Getting and Installing the SPICE Toolkit
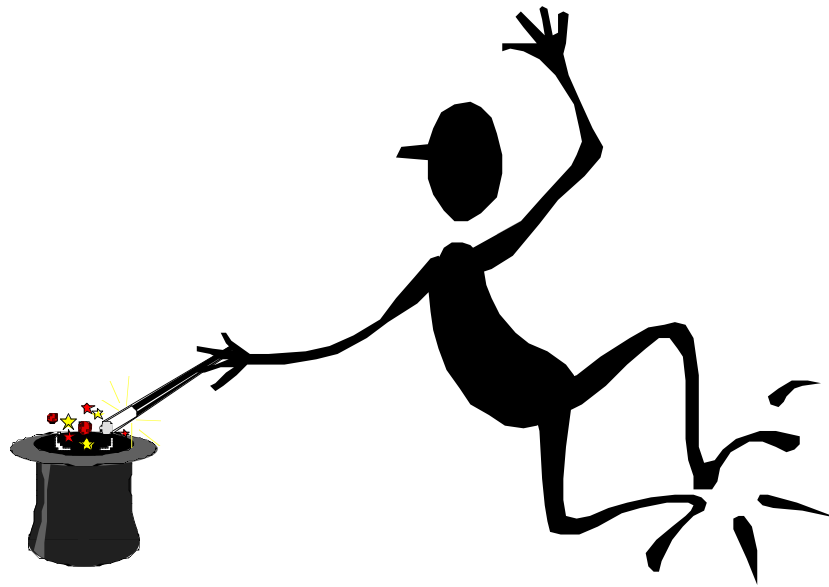
January 2017
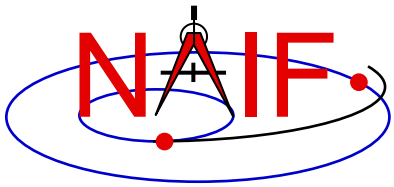
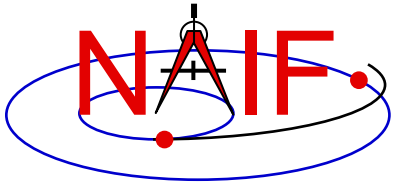**Navigation and Ancillary Information Facility**

- **All instances of the SPICE Toolkit are available 24x7 from the NAIF WWW server**

 **http://naif.jpl.nasa.gov/naif/toolkit.html**

- **No password or identification is needed**

- **To download a Toolkit package**
  - **Select language – FORTRAN, C, IDL, or MATLAB**
  - **Select computer platform/OS/compiler combination**
    - » **Be careful to pick the right architecture: 64 or 32 bit**
  - **Download all toolkit package components**
    - » **package file – toolkit.tar.Z (or toolkit.zip),**
      cspice.tar.Z (or cspice.zip),
      icy.tar.Z (or icy.zip), or
      mice.tar.Z (or mice.zip)
    - » **Installation script (if present) – import*.csh**
    - » **Accompanying documents - README, dscriptn.txt, whats.new**

- **The packages provided on the NAIF server have been built and tested by NAIF on these particular environments.**

- **We highly recommend you not try to port any instance of the Toolkit to some other environment, especially without consulting with NAIF first.**
  - **There are portability issues and compiler optimization issues that must be carefully dealt with.**
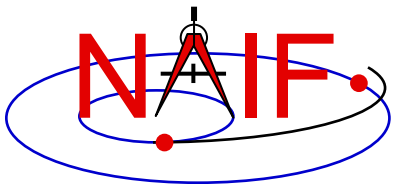
Installing Toolkit

Terminal Window

- **To install the Toolkit, follow the directions given in the README. Normally this consists of the following (not applicable for PC Windows):**

```
prompt> chmod u+x importSpice.csh
prompt> ./importSpice.csh
prompt> rm toolkit.tar
```

- **For PCs running Windows, unzip the toolkit (or cspice or icy or mice) to expand the archive.**

```
> unzip toolkit.zip
```

- **You now have the expanded toolkit (or cspice or icy or mice) package.**
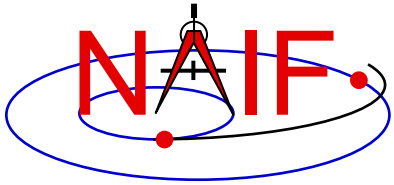
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- **For some programming environments there are required additional steps to prepare for programming using SPICE.**

- **For some programming environments there are recommended additional steps to make program development easier.**

- **Read the "Preparing for Programming" tutorial and the "README" file found in the Toolkit download directory for more information!**
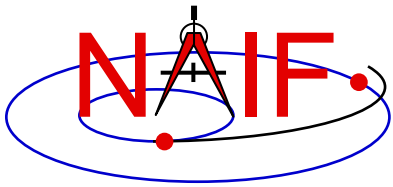
Checking It Out

- ## Try some executables
  - **Use *tobin* to convert the SPICE transfer format SPK and CK files supplied with the Toolkit to local binary.**
    - » **cook_01.tsp, cook_02.tsp, cook_01.tc, and cook_02.tc are found in the ../data directory** (*xsp*, *xsp*, *xc*, *xc*)
  - **Use *brief*, *ckbrief* or *spacit* to summarize the converted kernels.**

- ## Problems may occur if operating systems or compiler versions are (way) out of sync with what NAIF used in making its builds
  - **Rebuild the Toolkit using the script "makeall.csh" (or "makeall.bat") located in the "top level" directory (toolkit or cspice or icy or mice).**

- ## In the rare circumstance that things still don't work, contact your System Administrator or NAIF.
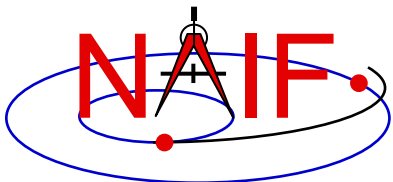
According to modern SPICE conventions, the "tsp" extensions seen above should be written as "xsp," and the "tc" extensions should be written as "xc."
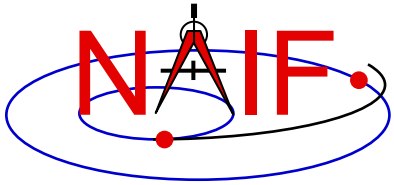
Backup

- **Getting the Toolkit using command line FTP**

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```
prompt> ftp naif.jpl.nasa.gov

220-   ================================================================
220-   |                   Jet Propulsion Laboratory                  |
220-   |                                                              |
220-   |              * * *   W A R N I N G   * * *                   |
220-   |                                                              |
220-   |                      Property of the                         |
220-   |                  UNITED STATES GOVERNMENT                    |
           etc.    etc.    etc.


Name (your.sight:your_name): anonymous
331 Please specify the password
Password: your@e.mail.address
230-
230-                     Jet Propulsion Laboratory
230-                   * * *   W A R N I N G   * * *
230-               Property of the UNITED STATES GOVERNMENT
230-        This computer is funded by the United States Government and
230-        operated by the California Institute of Technology in support of
230-        ongoing U.S. Government programs and activities.  If you are not
230-        authorized to access this system, disconnect now.  Users of this
230-        system have no expectation of privacy. By continuing, you consent
230-            to your keystrokes and data content being monitored.
230-
230 Login successful.

ftp> cd pub/naif/toolkit/<FORTRAN or C or IDL or MATLAB>
250 Directory successfully changed.
ftp> dir
```
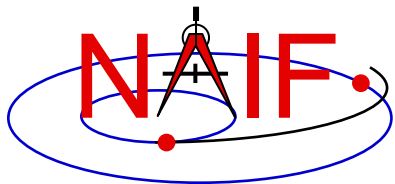
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```
ftp> dir
MacIntel_OSX_IFORT_32bit
MacIntel_OSX_IFORT_64bit
MacIntel_OSX_gfortran_32bit
MacIntel_OSX_gfortran_64bit
PC_Cygwin_gfortran_32bit
PC_Cygwin_gfortran_64bit
PC_Linux_IFORT_32bit
PC_Linux_IFORT_64bit
PC_Linux_g77_32bit
PC_Linux_gfortran_32bit
PC_Linux_gfortran_64bit
PC_Windows_IFORT_32bit
PC_Windows_IFORT_64bit
SunIntel_Solaris_SunFORTRAN_32bit
SunIntel_Solaris_SunFORTRAN_64bit
SunSPARC_Solaris_SunFORTRAN_32bit
```

FORTRAN

```
ftp> dir
MacIntel_OSX_AppleC_32bit
MacIntel_OSX_AppleC_64bit
PC_Cygwin_GCC_32bit
PC_Cygwin_GCC_64bit
PC_Linux_GCC_32bit
PC_Linux_GCC_64bit
PC_Windows_VisualC_32bit
PC_Windows_VisualC_64bit
SunIntel_Solaris_SunC_32bit
SunIntel_Solaris_SunC_64bit
SunSPARC_Solaris_GCC_32bit
SunSPARC_Solaris_GCC_64bit
SunSPARC_Solaris_SunC_32bit
SunSPARC_Solaris_SunC_64bit
```

C

```
ftp> dir
MacIntel_OSX_AppleC_IDL8.x_32bit
MacIntel_OSX_AppleC_IDL8.x_64bit
PC_Linux_GCC_IDL8.x_32bit
PC_Linux_GCC_IDL8.x_64bit
PC_Windows_VisualC_IDL7.x_32bit
PC_Windows_VisualC_IDL7.x_64bit
SunIntel_Solaris_SunC_IDL8.x_64bit
SunSPARC_Solaris_GCC_IDL7.x_32bit
SunSPARC_Solaris_GCC_IDL7.x_64bit
SunSPARC_Solaris_SunC_IDL7.x_32bit
```

IDL

```
ftp> dir
MacIntel_OSX_AppleC_MATLAB7.x_32bit
MacIntel_OSX_AppleC_MATLAB7.x_64bit
PC_Linux_GCC_MATLAB7.x_32bit
PC_Linux_GCC_MATLAB7.x_64bit
PC_Windows_VisualC_MATLAB7.x_32bit
PC_Windows_VisualC_MATLAB7.x_64bit
SunSPARC_Solaris_SunC_MATLAB7.x_64bit
```

MATLAB

The environments available at the time you download
the Toolkit may differ from those shown here.
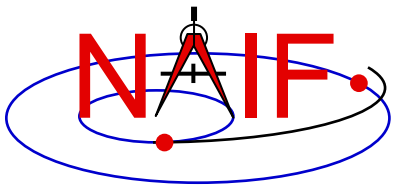
```
ftp> cd <environment>/packages
ftp> binary
200 Switching to Binary mode.
ftp> get toolkit.tar.Z
          ( or toolkit.zip
            or cspice.tar.Z or cspice.zip
            or icy.tar.Z or icy.zip
            or mice.tar.Z or mice.zip )

. . .
ftp> ascii
200 Switching to ASCII mode.
ftp> get importSpice.csh
          ( or importCSpice.csh
            or importIcy.csh
            or importMice.csh )
          ( not available for Windows environment )
ftp> get README
ftp> get dscriptn.txt
ftp> get whats.new
ftp> quit
```