This document serves as an introduction to the small set of routines which extend IDL's
signal processing capabilities that we are making available. The primary focus of these
routines are David Thomson's multitaper methods which are described in detail in [1]. Here
we will simply provide an introduction to the routines that come with this package with
pointers on how to set them up on local file systems and where to find further documentation.
We expect that there will be a number of revisions and extensions to this library in the future
which we are happy to support. Email correspondence should be directed to B. Pesaran at
the above address. Please let us know of anything that needs fixing or is unclear to the user.
Our goal is for these routines to be usable "stand alone".

The collection of files are all IDL procedures, some of them stand-alone, others in-
terface with routines inside IDL or readily compiled C-routines from the LAPACK lib-

dary of routines. The IDL procedures are documented in a primitive way by accessing
the idl_help.html document in this directory using any standard Web browser such as
Netscape. There is usually an "open file" button on your browser into which you type the
path of the html file.

To make the use of the library easy, it is best to place the .pro programs in a single
directory which you add to the $IDL_PATH variable. This allows IDL to access them di-
rectly without the user compiling them in advance. For the purposes of this document, we
will assume that the files reside in a directory idl_lib in your home space. /idl_lib In
addition the compiled executable, idl_* .so, must be kept available to IDL. This library
is too large to be stored on the LANL site and must be downloaded by anonymous ftp from
charybdis.caltech.edu where various versions of it reside in /pub/idl/lib/lapack_idl_* .so.
We will assume that this library has been placed in the lib directory in your home space,
/lib. This directory should then be added to your $LD_LIBRARY_PATH variable. There
are a number of points at which the $IDL_PATH and $LD_LIBRARY_PATH variables can
be set. If you are using a tcsh or csh then just add the lines to your .tcshrc or .cshrc
file:

    setenv IDL_PATH /idl_lib:$IDL_PATH
    setenv LD_LIBRARY_PATH /lib:$LD_LIBRARY_PATH

If you are using a different shell, you can add the equivalent statements to the .profile
file.

The use of the compiled executables is an important extension to IDL. This provides
access to the complete Lapack library from IDL. All that is needed is a wrapper function
that calls a specific routine inside a dynamic link library. The dynamic link library is called
lapack_idl_* .so and has been compiled for Sun OS 4.3 and Linux. Other platforms will
be supported in the future.

Once these changes have been made, you should have full access to the routines.

Have fun!

References

Submitted.