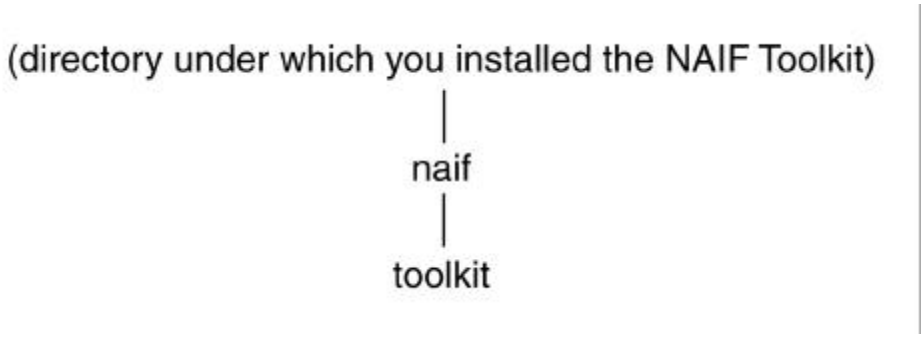
Appendix E. NAIF Toolkit Directory Structure

This appendix contains the software directory structure of the NAIF Toolkit for a SUN. It is an example of a platform-based model for a single platform. Note that the directory organization shown here does not strictly conform to the recommendations discussed in the *Volume Organization and Naming* chapter of this document.

Chapter Contents

E.1 NAIF Directory

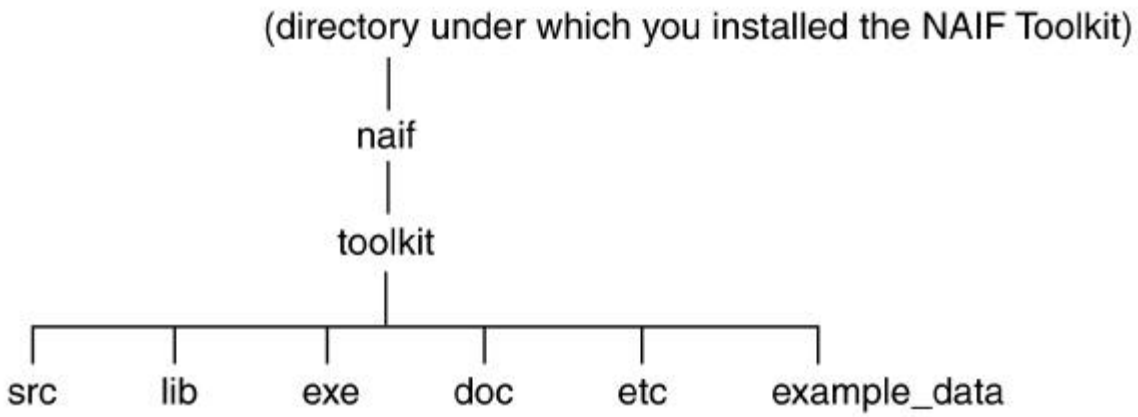
The NAIF directory contains one subdirectory, TOOLKIT. The TOOLKIT tree contains all of the files that make up the NAIF Toolkit.



E.2 TOOLKIT Directory

The TOOLKIT directory contains the file *make_toolkit.csh*. This is a C shell script that builds all of the object libraries and executables in the TOOLKIT.

TOOLKIT also contains several subdirectories that will be described in more detail in the following sections.



1. SRC

The subdirectories of this directory contain all of the source code for the products in the TOOLKIT.

2. LIB

This directory contains all of the TOOLKIT object libraries.

3. EXE

This directory contains all of the TOOLKIT executables, and where applicable, scripts to run the executables.

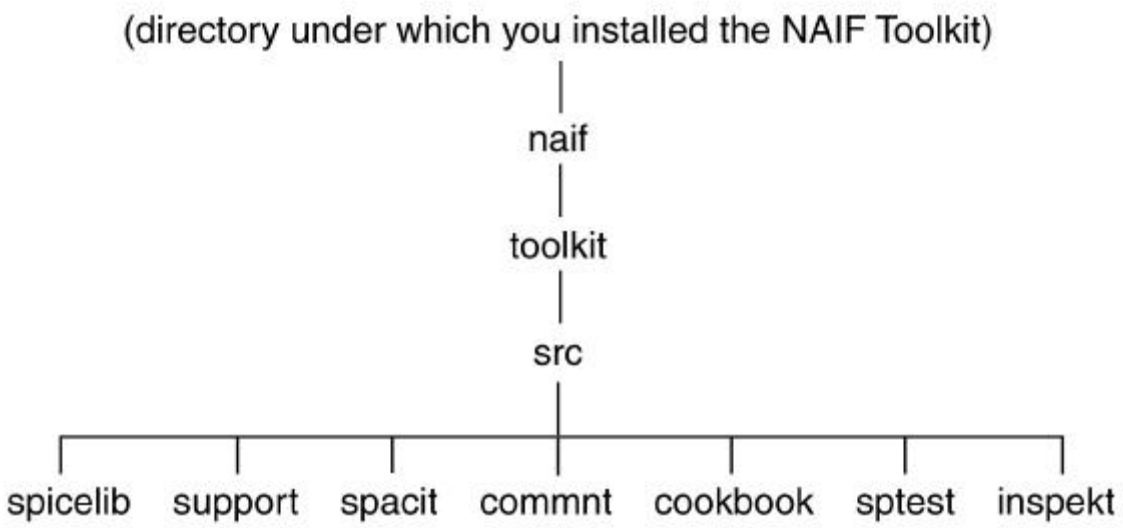
4. DOC
This directory contains all of the TOOLKIT documentation. This includes user's guides for the programs, "Required Reading" files for SPICELIB, documents describing the contents of SPICELIB such as the "Permuted Index and Module Summary," and documents describing the contents and installation of the Toolkit.

5. ETC
The subdirectories of this directory contain product-specific files that are neither source, documentation, nor data. These include configuration files, set up files, and help files. The subdirectory build contains the C shell script that creates the toolkit object libraries and executables.

6. EXAMPLE_DATA
This directory contains example data for use with the cookbook and *sptest* programs. These files are to be used only with these programs.

E.2.1 SRC

The SRC directory contains one subdirectory for each product in the NAIF Toolkit. Each of these product directories contains the source code files and procedures to create the executable or object library.



E.2.1.1 SPICELIB

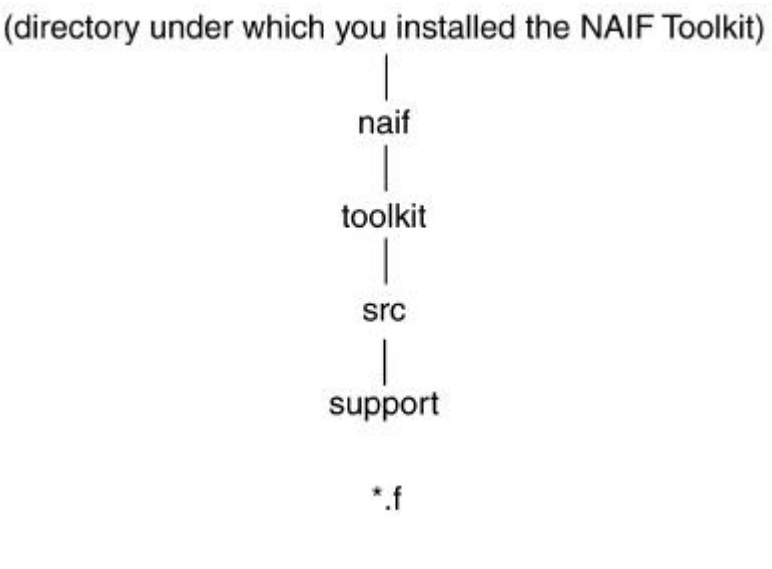
SPICELIB is a Fortran source code library that contains approximately 650 functions, subroutines, and entry points.

This directory contains the SPICELIB source files.

E.2.1.2 SUPPORT

SUPPORT is a Fortran source code library that contains routines that support the Toolkit programs. These routines are not intended to be used by anyone except NAIF. These routines are not officially supported and may undergo radical changes such as calling sequence changes. They may even be deleted. Do not use them!

This directory contains the SUPPORT library source files.



E.2.1.3 SPACIT

Spacit is a utility program that performs three functions: it converts transfer format SPK, CK and EK files to binary format, it converts binary SPK, CK and EK files to transfer format, and it summarizes the contents of binary SPK, CK and EK files.

This directory contains the source code for the *spacit* main program and supporting routines.

E.2.1.4 COMMNT

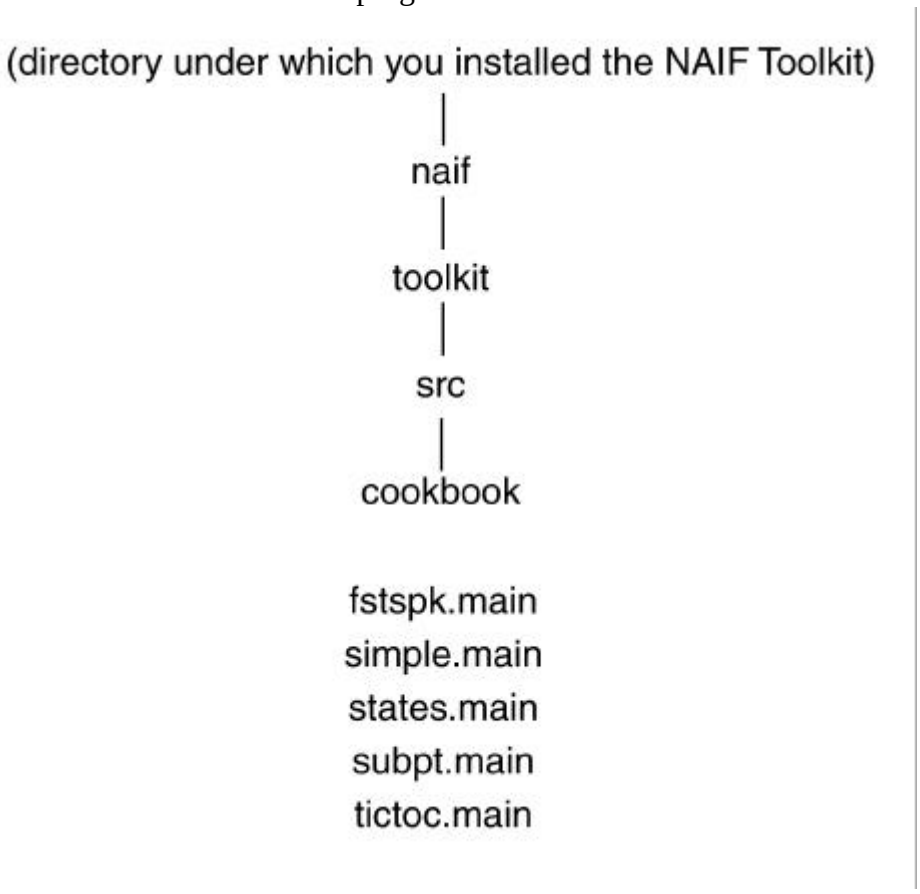
Commnt is a utility program that is used to add comments, extract comments, read comments, or delete comments in SPICE SPK, CK and EK files.

This directory contains the *commnt* main program source file.

E.2.1.5 COOKBOOK

The COOKBOOK programs are sample programs that demonstrate how to use SPICELIB routines to obtain state vectors, convert between different time representations, manipulate the comments in binary SPK and CK files, and solve simple geometry problems.

This directory contains the COOKBOOK program source files.



E.2.1.6 INSPEKT

Inspekt is a program that allows you to examine the contents of an events component of an E-kernel.

This directory contains the source code for the *inspekt* main program and supporting routines.

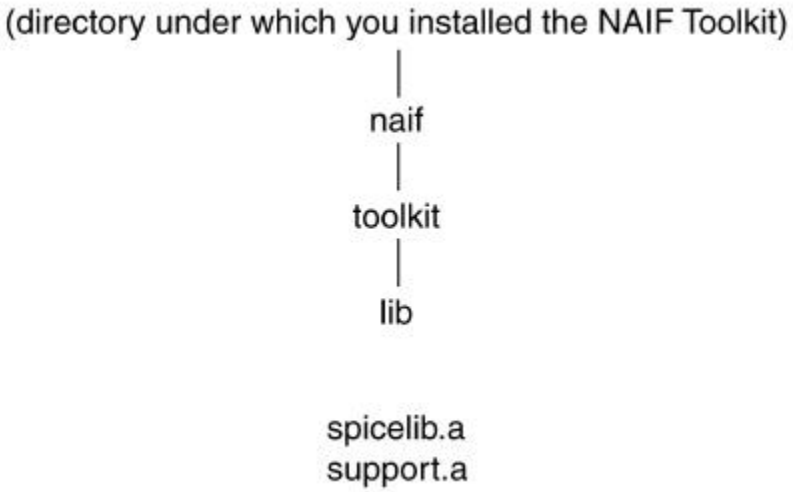
E.2.1.7 SPTEST

Sptest is a utility program that tests the SPK file readers by comparing states read on the NAIF VAX with states read on the target machine.

This directory contains the *sptest* program source file.

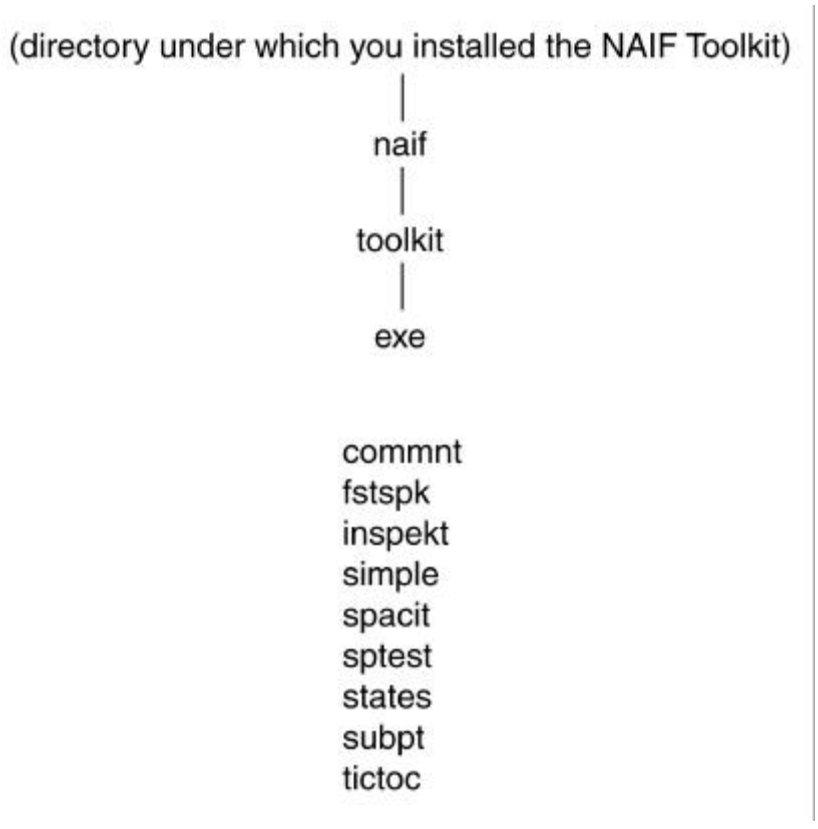
E.2.2 LIB

The LIB directory contains *spicelib.a*, the object library for SPICELIB. It also contains the object library *support.a*, but this library is for use by the Toolkit programs only. Do not link your applications with it!



E.2.3 EXE

The EXE directory contains the NAIF Toolkit executables and, where applicable, scripts to run executables.



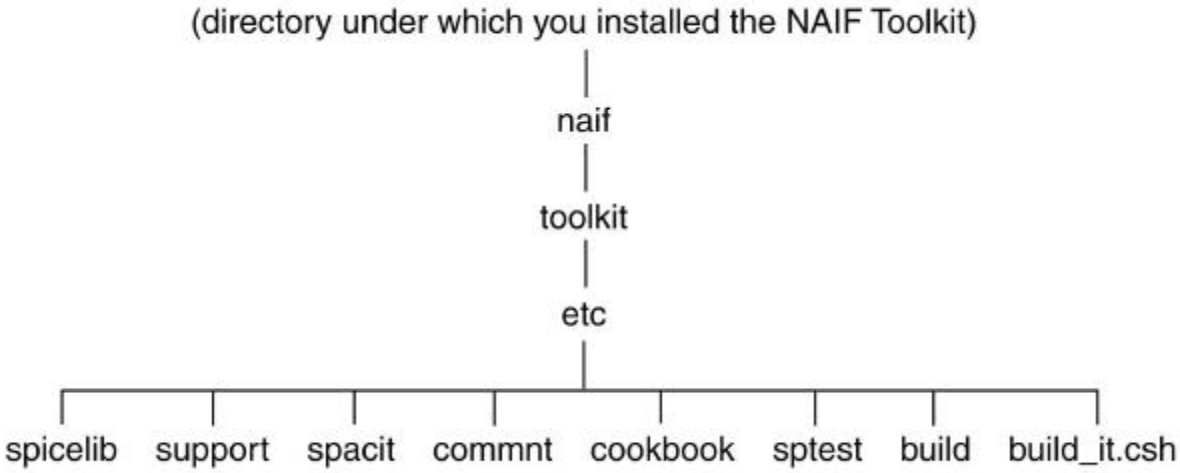
E.2.4 DOC

The DOC directory contains all of the TOOLKIT documentation that is available on-line. This includes the user's guides for the programs, all "Required Reading" files for SPICELIB, all documents describing the contents and porting of SPICELIB, and documents describing the installation and contents of the Toolkit. Please note that the INSPEKT user's guide is not available on-line.

commnt.ug
fstspk.ug
simple.ug
spacit.ug
sptest.ug
states.ug
subpt.ug
tictoc.ug
*.req
category.txt
libsum.txt
permuted_index.txt
porting.txt
toolkit_install.txt
toolkit_description.txt

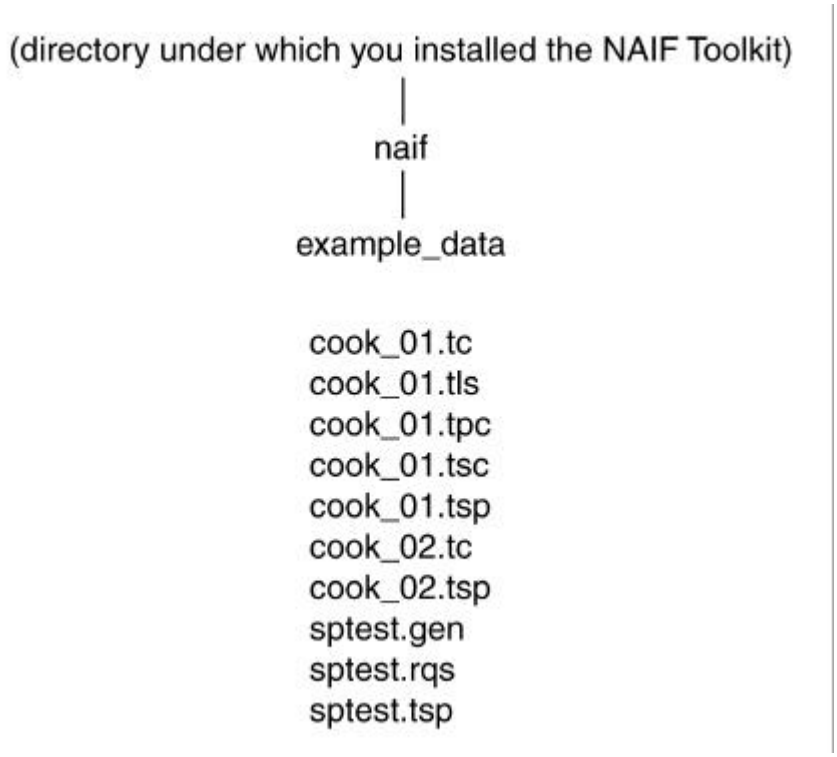
E.2.5 ETC

The ETC directory contains all files for the Toolkit products that are not source, documentation, or data such as set up files, configuration files or help files. It also contains the C shell script used to build the toolkit object libraries and executables.



E.2.6 EXAMPLE_DATA

The EXAMPLE_DATA directory contains all of the NAIF Toolkit data. This data are intended only to be used with the TOOLKIT programs, and are included only to help you get started using the Toolkit.



E.3 Using the NAIF Toolkit

After the installation has been completed successfully, there are a few things that you need to do to get started using SPICELIB. We recommend that you print out the source code for the cookbook programs (*./naif/toolkit/src/cookbook/*.*main*) and examine it. Try running some of the cookbook programs yourself. The cookbook programs demonstrate how to use SPICELIB routines to obtain state vectors, convert between different time representations, manipulate the comments in binary SPK and CK files, and solve simple geometry problems.

Once you're ready to get your hands dirty, you should read the required reading files for SPICELIB. The required reading files are located in the directory *./naif/toolkit/doc* and have the extension ".req". They are text files that describe families of subroutines and how they interact with the rest of SPICELIB.

The most important required reading files are: TIME, KERNEL, SPK, CK, SCLK, SPC, and NAIF_IDS. You should read at least these.

After you've done these things, you're ready to start programming with SPICELIB!

E.4 NAIF's File Naming Conventions

NAIF follows a set of conventions for naming files based on the contents of the files. This allows you to find certain types of files in a directory tree quickly. The following table lists the current naming conventions.

*.for, *.f	Fortran-77 source code files
*.main	Source code files for program modules
*.inc	Fortran-77 include files
*.c	C source code files
*.o	Unix object files
*.obj	VAX/VMS object files
*.a	Unix object library files
*.olb	VAX/VMS object library files
*.tsp	Transfer format SPK (ephemeris) files
*.bsp	Binary format SPK (ephemeris) files
*.tc	Transfer format CK (pointing) files
*.bc	Binary format CK (pointing) files
*.ti	Text IK (instrument parameters) files
*.tls	Leapseconds kernel files
*.tpc	Physical and cartographic constants kernel files
*.tsc	Spacecraft clock coefficients kernel files
*.txt	Text format documentation files
*.ug	Text format User's Guides
*.req	Text format SPICELIB Required Reading files
make_toolkit.csh, build_it.csh	Unix C shell script files for creating the toolkit object libraries and executables
make_toolkit.sh, build_it.sh	Unix Bourne shell script files for creating the toolkit object libraries and executables
(product name)	Unix executable files. For example, spacit is the executable file for the product spacit
make_(product name).com	VAX/VMS command procedures for creating products. For example, make_spicelib.com creates the object library spicelib.olb, while make_spacit.com creates the executable spacit.exe.
(product name).exe	VAX/VMS executable files. For example, spacit.exe is the executable file for the product spacit.

These conventions are preliminary. As coordination with AMMOS and the Planetary Data System (PDS) occurs, these conventions may be revised.

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