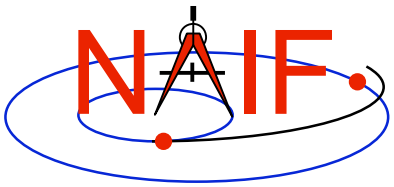
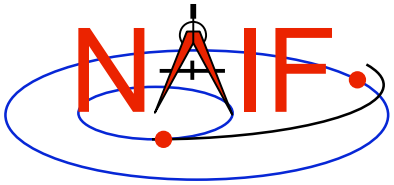


Navigation and Ancillary Information Facility

Preparing for Programming Using the SPICE Toolkit

January 2009



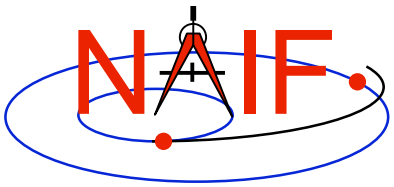
Setting Path to Toolkit Executables

Navigation and Ancillary Information Facility

Recommended for all languages

- **Unix**
  - **csh, tcsh: Use the set command to add the location of toolkit executables to your path.**
    - » **set path = ($path /*my_directory*/toolkit/exe)**
    - » **set path = ($path /*my_directory*/cspice/exe)**
    - » **set path = ($path /*my_directory*/icy/exe)**
    - » **set path = ($path /*my_directory*/mice/exe)**
  - **bash**
    - » **PATH=$PATH:/*my_directory*/toolkit/exe**
    - » **PATH=$PATH:/*my_directory*/cspice/exe**
    - » **PATH=$PATH:/*my_directory*/icy/exe**
    - » **PATH=$PATH:/*my_directory*/mice/exe**
- **Windows**
  - **Add location of toolkit executables to the environment variable PATH from the *Advanced* pane on the *System* Control Panel (*Control Panel->System->Advanced*).**
    - » ***drive:\my_directory*\toolkit\exe**
    - » ***drive:\my_directory*\cspice\exe**
    - » ***drive:\my_directory*\icy\exe**
    - » ***drive:\my_directory*\mice\exe**

Replace the *italics* with the path in which you installed the toolkit on your computer.



Unix/Linux: Build

Navigation and Ancillary Information Facility

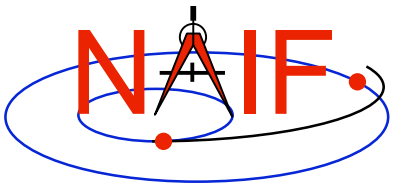
- **Compile and link an application, say *program*, against the SPICELIB/CSPICE libraries**
  - **Assume SPICE is installed at `/naif/toolkit/` or CSPICE is installed at `/naif/cspice/`**
    - **» C**

```
$ gcc program.c -I/naif/cspice/include /naif/cspice/lib/csupport.a \
                                       /naif/cspice/lib/cspice.a -lm
```

    - **» FORTRAN**

```
$ g77 program.f /naif/toolkit/support.a /naif/toolkit/spicelib.a
```

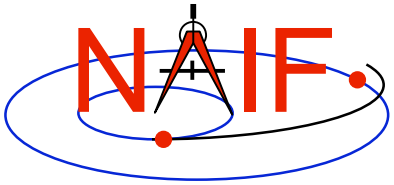
    - **» Some FORTRAN compilers (e.g. Absoft) require an additional flag "`-lU77`" when linking against SPICELIB to pull in the standard Unix symbols**
- **The default SPICE library names do not conform to the UNIX convention `lib`*`name`*`.a`. So you cannot use the library path/name options `-L/`*`path_to_libs`*`/` and `-l`*`name`* unless you rename the SPICE library.**



Windows: Compiler settings

Navigation and Ancillary Information Facility

- **The standard installation of Microsoft Visual Studio or Visual Toolkit may not update environment variables needed to use the C compiler (cl) from the standard DOS shell.**
  - **Example, environment variables for "cl" - Visual Studio 7:**
    - **`INCLUDE`**
      - `C:\Program Files\Microsoft Visual Studio .NET\Vc7\include\`
      - `C:\Program Files\Microsoft Visual Studio .NET\FrameworkSDK\include\`
    - **`LIB`**
      - `C:\Program Files\Microsoft Visual Studio .NET\Vc7\lib\`
      - `C:\Program Files\Microsoft Visual Studio .NET\FrameworkSDK\Lib\`
    - **`PATH`**
      - `C:\Program Files\Microsoft Visual Studio .NET\Vc7\bin\`
  - **You can set the environment variables either by appending the directory paths shown above to the corresponding environment variable in the *Advanced* pane of the *System* Control Panel or by executing one of the "vars32" batch scripts supplied with the Microsoft compiler:**
    - **vars32.bat**
    - **vcvars32.bat**
    - **vsvars32.bat**



Windows: Builds

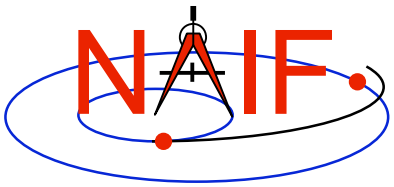
Navigation and Ancillary Information Facility

- **Assume SPICE is installed at `C:\naif\toolkit\` with CSPICE installed at `C:\naif\cspice\`**
  - **Compile and link an application, say *program*, against the SPICELIB/CSPICE libraries**
    - **C**

```
> cl program.c -IC:\naif\cspice\include C:\naif\cspice\lib\csupport.lib \
                                       C:\naif\cspice\lib\cspice.lib
```

    - **FORTRAN**

```
> df program.f C:\naif\toolkit\lib\SUPPORT.LIB \
              C:\naif\toolkit\lib\SPICELIB.LIB
```



Icy: Register the Icy DLM to IDL (1)

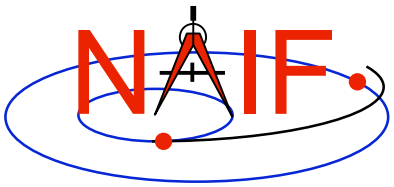
Navigation and Ancillary Information Facility

Required for "Icy"

- **Unix and Windows**
  - **Use the IDL register command:**

    ```
    IDL> dlm_register, <path to icy.dlm>
    ```

  - **copy icy.dlm and icy.so (icy.dll) to IDL's binary directory {The IDL install directory}/bin/bin.<your_arch>, e.g.:**
    - **/usr/local/itt/idl64/bin/bin.linux.x86/**
    - **C:\ITT\IDL64\bin\bin.x86**
- **Unix specific:**
  - **Start the IDL application from a shell in the directory containing both icy.dlm and icy.so.**
  - **Append the path to your icy.dlm to the IDL_DLM_PATH environment variable to include the directory containing icy.dlm and icy.so, e.g.:**
    - `setenv IDL_DLM_PATH "<IDL_DEFAULT>:<path to icy.dlm directory>"`
- **Windows specific:**
  - **Set environment variable IDL_DLM_PATH as described above from the *Advanced* pane of the *System* Control Panel.**



Icy: Register the Icy DLM to IDL (2)

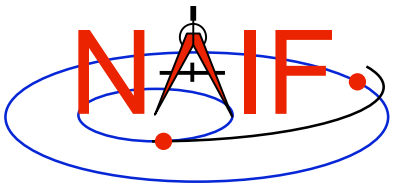
- **Confirm IDL recognizes and can access Icy**
  - **Using the help command:**

```
IDL> help, 'icy', /DLM
**ICY - IDL/CSPICE interface from JPL/NAIF (not loaded)
```

    (Appearance of the words "not loaded" might suggest something is wrong, but this is expected state until you execute an Icy command.

  - **Execute a trivial Icy command:**

```
IDL> print, cspice_icy('version')
% Loaded DLM: ICY.
Icy 1.4.20 25-DEC-2008 (EDW)
```

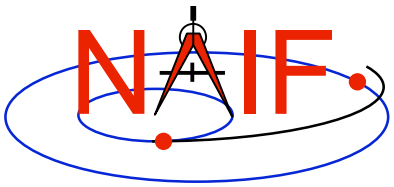


Icy: Using the IDL IDE

Navigation and Ancillary Information Facility

Recommended for "Icy"

- **Use the IDL IDE's preferences panel to set the current working directory to the location where you will be developing your lessons' code.**
- **Optional: Place your `dlm_register` command in a start up script. Specify the script using the IDL IDE's preferences panel.**



Mice

Required for "Mice"

- **Assume Mice is installed at `C:\naif\mice\` on Windows, or `/naif/mice/` on Unix/Linux. Use of Mice from MATLAB requires the Mice source and library directories exist in the MATLAB search path.**
  - **On Windows:**

```
» addpath('C:\naif\mice\lib')
» addpath('C:\naif\mice\src\mice')
```

  - **On Unix/Linux:**

```
» addpath('/naif/mice/lib')
» addpath('/naif/mice/src/mice')
```