

How to Use IMSL on UNIX

The Statistical Consulting Center

This document gives extremely basic information about using Fortran or C to call the Visual Numerics Mathematical and Statistical Library (IMSL) subroutines on our UNIX computers. The Statistical Consulting Center (SCC) provides technical support for Fortran and IMSL.

For a complete description of other software we fully support, go to oit.utk.edu/scc and select Documentation. The document is entitled, *Supported Software for Research*. If you need assistance with any of those areas, contact the Statistical Consulting Center via the Helpdesk at 974-9900. We will do our best to get back to you within 24 hours. All UT students, faculty and staff can receive up to 10 free hours of statistical, mathematical, graphical, mapping and computing assistance each semester. See oit.utk.edu/scc for details. We also offer training each semester on a variety of research computing subjects. See web.utk.edu/~training for details.

You can use the IMSL subroutines on our UNIX systems for free. If you would like to run them on your system then it will cost around \$60 a year + a \$50 setup fee for the UNIX systems groups help. If you select the second option, you can order the software online at oit.utk.edu/software. The UNIX system will then be contacted to do the installation.

To use IMSL with Fortran, you should be familiar with the Fortran 90 language as well as the Fortran 77 language which is a subset of Fortran 90. The latest IMSL libraries work only with the latest version of the SUN C and Fortran compilers distributed as SunStudio.

Below is an example of a Fortran program that calls IMSL routines, the commands for using it on UNIX and sample output from the program. The program is named `getlarge.f`. It calls the IMSL routines `AMACH` and `UMACH`. A tab precedes each line.

```
INTEGER NOUT
REAL AMACH, RBIG
EXTERNAL AMACH, UMACH
CALL UMACH(2,NOUT)
RBIG = AMACH(2)
WRITE(NOUT,*) 'LARGEST REAL NUMBER = ',RBIG
STOP
END
```

To run the program, follow these steps:

1. Set your path to point to the Fortran and IMSL libraries with the commands:

```
setup sunstudio    (compiler setup)
setup imsl
```

2. Compile the program into a file called `getlarge.out`:

```
$F90 $F90FLAGS -o getlarge.out getlarge.f $LINK_F90
```

3. Execute the program with the command:

```
getlarge.out
```

Output will appear as:

```
largest real number = 3.4028234E+38
```

Type `'man imsl'` for quick help. For detailed information on the various IMSL routines and additional compile/link options, read the online documentation which is supplied on UNIX as Portable Document Files (PDF). To view these PDF files with Adobe Acrobat, use the commands:

acoread /opt/vni/CTT6.0/help/imsi.pdf
acoread /opt/vni/CTT6.0/notes/f90/README (Notes for Fortran 90)
acoread /opt/vni/CTT6.0/notes/cnl/README (Notes for C)

The Visual Numerics company web page, www.vni.com, has documentation, tips, technical notes and patches for IMSL. It also gives directions to listserv support. Their technical support is available at 713-954-6439, or via email: support@houston.vni.com