Computer Gear

Computers come in a variety of designs and types. The most basic is the standard cortex terminal, geared specifically toward accessing and navigating the cortex. As such it has little other function, though it has memory and allows a significant amount of stored information (stored on one's cortex profile, that is) as well as all the functions one would expect from a very nice web browser. However, characters with Technical Engineering/Computer Programming or Hacking might want something more specialized to work with. Hence, we present this addition to the rulebook's Computer, Hardware and Progs section. *(Note: this system isn't really useful unless you're planning to make computer hacking a regular part of your campaign. Otherwise, it can tend to bog things down a bit.)*

Computers have attributes all their own, just like a ship. These attributes are limited to Alertness, Intelligence, Willpower and the derived attribute Hardware (Alertness + Intelligence + Willpower). A standard personal access cortex terminal has d2 in all these attributes and 6 Hardware (not d2+d2+d2, Hardware represents the computer's "Life Points"). By simply upgrading these Attributes, installing some specialized hardware and choice progs your cortex hacker can build the system that works best for them.
Computers also have three standard general skills: Security, Hacking and Programming. These are likewise included in the base package at d2 and cost more for a better base software system.
Starting cost for building a personal computer/cortex terminal equal to a personal cortex terminal (i.e. 100cr). Upgrade from this base model using the following table. (Note: base Memory is equal to Willpower + Intelligence but can be upgraded as well to a maximum of d12+d12)
You'll note that computer attributes and general skills up to d8 represent the standard personal computer stats. Stats of d10 to d12+d2 represent the cutting edge of commercial computer hardware/software, available only in the core. Alliance military and government agencies keep the best stuff to themselves, with few exceptions, and possession of gear or software with scores of d12+d4 or higher is illegal (not to mention incredibly hard to find).

Computer Attributes and General Skills

Attributes/General Skills	Cost	Availability
d4	15cr	E
d6	45cr	E
d8	70cr	E
d10	115cr	C
d12	175cr	C
d12+d2	300cr	C
d12+d4	475cr	I
d12+d6	950cr	I
d12+d8	1500cr	I
d12+d10	3000cr	I
d12+d12	6000cr	I

We'll give an example here for you to follow: Let's say our hacker character, Ebon Smith, wants to design a personal computer to best utilize his amazing Technical Engineering/Hacking skills. He decides he wants a state-of-the-art, top of the line (yet, still legal) system. He hit's the cortex and accesses Monarch Computer Systems (a division of Iskellian Technologies I just made up) and orders himself a personal computer system. Because Monarch is so customer friendly he is able to design the system he wants and chooses these Attributes: Alertness d8, Intelligence d10 and Willpower d6; giving him a Hardware of 26. He goes on to buy Computer, Hacking and Programming general skills at d6 each to allow for specialty progs.
A real top-shelf system, that one, and a whopping 465 credit price tag to go with it.

Computer Hardware

Standard Hardware Upgrades	Cost	Availabilit
Portability upgrade	250cr	E
Black box upgrade	500cr	I
Dedicated sourcebox upgrade	75cr	C
Holo-image development suite upgrade	30cr	C
Standard Hardware hardening	50cr	C
Alliance-grade Hardware hardening	500cr	I

Portability upgrade
Makes your computer portable and decidedly smaller. A laptop, if you will.

Black box upgrade
Provides a +2 step to the computer's Stealth skill, if any.

Dedicated sourcebox upgrade
Simply makes the computer a dedicated cortex sourcebox. Provides the ability to access the cortex via any terminal for up to one mile around. However, it brings with it a -2 step penalty to computer's Stealth skill as well as providing a +1 step bonus to anyone attempting to bypass the computer/terminal's authorization.

Holo-image development suite upgrade
Doesn't help in hacking but does allow you to use your computer to create nifty holograms (see p. 84 of rulebook).

Standard Hardware hardening
Absorbs 1 point of damage from all attacks to Hardware.

Alliance-grade Hardware hardening
Absorbs 3 points of damage from all attacks to Hardware.

Since our guy Ebon is going to be doing a lot of hacking with his new system he decides some hardware upgrades might be a good idea. Unfortunately, after actually paying for his state-of-art system he finds most of them a bit too pricey. He opts for Standard Hardware Hardening as a must-have and decides he'll upgrade later with that very tempting Black Box option after his next big score.
Ebon figures Portability is a very nice option for a hacker that may have to run for his life now and again. After much soul searching he gives in and goes with that one as well. Still, he's hurting financially now and is a bit concerned about what progs he'll be able to afford. Total for hardware upgrades: 325 credits.

Computer Progs

In place of specialty skill computers have Progs. Like character skills a computer must have d6 in the requisite general skill to use them.

Specialty Progs	Cost*	Availability	Description
Security			
Anti-virus	2cr	E	Detects and destroys virus and destroyer progs
Authorization	4cr	E	Resists intrusion by unauthorized systems, programs and users
ICE	100cr	I	Attacks intruding systems with Viruses or Destroyers
Encryptions	4cr	E	Encrypting files and records
Hacking			
Access	40cr	I	Bypasses a system or computer's authorization.
ICE breakers	150cr	I	Resists or countermands ICE progs
Destroyers	170cr	I	Viruses that attack system attributes directly in order to permanently reduce attributes
Viruses	80cr	I	Attacks system software in order to penalize computer attributes
Stealth	40cr	I	Increases difficulty of discovering a system or computer
Ninja	70cr	I	Masks detection by system security and ICE
Programming			
Backdoors	50cr	I	Creates an unsecured access point in a computer and computer system
Decryptors	30cr	I	Decrypting files
Database tools	2cr	E	Creating, destroying or altering files and records
Scanners	3cr	E	Aids in searching cortex, systems or computers
Slavedrivers	4cr	E	Aids in control of slave systems

* Price listed is a base price per die. Multiply this by target die level to determine cost.
For example: A d2 Access prog's base price is 20cr. A d4 Access prog would therefore cost 80cr (20cr x4). A d6 would cost 120cr (20cr x6).

Security:

Anti-virus

Anti-virus programs detect and attack foreign viruses and destroyers in their system. An anti-virus prog is assumed always active and attempts to detect virus/destroyers automatically. Once detected the anti-virus prog will continue to attack each virus/destroyer until it is destroyed.
Anti-virus is used in opposed action Alertness + Security/Anti-virus versus Intelligence + Hacking/Virus or Destroyer to detect.
To destroy a virus, opposed action Willpower + Security/Anti-virus versus Willpower + Hacking/Virus or Destroyer is used.
Anti-virus can also remove Attribute penalties from Virus attacks (after disconnecting from the attacking system) with a successful Hard Intelligence + Security/Anti-virus action for each penalty. Botches make the penalties permanent and they can only be removed by completely replacing all software (removing and replacing computer skill specialties at full cost).

Authorization

Resists intrusion by unauthorized systems, programs and users. This it the first line of defense in

most computer systems, insinuating itself directly between the system and the cortex at large. Typically this represents a code of some sort, often encrypted, that must be recognized before direct access to the system is allowed. Most public information is located outside the computer's Authorization to allow free access.
A system's Authorization skill is used in opposed action Alertness + Security/Authorization versus the intruder's Intelligence + Hacking/Access skill.
(The XerO Security prog is an example of a d8 Authorization prog)

ICE

ICE stands for Intrusion Counter-measures Electronics. This is typically a subroutine to the computer system's Authorization program and is likewise plugged directly into a cache of accesses, viruses and destroyers. ICE constantly monitors the Authorization prog. If an attempt at unauthorized access is made the computer system will use it's ICE prog to automatically track down the user, access the user's system and attack with Virus or Destroyer (or both). ICE is legally available to many corporations for use in protecting data associated with military/government contracts but is otherwise limited to Alliance government or military use only.
ICE is used to locate and identify an intruding system. Locating an intruding system (once ICE has been alerted by a failed attempt at Access) is an opposed action Alertness + Security/ICE versus Intelligence + Hacking/Ninja. Once it has identified the attacker ICE attempts to trace back to the attacking system itself (Alertness + Security/ICE versus Intelligence + Security/Stealth).
Access is then typically used to breach the enemy system's Authorization (Willpower + Hacking/ICE versus Alertness + Security/Authorization) and individual Viruses and Destroyers take over from there. However, the ICE prog monitors these subordinate progs and aids them (see p. 144 of the rulebook "Aiding Others")

Encryptions

Encryption progs simply encrypt individual files or records, making them inaccessible without the corresponding password/code or bypassing the encryption with an Access prog.
This is typically an Easy difficulty action as one only has access to files in one's own system or a system already hacked. However, there are rare instances where difficulty is harder (encrypting foreign language files or files in non-standard operating systems, for example)

Hacking:

Access

Access progs utilize random algorithms and/or advanced "key" algorithms to breach Authorization progs (and sometimes Encryptions).
Access is used in opposed action Willpower + Hacking/Access versus Alertness + Security/Authorization or Intelligence + Security/Encryption.
(The SubKelvin prog is an example of a d8 Access prog.)

ICE breakers

A specialized form of Access prog designed specifically to derail, detour and shut down ICE progs, these progs are extremely handy when your Access fails to breach the target system's Authorization and your Ninja didn't fool the ICE. In such cases ICE breakers can attempt to shut down or detour an incoming ICE prog, before it rips your system to pieces. Unfortunately, you still have to get past Authorization before your ICE breaker can assault the enemy ICE. In many cases that ICE is already hard at work on your own system by then. Still, at the very least it gives you a chance to minimize the damage.
ICE breaker is used in opposed action Willpower + Hacking/ICE breaker versus Alertness + Security/ICE progs.

Destroyers

Specialized viruses that attack a system's attributes directly by creating devastating power surges in it's circuits and overriding control systems. Success imposes a permanent -1 step penalty to one Attribute that can only be removed by replacing the component (replacing the appropriate Attribute completely, at full cost) as well as inflicting the Destroyer's die in damage to Hardware. Destroyers continue to attack each turn until deleted or quarantined with an opposed Intelligence + Security/Anti-virus action. While Viruses may be bad news, Destroyers are worse (and

possession or use of Destroyers is a sure fire way of getting Feds on your trail).
Destroyers are used in opposed action Willpower + Hacking/Destroyer versus Willpower .

Viruses

Viruses attack a target system's attributes like Destroyers but do so by bogging down the system with erroneous instructions and damaging the software, effectively handicapping the system. Viruses continue to attack each round in the same manner as Destroyers and are likewise opposed by Anti-virus. Unlike Destroyers, however, software damage can be undone by Anti-virus progs and the Attribute penalty thus removed. Viruses do not damage Hardware, either.
Viruses continue to attack each turn until deleted or quarantined with an opposed Intelligence + Security/Anti-virus action.
Viruses are used in opposed action Willpower + Hacking/Virus versus Willpower .

Stealth

Stealth progs simply mask the signature, identification codes, cortex profile, etc of the computer system, making it harder for other systems and users to locate it. This is useful in preventing ICE progs from tracing you back to your system and for keeping others from locating your system on the cortex.
Stealth is used in opposed action Intelligence + Security/Stealth versus Alertness + Programming/Scanner or Alertness + Security/ICE.

Ninjas

Ninja progs aid in avoiding detection by any ICE progs you may have tripped as well as security monitors running looking for suspicious activity in the system you're sneaking around in.
Ninja is used in the opposed action Intelligence + Security/Ninja versus Alertness + Security/ICE or the individual monitoring system's Alertness + Programming/Scanner.

Programming:

Backdoor

Backdoor progs are used solely in reprogramming a system with a backdoor (an access point that completely bypasses Authorization altogether) in case the hacker intends to return at a later date and doesn't want the bother of hacking all over again.
Installing a backdoor is an action, Intelligence + Programming/Backdoor versus with the difficulty depending on the quality of the system itself.

Decryptor

These progs simply hack individual files and records that have been Encrypted. Access progs can do the same thing but suffer a -2 step penalty since they really aren't designed for it. Likewise the Decryptor prog can be used to hack Authorization but suffers the same -2 step penalty.
The difficulty of decrypting a file or record within a system varies, depending on how well it was encrypted in the first place. The action is Intelligence + Programing/Decryptor.

Database tools

These progs aid in creating, altering or destroying files or records within a hacked system (or one's own system, for that matter).

Scanner

Scanner progs aid in searching out information on the cortex as well as finding a specific file or piece of data in a hacked system. Any kind of computer search on any system can utilize Scanner progs to help. Scanner can also be used inside another system to locate backdoors, if any, and save you the trouble of creating one yourself.

Slavedriver

Slavedriver progs simply allow the user to set up routines slave systems attached to the hacked system (security monitor, gun scans, locked doors), altering those slave systems (feeding false video, changing door access) and even remotely operating those systems.

After agonizing a bit, Ebon hit's the cortex (and the back alley data markets) and spends the last of his substantial stash on the following progs:
Security: Anti-virus d10; Authorization d10; Encryptions d8. Total: 20 credits.
Hacking: Access d10; ICE breaker d8; Virus d8; Stealth d10; Ninja d10. Total: 840 credits.
Programming: Backdoor d8; Decryptor d8. Total: 160 credits.
Total prog cost: 1,020 credits.
Once Ebon gets through crying we'll head on and learn how to hack...

How to Hack

Automated and Aided actions in hacking.

The nice thing about computers is that they can do so many different things at one time. Unfortunately hackers, no matter how skilled, are a bit more limited. While a character can perform multiple actions per turn in combat, a computer operator can only perform one.
On the other hand, a smart hacker prepares and has his system set up to perform the appropriate actions either automatically or at his command. Thus the hacker can aid his computer in performing one task per turn (see p. 144 of the rulebook, Aiding Others) but he can instruct his system to perform as many actions as he likes that turn (most actions, however, cannot be performed multiple times in one turn).

In order to hack a system (whether we're stealing data, changing financial data or performing some act of corporate sabotage) there are steps to follow:

Locating the target system

Obviously, the first step is finding our target...

Search

First we either already known the location of our target system on the cortex or we have to find it. If we have to find it then we use our Technical Engineering/Computer Operations skill to do so. Most targets are Easy or Average to find since the very nature of the cortex assumes that, if they're on the cortex in the first place, they must want to be found. Some folks don't, though, and only have a cortex link for the sake of convenience. These folks may be Hard or even Formidable. Some purposefully hide their cortex link, setting up separate public systems or disguising the link as something else. Systems like these can often be Heroic, Incredible or even Ridiculous to find. Let's not even talk about the Impossible ones, hm? Why in the 'verse would you even want to go there? *Ni shi sai gooa* if you even want to buzz some place like that!

Finding target system access points

Once you've got your target location you need to search for access point. An access point is a way past all the public information and into the system itself. They're also where you find the system's Authorization prog and your first obstacle.
Finding a target system's access points varies in difficulty as well, though only the most paranoid systems bother to hide them especially well. Still, they aren't exactly advertised and it's assumed that if you're going there then you already know where it is.

Accessing the target system

Getting into the system is the real trick and this is where our chips start hitting the table.

Bypassing authorization

Now you've found your target and located the access point(s). Now you have to get yourself authorized to go inside. Maybe you're doing a job for a disgruntled employee who's given you a proper authorization code or maybe your employer has some other way around. If not, then it's time to hack.
As explained in the Computer Progs section this is where your Access prog butts heads with the system's Authorization. You're probably directly aiding your computer during this part of the hack so both you and your computer would roll the dice. You roll Int+TechEngineer/Hacking and you computer makes a Will+Hacking/Access. Compare whichever roll is higher versus the target system's Alert+Security/Authorization. If you score a Success then you're in, no sweat. Otherwise...well you better hope the target system hasn't got an ICE prog standing by.
Now, you can attempt to bypass authorization as many times as you like until you succeed (or get bored), but bear in mind that this is typically the most crucial step in most hacking operations. A tripped Authorization program is usually designed to ring bells somewhere that a hacker is mucking about the place (although less secure systems don't bother to alert until the third or even fifth failed attempt). This may be an ICE prog, security programmers within the system itself or

even a nice flashing alert notice at the local Federal Marshall's office. A failed attempt at bypassing Authorization on a hard target usually means it's time to log off for the day and hope you Stealth prog covered your tracks on your way over to the system.
You did buy a Stealth prog didn't you? Good. I knew you were smart.

Navigating the target system

Assuming we're in now and not getting beat over the head by the local Marshall or watching our 2,000 credit computer go up in smoke, now it's time to find whatever it is we came here for.

Search

If we're looking for a specific file or have a certain sub-system we want to mess around with then we have to find it. This Search usually utilizes your computer's Search prog and you might be aiding it as well. Normally, by this time, we're haven't run into any trouble and can focus on one thing at a time. Still, it is conceivable that we're already in trouble and trying to do several things at once. Not to worry, searching a system isn't usually all that difficult (assuming we know what we're looking for) and your computer can probably handle it while you're sickin' your Anti-virus on some Destroyer prog or running an ICE breaker.
Maybe we aren't looking to rifle through files or control a slave device. Maybe it's a specific user or his office computer we're looking for. Still, it's all the same and finding a user or specific sub-system (like an office computer, personal computer or whatever) is a search like any other. On the other hand, you should be aware that if the user is actually logged on at the moment and has any hacking skill at all, finding him without alerting him is going to be a might trickier.

I'm in....now what?

So, you're in and you've found what you're looking for. What to do now? Well, that depends on what you came here for.

Accessing file, records and logs.

Assuming you came to fiddle with a file or some sub-system then you must first access it. Many time this is practically automatic. Most systems don't bother encrypting the majority of the files inside their own system since they're almost all designed to be accessed easily in the first place. But, then again, we probably hacked this system to get at something particularly juicy, didn't we? It ain't likely they'll leave something that tempting lying around in the general files.
This is usually calls for an Access or Decryptor skill action. Your GM will set the difficulty of the encryption on the file.

System scan

One option to consider as soon as we get into the system is running a scan of the system. Here's the main use of the nice little Scanner prog you bought, it scans the whole system and lets you know just what it's got and what you should look out for. ICE progs, any users currently logged in, slave devices, sub-systems, the whole works. Your scanner prog is looking to find every nook and cranny of the place for you.
On the other hand, letting your Scanner go hog wild in a system that you just hacked may not be a great idea. If there are security users looking for suspicious activity then you might as well wave your hands about and yell "ICE me!" Always have your Ninja and Stealth running when you let loose your Scanner.

Some other things you can do inside a computer system.

That's right. Accessing files isn't the only thing you can do once you get past the system's Authorization. Here's just a few...

Tracking a user - You can find and monitor a particular user, snatch couples of his inter-office emails and even tap his phone calls.
Transmitting files - One common hacking job is to access files from one department and transfer them to your employer in the other. Inter-office rivalry is quite the money maker.
Encrypting files - Ask yourself what happens when you let your d12+d2 Encryption prog loose

on the system's operating program? There are corporation who pay dearly for the man-hours of work lost digging out something like that.

Controlling slave devices - Security monitors, coded doors, communications systems and even, in some cases, environmental controls. All bow to the mighty Slavedriver prog. Great for running interference for the rest of your team when they break into Iskellian Technologies main offices or even simply terrorizing the employees.

Creating a backdoor - Nice one if you've found a particularly shiny system you intend to return to. Planting a backdoor with your Backdoor prog lets you return later with your very own Authorization-free access point. Better yet, copy your own Authorization to it for your very own secure entrance. Better hope no one does a hard system scan while you're gone, though...

Creating files/logs/records - Plant a prog of your own design to monitor a system or file and record everyone that accesses it. Bug an office phone and record message that go through. Heck, create a false log to throw your competition off. Better yet, plant a false system log framing that loud-mouth hacker down at Joe's Pool Hall for hacking in instead of you.

Deleting or altering files/logs/records - This one's pretty obvious. You did remember to change the logs showing "unknown user" accessing that digital file you sabotaged yesterday, didn't you? How about hacking the local Federal Marshall's system and erasing that arrest warrant that just went out?

Altering cortex logs - Here's an interesting one. What if the system you're hacking is the very same cortex node you're using? Eliminate all signs of your passing to keep Blue Sun from tracking down the *kuangzhe de hundan* who set off the main office's fire suppression system last night.