```
:BBCBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
```

Sample NetProb.log

```
Dec 1 09:46:06  15856   NetProb         Inactivity timeout expired.
Dec 1 09:46:06  15856   NetProb         Priority changed to high.
Dec 1 09:50:12  15883   NetProb         Inactivity timeout expired.
Dec 1 09:50:12  15883   NetProb         Priority changed to medium.
Dec 1 09:53:09  15940   rvs             Specialist changed to F.Y.I..
Dec 1 09:53:09  15940   rvs             Status changed to assigned.
Dec 1 09:54:04  15939   rvs             Status changed to working.
Dec 1 09:54:05  15939   rvs             Specialist changed to rvs.
Dec 1 09:55:22  15939   rvs             Status changed to done.
Dec 1 09:55:24  15943   NetProb         Received.
Dec 1 09:55:24  15943   NetProb         Chained to ticket 15939.
Dec 1 09:55:51  15937   eklein          Status changed to delete.
Dec 1 09:56:19  15875   NetProb         Inactivity timeout expired.
Dec 1 09:56:19  15875   NetProb         Priority changed to medium.
Dec 1 10:06:13  15935   rvs             Status changed to delete.
Dec 1 10:08:35  15854   NetProb         Inactivity timeout expired.
Dec 1 10:08:35  15854   NetProb         Priority changed to high.
Dec 1 10:08:35  15855   NetProb         Inactivity timeout expired.
Dec 1 10:08:35  15855   NetProb         Priority changed to high.
```

Sample NetProb.users

A NetProb users entry consists of 5 fields separated by colons and terminated by a newline character. The first field contains the users real name. The second field contains a list of accounts for the user. The accounts should be separated and terminated with a space ’ ’. The next field is the users access level by group. A = none, B = read only, C = specialist, D = administrator. The second to last field is the users default group. The last field is not used.

```
Network Administrator:nethelp@* nm@* nm@pub2 nm@pub2*
nm@acs*:DDDDDDDDDDDAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAA:0:2
Mike Amirault:ambi@*
:DDDBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA:2:2
Charles von Lichtenberg:chuckles@buit* chuckles@bass*
:BDDBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA:2:2
Eric Klein:eklein@buit* eklein@fosters* eklein@pub2 eklein@acs*
eklein@bass*
:BDDBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
Ram Das Rao:ramdas@bass* ramdas@buit* ramdas@pub2* ramdas@acs*
ramdas@bunsegc
:DDDBBBBBBDBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
Bill Yu:hairless@buit*
:BBCBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
Khanh Le:khanh@buit*
:BBCBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
Kin F. Choy:kin@buit*
:BBCBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
Heriberto Rosario:quietguy@buit* quietguy@pub2 quietguy@acs* quietguy@bass
:BBDBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA:2:2
Brian A. LeBlanc:leblanc@buit* ::2:2
Richard Nelson :rick@buit*
:BBCBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAA:2:2
Minh Nguyen:jdean@buit*
:BBCBBBBBBBBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAA:2:2
Kathleen Wehner:kmw@buit*
```

Sample NetProb.groups

A NetProb groups entry consists of 5 fields separated by colons and terminated by a newline character. The first field is the name of the group. The group symbol is located in the second field. A list of aliases separated and ending with a space ' ' occupies the fourth field. The fifth field is a list of the default ticket timeouts. These timeouts are separated by a space. The last field is the default access for this group: A = none, B = read only, C = specialist, D = administrator.

```
NetProb Administration:A:netprob-help@ :24 24 24 24 24 :B
Open:-:default :24 24 24 24 24 :B
Network Systems Group:N:nethelp@* NETHELP@* pub-xterms@* :24 24 24 24 24 :B
ACS Help:O:help@pub2 bugs@pub2 help-pub2@* help@pub2* bugs@pub2* bugs@acs*
help@acs*  Help@acs*:24 24 24 24 24 :A
Central Consulting:C:central@* :24 24 24 24 24 :A
Bugs - Classic Pub:B:bugs@bu-pub* help@pub help@pub.bu.edu bugs@pub
bugs@pub.bu.edu help@bu-pub* help-pub@* :24 24 24 24 24 :B
Bugs - Conx:X:bugs@bu-conx* bugs-conx@* bugs@conx* bugs@grizzly*
bugs@polar* bugs@koala* bugs@panda* bugs@bucrf* bugs@BUCRF* bugs@teddy* :24
24 24 24 24 :B
Speech Lab:L:help@raven* help@formant* :24 96 96 96 96 :B
Chemistry:D:ch101-help@* :24 24 24 24 24 :B
Hostmaster:H:hostmaster@* host-updates@* nseg-hostmaster@* :24 24 24 24 24
:B
Biology:R:HELP@BU-BIO* help@bu-bio* bugs@bu-bio* root@bu-bio*
postmaster@bu-bio MAILER-DAEMON@bu-bio* Mailer-Daemon@bu-bio*
Postmaster@bu-bio* downtime@bu-bio* :24 24 24 24 24 :A
```

```
<Day_of_Month|2> <Time|5>  <Subject|35>  <Chain|5> <Specialist|8>
<Status|10> <Groups|7>
FORMAT:Ascii:<Ticket|5|Left>  <From|15|Left>  <Subject|20> <Specialist|8>
<Status|10>
RULE:All Tickets:( Ticket = * )
RULE:My Group:( Groups = MY_GROUP )
RULE:Deleted Tickets:( Status = delete )
RULE:Group-L:( ( Groups =  L )  AND ( Status != delete ) )
RULE:Group-NSG:( ( Groups = N  )  AND  ( Status != delete ) )
RULE:Open Tickets:( ( Groups =  - ) AND ( Status != delete ) )
RULE:Group-H:( ( Groups = H )  AND  ( Status != delete ) )
RULE:Group-Biology:( ( Groups = R )  AND ( Status != delete ) )
RULE:Group-NSG:( ( Groups = N  )  AND  ( Status != delete ) )
RULE:Open Tickets:( ( Groups =  - ) AND ( Status != delete ) )
RULE:Group-H:( ( Groups = H )  AND  ( Status != delete ) )
RULE:Group-Biology:( ( Groups = R )  AND ( Status != delete ) )
RULE:Group-ACS:( ( Groups = O ) AND ( Status != delete ) )
RULE:Group-PUB:( ( Groups = B ) AND ( Status != delete ) )
RULE:Group-X:( ( Groups = X ) AND ( Status != delete ) )
RULE:Group-C:( Groups = D )
RULE:Ascii Rule:( Groups = N )
PREF:0::0
PREF:1::0
PREF:2::0
PREF:3:/usr/local/bin/xemacs:0
PREF:4:iteast:0
PREF:5:    :1
PREF:6:    :0
PREF:7:    :0
PREF:8:    :0
PREF:9:    :1
PREF:10:    :0
PREF:11:    :1
PREF:12:    :1
PREF:13:    :1
PREF:14:    :1
PREF:15:    :1
PREF:16:Ascii View:0
PREF:17:    :0
PREF:18:    :0
PREF:19:    :0
```

17. NetProb File Formats

All of the files outline in section are maintained by NetProb. However, keeps all of these files in simple ASCII formats so the may edited in emergencies. The files and their formats are outlined below. *Note: Altering these files may void your warrantee...*

Sample .netprobrc5.0

The .netprobrc5.0 file contains a listing of a users Views, Formats, Rules, and Preferences. A view consists of a line that starts with the token VIEW. It then has five more fields that are separated by colons. the first field consists of a string which is the View name. The second field is the format name used by the view. The next field is the rule name for the view. The next field is the views state, 0 = closed, 1 = open. The last field is the number of visible tickets in the queue. This value must be greater then 0.

A format definition starts with the token FORMAT and has two fields separated by colons. The first field is the name of the format. The second field is the actual format data that is parsed by NetProb to display a ticket line.

A rule definition begins with the token RULE and has two fields separated by colons. The first field is the name of the rule. The second field is the actual rule. NetProb uses this rule to decide whether or not to include a ticket in a view list.

A preference definition begins with the token PREF and has three fields. The first field is the preference number. The second field is data that is specific to the preference. The last field is a state variable, 0 = off, 1 = on.

```
VIEW:Main List:Basic:All Tickets:1:40
VIEW:Tickets in my group:Basic:My Group:0:10
VIEW:Other Groups:Basic:Other Groups:0:15
VIEW:High Priority:Basic:High Priority:0:15
VIEW:Pending Problems:Basic:Pending Problems:0:15
VIEW:Network Systems Group:Basic:Group-NSG:1:1
VIEW:Biology Bugs:Basic:Group-Biology:1:1
VIEW:ACS Help:Basic:Group-ACS:1:1
VIEW:PUB Classic:Basic:Group-PUB:1:1
VIEW:Connection Machine Help:Basic:Group-X:1:1
VIEW:Speech Lab:Basic:Group-L:1:1
VIEW:Hostmaster:Basic:Group-H:1:1
VIEW:Chemistry:Basic:Group-C:1:1
VIEW:Open Tickets:Basic:Open Tickets:1:1
VIEW:Tickets to be deleted.:Basic:Deleted Tickets:1:1
VIEW:Ascii View:Ascii:Ascii Rule:0:1
FORMAT:Basic:<Ticket|5|Left>  <From|15|Left>  <Day|3>, <Month|3>
```

number 10, the command a 13 will add ticket number 13 to the ticket chain 10.

’d [ticket]’ : Deletes the ticket number if specified or the hilite ticket.

’F’ : Change ticket display format.
’g [ticket] symbol’ : Toggles the group symbol tag on the ticket.
’h ticket’ : Move hilite to a new ticket header.
’H’ : View ticket history.
’p priority’ : Change ticket priority. The priority should be either:

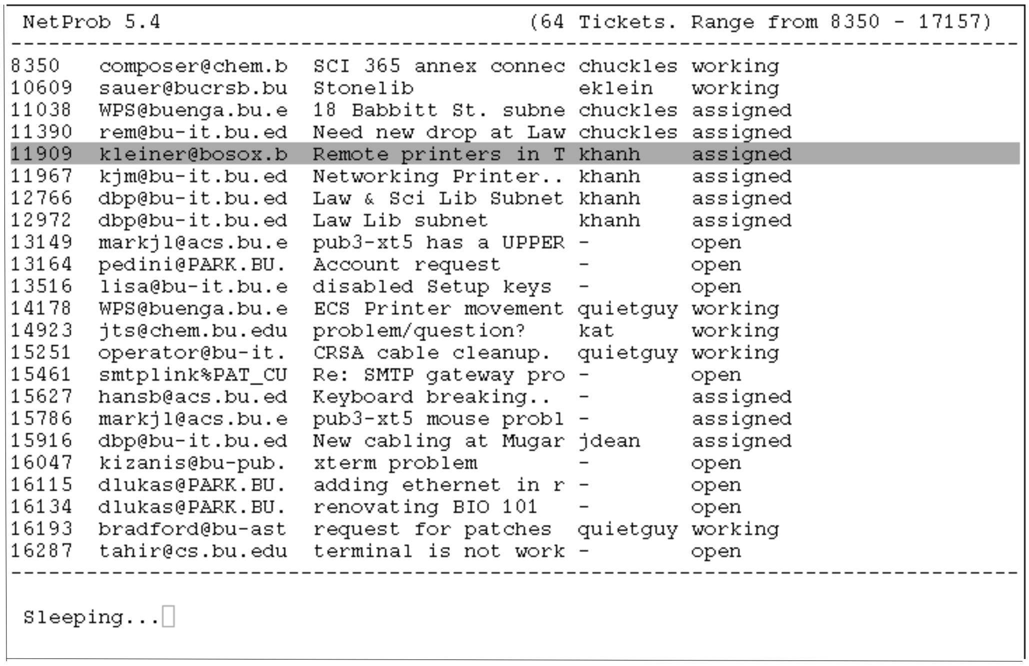
’n’ = none.
’l’ = low.
’m’ = medium.
’h’ = high.
’e’ = emergency.

’K’ : Shutdown NetProb server.
’r [ticket]’ : Reply to a ticket.
’R’ : Change rule.
’s status’ : Change ticket status. The status should be either:

’w’ = working.
’d’ = done.
’p’ = pending.
’a’ = assigned.

’t [specialist]’ : Change ticket specialist.
’u’ : Check server for updates.
’V’ : Change views.
’Z’ : Enter sleep mode.
’?’ : Help menu.
’<CR>’ : View the hilite ticket.
’q’ ’Q’ : Quit NetProb

16. Ascii Client



```
 NetProb 5.4                               (64 Tickets. Range from 8350 - 17157)
--------------------------------------------------------------------------------
8350   composer@chem.b  SCI 365 annex connec chuckles working
10609  sauer@bucrsb.bu  Stonelib             eklein   working
11038  WPS@buenga.bu.e  18 Babbitt St. subne chuckles assigned
11390  rem@bu-it.bu.ed  Need new drop at Law chuckles assigned
11909  kleiner@bosox.b  Remote printers in T khanh    assigned
11967  kjm@bu-it.bu.ed  Networking Printer.. khanh    assigned
12766  dbp@bu-it.bu.ed  Law & Sci Lib Subnet khanh    assigned
12972  dbp@bu-it.bu.ed  Law Lib subnet       khanh    assigned
13149  markjl@acs.bu.e  pub3-xt5 has a UPPER -        open
13164  pedini@PARK.BU.  Account request      -        open
13516  lisa@bu-it.bu.e  disabled Setup keys  -        open
14178  WPS@buenga.bu.e  ECS Printer movement quietguy working
14923  jts@chem.bu.edu  problem/question?    kat      working
15251  operator@bu-it.  CRSA cable cleanup.   quietguy working
15461  smtplink%PAT_CU  Re: SMTP gateway pro -        open
15627  hansb@acs.bu.ed  Keyboard breaking..  -        assigned
15786  markjl@acs.bu.e  pub3-xt5 mouse probl -        assigned
15916  dbp@bu-it.bu.ed  New cabling at Mugar jdean    assigned
16047  kizanis@bu-pub.  xterm problem        -        open
16115  dlukas@PARK.BU.  adding ethernet in r -        open
16134  dlukas@PARK.BU.  renovating BIO 101   -        open
16193  bradford@bu-ast  request for patches  quietguy working
16287  tahir@cs.bu.edu  terminal is not work -        open
--------------------------------------------------------------------------------

 Sleeping...
```

Figure 17.1 - Ascii Client Display

```
Moving the hilite
 -----------------

 Arrow Up         : Move hilite up a ticket.
 Arrow Down       : Move Hilite down a ticket.
 Arrow Left       : Move hilite to the previous ticket in a chain.
 Arrow Right      : Move hilite to the next ticket in a chain.
 Prev. Screen     : Move hilite to the previous page of tickets.
 Next Screen      : Move hilite to the next page of tickets.

 Ticket Commands
 ---------------

                  Arguments in [] are optional.
 'a ticket'           : Add the 'ticket' to the chain of the hilite
                        ticket. Example: If the hilite is on ticket
```

ticket and some information should be stored in ticket. Feedback to the user can be in the form of an email message or as simple as a phonecall. Recording the ticket resolution in NetProb can be done in one of two ways, sending a global email message to the user and having the message become part of the ticket chain, or by adding a note to the ticket. Sending a global message is generally more effective since it's accomplishes both goals of notifying the user and NetProb. However, if the user has already been notified (in person, via phone, etc.) then an extra email message is unwarranted and a simple note can be added to the ticket.

Saving and Deleting Tickets

In past versions of NetProb, it was important to have a consistent method of saving tickets. This method needed a consistent use of filenames and placement of tickets in save folders. This vital if the ticket was needed to be recalled later from the archive. As Netprob has evolved, this method has become less important. Through a powerful word search capability, filenames and where tickets are stored is now of less importance.

Each group should still have its own method for saving and deleting tickets. Some groups have a central administrator who is responsible for saving and deleting all tickets once they are marked *done*. Other groups lay the responsiblity of saving and deleting tickets to the specialist who resolved the problem. Either method can work well and trial and error is the best way to judge.

NetProb is not just a trouble ticket resolution process, it can also be a great learning tool and a source of vast information. For that reason, some groups may decide that once a problem is resolved it should remain in the queue for 'x' number of days so people can read about the problem (and it's solution). Other groups with high volumes of tickets may wish to just remove tickets from the queue as soon as they are resolved to keep things simple.

15. NetProb Methodology

The Beginning

NetProb was first developed to replace a simple bug mailing list. It's goals were simple: allow multiple people to access the mailing list, a quick way to determine who is working on a problem and the status of the problem and a method for archiving tickets. Even in this initial state, some sort of methodology was needed. Do we have one person watch over the queue and then assign ticket to everyone, or do we have people just "grab" tickets that they can resolve? Either method can work well. Whichever method is used, two important issues must be considered; one, will all tickets be resolved in a timely manner and two will all tickets be archived in similar fashion.

If the first method is used where all users can "grab" the tickets they can resolve, occasional "strays" may result - problems that no one is really sure how to resolve or who should revolve. Also there may be tickets that people ignore because assume someone else in the group will resolve them. In the second method, having one central group administrator watching over the queue and assigning problems to consultants is an effective way of making sure that all tickets get resolved. This is generally the best way. But, even this methodology has its drawbacks. One drawback is that it introduces a new step into the process: assigning tickets. Tickets must be assigned and the consultant must know that the ticket has been assigned to them. This will add another step in the resolution process and may slow things down.

The Present

Since the early days, NetProb has grown considerably. It now has the ability to share tickets among different groups and an improved archive. Methodologies must be developed between groups and within groups. NetProb is very flexible and may be used effectively in a wide variety of ways. When developing an effective methodology the following issues should be considered:

Transferring Tickets Between Groups

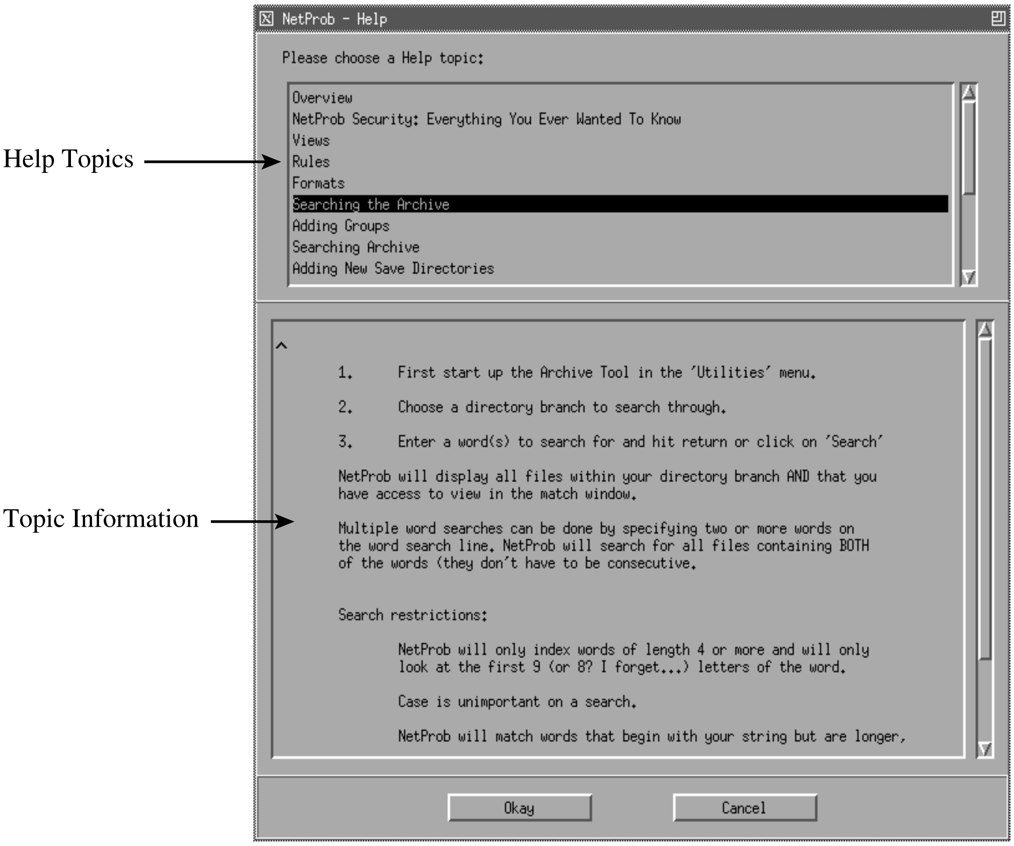
Occasionally tickets may be sent to the wrong support group and need to be moved between groups. NetProb allows for two different methods to transfer tickets between groups. The first method is to make use of the *Open* group. If a ticket was sent to group 'A' but belongs in group 'B', an administrator of group 'A' would agg the *Open* group tag and remove the 'A' group tag. An administrator from group 'B' would then add the group 'B' tag and remove the *Open* tag.

The second method to transfer tickets between groups is to give group administrators administration access to all groups. This way, they can transfer tickets themselves. There are two problems with this method- first it may lead to security problems. Second, users may not notice when tickets have been "placed" within their group from other administrators.

Notifying The Sender of Resolution

When a problem is resolved, some sort of feedback should be sent to person who iniated the trouble

14. Help Tool



```
^

        1.      First start up the Archive Tool in the 'Utilities' menu.

        2.      Choose a directory branch to search through.

        3.      Enter a word(s) to search for and hit return or click on 'Search'

        NetProb will display all files within your directory branch AND that you
        have access to view in the match window.

        Multiple word searches can be done by specifying two or more words on
        the word search line. NetProb will search for all files containing BOTH
        of the words (they don't have to be consecutive.


        Search restrictions:

                NetProb will only index words of length 4 or more and will only
                look at the first 9 (or 8? I forget...) letters of the word.

                Case is unimportant on a search.

                NetProb will match words that begin with your string but are longer.
```

Figure 16.1 Help Window

The Help Window

The Help Window is used to navigate through and read a set of help topics. The different help topics are listed in a list at the top of the Help Window. When a topic is selected is displayed at the bottom of the screen.

13. Statistics

Overview

NetProb does keep track, maintain or otherwise collect statistics. It does, however, provide a method for statistic gathering: the log file. Every event that occours on a ticket is recorded in the event log of the ticket *and* in an external file. This file may be parsed to create all sorts of interesting and fun statistics. A simple script is provided in the distribution to illustrate how to extract simple statistics from the log file. The various log events and their meanings are outlined below.

Ticket Events And Their Meanings

Each event has 4 parts, a timestamp, ticket number, specialist, and data. The timestamp is time the event occoured. It has the format of: Mon Day of Month Time.

Timestamp example: `Dec 1 12:33:45`

The ticket number is the ticket number that the event occoured upon. The specialist field of the event is the user who caused the event to occour. Some events are caused by NetProb and will have the string "NetProb" in the specialist field. The last field is the data field. This field contains a brief note of the event and provides information about the particular event. A chart below shows the different forms the data field may use based upon the event type:

Events	Data Format
New Ticket	`Received.`
Ticket Assigned	`Assigned to <specialist>.`
Status Changed	`Status changed to <status>.`
Status Cleared	`Status cleared.`
Chained	`Chained to ticket <ticket#>.`
Saved	`Ticket saved.`
Deleted	`Deleted.`
Add note	`Added note.`
Priority level changed	`Priority changed to <priority>.`
Specialist changed	`Specialist changed to <specialist>.`
Mapped to group	`Mapped to group <group name>.`
Unmapped to group	`Unmapped group <group name>.`
Unchained	`Removed from chain ticket <ticket#>.`
Timeout value changed	`Timeout changed to <integer> hours.`
Timeout expired	`Inactivity timeout expired.`
Ticket composed	`Ticket composed by <specialist>.`

Group aliases may be added by clicking on the New Alias button. This will add a new alias to the groups alias list with the name newalias. To change the name of this, or any alias, select the name in the alias list. The name of the alias will appear in the Alias Name field where it may be changed. Pressing return will cause the change to take effect and the new alias name will now appear in the list. To make these changes permanent, click on the Save button. This will send the changes to the server where they will be used immediately.

Changing Group Names

The group name appears in the Group Name field of the Group Editor. This field may be edited directly. Pressing return after editing this field will make the change. Clicking the Save button will send the changes to the server. *Note: Changing the group name may affect the current statistics since some statistics may be based upon the group name.*

Changing Group Symbols

The group symbol appears in the Group Symbol field of the Group Editor. This symbol should by a one character alpha-numeric value. This value may be edited directly in the field. Pressing return in the field will change the value. Clicking Save will make the changes permanent. *Note: At this time, changing of the group symbol is not a wise idea. Tickets that were in the previous group will remain with the previous group tag and will no longer be able to be accessed. In the future, changing the group symbol will also change all tickets currently in that group.*

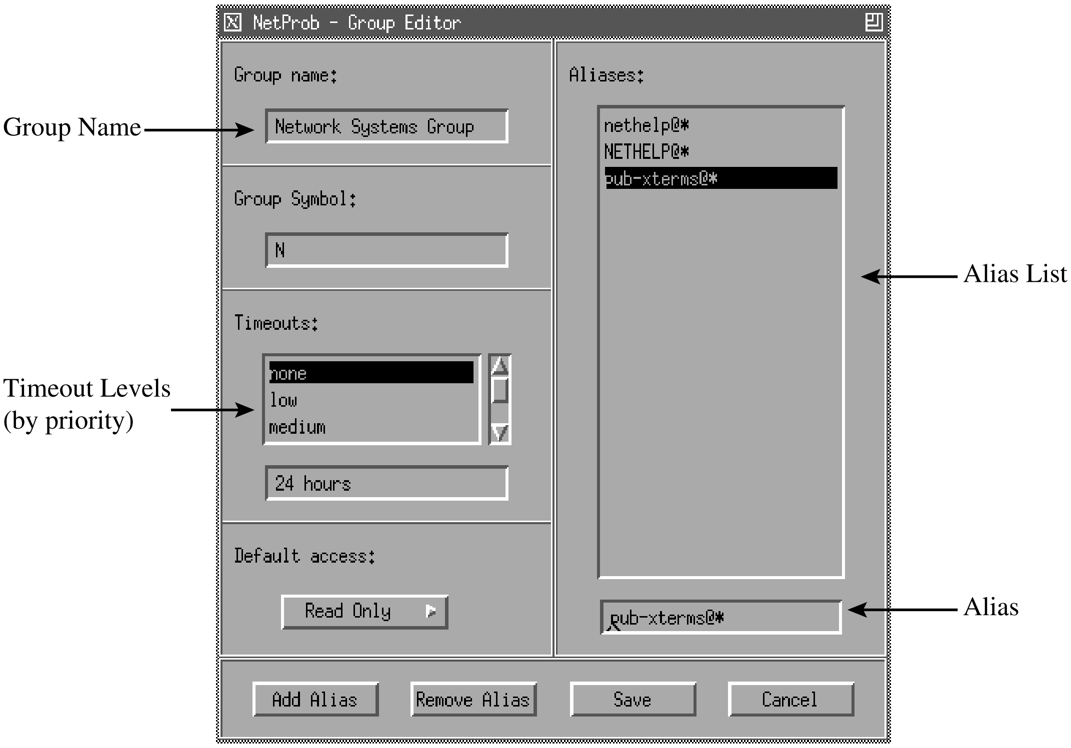
Changing Group Timeout Levels

Each group has a set of default timeouts based upon the different priority levels. When a ticket has a priority level change, NetProb will changes it timeout value to the default level of the group the ticket is in. Of course, each ticket may assign its own timeout value. Setting a timeout level to 0 hours will turn off the inactivity timeout. If a group does not wish to to use the inactivity timeout feature, they should set all the default timeouts to 0 hours. To change a default timeout, click on the priority level that you wish to set. The default timeout for that level will appear in the Timeout field below the list. Enter a new timeout level (in hours) in this field and press return. The timeout default will now be changed. Click Save to make the changes permanent. *Note: ticket timeouts are turned off after a ticket reaches the emergency level. This prevents a group from setting all their default timeouts to one hour and then having every ticket timeout every hour.*

Changing Group Default Access

A groups default access represents the default access that is given to a a new user account that is created by a different group. When an administrator from a different group creates a new user account, the users access to *other* groups is set by the default access level of the other groups. This if course can be changed on per user basis. To change the default access level, click on the Default Access option menu and choose a new access level. Releasing the mouse button will change the access level. The new level will appear in option menu. Clicking Save will save the changes. *Note: When changing the default access level, NetProb does **not** go through the user list and change everyones access level to reflect the change. This must be done manually.*

12. Group Editor



Group name:
Network Systems Group

Group Symbol:
N

Timeouts:
none
low
medium
24 hours

Default access:
Read Only

Aliases:
nethelp@*
NETHELP@*
pub-xterms@*

pub-xterms@*

Figure 11.1 Group Editor

The Group Editor

The Group Editor is used to change various attributes of individual groups. A group consists of a group name, 1 one character symbol (must be unique), a default access level, default ticket timeouts, and a list of aliases. When NetProb receives new mail, it compares the From: header of the message to each groups aliases. If the alias matches at least one header, NetProb will add a group tag to the ticket. A ticket must have at least one group tag and may have as many group tags as there are defined groups. If Netprob cannot match the From: field of the ticket to any groups, the ticket will be tagged for the *Open* group.

Adding New Groups

New groups may only be added by a NetProb Administrator. Clicking on the Add New Group menu button in the Main Window will create a new group with default information and brings this information up in the Group Editor. After the information has been edited (see below), clicking Save will send the new group information to the server where it will be used right away.

Editing Group Aliases

Adding User Accounts Names

Each User Account entry may have more then one account on the same or different machines. NetProb allows you to specify as many account names for a individual user as you wish. Each account name should represent a unique account one machine. Netprob does allow wildcards in account names, but great care should be used when using wildcards. For example: specifying a user entry with the account nm@* will give access to the nm account on all machines, so any machine with an nm account will have access. To add an account name, click on the Add Account button. This will create an entry call "newaccount". Edit the account name in the Account Name: field to reflect the name you wish. Pressing the <return> key or clicking Add Account again will change the name. Clicking Save will send the changes to the server and the user may now use NetProb from this new account name.

Changing The Users Real Name

A user accounts real name entry may be changed by simply editing the Real Name: field in the User Editor. This name should be unique. To have the changes take effect, click on the Save button. This will send the changes made to the user account to the server.

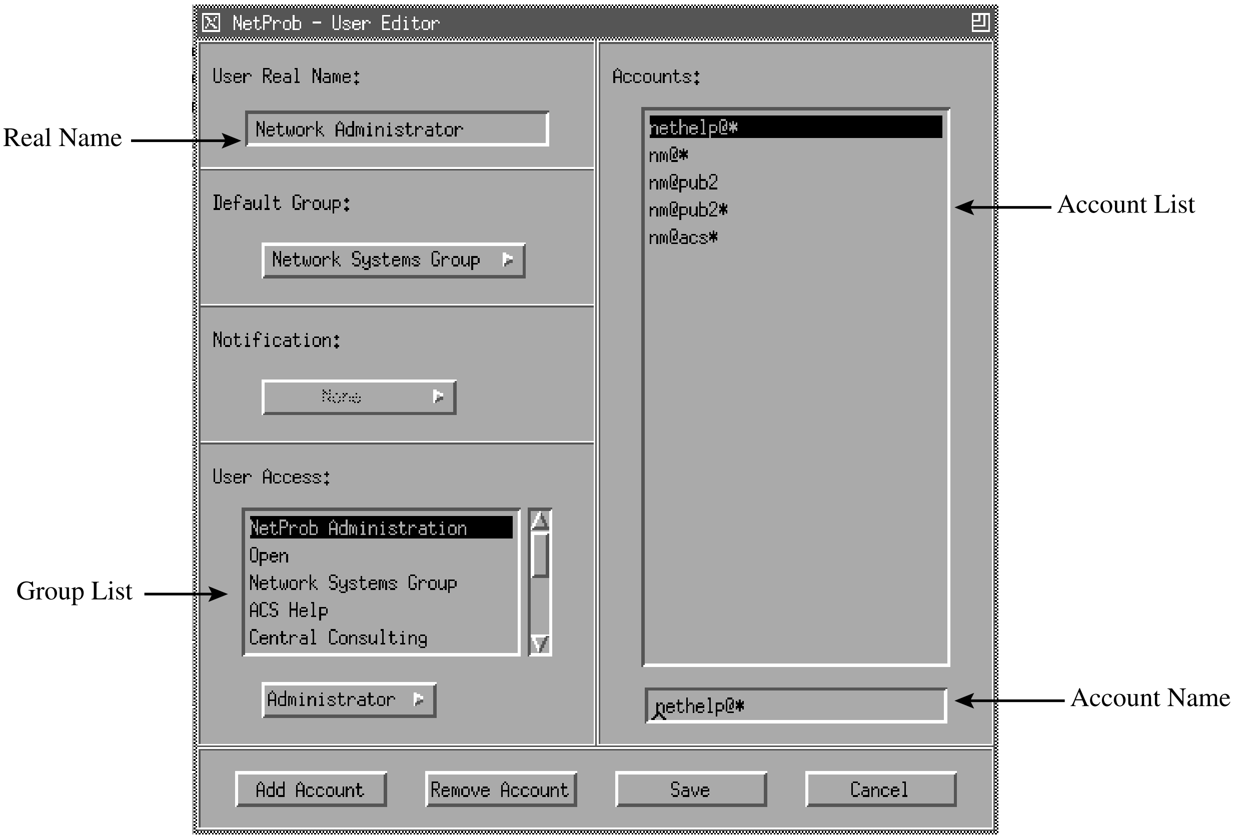
Changing The Users Default Group

A users default group is used to represent the primary support group that the user is a part of. Care should be used when changing a users default group as it may affect some of the users rules (if the user used the *MY_GROUP* variable in any rules). The users default group is displayed in the Default Group option menu. To change the default group, click on the Default Group option menu. This will display all of the NetProb groups that have been configured. Move the hilite to the new group and release the mouse button. The new group will be displayed in the Default Group option menu. Clicking on the save button will send the changes to the server and make the changes permanent. If the user is currently using a NetProb client, they should terminate their client and start another.

Changing The Users Access Level

In the lower left corner of the User Editor, the users access information is displayed. The Access List contains the names of all the currently defined NetProb groups. The option menu below this list reflects the users access level to whatever group is selected in the Access List. An administrator must Administrator level access for a group to be able to change any users access to that group. The NetProb Administrator(s) may change any user access in any group. To change a users access to a particular group, select the group name in the Access List. The users current access level for that group will appear in the option menu. Click on the option menu and move the hilite to the new access level. Releasing the mouse button will change the access level and the new level will appear on the option menu. Clicking the Save button will send the changes to the server and make them permanent. If the user is currently using a NetProb client, they should terminate their session and start another.

11. User Editor



User Real Name: Network Administrator

Default Group: Network Systems Group

Notification: None

User Access:
- NetProb Administration
- Open
- Network Systems Group
- ACS Help
- Central Consulting

Administrator

Accounts:
- nethelp@*
- nm@*
- nm@pub2
- nm@pub2*
- nm@acs*

nethelp@*

Figure 10.1 - User Editor

The User Editor

The User Editor is used to add and manage user acccounts. A user accounts consists of the users real name, default group, access level (per group), and a list of accounts that they may use to access NetProb. All the different account names that correspond to a particular user are found in the Account List at the right of the User Editor. Changes made to a users account are not in effect until the changes are saved and the user (if already online) exits their client program.

Adding New Users

To add a new user, click on the Add New user menu entry in main window. This will start up the User Editor with some default entries. Any group administrator may add user accounts. However, the administrator will only be able to change fields applicable to their group. Each user should have a unique real name entry. See ***Editing User Accounts*** for more information on changin user accounts. After changes have been made to the default fields, clicking Save will send the information to the NetProb server. At this point, the new user can now use NetProb.

```
Example: ( Status = * )
Example: ( From = * )
```

Show All Tickets With a High Priority

```
Example: ( Priority = high )
```

Show All Tickets That Are Open In My Group

```
Example: ( ( Status = open ) AND ( Groups = MY_GROUP ) )
```

Show All Tickets In My Group That I'm Working On That Aren't Done

```
Example: ( ( ( ( Groups = MY_GROUP ) AND ( Status != done ) ) AND (
Specialist = ME ) )
```

Show All Tickets From john@bu.edu In My Group That Aren't Done

```
Example: ( ( ( ( From = john@bu.edu) AND ( Groups = MY_GROUP ) ) AND (
Status != done ) )
```

the Save button to make these changes permanent.

Editing a Rule

A rule consists of a set of parenthesis containing a token variable, an operator, and data. The chart below outlines all token variables, operators, and some special forms of data:

Token Variables And What They Can Be Compared To

`Ticket`	:	String	Examples: 12, 45, 5642, 58*
`From`	:	String	Examples: john@bu.edu, john@*, *@*
`Subject`	:	String	Examples: Bugs*, network*
`Day`	:	String	Examples: Mon, Tue, Wed, *
`Month`	:	String	Examples: Jan, Feb, Mar, *
`Day_Of_Month`	:	String	Examples: 10, *, 2*
`Time`	:	String	Examples: 19:23:56, 19:*, 19:*:20, *
`Chain`	:	String	Examples: 12, *, 12*, 2543
`Specialist`	:	String	Examples: chuck*, chuckles, *, *tech
`Status`	:	String	Examples: open, working, *, work*
`Priority`	:	String	Examples: low, medium, *, med*
`Groups`	:	Single character	Examples: N, D, *

Operators

`=`	:	Equal. The two operands must match exactly.
`!=`	:	Note equal. The two operands must differ by at least one character.
`(`	:	Open parenthesis. Start of a rule.
`)`	:	Close parenthesis. End of a rule.
`AND`	:	Logical AND. Specifies that both subrules must be true for the entire rule to be true.
`OR`	:	Logical OR. Specifies that one of the two subrules must be true for the entire rule.

Special Data Formats

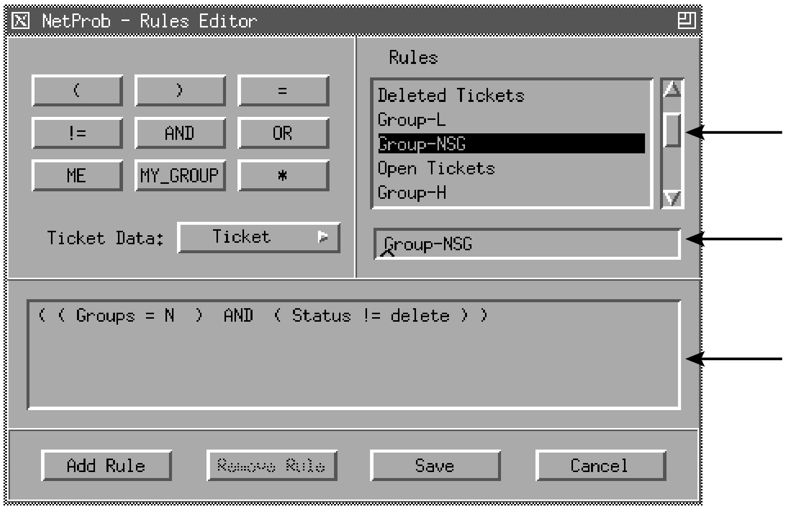
`ME`	:	Specifies the users account name.
`MY_GROUP`	:	Specifies the users default group symbol.
`*`	:	Wildcard.

A wild card may be used ('*') to represent any string of characters. it may be used anywhere within a data variable. The Rule Parser is very particular about rule syntax. Each token must be separated by at least one space and each evaluation must be contained in a set of parenthesis. Sample rules are included below:

Show All Tickets

```
Example: ( Ticket = * )
```

10. Rule Editor



Rules:
Deleted Tickets
Group-L
Group-NSG
Open Tickets
Group-H

Ticket Data: Ticket

Group-NSG

```
( ( Groups = N  )  AND  ( Status != delete ) )
```

Rule List

Rule Name

Rule

Figure 9.1 - Rule Editor

The Rule Editor

Rules (or filters) allow the user to specify only a certain subset of the main ticket list to view. These rules may be as basic showing all tickets in a particular group, or showing all tickets with a low priority or they can be as complicated as showing all tickets that were received on a Tuesday or Wednesday, in the Networks group, with a status level of working and a high priority. A rule can be based on the same portions of ticket data that are described above under formats. The Rule Editor is used to create and edit these rules. On the right side of the Rule Editor is the Rule List. This contains a listing of the names of all the rules currently defined. Selecting a rule in the Rule List will display the rule at the bottom of Rule Editor where it may be edited. On the left side of the Rule Editor are buttons which can be used instead to edit the rule instead of typing.

Creating New Rules

Any number of rules may be created and saved. To create a new rule, click on the Add rule button. this will create a new rule with the name *newrule*. See below on how to change the rules name. Any new rules or changes made to the rules must be saved or they will only exist for the current session of the client. Clicking on the save button will save all of the rule information to the .netprobrc5.0 file. Clicking on the Okay button will cuase the changes to take effect but will not write the changes out the defaults file.

Renaming a Rule

To change a rules name, first select the rule that wish to change. To select a rule, click on its name in the rule List. This will cause the rules name to appear in the rule Name: field. To change the name of the rule, edit the rule Name: field and press <return>. Click the Okay button to have these changes take effect immediately, or

```
From         : markjl@acs.bu.edu         -> User who sent the ticket.
Subject      : pub3-xt5                  -> Ticket subject.
Day          : Tue                       -> Day of week the ticket arrived.
Month        : Nov                       -> Month the ticket arrived.
Day_Of_Month : 24                        -> Day of month the ticket arrived.
Time         : 17:41:10                  -> Time of day the ticket arrived.
Chain        : 1200                      -> Ticket number that the ticket is chained to.
Specialist   : chuckles                  -> Specialist who is working on the ticket.
Status       : working                   -> Ticket status.
Priority     : medium                    -> Ticket priority.
Groups       : NC                        -> Symbols of the groups that the ticket is in.
```

Sample Format:

```
(<Ticket|5|Left>)  <From|10|Left>  <Day|3> <Month|3> <Day_Of_Month|2>
<Subject|20|Left> <Specialist|8|Left> <Status|8|Left> <Groups|10|Left>
```

Output:

```
(1234 )  markjl@acs Tue Nov 24   pub3-xt5 mouse probl chuckles working  NC
```

Editing a Format

The Formats format: Any character not included in brackets ('< >') is copied directly into the ticket string. Anything that is contained in brackets will be translated by NetProb.

Example:

```
Format: Ticket Number (<Ticket|5|Left>)
Ticket Number: 1234
Output: Ticket Number (1234 )
```

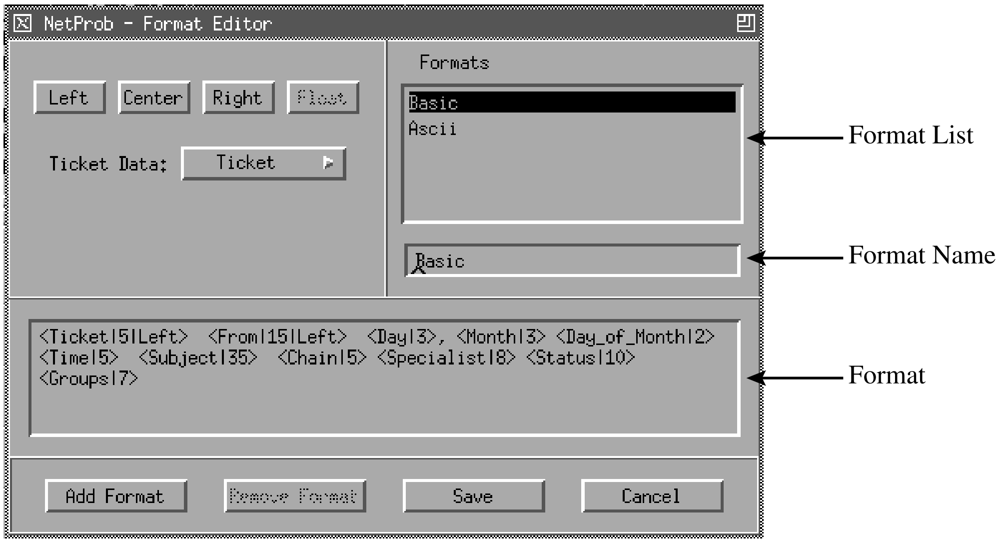
The first portion of format consists of the name of a field within the ticket. The following chart shows all of the available fields of a ticket that may be used and shows what they correspon to in an actual ticket. The second portion of a format string contains the field width. The field width should be an integer value greater then zero. The last portion of the format string is the field justification.

Example:

```
Ticket Number: 1234
Status: working
Priority: medium
Specialist: chuckles
Chain: 1200
Groups: NSG, Consulting

From markjl@acs.bu.edu Tue Nov 24 17:41:10 1992
Return-Path: <markjl@acs.bu.edu>
Received: from ACS.BU.EDU by bunsegc.bu.edu (5.61+++/Spike-2.1)
        id AA00619; Tue, 24 Nov 92 17:41:09 -0500
Received: by acs.bu.edu (5.61+++/AIX-3.2)
        id AA149460; Tue, 24 Nov 92 17:41:06 -0500
Date: Tue, 24 Nov 92 17:41:06 -0500
From: markjl@acs.bu.edu (Mark Lavi)
Message-Id: <9211242241.AA149460@acs.bu.edu>
To: help@acs.bu.edu
Subject: pub3-xt5 mouse problem!

Please restore the xterminal's mouse buttons (especially the leftmost) to proper
working order!  Thanks.

-mjl
```

`Ticket        : 1234` -> Ticket number

9. Format Editor



Formats: Basic, Ascii

Ticket Data: Ticket

Basic

```
<Ticket|5|Left>  <From|15|Left>  <Day|3>, <Month|3> <Day_of_Month|2>
<Time|5>  <Subject|35>  <Chain|5> <Specialist|8> <Status|10>
<Groups|7>
```

Figure 8.1 - Format Editor

The Format Editor

The Format Editor is used to create and edit formats for views. Formats explain to a view what ticket information should be display in its ticket list. On the right of the Format Editor is the Format List that contains a list of all the format names that are currently defined. Four buttons on the left are used to control the justification of a format field (Left, Center, Right, and Float). The Ticket Data: option menu is a list of all the possible fields of an individual ticket that may be used in a format. The actual format is displayed in the Format view. The format is edited directly in this view.

Creating New Formats

Any number of format may be created and saved. To create a new format, click on the Add format button. this will create a new format with the name *newformat*. See below on how to change the formats name. Any new formats or changes made to the formats must be saved or they will only exist for the current session of the client. Clicking on the save button will save all of the format information to the .netprobrc5.0 file. Clicking on the Okay button will cuase the changes to take effect but will not write the changes out the defaults file.

Renaming a Format

To change a formats name, first select the format that wish to change. To select a format, click on its name in the format List. This will cause the formats name to appear in the format Name: field. To change the name of the format, edit the format Name: field and press <return>. Click the Okay button to have these changes take effect immediately, or the Save button to make these changes permanent.

Changing a Views State

A views state controls whether or not that state is visible. If the state is *open*, NetProb will create a view and display it in the Main Window. If the state is *closed*, NetProb will ignore the view. To change a views state, click on the Window State: option menu and choose a different state. The current state of the window will be displayed in the option menu. Click the Okay button to have these changes take effect immediately, or the Save button to make these changes permanent.

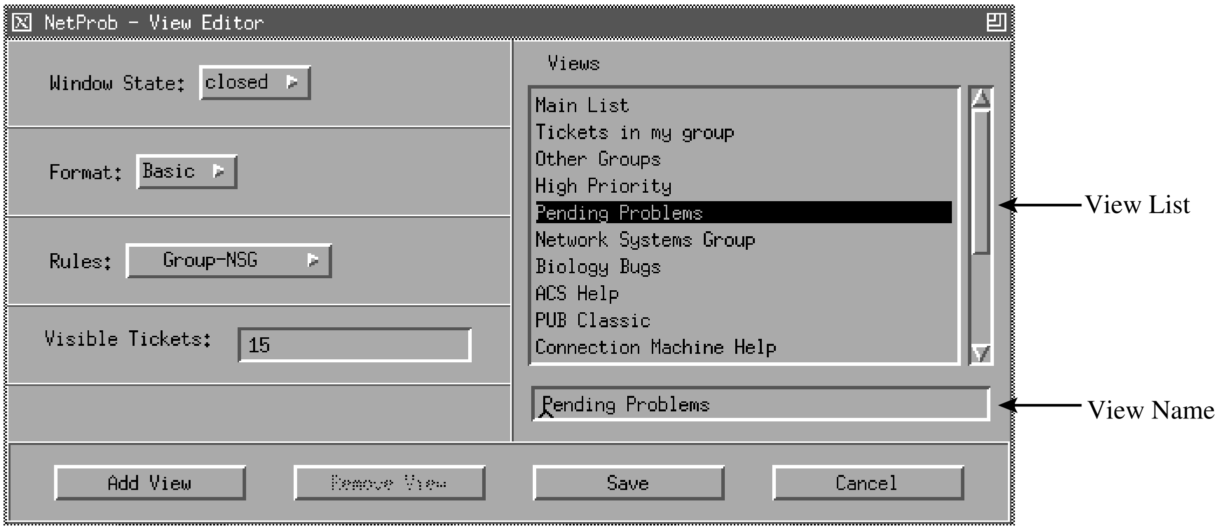
Changing a Views Format

A views format controls how ticket information will be displayed in the ticket list. Each view may have its own format. Each format must be defined by the Format Editor. To change a views format, click on the Format: option menu and choose another format. When you click on the Format: option menu, all the currently defined formats will appear in the list. The current format being used by the view will be displayed on the option menu. Click the Okay button to have these changes take effect immediately, or the Save button to make these changes permanent.

Changing a Views Rule

Each views rule controls what subset of the main ticket list to display in the view. Each view may have its own rule or rules can be shared by multiple views. To change a views rule, click on the Rule: option menu. This will bring up the list of all the currently defined rules. Click on a new rule to change rules. The Rule: option menu will display the rule that is currently being used to diaplay the tickets for the view. Click the Okay button to have these changes take effect immediately, or the Save button to make these changes permanent.

8. View Editor



NetProb - View Editor

Window State: closed

Format: Basic

Rules: Group-NSG

Visible Tickets: 15

Views

- Main List
- Tickets in my group
- Other Groups
- High Priority
- Pending Problems
- Network Systems Group
- Biology Bugs
- ACS Help
- PUB Classic
- Connection Machine Help

Pending Problems

Figure 7.1 - View Editor

The View Editor

The View Editor is used to change the various attributes of the views. The View name, rule, format, state and default visible tickets may be changed with the View Editor. On the right side of the View Editor is the list of all the views that are currently defined by the user. A views state specifies whether or not that view is currently visible on the screen. The views format and rule specifies which format and rule to use to display tickets in the view. The views name will appear above the ticket list in the Main Window. The last view option is visible tickets. This option controls how many tickets in the view will be visible when the NetProb client is first started.

Adding Views

Any number of view may be created and saved. To create a new view, click on the Add View button. this will create a new view with the name *newview*. See below on how to change the views name. Any new views or changes made to the views must be saved or they will only exist for the current session of the client. Clicking on the save button will save all of the view information to the .netprobrc5.0 file. Clicking on the Okay button will cuase the changes to take effect but will not write the changes out the defaults file.

Changing a Views Name

To change a views name, first select the view that wish to change. To select a view, click on its name in the View List. This will cause the views name to appear in the View Name: field. To change the name of the view, edit the View Name: field and press <return>. Click the Okay button to have these changes take effect immediately, or the Save button to make these changes permanent.

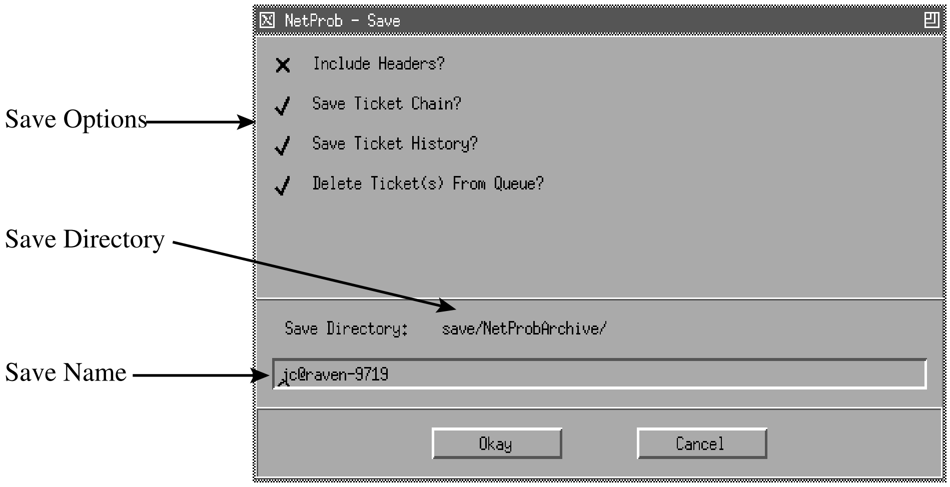
automatically be inserted into the reply. This is useful for F.A.Q.'s or *canned answers.*

The ticket may be edited directly within the text view or by an external editor. When the ticket has been edited it may be resaved. Click on the Resave button to resave the ticket. Resaving a ticket will write over the first save file. Resaving of tickets is usefull for "touching up" of F.A.Q.'s. *Note: A user must have administrator level access to the directory to edit a saved file.*

The last save options is Delete Ticket(s) From Queue. This option controls whether or not the ticket is automatically tagged for deletion after it is saved. Enabling this option will have the server save the ticket and then change the ticket status for deletion. *Note: The tickets status is only changed to delete but the ticket is not removed from the queue. The ticket will be removed from the queue when the server performs a major update, usually at 2:00am.* If this option is disabled, the tickets status will be changed to *save* after the ticket has been saved by the server.

After all of the save options have been set, a filename must be decided upon. By default, NetProb will construct a filename that consists of three parts, the account name that sent the trouble ticket, a dash ('-') and then the ticket number. The user is free to change this filename to anything they wish. The filename may be changed by editing that filename field in the Save Panel. *Note: It is often usefull to change the save name to something that is easy to recognize later so that the ticket identified more quickly in the Save Archive. However, with the quick word search capability, this isn't as important as it was with earlier versions of NetProb.*

After a filename has been chosen, a click of the Okay button will save the ticket. If the Delete Ticket(s) From Queue option was enabled, the ticket(s) will also be tagged for deletion. If this option is disabled, the ticket(s) status will be changed to *save.*



✗ Include Headers?
✓ Save Ticket Chain?
✓ Save Ticket History?
✓ Delete Ticket(s) From Queue?

Save Directory: save/NetProbArchive/

jc@raven-9719

Figure 7.2 Save Panel

Displaying a Saved Ticket

To display a saved ticket, first locate the ticket by doing a word search or a directory listing. When the ticket is displayed in the Match List of files, click the Display button in the Archive Tool or double-click on the ticket entry to display the ticket. This will bring up a Display Ticket Panel and will display the ticket. Once the ticket is in this panel it may be printed, inserted directly into a reply message or, the ticket may be edited and resaved. To insert the ticket into a mail message, click on the Insert In Mail button and the save ticket will

Each NetProb save directory has its own access level. Only two levels of access really matter for save directories, read access and administrative access. The access level of a directory is specified by groups. Each group will have an access level assigned to it for the directory. Each users group access level is compared to the directories group access. If the user has at least the access level specified by the directory, then the user will have that access (as specified by the directory) for the directory. Confused yet??? NetProb will make two access for a user on a directory: First, do they have at least read access and second do they have administrator access. To have read access a user must have at least read-only level access in at least one group that is specified by the save directory to at least read-only access. To have administrator level access on a directory a user must have administrator level for a group that is also specified as administrator level access by the save directory.

Change Save Directory Access

To change the access level of a save directory, a user must have Administrator level access for that directory. First select the directory that you wish to change in the directory browser of the Archive Tool. Clicking on the Access button will bring up a panel which will allow you to change the access for each group. To change the access level of a group, select that group. The access popup menu will reflect what the current access level for this group is. To change the access level, simply change the popup menu to the new level and then click the Okay button.

Saving a Ticket

To save a ticket into the Archive, first the user must have Administrator level access to that ticket. (They must have administrator level access to *any* group that the ticket is tagged for). The ticket should first be displayed in the Ticket Window. Next the user should choose the directory that the ticket should be save to in the directory browser portion of the Archive Tool. *Note: If the Archive Tool is not active, clicking on the save button in the Ticket Window or choosing the Archive menu entry in the main menu will create a new archive tool.* When the appropriate directory has been selected, click the Save button in the Archive Tool. This will bring up the Save Panel. *See Figure 7.2.*

There are four save options that control how tickets will be saved by the server. The first option, Include Mail Headers In Save, specifies whether or not the server should include all of the SMTP mail headers in the save file. If this option is enabled, the server will save all the SMTP mail headers along with the mail text in the save file. Disabling this default will cause the server to only the ticket text and ignore the SMTP headers.

The second save option is Save Ticket Chain. If this default is enabled, the server will save every ticket in the ticket chain into the save file. When saving a ticket chain, the other three save options are enacted for each ticket saved. For example, if the Include Mail Headers In Save option was disabled and the ticket chain was saved, the server will save just the text portion of every ticket into the save file. If the Save Ticket Chain option is disable, only the ticket selected will be saved.

The next option Save Ticket History, specifies whether the server add the tickets save history to the save file. If this option is enabled, the tickets history will added to the save file after the ticket text. If the option is disabled, the server will ignore the tickets history log.

Any ticket in the archive may be located by doing a word search for that ticket. When NetProb saves a ticket, it indexes every word in that ticket with the following exceptions: All SMTP header lines except the From: line are ignored, words under 3 letters are ignored and only the first 8 letters of a word are indexed. Once a ticket has been indexed, searching for any word in the ticket will locate the save file.

To search for a save ticket, first select the directory that you think the ticket is in. A word search will search through the directory **and** any of its sub-directories. Therefor, if you are not sure of which directory the ticket has been saved in, select the top most parent directory. After a directory has been selected, enter a word or words to search for in Key Word: field in the Archive Tool. Multiple word searches are allowed. If multiple words are entered in the Key Word: field, they should be separated by spaces. NetProb will search through all files and sub-directories of the parent directory for save files containing all of the search words. *Note: in a multiple word search, the words may appear anywhere within the file, they do no have to appear consectutively.* To start the word search, press <return> on the Key Word: field or click on the Search button. Since NetProb indexes all of its saved files, word searches are very fast. When NetProb has finished it's word search, it will return a list of all files in the parent directory that contain the word (or words) specified. If the search has found too many files to be searched through, the search may be refined by adding more words or by choosing different words.

Note: NetProb will only search through directories that the user has access to. NetProb will not list "match" files if they are in restricted directories. Choosing the top most parent directory will search through all the save directories but will ignore all of those directories that the user does not have access for.

Listing Titles

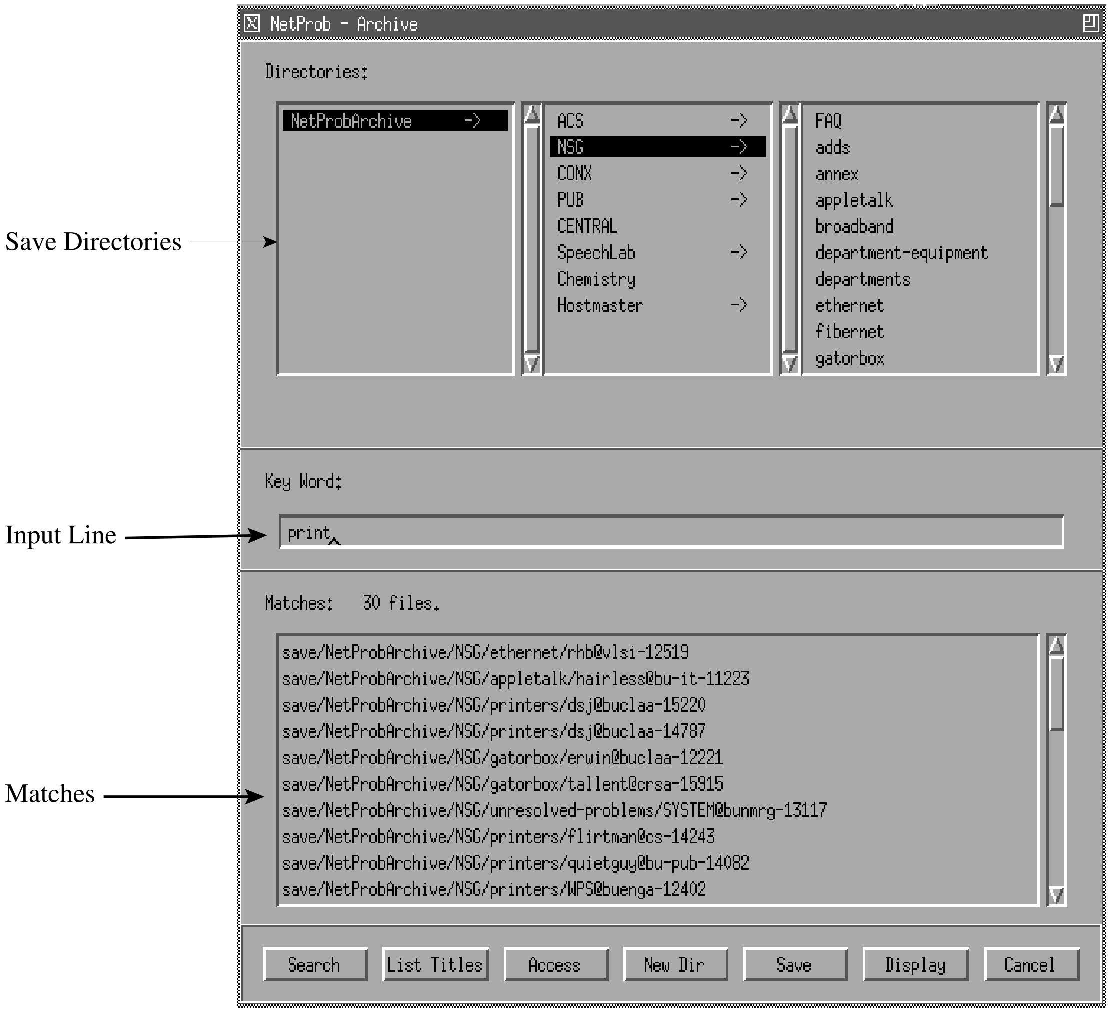
Another way to search through the Save Archive is to list individual directories. To list the contents of an individual directory, first choose the appropriate directory in the directory browser of the Archive Tool. Double clicking on the directory or clicking on the Titles button will display all the files that are stored in the directory. *Note: Listing titles in a directory will list only the titles in that directory and will not list any sub-directories.* All the titles in the directory will be displayed in the "match" list in the Archive Window.

Adding A New Save Directory

New save sub-directories may be added to any existing directory. *Note: The user must have administrator level access on a directory in order to add a sub-directory to it.* To add a sub-directory, first select the directory that you wish to be the parent in the directory browser. Next, click on the Add Directory button. In the New Directory Panel, enter the name that you like for the new directory. Clicking on the Okay button will create the new directory. *Note: The default access to this save directory will be Administrative level for the group that is the default group of the person creating the directory. All other groups will have the access level that is specified as the default access for that group. For example: If John's default group is Consulting and he creates a save directory, the access level for the Consulting group would be Administrative and all other groups would have the access level as specified by the default access of the Consulting group. See below on how to change the access level of a directory.*

Directory Security

7. Archive Tool



Key Word: print

```
Matches:   30 files.

save/NetProbArchive/NSG/ethernet/rhb@vlsi-12519
save/NetProbArchive/NSG/appletalk/hairless@bu-it-11223
save/NetProbArchive/NSG/printers/dsj@buclaa-15220
save/NetProbArchive/NSG/printers/dsj@buclaa-14787
save/NetProbArchive/NSG/gatorbox/erwin@buclaa-12221
save/NetProbArchive/NSG/gatorbox/tallent@crsa-15915
save/NetProbArchive/NSG/unresolved-problems/SYSTEM@bunmrg-13117
save/NetProbArchive/NSG/printers/flirtman@cs-14243
save/NetProbArchive/NSG/printers/quietguy@bu-pub-14082
save/NetProbArchive/NSG/printers/WPS@buenga-12402
```

Figure 6.1 - Archive Window

The Archive Tool

The Archive Tool is an interface to the NetProb Save Archive. The tool is used to browse through the different save directories, search for saved tickets, or access a saved ticket. The top portion of the screen is split up into three directory views. Titles is these views represent save directories, not files. If a directory name is followed by '->' then the directory has sub-directories underneath. To view the sub-directories, click once on the parent directory and the sub-directories will be displayed in the next directory view. The bottom view in the Archive Window is used display the names of actual saved tickets. This listing may be either the result of a word search or through a directory listing.

Searching The Archive For A Ticket

Headers, specifies whether or not the SMTP mail headers are displayed when viewing the ticket in the Ticket Window or when including the ticket in a reply message. If this option is enabled, the ticket body and all of the SMTP mail headers will be displayed in the Ticket Window or will be added to the Reply Window when including mail. Disabling the option causes just the ticket text to be displayed in the Ticket Window or to be added to the Reply Window when including the original ticket in replies.

The other Ticket Default is Display Entire Ticket Chain. If this option is enabled, each tickets text in the ticket chain will be displayed in the Ticket Window. Disabling this option will cause only the ticket text to be display in the window.

Reply Defaults

The last group of defaults control the events of the Reply Window.The first default, Automatically Bring Up Editor, will automatically start up the users external editor every time the Reply Window is brought up. The second option, Automatically Include Original Ticket, will automatically insert the original ticket into a reply message when the Reply Window is called up. If both of these options are used together, the external editor will automatically be started when a user hits the reply button in the Ticket Window. The original ticket will automatically be placed in the editor.

XmText.fontList:	This entry should contain the font that you would like to use in all the Text widgets. Thses widgets include the text view of the Ticket Window, the reply portion of the Reply Window and various other text views.
geometry:	This entry should conatin the geometry specifications for the Main Window.

View Defaults

Two defaults may be set to change the behavior of all of the users views. These defaults set the instances of beeping the terminal bell. The first default, Beep On New Mail, will ring the bell when new tickets are added to any of the users views. New tickets may be either tickets that have just been received by the server or tickets that have been *filtered* into one of the users views.

The second default, Beep On Changes, will ring the terminal bell when *any* changes have been made to any of tickets in any of the users views. These changes can be, but are not limited to the following : status change, priority change, new mail, ticket timeout, etc. *Note: 4 out of 5 doctors agree that enabling this option on a fairly active ticket queue may lead to migraine headaches...*

Save Defaults

The four Save Defaults control how tickets will be saved by the server. Each of these defaults may be overridden in the Save Panel by the user. The first default, Include Mail Headers In Save, specifies whether or not the server should include all of the SMTP mail headers in the save file. If this option is enabled, the server will save all the SMTP mail headers along with the mail text in the save file. Disabling this default will cause the server to only the ticket text and ignore the SMTP headers.

The second Save Default is Save Ticket Chain. If this default is enabled, the server will save every ticket in the ticket chain into the save file. When saving a ticket chain, the other three Save Defaults are enacted for each ticket saved. For example, if the Include Mail Headers In Save option was disabled and the ticket chain was saved, the server will save just the text portion of every ticket into the save file. If the Save Ticket Chain option is disable, only the ticket selected will be saved.

The next option Save Ticket History, specifies whether the server add the tickets save history to the save file. If this option is enabled, the tickets history will added to the save file after the ticket text. If the option is disabled, the server will ignore the tickets history log.

The last Save Default is Delete Ticket(s) From Queue. This option controls whether or not the ticket is automatically tagged for deletion after it is saved. Enabling this option will have the server save the ticket and then change the ticket status for deletion. *Note: The tickets status is only changed to delete but the ticket is not removed from the queue. The ticket will be removed from the queue when the server performs a major update, usually at 2:00am.* If this option is disabled, the tickets status will be changed to *save* after the ticket has been saved by the server.

Ticket Defaults

There are two default that control the content of tickets displayed. The first default, Show Ticket

Formats for a description of the format of the .netprobrc file. In all the preferences in the Preference Window, a checkmark (√) enables a preference an x (X) disables the preference.

Default Editor and Printer

NetProb has two defaults that can be used to set the default editor and default printer for the user. The default editor may be set by specifying the **full** pathname of an editor in the Default Editor field.

```
Example: /usr/local/bin/xemacs
```

If no editor is specified (the field is left blank), NetProb will search through the users environment variable for the EDITOR variable. This can be set by the command:

```
Example: setenv EDITOR=/usr/local/bin/xemacs
```

If the EDITOR variable doesn't exist, NetProb will make one last try and use the whatever editor was specified as the default by the NetProb Administrator.

The default printer may be set by specifying the printer name in the Default Printer field. If this field is left blank, NetProb will search the users environment variable for the PRINTER variable. This can be set by the command:

```
Example: setenv PRINTER name
```

Setting Fonts And Window Geometry

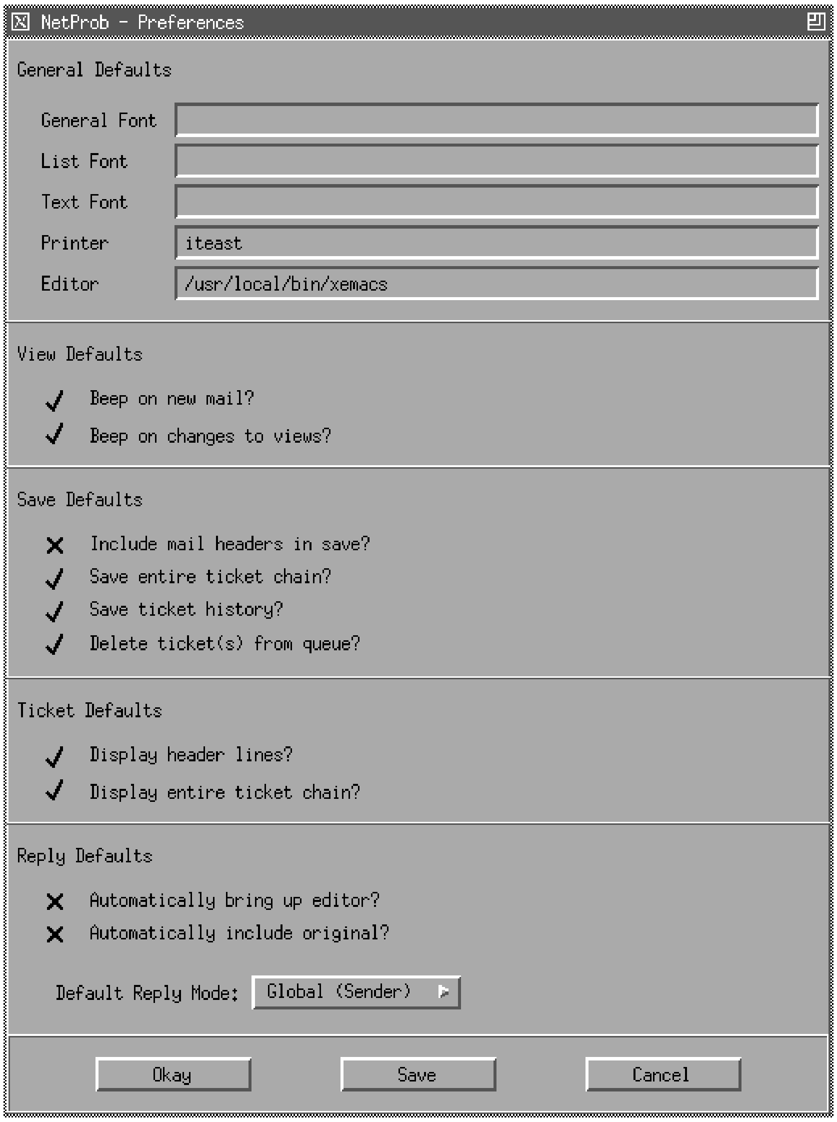
At this time setting fonts in the Preference Window has no effect. The font entries in the Preference Window are ignored. To set default fonts for the NetProb client, the user should add some or all of the following lines in their .Xresources file:

```
xnetprob*fontList:      -adobe-new century schoolbook-medium-r-normal--12-*
xnetprob*XmList.fontList:       6x12
xnetprob*XmText.fontList:       6x12
xnetprob*geometry:              820x957+10+10
```

The first part of each entry (in this case *xnetprob*) should be the local name of the NetProb client. In most cases this will be xnetprob. The second part of each entry should be on of the four variables listed below:

fontList:	This entry should contain the font that you would like to use as the default font for all buttons, views, and labels.
XmList.fontList:	This entry should contain the font that you would like to use in all the List widgets, such as the Main Ticket List. This font should be a fixed width font.

6. Preferences



NetProb - Preferences

General Defaults

General Font
List Font
Text Font
Printer: iteast
Editor: /usr/local/bin/xemacs

View Defaults

- ✓ Beep on new mail?
- ✓ Beep on changes to views?

Save Defaults

- ✗ Include mail headers in save?
- ✓ Save entire ticket chain?
- ✓ Save ticket history?
- ✓ Delete ticket(s) from queue?

Ticket Defaults

- ✓ Display header lines?
- ✓ Display entire ticket chain?

Reply Defaults

- ✗ Automatically bring up editor?
- ✗ Automatically include original?

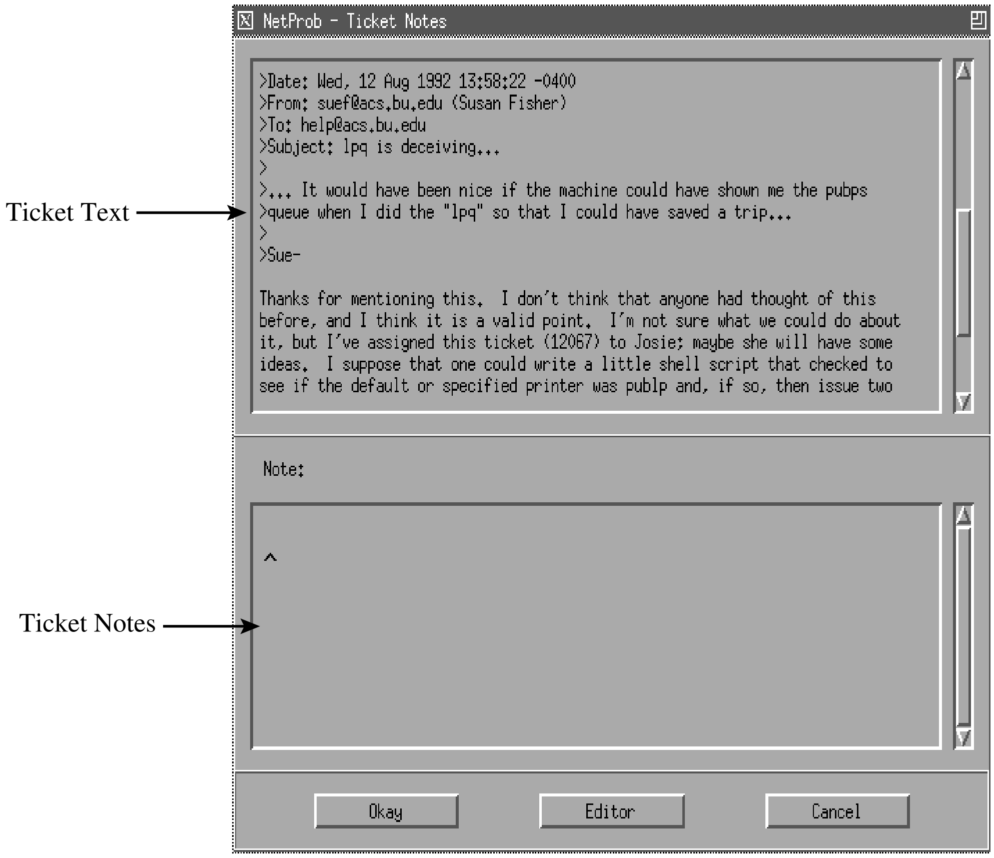
Default Reply Mode: Global (Sender)

Figure 5.1 - Preference Window

Setting Preferences

NetProb provides a simple interface for use in setting certain default behaviors of the client. This interface is the Preference Window. Other preferences dealing with the 'X Window' interface may be set externally and are described below. These preferences are stored in an external file called .netprobrc5.0 in the users home directory. This file is created and filled with "default" defaults the first time a user runs the NetProb client. This file also contains information as to the display of the users views. This file is maintained by the NetProb client, and while it can be edited by hand it is not recommended. *See Chapter 19: NetProb File*

5. Adding Notes



```
>Date: Wed, 12 Aug 1992 13:58:22 -0400
>From: suef@acs.bu.edu (Susan Fisher)
>To: help@acs.bu.edu
>Subject: lpq is deceiving...
>
>... It would have been nice if the machine could have shown me the pubps
>queue when I did the "lpq" so that I could have saved a trip...
>
>Sue-

Thanks for mentioning this.  I don't think that anyone had thought of this
before, and I think it is a valid point.  I'm not sure what we could do about
it, but I've assigned this ticket (12067) to Josie; maybe she will have some
ideas.  I suppose that one could write a little shell script that checked to
see if the default or specified printer was publp and, if so, then issue two
```

Figure 6.1 - Notes Window

Adding Notes To Tickets

There are instances where information should be added to a ticket, either a comment or a status update and sending a reply is too cumbersome. the ability to add a note to ticket was created to resolve this problem. Notes may also be used to record the resolution process of a ticket. Each step of the resolutionmay be added to a ticket in the form of a note.

To add a note to a ticket, first bring the ticket up in the Ticket Window. Clicking the Add Note button will bring up the Notes Window. The Notes Window will display the current ticket textin the upper portion of the window. The note should be entered in the lower view of the window. As with the Reply Window, a remote editor may be used to edit your note. To use the remote editor, click the editor button. When you exit from the your remote editor, the text will be entered in the lower view. When the note is complete, click the Okay button. The note is now added to the ticket. Any number of notes may be added to a ticket. When a note is added, NetProb will include the users account who added the note and the time the note was created with the note.

and the original ticket will be inserted where the cursor is in the reply message. NetProb will insert a '>' before each line to help you differentiate between the original and the reply. If the option Automatically Include Original in Preferences is set, NetProb will automatically insert the original ticket into the reply message when the Reply Window is first called up.

Including Archived Mail

Any ticket or text file that has been saved in the Archive may be inserted into a reply message. The first step to using a saved ticket in a reply message is to bring up the Reply Window. Once the Reply Window is displayed on the screen, set the insertion cursor to the place in the reply message where you wish to include the saved ticket. Next, bring up the Archive Tool by clicking the Include Archive button in the Reply Window, or choosing the Archive Tool menu entry in the Main Menu. *Note: if the Archive Tool has already been created, this step is unecessary, simply click in the Archive Tool window instead.*

Once in the Archive Tool, search for the saved ticket that you wish to include. *See Chapter 7: The Archive Tool*. When you have found the ticket you are looking for, double click on the save ticket name. This will display the saved ticket in another window. Clicking the Insert In Mail button will insert the saved ticket directly into the Reply Window.

Note: It is helpfull to setup special directories called F.A.Q.'s (frequently asked questions) or Canned answers. In these directories, you can save "pat" answers to the questions most commonly asked. These "pat" answers should be stripped of all headers and ticket information so they can be inserted into reply messages without editing.

Automatic Chaining of Replies

NetProb includes a special line in all of its reply messages - the **XNetprob-Ref: xxxxx** line. *Note: the **xxxxx** will be replaced by the tickert number that you are replying to.* This line is provided by the client program to inform the server to automatically chain the incoming reply back to the original ticket. This is done automatically and in very rare instances will need to be edited by the user. To have NetProb automatically chain this reply to a ticket other then the one that is displayed in the XNetprob-Ref: field, simple change the ticket number in this field to the ticket you wish to chain to.

There are four modes that may be used to compile an email message, *Sender, Global, Chain Sender,* and *Chain Global*. The modes are outlined in Figure 4.2.

	From:	To:	Cc:	All Tickets In Chain
Sender	Yes	No	No	No
Global (Sender)	Yes	Yes	Yes	No
Chain	Yes	No	No	Yes
Global (Chain)	Yes	Yes	Yes	Yes

Figure 4.2 - Reply Mail Modes

To change the reply mode, click on the Reply Mode option menu in the Reply Window and select a new reply mode. When a new reply mode is selected, NetProb will adjust the To: field of the reply message accordingly. The default reply mode used in the Reply Window can be set in the Preference Window. Accounts may also be added or deleted to the To: field of the reply message by hand.

Editing The Reply Message

When composing an email reply, it is often helpful to have the use of an editor. NetProb provides two methods for editing a reply that can be used interchangably. The first method is to edit the reply message right in the Reply Text window of the Reply Window. Changes to the reply message are made right away using this method. The second method for editing reply messages is to use and external editor. Some users feel more comfortable with other editors that they have already learned, such as vi or emacs. Clicking the Editor button in the Reply Window will start up the external editor and whatever text is in the reply text window will be copied into the file in the editor. When the text has been edited, the editor should save the file and terminate. After the editor terminates, the new file is read back into the reply text view. Now the reply message can be delivered or re-edited.

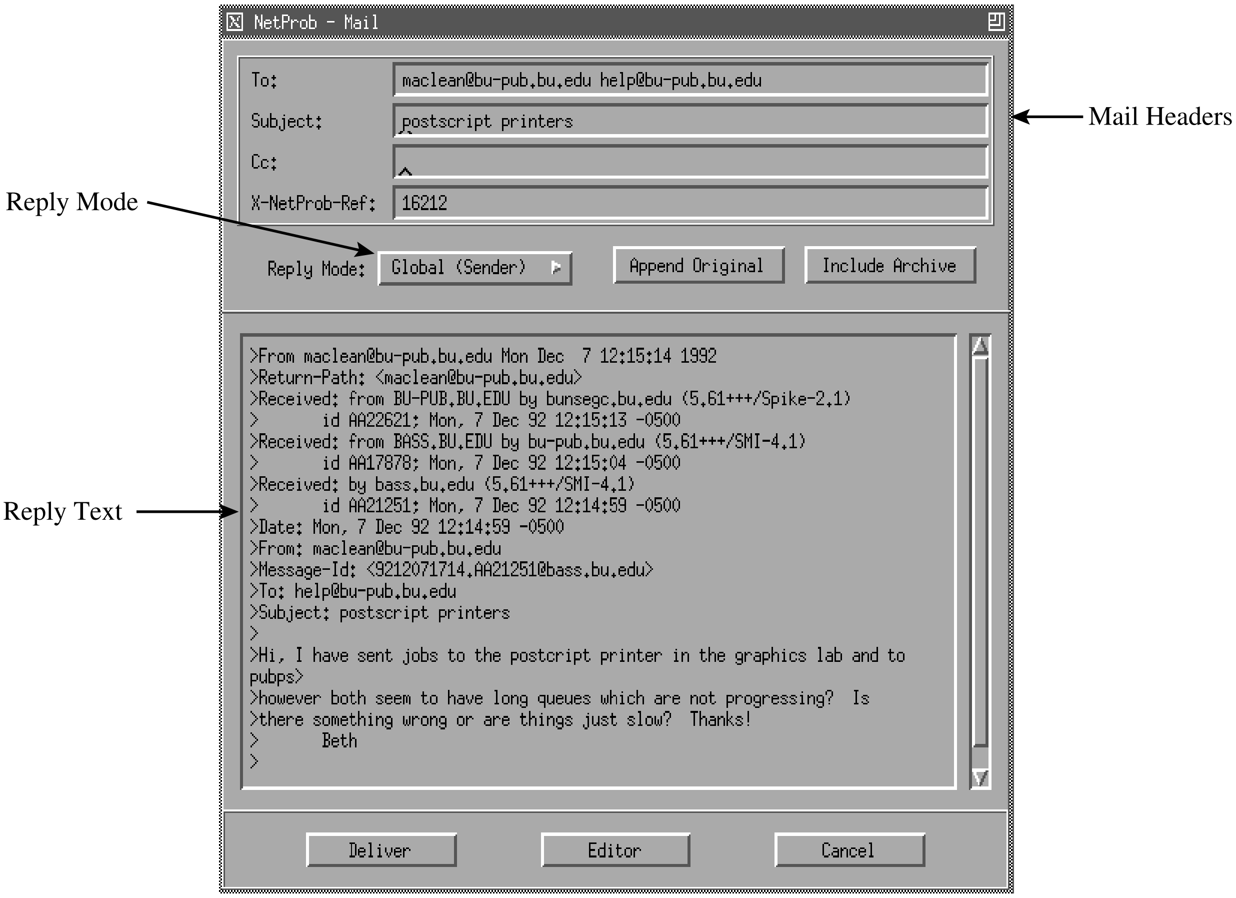
Netprob has three methods for determining which external editor to use. First, NetProb will check to see if the user has specified an editor in their Preferences. If no editor is specified in the Preferences, NetProb will check to see if their is an EDITOR variable set in the users ENVIRONMENT variable (must specify the full path name). Lastly, if the previous two methods fail, NetProb will try to use the editor that was set up by the NetProb Administrator as the default. By specifying the Automatically Bring Up Editor variable in the Preference menu, NetProb will automatically start up the users external editor when the Reply Window is brought up.

Including The Original Ticket

It is often useful to include portions (or the entire ticket) of the original trouble ticket into the reply message. This helps to keep the problem resolution clear. The original ticket may inserted into any part of the reply message. To insert the original ticket into the reply message, first move the insert cursor in the reply message to the location where you would like to insert the original. Then, click on the Include Original button

4. Reply Window

The Reply Window may be created by many different methods. It may be called up by clicking the *Forward* or *Reply* button in the Ticket Window, or by using the *Direct Mail* or *Bugs/Suggestion* entry in the menu in the Main window. All four of these methods will bring up the Reply Window and will also fill in various amounts of information in the window.



To: maclean@bu-pub.bu.edu help@bu-pub.bu.edu
Subject: postscript printers
Cc:
X-NetProb-Ref: 16212
Reply Mode: Global (Sender)

```
>From maclean@bu-pub.bu.edu Mon Dec  7 12:15:14 1992
>Return-Path: <maclean@bu-pub.bu.edu>
>Received: from BU-PUB.BU.EDU by bunsegc.bu.edu (5.61+++/Spike-2.1)
>       id AA22621; Mon, 7 Dec 92 12:15:13 -0500
>Received: from BASS.BU.EDU by bu-pub.bu.edu (5.61+++/SMI-4.1)
>       id AA17878; Mon, 7 Dec 92 12:15:04 -0500
>Received: by bass.bu.edu (5.61+++/SMI-4.1)
>       id AA21251; Mon, 7 Dec 92 12:14:59 -0500
>Date: Mon, 7 Dec 92 12:14:59 -0500
>From: maclean@bu-pub.bu.edu
>Message-Id: <9212071714.AA21251@bass.bu.edu>
>To: help@bu-pub.bu.edu
>Subject: postscript printers
>
>Hi, I have sent jobs to the postcript printer in the graphics lab and to
pubps>
>however both seem to have long queues which are not progressing?  Is
>there something wrong or are things just slow?  Thanks!
>       Beth
>
```

Figure 4.1 - Mail Window

Replying To A Ticket

To reply to a ticket, first bring up the ticket into the Ticket Window by selecting it in any of the views in the Main Window. In the Ticket Window, click on the reply button. Once in the reply window, you can edit your reply, include archived mail, append the original ticket or change the reply mode. When the test of the reply if finished and the ticket is ready for sending, clicking on the deliver button will deliver the reply.

Changing The Reply Mode

emergency, the inactivity timer is also turned off.

Changing Group Tags

A group tag represents which groups a trouble ticket is in, and therefor who is allowed to resolve the problem. Pressing and holding down the *Groups* button in the Ticket Window will display all the groups that NetProb has defined, which groups the ticket is in, and what groups the user is allowed to move the ticket to. A group name that is displayed with '+' before it signifies that the ticket is in the group. Group names that are greyed out means that the user does not have access to move the ticket into that group. A ticket ***must*** be in at least one group. If a ticket is in only one group, that name is automatically greyed out so the user can't remove the only group tag from the ticket.

To add a group tag to a ticket, select that group in the group menu. The ticket will now be tagged for the group selected. To remove a group tag from a ticket, simply select that group in group menu and the group tag (provided there is at least one other group tag) will be removed from the ticket.

Note: The 'Open' group may be used to effectively transfer tickets between groups. First, the ticket should be placed in the 'Open' group. An administrator from the new group can now add their group tag to the ticket. Lastly, the original group administrator can remove their group tag from the ticket. If an administrator has access to both groups the ticket can be moved between them as stated above and going through the 'Open' group is not necessary.

Removing a ticket from a ticket chain is even easier then creating a ticket chain. First, select the top ticket of the chain from a view in the Main Window. Once the ticket is in the Ticket Window, examine the Ticket Chain List and locate the ticket you wish to remove from the chain. Select that ticket by clicking once. To remove the selected ticket from the chain, click the *Remove From Chain* button. The ticket is now removed from the ticket chain. *Note: When removing tickets from a chain, you should always have the* ***top*** *ticket in the chain in the Ticket Window.*

Changing Ticket Status

The status of a ticket may be changed by clicking on the *Status Menu* in the Ticket Window and then selecting a new status level. The current status level is display in the menu. The different status levels and their meanings are described in *Figure 1.2*. To change the status level of a ticket, you must have at least *specialist* level of security for that ticket.

Three status levels, save, assigned, and delete cannot be changed through the status option menu and will be greyed out if you select the menu. These three status levels are special and are changed thorugh other commands. A ticket is automatically changed to assigned status if the specialist field is changed to an account that is different from the users. A tickets status will change to delete when that ticket has been deleted by clicking on the delete button or through the auto delete method while saving the ticket.

Changing Ticket Priority

The priority level of a ticket may be changed clicking on the *Priority Menu* in the Ticket Window and then selecting a new priority level. The current priority level is then displayed on the option menu. A user must have administration level access to the ticket to change it’s priority level. Changing a tickets priority level may also change the ticket timeout. Each NetProb group can assign different default timeout values for each priority level. Changing the priority level will change the timeout value to the groups default for that priority.

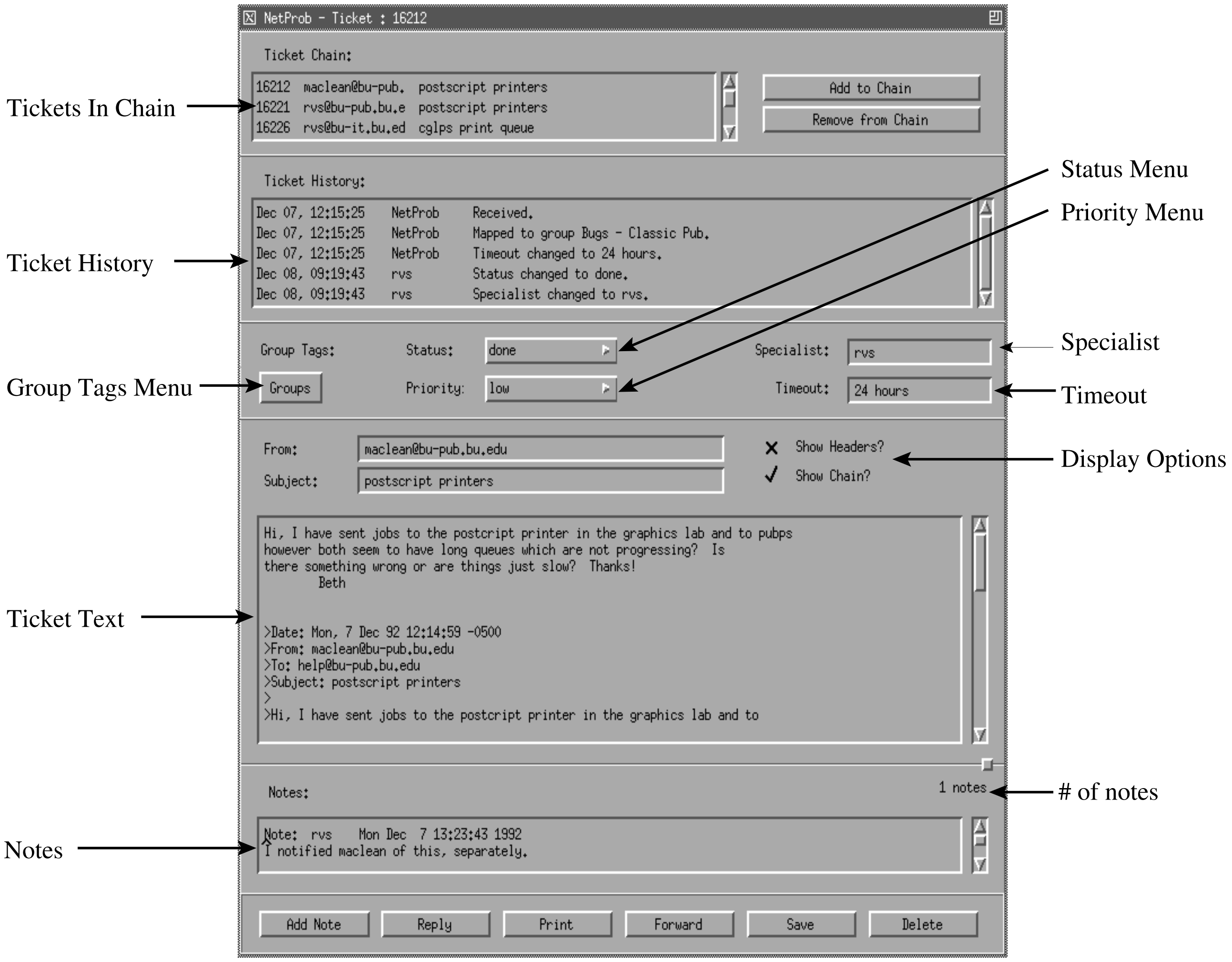
Changing The Specialist

The specialist field of a ticket represents the user that is currently responsible for resolving the trouble ticket. The specialist field may be changed typing in a new account name in the specialist field of the Ticket Window. If the user types in the their own name, then the status field is also changed to working. If they type in an account that is not their own, then the status field is changed to assigned. A user must have administrative level of security for a ticket to assign it to another user.

It is not necessary to enter a specific user account in the specialist field, any string is acceptable. This feature is useful for posting messages to all NetProb users by changing the specialist field to "README" or possibly changing a tickets status to "F.Y.I." if the ticket is more of an informational ticket then a problem.

Changing The Ticket Timeout

The timeout value of any ticket may be changed by entering a new value in the timeout field in the Ticket Window. *Note: This action, since it is an event, will reset the inactivity counter.* Setting the timeout period to the number 0 will turn off the inactivity timeout. Also, when a ticket has reached the priority level of



NetProb - Ticket : 16212

Ticket Chain:

```
16212  maclean@bu-pub.  postscript printers
16221  rvs@bu-pub.bu.e  postscript printers
16226  rvs@bu-it.bu.ed  cglps print queue
```

Ticket History:

```
Dec 07, 12:15:25    NetProb    Received.
Dec 07, 12:15:25    NetProb    Mapped to group Bugs - Classic Pub.
Dec 07, 12:15:25    NetProb    Timeout changed to 24 hours.
Dec 08, 09:19:43    rvs        Status changed to done.
Dec 08, 09:19:43    rvs        Specialist changed to rvs.
```

Group Tags:

Status: done

Priority: low

Specialist: rvs

Timeout: 24 hours

From: maclean@bu-pub.bu.edu

Subject: postscript printers

```
Hi, I have sent jobs to the postscript printer in the graphics lab and to pubps
however both seem to have long queues which are not progressing?  Is
there something wrong or are things just slow?  Thanks!
        Beth


>Date: Mon, 7 Dec 92 12:14:59 -0500
>From: maclean@bu-pub.bu.edu
>To: help@bu-pub.bu.edu
>Subject: postscript printers
>
>Hi, I have sent jobs to the postcript printer in the graphics lab and to
```

Notes:

```
Note:  rvs    Mon Dec  7 13:23:43 1992
I notified maclean of this, separately.
```

Figure 3.1 - Ticket Window

Chaining And Unchaining Tickets

Most of the time, the chaining of tickets that need to be grouped together is done automatically by the NetProb Server. However, there are times when a user may want to do this manually. Such a case may be when more then one trouble report enters NetProb for the same problem. These tickets may be chained together and then answered with a single reply. To create a ticket chain, select the first ticket that you would like in the chain from a view in the Main Window. This will bring up the ticket in the Ticket Window. Once the ticket is in the Ticket Window, click on the button *Add To Chain*. NetProb will prompt you for a ticket number. Enter the number of the ticket that you would like to add to the chain and press return or click on the *Okay* button. The tickets are now chained together. *Note: When adding tickets to a chain, you should always add to the* ***top*** *ticket in the chain.*

3. Ticket Window

Navigating The Ticket Window

The ticket window is used to display a detailed breakdown of the ticket. This window is also used to change the various fields of a ticket. Two display options control how the ticket text is displayed in the window (*see Figure 3.1*). The first option, *Show Headers*, will display the entire ticket including all of it's headers in the text view. If the *Show Headers* option is not selected, NetProb will only display the ticket body in the text view. The second option, *Show Chain*, will display the ticket text of all the tickets in the chain if it is selected. The order of the tickets displayed is the order in which they were received by the Server.

Tickets in the ticket chain may be accessed from within the Ticket Window to allow for faster navigation of a ticket chain. To view another ticket in a ticket chain, either select the *Show Chain* option discussed above, or double click on the ticket in the ticket chain list. While the *Show Chain* option will keep the original ticket as the key ticket in the window, double clicking on a chained ticket will bring up that ticket as the key ticket in the window.

Ticket History

Every event that takes place on a ticket is recorded in the tickets history log. This log is displayed in the Ticket Window. Keeping track of every event accomplishes two important goals, tracking the solution process and obtaining statistics. With an event log, it becomes clear exactly how long it has taken to move from one portion of the resolution process to the next. All of the ticket events are also saved in an external file. This file can be parsed to obtain an abundance of statistics, such as the number of tickets received by a group (or the entire system) in a fixed time period, the average time it takes to resolve a ticket, the number of trouble tickets sent by various users, etc...

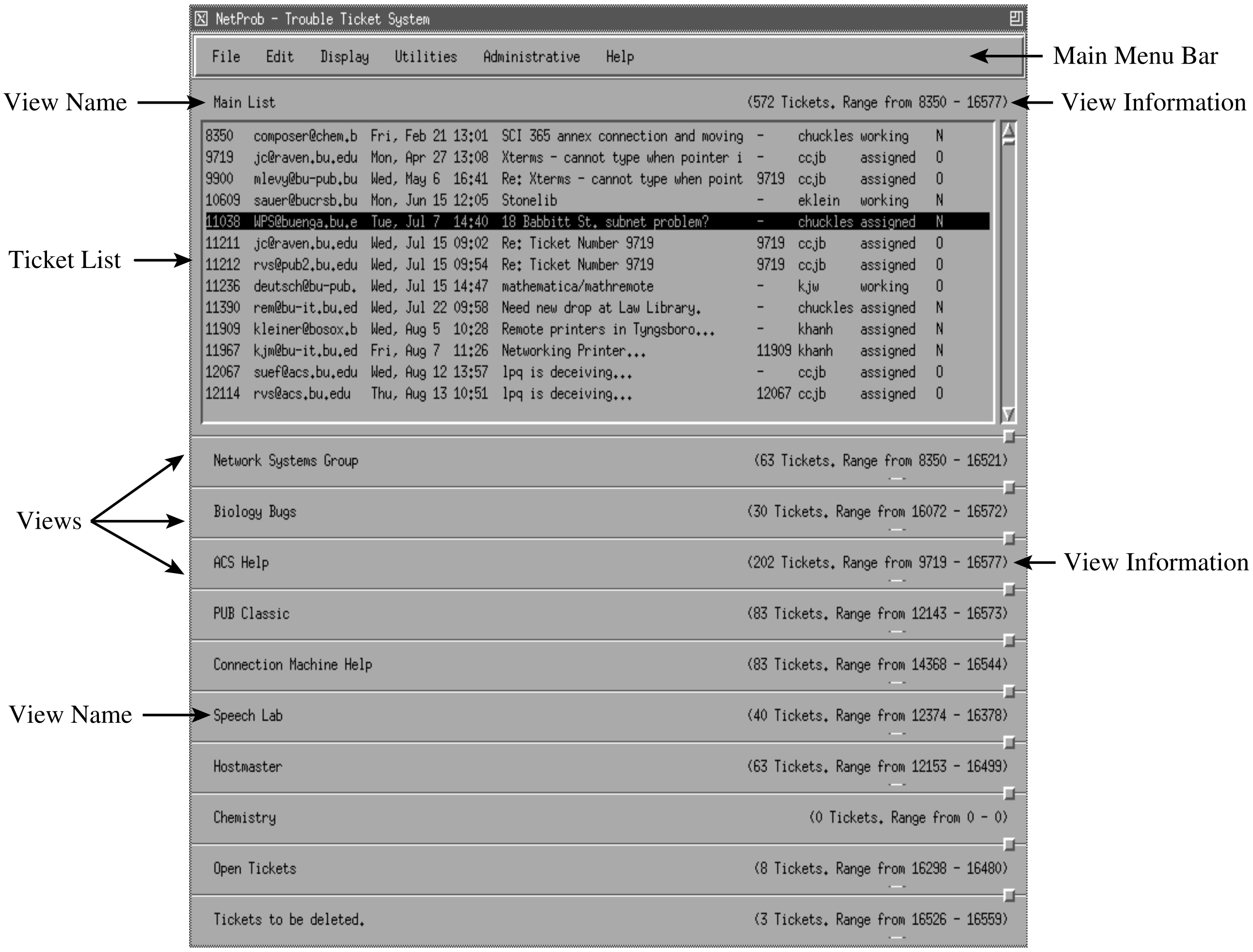
Each ticket event has three parts, the timestamp, the account of the user who initiated the event, and a data field. The timestamp is the time (as recorded by the server) that the event took place. The account field records the users account who initiated the event. Some events such as receiving a ticket, inactivity timeouts, and automapping to groups are initiated by the NetProb Server and the string *NetProb* will appear in the account field of the event. The data field of the event will show more specific information about the event, such as which group the ticket was mapped to, what the status field was changed to, etc...

information on rules. Each ticket must also pass a security check on the user before it is included in a views ticket list (see *"NetProb Security"*).

To view an individual ticket, click once on that ticket in the ticket list. This will bring up the Ticket Window which gives a detailed presentation of the ticket.

2. Main Window

The Main Window consists of the main menu bar and one or more views (see figure 2.1).



```
Main List                                                    (572 Tickets, Range from 8350 - 16577)
8350   composer@chem.b  Fri, Feb 21 13:01  SCI 365 annex connection and moving  -     chuckles working   N
9719   jc@raven.bu.edu  Mon, Apr 27 13:08  Xterms - cannot type when pointer i  -     ccjb     assigned  0
9900   mlevy@bu-pub.bu  Wed, May 6  16:41  Re: Xterms - cannot type when point  9719  ccjb     assigned  0
10609  sauer@bucrsb.bu  Mon, Jun 15 12:05  Stonelib                             -     eklein   working   N
11038  WPS@buenga.bu.e  Tue, Jul 7  14:40  18 Babbitt St. subnet problem?       -     chuckles assigned  N
11211  jc@raven.bu.edu  Wed, Jul 15 09:02  Re: Ticket Number 9719               9719  ccjb     assigned  0
11212  rvs@pub2.bu.edu  Wed, Jul 15 09:54  Re: Ticket Number 9719               9719  ccjb     assigned  0
11236  deutsch@bu-pub.  Wed, Jul 15 14:47  mathematica/mathremote               -     kjw      working   0
11390  rem@bu-it.bu.ed  Wed, Jul 22 09:58  Need new drop at Law Library.        -     chuckles assigned  N
11909  kleiner@bosox.b  Wed, Aug 5  10:28  Remote printers in Tyngsboro...      -     khanh    assigned  N
11967  kjm@bu-it.bu.ed  Fri, Aug 7  11:26  Networking Printer...                11909 khanh    assigned  N
12067  suef@acs.bu.edu  Wed, Aug 12 13:57  lpq is deceiving...                  -     ccjb     assigned  0
12114  rvs@acs.bu.edu   Thu, Aug 13 10:51  lpq is deceiving...                  12067 ccjb     assigned  0

Network Systems Group                                         (63 Tickets, Range from 8350 - 16521)
Biology Bugs                                                 (30 Tickets, Range from 16072 - 16572)
ACS Help                                                     (202 Tickets, Range from 9719 - 16577)
PUB Classic                                                  (83 Tickets, Range from 12143 - 16573)
Connection Machine Help                                      (83 Tickets, Range from 14368 - 16544)
Speech Lab                                                   (40 Tickets, Range from 12374 - 16378)
Hostmaster                                                   (63 Tickets, Range from 12153 - 16499)
Chemistry                                                            (0 Tickets, Range from 0 - 0)
Open Tickets                                                  (8 Tickets, Range from 16298 - 16480)
Tickets to be deleted.                                        (3 Tickets, Range from 16526 - 16559)
```

Figure 2.1 - Main Window

Each view consists of a view name, information, format, rule, state and it's ticket list. Each view also has a resize button on its right that can be used to grow or shrink the number of tickets that are displayed. The views name is specified by the user (see *"View Editor"*). The number of tickets in the view as well as the ticket numbers of the first and last ticket in that view are displayed in the view information string. The format of a view specifies which portions of a ticket will be displayed in the ticket list (see *"Format Editor"*). Each view also has it's own rule. The views rule specifies which subset of the Servers main queue to display in this view. These rules can be as simple as showing all tickets or as complex as showing all tickets that are in the 'open' state of the Biology group that 'Chuck' is working on where the priority level is 'high' and only show those tickets that were received on a Tuesday... See *"Rule Editor"* for more

Consulting group, the Network Systems Group administrator would tag the ticket for the 'Open' group and remove the tag for the Networks Group. Once the ticket is in the 'Open' group, the administrator of the Central Consulting group can add the group tag for Central Consulting and the ticket has now been 'moved'. *Note: Internally, the Server only has keeps one internal queue of tickets. The group tags are only used by the Clients to display subsets of this main queue.* If the NetProb System is being used by only one support group it is not necessary to create a special group for it, all the messages can remain in the 'Open' group. The second special group is the NetProb Administration Group. This group is used to give access to those users who will have the ability to create new groups and to shutdown the server.

The NetProb Server monitors an SMTP mail file and keeps it's specific ticket information in a separate resource file. NetProb Clients communicate with the Server through the RPC protocol. Clients may be located on multiple machines and need not be run from the same machine as the Server. The NetProb system has been designed to be multi-user and the Server keeps track of all changes made to the ticket queue and notifies and Client programs currently running of any changes that need to be made to their display. This ensures that all Clients have accurate information and that no changes are lost.

A utility program, the NetProb Manager, is responsible for sending *update requests* to the server. There are two types of updates that the Server performs: minor and major. Minor updates occour every fifteen minutes. A minor update will cause the server to check for new mail and to check each ticket in the queue for an inactivity timeout. A major update occours only once per day (usually at 2am) and will perform all the functions of a minor update as well as removing all tickets in the queue that are marked for deletion.

Status Level	Status Description
Open	The ticket has not been
Working	The ’specialist’ is working on the problem.
Done	The ticket has been resolved.
Pending	The ticket is awaiting more information from the user.
Assigned	The ticket has been assigend by an administrator to the ’specialist’.
Save	The ticket has been saved.
Delete	The ticket is marked for deletion.

Figure 1.2 - NetProb status levels.

Ticket events (when the ticket was received, status changes, etc.) are kept in the *history log* of the ticket. Each event records the user that iniated the event and a timestamp. Ticket events are also logged to an external file that can be parsed to create statistics. The urgency of the trouble ticket is reflected in the *priority level* of that ticket. A ticket can have a priority of none, low, medium, high or emergency. Tickets of a related nature may be *chained* together to form a single trouble ticket. Once tickets are chained together, any events that occour on the initial (top) ticket are reflected in all the tickets of the chain. The NetProb Server will automatically chain replies to tickets to their original ticket. There are times when an email reply to a ticket is not needed but logging of information is. This can be done by adding a *notes* to the ticket. Notes can be usefull to record the steps taken to resolve the problem. To ensure that a problem a problem does not forgotten about, each ticket has inactivity timeout field. This field can be set to any number of hours. When this timeout period expires since the last recorded ticket, NetProb will cause an inactivity timeout event and raise the priority level of the ticket. *Note: future releases will allow for more options on a ticket timeout event, such as emailing the ’specialist’ or group administrator or online notification.*

NetProb Groups

The Netprob Trouble Ticket System can also be used by more then one support group while still using only the one Server. This is accomplished through each tickets group tags. When a an email message comes into the NetProb Server, the Server parses the To: and From: headers of the message and will map the new ticket into the appropriate support group(s) based upon these headers. This method of "tagging" tickets is designed to allow multiple support groups and easy way to share information and to reroute mis-sent tickets.

In addition to the support groups, NetProb also has two unique groups - the ’Open’ group and the ’NetProb Administration’ group. The ’Open’ group is where tickets are placed that NetProb could not properly map to any other groups. The ’Open’ group is also used to transfer tickets between different groups. For example, if a ticket was sent to the Network Systems Group but belongs in the Central

DRAFT COPY

1. Overview

What is a Trouble Ticket?

NetProb is a complete trouble ticket system based upon SMTP electronic mail. NetProb operates in a client-server model to allow for the maximum amount of flexibility and reliability. Electronic mail (email) is sent to the NetProb Server where new information is added to it (status field, priority level, etc.) and a unique number is given to the email message. The result is now called a *trouble ticket* or simply a *ticket*.

Tickets are handled similar to email messages; they can be replied to (via email), forwarded, printed, saved or deleted. In addition, each ticket has it owns history log, specialist field, status level, priority level, chain, notes, group tags, and timeout level. Figure 1 shows how NetProb creates a trouble ticket from an SMTP message.

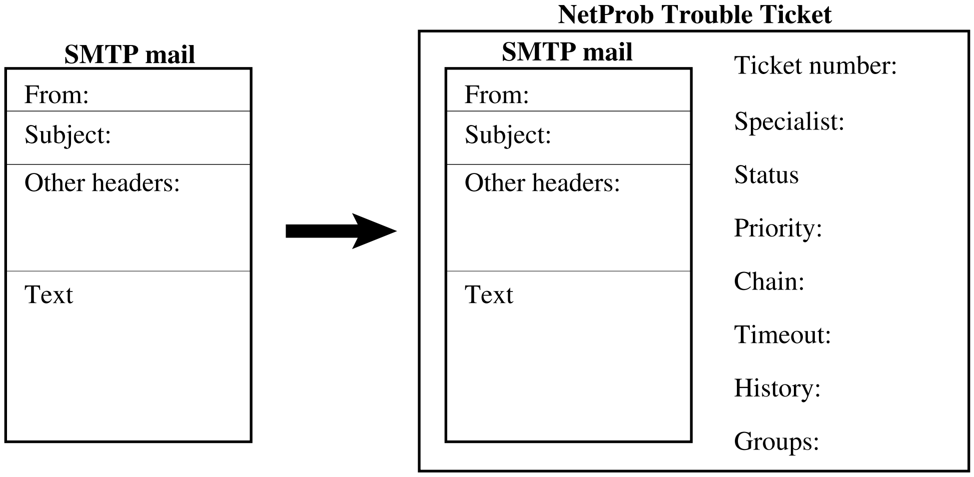


Figure 1.1 - NetProb Trouble Ticket creation from an SMTP message.

The *specialist* field of a ticket represents the person who is responsible for resolving the trouble ticket. The *status* of a ticket shows what state of resolution the problem is in. The various status levels and the meanings are outlined in figure 1.2.

NetProb User Manual

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