
PSEUDOHOSTS

By Ron Kaplan

This document was created in January 2022.

A pseudohost identifies the root of a file system that exists as a subdirectory of another pre-existing file system. This gives a shorthand way of operating on a file in the subdirectory of a particular project without having to specify in the name of that file the entire path to its location in a larger file system. For example, suppose that the variable `MEDLEYDIR` contains the path from `{DSK}` to the subdirectory that contains all Medley system files (e.g. `{DSK}<Users>kaplan>Local>medley>`). If not connected to that subdirectory, then the file `COREIO`, say, would have to be reference as

```
{DSK}<Users>kaplan>Local>medley>sources>COREIO.
```

If `MEDLEY` is defined as a pseudohost with `MEDLEYDIR` as its prefix, then that file can also be identified more succinctly as `{MEDLEY}<sources>COREIO`.

This package implements pseudohost file devices that allow files to be specified and manipulated in this way. The function `PSEUDOHOST` defines a new pseudohost whose files coincide with the files at the end of a prefix directory path:

```
(PSEUDOHOST HOST PREFIX)
```

[Function]

For the Medley example, executing

```
(PSEUDOHOST 'MEDLEY MEDLEYDIR)
```

will set up `MEDLEY` as a (pseudo) host name that can be used to reference Medley system files. As another example,

```
(PSEUDOHOST 'NC "{DSK}<Users>kaplan>Local>notecards>"
```

would provide a shorthand `{NC}` for accessing the files that make up the Notecards application. Note that the prefix is always interpreted as a directory path, whether or not it ends with an explicit `>` or `/`.

If `PSEUDOHOST` is called with the name of a previously defined pseudohost but with a different prefix, the new prefix replaces the old. If the prefix is `NIL`, the pseudohost is removed. If `HOST` is a list and `PREFIX` is `NIL`, `HOST` is interpreted as a (host prefix) pair. The target host defaults to `DSK` if `PREFIX` does not have an explicit host.

Of course, full filenames can continue to be used for file access--the pseudohost just provides a systematic abbreviated naming convention. Apart from this convenience, a further advantage is that pseudohost file designators will remain valid if directories are relocated or even moved to different machines, provided that the pseudohost is redefined for the new environment.

Pseudohosts can be used wherever hosts or directories are normally specified. Thus `(CNDIR '{MEDLEY})` or `cd {MEDLEY}` will connect to the underlying `MEDLEYDIR` directory, but the shorter pseudohost will appear in the file and path names returned by the usual system functions (`INFILEP`, `DIRECTORYNAME`, `FB*`, ...). When connected to `{MEDLEY}<sources>`, `(INFILEP 'FILEPKG)` will return `{MEDLEY}<sources>FILEPKG`.

When `PSEUDOHOSTS` is loaded, it executes

```
(PSEUDOHOST 'LI LOGINHOSTDIR)
```

so that files in the login directory can always be referenced succinctly with host `{LI}`, even while connected to another directory.

- (PSEUDOHOSTS) [Function]
Returns the (host prefix) pairs of all currently defined pseudohosts.
- (PSEUDOHOSTP HOST) [Function]
Returns the (host prefix) pair for a particular pseudohost, `NIL` if `HOST` is not a pseudohost.
- (TARGETHOST HOST) [Function]
Returns the target host of a particular pseudohost, `NIL` if `HOST` is not a pseudohost.
- (TRUEFILENAME FILE) [Function]
Returns the name of `FILE` in its true device, essentially replacing `FILE`'s `host` by its prefix if it is a pseudohost. Returns `FILE` (possibly extended with the prefix of the connected directory) if its host is not a pseudohost. `FILE` may be a stream as well as a name. It may also be a list, in which case the value is the result of applying `TRUEFILENAME` to each of its elements.
- (PSEUDOFILNAME FILE) [Function]
Returns the name of `FILE` in its pseudo device, if any, essentially replacing `FILE`'s `prefix` by the hostname of a pseudodevice for that prefix. Returns `FILE` (possibly extended with the prefix of the connected directory) if it does not match a pseudohost prefix. `FILE` may be a stream as well as a name. It may also be a list, in which case the value is the result of applying `PSEUDOFILNAME` to each of its elements.