

NOVA LINK 2.0  
System Operator's Tutorial  
©1988 by Res Nova Software

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## ABOUT THIS MANUAL

Nova Link's documentation is divided into two sections, a tutorial and a reference section. The tutorial is designed to help you get your Bulletin Board System (BBS) up and running and to cover some of the basic operations of Nova Link. You will probably find it helpful to be running Nova Link while reading the tutorial. To harness Nova Link's full power, however, you should also read the Reference Section at the end of the manual which gives a complete description of each command, and specific technical information for advanced functions.

## PRINTING THIS MANUAL

We recommend that you print this manual out and keep a copy handy. You may have to adjust the fonts and sizes to suit your printer's ability.

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## NOVA LINK 2.0 FEATURES

Nova Link 2.0 features the following groundbreaking innovations:

### **Multifinder™ Compatibility**

No longer is the Sysop required to dedicate a Macintosh to run a Bulletin Board. Running Nova Link under Apple's MultiFinder™, a Sysop (System Operator) can concurrently be using a word processor, a spreadsheet or any other Multifinder™ friendly software, even while other users are engaged in xmodem file transfers. There is, moreover, surprisingly slight degradation in overall computer performance, even on 68000 based (non-Mac II) machines.

### **Multinode capability**

Now several users can access the same Nova Link bulletin board concurrently, thus lessening the likelihood of busy signals and enhancing the bulletin board's level of activity. Multinode capability has minimum RAM requirements, even 512K Mac owners can enjoy its benefits. Moreover Nova Link now allows teleconferencing in which users on different nodes can chat with each other or with the Sysop.

### **External Applications**

Nova Link 2.0 can run external applications, that is, other programs designed or adapted to run under Nova Link. Thus you can make an infinitely extendible BBS, customized to your needs. For instance, imagine a database type program that maintains lists of inventories. Customers could dial in, read through product descriptions, and then place orders on your BBS. You could download the orders on a daily basis and process them from a remote location—you need not even be physically present at the computer. Expect RES NOVA SOFTWARE and third party developers to introduce various games, databases, and information software able to take advantage

Nova Link's powerful capability.

### **Ease of use**

Navigating Nova Link's tree structure is easy for first-time users with a special "autolist" feature that automatically displays the branches at a given level and lists the available commands.

### **Other Features**

Nova Link also offers the following powerful features:

- remote sysoping. The Sysop is not required to be physically present at the Bulletin Board. He or she can access, and perform all Sysop activities (verifying users, editing messages, managing files) from a remote location.
- a tree structured message base. In addition to the typical flat file and message bases, Nova Link supports a hierarchical structure that allows for the easy and intuitive organization of large amounts of files and messages.
- flexible user access privileges. Sysops can assign users different access levels in different areas of the board. Sysops can also create SIGOps (Special Interest Group Operators) capable of running entire subsections of the Nova Link Board.
- a built-in terminal program for the convenience of the Sysop.

Nova Link of course contains all standard bulletin board functions: electronic mail, chat with Sysop, voting surveys, up- and download libraries, with many features missing in most BBS's.

### **Support**

Res Nova Software maintains its own Nova Link Bulletin Board that you are encouraged to call: (401) 351-1465. Registered owners can download from this board the most recent version of Nova Link. Res Nova Software also maintains an active support section on GENie. Questions left there or on Res Nova's board are usually answered within a day.

While Nova Link 2.0 breaks new ground in the power, flexibility and efficiency of Macintosh Bulletin Board systems, RES NOVA SOFTWARE is not slowing its pace of development. We are currently working on a

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whole new generation of BBS advances, including a full graphics interface.

RES NOVA is committed to setting the standard in Macintosh Bulletin Board Systems, today and tomorrow.



## REGISTRATION

Nova Link is being marked under the shareware principle. You get a copy of the program from somewhere, look it over, and either send Res Nova Software a registration fee, or delete all copies of the program that you have. You have 30 days to look the program over, and if you decide to keep it, send in the \$50 fee.

To register, please print out the accompanying registration form, fill it out, and send it in with your payment to:

Res Nova Software  
54 South Meadow Lane  
Barrington, RI 02806

Make checks payable to: Res Nova Software

We maintain a list of registered Nova Link BBS's, so please tell us if you take your board down, change your phone number or your board's name.

## A WORD ON OUR PHILOSOPHY

Nova Link 2.0 is probably the most sophisticated, full-featured program ever to be sold under the shareware principle. We at Res Nova Software believe however that shareware is a better system than commercial release for both producer and consumer. The producer saves on advertising and distribution costs, and easily make upgrades and enhancements available. The consumer saves on price, convenience and support.

Shareware will only work, however, if both sides keep their sides of the bargain. If you use Nova Link 2.0, register! Not only will you be entitled to full support, and taking the legal course, you will also allow further work to continue on Nova Link, ensuring future enhancements and capability unavailable with other Macintosh BBS systems.

## SETTING UP YOUR NOVA LINK BBS

The Nova Link BBS system is very flexible and most messages and menus are configurable. Nova Link should include certain “canned” data files that will create a generic BBS. If these files are missing, you will have to create all messages and menus from scratch.

Be sure to follow these instructions:

1. Make a backup copy of all Nova Link files. (If you are unfamiliar with Macintosh use, we strongly urge you to read your User's Guide and to practice with several other Macintosh applications until you are comfortable with using the computer.)
2. Copy the Nova Link application, the data files (STR FILE, MSSG BASE FILE, OTHER FILE, USER FILE, and MAIL FILE) into the same disk or HFS folder. We recommend you keep all Nova Link Files in the same folder. If you wish to have some of these data files on another disk, see the section on “Filenames” in Reference Section.
3. Start up Nova Link by doubling clicking on its icon.

NOTE: If your modem is non-Hayes compatible, see the last section of this tutorial.

## INAUGURATING YOUR BBS

After you start-up Nova Link you should see two windows. Each window represents a different “node,” or connection to your computer. Each window has its node number in its title. One connection will be made through your modem port, and another can be made locally, i.e. from your keyboard. If you add more nodes (i.e. add another modem to

your printer port, insert modem cards in your Mac II, or use a specially designed piece of hardware that can service several modems) you can add more windows to the display. With these windows you can monitor your users' actions, and even type in them, if you wish to be especially intrusive.

Currently the easiest set-up for multiple nodes is to run a second modem through your printer port, while you, as Sysop, can logon locally. Nova Link 2.0 can handle any number of nodes simultaneously. Res Nova Hardware will shortly produce a hardware device that will allow several modems to be attached to your computer. Remember that you also must make arrangements with your phone company to add additional incoming phone lines.

To create your bulletin board you will have to log on as the first user. Most users will log on “remotely” that is, over the phone. First make sure that the window with the number ”2” in its title is in front. You will log on the second, or local node. Now choose “logon local” from the “Terminal” menu. You will notice that Nova Link will ask you to log on; the other window monitors the modem port, and, if your modem is turned on, is waiting to answer the phone.

Nova Link uses a parser command interface, in which the user types in the desired command (actually, as we shall see, the first letter of each command). This system is necessary when you wish to logon remotely, and naturally do not have the usual Macintosh interface available.

Although you will usually logon to your bulletin board locally, it is important to realize that most everything you do to run you BBS locally can also be done remotely. This feature is handy if you go on vacation, or travel often, and still want to operate your bulletin board (verify users, examine files, post notices, etc) from anywhere in the world (provided you have a computer and modem with you, of course). Furthermore, if your BBS is especially active, you can designate other users as Special Interest Group Operators (SIGOps) to run whole subsections of your board. These mini-sysops are still of course under your jurisdiction and you may remove and add them as you wish. See the section on Sigops in the Reference Section of this manual.

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To create your bulletin board you will have to log on as the first user. Most users will log on “remotely” that is, over the phone. Since you are sitting at your computer , you will logon “locally” by choosing “logon local” from the “Terminal” menu.

Nova Link uses a parser command interface, in which the user types in the desired command (actually, as we shall see, the first letter of each command). This system is necessary when you wish to logon remotely, and naturally do not have the usual Macintosh interface available.

These questions that the bulletin board will now ask you are identical to the ones all new users (if you will allow new users) will see. The first question Nova Link will ask:

```
Enter you user # or 'NEW' if you are a new user>_
```

is the first one all users, new and old will see. Since you have never logged on before, type NEW. Nova Link will now ask a series of questions which you should answer in full. This question:

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If you don't want a handle, enter your full name.

Enter your handle>\_

may or may not appear for subsequent users. You may decide when setting up your BBS (see "Editing System Flags" below) whether Nova Link will allow "handles" (nicknames that users may have) or whether real names must be used always. Clearly, different BBS will have different styles.

Nova Link will now ask for information to facilitate validation:

Enter your REAL first name>

Enter your REAL last name>

Nova Link then asks for your phone number. Ordinarily this information is used for the Sysop to validate his users:

Enter your voice phone number (in the format 4013511465)>\_

Since you are the Sysop (and don't require validation) you should enter the phone number of your BBS. Next Nova Link will ask for some geographical information. This information is useful in seeing where your users are calling from:

Enter your city and state>

and in seeing what types of computers they are using:

Enter your computer type>

Nova Link will ask for a password. Each user can create his or her own. The password can also be changed by the user. As Sysop, all your users' passwords will be known to

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you.

Enter your new password>

Nova Link asks the user to make sure that the typed password is indeed the correct one:

Type it again to be sure>

Nova Link then lists all of your answers thus far, and allows you to change any one of them by just typing the appropriate number on the list. If the answers are correct, hit the RETURN key.

!)Handle>

2)First name>

3)Last name>



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4) Phone>

5) City and state>

6) Computer type>

7) Password>

Type RETURN when done

Type \* to see display

Select one>

Nova Link now asks you a series of questions about your computer, in order that your interaction with Nova Link will proceed as smoothly as possible. Since the computer you are currently using is (obviously) a Macintosh, and the program you are using to logon with Nova Link is Nova Link itself, these questions will have the same answer for all Sysops's logging on locally.

Nova Link first asks you for the width of your terminal screen:

How wide is your screen (16-256)>80

Most terminal programs have 80 characters per line. Nova Link is no exception. The next question concerns line feeds, the "returns" placed at the end of each line. Most terminal programs (including Nova Link) require them:

Does your computer need line feeds?Yes

Nova Link next asks about "destructive backspaces," that allow you to erase characters

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you have already typed by hitting the DELETE key. Nova Link allows them.

Does your computer have destructive backspaces?Yes

Nova Link now offers the option of "beginner mode" in which the sub-branches of messages are automatically displayed, instead of having to issue a "List Here" command. (If you don't understand this don't worry, Nova Link's tree message based is fully explained later on). For our purposes, we will activate beginner mode.

Use Beginner Mode (Y/N/?)Yes

Nova Link also offer "hot menus" in which the the computer will respond to most of your choices without your having to hit the RETURN key. Most users find hot menus more convenient. If, however, your telephone connection is prone to "line noise" then "hot menus" may be de-activated.

Hot Menus feature active (Y/N/?)Yes

Nova Link asks for information about your terminal capabilities. This information currently has no effect on the operation of Nova Link, it will be used when Res Nova Software introduces a VT100 emulation mode for Nova Link.

```
Which terminal type are you using?TTY
```

```
T) TTY
```

```
V) VT100
```

```
?) Help
```

Nova Link then asks if your computer supports a character to clear the screen. Some computers have such a character. For our purposes we will answer "0".

```
What is your screen clear character (0 for none)0
```

Nova link then lists all your answers and gives you the opportunity to change any of them.

```
1) # of columns>80
```

```
2) Line feeds>Yes
```

```
3) Destructive Backspaces>Yes
```

```
4) Use beginner mode>Yes
```

```
5) Hot Menus>Yes
```

```
6) Terminal Type>TTY
```

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7)Clear screen character>0

If all your answers are in order, you may hit the RETURN key. Nova Link will display some information about your previous activity (since you are the first ever caller, there will be little to report). When you reach the main menu you will be greeted by a wealth of choices (many, however, have been left for you to fill in). You should see something like the following:

Main Menu

=====

[T]ree-structured message base

[C]hat with Sysop

[F]eedback to Sysop

[H]elp Section

[M]ail Section

[E]dit terminal

[N]ews

[\*] Date and time

[P]assword Change

[D]ownloads and files

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```
[L]ogoff
```

```
[S]ysop's Section
```

This list is a canned “menu” (or list of choices) and is in no way ”built-in” to Nova Link, you can easily modify this menu (or eliminate it altogether) to suit your needs. We will create our own menu later on. For now, we wish to enter the tree-structured message, so we type “T”. When you see the command prompt:

```
[16:34]Command>
```

Type “C” and Nova Link will respond:

```
[16:34]Command>Change to extended parser
```

to switch to the extended parser. Nova Link maintains two types of parsers: extended and basic. Basic is intended for new users who are unfamiliar with Nova Link, but is limited in its power. Every command in the Basic parser has an equivalent command in the Extended parser. The rest of the tutorial deals with the commands of the Extended parser.

## EDITING SYSTEM PARAMETERS

Now we will edit the system parameters, that is, miscellaneous settings information . Some of these settings affect the information displayed when the user logs on:

Type:

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[16:34]Command>Edit System Parameters

Nova Link will display:

A)# calls:62

B)New user starting time:30

C)Last call time:11:27:21 9/11/87

D)Calls today:4

E)Last caller:The Sysop

F>Password echo:\*\*\*\*\*

G)Chat bell rings:3

H)BBS's phone number:4013511465

I)Logon time:5 min

J)New user time:15 min

Type Return to exit

Type \* to see display

SysParam>

Four of these choices (A,C-E) display factual information and will rarely have to be edited. The New User starting time governs how long a new (unvalidated) user has on your system. The Password Echo displays those characters that are "echoed" (sent back to the user) when he types his password. The Chat Bell rings determine the number of times the Macintosh bell will sound when a user requests a chat. Logon Time determines how long a user has to logon before the connection is terminated. These choices may be left as they are. Suppose, however, that you wish something more distinctive to be echoed when the user types his password (for instance the name of your board). You would then edit the password echo, by typing "F" and then retyping the echo characters (passwords are limited to 10 characters):

```
SysParam>Password echo:boardsname
```

Now when the user types her password, she will see your board's name for the letters she types.

## EDITING SYSTEM FLAGS

Nova Link provides you with great flexibility over how your BBS should behave. To tailor your BBS, you will edit the System flags (i.e. the settings of your BBS).

Type:

```
[16:34]Command>Edit System Flags
```

Nova Link will provide the following list:

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E) Editor flags

L) Log flags

W) Logon flags

U) User list flags

R) User flags

T) Tree flags

Type return to Exit

Type \* to see display

For instance, if we type “E” we are presented with a list of the editor flags:

Abort verification?Yes

Cut off in editor if time expires?No

“Abort verification” means that Nova Link will ask the user to confirm an “Abort” command, before terminating the editing session. The next flag determines whether a user will automatically be logged off, even while using the editor. Generally, it is more polite to allow the user to finish the message, before signing him off.

Here is a summary of the other system flags and their meanings:

### Log Flags:

L)Add logons & logoffs to user log?No

P)Add posts to log?No



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N)Add new users to log?No

These flags govern what information is tracked in the userlog. (The userlog can be read with the “Read Userlog” command).

### Logon Flags

- A)Print total # of calls?
- B)Print total # of calls today?
- C)Print last caller's name?
- D)Print last call time?
- E)Print time of this call?
- F)Print # of calls by the user?
- G)Print posts/uploads/downloads/mail?

These flags govern the information displayed when the user logs on. You may show the user the total number of calls your board has ever received, that it received today, who the last caller was, the last time this user called, the current time, the total number of calls from this user, and a list of the number of messages posted, files downloaded, uploaded, and letters sent.

### UserList Flags

- F)Display calling from in user list?No
- T)Display computer type in user list?No

These flags determine the type of information displayed when a user issues a "List Users" command. Nova Link may display each user's home city and computer type if you wish.

### User Flags

H) Allow handles? Yes

P) Private board (no new users)? No

W) Where is user command accessible by all users? Yes

These flags affect how Nova Link handles users. You may or may not allow "handles" or nicknames for your users; you also may restrict membership to the current users. The "where is user" command allows users to find out what other users on other nodes are currently doing. If the flag is "no" then only sysops will be able to use the "where is user" command.

### Tree Flags

E) Edit After Save?

S) Start message numbering at 1?

T) Print time left at command line? Yes

D) Auto delete files that have been killed? No

U) Make new uploads in file libraries public immediately?

These flags determine various other actions in the tree. You may allow your users to edit

their messages even after they have already been posted—always, only if there are no sub-branches or never. You may start message numbering at another number besides one; you may not have the time remaining printed at the command line. The last two options are usually reserved for private boards: you may choose to have files that have been “killed” either immediately removed, or wait for your decision. You may also have uploaded files made publicly available without waiting for you to review them.

## EDITING TEXT

You will want to give your Bulletin Board its own style and personality. You will have to decide whether this will be a public BBS or private, devoted to one interest or many. You will have to edit the text that the users see at various points of your Bulletin Board. The first one is the welcome text, so we will edit this first.

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Each text has its own name. Type “E” and you will notice that Nova Link responds:

```
[16:34]Command>Edit
```

The number inside the brackets keeps track of the time (expressed in standard hour:minutes format) remaining per day (you may disable the display if you wish, see “Editing System Flags” below). Most users will naturally be granted a smaller allotment of time than you, as Sysop have. If a user's time allotment expires, he will not be allowed on your system until the next day.

Notice how Nova Link correctly anticipates your commands and saves you the needless trouble of typing the entire phrase. From hereon, the letters you type (always the first of letter of the command) will be underlined for clarity's sake.

Now type:

```
[16:34]Command>Edit Text:welcome
```

Be sure to hit the RETURN key after “welcome.” Notice that you must provide the name of the text to be edited in full. Nova Link maintains several of these pieces of text (that is, messages that appear at various points in your bulletin board). The “welcome” text is the one that greets the user when he first connects to your machine. A complete list of text names appears in the Reference Section.

You have now entered Nova Link's powerful text editing facility, that allows correct paragraph formatting even on different screen widths. No longer will your beautifully formatted text be mangled on someone else's computer. Nova Link accomplishes this magic by “wrapping” words to the next line when the edge of your screen is reached.

The user indicates a new paragraph by hitting the RETURN key. Nova Link remembers whether the end of a line was word-wrapped, or whether the RETURN key was struck. It then uses this information to display correctly the text on any type of computer.

Nova Link already provides a “welcome” resource, but we wish to make our own, we will type a period “.” and a “d”. Nova Link will respond:

```
>>Delete:=-
```

We wish to delete all the lines, so we type a dash “-” to indicate the total range of lines. If we wished, we could have have specified line numbers. For those commands that can take line numbers, we have great flexibility in how we specify them. For instance, “5-6” after the “Delete:” would delete both lines 5 and 6, “-7” would delete all lines from the beginning up to and

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including line 7, “4-” would delete line 4 and all lines after, while a simple dash “-” (as we have just typed) would delete all lines. Most commands have a default, or setting if the Return key is simply pressed. For the “Edit” and “Delete” commands the default setting is the last line typed.

Now let's type a friendly welcome message:

```
Welcome to my new Nova Link Bulletin Board.  I hope to use this board for
all srts of fun and interesting activities!  Please sign-up and join teh
ever-growing community of online users.
```

Unfortunately, we have made two mistakes in the second line of our warm greeting. In order to spell “the” correctly we will first “List” the entire text. Remember that all editor commands are preceded by a period.

```
>>List:-
```

We may either type the dash ourselves, or hit the RETURN key and let Nova Link do it. Nova Link now prints a “listing” (lines of text preceded by their number):

```
1:Welcome to my new Nova Link Bulletin Board.  I hope to use this board for
2:all srts of fun and interesting activities!  Please sign-up and join teh
3:ever-growing community of online users.
```

We will now edit the second line:

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```
>>Edit:2
```

and Nova Link responds:

```
Original line #2
```

```
all srts of fun and interesting activities! Please sign-up and join teh
```

```
Retype line, start with period (.) to start with original
```

Nova Link gives us the option of retyping the line from scratch, or editing the original line by placing the cursor after the last character. In order to work with the original line we type a period. We then backspace over the “eh” in “teh”, and type “he” just as we would to correct any typing error.

In order to put the “o” back in “srts” we could retype the entire line, but a more convenient solution exists. We will replace “srts” with “sorts” like this:

```
>>Find:srts
```

The ”Find” command will search the text for a give string, once Nova Link finds the string, it asks:

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Find[ (N)ext, (X)it, (R)eplace, (A)ll] :

Next searches for the next occurrence, Exit takes us out of the find routine, Replace will replace this occurrence with a string we specify, All will replace all occurrences of this string with the one we specify. Since this is the only "srts" in the text resource we will:

Find[ (N)ext, (X)it, (R)eplace, (A)ll] :Replace with:sorts

We can verify the changes by "listing" our text resource.

Let us assume that we are satisfied with this message. Now type a period (.) followed by an S. By the way, if you actually desire a period at the start of a sentence, type a period twice (..).

>>Save

will now appear. Alternatively, an "A" would abort the message and allow you to leave the text editor without saving any text or changes.

Nova Link also has several more text editing facilities, including:

>>Insert :

This command inserts text before a specified line. For instance,

>>Insert:4

This is now line #3



Would insert our text after line number 3 and renumber all subsequent lines. If we wish to exit insert mode, and begin typing in text from the end of the file, we order:

```
.>>Xit insert mode
```

The “Move” command will transfer lines of text from one point to another:

```
>>Move:1-3,10
```

Will move the first three lines of text, and place them after line 10, and renumber all the lines. The “Copy” command is similar, only that it leaves the original lines intact, and transfers a copy to specified starting line:

You will now have to edit or create various other texts, including the logoff message. Remember these can be changed at any time, so nothing

you type need remain permanent.

Although Nova Link provides default messages for all of these text resources, you are strongly encouraged to create your own. Remember that no two Bulletin Boards should be identical, each one should reflect its purpose and the personality of the sysop. Let your imagination loose!

## THE TREE

Nova Link's tree structured message base enhances the maintenance of large amounts of files and information. Unlike most "laundry-list" flat message bases in which messages are ordered sequentially, Nova Link allows you to organize its messages and files in a hierarchy, with a virtually limitless number of levels.

When a user first logs on, he or she is at the Toplevel of the tree hierarchy.

The terminology may seem to be upside-down since trees usually grow from the ground up. It may be helpful for some think of Nova Link's structure as the root system of a tree, branching ever lower into the ground.

Tree structures are valued because they permit the easy organization of large amounts of data. Like the Dewey decimal system which subdivides topics into more and more specific categories, a tree allows you to have, for instance, a message about "computers" then one about "Macintoshes" then one on "BBS's", and finally reach a flat file message

base about Nova Link where sequential messages—all about Nova Link—can be kept. Ordering this information solely on a flat file base could lead to a hodge-podge, chaotic list of messages. The user on a tree system can follow his or her own path, avoiding, or even “blocking” those branches of little interest. The user can also order a “newscan” which will survey the whole tree (or the parts designated by the user) for new messages.

Let us set up a simple tree. We will first create a branch for computers. Each sub-branch of this branch will be computer-related and each branch will lead to a more specialized topic. Type:

```
[16:34] Command>Add Here
```

Nova Link will then ask for the name of our message:

```
Name (Return to abort) >Computers
```

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and who it is principally addressed to :

To>All

and then the subject text: (limited to 55 characters)

Subject>This is our branch of messages about computers!

Nova Link will then put you into the editor, where you can compose your full message.

While in the editor, you may also:

>>Edit To

and

>>Edit Name

>>Edit Subject

To change a message's name, subject and addressee.

That is all we have to do. Now the branch exists for computers.

If we list our branches we will see it:

[16:34]Command>List Here

and we see:

Listing of Toplevel

1) Computers

we type “1”, to move onto that branch. We now want to create a sub-branch and the process is identical to the one above. Except this message will be a sub-branch of “Computers” entitled “Macintosh.”

```
[16:34]Command>Add Here
```

Nova Link will ask for a name:

```
Name(Return to abort)>Macintosh
```

and so forth.

When we finally reach a topic in which several messages may be pertinent, a flat message base makes sense. We will create a flat message base a little later on.

As you probably realize, the branches will grow in the more popular categories and stagnant in the less popular ones. Therefore, the richer and more complex topics will also be the most popular. On very large Nova Link BBS, it is possible to wander for quite a while around the tree. If however, you wish to return to the toplevel quickly, simple type:

```
[16:34]Command>Move Toplevel
```



## CREATING A MENU

You may wish to construct a “menu” (a list of choices) on your toplevel, in order to facilitate the user's introduction to your Nova Link BBS.

Do not confuse a bulletin board menu, a list of choices presented on the screen, and selected by typing a letter, with Macintosh menus that appear on the top of the screen, and that you select with the mouse. Since people with many types of computers will be calling your BBS, the menus they see will be the traditional BBS type. From hereon, unless specifically defined, “menu” will refer to the BBS type.

Remember that you can create a menu, or a series of menus, anywhere in the tree. For instance, a choice on a menu can lead to another message which is itself a menu, and so on. While you probably will not want to make most of your BBS menu-driven (since this inhibits the user's freedom), it is possible to do so.

Let us make a simple menu choice that allows the user to log off your bulletin board.

We will move to the “Sysops Section” from the main menu by typing “S”.

We will start out with a message that will list the choices and type the prompt. We type

```
[16:34]Command>Add Here
```

to create a “Menu” message, we type:

```
[L] Logoff
```

```
[T] Enter the tree
```

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```
[S] Send Chat Request to Sysop
```

```
Please type your choice:
```

```
>>Save
```

we will terminate the last line with a CONTROL-W instead of a RETURN after the word “choice”, so that the cursor will stay behind the word “choice”. On Macs without a control key, use the OPTION key instead. Control-W is equivalent to a RETURN, except that it will not move the cursor to the next line when the message is re-printed.

Now, starting at the menu message, we will create each menu choice as a branch of the menu message. We use the:

```
[16:34]Command>Add Special Logoff Here
```

command. We also wish to create a letter equivalent, so the user will only have to type “L” to logoff. Type:

```
[16:34]Command>Edit Key 1
```



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the "1" refers to the first sub-branch. Nova Link will display:

```
Old Key:None
```

```
New key (Return for none) :L
```

After typing "L", we move back to our menu message and type:

```
>Edit Message Menus on
```

this turns on our menu and we're all set! Naturally you will want to add more commands to your menu, before you "edit message menus on." To turn off menu mode for this menu (to edit it, or, as we have just done, if you forgot to make a command to get out of it), we type "@" (at sign). This command will only work for those with sysop access, so that users cannot corrupt the system.

## EDITING USERS AND ACCESS LEVELS

When new users log onto your board, they are granted a low access level (See "Editing System Access Levels" above). You may wish to verify their identity before giving them access to your board. Nova Link provides a flexible method of access levels (permission to perform various activities on your board).

You may edit a new user's access level with the:

```
[16:34]Command>Edit User:2
```

Providing that you do in fact have a second user, Nova Link will then print something

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like the following:

```
User#1:A)Ms. User   is  b)Jane  C)Smith
Password:D)SECRET  Phone:E)4015555384
City&St:F)Providence, RI  Computer type:G)Macintosh II
First call:H)20:40:16  5/25/88  last call:I)11:27:21
5/11/88
Time allowed per day:J)100  time used today:K)10
# calls:L)41  # posts:M)10  # uploads:N)0  # downloads:O)0
# email:P)1
Access level  Q)  : 400  : 400  : 400  : 400
%)Repair user structure
V)erify User
Z)Delete user
Type RETURN to exit
Type * to see display
UserEdit>
```

Nova Link allows you to repair the user structure if it should be corrupted by a hardware failure or power outage. You may also verify the user. Nova Link keeps track of verification status with the “Edit System Verify” command. You may also delete the user. The “Access level” line determines how much latitude a particular user may have. Certain messages, for instance, may only be seen by those users whom you have verified. To prevent unauthorized access to areas of your board, you would:

```
[16:34]Command>Edit Read access
```

to prevent the message from being read. Also, you may not wish people to add messages at the higher levels of your tree. You may wish to provide guidance as to what topics will be covered (for example, "Computers," "Philosophy," but leave the specific sub-branches "Cray Supercomputers," "Stoicism" to your users.

As you may have noticed, Nova Link employs a four number type of access level. You may use these four numbers in any manner you choose. When first constructing your board, it may be handy to have the first number govern the access level for the essential board. The next three numbers are useful in tailoring a user's access level for some parts of your board and not for others. For instance, if you were to devote an area of your tree to a discussion of fine French wines, you may wish to exclude certain minors whom you do not wish to corrupt. The second number could then govern access to your fine French wines section, without in any way interfering with that minor's access level on the rest of your board. In this manner, you have great flexibility in tailoring your board and your users' access levels.

Let us move to the top level of our tree-structured message base (where we created our "Computer" message earlier). Let us assume that we will not allow anyone but ourselves to alter the tree at this level. We type:

```
[16:34]Command>Edit Write access
```

Nova Link responds:

```
Edit write access-
```

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Old Access: 0 : 0 : 0 : 0

New Access: 1000 : 1000 : 1000 : 1000

As you can see, with the old access set at zero any user could alter the tree at this high level. We have adjusted the access levels to prevent anyone but ourselves from changing the tree at this level.

It is important to know, however, that the sub-branches inherit the read and write access levels of their parents. If we were to leave the tree in this condition, it may not be possible for your users to edit the sub-branches. It is best, therefore, to wait until sub-branches exist before raising the access level of the top message.

To change the fundamental access level allowed by your system, type:

```
>>Edit System Access levels
```

Nova Link will display something like the following:

After entering the command, you will see this screen:

A)New user access level : 100 : 100 : 100 : 100

B)Kill access level : 900 : 900 : 900 : 900

C)Sysop utilities access level : 900 : 900 : 900 : 900

D)Vote access level : 100 : 100 : 100 : 100

E)New files access level : 800 : 800 : 800 : 800

Type Return to exit

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Type \* to see display

SysAccess>

“New User” access level determines the access level of a new, unvalidated user. Kill access level determines who is allowed to delete files; Sysop utilities governs who is allowed commands usually reserved for Sysops; the vote access levels determines who may answer voting topics; and the new files command governs whether a user may see newly uploaded files.

#### ADDING A VOTING TOPIC

You may wish to add “voting topic” areas of the board where users may

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answer a poll. Each user may answer the question only once; the respondent's name is not recorded.

To add a voting topic at any place on the tree, type:

```
[16:34]Command>Add Vote Here
```

Nova Link will put you in the editor, where you will write the question (not the possible answers). For instance, we could type:

```
Who is the greatest artist of all time?
```

```
>>Save
```

Nova Link will then prompt us for the possible answers, which we will fill in with the appropriate answers:

```
Answer#1 Picasso
```

```
Answer#2 Bruce Springsteen
```

and so on, until we have covered the possible choices. We will simply hit the RETURN key at the "Answer#3" prompt to tell Nova Link that we are done with are list of choices. Now users will have a chance to answer our survey, and view the results of the poll thus far.

USING EMBEDDED TEXT

If you desire a more complex survey, in which users are free to form their own responses, Nova Link provides a means of recording users' responses. By embedding commands in your text, certain portions may only be printed to certain individuals or questions.

You may use embedded text to place notices on logon that will be seen only by those users who have not seen it before. You may also create surveys that solicit information, for validation purposes, perhaps. The options are entirely up to you. Embedded commands can be placed in any editable text.

Let us create a simple example. You place embedded text in a file, with a CONTROL-Z (or OPTION-Z) in an ordinary text message. The command-Z tells Nova Link that the following is an embedded text command, and Nova Link prints: “[EditCmd]” to signify that an embedded command follows. Below is a summary of embedded text commands:

<u>Cmd</u>	<u>Parameter format</u>	<u>Description</u>
+	(no parameters)	Turns “enable read flag” ON, always
-	(no parameters)	Turns “enable read flag” OFF, always
W+		Enables word-wrap.
W-		Disable word-wrap.
T	(no parameters)	Toggles “enable read flag”
R	(prompt)	Prints prompt then waits for user to type RETURN.
A	####,####,####,####	Turns “enable read flag” ON if users access is equal to or above the access given in the params. (formatting here is strict: 4 digits for each number, separated by commas with no spaces)
B	MMDDYY,HHMMSS	Turns “enable read flag” OFF

is the user has called since the given date time, else turns it ON. (B stands for “Bulletin”)

- P (text resource name) Prints the contents of a text resource onto the screen. The printed text resource can have embedded commands of its own.
- O (text resource name) Opens “filename” as the output text resource for the “C”, “U” and “I” commands.
- I (prompt) Prints the prompt, waits for the user's input, and writes the input to the open text file (see “O” above).
- U (no parameters) Writes a line and the user's handle to the open text resource. Useful for tagging a survey.
- C (comment) Writes the comment to the open text resource. Useful for tagging responses
- L (string) Writes string to the userlog.
- V ##### Verifies, or asks a question of the user, where # is the answer (either “N” or “Y” and ##### is the question prompt.; if the user's response does not match #, then the message is halted, and no further text or commands are printed.
- ^ ##### Asks a question of the user, where # is the answer (either “N” or “Y” and ##### is the question prompt.; if the user's response does not match #, then the entire message is started over again.



Do not worry if you do not understand these commands just yet. We will cover just a few of them here, there is a full discussion in the Reference Manual.

Let us assume you want to place a message seen by everyone when they log on your board. You do not wish to be repetitive, however, so you decide each user will see the message only once. We will therefore edit the text “logon”. First we will edit the original “logon” text.

```
[16:34]Command>Edit Text:logon
```

We then delete all its lines:

```
>>Delete:=-
```

and start entering our own. Our first embedded command will compare the user's last logon time with the specified time. If the logon time is later then Nova Link will assume that the user has already seen the message, and thus not print it. Although we would usually type CONTROL-Z as the first character on a line to indicate an embedded character there is one handy short-cut. We can type “.=” and Nova Link will fill out an embedded “B” command with the current time. We type “.=” and Nova Link displays:

```
[]EditCmd[]B061288,160237
```

Naturally, the time indicated after the “B” will differ. All users who call from now on will see this message only once.

We can now type any message we want, and it will be seen at logon time only if the user

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has not seen it before:

This sentence will be printed only once for each user. And thankfully so.

Let us imagine however that we want a another message to be displayed only if the first one has not been printed out. We can do this by “toggling” or flipping the “read enable flag.” The read enable flag governs what will be displayed. If it is off, the text will not be shown. For instance, on our text line we could type:

```
[]EditCmd[]T
```

This message will be seen if the previous one was not since it changes the read enable flag from its previous condition. Gosh, this is a boring message.

Suppose, however, that we wanted some part of our message to be seen every time a user logged on. We could set the “enable read flag” on (regardless of its previous condition). This would ensure that every user always saw this part of the message. We now type, CONTROL-Z followed by a plus sign “+”:

```
[]EditCmd[]+
```

and type the next line:

This line will be read by all users each time they log on,

because the enable read flag is now set. Please support my bulletin board by donating lavish gifts.

## ADDING A FLAT MESSAGE BASE

While the tree structure can be a great deal of fun to explore, some topics lend themselves to “flat” message bases found on most other BBS systems. A flat message base is a sequential list of messages.

Flat message bases can also be useful for those BBS users unfamiliar with the tree concept, and who may wish for more familiar surroundings. You may wish to start out with a flat message base. Many users, however, after growing accustomed to using the tree to post messages, no longer find themselves using the old-style, flat message bases.

Creating a flat message base is similar to creating a message. You may add flat message bases anywhere on your tree, although they are usually placed several layers “deep,” since there can be no sub-branches below a flat message base. Flat message bases can also be accessed through menus. To create a flat message base, we will first enter the tree. Then we type:

```
[16:34]Command>Add Message base Here
```

Nova Link will prompt you for the name and subject, just as with an ordinary message. Nova Link however will also ask for the maximum number of messages:

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Maximum number of messages: 400

Since we expect this to be fairly popular we will allow a limit of 400 messages, after which the earliest messages will be deleted.

The commands used in a flat message base section are different from the ones used to navigate the tree. Here is a summary:

E    Exit message base  
N    Newscan (same as RN command)  
P    Post a message  
RF   Read forward from #  
RR   Read reverse from #  
RI   Read individual:  
RN   Read New

For instance, to read any new messages since the last time you were in this section, type “RN,” and Nova Link will display the new messages. To post one of your own, type “P”. Nova Link will respond:

```
To>all
```

```
Subject>hi all!
```

```
Edit message
```

```
Editor: Type '.S' to save, and '?' for help>
```

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Now we type our message:

This is the first message in our message base! I hope many more will follow more interesting than this one.

>>Save

Now we will want to read the message we have posted:

Command>Read Forward from #1

and Nova Link prints something like the following:

Message #1

From: John Smith To:all

Posted at 4:38:14 PM on 6/24/88 Times Read:0

Subject: hi all!

This is the first message in our message base! I hope many more will follow more interesting than this one.

A)gain N)ext R)eply Q)uit

Nova Link gives you the option of reading the message again, reading the next message, replying to the one here, or returning to the flat message base menu.

To help new users understand the uses of the flat message base, the text resource, “FlatPromptHelp” is printed automatically when someone enters the flat message base if ”beginner mode” is active.

## ADDING A FILE SECTION

Nova Link can treat files and messages as virtually interchangeable. Instead of creating a message, for instance, a user could upload a file at any point in the tree. For instance, instead creating a message, you can issue a:

```
>>Add File:
```

command. Nova Link will ask you for the name and other information. If you are logged on locally you will have to specify a pathname (a list of the disk's name, each successive folder, and the file' name itself separated by colons, e.g. “Myharddisk:games:arcade:meteors”). When a user selects the branch your file is on, Nova Link will ask the user whether he wishes to download it.

While this system allows maximum flexibility, it can lead to a rather disorganized structure if users are careless. Certain types of files moreover (like certain types of messages) may be more naturally grouped in a sequential list.

File sections or “libraries”, like their counterparts, flat message bases, are places where related files may be stored. You may, as always, place file libraries anywhere on your tree, although they are usually several layers deeps since file libraries have no sub-branches.

To create a file library, type:

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[16:34]Command>Add File Section Here

Nova Link will ask you for the name of the section, its subject, just as it does with any message. Nova Link will also ask you for a folder name to place the files into on your disk. If you wish to keep them in the same folder or directory as Nova Link, simply hit the RETURN key.

File libraries have a different set of commands than the tree. Here is a summary:



U Upload a file

D Download a file

L List all files in the library

N list only the New files in the library

R Release a file into the library

K Kill or delete a file from the library

The text resource “LibraryPromptHelp” is printed whenever a user in “beginner” mode enters a file section.

When you wish to upload a file, Nova Link asks you to name the file, to type in a short description for it (76 characters), and to type in a long description for it (as long as you want using the editor), before you start sending the file to the BBS.

Ordinarily, users will send their files to your BBS with their telecommunications program. If you wish to upload a file locally, you will have to give a “pathname”, or, if the file is in the same folder as Nova Link, you need only give its name.

To download a file, you may either type in the file number, or its name. Nova Link will then give you the long description of the file, and ask you if you wish to proceed with the transfer. If you do wish to continue, Nova Link asks you the transfer type (“MacBinary” for most Macintosh files), and starts the transfer.

The List command will print out a list of all the files, how many times they have been downloaded, the date on which they were uploaded, their size, and their short descriptions.

The New commands operates exactly like the List command, except only those files uploaded since your last visit will appear.

The Release file command, accessible only to sysops and sigops of the current section, will make the file public to all users. When a file is first uploaded, it is put in a private section, for the sysop to check it out before it is made public. If the system flag (see Edit System Flags) “Make new uploads in file libraries public immediately” is set, then new uploads are immediately made public. If the Release command is applied to a file that is already public, the file will be put back into the private section.

In operating a public board, the Sysop should always check a file before making it publicly accessible. You will not want commercial files, virus-infected files, obsolete or inappropriate files making their way onto your board, so be sure to scrutinize all uploads first. Remember that you may be legally liable if pirated files are available on your board.

The Kill command will delete a file. Only sysop/sigop or the person who uploaded the file are allowed to delete a particular file. If system flag 'V' is set, then the file on the disk will be immediately erased, otherwise the file will remain on your disk, but its name will be put on a list of “about to be deleted” files for the sysop to pass judgment on (see 'Read Disk')

command in the Reference Section).

It is also possible to make file libraries menu-driven. For instance, you could create a message looking something like this:

```
File and Message Area
=====
R   Read Messages
P   Post Messages
L   List files
N   List new files
U   Upload a file
D   Download a file
B   Back to previous menu
>>Save
```

You could then create sub-branches like the following:

- 1)Mac Message Base
- 2)Read Message base
- 3)Post in base
- 4)Macintosh Files
- 5)Upload
- 6)Download
- 7)List

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8) New

9) BackMacintosh Menu

You would then connect “Mac Message Base” to choice #1 by using the “Edit X-mark” command. You would create the flat message base, and order:

```
>>Edit X-mark 1
```

Then you move back to your menu message. Now type:

```
>>Add Special Jump Here
```

this will tell Nova Link that the following commands will operate on the flat message base where you left the “x-mark.” In other words, you have to creat link between your menu choics and the flat message base they will work on.

Now you move to the sub-branch, say #2. And issue a:

```
>>Add Message Base Special Read
```

and finally you edit the key:

```
>>Edit Key 2
```

The other commands available are:

### Add Message base Special

Read

Post

### Add File Section Special

Upload

Download

List

New

With these commands it is possible to create menus very similar to Red Ryder Host flat message bases and file libraries. To do so, however, is also to overlook many of Nova Link's more powerful and flexible ability to organize messages and files.

## SENDING AND READING MAIL

Although you will probably wish to make the sending and reading of mail a choice from your main menu, users may send mail from any point in the tree to another user, with the

```
[16:34]Command>Send Mail
```

command. Nova Link will prompt you for the user's handle or ID number. You will then be placed in the editor where you can compose your message. If you wish, you can send the current version of your letter to other users with the

```
>>Save a Copy to:
```

This command sends the letter immediately and in its current state to the user you specify. In this manner you can send slightly different versions to different users. If you are replying to a letter and wish to display the letter again, type:

>>Read Message

If you wish to check a list of users, simple type:

```
[16:34]Command>List User
```

before you issue a “send mail” command. When you log on, Nova Link will tell you that you have letters waiting, and offer you the option of reading them.

## BUILDING THE REST OF YOUR BOARD

You can now proceed to create as much of the rest of the bulletin board as you wish. You can add file libraries, flat message bases, edit new users, and so forth. You can continue building from the sample board, or create your own from scratch. If you need help with individual commands refer to the Reference Manual.

This tutorial has shied away from dictating how your Nova Link bulletin board should look. We encourage you to construct your board according to your own tastes. If, however, you want more ideas, we suggest you call several other bulletin boards to see how other Sysops have managed theirs. Remember that the best advice often comes from experienced individuals. There is no right or wrong way to create a BBS, and with Nova Link, there are more options than can be explored.

Good Luck and happy BBS'ing!

## CONFIGURING YOUR MODEM

If you have a Hayes-compatible modem, the files supplied with Nova Link will require little or no editing. You may have to edit the “ModemAnswer” text to take advantage of your modem's speed.

If your modem is not Hayes-compatible, then you will have to edit the modem texts. You edit these texts as you would any other Nova Link text, by use of the >>Edit: and >>Save commands.

There are eight texts (edited with the “Edit Text” command) that govern the way Nova Link uses your modem(s). Their names are “ModemInit”, “ModemHangup”, “ModemAsk”, and “ModemAnswer” for the modem port, and “ModemInitP”, “ModemHangupP”, “ModemAskP” and “ModemAnswerP” for the printer port.

“ModemInit” is sent to the modem when Nova Link is booted up, when a call is terminated, and every two minutes while waiting for a phone call. “ModemHangup” is sent to the modem when Nova Link wants to hang up the phone. These modem texts are basically the same as every other text resource; they do include pauses (created by hitting the RETURN key) so that the modem has time to respond before the next command is sent. You may also embed pauses without a RETURN, by using the backquote (`), which is on the same key as the (~) key, on the top left of Mac Plus and extended keyboards, and to the left of the space bar on Mac SE/II normal keyboards. For instance, for Hayes

modems, the hangup sequence consists of using “+++” to go into command mode, and then “ATH” to hang up the phone. The text resource would be something like “+++` `` `ATH”. An automatic pause is placed before and after the “ModemInit” and “ModemHangup” text resources. Note that the pause techniques described above are only for the modem resources, not for all text resources.

If your modem requires a different sequence to hang up the phone, you would edit the “ModemHangup” text with the correct commands.

The default “ModemInit” and “ModemHangup” texts, for the AppleModem 300/1200 are:

ModemInit:

AT

ATZ

ATM0X1

ModemHangup:

+++` `` `ATH0

The “` ” (backquotes) indicate pauses.

The modem text “ModemAnswer” describes the messages that are sent by the modem when a connection is made. Nova Link can handle 300, 1200, 2400, 4800, 9600, and 19,200 baud. To find out which baud rate the connection was made at, Nova Link checks the last four characters of each line (before the <CR>). For instance, the messages sent



(or, in computer jargon, “prophesized”) by the Hayes standard in extended message mode are:

<u>Message</u>	<u>BaudRate</u>	<u>Last four chars</u>
CONNECT	300 baud	NECT
CONNECT 1200	1200 baud	1200
CONNECT 2400	2400 baud	2400
CONNECT 4800	4800 baud	4800
CONNECT 9600	9600 baud	9600
CONNECT 19200	19200 baud	9200

The format of the “ModemAnswer” is as follows: The first character specifies the modem initialization baud rate. “1” is 300 baud, “2” is 1200 baud, and so on. Then, for each baud rate, in the order listed above, the last four characters of the connect message are taken, and they are all concatenated on the first line of the file. For instance, the “ModemAnswer” file for the above set of connect messages with an initialization baud rate of 300 is:

```
1NECT1200240048009600
```

If you only have a 1200 baud modem however, the format should be:

```
1NECT1200
```

or if you have a 2400 modem that only operates at 2400 or 300 baud only:

```
1NECT-----2400
```

The dashes indicate that the baud rate is unavailable. Sysops can use this feature to lock out 300 baud users, even if the modem can handle them. In this case, the Sysop would replace the "NECT" with "-----". If the connect message is garbled for some reason, Nova Link will go through all available baud rates and print out the "ModemAsk" text resource which should say something like "Press RETURN". When the user presses return on the available baud rate, it will connect. The reason for putting dashes on baud rates is so that Nova Link will not waste time trying baud rates that are impossible.

The modem text resources for the printer port are the same names except with a suffix "P".

