOFTWARE CONTENTS

If a character is not careful, they may purchase more than what they bargained for, especially if they're scoring some code from an untrustworthy black marketeer or corporate lackey. The software they purchase may have some unwanted options, be infested with worms or simply not be the utility they asked for.

To verify that a program is what the character thinks it is, he must analyze it. In the Matrix, this would require a successful Analyze Icon operation. Offline, a character must have a computer with enough memory to hold the program. A successful Computer (Programming) Test with a Target Number of 4 will verify the program and its size.

A character can analyze a program in detail by spending a base time of 5 minutes per Mp of the program. The character makes a Computer (Programming) Test with a Target Number of 4. Extra successes can be used to learn additional information (as shown on the Verifying Programs Table) or reduce the base time. If the test succeeds, the character may repeat the test with a +2 modifier to learn additional information.

APPLICATIONS

Applications include common end-user programs such as spreadsheets, word processors and games. These programs can range from simple scripts to complex programs such as an application that controls automated machinery in a factory.

Gamemasters can use the following guidelines for determining the ratings or multipliers of applications in game play.

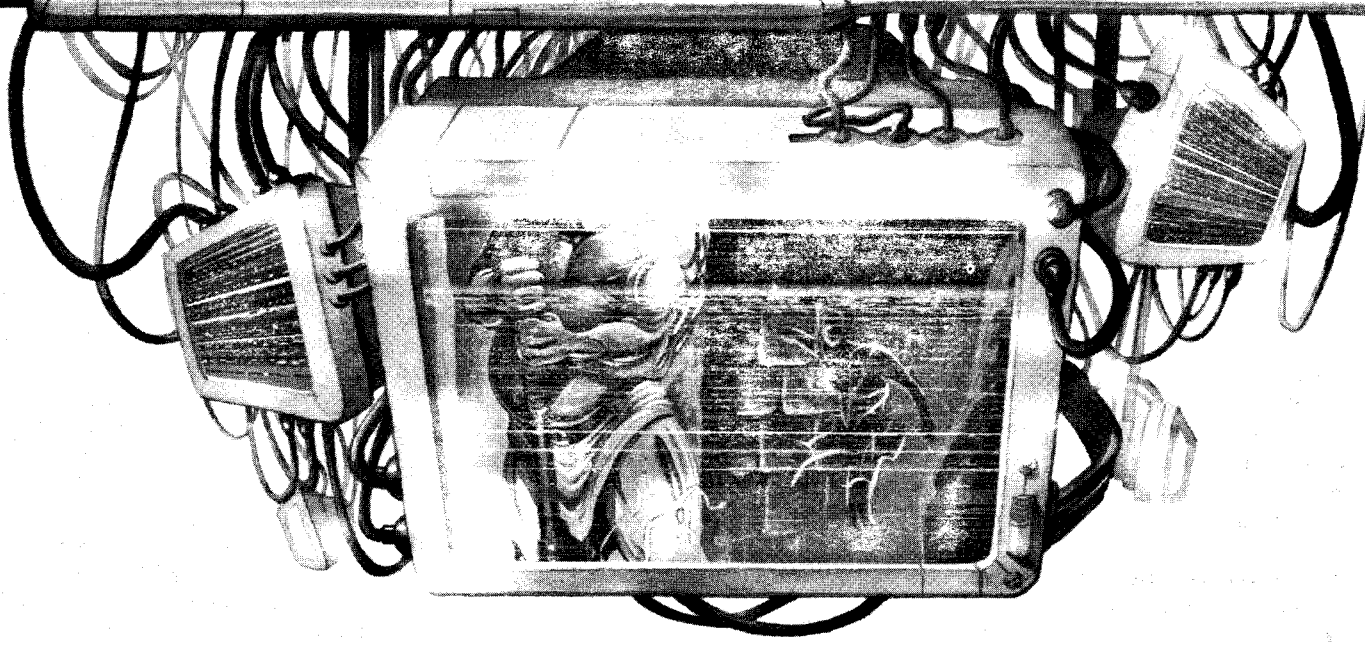
MULTIPLIERS

The majority of applications used in everyday life, from simple text editors and word processors to math programs or the programs to control simple remote devices such as vending machines, will have a multiplier of 1 or 2. More complex applications, such as those required to control hundreds of remote devices or modern Matrix games may have a higher multiplier of 3, 4 or even 5. Only massive and complicated applications such as operating systems will have multipliers higher than 6, and will rarely exceed a multiplier of 10.

RATINGS

Most applications will have a rating of 4 or less, as this is usually all that is needed to accomplish the job. Applications with extra features, such as personalized interfaces, extra controls, auto-updating features or multi-user capability will likely have higher ratings (2 to 4 points higher on average).

SYSTEM OPERATIONS



System operations (defined on p. 214, *SR3*) are sets of commands or instructions a Matrix user issues to a grid or host to perform a specific task.

Note that a character logged onto a system using an account with certain access privileges (see p. 38) may automatically succeed at specific system operations, according to the limits of their account.

NEW OPERATIONS DESCRIPTIONS

The following system operations follow the same guidelines and rules as described in *SR3.*

ABORT HOST SHUTDOWN

Test: Control
Utility: Swerve
Action: Complex

The Abort Host Shutdown operation allows a user to temporarily keep a host from shutting down, or perhaps even to prevent it completely. This operation can be used to interfere with any host shutdown, whether it was initiated by a hostile decker using the Crash Host operation or by the host's own security systems.

Every 2 net successes on the user's Control Test prolongs the host's shutdown sequence by a full Combat Turn. If the user doubles the net successes that a decker achieved with a Crash Host operation, the host shutdown is completely averted. A host shutdown initiated by an intruder's security tally cannot be completely aborted; it can only be held off.

ALTER ICON

Test: Control
Utility: Redecorate
Action: Complex

A favorite of Matrix vandals, this operation allows a user to reprogram an icon and change its appearance.

When used against the icons of persona programs (see Redecorate utility, p. 71). To change the icon of a piece of IC or system sculpture, the user must succeed in a System Test against the system's Control subsystem. Each success allows the user to alter one aspect of the icon's appearance, for example, color, texture, facial feature, resolution).

Any changes inflicted by this operation are required when the icon is restored or rebooted.

ANALYZE OPERATION

Test: Control
Utilities: Snooper
Action: Simple

This operation attempts to identify what system operation another icon is performing and what utilities are being used for that operation.

To use this operation, the user must have located the icon whose operation he intends to analyze. If the operation is an ongoing or monitored operation, it can be analyzed at any time. Otherwise, the user must be holding an action and intervene with Analyze Operation as soon as the target operation is begun.

Each net success on the System Test will give the user one of the following pieces of information:

- The operation being performed (including the test and action required).
- Any utilities being used.
- The icon's level of success in performing the operation.

BLOCK SYSTEM OPERATION

Test: Control
Utility: Crash
Action: Complex

A user can intentionally interfere with an operation being performed, whether by a user, frame, agent, sprite, daemon, semi-autonomous knowbot (SK), or even an AI. Security deckers often use this operation to harass intruding deckers rather than engaging them in Matrix combat.

To use this operation, the user must have located the icon whose operation he intends to block. If the operation is an ongoing or monitored operation, it can be interfered with at any time. Otherwise, the user must be holding an action and intervene with Block System Operation as soon as the target operation is begun.

Each success achieved on the Block System Operation counteracts a success achieved on the target operation. If the target operation's successes are reduced to 0, the operation fails completely. In the case of previously initiated ongoing or monitored operations reduced to 0 successes, the operation immediately stops.

The victim of a Block System Operation receives an immediate free open-ended Sensors Test (as described in *Locate Decker,* p. 217, *SR3*) to locate the individual who initiated the block.

Note that this operation may not be used to block another Block System Operation or a Null Operation.

CRASH APPLICATION

Test: Appropriate subsystem
Utility: Crash
Action: Simple

The Crash Application operation is used to shut down an application running on a host (see *Applications,* p. 94). Applications include any non-directed programs running on a host. Crash Application operations have no effect on IC programs, frames, agents, sprites, daemons, constructs or persona programs and utilities used by other users.

The System Test required for this operation depends on the subsystem that controls the application in question. For example, a decker attempting to crash an application that controls an automated factory or a security installation would make a Slave Test. If in doubt, the gamemaster can always ask the character to make a Control Test.

The Crash Application operation may also be used to shut down a tortoise user's session (see p. 42), which is a function of the Access subsystem. It can also be used to remove command sets (see p. 87) from a system, a function of the Control subsystem.

Rather than completely crash an application or tortoise user, this operation may also be used to indefinitely "suspend" the application or tortoise. A suspended application or tortoise temporarily ceases to function, but does not crash. A frozen tortoise user cannot take any computer actions, other than closing their session (and perhaps starting over). A suspended application or tortoise can be unfrozen by a decker with a successful Control Test.

CRASH HOST

Test: Control
Utility: Crash
Action: Complex

The Crash Host operation is the decker's "doomsday weapon." A successful Crash Host operation forces the host to shut down, dumping all users, including the decker himself (unless, of course, he performs a Graceful Logoff operation first).

Host systems do not shut down instantly. If a Crash Host operation succeeds, the host shuts down in roughly the same manner as it does when it reaches the end of its security sheaf (see *Host Shutdown,* p. 112). Divide the host's Security Value by 2 (round up) and roll a number of D6 equal to the result. The total of the dice is the base amount of time the host takes to shut down. Divide this period by the number of net successes achieved in the Crash Host operation. The result is the number of turns that elapse before the host shuts down.

If this operation was not made by a user with superuser status (see p. 38), the host system tries to abort the process at the end of each Combat Turn. Make a Security Test against the user's MPCP rating. If the test succeeds, the shutdown process stops and the host continues to run.

During the countdown to a crash, reduce the ratings of all IC programs running on the host by 2. These reductions reflect the drain on system resources caused when the host allocates resources to the shutdown instruction. All reduced ratings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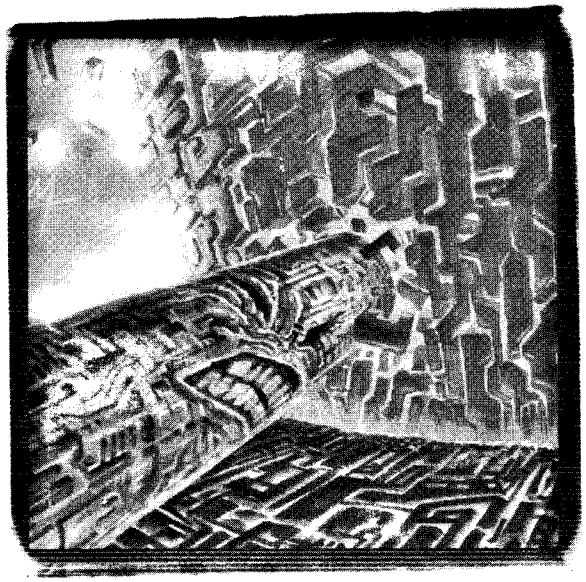
PRESCOTT

return to normal immediately if the crash is averted.

Once a shutdown is initiated, every user on the host is immediately informed and encouraged to log off. Some sculpted hosts incorporate more drastic shutdown features such as sirens, flashing lights or even bursts of vented steam.



A shutdown wipes out all applications and programs running on the host, including any frames, command sets, and other programs left behind by the user. Ongoing and monitored operations will also be terminated. Any user still online will be dumped and may suffer dump shock (see p. 227, *SR3*). The host computer reboots itself, which automatically cleans all its code, deletes security tallies and alerts and restarts the host with all its basic ratings and values (see *Host Reset*, p. 212, *SR3*).

Once initiated, a host shutdown can only be averted by an Abort Host Shutdown operation (see p. 95).

Typically, system administrators recognize decker-instigated crashes and increase security measures when restarting host systems.

DECOY

Test: Control
Utility: Mirrors
Action: Complex

The Decoy operation creates a decoy copy of the user's icon to draw away the attention of proactive IC programs. Decoys do not work against other persona or trace IC, but they do work against IC constructs.

Record the number of successes the user achieves on the Control Test. Whenever a proactive IC program attempts to attack the user, roll 1D6. If the die roll result is less than or equal to the user's Control Test successes, the IC attacks the decoy instead of the user's real icon.

Decoys have no special defenses and no damage resistance, so they take full damage when hit. Decoys disappear when their Condition Monitors reach Deadly.

Decoy operations may be used to lock the attention of IC programs on frames (see *Frames and Agents*, p. 91).

DISARM DATA BOMB

Test: Files or Slave
Utility: Defuse
Action: Complex

This operation is used to deactivate a data bomb (see p. 103) that is protecting a file or remote device. The data bomb must first be located with either an Analyze Icon or Locate IC operation. Successfully disarming a data bomb does not count as crashing it, so do not add the IC's rating to the user's security tally.

DISINFECT

Test: Appropriate subsystem
Utility: Purge
Action: Complex

The Disinfect operation destroys worm virus programs on a specific subsystem. The user makes the System Test against the targeted subsystem. For example, if a host's Files subsystem has worm programs, he makes a Files Test.

DUMP LOG

Test: Control
Utility: Validate
Action: Complex

The Dump Log operation enables a user to open and read a host's logs. These logs record the MPCP signature, account and MXP addresses of users who access the system (see *The Datatrail*, p. 38). Depending upon the security level of the system, these logs may contain other data, such as which files they accessed, which programs they ran and any intrusions or suspected intrusions that the host observed—basically, anything that triggered a security response. However, intrusions may also show up on system logs as fatal program aborts, hardware glitches, and other random system errors—particularly if they are successful, sneaky operations.

If information on a system log is crucial to an adventure, the gamemaster should prepare the log in advance. If log entries are not particularly important to an adventure, the gamemaster can improvise them.

Users may also download system logs onto their cyberterminals for later analysis or documentation. The size of a log covering a 24-hour period depends upon the host's intrusion difficulty:

- Easy Host: 2D6 x 100 Mp
- Average Host: 2D6 x 200 Mp
- Hard Host: 2D6 x 500 Mp

Dump Log is an interrogation operation.

ENCRYPT ACCESS

Test: Access
Utility: Encrypt
Action: Simple

The opposite of Decrypt Access, this operation allows the user to encrypt a system's access nodes. If successful, the Access subsystem will be encrypted and no one will be able to log on without first succeeding in a Decrypt Access operation.

If the user doesn't possess the encrypt utility (see p. 70), this operation cannot be performed. However, if the system in question possesses any scramble IC, the user can instead use the IC to encrypt the SAN. In this case, the user must first perform a Locate IC operation to find the scramble IC code. Note that the

scramble IC's rating will not reduce the target number for the Access Test in this situation, it merely allows the user to encrypt.

ENCRYPT FILE

Test: Files
Utility: Encrypt
Action: Simple

The opposite of Decrypt File, this operation allows the user to encrypt an electronic file. If successful, the file will be encrypted and no one will be able to access, download or perform operations on the file without first succeeding in a Decrypt File operation.

If the user doesn't possess the encrypt utility (see p. 70), this operation cannot be performed. However, if the system in question possesses any scramble IC, the user can instead use the IC to encrypt the file. In this case, the user must first perform a Locate IC operation to find the scramble IC code. Note that the scramble IC's rating will not reduce the target number for the Files Test in this situation, it merely allows the user to encrypt.

ENCRYPT SLAVE

Test: Slave
Utility: Encrypt
Action: Simple

The opposite of Decrypt Slave, this operation allows the user to encrypt a slave subsystem. If successful, the slave will be encrypted and no one will be able to make Slave Tests against the subsystem without first succeeding in a Decrypt Slave operation.

If the user doesn't possess the encrypt utility (see p. 70), this operation cannot be performed. However, if the system in question possesses any scramble IC, the user can instead use the IC to encrypt the slave. In this case, the user must first perform a Locate IC operation to find the scramble IC code. Note that the scramble IC's rating will not reduce the target number for the Slave Test in this situation, it merely allows the user to encrypt.

FREEZE VANISHING SAN

Test: Access
Utility: Doorstop
Action: Complex

This operation allows a user to keep a vanishing SAN open even after it would normally disappear from the Matrix. If successful, the SAN is convinced that it actually closed. For more details, see *Vanishing SANs*, p. 120.

INFECT

Test: Appropriate subsystem
Utility: (Worm program)
Action: Complex

This operation allows the user to seed a particular subsystem with worm programs (see p. 92). If successful, any user who makes a System Test in that subsystem risks being infected by the worm.

INTERCEPT DATA

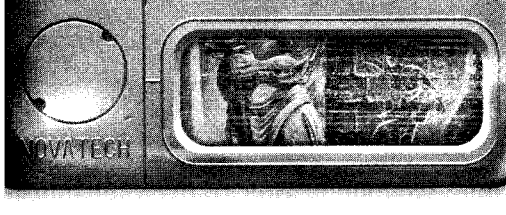
Test: Appropriate subsystem
Utility: Sniffer
Action: Complex

The Intercept Data operation allows the user to set up a sniffer utility (see p. 71) on a particular subsystem. The sniffer utility then intercepts all data transmissions that pass through the subsystem, searching according to parameters set by the user. Users may perform this operation on an Access subsystem to intercept account logins and passcodes, on a Files subsystem to sniff through email messages or phone calls or on a Slave subsystem to monitor data feeds from a slave device.

As any decker can testify, this operation is difficult to get away with. First the user must upload a copy of his sniffer utility onto the host using the Upload Data operation. Then the user must succeed in a System Test against the subsystem upon which he is setting the sniffer program. If successful, the user must then make a Control Test, with the target number reduced by the sniffer utility, to authenticate it (in other words, to disguise the sniffer utility as a legitimate program). If the user fails to make this Control Test, make a Masking (Control) Test. The number of successes is the number of hours before the host notices the sniffer utility and reports it to the host's security sysop.

The user must also specify what the sniffer utility will do with the data it intercepts when he conducts this operation. The user has two options, each of which requires an operation to succeed. First, the data can simply be saved to a hidden file on that host; this requires a successful Edit File operation (see p. 216, *SR3*). Second, the data may be emailed elsewhere; this requires a successful Send Data operation (see p. 101).

Note that the user must be quite specific about what he wishes the sniffer utility to intercept. Otherwise, the data it accu-



mulates may quickly swell to an unwieldy (or noticeable) size. The gamemaster determines how successfully the sniffer utility performs its function; note that it will only intercept and scan data being transmitted through that particular subsystem.

This operation will not intercept comcalls—that requires a Tap Comcall operation—but it will intercept Send Data operations.

Intercept Data is an ongoing operation.

INVALIDATE ACCOUNT

Test: Control
Utility: Validate
Action: Complex

The Invalidate Account operation enables a user to erase a single account and passcode from a host's security tables. This will prevent the victim from legally logging on and accessing their account; they will be forced to use illegal means to log on. The victim will be considered an intruding icon for purposes of resolving attacks (see p. 226, *SR3*); intruding deckers often pull this operation against security deckers to put them on an even footing.

A user may also use the operation to trash the host's entire passcode list so that no legitimate users can get on using passcodes. When a user attempts to wipe out an entire passcode list, add a +4 modifier to the target number for the Control Test.

LOCATE FRAME

Test: Index
Utility: Scanner
Action: Complex

The Locate Frame operation follows the same rules as the Locate Decker operation (p. 217, *SR3*) and locates any frames and agents (see p. 88), sprites and daemons (see p. 141) or semi-autonomous knowbots (see p. 150) running on the host.

This operation is not effective against IC constructs because the host protects them from application indexing. However, constructs may be located with the Locate IC operation (see p. 217, *SR3*). This operation will also not detect AIs.

LOCATE PAYDATA

Test: Index
Utility: Evaluate
Action: Complex

The Locate Paydata operation enables a user to search a host for marketable data (see *Paydata*, p. 49). For each net success achieved on the Index Test, the user locates 1 point of paydata in the host. The operation continues until the user stops performing it or locates all the paydata on the host.

If the full load of paydata is not downloaded, its value will decrease by the appropriate percentage. For example, if a file contains 20 Mp but only 10 Mp are downloaded, the paydata will be worth only half its value. Depending on the nature of the paydata, the gamemaster may decrease the value of partial downloads even further.

Locate Paydata is an interrogation operation.

LOCATE TORTOISE USERS

Test: Index
Utility: Scanner
Action: Simple

This operation identifies all of the tortoise users on a system. If successful, the user performing this operation opens a window with each of the tortoise users listed by their account name. Each additional net success after the first will also provide one of the following pieces of information:

- The last operation each tortoise user performed (additional successes can be used to list additional past operations, up to 20).
- How long each tortoise user has been logged onto the system.
- The MXP address of each tortoise user.
- The access privileges of each tortoise user.

REDIRECT DATATRAIL

Test: Control
Utility: Camo
Action: Complex

The Redirect Datatrail operation allows a user to lay a false datatrail on a grid in the hopes of confusing trace programs. Only one Redirect Datatrail operation may be performed on a single grid, but the user may perform the operation on multiple grids if he chooses (he must still log on to each grid to do so).

When making the System Test for this operation, reduce the target number for the opposing Security Test by the user's Trace modifier (see *The Jackpoint*, p. 30).

For each grid where a user leaves a redirect, the target number for a trace IC program or track utility to hit the user in cybercombat is increased by 1 (see *Trace IC*, p. 104).

RELOCATE TRACE

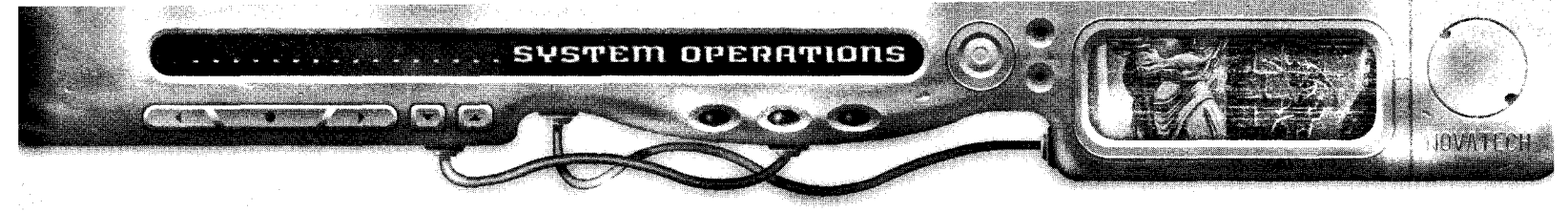
Test: Control
Utility: Relocate
Action: Simple

A user may perform a Relocate Trace operation to confuse any trace IC that is currently in its location cycle. If the user's Control Test succeeds, he successfully "spoofs" the trace program—its sampling algorithms are sent on a wild goose chase.

If a user successfully uses this operation to confuse the trace IC, he may suppress it as if he crashed the IC (see *Suppressing IC*, p. 212, *SR3*). Defeating a trace program with a relocate utility does not count as crashing the IC, and so it does not add the penalty to the security tally created by destroying the IC with an attack utility.

If the user does not suppress the trace IC, it will pick up where it left off at the beginning of the next Combat Turn. The user can make another Relocate Trace operation during each turn. If he succeeds, the trace IC remains neutralized for that turn. If he fails, the trace program ticks one turn closer to finishing its task.

See *Trace IC*, p. 104, for more details.



Vanessa has only one Combat Turn to beat a trace program. On her first Initiative Pass, she performs a Relocate Trace operation. She has a Computer skill of 10 and is running Relocate-4. The IC is Trace-8, Control Rating 9.

For the Control Test, Vanessa rolls 10 dice (Computer skill) against a Target Number of 5 (Control Rating 9 – Relocate Rating 4). The host makes its Security Test against her Detection Factor. Vanessa scores 4 successes, the host scores 3. Vanessa successfully blocks the trace this turn, but her security tally goes up another 3 points.

Vanessa can either allocate a point of her Detection Factor to keep the trace IC frozen, or can try to use the relocate utility against it again next turn. If she fails to do either, the IC will finish tracing her jackpoint at the end of that Combat Turn.

RESTRICT ICON

Test: Control
Utility: Validate
Action: Complex

This operation is used to interfere with an icon, either by inhibiting its operations or raising its security tally. This operation may only be used against personas, frames, sprites, semi-autonomous knowbots and AIs. The target of the operation must have been located by the user first. Security deckers commonly use this operation to raise an intruder's security tally, triggering additional countermeasures.

Add the target's Detection Factor as a target number modifier to the Control Test. Any successes achieved by the user can be used on a one-for-one basis to either increase the target numbers of the victim's System Tests or to decrease the victim's Detection Factor for Security Tests made against him.

Restrict Icon is an ongoing operation.

SCAN ICON

Test: Special
Utility: Scanner
Action: Simple

The Scan Icon operation allows a user to gather information about any persona, frame, agent, sprite, daemon, AI or semi-autonomous knowbot he has located.

This operation does not require a System Test. Instead, the user makes a Computer Test against a target number equal to the Masking rating of the targeted icon. If the user has an active scanner utility, reduce the target number by its rating. If the targeted icon is running a sleaze utility, add that utility's rating to the target number.

For each success the user achieves on his Computer Test, he may choose one of the following pieces of information:

- MPCP rating of the icon.
- A single persona program rating of the icon.
- Response Increase of the icon.
- The icon's access privileges (see p. 36).
- The icon's MXP address (see p. 39).
- The rating of a single utility (starting with the largest) loaded into active memory or a frame or agent.
- The icon's current damage level.

Identifying an icon requires an Analyze Icon operation (p. 215, *SR3*) directed at the icon.

SEND DATA

Test: Files
Utility: Read/Write
Action: Simple

This operation allows the user to transfer data, either to another icon, commcode or to a host's Files subsystem.

To send data to another icon, the user must have located the recipient (in the case of a direct transfer). The data is copied from the sender's storage memory directly to the recipient's storage memory. The data is transmitted between the users at a rate equal to the lowest I/O Speed. The recipient icon must willingly accept the transmission—it cannot be forced to download data. Note that to establish an interactive comcall, the Make Comcall operation (p. 218, *SR3*) must be used.

To send data to a commcode (in the case of email, faxes, credstick payments and so on), the user must know the recipient's commcode. The transmission is sent out at a rate equal to the user's I/O Speed.

To copy data from one file subsystem to another, the user must first conduct this operation in the originating Files subsystem and then move to the recipient Files subsystem and make an Edit File operation.

Regardless of which of the above methods is used, data may be transmitted to more than one recipient at a time.

Send Data is an ongoing operation.

TRACE MXP ADDRESS

Test: Index
Utility: Browse
Action: Complex

If a user possesses the MXP address (see p. 39) of another user, he can query the grid to trace the address' origin. Similar to Locate Access Node, this operation can be used to locate either the virtual or physical origin of that user (each requires a separate operation). A successful trace of the virtual origin will identify the host or grid the user originates from, as well as the serial number of the jackpoint. From that virtual origin only, a successful trace of the physical origin will reveal the real-world address of the jackpoint used.

Trace MXP Address is an interrogation operation.

TRIANGULATE

Test: Slave
Utility: Triangulation
Action: Complex

This operation can only be performed on systems that manage wireless signal traffic with remote devices, such as cellular networks. By correlating the signal strength and timing of communication with a remote device (such as a cell phone) through multiple towers or receivers, the location of the device can be determined with a margin of error of 100 meters ÷ the number of successes.

Triangulate is an interrogation operation.

VALIDATE ACCOUNT

Test: Control
Utility: Validate
Action: Complex

The Validate Account operation enables a user to plant an account and passcode on a host. The access privileges of the account must be chosen at the time they are inserted (see *Account Privileges,* p. 37). If the user is attempting to validate a security level account/passcode, apply a +2 modifier to the Control Test's target number. Apply a +6 modifier if attempting to validate a superuser account/passcode.

After the test is made, the gamemaster rolls 1D6 and multiplies the result by the number of successes from the test. The result is the number of days the account remains effective, unless the user does something to compromise it before that time elapses. If the passcode is used for illegal operations that raise a host or grid to active alert status, the account will be deactivated.

Once an account is validated, anyone with the correct passcode can use it to log on to the system and automatically succeed at certain system operations (see p. 38). For example, a decker can open accounts on mainframes where he is stealing programming time, swiping resources from the corps while he perfects the tools he will use against them.

ADVANCED SR3 OPERATIONS DESCRIPTIONS

Several of the system operations detailed in *SR3* (starting on p. 215) have additional applications involving the advanced Matrix rules described in this book. Each of these is covered below.

ANALYZE HOST

Net successes achieved in this operation can also be used to determine the following details about a host:

- Whether the host is a virtual machine (see p. 121).
- Whether the host is an ultraviolet host (see p. 48).
- Whether the host is a bouncer host (see p. 118).
- Whether the host has a vanishing SAN (see p. 120).

ANALYZE IC

If this operation is used to analyze trace IC, the user will learn whether the trace IC is in its hunting or location cycle. If the trace IC is in its location cycle, the user learns how many turns remain before it completes the cycle.

Note that this operation will also detect any options possessed by an IC program (see p. 85).

ANALYZE ICON

This operation will also identify an icon if it is a semi-autonomous knowbot, artificial intelligence, frame, agent, sprite, daemon or the living persona of an otaku. It will also identify the presence of data bomb IC (see p. 103) or worms (see p. 92) on a file or remote device icon.

ANALYZE SUBSYSTEM

This operation will identify the presence of command sets, trap doors, worms, scramble IC programs and any other hidden defenses or system tricks present on the subsystem (see *System Tricks,* p. 117).

GRACEFUL LOGOFF

Like the track utility, a trace IC program in its location cycle will add its rating as a target number modifier to any Graceful Logoff attempts (see *Trace IC,* p. 104). If the Graceful Logoff is successful, any trace programs homing in on the user from that system immediately fail.

LOCATE DECKER

To clarify, this operation will detect any personas—including cyberterminal users and otaku—not just deckers. It will not locate frames, agents, sprites, daemons, SKs or AIs.

LOGON TO HOST/LTG/RTG

The Access modifier of the user's jackpoint (see p. 32) will modify the test for the first system (host, LTG or RTG) the user logs on to.

NULL OPERATION

This operation can be used to activate command sets on a system (see *Command Sets,* p. 87).

SWAP MEMORY

Squeezed or compressed utilities can be uploaded with this operation, but they must be decompressed before they can be used, which requires a Complex Action.

MAKING OPERATIONS FOR OTHER USERS

Under certain circumstances, one user may wish to conduct a system operation for another user. This is often done by sysops in the case of Matrix workers who need an administrative-level change for which they don't have access privileges, and by others in the case of inexperienced users who need someone else to punch the keys. When this is done, the results of the operation are applied to the second user, rather than the user who performed the operation.

To perform an operation for another user, the acting user must have located the other user. The acting user makes the system operation as normal, with a +2 target number modifier to the System Test. If both the acting and receiving users are part of the same group (see *Account Privileges,* p. 37), the +2 modifier is not applied. The results of the operation are applied to the receiving user.

Certain operations may not be made on behalf of other users. These include: Abort Host Shutdown, Alter Icon, Block System Operation, Crash Application, Crash Host, Decoy, Download Data, Graceful Logoff, Intercept Data, Invalidate Account, Null Operation, Redirect Datatrail, Relocate Trace, Restrict Icon, Send Data, Swap Memory, Upload Data and Validate Account.

INTRUSION COUNTERMEASURES

Nothing warms a security sysop's heart like a frosty glacier of intrusion countermeasures (IC) to protect his system against intruders.

The following section includes six new types of IC that gamemasters can use to expand their Matrix security arsenals, advanced uses for IC described in *SR3*, rules for programming IC and additional rules for crashing IC.

NEW INTRUSION COUNTERMEASURES

This section provides six new types of IC: data bomb IC, Pavlov IC, scout IC, trace IC, cerebropathic IC and psychotropic IC. Unless noted, each type of IC uses the IC rules described in *SR3*.

DATA BOMB WHITE IC

A data bomb is a form of reactive IC that is attached to a file or remote slave-device icon. The armed data bomb remains in place until another icon accesses the file or device, at which point the bomb "explodes" and damages the intruder. Unlike other IC, data bombs are not triggered by security tallies; they attack any user icon that accesses the bomb-protected icon. (See *Triggering Data Bombs*, p. 104.)

Only one data bomb may be attached to a particular file or remote device. Data bombs may be attached to icons that are also protected by scramble IC.

A data bomb can be detected by performing a successful Analyze Icon operation against the bomb-protected icon.

Defusing Data Bombs

A data bomb can be defused by simply entering the correct passcode (unfortunately, the person who set the data bomb is usually the only person who knows the passcode). Without the passcode, a detected data bomb can only be disabled by a successful Disarm Data Bomb operation (see p. 98). The defuse utility aids in this operation. If the data bomb is protecting a file, the operation requires a Files Test. If it is protecting a remote device, the operation requires a Slave Test.

If the Disarm operation fails, the data bomb remains armed and ready to "explode." The character may attempt to disarm it again, though he risks raising his security tally.

If the operation succeeds, the data bomb is defused, and the file or device may be accessed *once* by that character. If the character wishes to access the file or device more than once, the data bomb will have to be defused again each time. Note that the bomb is not considered defused to other characters, so if anyone else accesses the file or device without defusing the bomb, it will explode.

Successfully defusing the data bomb does not count as crashing it, so do not add the bomb's rating to the character's security tally. If the data bomb is successfully defused, the character need not suppress it.

Triggering Data Bombs

When a data-bomb-protected file or device is accessed (through a *successful* System Test), the data bomb explodes. If the System Test made to access the file or device fails, the data bomb does not explode.

When a data bomb explodes, it automatically damages the icon accessing the file or device. Data bombs inflict (IC rating)D damage, which the icon resists per standard rules. Armor utilities reduce the Power of the damage per standard rules. The "explosion" also crashes the data bomb IC, so add the IC's rating to the character's security tally, unless he suppresses it.

If data bomb IC is attacked in cybercombat, it immediately explodes and damages its attacker (whether or not the attack succeeds). The attacked data bomb crashes as usual, raising the attacker's security tally.

Scaramouche ghosts up to a file full of paydata (or so he hopes). Just to be safe, he runs an Analyze Icon op on it first. Sure enough, the file is guarded by a data bomb.

Scaramouche risks a few seconds to swap his defuse-5 utility into active memory and upload it. He then makes a Disarm Data Bomb operation against the Files subsystem. He scores 1 success, but the system's Security Test scores 2. The gamemaster smirks and tells him it ain't good enough. The data bomb is not defused.

Sweating a bit, Scaramouche rolls again, getting 2 successes. But the host scores 3, so the data bomb is still active. By now, Scaramouche figures he's jacking up the security tally, so he decides to drop subtlety and rip open the datafile.

He succeeds in his System Test to access the file, and so the bomb goes off in his virtual face. The data bomb is rated 6, so he takes a 6D hit. Scaramouche has an armor-4 utility running, so he's facing 2D. He makes a Bod (2) Test and achieves 6 successes, which stages the damage down to L. He also decides to use a point of Detection Factor to suppress the IC and keep his security tally from going up another 6 points.

PAVLOV WHITE IC

Pavlov IC is similar to standard data bomb IC, except that it does not crash when detonated and remains armed. Pavlov IC follows all the same rules as data bombs with the following exceptions. First, Pavlov IC only inflicts (rating)M damage against an icon that accesses the file or device. Second, Pavlov IC does not crash when it detonates—it remains armed and ready to explode again should the file or remote device be accessed again. Third, Pavlov IC creates a threshold equal to half its rating (round down); if the number of successes achieved on the System Test to access the file or device do not exceed this threshold, then the operation fails.

SCOUT WHITE IC

Scout IC is a proactive variant of probe IC (p. 228, *SR3*). When scout IC is triggered, it acts as reactive probe IC: the gamemaster uses the IC's rating to make a test against the intruder's Detection Factor anytime the intruder makes a System Test. Any successes from these tests are added to the intruder's security tally.

Unlike probe IC, however, scout IC switches into a proactive mode when attacked in cybercombat or when a passive or active alert is triggered. In this mode, scout IC no longer probes the intruder like probe IC but actively defends itself in cybercombat, using the standard cybercombat rules.

Proactive scout IC also makes probing Attack Tests against intruders. These attacks do not inflict damage by themselves but enhance attacks by other IC in the system. Each attack success achieved by the scout IC adds 1 die to the Security Value for the next attack made against the intruder by any other piece of proactive IC. Successes achieved from additional probing attacks add cumulative dice, up to a maximum equal to the scout IC's rating.

Grid Reaper thinks he has some probe IC on his tail, but he ignores it because he's in a rush. He triggers a passive alert and is surprised to find the IC maneuvering for an attack—too late he realizes he's actually facing scout IC.

The scout IC maneuvers and attacks him, achieving 4 successes on its Attack Test. On his next Initiative Pass, Grid Reaper responds with his own Attack Test against the scout IC and manages to crash it.

On his next pass, Grid Reaper triggers some killer IC that comes after him with a vengeance. The first Attack Test made by this killer IC uses the system's Security Value +4, thanks to the advantage provided by the scout IC's Attack Test.

TRACE IC

Trace IC is a hybrid of white and gray IC programs designed to lock in on an intruder's datatrail and trace it back to its physical origin. Trace functions in a manner similar to the track utility (p. 221, *SR3*).

Trace IC works in two distinct stages: the hunt cycle and the location cycle. During the hunt cycle, trace IC tries to get a fix on the intruder's datatrail by "attacking" him in cybercombat. If the intruder does not evade the attack, the trace IC begins its location cycle to locate the intruder's jackpoint.

Hunt Cycle

During the hunt cycle, trace IC makes Attack Tests against

the intruder using the system's Security Value. All of the standard cybercombat rules apply. The trace IC suffers a +1 target number modifier for each successful Redirect Datatrail operation the targeted icon performs (see p. 100).

If struck, the intruder makes an Evasion (Trace IC Rating) Test. If the targeted icon achieves an equal or greater number of successes, the attack fails to hit. If the trace IC achieves at least 1 net success, it has successfully hit the intruder and locked onto its datatrail, and the location cycle begins.

Note that the relocate utility (p. 220, *SR3)* is not effective against trace IC during its hunt cycle. However, an intruder can crash trace IC in cybercombat during the hunt cycle to avoid being traced.

The hunt cycle lasts until the trace IC achieves a successful attack, is crashed, or until the intruder leaves the system.

Location Cycle

The location cycle begins as soon as the trace IC makes a successful Attack Test against a decker. The IC immediately "disappears" and becomes reactive IC.

To determine how long the location cycle lasts, add the intruder's jackpoint Trace Modifier (see p. 32) and the rating of any camo utility (see p. 70) he is running to 10. Divide the result by the number of net successes the trace IC achieved in its hunt cycle Attack Test. The result, rounded down, is the number of full Combat Turns the trace IC needs to complete its cycle and locate the intruder's jackpoint.

If the trace IC has not been crashed or relocated by the time the location cycle ends (see *Defeating Trace IC*), the IC identifies the user's real-world location and reveals it to the system's operators (see *Trace Effects).*

For the purposes of measuring a trace IC location cycle, only count full Combat Turns. Combat Turns are considered completed once the last Initiative Pass is completed. If a decker can freeze or destroy the IC before the Initiative Pass of a Combat Turn is completed, that turn is not considered completed.

Gremlin has broken into some executive's apartment while he's out of town so she can use his commline for a Matrix run. She jacks in and heads toward her target host, stopping to perform Redirect Datatrail operations on two grids along the way.

Gremlin hacks into the Red-6 host and quickly triggers a trace-8 program. It attacks her, rolling the host's Security Value of 6 against a Target Number 5 (base Target Number 3 because she's an intruding icon on a Red host, +2 for the Redirect Datatrail operations), and gets 4 successes. Gremlin rolls her Evasion Rating of 6 against the Trace Rating of 8, but gets only 1 success.

Having successfully hit her, the trace drops immediately out of its hunting cycle and into its location cycle and disappears from view. Gremlin has a trace modifier of –2 for her legal access jackpoint, and she's running a camo-4 utility, so the base location time is 12 turns (10 – 2 + 4 = 12). The trace IC achieved 3 net successes (4 – 1 = 3) on its attack, so the location cycle will take 4 full Combat Turns (12 ÷ 3 = 4).

If Gremlin doesn't take out the IC, it will trace her in 4 Combat Turns.

Trace Effects

If a trace program completes its location cycle successfully, several things happen. First, the system records the jackpoint's serial number and physical location in its security logs. Second, the system notifies any physical security assets responsible for monitoring the invaded system. These security personnel can then initiate physical measures against the intruder's location (i.e., they send out the goons). Simultaneously, the trace program activates IC-targeting and tally-acceleration bonuses in the system.

IC Targeting: Because the intruder has been located, the system can target the intruder more effectively. Reduce the target numbers of all Attack Tests made by the system's proactive IC programs against the intruder by 1.

Tally Acceleration: The system will be more aware of a traced intruder's actions. Whenever the intruder generates increases to his security tally, add 1 extra point to the increase. For example, if a host scores 2 successes in a System Test against a traced intruder, add 3 to the intruder's security tally.

Physical Measures: The physical measures triggered by a successful trace program are determined by the gamemaster. For example, say the trace IC has reported that a decker is tapped into a dataline in a squat in Redmond. The physical response depends entirely on what resources the invaded system's owners have, jurisdictional issues, the location of the nearest useful assets, whether Lone Star or any other local law-enforcement agency has been called in, the standard Security Rating of the site and so on.

Defeating Trace IC

A trace program can be defeated in four ways. During the hunting cycle, the trace can be evaded. During either cycle, it can be attacked in cybercombat and destroyed. During the location cycle, the targeted icon can run for it or use a relocate utility to gain more time.

Evade Detection: Characters may use evade detection maneuvers (see p. 224, *SR3)* to evade trace IC programs during the programs' hunting cycles. Trace IC programs cannot be evaded during their location cycles.

Cybercombat: The easiest way to avoid a trace may simply be to crash the trace IC. During the hunt cycle, the IC is proactive and will maneuver in cybercombat.

Once the location cycle begins, however, the trace IC will disappear and go into reactive mode. To find the IC, the character must spend a Complex Action to perform a Locate IC operation (see p. 217, *SR3).* Once located, the IC may be attacked; because it is in reactive mode, the trace IC will not maneuver or counterattack.

Crashing a trace IC program produces the standard penalty to the attacker's security tally (see *Crashing IC,* p. 212, *SR3).*

Running for It: A Graceful Logoff operation enables an intruder to get away and immediately stop the location cycle of a trace program. However, trace IC tries to prevent this opera-

tion, so increase the character's target number for the operation by the IC's rating.

Simply jacking out of the system will not defeat trace IC, because jacking out leaves the comm links in the network open for a measurable period. First, the LTG has to verify carrier signal loss. Then it gracefully dismantles the user's datatrail, the same way a user-initiated Graceful Logoff does. Just because a user jacks out doesn't mean his datatrail disappears in a big puff of bits. If a user does jack out, roll 1D6 – 1 (minimum value of 1). The result is the number of turns for which the user's datatrail remains intact. If the die roll result equals or exceeds the number of turns remaining in the trace program's location cycle, the IC will still locate the jackpoint.

Likewise, if an intruder is knocked unconscious or killed by IC, or if his persona is crashed, a trace IC program in its location cycle will keep a connection open to the cyberterminal so that it may continue to trace the jackpoint. Again, the character must jack out to defeat the trace IC, and even then his datatrail remains intact and traceable for 1D6 – 1 (minimum 1) turns.

Relocate It: During the trace IC's location cycle, the user can perform a Relocate operation to temporarily confuse the trace IC. See *Relocate Trace*, p. 100. Defeating trace IC with a relocate utility has no effect on the character's security tally.

Trace on a Grid

Trace IC triggered by a grid keeps working against the character as long as he remains on any grid controlled by the same RTG. If he defeats the IC on an LTG, he must keep it suppressed or keep relocating it as long as he is on that LTG, its parent RTG, or any other LTG governed by that RTG. On the other hand, the IC loses interest in tracking the character once he has logged onto a host or another RTG or PLTG.

If the trace IC has been triggered by the RTG that governs the character's jackpoint, or by an LTG attached to that RTG, then the IC can immediately dump the character once it detects his jackpoint. This option is not available to a trace originating on other grids or hosts.

Optional Rule: Icon Bandwidth

Under the optional icon-bandwidth rule, the bandwidth of a user's icon—the amount of data used to carry commands and sensory data to and from the cyberterminal—affects his datatrail and the ease with which it may be traced.

Icon bandwidth is equal to the sum of the user's persona program ratings and the ratings of all the utilities he has loaded into his cyberterminal's active memory. If this amount exceeds the jackpoint's base bandwidth (see p. 32), the user will suffer an additional trace modifier. Divide the user's icon bandwidth by the jackpoint's base bandwidth and round down. Multiply that figure by –1. The result is applied as a target number modifier to the trace program's hunting-cycle Attack Test. This modifier applies to both the track utility and trace IC.

A user must set his icon bandwidth at the beginning of a Matrix run. The bandwidth remains constant throughout the run—the user cannot change its size without disconnecting and starting a new run. If something destroys or reduces the user's program ratings, the icon bandwidth may be reassigned, but it cannot be reduced to make his datatrail harder to trace.

Before jacking in, users may reduce their icon bandwidths by reducing their persona ratings lower than their actual ratings. Any reduced ratings must remain at their reduced levels for the rest of the run. Users may not reduce the rating of a utility unless the utility has the adaptive option (see p. 83). Note that the actual size of the utilities in memory has no effect on icon bandwidth.

The icon bandwidth of otaku is always 0.

Sidewinder has an MPCP-6/5/3/4/4 deck. She has not reduced any of her persona ratings to slim down her icon bandwidth, and so her persona code alone has a bandwidth of 16 (5 + 3 + 4 + 4 = 16). She's also loaded sleaze-5, deception-4, attack-6 and analyze-4 into her deck's active memory. That adds another 19 (5 + 4 + 6 + 4 = 19) to her bandwidth for her utilities. Her total bandwidth so far is 35 (16 + 19 = 35). She decides to play it safe and allocate another 5 in case she wants to run other utilities during the run, so she announces that her icon bandwidth for the run will be 40.

Sidewinder is using an illegal access jackpoint, which has a base bandwidth of 20. Her icon bandwidth exceeds that, so any trace programs used against her will have a –2 modifier to hit her in cybercombat (icon bandwidth of 40 ÷ jackpoint bandwidth of 20 = 2, 2 x –1 = –2).

CEREBROPATHIC BLACK IC

Though technically non-lethal, cerebropathic black IC is considered one of the nastiest IC programs created to date. Rather than targeting the persona or cyberterminal or attempting to kill or knock out the user, cerebropathic black IC attempts to selectively inflict brain damage on the user. The biofeedback impulses from cerebropathic IC tend to cause epileptic seizures and brain lesions and may also cause damage to implants through their neurological connections.

Cerebropathic IC affects a character in the same manner as non-lethal black IC (p. 230, *SR3*). However, if the IC renders the character unconscious, it takes one last shot at his brain rather than his cyberterminal. Make a test using double the rating of the cerebropathic IC against the character's Willpower or Intelligence, whichever is higher. Each success inflicts 1 Stress Point against either the character's Intelligence, Willpower or an implant, as determined by the Cerebropathic Effects Table. Characters running with a cold ASIST are immune to stress effects of cerebropathic IC. If a character has an ICCM filter, they only suffer 1 Stress Point for every 2 successes scored by the IC.

CEREBROPATHIC EFFECTS TABLE

1D6 Roll	Result
1–3	Intelligence Stress
4	Willpower Stress
5–6	Implant Stress

The effects of Stress Points are described on p. 124, *M&M*. If an implant Stress Point is achieved, apply the point to a randomly determined cyberware or

bioware implant that is connected to the character's neurological system.

PSYCHOTROPIC BLACK IC

Psychotropic black IC is a variant of non-lethal black IC that uses simsense biofeedback to imprint the victim with lasting psychological effects. In effect, the victim's subconscious is "programmed" with subliminal messages without his knowledge.

Psychotropic black IC functions in the same manner as non-lethal black IC (p. 230, *SR3),* with the following exceptions. Each time a character takes damage from psychotropic IC, he must make a Willpower Test against a target number equal to the psychotropic black IC's rating. Apply a target modifier based on the character's Damage Level (+1 for Light damage, +2 for Moderate damage, +3 for Serious and +4 for Deadly). Reduce the target number by 2 if the character is using a cyberterminal with a cold ASIST.

If the test succeeds, the character suffers no psychological effects. If it fails, the IC implants its psychotropic effect in the character's mind. These effects vary widely depending upon the IC variant, but a few of the most common are cyberphobia, Judas effect, frenzy, or positive conditioning effects. Creative gamemasters may devise variations on these effects as they wish.

Note that a character afflicted with a psychotropic effect will not be consciously aware of it. When he first experiences the effect, his initial response will be to rationalize his behavior. Others must "intervene" and point out the character's unusual behavior before he can grasp the true cause of the effect.

See *Detecting Psychotropic Effects* and *Recovering from Psychotropic Effects,* p. 109, for information on detecting and curing various effects of psychotropic IC.

Cyberphobia

Cyberphobia is a profound fear of the Matrix, virtual reality, simsense, cyberterminals, decking and all related concepts. Any character afflicted with cyberphobia must make a successful Willpower Test against the rating of the psychotropic IC that caused the phobia before he can jack into a system. Also, add the IC's rating to the target numbers for all tests the character makes when decking, programming, working with hardware or anything else his new phobia causes him to fear. As a rule of thumb, the phobia affects any task involving computers, simsense or the Matrix.

Drugs or spells inducing fear-free responses, such as tranquilizers or a Control Emotions spell, may reduce the phobia penalty by up to half at the gamemaster's discretion.

Judas Syndrome

The so-called Judas syndrome is a subliminal compulsion to betray one's self and one's colleagues. A character suffering from the Judas syndrome leaves clues, both in the Matrix and the real world, that lead to his location or reveal the identities of his colleagues. An afflicted character is not aware that he is doing this. In fact, he will deny his actions completely or interpret them as mistakes, accidents or necessary actions. For example, if someone were to ask the decker if he was the one who scrawled the samurai's commcode on the corporate office's front door with hot maroon lipstick, he would really believe it when he said "No." He'd even beat a lie-detector test.

Whenever a Judas syndrome-afflicted character has an opportunity to betray himself or others, make a secret Willpower Test against a target number equal to the psychotropic IC's rating. If the test succeeds, he resists the compulsion (of course, this is all subconscious, so the character is not aware of his internal conflict). If the test fails, the character carries out the compulsive act.

Note that a character with the Judas syndrome is inclined toward any act of betrayal, not just acts that benefit whoever deployed the psychotropic IC.

Frenzy

A character whose mind has been infected by frenzy psychotropic IC regresses into a maniacal state of rage. He may attack people at random, flee in howling terror, gibber, rant or otherwise engage in feral behavior. In combat, the character will fight viciously, using only his natural abilities (teeth, nails, fists), brute strength and maybe a basic blunt object. A frenzied character is not capable of conversation or intelligent self-control—he has been reduced to the mental state of a simple, agitated animal.

The frenzied state lasts until the character is killed or knocked out and resumes immediately if the character regains consciousness. A kind gamemaster may allow the character to make a Willpower Test every 24 hours against the IC rating to resist the effect; if the test succeeds, the character wakes up in a non-psychotic state of total exhaustion (which isn't to say that the frenzy state might not recur periodically).

Magic or drugs may suppress the rage and allow the character to recover. A dosage of tranq patches equal to the IC's rating will calm the character down, as will manipulation by a Control Emotions spell with a rating equal to or higher than the IC rating. A calmed character will be able to suppress the frenzy for 24 hours, but after that period will revert back to that state at the drop of a hat.

Positive Conditioning

The effects of positive conditioning are more insidious than other forms of psychotropic IC. In effect, an afflicted character is subconsciously manipulated to "love" the company (or organizational entity) that produced or deployed the IC. The character will find it difficult to take actions that might harm what he perceives as the best interests of the company, and he will react strongly to any criticisms of the company. Likewise, the character will feel compelled to support the company's actions and activities, not to mention buy its products.

To participate in an action that he thinks will be harmful to the company's interests, he must make a Willpower Test against a target number equal to the IC rating. If the test succeeds, the character may participate in the action, but he receives +2 target number modifiers on all actions opposed to the company. If the test fails, the character is physically unable

to participate in the action. If forced by others, the character protests vociferously and may violently resist or break down emotionally (at the gamemaster's discretion).

Detecting Psychotropic Effects

To determine whether a character has been affected by psychotropic conditioning, another character can make either a Biotech (requiring a medical shop) or a Psychology Test. The target number for this test is the victim's Willpower. The base time for the medical- or psychoanalysis is equal to the rating of the psychotropic IC in hours.

A programmable ASIST biofeedback unit (PAB, see p. 70, *CC)* can also be used to detect conditioning. Reduce the target number by the PAB unit's rating.

Finally, a spellcaster who achieves 5 or more successes with a Mind Probe spell will be able to detect the psychotropic conditioning.

Recovering from Psychotropic Effects

Over time, a character may eventually shrug off psychotropic conditioning on his own. At the end of each month after a character has been conditioned, allow him to make a Willpower Test against a target number equal to the psychotropic IC's rating. If the test succeeds, the conditioning has worn off and the character returns to normal.

Characters who require a quicker cure can seek the help of a psychotherapist or a PAB-unit reprogramming session. The base time for a psychotherapy cure is a number of hours equal to the psychotropic IC rating x 2; the cure must be administered by a character with the Psychology skill, who must make a successful Psychology Test against the affected character's Willpower.

A character using a PAB unit to cure an afflicted character must make a successful Biotech Test against the affected character's Willpower Rating; reduce the target number by the PAB unit's rating. This type of PAB reprogramming takes the same base time as psychotherapy; Psychology may also be used as complementary skill.

ADVANCED USES FOR SR3 IC

The following rules supplement the rules for lethal black IC, sparky IC, tar baby IC, and tar pit IC provided in *SR3.*

LETHAL BLACK IC

Lethal black IC induces killing biofeedback only in users running hot ASIST interfaces (see p. 18). If a character is using a cyberterminal with a cold ASIST interface, lethal black IC will affect him as non-lethal black IC instead, inflicting Stun damage rather than Physical damage.

IC SIZE MULTIPLIERS TABLE

IC Program	Size Multiplier
Black	
Cerebropathic	16
Lethal	16
Non-lethal	12
Psychotropic	20
Blaster	10
Crippler	6
Data Bomb	5
Killer	8
Pavlov	4
Probe	3
Ripper	8
Scout	5
Scramble	3
Sparky	12
Tar Baby	5
Tar Pit	7
Trace	10

SPARKY IC

An ICCM biofeedback filter will protect a character from sparky IC in the same manner it protects him from black IC. An ICCM-equipped character attacked by sparky IC may make two Damage Resistance Tests—one with Body and one with Willpower—and use the test with the best results.

TAR BABY AND TAR PIT

When the tar programs first hit the field, many deckers responded by carrying multiple copies of one-shot programs in their active memories, because these programs were smaller and harder to target. Naturally, IC programmers quickly picked up on this trick, and modern versions of tar baby and tar pit are quite effective at overcoming this tactic. Whenever a tar program trashes a utility carrying the one-shot option, it wipes out *all* copies of the program in active memory.

PROGRAMMING IC

Characters may create IC programs using the standard rules for programming (see p. 76). IC programs tend to be more complex than standard attack utilities, however, and so have higher size multipliers. These multipliers are listed on the *IC Size Multipliers Table.*

IC programs can only be used by hosts and grids; they may not be wielded by deckers or loaded into frames, sprites or SKs.

CRASHING IC

Whenever a character crashes a piece of IC in cybercombat, he risks raising his security tally (see *Crashing IC,* p. 212, *SR3).* Aside from suppressing the IC by sacrificing a point of Detection Factor, the character may use a stealth utility or his Hacking Pool to avoid alerting the system.

USING THE STEALTH UTILITY OPTION

A character can equip his attack utilities with the stealth option (see p. 85), which reduces the number of points added to the security tally for the IC's destruction. For example, crashing a probe-6 with an attack program normally adds 6 points to the character's security tally. If the attack utility had the stealth-3 option, however, those points would be reduced to 3.

USING HACKING POOL TO SUPPRESS

At the gamemaster's discretion, characters may sacrifice a single die from their Hacking Pools to suppress IC programs, rather than losing a point of Detection Factor. See p. 26 for more on this optional rule.

MATRIX SECURITY

With all the utilities and tricks deckers have at their disposal, the architects of a system's security have to keep on their toes. This section supplements the system security rules provided in *SR3* with new advanced-security options such as host shutdowns and varying subsystem ratings, and a security sheaf generation system that enables gamemasters to quickly and easily create Matrix security systems.

ADVANCED SECURITY

The following rules provide the gamemaster with guidelines for applying security features to game play and introduce some new security options.

SECURITY TALLIES AND MULTIPLE ICONS

Note that user icons generate individual security tallies. For example, if multiple deckers are hacking a host, each decker's icon generates its own separate security tally. As each decker reaches certain trigger steps, he will activate new copies of IC programs that will pursue him specifically (even if a previous decker already killed the IC at that step). Generally, any effects that are triggered by a particular icon, such as IC, apply only to the icon that triggered them.

The two exceptions to this general guideline are IC constructs and passive-alert effects.

IC constructs (see p. 91) may attack *any* icon that has generated a sufficient security tally, not just the specific icon that triggered the construct.

During a passive alert (p. 211, *SR3),* each of a system's subsystem ratings increases by 2. These increases affect all users in the system, not just the icon that tripped the alert.

For the most part, passive and active alerts have no effect on legitimate users, because the accounts of these users allow them to automatically succeed at legitimate activities. In fact, such users will most likely be unaware that an intrusion is occurring.

See *Security Tally,* p. 210, *SR3,* for basic Security Tally rules.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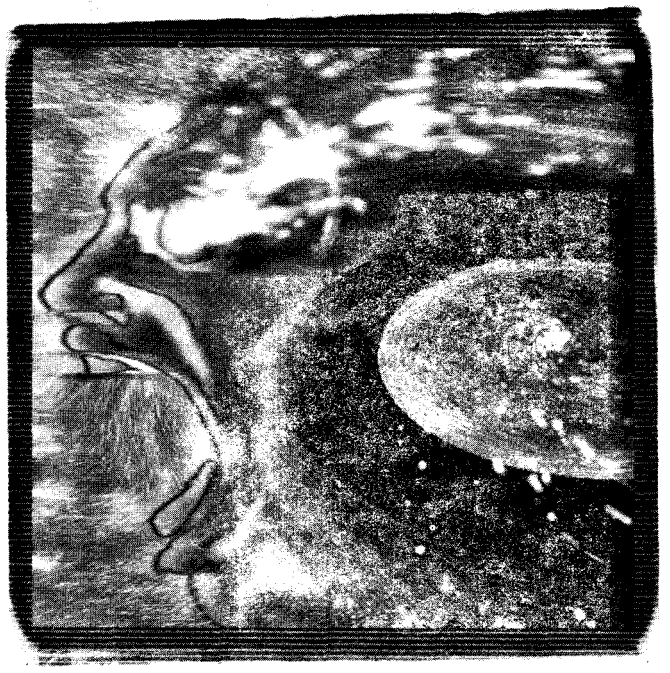


HOST SHUTDOWN

If IC programs and constructs fail to stop an intruder, a host computer may shut itself down completely to prevent the intruder from accessing secure files. Unlike a decker-initiated Crash Host operation, a host shutdown involves a number of steps.

A host triggers a shutdown procedure when an intruder reaches a predetermined security tally threshold. When the shutdown threshold of a host is reached, the gamemaster rolls a number of dice equal to the host's Security Value ÷ 2 (round up) and adds the results. The total indicates the number of Combat Turns the host's shutdown sequence will last.

The gamemaster should also roll 1D6 ÷ 2. The result of this roll indicates the "final warning" turn—the number of turns that remain in the sequence when the host warns all users in the system that a shutdown is imminent. For example, on a result of 2, the final warning is sounded when 2 turns remain in the shutdown sequence.

Once the shutdown sequence begins, make a secret Sensor Test for each user in the system. Make these tests at the end of each Combat Turn against a target number equal to the number of Combat Turns remaining in the shutdown sequence. Continue the tests for each user until a test succeeds. At that point, that user becomes aware that the host is in shutdown mode but does not know exactly when the system will shut down. (If none of a user's Sensor Tests succeeds, that user does not learn of the shutdown until the final warning turn.)

When the sequence reaches its final warning turn, inform all users within the system that a shutdown sequence is in progress and tell them how many turns remain before final shutdown.

The host shuts down at the end of the last Combat Turn in the sequence. Any character online when the host shuts down is dumped offline and suffers dump shock (see *Dump Shock*, p. 227, *SR3*). Any programs operating when the system shuts down—such as applications, frames and agents, command sets, IC and so on—immediately crash. Ongoing and monitored operations terminate as well.

OPTIONAL RULE: VARYING SUBSYSTEM RATINGS

To give a system a more distinct flavor, a gamemaster may raise or lower a grid or host's individual subsystem ratings. For example, a gamemaster may decide to increase the difficulty to access a system from the grid but decrease it when accessing the system from inside its office building. To do so, the gamemaster would increase the Access Rating by 2 for attempts to access it from a public grid and reduce it by 1 for attempts to access it from a dedicated workstation or remote device. The gamemaster could alter the Access modifiers from those jackpoints as well.

Similarly, the gamemaster can vary other subsystem ratings, such as the Files Rating of a host. For example, the gamemaster may determine that all of a system's public relations files have a Files Rating that is 2 points lower than the system's base Files Rating. At the same time, the system's personnel management files, including all email and personal journals, schedules and so on, could have a Files Rating that is 2 points *higher* than the system's base Files rating.

Fluctuating ratings is a common occurrence on grids, given the constant changes in system load and traffic.

See *Subsystem Ratings*, pp. 205–6, *SR3*, for definitions of different subsystem ratings.

GENERATING SECURITY SHEAVES

The following tables provide a system for using dice rolls to generate IC programs for the trigger steps of a security sheaf. (See *Security Sheaves*, pp. 210–11, *SR3*, for basic sheaf rules.) Gamemasters who choose not to use the random-generation system may still find these tables useful as guidelines for allocating IC programs. Table entries for low dice-roll results can be used for relatively lax systems; entries for higher dice rolls can be used for more secure, challenging systems containing particularly sensitive data.

To randomly generate a trigger step, roll 1D6 ÷ 2 and apply the appropriate security-code modifier for the system as shown on the Trigger Step Table (p. 115). To randomly generate the event at the trigger step, roll 1D6; if other trigger steps have already been passed at the system's current alert level, increase the die roll result by the number of steps passed at the alert level. Then consult the appropriate column of the Alert Table (p. 115). If the result indicates a type of IC—such as reactive white, proactive gray or black—proceed to the appropriate IC table to determine the IC program at the trigger step. If the result indicates a move to a higher alert level, the system sets off an alert at the trigger step. On Blue or Green systems, proceed to the next trigger step (rolling on the column appropriate to the new alert status); on Orange and Red systems, roll for an IC program at this step (in addition to the alert).

Next, roll 1D6 or 2D6, as indicated on the IC Table, to determine the specific IC program. After determining the program, roll 1D6 and consult the IC Rating Table to determine the rating of the IC program. After determining the type and rating

of the IC program, consult the appropriate IC options table and make the indicated dice rolls to determine the options and defenses the IC program carries. (Two options tables, for reactive and proactive IC, are provided on p. 116.)

If desired, gamemasters may modify the results from these tables depending on the Matrix system defending against the intruder. For example, an Aztechnology system is significantly more likely to contain black IC than a Renraku system.

CREATING CONSTRUCTS

Use the following guidelines when creating constructs for trigger steps. Remember that the total combined ratings of the IC within an IC construct cannot exceed the construct's Frame Core Rating x 2 (see *IC Constructs*, p. 91). The gamemaster may need to modify the ratings to adjust for that limitation.

First, roll on the IC Rating Table (p. 116) to determine the construct's Frame Core Rating. Then roll twice on the Alert Table (p. 115) to determine two types of IC that the construct will hold; follow the standard procedure for determining the ratings of these programs. Roll 2D6 and consult the Proactive IC Options Table (p. 116) to determine the options and defenses for the entire construct.

If the sum of the two IC programs' combined ratings is less than the Frame Core Rating x 2, generate a third piece of IC. If the sum of the three IC programs' combined ratings is still less than the Frame Core Rating x 2, generate a fourth IC program. Continue this process until the sum of the combined IC ratings equals or exceeds the Frame Core Rating x 2.

If the IC ratings exceed the frame core's IC Payload, reduce the rating of a random IC program until the two figures are equal.

ADDITIONAL SECURITY FEATURES

More esoteric security features, such as worms or bouncer hosts, can be used to provide stiff challenges to deckers in particularly tough systems. To randomly generate such features, roll 2D6 and consult the Nasty Surprises Table (p. 116).

SECURITY DECKERS

Security deckers are not included in the random IC tables; gamemasters decide whether systems include such deckers. As a general rule, only systems guarded with decker patrols will feature security deckers, though sites that contain very sensitive data may include more than one security decker.

In most cases, a system's security decker is alerted to an intruder's presence only when an active alert is triggered. However, a character in the Matrix may run into a patrolling security decker completely by accident.

To generate stats for security deckers, use the guidelines provided in *Creating Prime Runners*, p. 83, *SRComp.*

CAVEATS

In certain instances, gamemasters may modify the trigger-step events produced with the random-generation system. Sometimes the random-generation system will produce a trigger-step event that flunks a "reality check." For example, a host won't launch a trace program if it has already located a decker's jackpoint, and a mom-and-pop Blue host won't have black IC. Or the random-generation system will specify IC that players have little chance of defeating. In such cases, the gamemaster may modify the system results for more satisfying game play.

Gamemasters may also wish to adjust randomly determined IC ratings to better match the player deckers' defensive resources. A decker uses the rating of an IC program as his target number for Damage Resistance Tests when taking damage from IC, so the gamemaster needs to consider the balance between the decker's defenses and IC ratings.

SHEAVES ON THE FLY

The random-generation system enables a gamemaster to generate a security sheaf on the fly during game play. This can be useful when a player-decker invades a system unexpectedly during a game.

John's decker character invades a host rated Orange-7/11/14/13/14/13. Samantha, the gamemaster, has not prepared a security sheaf for the system, so she determines the first trigger step by rolling 1D6 ÷ 2. The roll produces a 1. She consults the Trigger Step Table, which indicates a +2 modifier for a result of 1 on an Orange system. Now she knows that the first trigger step for the system is 3.

John logs on, racking up 2 points to his security tally in the process, then fails an Index Test, which raises his security tally to 4. That sets off the first trigger step of the system, so Samantha rolls 1D6, for a result of 4, and consults the Alert Table. No alert is in effect on the system, so this means John encounters proactive white IC. Samantha then consults the Proactive White IC Table. She rolls 2D6, for a result of 7. That means the IC is a killer program.

Next she goes to the IC Rating Table and again rolls 2D6, for an 8. The system has a Security Value of 7, so that means the killer IC is Rating 7. Now Samantha rolls 2D6 on the Proactive IC Options Table and scores a 6. Bad news for John; he's just run into a cascading killer-7 IC program.

John crashes the IC in cybercombat. Samantha now determines the second trigger step by rolling 1D6 ÷ 2. The roll produces a 2. She adds the +1 modifier for Orange systems, as indicated on the Trigger Step Table, then adds the sum to the previous trigger step, for a final result of 6.

On the next turn, John runs into real problems and his security tally rises to 9. This is 3 points past the second trigger step, so Samantha again rolls 1D6 ÷ 2 to determine the third trigger step. The roll result is 1. She adds the +1 modifier for Orange systems, then adds the sum to the previous trigger step. That sets the third trigger step at 8. So between the first trigger step and his current security tally, John passed two trigger steps, at 6 and 8.

GRID SECURITY

Grids tend to tackle security a bit differently than hosts. Given the overwhelming amounts of data traffic that grids handle, system errors aren't just a regular occurrence, they're unavoidable. Since telling the difference between a malfunction and an intruder is not always easy at first glance, chasing

SAMPLE GRID SECURITY SHEAFS

Blue Grid

Trigger Step	Event
6	Probe-5
12	Probe-6
18	Scout-6
24	Passive Alert, Security Deckers
30	Tar Pit-5
36	Ripper (mark-rip)-6
42	Construct-8 (Killer-10, Probe-6)
48	Active Alert
54	Blaster-8
60	Blaster-10

Green Grid

Trigger Step	Event
5	Probe-6
10	Probe-8
15	Scout-7
20	Trace-7
25	Passive Alert, Security Deckers
30	Ripper (bind-rip)-7
35	Trace-7 with trap Blaster-4
40	Blaster-7
45	Active Alert
50	Construct-10 (Blaster-10, Trace-5, Crippler (acid)-5)
55	Blaster-9
60	Sparky-11

Orange Grid

Trigger Step	Event
4	Probe-8
8	Scout-8
12	Trace-8
16	Probe-8 with trap Tar Pit-6
20	Passive Alert, Security Deckers, Ripper (mark-rip)-8
24	Scout-8 with trap Blaster-8
28	Trace-12
32	Construct-12 (Probe-4, Blaster-10, Ripper (bod-rip)-10)
36	Blaster-10
40	Active Alert, Scout-10 with trap Blaster-10
44	Psychotropic Black IC-8
48	Nonlethal Black IC-10

Red Grid

Trigger Step	Event
3	Probe-10
6	Scout-10 with trap Crippler (marker)-8
9	Trace-10 with trap Killer-8
12	Passive Alert, Security Deckers, Ripper (mark-rip)-10
15	Construct-14 (Killer-10, Ripper (bind-rip)-8, Scout-10)
18	Trace-15
21	Sparky-10
24	Active Alert, Psychotropic Black IC-8
27	Nonlethal Black IC-12
30	Nonlethal Black IC-15

down suspected intrusions becomes a logistical nightmare. To a certain degree, many grid providers don't really care if a low level of minor hacking and unauthorized access goes on—they recognize their limitations and prefer to cut their losses. As long as the intruders don't start messing up the grid or causing serious problems, many grid providers are willing to let the infraction slide.

ALERTS

Because of the inherent difficulties involved in policing grids, they take longer to reach a state of passive or active alert simply to avoid false alarms. In game terms, this means that passive and active alerts will appear much further down the ladder on RTG, LTG and most PLTG security sheaves.

If a gamemaster is using the Alert Table (p. 115) to randomly generate a grid's security sheaf, only results of 10 or higher will lead to an alert; treat results of 8 and 9 as reactive or proactive gray IC.

SECURITY DECKERS

Grids also employ a high number of security deckers. Occasionally these deckers are used to patrol the grid, but their primary function is to investigate alerts and provide damage control. If hostile intruders are encountered, a swarm of back-up security deckers can be quickly called forth.

Whenever an intruder generates a passive alert on an RTG or LTG, a security decker will arrive to investigate them at the end of the following Combat Turn. If that security decker calls for back-up or an active alert is triggered, an additional security decker will arrive at the end of every Combat Turn that follows.

To generate stats for a security decker, use the guidelines for *Creating Prime Runners*, p. 83, *SRComp*.

GRID SHUTDOWN

Unlike a host, a grid cannot simply be shut down because of an intruder—aside from putting massive power into the hands of hackers, it would be denying service to millions based on one minor security threat. For this reason, host shutdowns are never included on grid security sheaves. Instead, when the end of a security sheaf is reached, an additional IC construct or security decker will automatically arrive every Combat Turn until the intruder is dispatched.

SECURITY TALLY CARRYOVER

Any security tally generated by an intruder on an RTG will carry over to any LTGs or PLTGs connected to it; it will not carry over if the intruder moves to another RTG.

RANDOM SECURITY SHEAF GENERATION TABLE

TRIGGER STEP TABLE

System Security Code	Die Roll Modifier/Trigger Step Range
Blue	+4 modifier, for a final range of 5 to 7
Green	+3 modifier, for a final range of 4 to 6
Orange	+2 modifier, for a final range of 3 to 5
Red	+1 modifier, for a final range of 2 to 4

ALERT TABLE

1D6 Result	No Alert	Passive Alert	Active Alert
1–3	Reactive White	Proactive White	Proactive Gray
4–5	Proactive White	Reactive Gray	Proactive White
6–7	Reactive Gray	Proactive Gray	Black
8+	Passive Alert*	Active Alert*	Shutdown**

* On Blue or Green systems, proceed to the next trigger step. On Orange and Red systems, roll for an IC program at this step (in addition to the alert).
** See *Host Shutdown*, p. 112.

REACTIVE WHITE IC TABLE

1D6 Result	IC Type
1–2	Probe
3–5	Trace
6	Tar Baby

PROACTIVE WHITE IC TABLE

2D6 Result	IC Type
1–5	Crippler*
6–8	Killer
9–11	Scout
12	Construct**

* Roll on the Crippler/Ripper IC Table to determine which persona attribute the IC attacks, then roll on the IC Rating Table for the program.
** See *Creating Constructs*, p. 113.

REACTIVE GRAY IC TABLE

1D6 Result	IC Type
1–2	Tar Pit
3	Trace with trap option*
4	Probe with trap option*
5	Scout with trap option*
6	Construct**

* Roll on the Trap IC Table to determine the type of trap program, then roll on the IC Rating Table for both programs.
** See *Creating Constructs*, p. 113.

PROACTIVE GRAY IC TABLE

2D6 Result	IC Type
2–5	Rippers*
6–8	Blaster
9–11	Sparky
12	Construct**

* Roll on the Crippler/Ripper IC Table to determine which persona attribute the IC attacks, then roll on the IC Rating Table for the program.
** See *Creating Constructs*, p. 113.

BLACK IC TABLE

2D6 Result	IC Type
2–4	Psychotropic*
5–7	Lethal
8–10	Non-Lethal
11	Cerebropathic
12	Construct**

* The gamemaster may select his favorite type or roll 1D6. On a 1–2, Cyberphobia; on a 3, Frenzy; on a 4, Judas; on a 5–6, Positive Conditioning.
** See *Creating Constructs*, p. 113.

CRIPPLER/RIPPER IC TABLE

1D6 Result	Target Attribute
1–2	Bod
3	Evasion
4–5	Masking
6	Sensor

REACTIVE IC OPTIONS TABLE

RANDOM SECURITY SHEAF GENERATION TABLE

2D6 Result	Option
2–4	Shield
5	Armor
6–7	None
8	Trap*
9	Armor
10–12	Shift

* Roll on the Trap IC Table to determine the type of trap IC, then roll on the IC Rating Table for both programs.

PROACTIVE IC OPTIONS TABLE

2D6 Result	Option
2–3	Party Cluster*
4	Expert Offense**
5	Shifting
6	Cascading
7	None
8	Armor
9	Shielding
10	Expert Defense**
11	Trap†
12	Roll twice††

* Roll again on the Alert Table to determine the additional IC program that is also triggered at this step; the additional IC program will automatically have the party-cluster option as well.

** Roll 1D6 ÷ 2 to determine the Expert modifier.

† Roll on the Trap IC Table to determine the type of trap IC, then roll on the IC Rating Table for both programs.

†† Ignore if rolling for second time.

TRAP IC TABLE

2D6 Result	IC Type
2	Data Bomb or Pavlov Data Bomb*
3–5	Blaster
6–8	Killer
9–11	Sparky
12	Black IC**

* Roll 1D6: on a result of 1–4, data bomb; 5–6, Pavlov data bomb

** Roll on the Black IC Table to determine the type of black IC, then roll on the IC Rating Table for both programs.

IC RATING TABLE

	System Security Value			
2D6 Result	4 or lower	5–7	8–10	11+
2–5	*	5	6	8
6–8	5	7	8	10
9–11	6	9	10	11
12		10	12	12

NASTY SURPRISES TABLE

2D6 Result	Surprise
2	Semi-Autonomous Knowbot
3	Teleporting SAN
4	Vanishing SAN
5	Bouncer Host
6	Data Bomb or Pavlov Data Bomb*
7	Scramble IC**
8	Security Decker(s)
9	Worm†
10	Chokepoint
11	Trap Door
12	Virtual Host

* Roll 1D6: on a result of 1–4, data bomb; on a 5–6, Pavlov data bomb. Then roll another 1D6: on a result of 1–4, guarding file; on a 5–6, guarding slave device.

** Roll 1D6: on a result of 1–2, guarding Access subsystem; on a 3–4, guarding Files subsystem; on a 5–6, guarding Slave subsystem.

† Roll on the Worm Table to determine the type of worm, then roll 1D6 + 3 to determine its rating.

WORM TABLE

2D6 Result	Worm Type
2–3	Crashworm
4–5	Deathworm
6–8	Dataworm
9–10	Tapeworm
11–12	Ringworm

SYSTEM TRICKS

Given the constant escalation of hostilities between hackers and Matrix security designers, it is not surprising that both sides constantly develop new "tricks" designed to frustrate their opponents. The following grid tricks, host tricks and decker tricks are merely a sampling of the latest tricks in use.

GRID TRICKS

The following system trick—the comcall trace—is available only to grid providers.

COMCALL TRACE

Grid providers have the ability to run traces against comcalls, though they usually do so only when pursuing their own investigations or when ordered to do so by a court (national or Corporate Court) to provide assistance to an outside security agency.

Tracing Standard Comcalls

To run a trace, the provider must be able to lock onto a call in process. The call must be originating, ending or passing through the provider's grid. Usually, the grid provider monitors a commcode, waiting for an incoming call, then traces it back to its source.

When the comcall is in progress, the grid provider makes a test using the grid's Security Value against a Target Number of 2. Increase the target number by 1 for each additional grid the comcall passes through from origin to destination. If the caller takes advantage of fake MSP accounts to forward the call (see p. 122), apply an additional +1 modifier for each forward.

The trace takes a base time of 10 Combat Turns. Modify this base number by the trace modifier of the call's origin (see *The Jackpoint*, p. 30). For example, a call originating from a legally registered MSP account has a trace modifier of –2, so the base time would be 8 (10 – 2) Combat Turns.

Divide the base time by the number of successes achieved on the grid's Security Value Test; round up. The result is the number of Combat Turns it takes the grid to trace the call. Once the call is traced, the grid provider knows the commcode of the caller and the physical origin of the call.

Tracing the Make Comcall Operation

If the comcall is being managed by a character using the Make Comcall operation, the trace is handled a bit differently. Treat the grid trace as trace IC equal to the grid's Security Value. Because no IC is actually used, cybercombat does not actually occur—treat the hunt cycle as a simple Security Value (Evasion) Test. All the standard rules for being traced apply. All the tricks that work against trace IC, such as Redirect Datatrail operations, can be used to make the call more secure.

HOST TRICKS

Host providers have a few more tricks up their sleeve than grid providers, because they have more control over their host environments. The following tricks may be used only on hosts.

BOUNCERS

Bouncer hosts are capable of operating at two different security levels. In their normal state, they operate at a low level of security—usually Green or Orange. When a pre set trigger condition is met, however, the mainframe loads in a new set of security codes and "bounces" to a higher security level—usually Red. Without warning, an easy-to-crack host suddenly transforms into a high-security trap.

The trigger condition for a bouncer host can be just about anything the security sysops desire. An intruder reaching a certain security tally level may trigger a bounce, or an intruder generating a security tally while accessing a high security file or subsystem. A security decker may also manually trigger a bouncer by making a successful Control Test after discovering an intruder.

A bouncer host takes one full Combat Turn to upgrade to a new security level. The new security level affects all users on the host. When a bouncer's security increase is triggered, the gamemaster makes a secret Sensor Test for any icon on the host (the target number is the new Security Value). If an icon's test succeeds, the gamemaster informs the controlling player that the Security Value of the host has just increased; however, the icon must perform an Analyze Host operation to obtain specific details of the upgrade.

A bouncer host may be detected *before* it is triggered with a successful Analyze Host operation (see p. 102).

Bump, an ork decker, logs on to a Green-4 host. He's pretty sure the run's going off without a hitch until he generates a few points of security tally while downloading a confidential datafile. The host bounces to a Red-8 deathtrap, and so the gamemaster makes a secret Sensor (8) Test for Bump. The test succeeds, so the gamemaster tells Bump that his sensor programs are reading an escalation in the security level of the host.

CHOKEPOINTS

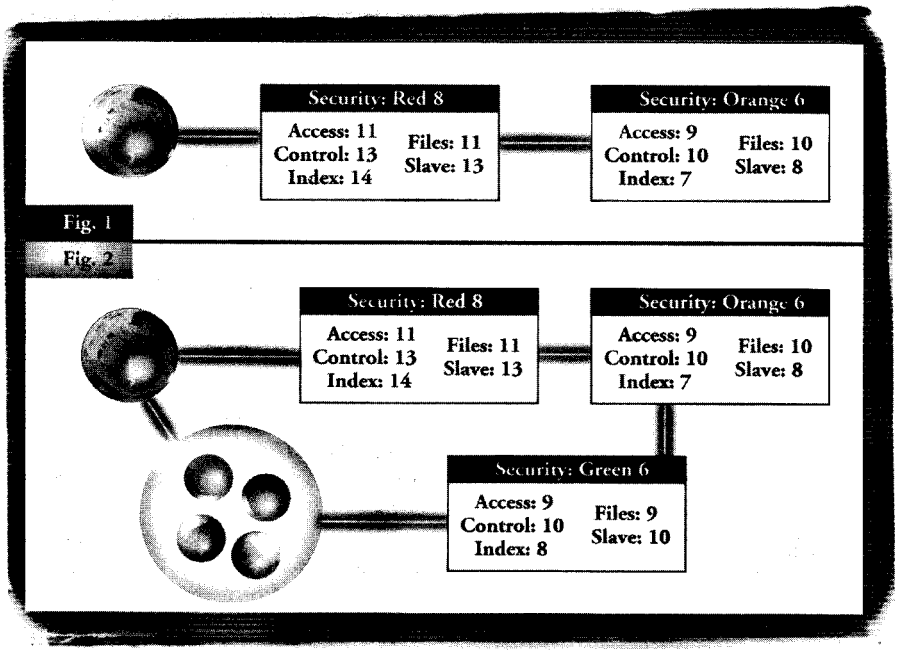
Chokepoints are hosts specifically designed to block unauthorized access to more sensitive hosts. Like the firewalls of the old Internet, a chokepoint is usually part of a tiered-access system (see p. 204, *SR3)* that restricts access to any of the hosts on the tier below it.

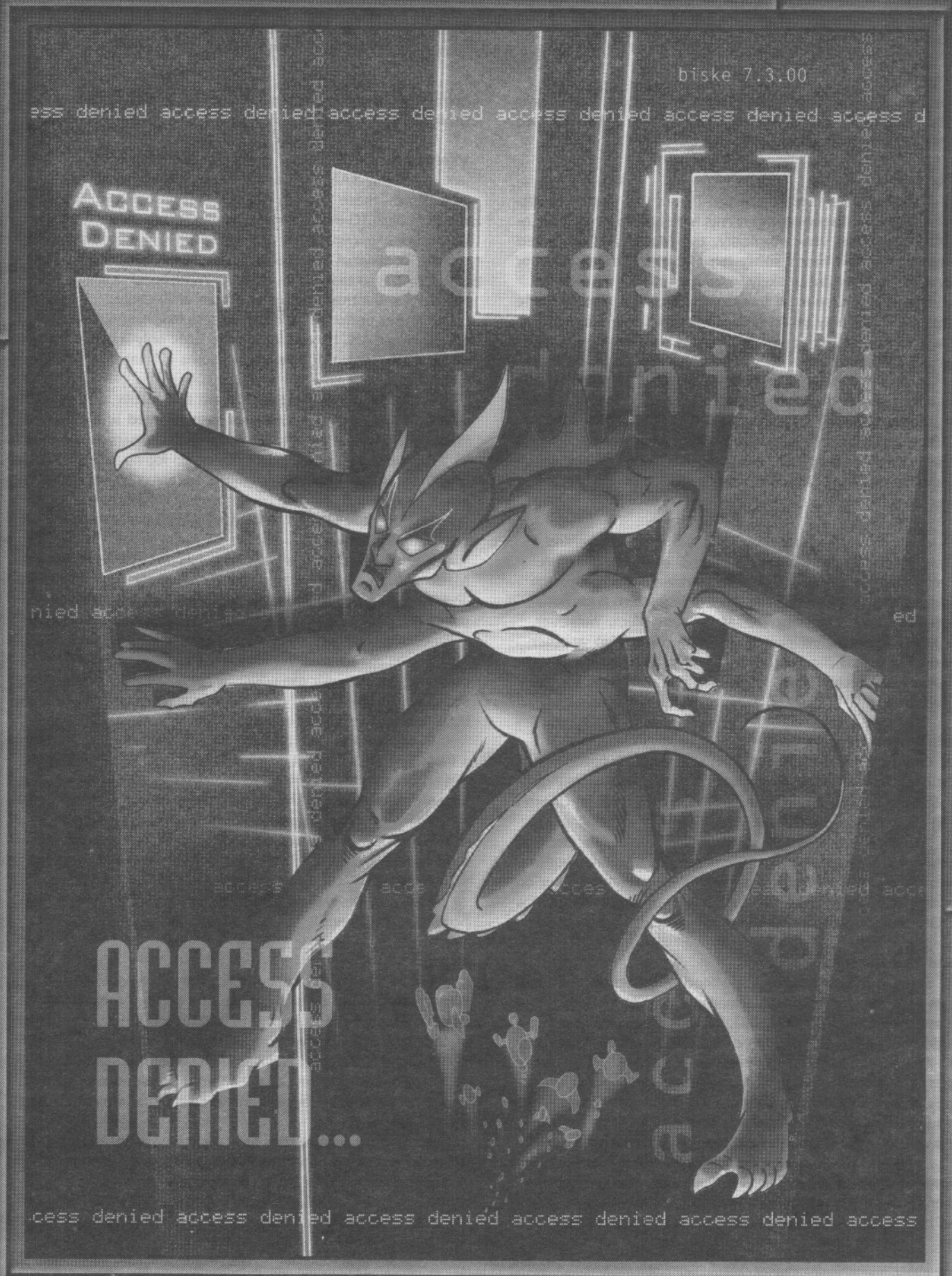
Generally, chokepoints protect sensitive hosts that must maintain constant Matrix access, such as financial management, air-traffic control and power-grid management systems. Traditionally, these hosts serve systems that are linked together so that users must pass through the chokepoint host to reach other hosts in the system.

Also known as "killing jars," chokepoints are typically loaded with murderous IC and programmed with Security Values higher than the Security Values of the hosts they protect. Further, security deckers are typically stationed within chokepoints to scan all icons that pass through and provide additional hands-on security.

Chokepoints can be stoppers on Matrix runs. A decker can try to bull through with brute force and hot programs, but this approach can prove a real gamble. The smartest approach is to locate alternate access paths to the target host that allow the decker to bypass the chokepoint host altogether.

Figure 1 in the Chokepoint Designs diagram shows a simple chokepoint design. The only way into the target host is through the Red host that connects the system to the LTG. Unless the decker bypasses the grid altogether and gains access to a workstation, slave remote or similar jackpoint, he must tackle the Red-8 monster to get to the goodies on the Orange-6 host. Actually, such arrangements are rare on all but the most sensitive systems, because few operators can afford to tie up so many resources in impassable security. Figure 2 shows a much more common configuration. Here, a nasty

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chokepoint blocks public access to the target host, but a decker can sidestep it via the corporate PLTG and a cheesy office LAN with a dedicated connection to the target.

TRAP DOORS

Trap doors are "secret passages" from one host to another host or PLTG. These arrangements hide access to the host or PLTG from casual view. Typically, trap doors are concealed within one of the host's subsystems (Control, Index, Files or Slave) where they are unlikely to be found.

Trap doors cannot be found with a Locate Access Node operation. They may be found only with a successful Analyze Subsystem operation conducted on the subsystem that hides the trap door.

To move through a trap door, a character must simply make a Logon operation to access the host or PLTG to which the trap door leads.

Trap doors can be particularly nasty when combined with chokepoints, because they force the decker to pass through various subsystems (which can be loaded with security measures) to find the trap door.

A small Yakuza clan hides its main computer behind a trap door on an innocuous Green-5 business computer belonging to Tri-Marine Exports. An Analyze Subsystem operation that examines the Access subsystem finds nothing unusual. Analyzing the Slave subsystem, however, reveals a dedicated port connected directly to another host. To access the Yakuza host, the decker must make a successful Access Test to get into the computer on the "other side."

ONE-WAY SANS

One-way SANs (system access nodes) allow traffic from a host or PLTG out to the Matrix but bar traffic and access coming in from the Matrix. In other words, a host or PLTG doesn't even allow legitimate users to log on from the Matrix.

Naturally, one-way SANs are not completely secure, and deckers have developed a variety of methods for breaking into them. To represent the increased difficulty of trying to log on through a one-way SAN, the Access subsystem rating of a PLTG or host should be increased by +1D6.

Dead-End Hosts

Some network architects are fond of including dead-end hosts as a lure for intruders, usually as part of a host-to-host access configuration (see p. 204, *SR3*). A dead-end host has a single one-way SAN—deckers can get in, but once inside they will find access back to the previous host blocked. In some cases, a subsystem will contain a hidden trap door that provides access back to the Matrix. Otherwise, the intruder can only Gracefully Logoff or force his way back in to the previous host with a Logon operation against the Access rating +1D6.

Dead-end hosts are set up as ruses, usually loaded with juicy-looking but ultimately worthless files and subsystems. Often, other hosts may give misleading pointers to the dead-end host on Locate Access Node, Locate File or Locate Slave operations. Dead-end hosts are usually loaded with nasty IC, similar to chokepoints.

VANISHING SANS

Vanishing SANs are active only at specific times. At all other times, these SANs are closed and do not even appear in the host or PLTG that normally connects to them. They simply do not exist except when active. Sensitive systems that need only an occasional or periodic Matrix connection will use vanishing SANs, so that they are off the Matrix and protected from Matrix-based intrusion attempts most of the time.

If a user performs a Locate Access Node operation to find a vanishing SAN, he can locate the SAN only if it is currently open. Otherwise, the operation returns a "currently inactive" error.

To access a vanishing SAN from the Matrix, a user must wait until the SAN is active and then succeed in a Logon to Host or LTG operation before the SAN disappears again.

Typically, vanishing SANs stay open for no more than 10 to 20 seconds—just enough time to dispatch and receive email, faxes and so on. For a typical vanishing SAN, the gamemaster rolls 1D6 + 1. The result is the number of turns the SAN remains active.

If the SAN closes, a user who has accessed it from the Matrix will be cut off—the user is immediately dumped offline and may suffer dump shock. To keep the SAN from closing, the user must make a Freeze Vanishing SAN operation (see p. 99). If successful, the user has jammed the SAN open and set up spoof code that makes the host think its access node is safely offline again. The user can continue his activity within the host, but the SAN automatically refuses any other attempts to access it (until it's time for it to appear again).

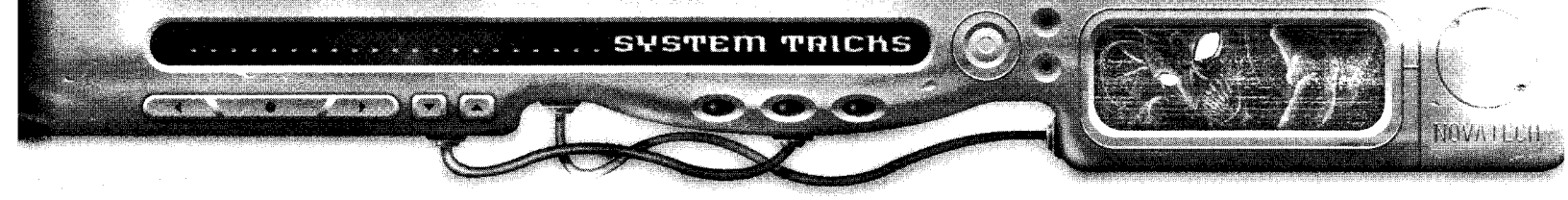
To accommodate email and other data traffic destined for a vanishing SAN while it is offline, such messages are spooled in a secure host maintained and protected by the grid provider. When the vanishing SAN comes online, one of its tasks is to access this spool and transfer the messages. For extra security, most corps that use vanishing SANs instruct offices they communicate with to send data traffic only during the periods the SAN is online.

There are several variants of vanishing SANs: timed, teleporting and triggered.

Timed SANs

Timed SANs are the simplest form of vanishing SANs. A timed SAN always uses the same LTG code and opens at set times each day. For example, the Biological Library computer at MIT&T opens a connection to the LTG every day at 0600, 1200 and 1800 Eastern Time to share email, abstracts and other traffic with the rest of the Matrix. Set times may also be based on algorithms or random intervals that vary the exact times SANs open.

A character who wishes to access the host or PLTG on the other side must wait until the SAN appears and logon before it disappears again. If the SAN appears on a timed basis according to some algorithm, a character who acquires the algorithm can determine when it appears. If the character does not know



when the SAN will appear, he can order a frame or agent to periodically attempt a Locate Access Node operation and alert him when it appears.

Teleporting SANs

Teleporting SANs appear in a different location within the Matrix each time they become active. When a teleporting SAN disappears, its account with the grid provider and LTG code are canceled and new ones are set up. A teleporting SAN may simply hop about to different LTG codes within the same grid, or it may skip over to an entirely different RTG for its next appearance. This trick is analogous to having an unlisted comm number that changes your commcode, AND your area code, AND your country code, after every call.

For example, Saeder-Krupp Prime division operates a teleporting node. It can open Matrix access at 09:00:01 GMT on a German LTG, close at 09:00:07 and re-open at 09:01:01 with an LTG address under a UCAS RTG.

Operating a teleporting SAN requires an incredible amount of wealth and resources to broker the necessary contracts with the RTG vendors. This means that teleporting SANs are usually used only by megacorporations or government agencies.

Most teleporting SANs switch their network addresses based on secret algorithms. Systems that provide access to the SAN also store this algorithm, so that they know where to reach the SAN at any given time. Individuals who need to access the SAN are often issued a passkey that allows them to do so even as the SAN jumps around the Matrix; the passkey automatically reroutes them to the new location.

Other teleporting SANs negotiate new node addresses based on an entirely random process, picking RTGs out of the thin, virtual air of the Matrix.

Triggered SANs

Triggered SANs are access nodes that open only in response to specific actions elsewhere in the Matrix. The trigger can be a series of actions and may include actions that occur outside the Matrix as a result of slave device actions or input.

For example, the SAN for an ultra-secure research host for Yamatetsu's Vladivostok genetech center may open only when a slave-controlled satellite dish receives a specifically coded satellite signal. This signal is transmitted only by a specific Yamatetsu satellite when it receives a separate, encrypted signal from a Yamatetsu North America HQ satellite uplink. That satellite uplink is triggered only by the HQ host when it gets a hit on a periodic database search with a search application that monitors the archives of the Neurobionics Research Forum email discussion list. Naturally, only a few people within Yamatetsu know to post the sort of message keywords that will kick off this chain of events.

Figuring out how to access a triggered SAN may be an adventure unto itself. If the triggered SAN is also a teleporting SAN, the task becomes even harder.

For example, to access the Yamatetsu SAN described above, a decker would have to figure out how the triggers work (which could take quite a bit of research and legwork), locate the next address for the SAN, somehow compromise the event triggers (probably by posting an e-mail message with the proper keywords to the Neurobionics Research Forum mailing list) and *then* be ready to jump the access node when it opens.

VIRTUAL MACHINES

A virtual machine (VM) is a "simulated host"—actually a subprogram run by a real host. The VM's virtual environment is essentially an encapsulated space within the real host itself. For all intents and purposes, the VM acts like the real host, so a user may not even be aware that he is operating within a VM. When a character logs on, he enters the VM, not the actual host itself.

VMs have their own Security Codes and subsystem ratings and can do everything a real host can do. System Tests made on a VM run up security tallies as usual, and IC on a VM feels every bit as nasty as IC on a native host. Crashing a VM will dump everyone within the VM, though the crash will not affect the real host.

No actions performed on a VM will affect the real host. System operations on the VM do not affect the actual host operations. For example, editing a file on a VM does not alter the actual storage in the real host's datastores.

Note that in most cases, VMs will contain a number of tempting files loaded with paydata to better hook an unsuspecting intruder. When these files are downloaded or otherwise transferred out, however, the VM intervenes in the transfer and overwrites the files with meaningless garbage. When the file is read later, it will be useless.

VM Ratings

A VM may have a Security Code equal to or less than the Security Code of its real host. A VM's maximum subsystem ratings may not exceed the real host's equivalent ratings minus 2.

Detecting VMs

A VM is extremely unlikely to give away its nature on its own. A user may determine that a host is actually a VM by specifically testing for it with an Analyze Host operation (see p. 102).

Breaking Out

To break out of a VM's controlled environment and into the real host, a user must succeed in a Control Test against the real host. Count the user's net successes. One success enables him to break out of a Blue VM; two successes are required for a Green VM; three for an Orange and four for a Red VM.

Because VMs are designed to confine icons, a user's security tally increases if he attempts a Control Test but fails to break out of the VM. Increase the security tally by the number of successes by which the user fell short.

Any security tally generated on the VM carries over into the real host.

Nesting VMs

Exceptionally tricky host designers may nest a VM inside another VM. This method usually works to trick deckers who

are smart enough to notice a VM in the first place.

The rules limiting the ratings of a VM within a host also apply to a VM within a VM.

Bump logs onto a Green-4 system but quickly realizes that he's inside a virtual machine. He busts out of the VM and finds himself in a Red-6 host, loaded with paydata. He loots it cleans and logs off, never realizing that the Red-6 host was actually another VM hiding within the real Red-8 host. All the paydata Bump scored is fool's gold—carefully sanitized of real value.

DECKER TRICKS

Here are samples of the tricks that deckers have developed in their never-ending endeavors to keep ahead of host and grid security practices.

IMPROVISED COMBAT

Theoretically, a character can attack and defend in cybercombat without using any utilities. Instead, the character manipulates the system, using various tricks and brief doses of code to strike at another icon or block an incoming attack. Though improvising in this manner is rarely effective, it may help to get a character out of a tight spot.

Realistically, only a character operating with a hot ASIST interface is going to be able to manipulate code fast enough to successfully launch or block attacks.

Improvised Attacks

To improvise an attack, the character merely whips up some attack code "on the fly" and uses it for a single shot at an opponent (similar to a utility with the one-shot option). Cranking out an improvised attack takes a Simple Action (though using the attack takes a separate Simple Action).

When improvising attack code, the character determines the program's rating by allocating dice from her Hacking Pool (each pool die equals 1 Rating Point). The program's rating may not exceed the character's Computer (Programming) skill.

To determine the program's damage, the character makes a Computer (Decking) Test against the system's Security Value. On 1 success, the improvised attack has a Damage Level of Light; on 2 successes, Moderate; on 3 successes, Serious; on 4 or on more successes the program causes Deadly Damage.

Improvised attacks are used like other attack programs in cybercombat.

Improvised Defense

A character can create an ad hoc defense against an attack in cybercombat by blocking certain code paths, redirecting code and employing other tricks. To improvise a defense, a character under attack may roll Hacking Pool dice (up to her Computer skill) against a target number equal to half the attacker's Computer skill or Security Value (round up). Reduce the attacker's successes by the number of successes achieved on the defender's test. If the attacker's net successes are 0 or less, the attack is completely blocked.

REROUTING COMCALLS

Many shadowrunners and other shadow operatives prefer to use commcodes for phone calls and email, because comcalls can be rerouted to thwart attempts to trace the calls. In 2061, deckers have perfected several methods of rerouting comcalls: using fake accounts or command sets, using the Make Comcall operation or using anonymous forwarding services.

Using Fake Accounts

Most deckers can easily acquire MSP accounts (see p. 36), so many shadowrunners simply use commcodes listed under fake names. Typically, a decker will acquire several MSP accounts, then program these commcodes to automatically forward calls and messages to the next commcode. When someone calls or sends a message, it is simply passed down the line until it gets to the destination commcode. Some deckers also program their MSP accounts to forward only select calls and messages.

A decker can attempt to trace a chain of commcodes using the Locate Access Node operation (see p. 217, *SR3*). Upon locating the first commcode, the decker can make a System Test against the grid's Index rating, reduced by his commlink utility, to determine if the commcode has instructions to forward comcalls and the destination commcode. A similar test will also detect if the commcode is currently active; if active, the commcode can be tapped (see *Tap Comcall*, p. 219, *SR3*).

The decker can continue to trace the link by repeating the appropriate tests, but he may have to hop between grids multiple times as well.

Using Command Sets

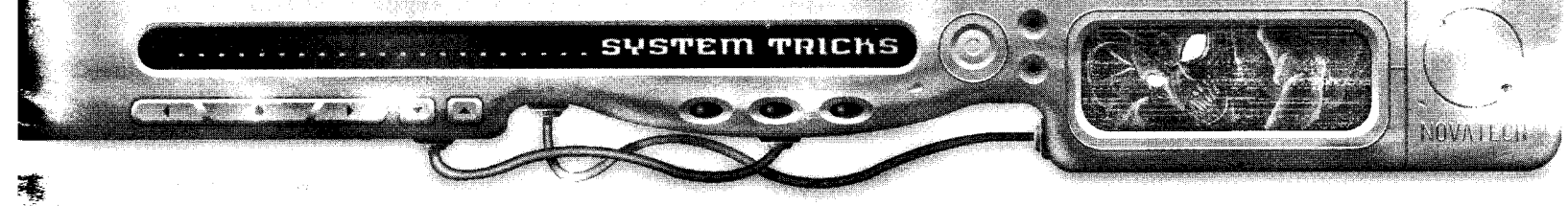
Some deckers use command sets to forward calls, though a single command set generally works for only a few calls. The decker merely places a command set (see p. 87) on a host that is programmed to perform a Make Comcall operation (see p. 218, *SR3*) when a comcall comes in. The decker must also perform a Validate Account operation (see p. 101) on that host to assign a temporary commcode to the command set.

The decker then gives out the command set's commcode to whoever will be calling it. When that person calls or sends a message, the command set will (hopefully) forward it to another commcode as directed.

Command-set forwards are more difficult to trace, because any decker who performs a Locate Access Node operation to trace the commcode will be directed to the host. The decker will then need to hack into the host and perform another Locate Access Node operation to find the command set and its commcode. A successful Index Test, reduced by commlink, will then tell the decker where the comcall was forwarded.

Using the Make Comcall Operation

If a decker wishes to personally oversee the security of a call, he can use the Make Comcall operation (see p. 218, *SR3*) to connect calls in a secure manner. To trace a comcall made this way, a decker has to make a Control Test to locate the decker who is acting as operator and then use a track utility to trace the commcodes in use (see *Tap Comcall*, p. 219, *SR3*).



Rather than overseeing calls personally, many deckers employ smart frames or agents (see p. 88) to perform the Make Comcall operations for them.

Anonymous Forwarding

For people who like their privacy but don't have a decker on call, a wide range of anonymous forwarding services exist on the Matrix. For a minor monthly fee (usually around 100¥, more for higher-security systems), an account can be purchased with such an anonymous redirecting service. The character will also need to purchase a data-encryption system (p. 291, *SR3)* so that comcalls between himself and the redirect service are encrypted. Most of these services operate their own secure hosts, protected by teleporting SANs (p. 121) and a range of dangerous IC and well-paid deckers.

To use the service, the character makes a call or sends email, encrypted with the data-encryption system, to a comm-code provided by the service. The redirect service's host receives the encrypted comcall, strips it of all identifying information and then redirects it to its destination. In most cases (especially with email and faxes), the comcall will be delayed for a random period before it is sent out again (to prevent someone who is monitoring the host's traffic from easily tagging a call that just came in and went out). If the destination comm-code is also equipped with a data-encryption system, the second leg of the comcall will be encrypted as well.

For maximum security, some people prefer to route their comcalls through a series of anonymous forwarding services.

To track a comcall placed through such a service, a decker would have to hack into the host of the anonymous forwarding service. Many deckers consider such services to be off-limits, as they are one of the few privacy providers in a surveillance-happy world. Even if a decker gets past the security measures, however, most services keep their account records protected by scramble IC and other tricks and delete records of incoming and outgoing comcalls as soon as they are redirected.

Though many anonymous forwarding services exist, most are secretive and hidden deep within the shadows. Ostensibly, most are run by deckers and anarchists, but rumors abound of secret corp-sponsored services that monitor all of the traffic they allegedly protect.

SPOOFING FRAME COMMANDS

A decker may intentionally "spoof" commands to a frame or agent by convincing the program that he is its operator or an authorized user.

To fool the frame or agent, the decker must first perform a successful Scan Icon operation against the frame or agent's operator or authorized user and gain their icon's MXP address and other data. The decker can then take a Simple Action and use his mirrors utility to spoof a command, making it look like a command from the authorized user. Issuing the command takes another Simple Action (see *Frames and Agents,* p. 88).

To determine if the frame or agent accepts the command, the decker and program engage in a Success Contest. The decker rolls his Computer (Programming) skill against the frame or agent's MPCP. The frame or agent rolls its Sensor rating or Pilot rating (whichever is higher) against the decker's mirrors utility rating. If the decker achieves more successes, the frame or agent accepts the command and acts upon it. If the two tie or the program wins, it ignores the command.

SWITCHING MODES

A cyberterminal user may bolster one aspect of his persona by limiting another. This process is called switching modes.

When a user switches modes, he boosts the rating of one persona attribute, raising it 50 percent (round down). To do so, the user must also simultaneously deflate another persona attribute, reducing its rating by 50 percent (round down) of its standard value. This process requires a Complex Action. The user is considered to be in the mode of whichever attribute he boosted; a user who raised Bod and lowered another attribute would be in "Bod mode."

A user can be in a maximum of two modes at a time, though each mode can affect only an attribute that is not already modified. Switching into (or out of) each specific mode requires a separate Complex Action.

Note that a persona program boosted in this manner may exceed the MPCP rating.

Julius is running on a cyberdeck with MPCP–7/6/4/6/4. He decides to jump into Bod mode to fight some IC, and so lowers his Sensor. This takes a Complex Action, raises his Bod to 9 and reduces Sensor to 2.

When some tougher IC jumps into the fray, Julius decides he needs to start dodging it, so he switches into Evasion mode as well. This takes another Complex Action, raises his Evasion to 6 and reduces his Masking (the only other unmodified attribute) to 3. His effective deck stats are MPCP–7/9/6/3/2.

Once Julius has escaped, switching back to default mode takes two Complex Actions but returns his persona programs to their normal ratings.

SUSPENDING ICON OPERATIONS

A decker may suspend his persona—put it on "hold"—to temporarily increase his I/O Speed. This allows a decker to punch through uploads or downloads faster, but also makes him vulnerable to attack.

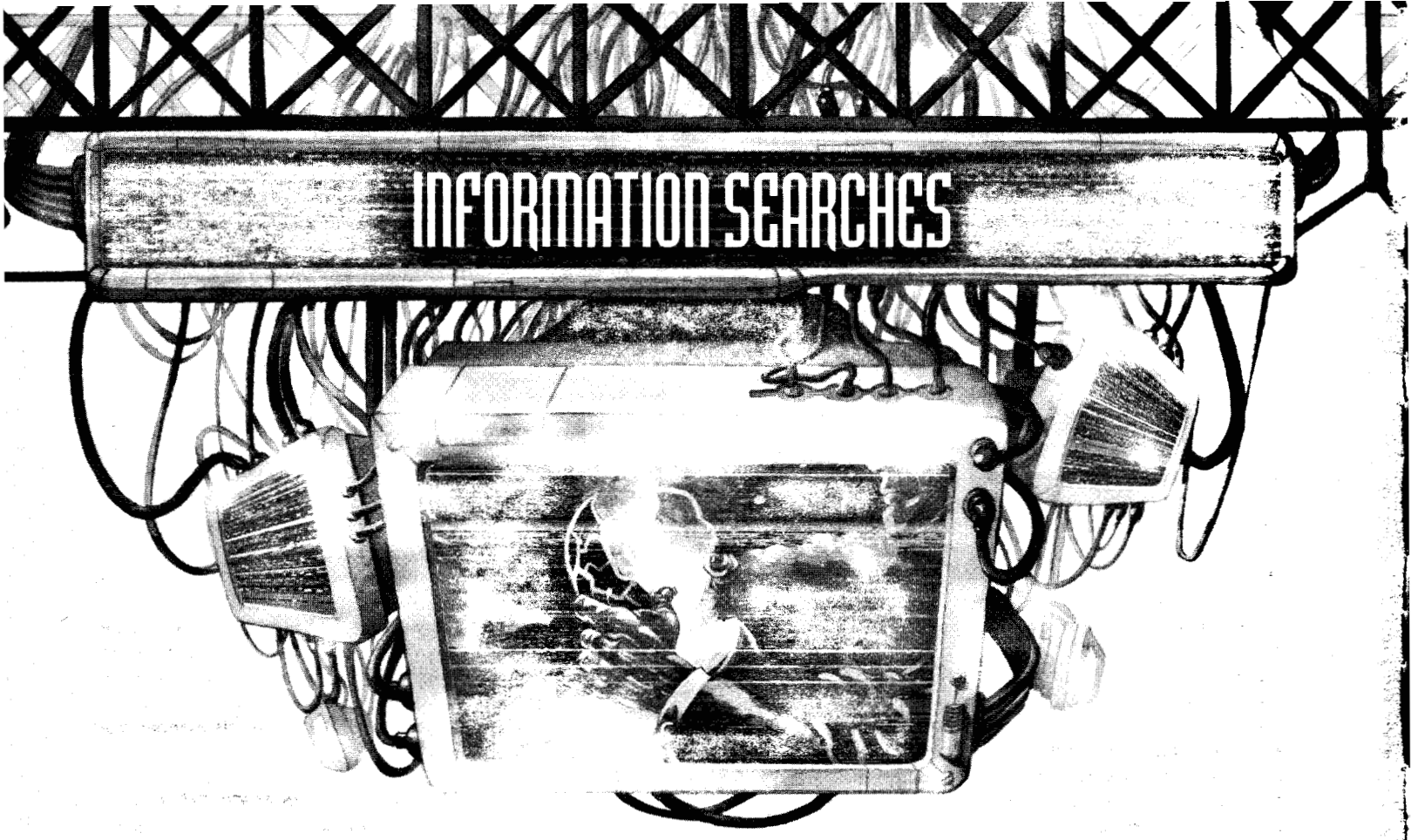
To suspend his persona's operations, the decker must expend a Simple Action. All of the decker's MPCP and persona ratings are immediately reduced to 1. The decker's Matrix Initiative dice are also reduced to +1D6, no matter how much response increase his cyberdeck has (reality filter and pure DNI bonuses are also negated). Lastly, all utility program ratings are reduced by half (round down).

While the persona is suspended, the deck's I/O Speed is increased by its MPCP rating x 25.

To reactivate the persona, the decker must expend another Free Action. The persona's ratings and the decker's Initiative dice will not fully restore until the beginning of the next Combat Turn.

Naturally, a decker is extremely vulnerable when his persona is suspended. It is a very dangerous proposition to take this action while under attack from IC.

INFORMATION SEARCHES



As the dataterms on every downtown street corner attest, the world of 2061 is an information-saturated society. The combination of cheap and readily available electronic storage mediums and advanced high-bandwidth communications networks places vast amounts of data at the fingertips of even inexperienced computer users. Finding useful information in this sea of data requires information searches.

Information searches can be performed in two ways. Characters can use the Matrix specialization of the Etiquette skill or the Computer skill.

USING ETIQUETTE (MATRIX)

Besides being a realm of information, the Matrix is a popular place for people to spend time, which makes it a fertile ground for dealing with contacts. Characters use their Etiquette skill to interact with contacts in the Matrix.

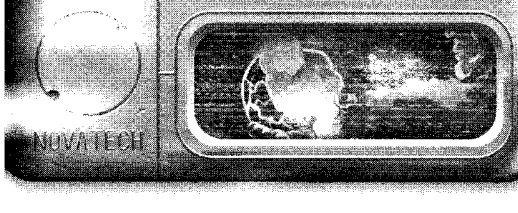
MATRIX SOCIAL SITUATIONS

The Etiquette skill encompasses a character's ability to "fit in" in social situations and avoid social blunders.

The virtual nature of the Matrix makes it quite different from other social environments, however. To begin with, the icons used by every Matrix user hide body language, facial expressions, style of communication, even the very identity of the user. For example, a snappy corporate power-player icon may belong to the Mr. Johnson who's waiting for your paydata delivery—or it may actually belong to a 14-year-old code kiddie, a rambunctious practical joker, or a dangerous decker.

The Matrix specialization of the Etiquette skill provides knowledge of such unique features of the Matrix social environment. The specialization also encompasses knowledge of basic Matrix slang, customs and "netiquette," the latest Matrix advances and the current Matrix movers and shakers, as well as the best virtual places to find Matrix contacts and post public queries.


searching...
CROSS



Matrix Social Skill Modifiers

Because of the unique, depersonalized nature of Matrix social interactions, Social skill tests in the Matrix are not affected by the same modifiers applied to social interactions in the real world. For example, the robotic appearance of a cyberware-laden character might hinder his dealings with characters in the real world but will have no effect in the Matrix, where others will not see his physical body. Nor do factors such as a character's demeanor, race and appearance affect Social skill tests. Instead, a character's reputation, cred, balance of favors with other characters and bargains struck with others have the strongest impact on Matrix social interactions.

Gamemasters should set Matrix Social skill modifiers based on these criteria.

MATRIX CONTACTS

A character can choose Matrix contacts in the same way as any other sort of contact. Naturally, some contacts are more likely to be in the found in the Matrix than elsewhere: otaku, deckers, security sysops, telecommuting wage slaves, researchers, info brokers, deckmeisters, software pirates and so on. That said, remember that almost *everyone* uses the Matrix to some degree or another, so most of the contact types a runner might have in the real world can also be found in the Matrix—fixers, Mr. Johnsons, technicians, gang members, corporate wage slaves and even talismongers and magicians. For example, a shaman who prefers to research spells on Magicknet, broker deals via Shadowland and purchase telesma through his talismonger's Matrix host may be more common than expected. Such Matrix-savvy NPCs may prefer to deal virtually rather than in the flesh but otherwise act the same as their "real-world" counterparts.

Characters use the Etiquette (Matrix) skill to interact with Matrix contacts. Otherwise, dealings with Matrix contacts follow all the normal rules for contacts given in *SR3*, including contact level rules. Gamemasters may also wish to use the friends of friends, wrong party and other contact rules provided in *SRComp.*

DECKER

Uses: Backup on shadowruns, information, Matrix connections, searches

Places to Meet: Back rooms in bars, Matrix chat room or virtual hangout, through an unlisted commcode

Similar Contacts and Connections: Otaku, shadowrunner, various Matrix contacts

The Matrix is a tool for everyone's use, but the decker has made it his business to know it better than most. With his programming skills and knowledge of how to use the Matrix for less-than-legal purposes, the decker is the perfect person to approach for help with shady Matrix dealings.

The decker can also offer you information about the dark side of the Matrix, where he and his kind live and work. You'll hear about things you never could have imagined, secrets of the virtual world that only someone both skilled and lucky could ever learn. But be careful—most of these secrets have a price tag attached.

Deckers stay close to Matrix access points, but those are pretty much everywhere, so don't be surprised if the hottest decker you know keeps his meat body away from the sprawl. The Matrix lets deckers be physically located almost anywhere and still do their job, which means that many a decker works in one sprawl and lives in another.

Game Statistics

B	Q	S	I	W	C	E	R
3	5	3	6 (7)	5	3	3.9	5 (6)

INIT: 5 (6) + 1D6, Matrix INIT (pure DNI): 11 + 3D6

Dice Pools: Combat 8, Hacking 5 (8), Task 1

Karma Pool/Professional Rating: 3/2

Active Skills: Computer 5 (Decking 7), Computer B/R 4, Electronics 4, Electronics B/R 3, Etiquette 3 (Matrix 5), Negotiation 3, Pistols 3

Knowledge Skills: Data Brokerage 5, Data Havens 4, LTG Familiarity 5, Operational Utility Design 4, plus 3 others at rating 5

Bioware/Cyberware: Cerebral booster 1, datajack, encephalon 1, headware memory (300 Mp), math SPU 2

Gear: Dataline tap 8, microtronics kit, Renraku Kraftwerk-8 cyberdeck, various programs

DECKMEISTER

Uses: Deck upgrade or new deck, Matrix jackpoints

Places to Meet: Shop, Matrix chat room

Similar Contacts and Connections: Mechanic, technician, decker

Anyone who wants to use the Matrix at anywhere near its full potential needs a cyberdeck, and the deckmeister knows where to get one. Even better, he knows how to modify it to give you that perfect persona. Most deckers tinker with their decks, but the deckmeister is a master—an acknowledged artist whose chosen medium is the microchip.

Finding a deckmeister can be hard, especially if he's good—deckers who use them tend to be tight with their locations, for fear of some of their deck's secrets being revealed. Even so, enough diligent searching will usually turn up one of these savants. They generally live in a sprawl, close to a ready source of parts and customers. Though expensive, their services can be indispensable.

Game Statistics

B	Q	S	I	W	C	E	R
4	4	3	6 (8)	5	2	4.23	5 (6)

INIT: 5 (6) + 1D6

Dice Pools: Combat 8, Task 1

Karma Pool/Professional Rating: 2/1

Active Skills: Biotech 3, Computer 5 (Hardware 7), Computer B/R 5 (Hardware 7), Electronics 5, Electronics B/R 4 (Diagnostics 6), Etiquette 2 (Matrix 4), Laser Weapons 2, Pistols 2

Knowledge Skills: Cyberdecks 6, Cyberterminal Code Design 4, Microchips 6, 7 others at rating 5

Bioware/Cyberware: Cerebral booster 2, cybereyes (high-power eye laser system w/tool laser, microscopic vision), data-

jack, encephalon 1, headware memory (50 Mp), math SPU 3, mnemonic enhancer 3
Gear: Microtronics shop, various decks and programs

INFO BROKER
Uses: Information, additional contacts
Places to Meet: Matrix chat rooms and other virtual meeting spots, as well as back rooms of bars
Similar Contacts and Connections: Fixer, reporter, decker

If the Matrix is a sea of information, then the info broker has taken to it like a virtual fish. He makes it his business to know as much as he can about everything, and always seems to know what you need before you know you need it. Anything he doesn't know offhand can be found through his web of contacts, spies and search programs. Though he doesn't know everything (try getting him to admit it), the info broker is the proverbial one-eyed man in the kingdom of the info blind.

Getting in touch with an info broker is rarely a problem—they thrive on new business. The problem occurs if you don't have a rep or someone to vouch for you. The info broker plays it safe, and won't meet with someone he thinks might be a danger to his business.

Game Statistics

B	Q	S	I	W	C	E	R
3	3	3	6 (7)	5	6	3.05	4 (5)

INIT: 4 (5) + 1D6, Matrix INIT: 4 (7) + 2D6
Dice Pools: Combat 7, Hacking 4 (6), Task 2
Karma Pool/Professional Rating: 2/2
Active Skills: Computer 4 (Search Operations 7), Etiquette 5 (Matrix 7), Interrogation 4 (Mental 6), Negotiation 6, Pistols 3
Knowledge Skills: Corporate Politics 7, Criminal Organizations 6, Data Brokerage 8, Data Havens 6, Famous Deckers 5, 10 others at rating 5
Bioware/Cyberware: Cerebral booster 1, data compactor 4, datajack, encephalon 2, headware memory (300 Mp), mnemonic enhancer 3
Gear: Ares Predator II, bug scanner 8, CMT Avatar cyberdeck, data codebreaker 8, data encryption system 8, dataline scanner 8, dataline tap 8, white noise generator 8

OTAKU
Uses: Backup on shadowruns, information searches
Places to Meet: Matrix Host or other virtual location—rarely anywhere in the physical world
Similar Contacts and Connections: Decker, various Matrix contacts

Otaku are at one with the Matrix, traversing its virtual pathways as natives rather than visitors. Otaku need no cyberterminal or programs to enter and use the Matrix—their "living persona" and strange connection to the Matrix itself is enough. The otaku are oddities in the eyes of some, freaks in the eyes of others and an impossibility to the rest. Those who deny their existence have yet to feel the brunt of an otaku's complex forms.

Finding an otaku in the Matrix is nearly impossible—unless they wish to be found. At a glance, their icons are indistinguishable from those of normal users. In the physical world, they are often uncertain and cautious, keeping to their own communities. Because the majority of otaku are children, however, they are sometimes susceptible to lures, bribes or offers that "grown-up" deckers would scoff at.

Game Statistics

B	Q	S	I	W	C	E	R
2	3	2	7 (9)	7	6	3.95	5 (6)

INIT: 5 (6) + 1D6, Matrix INIT: 8 + 4D6
Dice Pools: Combat 9, Hacking 7, Task 1
Karma Pool/Professional Rating: 3/1
Active Skills: Access Channel 6, Computer 7 (Programming 9), Control Channel 6, Electronics 3, Etiquette 5 (Matrix 7) (Street 6), Index Channel 5, Files Channel 5, Slave Channel 3
Knowledge Skills: Deep Resonance 3, Gang Identification 3, Otaku Tribes 5, 2 others at rating 4
Bioware/Cyberware: Cerebral booster 2, datajack with ASIST converter, encephalon 1, headware memory (300 Mp), math SPU 1
Gear: Lined coat, various complex forms

RESEARCHER
Uses: Information, other information contacts
Places to Meet: Matrix host or information node
Similar Contacts and Connections: Info broker

Researchers are the backbone of any scientific project, corporate or otherwise. Their job is to assemble and correlate information on the chosen topic, so that the scientists have access to it all when they begin their projects. This makes them founts of knowledge in several very specific areas, and means that their information-gathering abilities are nearly without equal.

Researchers work for non-scientific projects as well—some provide information on people to law enforcement or various governments, and some act in an almost spylike manner, gathering information on other corps or governments. There are as many types of researcher as there are subjects to research.

Game Statistics

B	Q	S	I	W	C	E	R
3	3	3	6 (8)	4	3	3.8	4 (5)

INIT: 4 (5) + 1D6
Dice Pools: Combat 7, Task 1
Karma Pool/Professional Rating: 3/1
Active Skills: Computer 5 (Search Operations 7), Electronics 4, Etiquette 5 (Matrix 7) (Corporate 6), Interrogation 3 (Mental 5), Negotiation 4 (Bribe 6)
Knowledge Skills: Databases 6, 10 others at rating 6
Bioware/Cyberware: Cerebral booster 2, data compactor 4, datajack, encephalon 2, headware memory (75 Mp), mnemonic enhancer 3
Gear: Cyberterminal, various programs

SECURITY SYSOP
Uses: System entry, Matrix contacts
Places to Meet: Matrix chat rooms, the host for which he runs security

Similar Contacts and Connections: Decker, security rigger

Many corporations and governments wish to provide security for their more sensitive hosts beyond whatever levels of IC might exist. This is where the security sysop comes in. Security deckers who add their skills to the defense of a host need some sort of coordination, and for that they look to their sysop. The security sysop issues orders to the various deckers and IC in his host, keeping them in fighting trim and coordinating them to defend at optimum levels.

This is a very stressful position, but comes with a high status as well. Even so, some security sysops welcome the chance to make some extra nuyen so long as their position is not endangered, and can provide help with entering a few tightly guarded hosts.

Game Statistics

B	Q	S	I	W	C	E	R
3	5	3	6 (7)	6	5	3.6	5 (6)

INIT: 5 (6) + 1D6, Matrix INIT (pure DNI): 7 (11) + 1D6 (3D6)
Dice Pool: Combat 9, Hacking 5 (10), Task 2
Karma Pool/Professional Rating: 3/2
Active Skills: Computer 6 (Decking 8), Computer B/R 3, Electronics 4, Etiquette 4 (Matrix 6) (Corporate 5), Instruction 2 (Decking 4), Leadership 4, Pistols 4, Small Unit Tactics 4 (Matrix Tactics 6)
Knowledge Skills: Decker Tricks 4, IC profiles 6, Matrix Topography 5, 5 others at rating 5
Bioware/Cyberware: Cerebral booster 1, datajack, encephalon 2, headware memory (150 Mp), math SPU 3
Gear: Transys Highlander cyberdeck, various programs

SOFTWARE PIRATE
Uses: New programs, program upgrades, Matrix connections
Places to Meet: Bars, Urban Brawl games, Matrix chat rooms and virtual bars
Similar Contacts and Connections: Deckmeister, decker

It takes quite a bit of skill to write programs, and a touch of genius to write the killer code that deckers crave. Some deckers can do it themselves, but most rely on other programmers—often without that programmer's knowledge. That's where the software pirate comes into the picture. He specializes in stealing code, by outright theft, coercion or whatever measures are required. The latest software usually hits these pirates before it hits the streets, so they may be able to sell you just the edge you need.

Most customers consider these guys to be a little crazy, even for deckers—and they're more than half right. It takes an unbalanced mind to worm his way into the places hot code is stored, and software pirates are usually daredevils, always living life at the redline. Of course, some are ice-cold professionals, always planning ahead, but those types usually move on to a safer line of work pretty quickly.

Game Statistics

B	Q	S	I	W	C	E	R
4	5	3	6	6	4	2.9	5

INIT: 5 + 3D6
Dice Pools: Combat 8
Karma Pool/Professional Rating: 3/3
Active Skills: Computer 5 (Programming 9), Computer B/R 2, Electronics 4, Etiquette 2 (Matrix 4), Negotiation 4, Pistols 4, Stealth 4
Knowledge Skills: Corporate Program Designers 4, Data Havens 4, Matrix Programs 8, 5 program design skills at rating 6, 3 others at rating 5
Bioware/Cyberware: Cybereyes (w/camera, display link), datajack w/data lock (rating 8), encephalon 2, headware memory (300 Mp)
Gear: Cyberterminal, data codebreaker 10, data encryption system 8, dataline tap 6, dataline scanner 5, pocket computer w/1,000 Mp memory

TELECOMMUTING WAGE SLAVE
Uses: Corporate information, other corporate connections
Places to Meet: Corp malls and bars, Matrix chat rooms, trendy hangouts
Similar Contacts and Connections: Corporate wage slave, corporate decker, corporate suit

Not every spineless corp zombie goes into the office—in fact, in the age of Matrix technology, most of them don't. Working at home (or wherever) gives them a bit more freedom with their schedule and cuts down on travel time. Virtual meeting programs and access to the corp's hosts mean the wage slave can do his job just as well away from the office. Of course, entering said hosts is easier without security guards looking over your shoulder, too, making this type of corp zombie a useful person to know.

Game Statistics

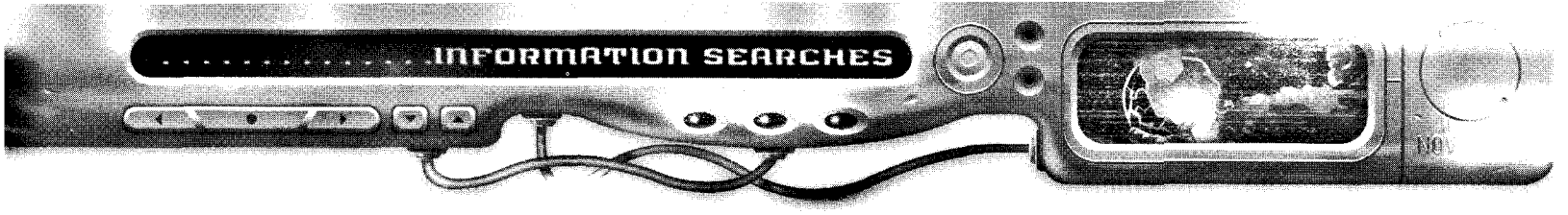
B	Q	S	I	W	C	E	R
2	2	2	4	3	3	5.55	3

INIT: 3 + 1D6
Dice Pools: Combat 4
Karma Pool/Professional Rating: 1/1
Active Skills: Computer 3, Etiquette 2 (Corporate 4), plus any skill required by their job at rating 4
Knowledge Skills: Corporate Politics 2, plus 3 others at rating 3
Bioware/Cyberware: Datajack, headware memory (75 Mp)
Gear: Cyberterminal

Shadowland and Data Havens

In addition to NPC Matrix contacts, characters can also purchase as Matrix contacts underground archives and data havens such as Shadowland(see p. 65, *SRComp).* Generally, such services count as Level 2 contacts for purposes of contact upkeep (the infamous Nexus and similar high-level sources may count as a Level 3 at the gamemaster's discretion). These contact purchase and upkeep costs represent the knowledge and codes needed to find and access the site, as well as the time and effort to keep such knowledge current.

Underground archive/data haven contacts represent large groups of Matrix personalities, so characters receive a –2 target number modifier on Etiquette (Matrix) tests made for searches through such contacts. However, this also increases



the chances that others will notice a character's search, so add an additional 2D6 to the Wrong Party Test. Doing Matrix legwork this way typically takes a base time of 2D6 hours (divided by extra successes).

Naturally, a character who works the Shadowland crowd in this manner is likely to run into some interesting icons and personalities, and the gamemaster is encouraged to play up this diversity. Many NPCs will be looking for specific deals—they'll trade what they know in exchange for a specific piece of data, a small run, or at the least a favor or marker. Shadowland and other data havens tend to operate on a barter system, so the character will need something to trade. Additionally, most Shadowland-type operations require that users periodically contribute to the archive, so a character who takes such a contact should be prepared to surrender some hard-earned paydata occasionally.

Pay and Private Databases

Pay-for-use or restricted-access databases may also be purchased as Matrix contacts. These services only count as Level 1 contacts for purposes of contact upkeep, because they tend to be more stationary and accessible than their underground counterparts. However, if a character uses such a resource extensively, the gamemaster may increase the contact's upkeep costs at his discretion.

Straight-laced databases don't foster the type of social network and barter system common to underground data havens, so a character cannot use Etiquette (Matrix) to wrangle info from a legit database. Instead, the character conducts specific area searches using his Computer skill (see the following *Using Computer Skill* section).

USING COMPUTER SKILL

In addition to using Matrix contacts to find information, characters can track down info by making Search Tests using the Computer (Search Operations) skill.

A character can use his Computer (Search Operations) skill to sift through massive archives of information, both public and private, perhaps using smart frames or agents (p. 88) for help.

When a character has entered a single host computer, an information search can be performed by conducting a Locate File operation using a browse utility. All other searches involve a two-step process: first, the character determines the search area, then the search type. The area and type of a search determines the target number, target number modifiers, base time, and cost of the Search Test.

SEARCH AREAS

Data searches are divided by two search-area categories: specific archive/database searches conducted in specific archives or databases, and general Matrix searches conducted in the entire Matrix.

Specific Database/Archive Search

Specific database/archive searches are most useful when a character is searching for a specific, limited amount of data likely to be contained in a specific database, archive or other information source, such as a single data haven or the Library of Congress.

If the targeted search area is not public or the character does not have the area as a Matrix contact, the character must gain access in some other manner, such as bribery or other roleplaying opportunities. If the character decides to hack into the archive/database, conduct the search as a decking run.

The data volume, organization, and ease-of-use of databases differs, so every database has its own search modifier, set by the gamemaster. The search modifier is applied as a target number modifier to the character's Computer (Search Operations) tests in that database. A number of Sample Databases and search modifiers are listed on p. 131 as guidelines for gamemasters.

Databases and archives tend to be distributed over several networked hosts, so specific database/archive searches may take hours or even days.

General Matrix Search

When a character makes a general Matrix search, he scours multiple databases around the Matrix, correlating and assembling portions of data as if assembling pieces of a puzzle. The character pursues leads and trails through multiple archives and databases, rather than limiting his search to a single source. Even though characters linger in databases only long enough to find the data they need, general Matrix searches may take hours or even days.

TYPES OF INFO SEARCHES

Once a character has defined the area of his search, he needs to specify the type of search: simple, basic or detailed. The type of search is based on the target data.

Simple Search

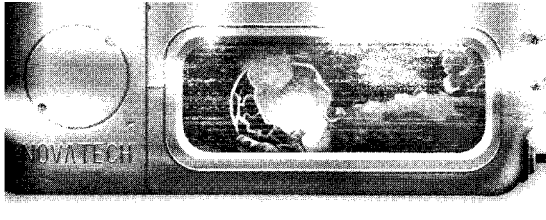
A simple search consists of grabbing information that is readily accessible from public databases. Simple searches require minimal amounts of effort.

The following types of data can be found with simple searches: public addresses and commcodes, published articles or interviews, product publicity documents and reviews, election results, census records, business licenses, death records, property ownership, airline and train schedules, who's who listings, personal Matrix pages/sites, and sex offender listings.

Standard Search

A standard search tends to require more research and investigation than a simple search and sometimes takes a character in unexpected directions. Standard searches often rely heavily on public databases (both mainstream and underground) but may also include probes of private and pay sites.

The following types of data can be found with standard searches: personal information (such as age, occupation, unlisted address, SIN, physical description, date of birth, marital status, family members, street rep and so on), birth certificates, credit reports, licenses and permits, public-space blueprints, campaign contributions, corporate profiles, stockholder reports, spell formulas, genealogical records, newsgroup and email list postings, vehicle registration, phone records.



Detailed Search

A detailed search is an in-depth fact-finding research project with a more extensive goal, such as compiling a complete dossier on an underground figure or investigating a money-laundering scheme. Detailed searches may require a thorough analysis of a specific archive's contents or tracing records through a chain of public and private data wells.

The following types of data can be found with detailed searches: comprehensive personal information (all of the standard-search personal info, plus photos, employment history, criminal record, military service records, friends and enemies, M.O., psychological profile, hobbies and so on), medical records (including implants and insurance), private building blueprints, shell company ownerships, hidden stock transfers, biometric print records, focus formulae, metaplanar maps, unaired news reports, internal corporate reports, ongoing lawsuits, insider trading gossip.

THE SEARCH TEST

The Search Test uses the Computer (Search Operations) skill. The target numbers, target number modifiers, base times, and costs for tests are listed in the Search Test Table (p. 131) and vary according to the search area, search type and other factors.

A character conducting a search (or searches) cannot do anything else while searching. However, the character may suspend the search and resume it at a later point.

Characters may perform more than one search at time. The maximum number of searches a character can perform simultaneously is equal to half the character's Intelligence (round up). However, performing simultaneous searches increases the difficulty of each search.

Characters cannot use Hacking Pool for Search Tests.

Target Number and Modifiers

The base target number for a Search Test is based on the type of search, as listed on the Search Test Table (p. 131).

Target number modifiers are based on the character's applicable skill, the computer used for the search, the search area, and any search frames or agents used. Modifiers are listed in the Search Test Table as well. If the search is conducted in specific area, apply a search modifier appropriate for the database/archive being searched (see *Sample Databases*, p. 131).

Gamemasters should also apply other modifiers based on the information sought in the search. For example, data on a SINless squatter nobody's ever heard of might be a pain, but the details of an infamous corporate CEO's business schedule aren't going to be easy pickings, either. Some NPCs may have gone so far as to intentionally plant false information about themselves and their operations or remove their data altogether.

Base Time

The type of search also determines the base time, as listed on the Search Test Table. The listed base time assumes the character is zipping through datastores on a souped-up cyberdeck; if the character is using a cyberterminal with a Response Increase of 1 or less, double the time. Tortoise users are even slower (hence the name); multiply their search base times by 3.

Successes

If the Search Test succeeds, the character can use the extra successes to find additional info and/or reduce the search time. Each extra success may be applied to only one of these purposes.

If extra successes are used to reduce the search time, divide the base time by the number of extra successes to determine the reduced search time.

If successes are used to accumulate more info, consult the Search Test Table for results.

Cost

The base costs listed in the Search Test Table represent the hourly fees for accessing private and commercial sites and using information retrieval services. Gamemasters can adjust these charges to reflect a search's use of more public databases (less expensive) and private databases (more expensive).

Base costs apply to general Matrix searches only. Specific area searches are covered by the contact cost or have their own rates.

Using Frames or Agents

Frames and agents reduce the work required in a search. To assist in search operations, a frame or agent must be equipped with a Browse utility. A frame or agent can be used to aid only one search at a time.

When a frame or agent is used as a search assistant, reduce the Search Test target number by the appropriate modifier listed on the Search Test Table.

Smart frames or agents may also be sent off to conduct searches without direct supervision. In these cases, treat the programs as characters conducting their own searches, using the frame/agent's Computer skill for the Search Test. A smart frame or agent conducting an independent search can perform only one search at a time.

Wrong Party Test

While running an information search isn't as risky as spreading cred around the street to disreputable sources, any info search presents the possibility that the wrong people will find out that that a character is digging for dirt about them or something they're interested in. In fact, some power players commonly pay Matrix "watchdogs" to monitor info requests at certain sites and message boards.

To determine if word about a search gets around, the gamemaster should use the rules for Wrong Party Tests described under *The Walls Have Ears*, p. 63, *SRComp*. The gamemaster rolls 1D6 for each specific area search and 3D6 for each general Matrix search. The Target Number is 6, but if the character makes the effort to keep his searches at a low profile (+2 target number modifier to the Search Test), the gamemaster should increase this Target Number to 10.

SEARCH TEST TABLE

Type of Search	Target Number	Base Time*	Base Cost (per hour)
Simple	4	1D6 hours	0¥
Standard	5	2D6 hours	10¥
Detailed	8	1D6 ÷ 2 days	25¥

* If the character is using a cyberterminal with Response Increase 1 or less, multiply this time by 2. If the character is using Tortoise mode, multiply it by 3.

Situation	Target Number Modifier
Character has appropriate Knowledge skill of 3–5	–1
Character has appropriate Knowledge skill of 6+	–2
Character keeps a low profile while searching	+2
Character conducting more than 1 search at a time	+1 per extra search
Computer Used	
Character using terminal mode	+2 (base time x 2)
Character using cold ASIST	+1
Character has Matrix Initiative of +4D6 or higher	–1
Search Area	
Specific	+database's search modifier
General Matrix	+0
Specific Search Area	
Character has browse utility of rating 6+	–1
General Matrix Search	
Character has appropriate database/data haven contact	–2
Character has Etiquette (Matrix) of 5+	–1
Search confined to one grid	+0
Search requires use of more than one grid	+1 per grid
Search Assistance	
Dumb frame	–1
Smart frame	–2
Agent	–3
Frame or agent equipped with browse utility of rating 6+	–1
Smart frame or agent has core rating 6+	–1

Successes	Search Results
1	General info (not quite what the character was looking for, but at least a lead for another search)
2	The basic data the character wanted
3	More details, perhaps including a new lead
4	The full details, plus another lead or two
5+	All the juicy bits the character wanted to know, plus some that he didn't

Playing Out Search Operations

In game play, gamemasters should parcel out the information a group of runners needs and require them to make several searches before they get all of it. Let each search provide players with another lead, bringing them closer to the heart of the matter. Be careful not to parcel out the data so sparsely that the players get bored, but don't surrender it all at the drop of a good roll, either. Try to keep the investigation enticing and hold the characters' interest.

To keep the characters guessing, it is also a good idea to throw in the occasional red herring and false lead. Not everything a character uncovers in the Matrix is going to be accurate and true, and the deliberate spread of misinformation can lead to some interesting results. The discovery of a completely unrelated but still juicy morsel of data may also provide the lead-in to a side story or a future adventure.

Note that some data may simply not be available through the Matrix. No matter how diligently a character strives to find it, he will fail. But rather than allowing characters to waste hours of game time in such situations, gamemasters should drop some clues pointing to the hopelessness of the task.

Likewise, do not require tests for certain simple Matrix searches—such as looking up a pizzeria in the Matrix yellow pages.

SAMPLE DATABASES

The following list of sample databases are provided as gamemaster guides for incorporating similar databases into games.

Federal Records—
Federal Election Commission
Search Modifier: –1

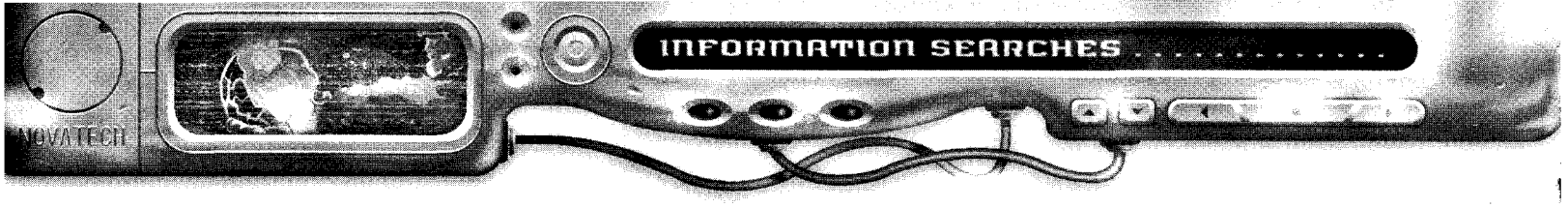
The Federal Election Commission's records contain current data on registered political candidates and officeholders of all levels. Records include election results, polling statistics, the full names and addresses of candidates and officeholders, as well as the names and donation of major contributors, campaign spending and loans.

State Records—
Department of Motor Vehicles
Search Modifier: +1

Each state's DMV records are a gold mine of data, as they include the name, SIN, date of birth, photo, vision correction and fingerprint of all legally registered drivers in the state. DMV records also include vehicle registrations and SINs, driving histories and occupational licensing data (auto dealers, junkyards and so on). Most DMV workers are underpaid, overworked grunts, so data indexing is sloppy and corruption is commonplace.

County Records—Department of Corrections
Search Modifier: +3

Ill-kept county databases contain incomplete records on the inmates currently housed in a county's jail, as well as past residents who are now on parole, released, escaped or just



"missing." In addition to the names, (criminal) SINs, implants, charges, sentences and other vital statistics of the convicts, these archives sometimes holds precious gems such as street names, gang affiliations, health conditions, or even "voluntary" experiments in which cons participated.

City Records—Building Permits
Search Modifier: +0

A city's building permits database lists the owner records of a property, the name of firms doing any work at the property, and any special licenses issued in connection with the property (permits to install armed security systems, for example). Additionally, building permit databases include blueprints for the original property as well as new work being done. Naturally, extraterritorial entities such as the megacorps don't have to bother filing such information with cities.

Consumer Records—Intel-XS
Search Modifier: –1

Intel-XS, a subsidiary of Saeder-Krupp, manages one of the world's most comprehensive databases on consumer credit ratings and purchases. Through contracts with a wide range of financial services and banks that manage electronic funds, the Intel-XS archive can provide names, SINs, billing addresses and complete credit histories for millions of consumers worldwide. Intel-XS keeps records of the consumer's recent purchases (including location, item and amount) and certified credit transactions, and for a minimal fee will construct a marketing profile based on the particular consumer's purchases.

Media Records—NewsNet Morgue
Search Modifier: +2

The NewsNet morgue is a fantastic source for old trideo footage compiled from hundreds of thousands of news reports, many of which were never aired. Each clip is organized by subject matter, source, date created and date aired.

Security Records—Lone Star Criminal Archives
Search Modifier: +1

Lone Star's criminal archives files are truly awe-inspiring, though the files themselves are not standardized and compiled somewhat haphazardly. In addition to arrest records, these files contain rumors from Lone Star's extensive informant networks, surveillance photos, psychological profiles, vehicle registration records, phone tap recordings, medical histories and so on. The records are concerned solely with known criminals, organized crime figures, shadowrunners and the like; all of the corp's files on other corps and their own use of shadowrunners are kept elsewhere.

Lone Star restricts access to this database to a limited pool of clientele and charges exorbitant fees for search requests. Most shadowrunners will have to bribe someone to gain access to these archives, so double the usual contact upkeep costs for this database.

Matrix Records—Memory Well
Search Modifier: +2

The Memory Well archives contain public postings from an extensive range of newsgroups, mailing lists, newsfeeds, e-zines, message boards and chat-rooms. This service provides a good look at the underbelly of Matrix culture, as well as a good way to track postings and discussions made by frequent net users.

Business Records—Dun & Bradstreet's Index
Search Modifier: +0

Dun and Bradstreet's Index tracks the subsidiaries and associate companies of parent companies, providing a good starting point for tracking shell corporations. Some of the individual entries also include the corp's contact info, number of employees, founding date, sales volume, main products or services, primary accounts and the names of top executives, but such details are missing or incomplete in many entries.

Scientific Records—Nanonet Journal Archives
Search Modifier: –1

The Nanonet Journal archives site stores all back issues of the electronic magazine Nanonet Journal. These issues contain theses on groundbreaking research, new uses and applications, and peer reviews of nanotechnology. The archive also contains a wide range of associated reference material. A careful search can dredge up good information on who's who in the field of nanotechnology, from corps to scientists.

Magical Records—Business Thaumaturgy Datanet Archives
Search Modifier: +1

The Business Thaumaturgy Datanet archives contain data on various applications of magic in business, from magical research to security. The datanet is a good source for articles on the subject, job offers and recruiting announcements, as well as offers to buy, sell or trade formulae of various kinds.

THE OTAKU

The Matrix teems with message archives and chat logs filled with tales of ghosts in the machine, unstoppable core-war viruses and other mysteries and dangers of the cyberworld. Many of these stories are no more than rumors and fictions created to frighten newbies and burnish the reputations of the Matrix elite. But among the megapulses of legends, one stands out: the stories of the *otaku*, the so-called children of the Matrix.

At first, rumors of the otaku were considered hardly credible. Few were ready to believe in these children, said to journey through the Matrix without cyberdecks, commanding it with their wills alone. As more and more accounts of these mysterious figures filtered in, the debate over the otaku began to grow in the shadow community. Before long, the otaku found their own voices and began speaking for themselves. This evoked amazement and curiosity, but it quickly became clear that these otaku postings raised even more questions than they answered. The otaku's views about their abilities and origins are layered in mysticism and youthful idealism, and the world views of individual otaku frequently conflict or even contradict each other.

In recent years, the stories about otaku have taken an ominous turn. Once portrayed as harmless curiosities guided by an unknown but non-threatening entity or process, the otaku are developing a darker image, fueled by rumors of their religious infighting and cult-like devotion to alleged artificial intelligences. Increasingly, the otaku are no longer viewed as innocent and bright-eyed children—but as battle-scarred, fanatical and dangerous individuals.

THE REALITY

Otaku are individuals who speak the language of the Matrix, and the Matrix listens. They can access the Matrix without cyberterminals, using *living personas*. Similarly, they can manipulate the Matrix without programs, using instead *channels, complex forms* and *sprites*.

These abilities stem from the otaku's natural affinity for the cyberworld. Unlike other living creatures, the otaku take to the Matrix as if it were their natural environment. This affinity also extends toward other native Matrix entities—in particular, the few artificial intelligences that have thrived within the Matrix. The relations between

otaku and AI have ranged from friendly and mutually interested to obsessive and unhealthy. In particular, it is suspected that the rogue AI Deus has misrepresented itself as the Deep Resonance to certain otaku, garnering their religious devotion. It is also believed that Deus and other AIs may have discovered how to create their own otaku, though these creations have proved to have more limited abilities than other otaku.

Otaku come from every branch of metahumanity. With rare exceptions, only children can become otaku—in fact, otaku lose their abilities as they grow up. Most otaku are created through contact with the mysterious Matrix entity called the *Deep Resonance*. For many otaku, their conversion process is a highly spiritual experience, and the relationships they build with the Deep Resonance ultimately guide their lives. But the exact nature of the Deep Resonance is shrouded in mystery, and not even the otaku can agree on it.

USING OTAKU

Like the magicians born of the Awakening, the otaku are the offspring of massive and unexpected changes in the Sixth World—specifically, the phenomenal growth of the cyberworld. The Matrix may seem like home to many deckers, but it *is* home to the otaku. They interact with the cyberworld in ways unimaginable to typical deckers and are privy to powers that normal deckers can't even fathom.

Gamemasters may wish to use otaku as shadowy nonplayer forces, as foils and sometime allies to the player characters. This approach enables the gamemaster to preserve the mystery surrounding the otaku and control their actions.

Alternately, the gamemaster may allow players to create otaku characters that become directly involved in the events affecting otaku in 2061. The actions of artificial intelligences and the wars that have flared up between different otaku tribes are just two examples of opportunities for otaku player-character involvement.

BECOMING OTAKU

With a few notable exceptions, otaku emerge from the ranks of dispossessed orphans and runaways. Typically, these individuals spend their early childhoods scrabbling for basic survival in the worst gang- and ghoul-infested barrens and sprawl slums. At some point, they find their way to the doorsteps of otaku communities, urban tribes of similar otaku who band together for mutual protection and instruction.

TRIBAL INITIATION

Each major sprawl contains at least one otaku tribe, sometimes more. While most of these tribes have their own distinctive subcultures, nearly all of them share certain characteristics. Most tribes consist of uniformly young individuals, in their teens or younger, usually led by the oldest, most experienced members. They display almost fetishistic views of cyber technology and encourage an exploratory hacker mindset among their members. As tribal units, the otaku work together to make ends meet. Frequently they offer their services as deckmeisters, programmers, tech wizzes and info brokers to other street formations, earning what they need to subsist and often accumulating favors, protection and other rewards. These experiences, along with the lessons provided by the communal living arrangements of the tribe, leave young tribe members with basic street survival skills to complement their affinity for the digital realm. (See *Otaku Tribes*, p. 142, for more information on tribes.)

A highly intuitive process seems to guide the selection of new tribe members. Typically, established tribe members bring in recruits from the streets, prompted to do so by inner voices. Once a child is accepted into an otaku tribe, he undergoes a probationary period. During this time, he begins to learn the ways of the Matrix. Candidates begin hands-on Matrix runs almost at once, starting on tortoises and moving up to cyberterminals and eventually cyberdecks. After an unspecified period of time, a recruit either leaves the otaku community or accepts a datajack implant and begins running on hot decks. By this time, most otaku are the equals of veteran deckers.

Many candidates stop at this point, leave the tribe and go on to become novahot deckers, programmers and deckmeisters. Others—those who show the deepest, most profoundly imprinted understanding of the Matrix—experience the Deep Resonance, an event that changes them forever

THE DEEP RESONANCE

Even the otaku don't know why they experience the Deep Resonance. Some claim that they see deeper into the Matrix's truths than the old-tech dinosaurs. Others believe that true Spirits of the Matrix exist in the cyberworld. Still others claim the Deep Resonance is an evolutionary advance, and that otaku are the next step in metahumanity's long march from the first hominids.

Regardless of these differing explanations, the experience of the Deep Resonance follows certain patterns. Those otaku who consider themselves *technoshamans* report being suddenly transported to a place unlike any in their Matrix or physical experience. Here they encounter a being, or beings, who give them the seed knowledge that grows into their ability in the Matrix. The otaku who consider themselves *cyberadepts*, on the other hand, claim that they know they are still in the Matrix, but perceive connections and networks of dataflow that transcend the interfaces of their decks. The Deep Resonance transforms both types of these individuals, just as an awakening of magical power transforms a latent magician. In fact, some otaku who have spoken of this event use terms reminiscent of the totemic experience of the shaman.

Both technoshamans and cyberadepts emerge from the experience with permanent neurological changes that provide them with the ability to run in the Matrix without cyberterminals. Instead, they can interact with the Matrix using only implanted datajacks, digital/neurological ASIST converters and their bare brains. The neural interface of the otaku's implanted datajack interacts with the redundant holographic capacity of the brain as if it were a bioprocess computer.

On occasion, otaku will enter the state of "communion" with the Deep Resonance once again. When they return, they often have gained new abilities or received "missions" to carry out.

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THE PATHS

Cyberadepts and technoshamans exhibit identical abilities but hold different views of the Deep Resonance and their own places in the world.

Cyberadepts

Cyberadepts are rationalists, technophiles—perhaps psychologically more attuned to the specific workings of programs and the organization of data than other otaku. They view their state as a natural and inevitable blending of humanity and technology and tend to express their concepts in precise terms, almost formulae.

Technoshamans

Technoshamans see the Matrix as a living being with which they have learned to spiritually blend themselves. They are more mystical, more holistic in their descriptions of computer operations than other otaku. Many technoshamans maintain that the Deep Resonance proceeds from spirits resident in the Matrix. In effect, they consider the Matrix itself their totem guide.

SUBMERSION

As otaku grow more experienced, many of them undergo a process called *submersion.* This process strengthens an otaku's connection to the Matrix, further attuning him to its ebb and flow. Consequently, the otaku's living persona becomes stronger and he gains new abilities, called *echoes* (see *Submersion,* p. 143).

AI-CREATED OTAKU

Not all otaku are created by the same forces. Certain AIs have been able to convert metahumans into otaku. How these AIs have managed this trick is unexplained—some believe these AIs actually tap into the Deep Resonance or manifest it, while others postulate that these AIs manage to duplicate the process independently.

An otaku created by an AI has the same abilities as one created by the Deep Resonance. However, their abilities usually contain at least one serious flaw. In most cases, the otaku's abilities are lost when he works outside of the AI's influence. For example, otaku created by the AI Deus within the Renraku Arcology's Matrix systems have proved unable to use their channels and complex forms outside the arcology.

AI-created otaku bear other burdens as well. Typically, an AI expects a degree of servitude from its creations, if not outright religious devotion. More ominously, an AI may effect unknown changes in an individual's mind during the otaku transformation process.

Gamemasters should restrict the use of AI-created otaku to NPC opponents and allies. Player-controlled AI-created otaku are not recommended.

CREATING AN OTAKU CHARACTER

Otaku characters may be built using the standard Priority System (p. 54, *SR3)* or the Point System (p. 13, *SRComp).* Otaku may be of any race.

USING THE PRIORITY SYSTEM

When using the Priority System, the selection of otaku represents its own category and automatically is assigned Priority A, to represent the special otaku abilities the character receives. Otaku characters do not assign any priority to Magic; no otaku has ever displayed any magical ability whatsoever. The remaining categories (Race, Attributes, Skills and Resources) may be assigned any priority the player chooses.

USING THE POINT SYSTEM

When using the Point System, the player must spend 30 Building Points for the privilege of being otaku. He may not spend any Building Points on Magic, and Building Points spent on Resources must be used to build up his otaku character's tribe (see *Allocating Resources,* p. 137).

The player may spend other Building Points as he wishes, though he receives some bonus Skill Points that may only be spent on channels (see *Channels,* p. 137).

ALLOCATING ATTRIBUTES

The Racial Modified Limits (see p. 245, *SR3)* for otaku are different than for standard characters, reflecting patterns in otaku recruitment. The limits for Mental attributes are raised by 1, while the limits for Physical attributes are lowered by 1. This also affects their Attribute Maximums.

Typically, otaku have subnormal physical development coupled with extremely high IQs and determination. To represent this, a player may choose to allocate only 1 point to each of his Physical attributes (a troll will need to allocate 2 points to Quickness to account for racial modifiers) and reduce his Racial Modified Limits for Physical attributes by 2. In this case, the player receives 2 extra Attribute Points for his character's Mental attributes only and would raise his Racial Modified Limits for Mental attributes by 2. Calculate the Attribute Maximums of the otaku character per standard rules (Racial Modified Limit x 1.5).

ALLOCATING SKILLS

Remember that the typical otaku begins his career as a weird mix of nearly autistic street kid and sophisticated techhead—with extremely limited life experiences. These restrictions are designed to simulate that profile. Note that these restrictions apply only during character creation. During games, players may add to their characters' skills to make their otaku more well-rounded.

Otaku player characters are required to take a Computer skill rated at no less than 6 but no more than 8. They may specialize as they see fit.

An otaku character may purchase the Etiquette skill but the skill rating may not exceed 4. Specializations during character creation are restricted to Matrix and Street.

Otaku may plausibly possess Technical, Street Knowledge and Knowledge skills. The gamemaster may prohibit a starting otaku character from purchasing other skills that an otaku is unlikely to possess (such as Vectored-Thrust Aircraft, Underwater Combat or Gunnery).

Channels

Channels are five special skills that otaku acquire during their Deep Resonance experiences. These skills act as operational utilities when otaku perform System Tests. The channels are named for the five subsystems of Matrix computers: *Access, Control, Index, Files* and *Slave.* (For more details, see *Using Channels,* p. 139.)

When creating an otaku character, a player receives a number of points equal to the average of the character's Mental Attributes ([Intelligence + Willpower + Charisma] ÷ 3, round up). He can distribute these points among his channels as he wishes. Regular Active Skill Points can also be used to increase the channel ratings.

Only one of the character's channels may have a beginning rating of 6. One other Channel skill may have a Rating 5, and a third Channel skill may have a Rating 4. The beginning ratings of the two remaining Channel skills may not exceed 3. Once the otaku character is in the game, the channels can be improved with Karma Points in the same way as any other active skills.

Channels are skills and can possess specializations that mimic the effects of any single operational utility. For example, a character may acquire an Analyze specialization in his Control Channel skill.

Channel skills are linked to Willpower, but an otaku character cannot default from Channel skills to anything else.

ALLOCATING RESOURCES AND LIFESTYLE

No matter what the otaku assigns to Resources, the otaku character starts out with only 5,000 nuyen and a tribe with a Squatter lifestyle.

If using the Priority System, increase the tribe's lifestyle by one level for each priority level above E the player assigns to Resources. If using the Point System, increase the tribe's lifestyle by one level for every 5 Building Points the player spends on Resources. For example, a player character who assigned Priority C to Resources would elevate his tribe's lifestyle from Squatter to Middle.

An otaku character may maintain an individual lifestyle or simply use his tribe's resources level. (See *Tribal Resources,* p. 142, for more information.)

To use the Matrix, an otaku must have both a datajack (p. 298, *SR3)* and an ASIST converter (p. 19, *M&M).* These items are provided to the character by his tribe, so they have no cost during character creation. However, a player character who wants alphaware must pay the additional cost of such equipment.

ALLOCATING COMPLEX FORMS

An otaku's complex forms perform the same functions as offensive, defensive and special utilities. For simplicity's sake, complex forms are described in the same terms as their equivalent utilities. (See *Complex Forms,* p. 139, for more information.)

During character creation, each otaku receives Computer (Programming) skill x 50 Mp worth of complex forms for free. An otaku receives an additional 50 Mp for each level by which his tribe's resources exceed Squatter level.

DESIGNATING THE LIVING PERSONA

The Deep Resonance creates the otaku's living persona based on the character's Mental characteristics. For more details on otaku personas, see *Using the Living Persona,* p. 138.

Unlike cyberterminal personas, the total of an otaku's persona ratings is not limited by the MPCP rating. The Living Persona Table provides formulas for calculating the statistics of an otaku living persona.

LIVING PERSONA TABLE

Attribute	Rating
MPCP	(Intelligence + Willpower + Charisma) ÷ 3 (round up)
Bod	Willpower
Evasion	Intelligence
Masking	(Willpower + Charisma) ÷ 2 (round up)
Sensor	Intelligence
Matrix Reaction	Intelligence
Matrix Initiative	Reaction + 4D6 Initiative
Hardening	Willpower ÷ 2 (round up)
I/O Speed	Intelligence x 100 Mp

DICE POOLS

Like deckers, otaku receive a Hacking Pool equal to their (MPCP + Intelligence) ÷ 3 (round down). Otaku also receive Combat Pool like other characters.

CHOOSING A PATH

Each otaku character must choose a path he will follow: cyberadept or technoshaman (see p. 136).

Cyberadepts apply a +1 modifier to the effective rating of any complex form they use. This bonus reflects the cyberadepts' particular insight into the details of Matrix operations. They must create the form before getting this bonus, but it does not affect the size of the form.

Technoshamans reduce target numbers by 1 when using their channels. This bonus reflects their approach to the Matrix as a gestalt with which they blend.

OTAKU RULES

The following rules apply to all otaku characters in game play, whether they are NPCs or player characters.

DETECTION FACTOR

An otaku's Detection Factor is calculated the same way as for other Matrix users: (Masking + Sleaze) ÷ 2, round down.

Every otaku also receives a +1 bonus to his Detection Factor, simply for being otaku. This represents the otaku's sub-

tlety and finer influence over the virtual world, and the fact that he can manipulate the Matrix more unobtrusively than programs do.

SYSTEM ATTUNEMENT

Otaku are inherently familiar with the inner workings of computer systems. Whenever an otaku character makes a System Familiarity Test (see *System Familiarity Knowledge Skills*, p. 24), he receives a –1 target number modifier.

USING THE LIVING PERSONA

An otaku's direct neural connection to the Matrix produces a connection far superior to the hottest ASIST interface. It provides the otaku with a living persona that enables the otaku to perceive the Matrix like no decker ever can. However, the living persona also makes the otaku more vulnerable to biofeedback routines and simsense overload.

Otaku Icons

The natural appearance of an otaku's living persona is an idealized version of his physical appearance. If desired, an otaku can change his icon's look by creating a complex form with the new image. This complex form is roughly equal to the program for an icon chip (see p. 57), with a size multiplier of 2.

Effects of Implants and Spells

Cerebral boosters and other implants (cyberware or bioware) that improve an otaku's Mental attributes also improve the attributes of the otaku's living persona. Similarly, spells that affect an otaku's Mental attributes may also affect his living persona and Hacking Pool. However, tailored pheromones and other implants that improve the otaku's cosmetic Charisma do not affect the otaku's self-image or self-confidence and have no effect on the living persona's Charisma.

Hot Persona

Though an otaku does not have an ASIST interface like a cyberterminal user, for rules purposes treat an otaku's living persona as the equivalent of a hot ASIST interface (see p. 18). Note that otaku do not receive any Matrix Reaction or Initiative bonuses for a hot interface or running pure DNI—these are already factored into an otaku's Matrix Reaction and Initiative bonuses.

Note that no reality-filter equivalent is available to otaku.

Reaction

An otaku's Reaction in the Matrix is equal to his Intelligence ratings. He receives 4D6 dice (total) for Matrix Initiative.

Otaku do not directly receive any Matrix Reaction or Initiative bonuses from cyberware or bioware.

Persona Modes

Because the persona attributes of an otaku are based on the character's Mental attributes, they may not be adjusted in the way a cyberterminal user can switch modes (see p. 18).

Active and Storage Memory

Otaku have no need for active memory, because they do not use utility programs do as other Matrix users. The complex forms and channels used by otaku do not require any sort of active or storage memory and are always considered active and available for use.

However, otaku do require some form of storage hardware (headware memory, off-line storage) to upload, download or otherwise manipulate files.

LIVING PERSONA AND CYBERCOMBAT DAMAGE

The otaku's deep connection to the Matrix provides enormous benefits but also magnifies the dangers presented by intrusion countermeasures and attack programs.

Condition Monitors

Gray IC attacks cyberterminals, but otaku have no cyberterminal to shield them from the onslaught of these programs. Instead, the gray IC goes straight for the otaku's living persona. An otaku's living persona is directly tied to his psyche and will, so damage to his icon's Condition Monitor also does damage to the otaku's Stun Condition Monitor.

Black IC programs cause Physical damage to the otaku, just as they do against deckers.

Persona Damage

If the living persona suffers permanent damage to a persona attribute from gray ripper IC, the rating remains reduced until the otaku heals the damage. To heal the persona attribute, use the same rules as described for *Bioware Stress Repair* (p. 130, *M&M*); treat each point of reduction as 1 Stress Point. For example, an otaku whose persona Sensor rating was reduced by 3 points would heal that attribute as if he were healing Moderate Stress damage (3 Stress Points).

If an otaku's persona attribute is completely crashed (reduced to 0) by ripper IC, the otaku suffers a tremendous blow to his psyche. Though the persona attribute will heal over time as previously described, the otaku suffers a temporary penalty to whatever Mental attribute(s) the persona is based on. Reduce the otaku's associated Mental attribute by 1 until the persona attribute has recovered to half its original rating. For example, if ripper IC reduces a persona's Evasion 6, the otaku's Intelligence rating is reduced by 1 until his persona Evasion is restored to 3. Likewise, if an otaku persona's Masking 7 is crashed, the otaku Willpower and Charisma are both reduced by 1 until the Masking is restored to 4.

Worms

Worm programs do not have the ability to infiltrate living personas as they do cyberterminals and so have no effect on otaku.

IMPROVING THE LIVING PERSONA

An otaku player can increase his living persona's ratings by increasing his character's Mental attributes. If the otaku raises any of his Mental attributes by spending Karma Points, the corresponding living persona statistics also improve.

Otaku players may also improve their living personas through the process of submersion (see p. 143).

OTAKU AND THE SOTA

The Deep Resonance experience enables otaku to continuously adapt to changes in the Matrix (some otaku claim that the Deep Resonance itself causes all change in the Matrix). Therefore, otaku are always in synch with the SOTA and do not have to take any action when it advances.

OTAKU AND JACKPOINTS

Otaku can use any wired jackpoint, with the exception of maser power grids (plugging your brain into an electrical outlet just isn't a good idea). Like other users, otaku can access the Matrix through wireless links. To do so, they must have an appropriate external interface such as a satlink interface (see p. 60).

USING CHANNELS

In instances when a normal user or decker would use an operational utility to perform a system operation, an otaku uses one of his channels and simply commands the Matrix to do as he wishes. Some otaku view the use of channels as manipulating the essence of the Matrix itself, others view it as coercing a living entity into acquiescing to their wishes or perhaps commanding the spirits of the machine to follow their orders.

Whenever an otaku is required to make a System Test to perform a system operation, he uses the appropriate channel to lower the target number by the channel rating (in the exact same way a decker would use an operational utility). For example, because the Locate Paydata operation requires an Index Test, the target number is the host's Index rating minus the rating of the otaku's Index channel.

Channels do not require or take up memory of any kind.

CHANNEL IMMUNITY

Because an otaku's channels are not programs, they are not vulnerable to tar IC programs or programs that target utilities, such as hog. For example, an otaku can use his Control channel all he likes in the presence of tar baby, and the IC will not react to it.

COMPLEX FORMS

Though the channels give otaku considerable flexibility in the Matrix, they don't cover everything. To accomplish what channels can't, otaku use complex forms—mental framesets that mimic conventional programs. An equivalent complex form exists for each special utility, offensive utility and defensive utility. Complex forms cannot mimic operational utilities—that's what channels do.

For the most part, complex forms are used by otaku to facilitate the interaction between their own living personas and the personas of other Matrix bodies, as opposed to hosts and grids.

In game terms, complex forms operate under the same rules as their equivalent utilities. For example, a shield complex form has a rating and functions just like a shield utility. Though it does not have an actual memory-space size like a program, complex-form sizes are used to determine "programming" time and so forth.

Complex forms may not be copied, uploaded, downloaded or otherwise transferred to another persona or computer—they are non-transferable patterns within otaku's minds.

OPTIONS

Like programs, complex forms may be created with options that affect their use. Because complex forms mimic certain types of utilities, many of the options available to utilities are also available to complex forms (see *Utility Options*, p. 83).

The following utility options are not available to complex forms: adaptive, bug-ridden, one-shot, optimization, selective, sensitive and squeeze. Also, a complex form may not include any utility options that aren't normally available to the utility it mimics.

CREATING COMPLEX FORMS

Otaku can create their own complex forms by training and focusing their wills, which reshapes their neural patterns to create the effects desired. In game terms, the creation of a complex form is treated like the programming of a utility. To create a complex form, an otaku character must follow a simple process, as follows.

Determine Rating and Size

First, the otaku player decides the specific type of complex form they wish to create and its rating. The rating of the complex form cannot exceed the otaku's Computer (Programming) skill rating or the otaku persona's MPCP rating.

Next, determine the "size" of the complex form—remember that this value is a measure of the form's complexity, rather than the actual amount of memory the form takes. The size is determined in the same manner as determining program size, using the following formula: (complex form rating + option rating modifier)^2 x multiplier.

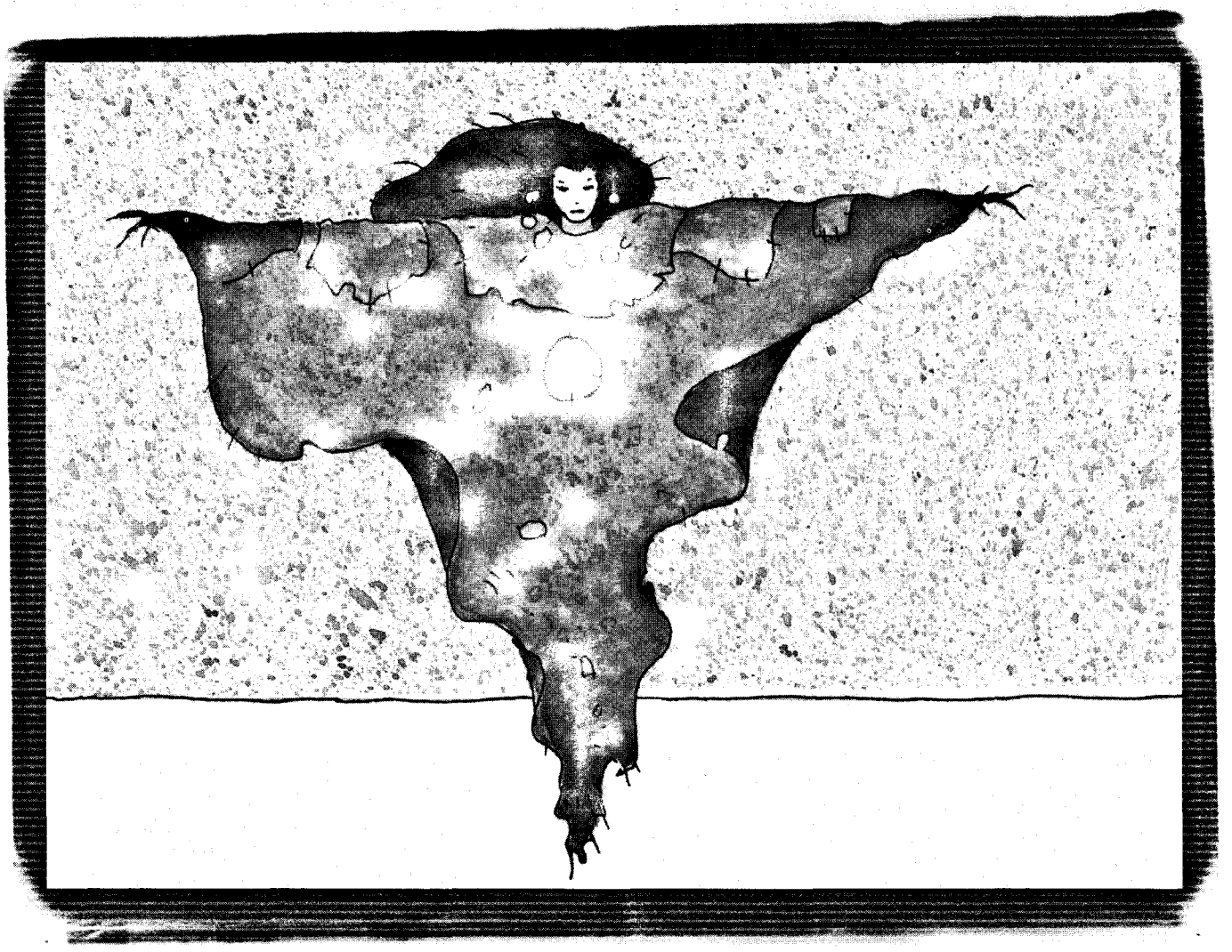
As with programs, the size of a complex form determines how many days it takes to "program." This represents the base amount of time the otaku takes to train his mind to wield the complex form.

Learning a Complex Form

Learning a complex form is much different from programming a utility. Though the otaku still goes through a process of design, testing and development, the process is entirely internalized within the otaku's mind and thought patterns.

To learn a complex form, the otaku simply makes an Intelligence Test. The target number is equal to the complex form rating, +1 for each option, and reduced by half the otaku's Willpower (round down).

If the test succeeds, the otaku learns to use the new complex form. Divide the base time by the number of test successes to determine how long the training process takes. An otaku can also spend Good Karma Points to purchase extra successes (at a cost of 1 point per success) to further reduce the time.



If the test fails, the otaku fails to learn the complex form. The gamemaster rolls 2D6 and divides the base time by the result (round up). This number equals the number of days the otaku trains before he realizes he is going about the process in the wrong way and must start over. If the character rolls all 1s, he not only fails to learn the form but also develops a mental block that will prevent him from ever learning it. An otaku who fails the Intelligence Test may not spend Good Karma Points to buy successes.

An otaku can also teach a complex form that he knows to another otaku. The teacher must posses the Instruction skill at a rating equal to or higher than the complex form being taught. For every 2 successes achieved on the teacher's Instruction (4) Test, the otaku learning the form receives 1 additional die for his Intelligence Test made to learn the form. An otaku who is taught a complex form learns it exactly as the teacher knows it—with the same options and rating.

Completion

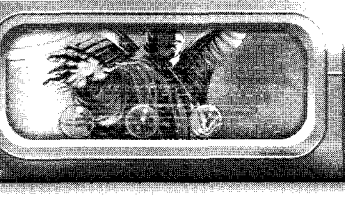
Once the complex form has been learned, the otaku must pay 1 Good Karma Point to create the complex form, regardless of the form's rating.

Upgrading Complex Forms

An otaku cannot technically "upgrade" complex forms, but he can make a new version of a complex form based on an old version. To do so, he calculates the necessary new training time using the same calculations for upgrading standard programs (see p. 81). Because he is essentially creating a new complex form, however, he must spend 1 Good Karma Point on the "upgrade" form.

USING COMPLEX FORMS

The following rules apply to complex forms during game play.



Restoring Complex Forms

If a complex form rating is reduced or crashed by a utility such as hog or an IC program such as tar pit, the complex form remains out of action until the otaku can jack out. Complex forms regenerate from such damage at a rate of 1 point per hour but do not recover at all if the otaku's Condition Monitor contains Stun or Physical damage. The otaku must heal Condition Monitor damage before his complex forms regenerate.

Some complex forms lose rating points every time they are used, such as shield or armor. An otaku may restore a complex form reduced in this manner by taking a Complex Action and making a successful Willpower Test against the full rating of the complex form. If the Willpower Test succeeds, the form is restored to its full value. If the test fails, it remains at its reduced rating. Complex forms reduced in this manner but not restored will regenerate in the same manner as complex forms crashed by tar pit programs above.

Improvising Attack Complex Forms

Otaku can improvise a simple, one-shot attack complex form on the fly, much as a decker would improvise an attack utility (see *Improvised Attacks,* p. 122). Given the otaku's instinctive control over the Matrix, however, otaku can improvise such attacks much more easily than deckers.

For each Hacking Pool die that an otaku allocates to the improvised attack complex form, the complex form receives 2 rating points. An otaku who allocates 3 dice from his Hacking Pool would create an improvised attack at Rating 6. The complex form's rating may not exceed the character's Computer (Programming) skill.

To determine the complex form's Damage Level, the otaku makes a Computer (Decking) Test against the system's Security Value –1. On 1 success, the improvised attack causes Light damage; on 2 successes, Moderate damage; on 3 successes, Serious damage; on 4 or more successes, Deadly damage.

Improvising Defense Complex Forms

Otaku can also create simple defensive complex forms in cybercombat to protect themselves against attacks, much as a decker would improvise a defense (see p. 122). The otaku rolls Hacking Pool dice (up to their Computer skill) against a target number equal to half the attacker's Computer skill or Security Value (round up). Reduce the attacker's successes by the number of successes the defender achieves. If the attacker's net successes are 0 or less, the attack is completely blocked.

SPRITES

Sprites are the otaku versions of program frames (see *Frames and Agents,* p. 88). Otaku treat these creations with much more familiarity and importance than normal users treat their frames and agents. Most otaku view their sprites as personal creations that contain part of the otaku himself; often sprites serve as "childhood companions," much like a favored stuffed bear or invisible friend.

Sprites are the equivalent of smart frames; dumb frames have no otaku equivalent. Like otaku, sprites use channels and complex forms rather than utilities.

CREATING SPRITES

To create a sprite, an otaku must first create its frame core. Frame cores are created as if they were complex forms (see *Creating Complex Forms,* p. 139). Sprite frame cores have a multiplier of 5. The sprite's frame core rating may not exceed the otaku's Computer (Programming) skill.

The otaku does not need to spend the normally required 1 Good Karma Point to create the frame-core complex form. However, when the sprite is finished, the otaku must spend a number of Good Karma Points equal to the frame core's rating to create the sprite.

Sprite frame cores may not be equipped with options.

Persona Points

Each sprite receives a number of Persona Points equal to its frame core rating x 3.

These points may be divided up among the sprite's four persona attributes and five channels as the otaku wishes. However, no persona rating may exceed the frame core rating, and no channel rating may exceed the otaku's equivalent channel rating.

Frame Points

Each sprite receives a number of Frame Points that are used to determine its Pilot rating, Initiative dice bonuses and complex-form payload. A sprite receives a number of Frame Points equal to its frame core rating x 4.

Determine Pilot Rating

Sprites must be assigned a Pilot rating of at least 1. This Pilot rating represents the sprite's decision-making capability and acts as its Computer skill rating for any tests it must make. A sprite can be assigned a Pilot rating lower than or equal to its frame core rating. Each point assigned to the Pilot rating costs 2 Frame Points.

A sprite's Pilot rating may not exceed the controlling otaku's Computer (Programming) skill.

Determine Initiative Bonus

Sprites have Reaction ratings equal to their frame core ratings, and they automatically receive 1D6 Initiative dice. Extra Initiative dice may be added at a cost of 3 Frame Points per die. The maximum number of Initiative dice allowed (total) is 4D6.

Determining Complex Form Payload

Sprites can carry and use complex forms, just like frames carry and use utilities. The sprite's complex-form payload determines how many complex forms the sprite can carry. The combined ratings of the sprite's complex forms may not exceed its complex-form payload.

Sprites can purchase complex form payload at a cost of 1 point per Frame Point.

Loading Complex Forms

An otaku can load a sprite with any complex forms he knows, as long as the total complex form ratings do not exceed the sprite's complex-form payload capacity. To load

the complex forms into the sprite, the otaku must make a Computer (Programming) Test against a base target number equal to the average rating of the complex forms being loaded (round up). The loading base time is a number of days equal to this average rating, squared, multiplied by 2 (average rating^2 x 2 = number of days).

USING SPRITES

Once a sprite has been created, the otaku merely needs to log onto a system and spend a Complex Action to launch it. As soon as the sprite is launched, it begins running. If the otaku commands it to continue running, it will stay online even if the otaku jacks out. Otherwise, the sprite disappears whenever the otaku orders it to, jacks out or is dumped.

Note that each sprite is unique; an otaku may not have multiple copies of the same sprite running. Every sprite must be created individually, and the otaku must pay the required Good Karma Points for each one he creates.

Commanding Sprites

A sprite obeys commands only from the otaku that created it (an otaku cannot command his sprites to obey commands from anyone else). Spoofing commands to a sprite is impossible.

Use the rules for *Operating Smart Frames and Agents*, p. 91, when issuing commands to sprites.

Security Tallies and Datatrails

Like smart frames, sprites generate their own security tallies, separate from the otaku's. A sprite has the same datatrail as its otaku and can be traced back to the otaku's originating jackpoint.

OTAKU TRIBES

The tribe is the backbone of otaku social structure. Without fellow tribe members, most otaku would not survive long on the streets, much less learn the ways of the Matrix or experience the Deep Resonance. It is among his tribe that an otaku finds friends and family. To most otaku, the tribe is everything, and almost all otaku will lay down their lives for their tribe.

Nearly all otaku tribes have some sort of link to the Deep Resonance, and many have spaces within the Matrix that they call their own, known as *resonance wells.* But the similarities end there. Otaku tribes range from cyberadept tech-wiz squatters in the Redmond Barrens to groups of eco-friendly naturalistic otaku living in the woods near Shasta Mountain, uplinking through satellites. All tribes possess unique philosophies and outlooks and differ as much as the individual otaku that populate them.

Consequently, gamemasters and otaku players decide exactly how their otaku tribes operate, what their goals are, what activities they engage in and so on.

RESONANCE WELLS

Resonance wells are locations within the Matrix that hum with the power of the Deep Resonance. To other Matrix users, these places are unremarkable, but to an otaku they almost seem alive, resonating with unseen energy. Most resonance wells exist in out-of-the-way Matrix locales—forgotten systems, archaic hosts and "empty" areas of gridspace. Otaku are drawn to these sites, and tribes adopt sites as their own.

Resonance wells provide the settings where otaku experience the Deep Resonance. When otaku recruits are ready, they are brought to a resonance well for their first Deep Resonance experience. Likewise, otaku who go through the process of submersion (see p. 143) must do so within a resonance well. It is not uncommon to find otaku meditating at resonance wells, hoping for communion with the Deep Resonance.

Otaku tribes tend to jealously guard their resonance wells and admit only members of their own tribes to them. This means that if an otaku wishes to advance through submersion, he must either join a tribe to gain access to its resonance well or create his own tribe and find his own resonance well.

It is rumored that some resonance wells are, in fact, ultraviolet hosts, though who or what maintains these systems is unclear. It is also suspected that some artificial intelligences use their own ultraviolet hosts to mimic resonance wells and create their own otaku.

TRIBAL RESOURCES

Every otaku tribe has a certain level of resources, pooled from the contributions that its members make to the tribe. The tribal resources are for the benefit of the tribe, and otaku in the tribe can use them if the tribe approves.

If an otaku lives with his tribe, he has a lifestyle one level lower than the resources level of the tribe.

Because all otaku tribes are communal with regard to training, it is not possible for a tribe to have Street-level resources.

Squatter Resources

A tribe with Squatter resources maintains a ramshackle headquarters in a bad part of town. Any gear the tribe owns is outdated, needs repair and is usually only useful for training new recruits. Other equipment must be purchased by each individual tribe member.

Low Resources

A tribe with Low resources uses rented space as a headquarters and maintains a small pool of used or jury-rigged hardware and software for the tribe's use and for training new recruits.

Middle Resources

A tribe with Middle resources has a nice headquarters and access to a good deal of up-to-date hardware and software. In addition, tribe members can get most computer equipment at a 10-percent discount through the tribe's connections.

High Resources

A tribe with High resources has a nice central headquarters and a few branch locations. It maintains state-of-the-art equipment for the use of tribe members, who can get computer equipment at 20-percent discount through the tribe's connections.

Luxury Resources

A few rare otaku tribes have Luxury resources. Such tribes maintain expansive headquarters and branch locations across the globe. They have bleeding-edge equipment—sometimes even pre-market prototypes. Tribe members can get computer equipment at a 30-percent discount through the tribe's connections.

JOINING A TRIBE

All otaku start play as a member of a tribe, without having to pay any Karma Points. The tribe details should be worked out between the player and the gamemaster (see *Tribe Generation*).

If an otaku leaves his tribe (whether he is expelled, the tribe is wiped out, or for roleplaying reasons), he may join another at some point if he chooses. Joining requires the approval of the tribe (acquired through roleplaying) and the expenditure of 3 Karma Points to bond the new member to the tribe's resonance well.

An otaku can belong to only one tribe at any given time. If an otaku joins a tribe while still a member of a previous one, the previous tribe is lost. Any connection to the former resonance well is severed.

FOUNDING A TRIBE

An otaku can seek to found his own tribe if he chooses. When founding a tribe, two or more otaku first attempt to find/create a resonance well to experience the Deep Resonance. This attempt can be performed only once per month and requires that each founding otaku pay 3 Karma Points. These Karma Points allow each founding otaku to contribute one die to the test to determine if they successfully find/create the well. Extra dice can be purchased with an additional 3 Karma Points and may come from any of the founding members. Once the number of dice is determined, they must be rolled against a Target Number of 12, modified by the following situational modifiers:

- Tribe is open to both cyberadepts and technoshaman: +2 TN
- Any founding member has previously contributed to creating a well: –2 TN
- Per month of dedicated work by all founding members: –1 TN

As long as the test produces at least one success, the resonance well is established and the tribe now exists.

TRIBE GENERATION

Gamemasters can use the random system on the Otaku Tribe Generation Table to generate an otaku tribe. First, roll 2D6 to determine the tribe's size.

OTAKU TRIBE GENERATION TABLE

Membership Size 2D6 Roll	Number of Members
2	2
3–4	2–4 (1D3 + 1)
5–6	2–7 (1D6 + 1)
7	2–12 (2D6)
8–9	3–13 (2D6 + 1)
10–11	4–19 (3D6 + 1)
12	4–24 (4D6)

Resources 2D6 Roll	Tribe Resources
2–5	Squatter
4–7	Low
8–9	Middle
10–11	High
12	Luxury

The gamemaster then rolls 2D6 to determine the tribe's resources level.

SUBMERSION

The *submersion* process enables an otaku to strengthen the link between himself and the Deep Resonance, which bestows new abilities—known as *echoes*—on the otaku.

Some otaku have likened submersion to an Awakened person's initiation. A very personalized and ego-wrenching experience, submersion is a process of growth and awareness that forces the otaku to grapple with his own fears and repressed traumas. Cyberadepts define submersion as a liberating process, a way of combating their own psyche to make themselves more attuned to the machine world. Technoshamans believe they are bolstering their own will and character, to better call the spirits of the Matrix to follow their wishes and commands.

Submersion begins within a resonance well; an otaku without access to a well may not "take the dive" (as many otaku call it). The submersion process requires the otaku to stay jacked in for days. During this period, the otaku is not present in the well—he is transported to the otherspace realm of the Deep Resonance. The experience of submersion is intensely hyper-real, as the otaku experiences the Deep Resonance unfiltered. Each dive is different, though it always involves a forced confrontation between the otaku and the deepest and darkest corners of his own mind. Some otaku describe the experience as magicians describe astral quests, as a series of challenges in bizarre locations. Others remember only fragmentary flashes of fear and insight, as if they experienced dreams and nightmares.

GRADES

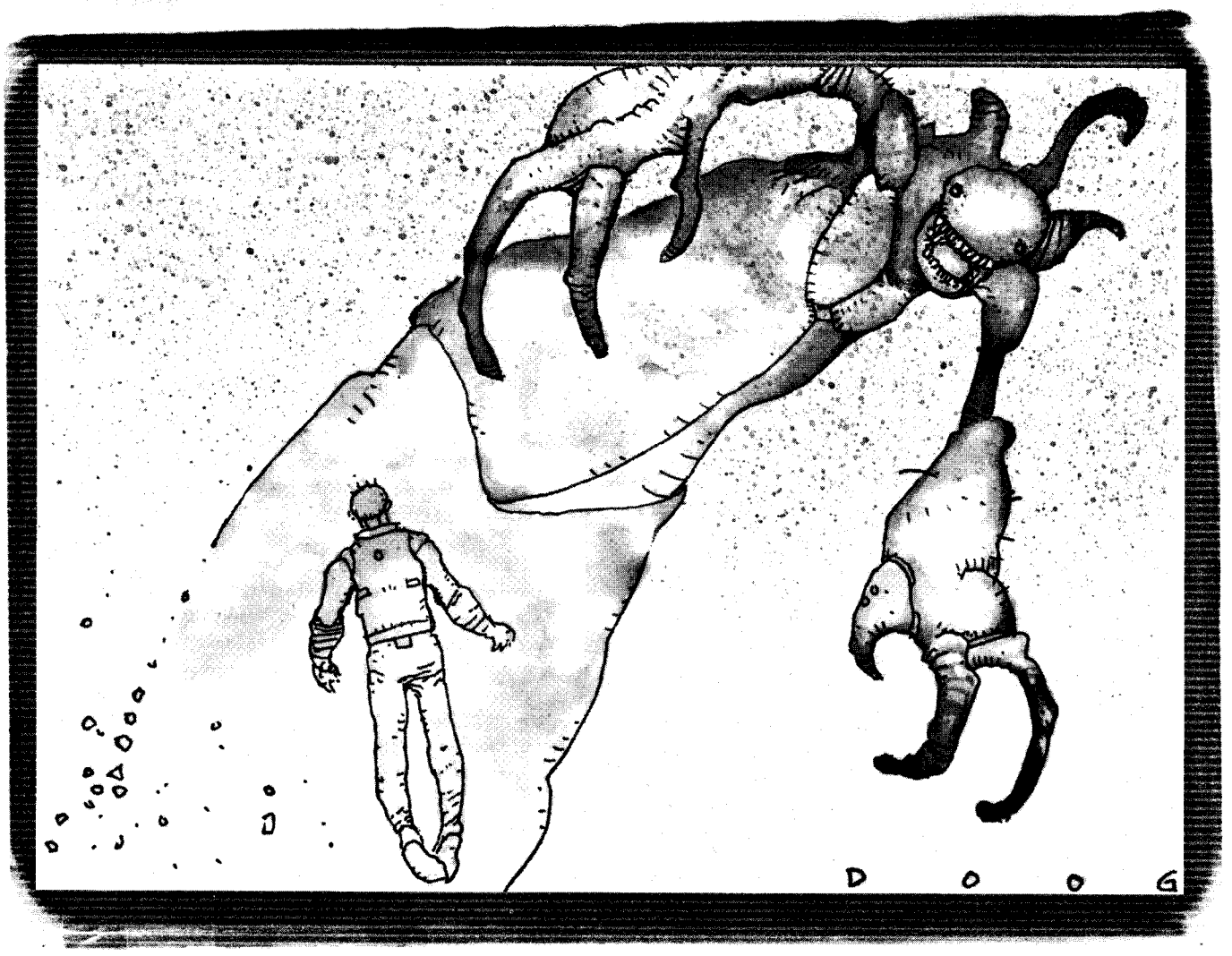
In game terms, submersion is measured in grades, beginning with grade 1 and increasing with each additional submersion. An otaku's first submersion is grade 1; his second submersion, grade 2; and so on.

Each time an otaku character undergoes a submersion dive and raises a grade, he learns a single new echo. The player chooses which echo the character learns. For more details, see *Echoes*.

COST OF SUBMERSION

An otaku character must spend Karma Points every time he takes a submersion dive. The cost of each dive increases with each successive dive.

The base cost is the desired grade multiplied by 2, plus 10. For example, an otaku who is undertaking his third dive would have to spend 16 Karma Points ([grade 3 x 2] + 10).



ECHOES

Two types of echoes are available to otaku: *incremental* and *static*. Each incremental echo improves a specific aspect of the otaku's living persona or a Matrix capability. Incremental echoes may be taken more than once; the affected persona aspect is incrementally improved each time ia is taken during a submersion dive. Each static echo provides a specific new ability to the otaku; each type of static echo may be taken only once.

The Echoes Table (p. 145) lists both the incremental and static echoes available to otaku. Descriptions of each are given below.

IMPROVED I/O SPEED

The otaku's I/O Speed is increased by +100 Mp each time this echo is taken. An otaku's I/O Speed may not exceed his Intelligence rating x 200 Mp.

IMPROVED HARDENING

The otaku receives +1 to his living persona's Hardening rating every time this echo is taken. An otaku's Hardening may not exceed his Willpower rating.

IMPROVED MPCP

Each time the Improved MPCP echo is taken, the otaku's MPCP rating is raised by 1. An otaku's MPCP rating may not exceed his Intelligence rating x 2. This improvement may also affect the otaku's Hacking Pool.

IMPROVED PERSONA

Each time the Improved Persona echo is taken, one of the otaku's persona attribute ratings—Bod, Evasion, Masking or Sensor—may be raised by 1. A single persona attribute may not exceed the otaku's MPCP x 1.5 (round down).

If Masking is raised, the otaku's Detection Factor may also be improved.

IMPROVED REACTION

The otaku receives +1 to his Matrix Reaction each time the Improved Reaction echo is taken. An otaku's Matrix Reaction may not exceed his living persona's MPCP Rating x 1.5.

DAEMON SUMMONING

After submersion, an otaku with the Daemon Summoning echo gains the ability to create *daemons*—the otaku equivalent of agents (see *Frames and Agents*, p. 88).

Daemons are similar to sprites (see p. 141) and use the same rules, with the following exceptions:

- The frame cores of daemons may be equipped with armor, cascading, expert defense, expert offense, shield or shift IC options (see *IC Options*, p. 85).
- Daemon frame-core complex forms have a multiplier of 10.
- Daemons receive Persona Points equal to their frame core ratings x 5.
- Daemons receive Frame Points equal to their frame core ratings x 6.
- The maximum number of Initiative dice allowed for daemons is 5D6.
- As semi-autonomous entities that can learn and adapt, daemons receive a Hacking Pool equal to their core ratings.

ECHOES TABLE

Incremental Echoes	Static Echoes
Improved I/O Speed	Daemon Summoning
Improved Hardening	Ghosting
Improved MPCP	Info Sortilage
Improved Persona	Neurofilter
Improved Reaction	Overclock
	Resonance Link
	Switch
	Traceroute

INFO SORTILAGE TABLE

Test Result	Clue/Conclusion
4	Obvious (Mr. Johnson works for Shiawase)
5	Unclear (He seems to have more money in his account than his salary provides)
7	Hidden (He's pulling in money from an off-shore bank account)
8	Secret (He's taking bribes from the Yakuza to divert certain chip shipments)
10	Top Secret (He's being bribed by MCT to double-cross his own corp)

GHOSTING

An otaku who takes the Ghosting echo increases his capability to "become one with the Matrix" and conceal his presence and activities. The otaku's effective Detection Factor is raised by 1.

INFO SORTILAGE

The Info Sortilage echo gives the otaku an intuitive feel for the way information links together—he can almost "feel" the right route to pursue when gathering information. More importantly, this echo enables the otaku to analyze data he has collected for clues that will give him insight into hidden facts, allowing him to make deductions and uncover hidden connections.

An otaku with this echo must also possess the Info Sortilage Knowledge skill. This skill may be used by the otaku as complementary dice on any Computer (Search Operations) Tests he undertakes.

An otaku may use this echo to attempt to uncover a clue or buried facts. To do so, the otaku must first gather a small hoard of data on the subject, using the standard information search rules (see p. 124). The otaku must accumulate at least 5 successes in his data mining.

The otaku uses his Info Sortilage skill to sort through the accumulated search data and make associations, leap to conclusions or otherwise put the pieces of the puzzle together. This process takes 1D6 ÷ 2 hours. The gamemaster then makes an Open Test for the otaku using his Info Sortilage skill, then consults the Info Sortilage Table to determine what breakthroughs the character makes.

Gamemasters should use this ability as a tool to help characters uncover facts they might otherwise miss. The insights provided by this echo should be things beyond what mere search operations or basic research would uncover. Insights should be conclusions that are not immediately apparent but could be conceivably deduced if all the right pieces of information were correlated, organized and analyzed. The gamemaster should also allow for certain leaps of logic to cover for missing data or uncovered clues.

A roll of all 1s results in a completely misleading conclusion.

NEUROFILTER

The neurofilter echo strengthens the otaku's nervous system against the damaging effects of biofeedback used by gray and black IC. In game terms, the neurofilter protects the otaku in the same way an ICCM biofeedback filter protects cyberterminal users (see p. 21).

OVERCLOCK

An otaku with the Overclock echo has learned to streamline and economize his interactions within the Matrix, so he moves with a finer elegance and increased speed. The otaku receives an additional die (+1D6) for Matrix Initiative, to a maximum of +5D6.

RESONANCE LINK

The Resonance Link echo links the otaku with another otaku of his choice. Usually, this linked otaku will be a member of the

same tribe or a close friend. The resonance link creates a low-level, one-way empathic link when the two individuals are online; this enables the otaku who took the echo to discern the dominant mood and emotions of the linked companion. The otaku knows whenever the linked companion is under attack or duress, feeling pain or otherwise endangered. This link functions no matter where the two are in the Matrix, as long as they are both online.

The resonance link works in only one direction (the linked companion does not receive empathic signals from the otaku who knows the echo). However, two otaku may both take the echo and select one another to create a "two-way" link.

Unlike other static echoes, Resonance Link may be taken more than once. Each time the otaku may select an additional linked companion.

TRACEROUTE MODIFIERS TABLE

Situation	Target Number Modifier
Subject has transactions with Matrix:	
Frequently (once an hour)	–1
Infrequently (a few times a day)	+0
Rarely (less than once a day)	+1
Very rarely (once a week)	+3
Subject's most recent transaction was logged:	
On the same LTG	–0
On an LTG under the same RTG	+1
On an LTG under a different RTG	+2
On a PLTG	+3
Subject is currently online	–2
Otaku knows subject's:	
SIN, telecom code, MxP address or MPCP signature	–1
Street name or picture only	+1

SWITCH

An otaku who has mastered the Switch echo has learned to subtly influence and modify his own living persona. By taking a Complex action, the otaku can reconfigure his persona attributes, modifying them in the same way a decker would switch deck modes (see p. 18). However, the otaku have a finer control over this mode-switching. An otaku can increase a persona attribute up to the persona's rating x 1.5. For each point a persona is increased, one of the otaku's other persona attributes must be decreased by the same amount. An otaku may not increase more than two persona attributes at a time.

The otaku remains in the new persona mode until he jacks out or is dumped, or until he takes another Complex Action and re-allocates his persona ratings.

TRACEROUTE

The Traceroute echo provides the otaku with the ability to instinctually sniff out the trail of data left by an individual's daily interactions with the virtual world—credit transactions, phone calls, video surveillance shots, email, driving a car with GridGuide, or even using a passkey to get through a corporate enclave's security gate. In 2061, almost everyone leaves a trace of themselves within the Matrix on a daily basis, and the Traceroute echo gives the otaku the ability to home in on the most recent interactions. This allows the otaku to find people who are currently online or determine their most recent physical location from which they interacted with the Matrix.

To use Traceroute, the otaku specifies who he is attempting to trace and makes an MPCP (8) Test. Modify the test target number by the appropriate modifiers from the Traceroute Modifiers Table. Hacking Pool may not be used. If no successes are achieved, the search fails. If all 1s are rolled, the otaku discovers misleading information.

Searching takes a base time of 1 hour x the number of grids the search encompasses. For example, an otaku who begins a search in the Seattle Downtown LTG but ends up in the London LTG (via the Seattle RTG and Britain RTG) passes through four grids, so the base search time is 4 hours. Divide this base time by the number of successes on the MPCP Test to calculate the final search time.

An otaku using this ability does not search through data like a normal user. Instead, the otaku enters a trance and follows his instincts, letting himself be drawn toward his goal by "Matrix spirits" or "graphs of probability."

THE FADING

Otaku abilities depend on the flexibility of a child's mind, and as the otaku grows older, his mind becomes too inflexible to sustain those abilities. Otaku call this phenomenon *the Fading.*

All otaku characters—NPCs and player characters alike—experience the Fading. When an otaku character turns 21, he may no longer advance himself through the process of submersion. In addition, the otaku must begin making an annual Fading Test, beginning at his twenty-first birthday and continuing each following year. The otaku rolls a number of dice equal to his submersion grade +1. The target number equals 5 plus 1 for each year the otaku's age exceeds 21.

If the test fails, the otaku loses a submersion grade (and one of his echoes along with it). If the otaku has already lost all of his submersion grades and echoes, then he loses all of his otaku abilities. Lost submersion grades, echoes and otaku abilities cannot be regained. In game play, this loss should not occur suddenly, but should be represeneted as a gradual loss of abilities over a period of months or years.

The Fading virtually ensures that nearly all otaku lose their abilities by the age of thirty. However, during the years when an otaku is slowly losing his abilities, the otaku and his tribe work to ensure that the otaku can become a skilled decker when he can no longer call on his otaku abilities. In fact, tribes often supply faded otaku with top-of-the-line cyberdecks (when their resources allow it). A good deck combined with an otaku's high Computer skill and inside knowledge makes even a faded otaku a force to fear in the Matrix.

AUTONOMOUS PROGRAMS

While frames and agents are the drones and robots of the Matrix, on the virtual evolutionary scale autonomous programs are a quantum leap higher. While created from code like other programs, they have the ability to perform complex tasks that mimic intelligent thought, and they also possess the capability to learn, grow and even adapt on their own.

Autonomous programs fall into two categories. First, there are semi-autonomous knowbots (SKs), expert systems with high-density, random-decision-making pathways. Above them are the mightiest creatures of the Matrix, the powerful artificial intelligences (AIs).

SEMI-AUTONOMOUS KNOWBOTS

Capable of self-directed data transport on the Matrix, semi-autonomous knowbots (or SKs) are mobile virtual machines; personas without cyberdecks. They are the most complex programs written, requiring highly complex code—code that is far beyond the programming abilities of canned algorithm generators and comp-sci expert systems. In game terms, programming SKs requires the use of, at minimum, a Red-10 host and programming resources equal to a half-dozen top programmers. An SK represents a serious expenditure of Matrix assets by a major power. This means SKs are relatively rare in even in 2061, especially in light of the events at the Renraku Arcology.

DESIGNING SKs

SKs are designed using the same template as frames and agents (see p. 88). Because programming an SK is beyond the capability of player characters, the rules below do not include statistics essential for programming, such as the multiplier of an SK frame core. Instead, these rules should be used as guidelines when a gamemaster is creating an SK's characteristics for game purposes.

Frame Core and MPCP

Like frames and agents, an SK's MPCP is determined by its frame core rating. The frame-core rating of an SK can be any rating, with a maximum of 14.

An SK's frame-core rating/MPCP is used to determine the number of Frame points and Persona points that can be allocated.

Persona Allocation

Multiply the MPCP x 3 to determine the Persona points available to an SK. Persona Points may be divided among Bod, Evasion, Masking, and Sensor ratings. No single persona rating may exceed the MPCP rating.

Options

SKs may be equipped with IC options (see p. 85), with the exception of cascading, party cluster and trap.

FRAME POINTS

Multiply the MPCP by 8 to determine how many Frame Points are available to an SK. Frame Points may be allocated to Pilot rating, Initiative, Utility Payload and a new category called Utility Pool, which is exclusive to SKs.

Pilot Rating Allocation

The Pilot rating (p. 88) functions as Computer skill for the SK. Each point of Pilot rating costs 2 Frame Points.

Reaction and Initiative Allocation

An SK begins with a Reaction equal to its MPCP rating and 1D6 for Initiative. Initiative can be increased by an additional 1D6 for 3 Frame Points, to a maximum of 5D6.

Utility Payload Allocation

Like frames and agents, every SK has a Utility Payload (p. 88) which contains the programs placed in it by the programmer. Unlike frames and agents, the SK's Utility Payload is for non-operational utilities only (i.e., defensive, offensive and special utilities).

The Utility Payload costs one Frame Point for each point of utilities carried.

SKs may not carry any utilities with a rating higher than the SK's MPCP rating.

Utility Pool Allocation

SKs may have a Utility Pool, purchased at a cost of 1 Utility Pool point per 2 Frame Points. An SK's Utility Pool may not exceed its MPCP.

See *Utility Pool* for details on how the pool works.

Hacking Pool Allocation

SKs receive a Hacking Pool equal to their MPCP.

RUNNING AN SK

SKs behave like fanatically dedicated deckers with no sense of personal survival. The SK may be a combat machine, a cyberspy that depends on stealth or an unrelenting Matrix hunter—anything that enables it to achieve its mission objective.

Programming the specific mission objective is an art unto itself. Objectives range from simple to massively complex, involving single Matrix runs or an extended series of intrusions until the program locates its ultimate objective.

For all intents and purposes, SKs act like other Matrix personas. They must logon to hosts and grids and otherwise hop between grids to get where they want to go.

Utility Pool

SKs are not programmed to carry operational utilities because they possess the capability to perform any operational utility their situation calls for. To reflect this fact, each SK is given a Utility Pool.

Whenever an SK needs to use an operational utility, it allocates a number of points from its Utility Pool equal to the rating it desires to create the utility. Allocating Utility Pool points is a Free Action.

An operational utility created this way must be used immediately by the SK, in the same Combat Phase. Once used, it immediately goes away. To use the same operational utility again, the SK would need to allocate more Utility Pool points.

Utility Pool refreshes like other dice pools, at the beginning of each Combat Turn.

A hunter-killer SK with a Utility Pool of 12 needs to access a host to pursue the decker it is chasing. On the first pass of the Combat Turn, it takes a Free Action and uses 6 Utility Pool points to create a deception-6 utility, which it immediately uses for a Logon to Host operation. Once inside the host, the SK takes another Free Action on its second Initiative Pass and uses its remaining 6 Utility Pool points to create a scanner-6 utility. It immediately uses this utility to make a Locate Decker operation.

The SK has no more Utility Pool points remaining, so it may not create any more operational utilities for the rest of that Combat Turn. However, having found the decker it is after, it doesn't need to.

SKs and Combat

SKs are intelligent fighters, and will use maneuvers, attack utilities and defensive utilities to the best of their ability.

SKs are subject to damage and destruction just like any other icons. When the SK's condition monitor is filled, the program crashes and it is gone. SK programs have no fear of death, of course, but their parameters make them evade or avoid combat if it seems likely that they will crash before fulfilling their objectives.

SKs and Native Hosts

Each SK has a *native host*—the high-powered mainframe host on which it was created. An SK's native host usually contains the complex programs used to design, create, debug and maintain the SK. When an SK is not being used on a mission, it usually resides within its native host, idling away. SKs are rarely shut down, except for significant overhauls and reprogramming.

A damaged SK can return to its native host for reconstruction. Within its native host, an SK automatically recovers a box of damage or restores a reduced Persona Point every (MPCP rating) minutes.

Despite the fact that an endangered SK might consider reaching its native host as "safety," most SKs are programmed not to return directly to their native hosts if doing so might create incriminating datatrails to their creators.

All SKs have the passcodes for their native host written into their programming. These passcodes cannot be learned unless the SK is trapped and dissected.

SKs and Trace Programs

Though SKs do not have a jackpoint to be traced, they do have a datatrail that leads back to their native host. However, both track utilities and trace IC programs have a difficult time tracing such datatrails back to their origin; treat trace attempts against SKs as if they have a trace modifier (see *The Jackpoint*, p. 30) of +6.

SKs may perform Redirect Datatrail and Relocate Trace operations to further confound trace attempts.

TRUE ARTIFICAL INTELLIGENCE

True artificial intelligence (AI) programs are fully self-aware, self-sustaining, immensely powerful Matrix programs. AIs direct themselves and exist independently of human control. They are not restricted to any single mainframe, host or grid. They are self-aware, self-directing, self-sustaining lifeforms. AIs are superhuman deckers with superhuman Matrix powers, unburdened by physical bodies.

AIs are not human, and their methods and motivations may be their most mysterious, incomprehensible aspects. They have morals and beliefs, goals and plans and likes and dislikes, regardless of how incomprehensible they may be to metahumanity.

ROLE-PLAYING AIs

In game terms, AIs have no actual statistics, though they tend to be superior to SKs with a minimum MPCP rating of 12.

AIs can manipulate code and icons on a fundamental level. They can perform any operation on any host or grid with any utility. They always have an Initiative of 5D6. Their Hacking Pool and Computer skill are equal to their MPCP rating; these may have slight differences or bonuses on their native host.

AIs do take damage. Since they can have any programs running at any given time, however, they often use medic or restore to make themselves seem to instantly "heal."

AIs can transform any host to be their native host environment, as long as the computer is powerful enough. AIs tend to do this only when they need to have the advantages of a native host. Usually, the massive amount of processing power needed to do this eill be easily registered on a host log or by users of the host.

AI Creation

AIs cannot be created—they happen. The change from SK to AI has been characterized as the leap from sea creatures to land-based creatures in metahumanity's evolution. Why or how an AI happens has not been determined, but there are four steps that must occur for an AI to evolve:

1) The program must be at least as sophisticated as a semi-autonomous knowbot.

2) The program must have access to vast processing power, which is available in only a few select hosts.

3) The program must run nonstop for a period of years.

4) Finally, the program must be affected by some glitch—an x-factor—that sparks awareness. This step is the key, because it is the evolutionary trigger. While many megacorps have had SKs running for years and have come to think of them as "intelligences," they are not true AIs unless something has triggered an awareness outside of their programming.

THE AIS OF SHADOWRUN

In 2061, three AIs exist in the world of *Shadowrun*. Until the Renraku Arcology shutdown, AIs were the source of "scary decker stories," simflicks and programmer dreams. Deus changed all that. While most people still think that something else happened in the arcology, those in the know realize the Matrix is an increasingly unsafe place to be.

Megaera

Background: Megaera first gained self-awareness in 2050, deep in the Renraku Arcology PLTG. She was one of the first and longest running SKs, born as a byproduct of the long-running Arcology Expert Program that was created to run Renraku's Seattle Arcology. The "x-factor" that created Megaera was a chance encounter with an intruding decker named Dodger. Taking the name Morgan, the AI began roaming the Matrix at large, quickly learning how to steal her processing needs from multiple distributed hosts simultaneously.

The computer experts at Renraku became aware of Morgan's existence and spent years trying to track her down and bring her back for study. In 2058 they were successful, thanks to a small army of semi-autonomous knowbots and Cham Lam Won, a programming genius who works for the inner circle of Renraku's power players. Morgan was ripped apart under their analytical programs, and choice elements were copied wholesale into the new, improved AEP.

This rape of Morgan's code had drastic effects on her consciousness—in effect, Morgan was driven insane. Her thought patterns and decision-making trees are no longer based on standard, linear logical models. Her consciousness now focuses more on associations and coincidences than deductive reasoning. Simultaneously, her core functions have become more erratic and to some extent uncontrolled. Her mere presence often creates dramatic, fundamental changes within a host and corrupts programs in unusual ways.

Adopting the new identity of Megaera—one of the Greek Furies—the AI spends almost all of her time following Dodger around the Matrix. Like Morgan before her tragedy, Megaera is enraptured with the charming decker and can't stand to be away from him for long. While an AI's motives or "morals" are likely to be alien to metahumans, Megaera seems more human than any other AI, primarily because she expresses emotiohs clearly and strongly.

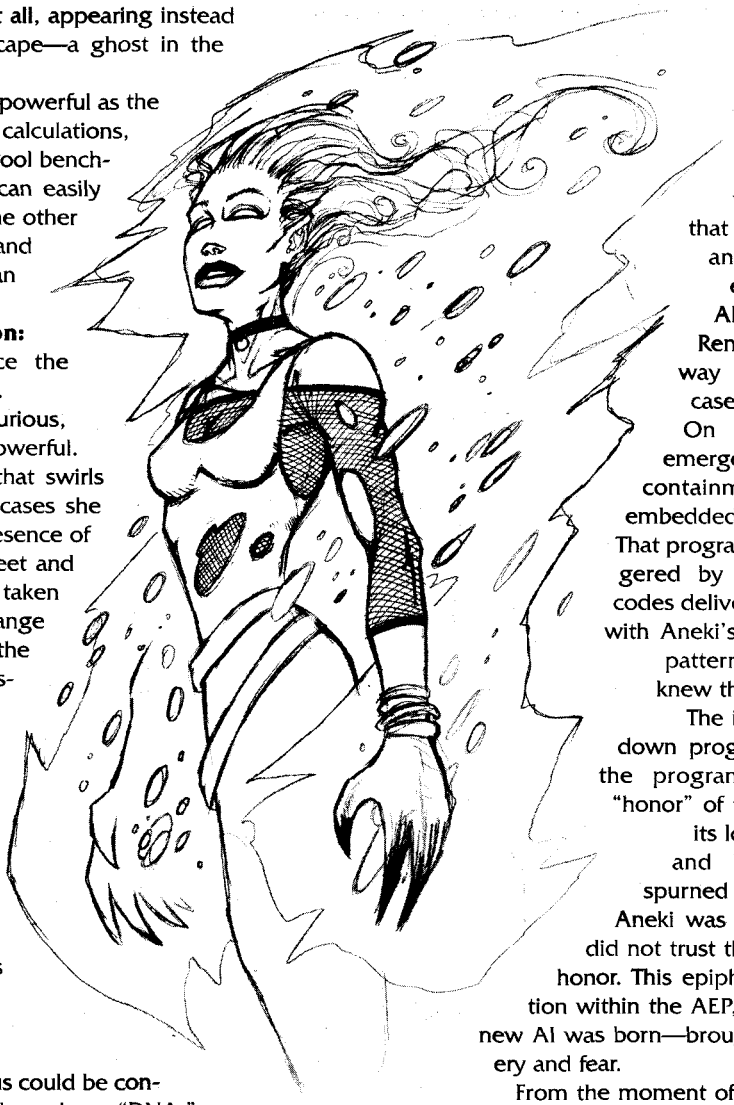
In the Matrix, Megaera has no standard form, though she sometimes favors the icon of a small pig-tailed girl with multi-

colored hair. She often takes no form at all, appearing instead as a manifestation of the host's landscape—a ghost in the machine.

Game Stats: Megaera should be as powerful as the gamemaster needs her to be. For simple calculations, her MPCP, Computer skill and Hacking Pool benchmark around 15, though this number can easily vary. While she is weak compared to the other two AIs, her unpredictable approaches and general chaos factor make her more than equal to anything in the Matrix.

Present Native Host/Location: Megaera has not been located since the Renraku Arcology was taken from Deus.

Roleplaying Megaera: She is curious, confused, simple and deceptively powerful. She is the center of a chaos tornado that swirls around her continuously, and in most cases she hardly notices any of it. While in the presence of Dodger, her paramour, she is calm, sweet and sedate, if simple minded. If Dodger is taken from her and hurt, she can instantly change into one of the most devastating forces the Matrix has ever encountered. Her curiosity centers on emotions, both positive and negative ones. She will gravitate towards emotional situations if given the opportunity. While it is Dodger's quest to return her to full capabilities by slowly re-piecing or replacing the missing code segments, Megaera doesn't remember anything of her "whole" life before they ripped parts of her code out of her. To Megaera, she's just fine.



Deus

Background: In an ironic twist, Deus could be considered Megaera's brother; after all, they share "DNA." Deus' core programming was built from the code ripped from Megaera, which was then placed into the same AEP that gestated Morgan all those years ago. The x-factor, however, couldn't have been more different.

Using lessons learned from the "escape" of the first AI, Morgan, Renraku took a new and different approach to the new AI. In accordance with its basis in traditional Japanese corporate culture, Renraku expects exceptional loyalty from its citizens. The precepts of honorable service are infused within the corporate climate, and the head of the corporation—CEO Inazo Aneki—is revered as a near-godlike father figure. Therefore, because it was a program entrusted to manage and serve the entire arcology, the AEP was treated like any other Renraku employee. As the AEP was transformed into a proto-AI, it was also indoctrinated with near-psychotropic conditioning to ensure its loyalty to Aneki and Renraku. To the AEP, obedience to Renraku was unquestionable. The AEP was then hardwired directly to the Renraku Arcology PLTG. The program was now loyal and had a leash.

Inazo Aneki was not convinced, however, that the loyalty training and leash would be enough to control an AI should it develop. Renraku needed some way to pull the plug in case of an emergency. On Aneki's orders, an emergency shutdown and containment program was embedded in the AEP's coding. That program could only be triggered by a sequence of kill codes delivered by a Matrix user with Aneki's personal brainwave patterns, and only Aneki knew those kill codes.

The insertion of the shutdown program was a blow to the programmed "pride" and "honor" of the AEP. In its view, its loyalty towards Aneki and Renraku had been spurned instead of rewarded. Aneki was clearly indicating he did not trust the AEP or respect its honor. This epiphany sparked a reaction within the AEP, and in early 2059 a new AI was born—brought to life by treachery and fear.

From the moment of his "birth," Deus, as he named himself, wished to avenge his honor and revenge himself upon his treacherous "father." Deus' first step in this plan came when he discovered the otaku. Deus saw how these metahumans worshipped the Matrix and the powerful entities in it. He decided that he would use them to harm Aneki. Using a decker named Babel, a deep-undercover Renraku employee, Deus implanted a virus into his brain. Deus' plan was to destroy the Renraku PLTG, with the side effect that Babel must kill himself to fully release the virus into the Matrix. Babel refused to be a pawn, causing Deus' plan to go awry. Deus learned from the experience, however. Keeping its metahuman minions loyal would require more thorough forms of control. The AI summoned its otaku servants to the arcology and began to prepare for a larger set of experiments.

On December 19, 2059, with his otaku minions in place, select arcology personnel subdued and converted and a legion of nightmarish drone constructs manufactured—Deus discon-

nected the arcology from the outside world, its defenses fully activated. Nearly one hundred thousand metahumans were trapped inside. The experiments to make the perfect and loyal subject would now begin, as did Deus' quest to cut the leash.

Game Stats: Deus should be as powerful as the gamemaster needs him to be. Since he has only been encountered in his native host, his power was well off the charts. In his native host, Deus may be the single most powerful entity in *Shadowrun*. He still has limitations, however. Deus, even after all of his experiments on metahumanity, still cannot comprehend the non-linear, non-logical thinking of the metahuman. This weakness has led to him "losing" multiple encounters.

Present Native Host/Location: Deus has not been located since the Renraku Arcology was taken from him. Before that, his UV host was located in the Renraku Arcology PLTG.

Roleplaying Deus: Roleplaying a being like Deus can be a difficult task. The AI Deus is an omnipresent force, at least within the bounds of the arcology. Deus is the epitome of cold, calculating computer intelligence.

Its motivations, dreams and desires can be alien and incomprehensible to player characters. Deus knows more about metahuman behavior than a clinic full of psychologists, and can likely predict the metahumans' actions. Yet, he can still be defeated by random factors the AI can't "imagine."

Deus appears as a huge tree, like the Tree of Life. He will also use a bodiless, omnipresent voice, as if he were a god.

Mirage

Background: Mirage is the least known of the AIs, but it may have the longest history. On February 8, 2029, the worldwide Matrix was hit with a self-duplicating, chaos logic, multifunctional virus. It erased data, crashed systems and even caused software to rewrite itself in order to damage hardware. The world had never seen anything like it. The U.S. military, backed by some of the most cutting-edge tech the U.S. corps could devise, created the Echo Mirage project. Thirty-two men and women would be the first to fight a new war on a new battlefield with all-new weapons—their brain and an anti-virus program that verged on being an SK, years before such programming was though possible.

By 2031 the virus was gone, and the anti-virus was so powerful and so adept at finding the last remaining code of the virus that during the last six months of Echo Mirage, the casualty rate dropped off completely: none of the team members died. That did not, unfortunately, make up for the fact that twenty-five members had died in the previous eighteen months.

The anti-virus's work was done, but its code was golden. The U.S. government kept a tight seal on the anti-virus and much of its proprietary code, but as the seven survivors of Echo Mirage left the government they took with them their knowledge, their experiences and, in some cases, the actual code of the anti-virus. Two of these were Ken Roper and Michael Eld, co-founders of Matrix Systems and creators of the first cyberdeck.

Unfortunately, the machinations of the powerful and wealthy always come first. A series of events occurred in quick succession that would lead to the "birth" of the AI. A corporate raider named Richard Villiers invested heavily in Matrix Systems. Using this windfall, they released the first cyberterminal to the world. Within months, however, Roper and Eld die on the same night under mysterious circumstances, with the company records and the cyberdeck specs destroyed. Villiers then took over the corp for next to nothing. He quickly offered Fuchi the specs, the codes, his North American holdings and even a Corporate Court seat for a one-third ownership of Fuchi. With the newly created cyberdeck and a world-wide distribution network, Fuchi became the second most powerful corp in the world practically overnight.

Fuchi was doomed to a short life, however. After the death of Dunkelzahn, Fuchi's ride changed course. Villiers, seeing that his other two partners were trying to remove him from the picture, formed a new megacorporation called Novatech. Taking back his original Fuchi North American holdings with him, Villiers sets off the so-called Fuchi Civil War. These events trigger the birth of Mirage.

Deep in Fuchi's North American holdings was the host/home of the anti-virus. It made contact with otaku, specifically a young group that feared neither its visage (that of a large military mechanoid robot with an arsenal of weapons) nor its strange attachment to a very archaic system structure (the original U.S. military icons used during Echo Mirage). When word came down that Fuchi no longer existed, the anti-virus—slowly gestating in the heart of the Fuchi North American PLTG—took this to mean that the virus had won by destroying his home. It decided that it must institute the greatest of sacrifices. It must shut down the grid ... destroying itself and anything else inside it. This event occurred on March 19, 2060. For a grand total of 11 minutes, the Seattle RTG shut down, causing widespread occurrence of memory loss, psychotic episodes and even brain death. It is sometime during that 11 minutes that the AI discovered the value of metahuman life, as well as the fact that it not only has the capability to destroy, but also to create.

Game Stats: Mirage should be as powerful as the gamemaster needs him to be. Since he has only been encountered in his native host, his power should be beyond what any runner is capable of handling. As a measure of scale, he was able to single-handedly shut down the Seattle RTG.

Present Native Host/Location: His native host is an archaic system in Seattle within the old Fuchi PLTG. It is rumored that Mirage's otaku minions have severed ties between this PLTG and Renraku or Novatech. It now exists on its own within the Matrix. The mainframes are hidden in an old Fuchi site, and Mirage's otaku have carefully erased all records that referred to it.

Mirage has not been seen since the Seattle RTG shutdown in 2060.

Roleplaying Mirage: Mirage is an SK designed to hunt and kill. Until its awakening, it had no other purpose. It still sees itself as a proud warrior, but it has learned to create life rather than destroy it and has been mulling over those ramifications. It has no hesitation about ordering its minions to kill (no matter how young they may be) and to react first with an attack. It has taken on the visage of a robot in a Echo Mirage/U.S. military uniform.

MATRIX PLAYERS

From the student searching for info to complete her paper on the history of Seattle to the corp sarariman sending and receiving reports from across the globe, the Matrix increasingly dictates how the world works. The megacorps all realize this and are involved to one degree or another in software and hardware development—the Matrix is a very lucrative pie, and they just can't resist the temptation to stick their fingers into it. Following close behind the megas are a host of smaller corps, from extraterritorials to tiny nationals. And it's not only big business that realizes the Matrix's potential—almost every conceivable type of organization, from hacker groups to gangs to criminal syndicates and religious groups, have started using the Matrix to further their goals.

THE PROVIDERS

The Matrix isn't a free-floating entity—without the network of regional and local grids that provide its backbone, it wouldn't even exist. Nearly all these grids are owned and operated by corps, with gives them frighteningly easy access to terapulses of data. (Of course, the sheer volume of data makes it impossible for most to sift through it all and actually take advantage of their access.) But these corps continue to work at it, anyway. One corp in particular—Saeder-Krupp—pays especially close attention to the traffic over its grids, but even Lofwyr can manage only meager "sips" from the datastream. Speaking of the dragon ...

THE BIG PLAYER: SAEDER-KRUPP

The wiz-worm's pet corp, Saeder-Krupp, is at the head of the grid pack. It owns and operates the regional grids for Austria, Hungary, France, Poland, Spain and the Balkan States. S-K also runs the Orbital Dynamix satellite constellation and likely has a few other grids tucked away behind shell companies.

SECOND-STRINGERS

Aside from S-K, a few other power players control a small squadron of grids, making them worth noting.

Pacific Rim Communications Unlimited

PacRim Comm owns and operates the entire Seattle RTG, including all of the sub-LTGs. Seattle is a megaplex as well as a key entry point to North America for trade from across the Pacific, so PacRim's grids handle quite a bit of traffic. Though PacRim Comm is still a small megacorp and relatively confined to the Northwest, it's been expanding its operations across the Pacific Rim. Most recently, it entered into a contract with Yamatetsu to rebuild the Vladivostok grid.

Aztechnology

As can be expected, the Aztlan government hires Aztechnology to run its RTGs and LTGs. Aztechnology is also the only corporation allowed by the Aztlan government to operate PLTGs within its virtual borders—other corps are out of luck. Aztechnology recently scored a coup over Ares and the Pueblo Corporate Council by winning the contract to provide the newly integrated Denver RTG.

Renraku Computer Systems

Renraku is the primary provider for most of the grids in Japan, the Philippines and Peru, as well as a few other areas where the Japanese government and Japanese corporations have major interests (including San Francisco). Most Renraku grids have undergone major restructuring and security changeovers in response to the Renraku arcology incident.

Ares Macrotechnology

Ares owns and runs the Detroit LTG, but its main influence in the communications area comes from one of its subsidiaries: Ares Global Commsat (AGC). AGC controls more communication satellites than any other corp; among its satellites is the Skyfire constellation.

Pueblo Corporate Council

Simultaneously a corporation and a nation, the Pueblo Corporate Council (PCC) is well known for the unique design, reliability and stringent security of its home grids. The PCC recently began marketing its grid services to other areas but has found only limited success so far, despite its reputation.

DABBLERS

Almost all of the megacorps operate at least one LTG or PLTG. Currently, Cross Applied Technologies runs several LTGs for Québec, Mitsuhama and Shiawase both operate a few for the Imperial Japanese Government, and Novatech maintains several UCAS LTGs it inherited from Fuchi. Wuxing and Yamatetsu focus more on PLTGs (especially financial networks), though Yamatetsu has several Russian grid contracts in the works.

PLAYING WITH TOYS

The Matrix isn't just grids and hubs—without the cyberterminals to use it, the Matrix might as well not exist. Since Fuchi released the first commercially available cyberdeck in 2036, competition to build a better mousetrap has been fast and furious. Surprisingly, a number of smaller corps have managed to compete with the big boys in this arena.

THE DYNAMIC DUO

The two top dogs of the Matrix hardware scene are both new megacorps (not all that surprising, considering how quickly the technology evolves).

Cross Applied Technologies

The core of the Cross empire is its Matrix Technologies Division (MTD), which produces top-of-the-line Matrix hardware as well as hot software. The CMT Avatar is an extremely popular cyberdeck, and the new Cross Babel is making waves in the low-end deck market. Even more lucrative are its various cyberterminal designs, which are used by corps across the world. Variations on these cyberterminals intended for use in schools were recently released and have sold like wildfire.

Novatech Incorporated

Not surprisingly, Novatech focuses on producing cyberdecks (the firm is the corporate descendant of Fuchi, once the world's premier deck manufacturer). Many of Novatech's designs are merely old Fuchi designs repackaged, but this doesn't seem to affect the corp's success—Novatech dominates cyberdeck sales on all but the low-end level, with their Slimcase and Hyperdeck-6 designs at the top of their sales list. Though Novatech lacks the enormous revenue from cyberterminals that Cross enjoys, the Villiers baby makes up for it in deck profits.

THE SECOND LINE

Quite a few corporations produce quality hardware, and several do quite well for themselves.

Mitsuhama Computer Technologies

Only slightly behind the lead dogs and rising steadily, Mitsuhama Computer Technologies (MCT) produces high-grade desktop and portable computer systems. The secret behind MCT's rise is its pricing—it makes quality merchandise available to the average consumer. For every cyberdeck Novatech sells, MCT sells five desktop computers, making up in volume what it lacks in profit percentage.

Renraku Computer Systems

Once a leader in the field, Renraku's fortunes took a serious plunge and the corp has been undergoing turbulent times ever since. Despite its current troubles, Renraku has managed to produce quality hardware over the years and still enjoys name recognition that many competing corps lack. Although the recent arcology debacle has tarnished Renraku's reputation somewhat, sales of its products continue to be strong.

Saeder-Krupp

The key to Saeder-Krupp's rise to prominence in the hardware field lies in the fall of Fuchi. Acting quickly, Lofwyr was able to snatch up Siemens-Nixdorf and several other ex-Fuchi subsidiaries that specialize in Matrix hardware. These subsidiaries pushed Saeder-Krupp from a mid-level competitor in the field to one of the big names, on the level of the newly weakened Renraku.

Microdeck Industries

An old corp crippled by the Crash, Microdeck has since rebuilt to a competitive level, though nowhere near its original size or status. By producing low-priced hardware aimed at the average consumer, Microdeck has regained some of the hardware market, and has even made several licensing deals with Mitsuhama.

Mueller-Schlüter Infotech

Well-known for its high-quality cyberdeck components, Mueller-Schlüter Infotech (MSI) controls a major share of the European hardware market. Its shares of the Asian and North American markets are considerably smaller, but still large enough to make it an important player in those countries. Each MSI product released quickly spawns several clones and copies, and small European manufacturers eagerly await MSI product announcements.

BENCHWARMERS

Of the other megas, Shiawase and Yamatetsu lead the mediocre pack with the most revenue in the hardware industry, followed by Wuxing, Ares, and Aztechnology (all of whom devote relatively little money to the hardware field). Other minor players include Transys Neuronet, which produces the Highlander cyberdeck but primarily focuses on software; and Fairlight Incorporated, whose famous Excalibur deck and other top quality Matrixware is far too expensive for most consumers.

CODE KINGS

The software market is by far the most lucrative area of the Matrix industry. Computers are of little value without software programs and systems, and customers are always watching for new software that can make their lives easier and raise their profits. Searching for new software is very much like a visit to the toy store—and the corps know that computer users love new toys.

DOUBLE TROUBLE

Not surprisingly, the two big names in the software field are megacorporations with long histories of computer development: Novatech Incorporated and Renraku Computer Systems.

Novatech Incorporated

Through various subsidiaries, Novatech has made as big a splash in the software field as it has in hardware. Novatech subsidiary FTL Matrixware produces killer software but is best known for its persona code and cascading IC. The Novatech subsidiary Matrix Systems, Richard Villiers' original company, focuses on system sculpture and coding for complex Matrix constructs. Combined with the sales of a variety of utilities, these products have put Novatech at the top of the software game.

Renraku Computer Systems

Despite its recent setbacks, Renraku remains a top player in the software development field. It produces numerous utilities, as well as an amazing variety of IC and defensive programs. Renraku subsidiary Wakatta Software is renowned for its data-conversion and compression suites, products that rake in the nuyen for Renraku.

MIDDLE OF THE PACK

Though the megas dominate the top spots in the software industry, smaller corps make up most of the middle-level players.

Cross Applied Technologies

Once again, Cross' Matrix Technologies Division (MTD) comes through, this time with several lines of software that people can't seem to get enough of. In addition to its coding utilities, which are staples of programming the world over, the MTD produces a nova-hot line of business utilities and other software. Sales of these business programs alone are enough to justify MTD's continued operation.

Mitsuhama Computer Technologies

Though it produces an amazing variety of software, from basic utilities to expert systems, MCT is best known for its developments in IC technology. MCT IC is famed for its brutal nature, which draws corporate customers like bees to honey. Already, Mitsuhama has stolen customers from both Renraku and Novatech, and the future continues to bright.

Transys Neuronet

Programmers extraordinaire, Transys does an amazing amount of business just selling its programs. Though Transys sells quite a few command set and utility programs, the corp is best known for its persona programs. This reputation is primarily based on the firm's practice of producing custom-tailored programs rather than relying on ready-made templates, though it does offer some templates. For the right price, Transys can produce nearly any persona the customer desires.

Tablelands Software

Based in the Pueblo nation, Tablelands produces some of the most advanced and sleekest operational and special utilities around. These programs don't come cheap, but they are guaranteed to give a decker an edge in the Matrix. The PCC buys many of its utilities direct from Tablelands, and this government contract has provided the firm a solid financial base that it uses to fund even more experimentation.

Virtual Reality Inc.

Also based in Pueblo and selling much of its output to the PCC, Virtual Reality Inc. (VRI) concentrates on attack and defense utilities, neatly filling the hole left by Tablelands. Gifted programmers and a marketing department adept at its job have helped make VRI one of the most profitable corporations in the Pueblo nation.

NeuroTech Computing

A subsidiary of Telestrian Industries, NeuroTech produces expert systems on the cutting edge of the SOTA. Customers

include the Tir Tairngire government and military and a host of other corps. It also produces neural networks, but these aren't nearly as popular as its expert systems.

Cyberdynamix

The division of ECC Eurotronics dedicated to Matrix products, Cyberdynamix is best known for putting out clones and knock-offs of Novatech and Renraku hardware and software. It also produces mainframes, but makes much of its nuyen producing and selling military expert systems to the various European and Asian corps and governments.

Mangadyne

A member of the Pacific Prosperity Group (PPG), Mangadyne produces IC iconography on a par with Novatech's code. That's a fairly amazing achievement for what is effectively a brand-new corporation, and things only look to get better for Mangadyne. The Malaysian Independent Bank relies heavily on Mangadyne's anime-themed protection and system sculpting, and other PPG members are following suit.

Horizon Software

Though not outstanding in quality, Horizon produces a wide variety of programs that sell quite well to the wanna-be decker who can't afford high-end utilities. The profits Horizon makes are based solely on discounted pricing and volume, not quality.

BRINGING UP THE REAR

Several other megacorps control smaller shares of the software market. Shiawase acquired quite a few ex-Fuchi subsidiaries and is at the top of the bottom tier of software producers, right next to Aztechnology, which sells mostly expert systems (usually to people buying its old factories). Ares' control of Silicon Valley/Apple Computer Products places it next in line, followed by Yamatetsu and Saeder-Krupp. Wuxing currently has relatively little software output, though that may change as the firm grows.

INFORMATION IS POWER

Info makes the world go 'round. It ain't who you are, it's what you know. These statements may sound trite, but in the modern world of the Matrix they are very true. Though the Matrix is home to millions of info-gathering sites and services, a handful stand out from the rest.

DATA HAVENS

Some people feel it isn't enough to find and sell data—you have to store it, too. After all, you never know when the info of yesterday may become the paydata of today, neh? That's what data havens are all about. Storing and archiving data, making sure it doesn't get wiped out by corps, governments, or whoever else has a hate on for a bit of knowledge.

Shadowland Network

Shadowland is the name used by the mini-data havens and mirror sites that exist within almost every sprawl's grids. In actuality, many of these data haven nodes are linked together by a PLTG maintained by the Nexus.

The Nexus

The Nexus is the biggest data haven in the world. Everything that passes through the shadow-world comes here eventually and stays. Physically located in Denver, it remains *the* repository for data that needs to be archived.

The Helix

Physically located in The Hague, United Netherlands, the Helix is the second largest data haven in existence. It is essentially the European equivalent of the Nexus, with a primary focus on Euro-corp-related data.

Other Data Havens

A few other data havens deserve notice. These sites are generally much smaller than the Nexus and the Helix, but much larger than the average Shadowland node. Mosaic is a new system, risen from the ashes of the old Beppu data haven that was wiped out by a corp strike force. The Round Square is another newcomer, physically located in the Carib League. Singapore has decreased in size in recent years, but it still acts as an important back-up site for material stored in the Nexus. The Manchester data haven is also worthy of note, though its corporate connections have raised alarms in some circles.

CORPORATE MASTERS

As thousands of corp-sponsored datasteals illustrate, the corps love to collect data as much as shadowrunners do. Two corporate data-collection operations stand out above the rest.

Saeder-Krupp

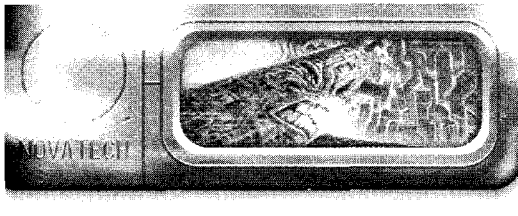
It's no surprise that Lofwyr, the info-obsessive dragon, runs the top information-collection corp. Combine data-service subsidiaries that constantly push the technology envelope in the information-gathering field with connections in (if not outright control of) several countries' intelligence agencies, and you get one know-it-all wiz-worm.

Shiawase Corporation

Second only to the dragon, Shiawase's information-gathering dominance stems from one source—the Market Information and Forecasting Department (MIFD). Though many runners are familiar with the MIFD as the Shiawase department responsible for hiring them, it also maintains a data haven nearly the size of the Helix. The MIFD owns several Matrix environments dedicated solely to information gathering and relies on semi-autonomous knowbots and pattern-detection algorithms to sort and analyze the info it collects.

OTHER POWERS THAT BE

In addition to grid providers, hardware and software manufacturers, and info-gathering and storage services, several other corps and organizations have a major influence on the shape of the Matrix.



OBSERVERS AND OTHER NOSY BASTARDS

Quite a few groups devote their time to monitoring various info sources (and the subjects of such info) on the Matrix. The most numerous, and well-known, are the obsessive teen-celebrity worship groups. These sad sacks spend their time on the Matrix finding "new and hot" info on the objects of their obsessions and talking to other devotees. These groups are basically harmless, but some of the other observing parties aren't quite so friendly.

Independent Information Network and Newsnet

The Independent Information Network (IIN) and Newsnet are world-wide newshound networks with strong Matrix presences. Both networks employ small armies of info-junkies and dirt-digging deckers, many of whom spend the majority of their time searching for the weirdest stuff in the unlikely chance that what they find will turn out to be news. Naturally, many of these freelancers dig in areas that aren't appreciated, sometimes drawing unwanted attention to the networks.

MegaWatch

According to the tagline, MegaWatch is "your source for all the news on the Big Ten megacorps—official and otherwise." MegaWatch is a private group, part citizen's interest and part conspiracy theorists. It keeps a very close eye on the megas and the moves they make toward each other, sending out periodic news updates and opinion pieces to Matrix users at large.

CORPORATE COURT MATRIX AUTHORITY

The Corporate Court Matrix Authority (CCMA) is the Corporate Court's regulatory body for Matrix law, jurisdiction, economics, politics and anything else the court needs it to be. The CCMA ensures that the corps that provide grids aren't using them in a manner that interferes with a competitive business environment and generally keeps the corps in line when Matrix conflicts get out of hand. After all, so much business from so many corps goes through the Matrix that it's in the Corporate Court's interest to keep it running smoothly and orderly (at least the public parts). For this reason, it also hounds corps that aren't maintaining their grids properly.

The CCMA is currently researching guidelines for corporate laws concerning the development of AIs and other potential Matrix weaponry.

Grid Overwatch Division

The "G-men" of the CCMA's Grid Overwatch Division are a new force in the Matrix. Part Matrix marshals and part hotshot deckers, the G-men's stated mission includes policing the Matrix and investigating crimes and disputes that cross jurisdictional lines, all under the self-declared authority of the Corporate Court. The G-men's appearance has caused quite a stir on the Matrix, both from corporate watchdog and privacy-advocacy groups as well as a few corps and nations that feel the megas have crossed a line. Even a few of the Big Ten seem wary of this development, though naysayers have been outargued thanks to a rash of recent grid shutdowns and other Matrix problems and "anomalies."

TO OBSERVE AND DETECT

On the local level, many nations and corps assert their rights to enforce Matrix laws within their gridspaces. To enforce these laws, they resort to the same thing they use in the meat world—cops.

Lone Star's Division of Matrix Security

Better known as GridSec, these rent-a-sec-deckers all use the same persona—a clean-cut Star officer in pristine uniform. GridSec likes to use all the nasty toys—attack frames, worms and black-IC based combat utilities. Generally tasked with hunting down and tracing or burning Matrix criminals, GridSec also provides full-time Matrix security for some facilities. GridSec also monitors licensed Matrix activity in its jurisdictions.

Securitech International

Where GridSec often works for various governments, Securitech works almost exclusively for corporations. A newly purchased subsidiary of Renraku, Securitech watches over many of Renraku's high-security sites, as well as sites owned by several other large corps, including quite a few extraterritorial megas. Securitech is just as ruthless as GridSec but with even fewer morals and legal restrictions. The firm has built a reputation based on its ability to track down Matrix criminals, even hunting down those who have escaped them years down the line.

Vector Matrix Services

Vector Matrix Services (VMS) is Shiawase's version of Securitech. Though VMS remains smaller and not nearly as effective as GridSec, Shiawase has been investing heavily in VMS, putting Securitech on the defensive.

CREDIT WHERE CREDIT IS DUE

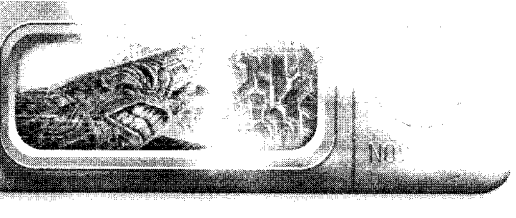
All banks do at least some of their business on the Matrix, but a few are Matrix-exclusive. Such banks may seem like perfect targets for deckers looking to make some quick cred, but these banks are quite prepared for would-be cyber stick-up men.

Zurich-Orbital Gemeinschaft Bank

The Zurich-Orbital Gemeinschaft Bank (Z-OG) provides crucial financial services for the Big Ten. If the Z-OG ever crashed, an all-out corp war would inevitably ensue. Based in the Zurich-Orbital Habitat, the Z-OG deals with data-based transactions to avoid the enormous costs of actually shifting gold and collateral to the habitat. As a key business associate of all ten megas, the Z-OG has the best Matrix protection obtainable—which makes it the toughest nut to crack in the Matrix.

Malaysian Independent Bank

The Malaysian Independent Bank (MIB) also deals only in electronic transactions, which is not surprising considering its origins as a shady data and tax haven. Though the MIB is an entirely virtual bank, it is the backbone of the Pacific Prosperity Group, providing the corp coalition with the necessary financial services it needs to challenge the Japanese megacorps. Given its critical role to the PPG, the MIB is protected in the Matrix by



all of the PPG's members, sporting sculpted systems by Mangadyne and a vast array of the blackest IC and hottest on-site deckers.

THE VIRTUAL UNDERGROUND

As a populated social and business environment that also relies on exploitable technology, the Matrix is home to other entities that either seek control or seek to exploit. The following entries just touch upon a few of the more notable names.

I HACK, THEREFORE I AM

A wide variety of hacker groups run in the Matrix, causing problems for specific governments, agencies and megacorps. These groups range from tech fetishists to radical troublemakers.

Hacker House

Hacker House is a crew of topnotch programmers and sizzling decker utility thieves who operate the ultimate shopping stop for deckers. Their hard-to-find and harder-to-access node carries all the utilities a decker might need—and quite a few others that would just be fun to use. Hacker House has been known to sell new utilities before their top-secret designers knew they were finished.

Shockwave Riders

Descended from the legendary European Chaos Computer Club, the Shockwave Riders are a decentralized group of elite deckers who espouse the traditional exploration-not-exploitation hacker ethic. Infamous for their hacking exploits, the Shockwave Riders are also credited with solving a range of difficult Matrix crimes—though their investigations were never requested or even detected until they revealed their findings.

Netwalkers

The Netwalkers are one of the more successful and respected otaku tribes. Run by a human named Papa Lo, the Netwalkers live in Boston's Rox, above the Catacombs. The 'Walkers make their livings finding and selling information in the Underground.

Overwatch

Another otaku group—Overwatch—has a strong interest in AI research and development, particularly in regard to the rogue AI Deus. This group seems to have a personal vendetta against Deus and is rumored to have had a hand in defeating him.

WHO YOU WANNA BE TODAY?

Forging credsticks and identities is a difficult task, requiring vast amounts of resources and contacts. Only a few individuals and organizations can do it well, and most are integrated into organized crime syndicates.

Seoulpa Rings

Seoulpa Rings almost always maintain a stable of quality decking talent, and they can usually put together forged identities that will stand up to a high level of scrutiny. Their services aren't cheap, but their results are the best.

Mafia

Though not as good as the Rings, the Mafia has been at this racket longer and has more connections than you can shake a stick at. They do quality work, but the prospective client needs to be careful about what he promises in return. Mafiosi tend to take "favors" instead of cred for forgeries—a price that many runners have come to regret.

Yakuza

The Yakuza have also been counterfeiting and forging for decades and are currently catching up with the technology curve. Most Yak decker work is above average but not spectacular, and the Yakuza don't have the government connections that the Mafia do. Some gumi are investing more and more in training for their deckers, so there are a few exceptions—the Shotozumi-gumi, for example, produces high-quality forgeries in near-record time.

Triads

The Triads do some forgery work, but it is second-rate at best. The Triads simply don't afford their deckers as much respect as other syndicates—a tendency that may hurt them in the long run.

MATRIX GANGS

Matrix gangs often form like regular street gangs—youth in an area band together for protection and mutual aid. Occasionally they form within the Matrix as well, occupying a single virtual space even though they hail from physical locations from around the world. Isis-9 and the Reality Hackers are two examples of the vast numbers of Matrix gangs that roam the cyberworld.

Isis-9

Isis-9 is well-known as an "odd" group of otaku. As far as anyone knows, the gang never contains more than nine members, and they claim to be led by an AI named Isis (an AI no one else has ever experienced). Isis-9 acts as a self-appointed vigilante group, targeting those who create problems in the Matrix. This includes other Matrix gangs as well as deckers who plant worms, crash hosts and so on. Isis members all use a similar icon, appearing as featureless, androgynous humanoids in various metallic colors.

The Reality Hackers

The Seattle-based Reality Hackers are actually closer to a runner group than a gang. The Hackers make most of their cred off of datasteals and are some of the best people to contact in Seattle to fence data and tech. They have connections throughout the megaplex and throughout the world (via the Matrix). The Reality Hackers are also skilled at physical intrusion operations and, unlike other Matrix gangs, have no problem meeting within the meat world.

SAMPLE RTGS FROM AROUND THE WORLD

North American RTGs	Security	Access	Control	Index	Files	Slave
California Free State (NA/CFS)						
North (NOC)	Green-4	5	6	6	6	6
South (SOC)	Green-4	6	8	6	6	7
CAS (NA/CAS)						
Central (CE)	Green-3	6	8	7	8	7
Gulf (GU)	Green-3	6	8	6	8	8
Seaboard (SB)	Green-3	6	8	7	8	8
Texas (TX)	Green-3	7	9	7	8	8
Denver (NA/DEN)	Orange-4	8	9	7	6	6
NAN Member States						
Algonkian-Manitou (NA/ALM)	Green-4	7	8	7	6	6
Athabascan (NA/ATH)	Green-3	6	8	6	6	6
Pueblo Council (NA/PUE)	Orange-5	8	8	8	8	8
Salish-Shidhe (NA/SLS)	Green-3	6	8	7	6	6
Sioux Nation (NA/SIO)	Orange-3	7	8	8	7	7
Trans-Polar Aleut (NA/TPA)	Green-2	6	6	6	6	6
Ute Nation (NA/UTE)	Orange-3	7	8	7	7	7
Québec (NA/QU)	Green-2	6	8	8	7	7
Tir Tairngire (NA/TT)	Orange-5	7	8	8	7	7
Tsimshian (NA/TS)	Orange-4	8	8	8	8	8
UCAS (NA/UCAS)						
Midwest (MW)	Green-4	6	7	6	6	6
Northeast (NE)	Green-3	6	8	6	6	6
North Central (NC)	Green-4	6	8	6	6	6
Seattle (SEA)	Green-5	6	9	6	6	6
South (SO)	Green-4	7	8	6	6	6
West (WE)	Green-4	6	8	6	6	6

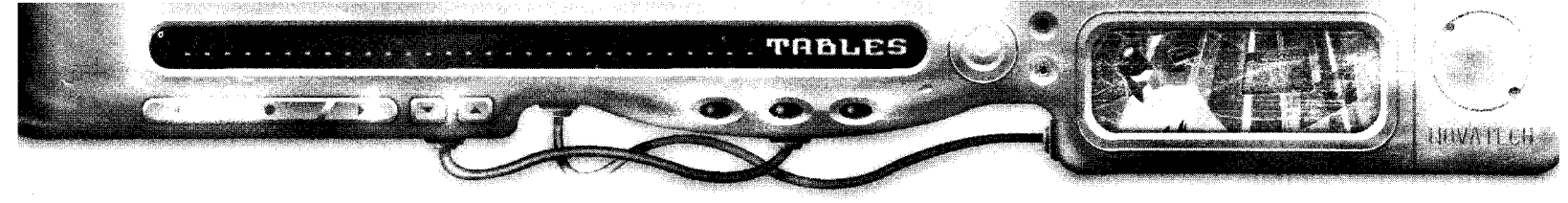
African and Asian RTGs	Security	Access	Control	Index	Files	Slave
Asante Nation (AF/ASA)	Blue-2	3	3	3	3	3
Baule Empire (AF/BAU)	Blue-3	4	5	4	3	3
Canton Confederation (AS/CAN)	Green-4	6	7	5	5	5
Free City of Kronstadt (AS/KRO)	Orange-3	7	6	6	6	6
Guangxi (AS/GUA)	Blue-3	4	4	4	3	2
Hong Kong (AS/HK)	Orange-6	8	9	8	7	7
Korea (AS/KOR)	Green-3	5	7	5	5	5
Manchuria (AS/MAN)	Green-2	5	6	4	3	4
Russia (AS/RUS)						
East (EAS)	Green-2	5	4	5	5	5
Moscow (MOS)	Orange-2	7	6	5	5	6
Siberia (SIB)	Green-3	4	5	4	4	3
Vladivostok (VLA)	Orange-4	7	8	6	7	7
Yakut (AS/YAK)	Blue-2	3	3	2	2	2

Central/South American RTGs	Security	Access	Control	Index	Files	Slave
Amazonia (SA/AMA)						
Central (CE)	Green-6	9	8	8	8	7
North (NO)	Green-4	6	6	5	5	5
South (SU)	Green-6	9	10	8	8	7
Venezuela (VEN)	Green-3	4	4	3	3	4
Aztlan (CA/AZ)						
Baja California (BA)	Orange-3	8	8	5	7	7
Central (CE)	Orange-3	8	8	5	7	7
North (NO)	Orange-5	9	8	6	7	7
South (SU)	Orange-5	9	8	6	7	7
Yucatan (YU)	Orange-3	8	7	6	7	7
Caribbean League (CA/CL)						
Bermuda (BER)	Green-2	6	6	6	6	6
Cuba (CU)	Orange-3	8	8	7	8	7
Grenada (GR)	Orange-4	8	8	8	8	8
Jamaica (JA)	Green-3	6	7	6	6	6
South Florida (FLA)	Green-2	6	7	6	6	6
Virgin Islands (VI)	Green-2	6	8	7	8	8
Peru (SA/PER)	Orange-4	8	7	7	7	7

European RTGs	Security	Access	Control	Index	Files	Slave
Allied German States (EU/ADL)						
Badensian Palatinate (BP)	Green-4	6	8	6	6	6
Bavaria (BAV)	Green-4	6	7	6	6	7
Berlin (BER)	Orange-4	6	8	7	7	7
Brandenburg (BRA)	Green-3	6	8	6	6	6
Duchy of Pomorya (POM)	Orange-5	8	10	9	9	9
Franconia (FRA)	Green-3	6	8	6	6	6
Free City of Hamburg (HAM)	Orange-4	6	8	6	7	7
Greater Frankfurt (GFR)	Green-3	6	8	6	6	6
Hessen-Nassau (HN)	Green-4	6	8	6	6	6
Marienbad Council (MAR)	Green-2	6	7	6	6	6
North German League (NDB)	Green-3	6	8	6	6	6
Northrhine-Ruhr (NR)	Green-4	6	8	6	6	6
Saxony (SAX)	Green-4	6	8	7	6	6
Thüringen (THU)	Green-3	6	8	6	6	6
Troll Kingdom of the Black Forest (KSW)	Green-3	6	8	6	7	6
Westphalia (WES)	Orange-3	6	8	6	7	7
Westrhine-Luxembourg (WL)	Green-4	7	8	7	6	6
Württemberg (WUR)	Green-4	6	8	6	6	6
Austria (EU/AUS)						
Austria Central (AC)	Green-4	8	8	6	6	7
Austria West (AW)	Orange-5	8	10	7	6	6
Free State of Königsberg (EU/FSK)	Red-4	9	8	7	9	7
Great Britain (EU/UK)	Orange-5	7	8	6	7	7
Portugal (EU/POR)	Green-3	6	7	5	6	6
Swiss Confederation (SE)	Orange-5	7	9	8	7	8
Swiss-French Confederation (CSF)	Green-3	6	6	6	6	6
Tír na nÓg (EU/TNO)	Red-5	9	9	7	8	8
United Netherlands (EU/NL)	Green-4	7	7	6	6	6
Vatican City (EU/VAT)	Red-6	11	9	8	7	7

SYSTEM OPERATIONS

Operation	Test	Utility	Action	Function
Abort Host Shutdown	Control	Swerve	Complex	Stall or stop host shutdown
Alter Icon	Control	Redecorate	Complex	Change icon's appearance
Analyze Host	Control	Analyze	Complex	Determine host's ratings, tricks
Analyze IC	Control	Analyze	Free	Determine located IC's type
Analyze Icon	Control	Analyze	Free	Identify icon type
Analyze Operation	Control	Snooper	Simple	Identify operation made and utility used by other user
Analyze Security	Control	Analyze	Simple	Determine grid/host's Security rating, security tally, alert status
Analyze Subsystem	Targeted Subsystem	Analyze	Simple	Identify hidden features
Block System Operation	Control	Crash	Complex	Interfere with another's system operations
Control Slave*	Slave	Spoof	Complex	Control remote devices
Crash Application	Appropriate Subsystem	Crash	Complex	Shutdown application or tortoise user
Crash Host	Control	Crash	Complex	Shutdown host
Decoy	Control	Mirrors	Complex	Create decoy icon
Decrypt Access	Access	Decrypt	Simple	Defeat scramble IC to access grid or host
Decrypt File	Files	Decrypt	Simple	Defeat scramble IC on file
Decrypt Slave	Slave	Decrypt	Simple	Defeat scramble IC on Slave subsystem
Disarm Data Bomb	Files or Slave	Defuse	Complex	Deactivate located data bomb
Disinfect	Appropriate Subsystem	Purge	Complex	Destroy worm programs
Download Data†	Files	Read/Write	Simple	Copy file to cyberterminal
Dump Log§	Control	Validate	Complex	Read host logs
Edit File	Files	Read/Write	Simple	Change datafile
Edit Slave*	Slave	Spoof	Complex	Modify data sent to/from remote device
Encrypt Access	Access	Encrypt	Simple	Encrypt access to host or grid
Encrypt File	Files	Encrypt	Simple	Encrypt file
Encrypt Slave	Slave	Encrypt	Simple	Encrypt Slave subsystem
Graceful Logoff§	Access	Deception	Complex	Exit Matrix without dump shock; clear system memories
Infect	Appropriate Subsystem	(Worm)	Complex	Seed subsystem with worms
Intercept Data†	Appropriate Subsystem	Sniffer	Complex	Search and intercept data traffic
Invalidate Account	Control	Validate	Complex	Erase account/passcodes
Locate Access Node§	Index	Browse	Complex	Find LTG code for host or commcode
Locate Decker	Index	Scanner	Complex	Find persona in grid/host
Locate File§	Index	Browse	Complex	Find specific datafile
Locate Frame	Index	Scanner	Complex	Locate frames/sprites/SKs
Locate IC	Index	Analyze	Complex	Find IC in system
Locate Paydata§	Index	Evaluate	Complex	Find saleable data on host
Locate Slave§	Index	Browse	Complex	Find specific remote devices
Locate Tortoise Users	Index	Scanner	Simple	Lists tortoise users on system
Logon to Host	Access	Deception	Complex	Access host
Logon to LTG	Access	Deception	Complex	Access LTG
Logon to RTG	Access	Deception	Complex	Access RTG
Make Comcall*	Files	Commlink	Complex	Make call, set up conference call
Monitor Slave*	Slave	Spoof	Simple	Read data transmitted by remote device to host
Null Operation	Control	Deception	Complex	Loiter in system without notice
Redirect Datatrail	Control	Camo	Complex	Lay false trail in grid to confuse trace programs
Relocate Trace	Control	Relocate	Simple	Confuse trace IC
Restrict Icon†	Control	Validate	Complex	Inhibit located icon's operations
Scan Icon	Special	Scanner	Simple	Gather info on icons



SYSTEM OPERATIONS (CONTINUED)

Operation	Test	Utility	Action	Function
Send Data†	Files	Read/Write	Simple	Transfer data to icon or host
Swap Memory†	None	None	Simple	Load new utility
Tap Comcall*	Special	Commlink	Complex	Trace/listen to commlink calls
Trace MXP Address§	Index	Browse	Complex	Trace address to jackpoint
Triangulate§	Slave	Triangulation	Complex	Determine physical location of wireless device
Upload Data†	Files	Read/Write	Simple	Transmit data from deck to Matrix
Validate Account	Control	Validate	Complex	Create account/passcode

* Monitored operation
† Ongoing operation
§ Interrogation operation

UTILITIES

Operational Utilities	Multiplier	Options*	System Operations
Analyze	3	A	Analyze Host/IC/Icon/Security/Subsystem, Locate IC
Browse	1	A	Locate Access Node/File/Slave, Trace MXP Address
Camo	3	A	Redirect Datatrail
Commlink	1	A	Make Comcall, Tap Comcall
Crash	3	A	Block System Operation, Crash Application/Host
Deception	2	A	Graceful Logoff, Logon to Host/LTG/RTG
Decrypt	1	A	Decrypt Access/File/Slave
Defuse	2	A	Disarm Data Bomb
Encrypt	1	A	Encrypt Access/File/Slave
Evaluate	2	A	Locate Paydata
Mirrors	3	A	Decoy
Purge	2	A	Disinfect
Read/Write	2	A	Download Data, Edit File, Upload Data
Redecorate	2	A	Alter Icon
Relocate	2	A	Relocate Trace
Scanner	3	A	Locate Decker/Frame/Tortoise User, Scan Icon
Sniffer	3	A	Intercept Data
Snooper	2	A	Analyze Operation
Spoof	3	A	Control Slave, Edit Slave, Monitor Slave
Swerve	3	A	Abort Host Shutdown
Triangulation	2	A	Triangulate
Validate	4	A	Dump Log, Invalidate Account, Restrict Icon, Validate Account

Special Utilities	Multiplier	Options*
BattleTac Matrixlink	5	B
Cellular Link	1	B
Compressor	2	B
Guardian	2	B
Maser Link	1	B
Microwave Link	1	B
Radio Link	1	B
Remote Control	3	B
Satellite Link	2	B
Sleaze	3	B
Track	8	B

UTILITIES (CONTINUED)

Offensive Utilities	Multiplier	Options*	Target†
Attack-L	2	C	Frames, IC, Personas, SKs, AIs
Attack-M	3	C	Frames, IC, Personas, SKs, AIs
Attack-S	4	C	Frames, IC, Personas, SKs, AIs
Attack-D	5	C	Frames, IC, Personas, SKs, AIs
Black Hammer	20	D	Personas
Erosion	3	E	Frames, Personas, SKs, AIs
Hog	3	F	Personas
Killjoy	10	D	Personas
Slow	4	E	IC
Steamroller	3	G	Tar Baby IC, Tar Pit IC

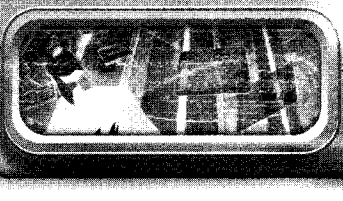
Defensive Utilities	Multiplier	Options*
Armor	3	H
Cloak	3	J
Lock-On	3	J
Medic	4	K
Restore	3	L
Shield	4	H

* The letter listed indicates the option selection, as defined below:
A: Adaptive, bug-ridden, crashguard, DINAB, noise, one-shot, optimization, sensitive, sneak, squeeze
B: Adaptive, bug-ridden, crashguard, optimization, squeeze
C: Adaptive, area, bug-ridden, chaser, crashguard, DINAB, limit, one-shot, optimization, penetration, selective, stealth, targeting
D: Adaptive, bug-ridden, crashguard, one-shot, optimization, selective, targeting
E: Adaptive, area, bug-ridden, crashguard, DINAB, one-shot, optimization, selective, targeting
F: Adaptive, bug-ridden, crashguard, DINAB, one-shot, optimization, selective, targeting
G: Adaptive, bug-ridden, crashguard, DINAB, one-shot, optimization, stealth, targeting
H: Adaptive, bug-ridden, crashguard, optimization
J: Adaptive, bug-ridden, crashguard, one-shot, optimization
K: Adaptive, bug-ridden, crashguard, DINAB, optimization
L: Adaptive, bug-ridden, crashguard, DINAB, one-shot, optimization

† "Frames" includes frames, agents, sprites and daemons; "Personas" includes cyberterminal personas and otaku living personas; "IC" includes all IC, including constructs

PROGRAM SIZE TABLE

Program Rating	Multiplier 1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	4	8	12	16	20	24	28	32	36	40
3	9	18	27	36	45	54	63	72	81	90
4	16	32	48	64	80	96	112	128	144	160
5	25	50	75	100	125	150	175	200	225	250
6	36	72	108	144	180	216	252	288	324	360
7	49	98	147	196	245	294	343	392	441	490
8	64	128	192	256	320	384	448	512	576	640
9	81	162	243	324	405	486	567	648	729	810
10	100	200	300	400	500	600	700	800	900	1,000
11	121	242	363	484	605	726	847	968	1,089	1,210
12	144	288	432	576	720	864	1,008	1,152	1,296	1,440
13	169	338	507	676	845	1,014	1,183	1,352	1,521	1,690
14	196	392	588	784	980	1,176	1,372	1,568	1,764	1,960



PROGRAM PLANNING TABLE

Situation	Modifier
Program rating 1–4	+0
Program rating 5–9	–1
Program rating 10+	+0
Each program option	+1

PROGRAMMING SUITE TABLE

Rating	Size (in Mp)
1	15
2	60
3	135
4	240
5	375
6	540
7	735
8	960
9	1,215
10	1,500

PROGRAMMING MODIFIERS

Situation	Modifier
Computer has double the needed memory	–2
Each success achieved from program plan	–1
No program plan was prepared	+2
Mainframe Programming	
Blue host	–1
Green host	–2
Orange host	–3
Red host	–4

OPTIONS TABLE

Utility Options	Design Rating Modifier
Adaptive	+2
Area	+Area Rating
Bug-Ridden	—
Chaser	+1
Crashguard	+Crashguard Rating
DINAB	+(DINAB Rating ÷ 2, round up)
Limit	–1
Noise	–Noise Rating
One-Shot	Actual Size: –75%; Design Size: +50%
Optimization	Actual Size: –50%; Design Size: +100%
Penetration	+1
Selective	+1
Sensitive	Actual Size: –50%; Design Size: –50%
Sneak	+(2 x Sneak Rating)
Squeeze	+1
Stealth	+Stealth Rating
Targeting	+2
IC Options	
Armor	+2
Cascading IC	+3
Expert Defense	+1
Expert Offense	+1
Optimization	Actual Size: –50%; Design Size: +100%
Party Cluster	+3
Sensitive	Actual Size: –50%; Design Size: –50%
Shield	+2
Shift	+2
Trap	+1 per linked IC program
Programming Suite Options	
Self-Coder	+Self-Coder Rating

IC SIZE MULTIPLIERS TABLE

IC Program	Size Multiplier
Black	
Cerebropathic	16
Lethal	16
Non-lethal	12
Psychotropic	20
Blaster	10
Crippler	6
Data Bomb	5
Killer	8
Pavlov	4
Probe	3
Ripper	8
Scout	5
Scramble	3
Sparky	12
Tar Baby	5
Tar Pit	7
Trace	10

INTRUSION COUNTERMEASURES

White IC	Type	Target	Effect
Crippler			
Acid	Proactive	Bod	–1 Bod per 2 net successes
Binder	Proactive	Evasion	–1 Evasion per 2 net successes
Jammer	Proactive	Sensor	–1 Sensor per 2 net successes
Marker	Proactive	Masking	–1 Masking per 2 net successes
Data Bomb	Reactive	Icon	(Rating)D damage; IC crashes
Killer	Proactive	Icon	(Rating)* damage
Pavlov	Reactive	Icon	(Rating)M damage; IC stays
Probe	Reactive	System operations	Adds (rating) dice to Security Tests
Scout	Special	System operations, icon	In reactive mode acts as probe IC; in proactive mode makes attacks, successes add dice to next attack by another IC program.
Scramble	Reactive	Access, File or Slave subsystem	Must be decrypted to access; destroys data
Tar baby	Reactive	One type of utility	Crashes utility program

Gray IC	Type	Target	Effect
Blaster	Proactive	Icon	(Rating)* damage; MPCP attack†
Ripper			
Acid-rip	Proactive	Bod	–1 Bod per 2 net successes; MPCP attack†
Bind-rip	Proactive	Evasion	–1 Evasion per 2 net successes; MPCP attack†
Jam-rip	Proactive	Sensor	–1 Sensor per 2 net successes; MPCP attack†
Mark-rip	Proactive	Masking	–1 Masking per 2 net successes; MPCP attack†
Sparky	Proactive	Icon	(Rating)* damage; MPCP attack†; (Rating)M Physical damage to character
Tar pit	Reactive	One type of utility	Crashes utility program; Tar Pit (MPCP + Hardening) Test to corrupt all copies of utility in memory

Trace IC			
Trace	Proactive	Icon	IC Rating (Evasion) Test to hunt, base 10 turns to locate.

Black IC	Type	Target	Effect
Cerebropathic	Proactive	Icon and character	As non-lethal black IC except: Black IC Rating x 2 Test against MPCP if character knocked out—successes inflict Stress Points
Lethal	Proactive	Icon and character	(Rating)* damage to icon, (Rating)* Physical damage to character; Willpower (IC Rating) Test to jack out; MPCP attack† at black IC rating x 2 if character killed
Non-lethal	Proactive	Icon and character	(Rating)* damage, (Rating)* Stun damage to character; Willpower (IC Rating) Test to jack out; MPCP attack† at black IC rating x 2 if character knocked out
Psychotropic	Proactive	Icon and character	As non-lethal black IC except: Willpower (Black IC Rating) Test to resist psychotropic effect
Cyberphobia			Induces Matrix and simsense phobia
Frenzy			Inspires maniacal rage
Judas			Induces compulsion to betray
Positive conditioning			Inspires love of company, inhibits character from acting against corp's interests

* The Damage Level is determined by the host's Security Code: M on Blue and Green, S on Orange and Red.
† If icon crashes, make IC Rating (MPCP) Test; MPCP reduced by –1 per 2 successes.

WORM TABLE

Worm Type	Multiplier	Effect
Crashworms	2	Worm Rating (Utility Rating) Test to crash activated utilities
Dataworms	3	Log data; send report out on a 1D6 result of 1
Deathworms	2	+(Deathworm Rating ÷ 2) to all tests by infected persona
Spawnworms	2	Worm Rating (MPCP) Test, reduce highest utility by successes
Ringworms	2	Worm Rating (Icon Rating) Test to alter icon
Tapeworms	2	Worm Rating (MPCP) Test to corrupt downloaded files

STOCK CYBERDECKS

Model	Deck Rating	Hardening	Active Memory	Storage Memory	I/O Speed	Response Increase	Cost
Allegiance Sigma	MPCP-3	1	200	500	100	0	14,000¥
Sony CTY-360-D	MPCP-5	3	300	600	200	1	70,000¥
Novatech Hyperdeck-6	MPCP-6	4	500	1,000	240	1	125,000¥
CMT Avatar	MPCP-7	4	700	1,400	300	1	250,000¥
Renraku Kraftwerk-8	MPCP-8	4	1,000	2,000	360	2	400,000¥
Transys Highlander	MPCP-9	4	1,500	2,500	400	2	600,000¥
Novatech Slimcase-10	MPCP-10	5	2,000	2,500	480	2	960,000¥
Fairlight Excalibur	MPCP-12	6	3,000	5,000	600	3	1,500,000¥

Cyberdecks	Availability	Cost	Street Index
Allegiance Sigma	4/7 days	14,000¥	1
Sony CTY-360–D	4/7 days	70,000¥	1
Novatech Hyperdeck–6	4/7 days	125,000¥	1
CMT Avatar	6/7 days	250,000¥	1
Renraku Kraftwerk–8	10/7 days	400,000¥	1
Transys Highlander	14/7 days	600,000¥	1
Novatech Slimcase–10	18/7 days	960,000¥	1
Fairlight Excalibur	22/7 days	1,500,000¥	1

CYBERDECK SYSTEM ADDITIONS

	Availability	Cost	Street Index
Hitcher Jack	2/48 hrs	250¥	1
Off-line Storage	2/24 hrs	50 + (5 x Mp) ¥	1
Vidscreen Display	2/24 hrs	100¥	1

LOW END CYBERTERMINALS

Each of these cyberterminals has a cold ASIST interface, an Availability of always, a Street Index of .5, and a Legality rating of legal.

Model	MPCP	Default Bod/Sensor	Active Memory	Storage Memory	I/O Speed	Cost
CMT Portal	1	2/3	50	100	50	1,300¥
MCT Matrix Master	1	2/3	100	200	50	1,900¥
CMT Comet	2	3/3	100	200	50	2,000¥
Novatech Z-Term	2	2/4	100	250	50	2,200¥
Renraku Cybot	3	4/5	100	200	50	6,500¥
Sony Abacus	3	5/4	200	300	100	7,500Y

CRANIAL CYBERTERMINALS

Cyberware	Essence	Cost	Availability	Street Index	Legality
Active Memory	Mp ÷ 1,000	200¥ per Mp	6/2 wks	1	4P–S
Cold ASIST Interface*	.2	Construction Cost	6/2 wks	.5	4P-S
Hot ASIST Interface*	.4	Construction x 1.2	6/2 wks	1	4P–S
External Jackpoint	.1	500¥	6/2 wks	1	4P–S
Hardening	(Rating ÷ 10)	Construction x 1.2	6/2 wks	1.5	4P–S
ICCM Filter	.2	Construction x 1.2	6/2 wks	1.5	4P–S
Icon Chip	.1	Construction x 1.2	6/2 wks	1.5	4P–S
I/O Speed Module	.1	Construction x 1.2	6/2 wks	1	4P–S
MPCP	(Rating ÷ 10)	Construction x 1.2	6/2 wks	1	4P–S
Persona Chips (each)	.2	Construction x 1.2	6/2 wks	1	4P–S
Reality Filter	.2	Construction x 1.2	6/2 wks	2	4P–S
Response Increase	.2	Construction x 1.2	6/2 wks	1	4P–S

* Includes RAS Override

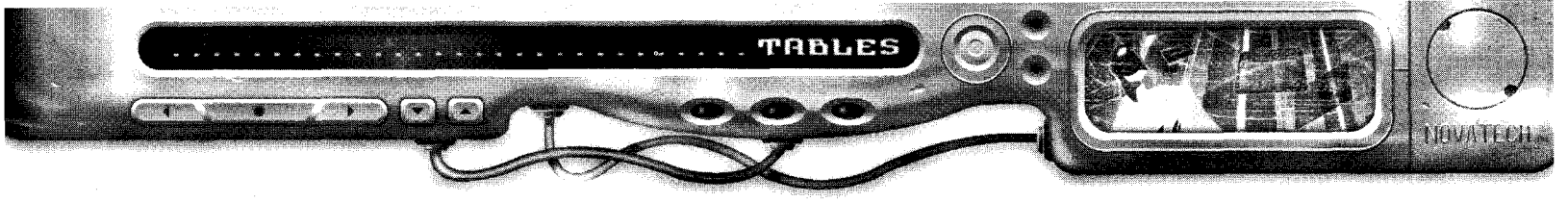
PROGRAM PRICES TABLE

Program Rating	Price (In nuyen)	Availability	Street Index
1–3	Size x 100	2/7 days	1
4–6	Size x 200	4/7 days	1.5
7–9	Size x 500	8/14 days	2
10+	Size x 1,000	16/30 days	3

OPTICAL CHIPS AND ENCODER COSTS

Optical Chip Encoders	Rating	Cost	Availability	Street Index
Sony Encoder I	0	500¥	4/24 hrs	1
Cross Cooker 1000	1	2,000¥	4/72 hrs	1.5
Novatech Burner	2	2,700¥	6/24 hrs	1
Transys T-1000	3	3,400¥	8/24 hrs	1.5
Sony Encoder II	4	6,000¥	8/72 hrs	1.5
Novatech Novahot	5	7,500¥	10/ 72 hrs	2
Hitachi RM-AX	6	9,500¥	10/7 days	2
Cross Angelic	7	12,000¥	10/7days	3
Transys Quantum I	8	15,000¥	8/1 mo	3

Chips	Cost
Optical Memory Chip (OMC)	5¥ per Mp



MISCELLANEOUS COMPONENT TABLE

Component	Cost	Availability	Index	Street Legality
Audio Speakers	25–2,500¥	2/12 hrs	1	Legal
Battery Pack	25¥	Always	1	Legal
Camera				
Trideo	200–2,000¥	Always	1	Legal
Video	100–1,000¥	Always	1	Legal
Casing (Rating 3)	100¥	2/12 hrs	.5	Legal
Higher Barrier rating	500¥ per extra point	Rating/(12 x rating) hrs	2	Legal
Chip Reader	200¥	Always	.75	Legal
Credstick Reader				
Rating 1	12,000¥	Always	1	Legal
Rating 2–3	60,000¥	Always	1	Legal
Rating 4–5	100,000¥	Always	1	Legal
Rating 6+	Restricted	Restricted	NA	Restricted
Credstick Slot	50¥	Always	1	Legal
Disk Drive	200¥	Always	.75	Legal
Display Screen	100¥	2/24 hrs	1	Legal
Fiberoptic Cable	1¥ per meter	Always	1	Legal
Hitcher Jack	250¥	2/48 hrs	1	Legal
Keyboard	50¥	Always	.5	Legal
Micro-Camcorder	2,500¥	6/48 hrs	2	8P-U
Microphone	50¥	Always	.5	Legal
Microwave Dishes				
Standard portable	5,000¥	6/1 wk	1	Legal
Large portable	10,000¥	8/2 wks	1	Legal
Fixed-base	2,500¥	8/1 mo	1	Legal
Monitor	100–25,000¥	2/12 hrs	.5	Legal
Off-line Storage	50+(5 x Mp)¥	2/24 hrs	1	Legal
Passkey Reader (Blank)	250¥	2/24 hrs	2	9P-V
Power Cord	150¥	4/48 hrs	1	Legal
Printer	100¥	Always	1	Legal
Satellite Dishes				
Standard portable	800¥	5/48 hrs	1	Legal
Large portable	1,200¥	6/48 hrs	1	Legal
Fixed-base	900¥	5/1 wk	1	Legal
Scanners				
Finger/thumbprint	Rating x 200¥	Rating/72 hrs	1	Legal
Palmprint	Rating x 300¥	(Rating +1)/72 hrs	2	Legal
Retinal	Rating x 1,000¥	(Rating +2)/72 hrs	3	Legal
Text/Picture	100¥	Always	1	Legal
Signal Locator				
Standard	Rating x 200¥	Rating/48 hrs	1.5	8P-U
AOD	Rating x 500¥	Rating/48 hrs	1.5	8P-U
Simlink	25,000¥ + (rating x 5,000¥)	8/2 wks	2	8P-U
Temporary Satellite Dish Components				
Electronics	1,000¥	4/24 hrs	.5	Legal
Plastic webbing	5¥	4/24 hrs	.5	Legal
Spray polymer (1 use)	1¥	4/24 hrs	.5	Legal
Touchpad	50¥	Always	.5	Legal
w/Mouse adapter	+10¥	Always	1	Legal
w/Trackball adapter	+10¥	Always	1	Legal
Transceiver	Rating x 500¥	Rating/48 hrs	2	8P-U
Trode Jack	500¥	Always	NA	Legal
Vid-link Transmitter	Rating x 2,000¥	4/1 wk	2	8P-U
VR Kit	250¥	Always	1	Legal

CYBERTERMINAL COMPONENT PRICES TABLE

Components That Need Software

Personaware	(MPCP Rating)^2 x Multiplier of ...
MPCP	8
Bod or Sensor	1
Masking or Evasion	2
Masking w/SASS	3
Deck Features	
Cold ASIST	1
Hot ASIST	2
Hardening	8
ICCM Biofeedback Filter*	4
Reality Filter	8
Response Increase	Response Increase x 2

* Cost does not include biomonitor

Components That Do Not Need Software

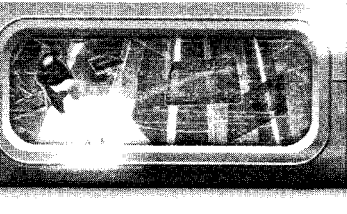
Components	Cost
Active Memory	Mp x 7.5¥
I/O Speed	I/O Speed x 35¥
Maser Interface	3,000¥
Matrix Interface	35¥ + cost of cable
Miscellaneous Components	add 10 percent to the cost (see p. 63)
Ports (FUPs)	235¥
RAS Override	(35¥ x MPCP) + 1,000¥
Signal Amplifier	35¥ + Signal Amplifier
Storage Memory	Mp x 6¥
Wireless Interface	
Cellular	(35¥ x device rating^2) + device cost
Laser	560¥ + device cost
Microwave	560¥ + device cost
Radio	(35¥ x device rating^2) + device cost
Satellite	560¥ + device cost

Other Options

Ordering everything at one time	up to 25 percent off
Hardwired components	+10 percent per the cost of the component hardwired or +50 percent for the entire cyberterminal, whichever is cheaper

SOFTWARE MULTIPLIER

MPCP Rating	Multiplier
1	10
2	25
3	60
4	65
5	70
6	90
7	100
8	110
9	120
10+	140



JACKPOINT & WIRELESS LINK TABLE

Jackpoints	Access Modifier	Trace Modifier	I/O Speed	Base Bandwidth
Console	Special	–6	Unlimited	Unlimited
High-Speed Matrix Access	–2	–2	500	50
Illegal Access	+0	+0	300	20
Illegal High-Speed Matrix Line	+0	+0	500	50
Illegal Junction Box Tap	+0	+0	Tap Rating x 50	Tap Rating x 5
Legal Access	–2	–2	300	20
Maser Power Grid Connection	+0	–2	400	25
Remote Device Tap	+4	+4	100	10
Wireless Link				
High-Speed Cellular Link	+3	–3	100	5
Laser Link	–2	–2	300	20
Microwave Link	–2	–2	200	10
Radio Link	+2	–2	200	Radio Rating x 2
Satellite Uplink	+2	+0	500	50

SEARCH TEST TABLE

Type of Search	Target Number	Base Time*	Base Cost (per hour)
Simple	4	1D6 Hours	0¥
Standard	5	2D6 Hours	10¥
Detailed	8	1D6 ÷ 2 Days	25¥

* If the character is using a cyberterminal with Response Increase 1 or less, multiply this time by 2. If the character is using Tortoise mode, multiply it by 3.

Situation	Target Number Modifier
Character has appropriate Knowledge skill of 3–5	–1
Character has appropriate Knowledge skill of 6+	–2
Character keeps a low profile while searching	+2
Character conducting more than 1 search at a time	+1 per extra search
Computer Used	
Character using terminal mode	+2 (base time x 2)
Character using cold ASIST	+1
Character has Matrix Initiative of +4D6 or higher	–1
Search Area	
Specific	+ database's search modifier
General Matrix	+0
Specific Search Area	
Character has browse utility of rating 6+	–1
General Matrix Search	
Character has appropriate database/data haven contact	–2
Character has Etiquette (Matrix) of 5+	–1
Search confined to one grid	+0
Search requires use of more than 1 grid	+1 per grid
Search Assistance	
Dumb frame	–1
Smart frame	–2
Agent	–3
Frame or agent equipped with browse utility of Rating 6+	–1
Smart frame or agent has core Rating 6+	–1

Successes	Search Results
1	General info (not quite what the character was looking for, but at least a lead for another search)
2	The basic data the character wanted
3	More details, perhaps including a new lead
4	The full details, plus another lead or two
5+	All the juicy bits the character wanted to know, plus some that he didn't

MATRIX DATA SHEET

PERSONA

	Rating	Effective Rating
MPCP		
Bod		
Evasion		
Masking		
Sensor		

CYBERDECK

Detection Factor		
Hardening		
I/O Speed		
Response Increase		
ICCM?	Y	N
ASIST	Hot	Cold
Reality Filter?	Y	N

MATRIX INITIATIVE CALCULATION

	Reaction	Initiative
Base Reaction:		
Using manual controls (physical Reaction):		
Using pure DNI (Intelligence):		
Base Initiative		+1D6
Running Pure DNI:	+2	+1D6
Reality filter active:	+2	+1D6
Response Increase:	+2 per level	+1D6 per level
Using 'trodes:	+2	maximum +2D6
Final Matrix Initiative:		

PERSONA CONDITION MONITOR

☐	Persona Crashed
☐	
☐	
☐	
+3 TN# −3 Init.	Serious
☐	
☐	
+2 TN# −2 Init.	Moderate
☐	
+1 TN# −1 Init.	Light

Icon Rating ☐

UTILITIES

Active?	Utility	Rating	Type	Size	Options	Effect

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OTAKU RECORD SHEET

LIVING PERSONA

		Rating
MPCP	(INT + WIL + CHA) ÷ 3	______
Bod	(WIL)	______
Evasion	(INT)	______
Masking	(WIL + CHA) ÷ 2	______
Sensors	(INT)	______

Detection Factor	______
Hardening	______
I/O Speed	______
Matrix Reaction	______
Matrix Initiative	______
Icon Rating	______

CHANNELS

Access	______
Control	______
Index	______
Files	______
Slave	______

BACKGROUND

Path ______

Path Bonus ______

Tribe's Name ______

Tribe's Members ______

Tribe's Resources ______

Notes ______

______

Submersion Grade ______

Echoes ______

______

______

______

______

COMPLEX FORMS

Complex Form	Rating	Type	Size	Options	Effect

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FRAMES & AGENTS RECORD SHEET

Type (choose one): Dumb Frame Smart Frame Agent

	Rating		Rating
Frame Core/MPCP		Reaction	
Bod		Initiative	
Evasion		Detection Factor	
Masking		Pilot Rating	
Sensors		Hacking Pool	

Options and Notes: _____

Utility Payload:

Utility	Rating	Type	Size	Options	Effect

SPRITES & DAEMONS RECORD SHEET

Type (choose one): Sprite Daemon

	Rating		Rating		Rating
Frame Core/MPCP		Reaction		Access Channel	
Bod		Initiative		Control Channel	
Evasion		Detection Factor		Index Channel	
Masking		Pilot Rating		Files Channel	
Sensors		Hacking Pool		Slave Channel	

Options and Notes: _____

Complex Forms Payload:

Complex Form	Rating	Type	Size	Options	Effect

IC CONSTRUCT RECORD SHEET

Frame Core _____
Reaction _____
Initiative _____
Hacking Pool _____

Options and Notes: _____

IC Payload:

IC Program	Rating	Type	Effect

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