

ATTACHMENT E

QUESTIONNAIRE FOR PROSPECTIVE SUMEX-AIM USERS

INFORMATION FOR POTENTIAL USERS OF SUMEX-AIM RESOURCE

Preface: National users may gain access to the facility resources through an advisory panel for a national program in artificial intelligence in medicine (AIM). The AIM advisory group consists of members-at-large of the AI and medical communities, facility users, and the principal investigator of SUMEX as an ex officio member. A representative of the National Institutes of Health-Biotechnology Resources Branch (NIH-BRB) serves as executive secretary.

Under its enabling five year grant the SUMEX-AIM resource is allocated to qualified users without fee. This, of course, entails a careful review of the merits and priorities of proposed applications. At the direction of the advisory group, expenses related to communications and transportation to allow specific users to visit the facility may be covered as well.

User Qualifications: In general terms, potential users of the SUMEX-AIM facilities are judged on the basis of:

1. The scientific interest and merit of the proposed research,
2. The relevance of the work to the artificial intelligence approach of SUMEX-AIM as opposed to other computing alternatives,
3. The prospective contributions and role of a user in the community, e.g., developing and sharing new systems or applications programs, sharing use of special hardware, etc.
4. The user's capability and intentions of operating in a community-effective style for mutual advantage. Beside the programming innovations that some participants may be able to contribute, all are expected to furnish expert knowledge and advise about the existing art in their fields of interest.
5. Quantitative allocation of specific elements of the SUMEX-AIM resource based on a concept of mean and ceiling planned expectations.

In many respects this entails a higher level of information than is required for routine grant applications seeking monetary funding support. The information furnished by users is also indispensable for the SUMEX staff in carrying out their planning, reporting and operational functions.

The questionnaire that follows encompasses the main issues that the committee must be concerned about. However, this should not obstruct clear and imaginative presentation, and we are not much concerned about form and format. The user should prepare his statement in his own words using previously published material or other documents wherever convenient. The questionnaire, regarded as a form, might be most useful as a check list and as an index to guide readers where to find the most cogent replies in the other documentation to the questions raised.

For users mounting complex and especially nonstandard systems, the decision to affiliate with SUMEX may entail a heavy investment that would be at risk if the arrangement were suddenly terminated. The advisory committee wishes to follow a responsible and sensitive policy along these lines; one reason for cautious deliberation; and even in the harshest contingencies will make every effort to facilitate graceful entry and departure of qualified users. Conversely, it must have credible information about thoughtful plans for long term requirements including eventual alternatives to SUMEX-AIM. SUMEX-AIM is a research resource, not a operational vehicle for health care. Many programmes are expected to be investigated, developed, and demonstrated on SUMEX-AIM with spinoffs for practical implementation on other systems. In some cases the size and scope of clinical trials and validation that may be required later would preclude them from being carried out on SUMEX-AIM as now constituted. Please be as explicit as you can in your plans for such outcomes.

Applicants should therefore submit:

1. One to two page outline of the proposal organized as the user sees fit.
2. A return copy of the questionnaire, cross-indexed where relevant, to supporting documents.
3. Supporting documents.
4. List of submitted materials, coded for cross reference in any reasonable way.

Please send us two copies of submitted materials for preliminary review. We will notify you later, as needed, if additional copies of supporting materials, e.g., reprints, will be useful for the committee.

QUESTIONNAIRE

(Please provide either brief reply or reference supporting documents)

A, Questions Relating to Medical and Computer Science Goals

1. Describe the proposed research to be carried out on the SUMEX-AIM resource.
2. How is this research presently supported? Please identify application and award statements in which the contingency of SUMEX-AIM availability is indicated. What is the current status of any application for grant support of related research by any federal agency? If within the past three years you have received notification of any disapproval or of approval, pending funding, this should be noted. Budgetary information should be furnished where it concerns operating costs and personnel for support of computing. Please furnish whatever contextual information that would aid the advisory committee to understand how your research plans have been evaluated by other scientific review groups.
3. What is the relevance of your work to the AI approach of SUMEX-AIM as opposed to other computing alternatives?

B, Questions Relating to Collaborative Community Building

1. Will the programs that you will be designing in your research efforts have some generality with regard to their possible application to problems analogous to those that you are immediately interested in?
2. What application programs are already publically available that you can use in your work? Are these available on SUMEX-AIM or elsewhere?
3. What are the opportunities or difficulties with regard to making available your own programs to other collaborators within a reasonable interval of publication of your work?
4. Are you interested in discussing with the SUMEX staff possible ways in which other artificial-intelligence research capabilities might interrelate with your work?
5. If approved as a user, would you help advise us on collaborative opportunities similar to yours with other investigators in your field?

C, Questions Relating to Hardware and Software Requirements

1. What computer facilities are you now using in connection with your research or do you have available at your institution? In what respect do these not meet your research requirements?

2. What languages are you using or do you wish to use? Will your research require that major system programs or languages be added to the system? Will you maintain them? If you are committed to systems not now maintained at SUMEX, please comment on the effort that would be required for conversion to and maintenance on the PDP-10 - TENEX system. Can you discuss the merits of the alternative plan of converting your application programs to one of the already available standards? Would the latter facilitate the objectives of Part B, collaborative community building.

3. Can you estimate your requirements for CPU utilization and disk space? What time of the day will your CPU utilization occur? Would it be convenient or possible for you to use the system during off-peak periods? Please indicate (the best you can) how you arrive at these estimates and what the consequences would be of various levels of restriction or relaxation of access to different resources. SUMEX-AIM's tangible resources can be measured in terms of:

- a) CPU cycles
- b) connect time and communications
- c) user terminals (in special cases these may be supported by SUMEX-AIM)
- d) disk space
- e) offline media-printer outputs; tapes (limited quantities at most to be mailed)

Can you estimate your requirements? With respect to a) and b) there are loading problems during the daily cycle--can you indicate the relative utility of prime-time (0900-1600 PST) vs. off-peak access?

4. What are your communication plans? (TYMNET, ARPANET, other?) How will your communication and terminal costs be met? An attached memorandum describes network connections to SUMEX-AIM.

5. If this is a development project, please indicate your long-term plans for implementation of your software in an applied context, keeping in mind the research mission of SUMEX-AIM.

Final notes:

Our procedures are still evolving and we welcome your suggestions about this framework for exchanging information. Needless to say, each question should be qualified a) "in so far as relevant to your proposal", and b) "to the extent of available information",

Please do not force a reply to a question that seems inappropriate. We prefer that you label it as such so that it can be dealt with properly in further dialogue.

Above all we are eager to work with prospective users in any way that would help minimize bureaucratic burdens and still permit a responsible regard for our accountability to NIH and to the public. Please do not hesitate to address the substance of these requirements in the form most convenient to you.

MEMORANDUM

SUBJECT: Network Connections to SUMEX-AIM

DATE: January 10, 1975

FROM: Z. Levinthal

I. TYMNET

Attached are a set of instructions for using TYMNET and a listing of the available nodes and associated telephone numbers. The costs to users of using TYMNET are the telephone charges from user location to the nearest TYMNET node. This is available only for communication to SUMEX-AIM and not for other facilities that may be connected to TYMNET. In some cases there are "foreign exchanges" set up by users. These may offer less expensive communication. Details as these possibilities can best be learned by calling the nearest TYMNET node. The telephone company can give information on comparative costs of leased lines, toll charges, etc. The initial capital investment for the TYMNET installation as well as the log-in and hourly charges are provided by SUMEX-AIM. These standard usage charges on TYMNET are about \$3.00/connect-hour.

Attachments: (1) <DOC> TYMNET Instructions
(2) Network service node access for TYMCOM-III Users

II. ARPANET

SUMEX-AIM is connected to the ARPANET. Our name is SUMEX-AIM. Our address is decimal 53, octal 70. This provides convenient access for ARPANET Hosts and Associates and those who have accounts with ARPANET and communicate through a TIP.

Michael Heathman
October 1974

USING TYMNET

Using SUMEX-AIM via the TYMNET network

When communicating with TENEX via TYMNET, it be must rememberd that one is talking to TENEX via an independant system - TYMNET. As such, a connection must first be established with TYMNET before communication with TENEX is possible. Also, a TENEX session termination (for any reason) does not necessarily imply the termination of the TYMNET connection (and billing time). The following paragraphs outline the TYMNET connect and disconnect procedures.

ENTERING THE TYMNET SYSTEM:

The specific procedure for contacting the computer depends on the terminal arrangement. Two typical communication devices are the data modem (acoustic coupler) and the Data Phone. The procedures for using these two devices are described here. Tymshare operates terminals in the full duplex mode. Check your terminal for a Full Duplex/Half Duplex mode switch. In addition, some terminals have an Upright/Inverted code switch. This switch should be in the Upright position. If you have any questions about using TYMNET, contact your Tymshare representative.

Data Modem:

1. Put the terminal in the line, or compute mode.
2. Be sure that both cords from the terminal are plugged into the modem and that the modem is plugged into a standard wall outlet.
3. Using a regular telephone, dial the Tymshare computer number.
4. When the answer tone sounds, place the telephone handset into the modem in the orientation indicated on the coupler; push the modem's ORIGINATE button.

Data Phone:

1. Put the terminal in the line, or compute mode.
2. Depress the TALK button.
3. Dial the TYMNET number.
4. When the answer tone sounds, depress the DATA button and replace the handset.

IDENTIFYING THE TERMINAL:

As soon as the connection to TYMNET is made, the system turns on the terminal and sends a message. This message is sent at 10 characters per second and is readable only on a 10 cps terminal. On other terminals, a sequence of characters will print, and then the terminal will pause.

Type the identification character for your terminal. This character tells the system which code and which transmission speed to use to communicate with your terminal.

Then the system will return the carriage and display.

PLEASE LOG IN:

The table below lists the identification characters. If you have a question about which one applies to your particular terminal, contact the SUMEX staff.

IDENTIFICATION CHARACTER	CPS IN/OUT	EXAMPLES	COMMENTS
D	10	Model 33 Teletype	
B	15	Model 37 Teletype	ASCII
Carriage Return	15	IBM 2741, Datel, Dura, Novar	Correspondence Code
J	15	Model 37 Teletype	ASCII (even parity)
F	15/30	Tymshare 1030, Execuport, Gulton, Syner-Data	Recommended over C where telephone line quality is marginal
A	30	CRT Terminals	
C	30	Tymshare 1030, DCT 500, Gulton, Syner-Data	
G	30	Memorex, GE TermiNet 300	The particular character used depends on the Carriage Return speed of the terminal
E	30	Execuports, TI725, NCR260	
I	30	TI733, TI735	

LOGGING IN:

The log in procedure requires typing a user name and password, both of which are registered with Tymshare. The system checks both the user name and the password before admitting the user to the system. All SUMEX-AIM-TENEX users of TYMNET have the same user name and password; the user name, in this case, actually being "sumex" - a host name identifying to TYMNET the system desired by the user. The current password can be obtained from the SUMEX staff.

After the system types PLEASE LOG IN:, the user types a carriage Return. The system replies with a request for the use name. The user types his user name followed by a Carriage Return. The system next requests the password. The user types the password followed by a Carriage Return. For security, the computer does not print the password on the terminal.

```
PLEASE LOG IN: <CR>
USER NAME: sumex <CR>
PASSWORD: <CR>
```

If there are typing errors while logging in, the system replies with ERROR,TYPE: followed by another request for that information. To abort a TYMNET login sequence, hit the ESC key, and TYMNET will start the login sequence over. In the following example, the user types an unacceptable user name, corrects his error, and continues to log in.

```
PLEASE LOG IN: <CR>
USER NAME: sumx <CR>
ERROR,TYPE: USER NAME: sumex <CR>
PASSWORD: <CR>
```

Once the user is thoroughly familiar with this log in procedure, an alternate and faster method can be used as follows:

```
PLEASE LOG IN: sumex; (Non-printing password here) <CR>
```

A semicolon must be typed between the user name and the password and a Carriage Return should follow the password.

The error diagnostics are the same regardless of which log in procedure is used. When the system indicates an error, the user can correct the error and type the rest of the log in information in the normal way.

The user is allowed two minutes to log in. This time limit is set for security to prevent an illegal user from accessing the system. If the log in is not completed within the time limit, the system prints a disconnect message and hangs up.

Once a successful connection to the TYMNET has been completed, SUMEX-AIM-TENEX should respond with its login herald, and the user should login to TENEX in the normal manner. (Almost, that is. To insure that type ahead will not reveal ones password, terminate user name with CR or Altmode).

When logging out, TENEX automatically breaks the TYMNET connection; however, it does not do so when detaching. In that case, one must hang up the telephone to terminate the TYMNET connection. If the telephone is hung

up (or the TYMNET connection is otherwise broken) while using TENEX
on the TYMNET, TENEX will detach the job, wait 20 minutes, then kill the job.