

Basic Directory Operations

Unix

➔ Directories implemented in file and a C runtime library provides a higher-level abstraction for reading directories

- `opendir(name)`
- `readdir(DIR)`
- `seekdir(DIR)`
- `closedir(DIR)`

Windows

➔ Explicit dir operations

- `CreateDirectory(name)`
- `RemoveDirectory(name)`
- `FindFirstFile(pattern)`
- `FindNextFile()`

A Short History of Directories

Approach 1 : Single directory for entire system

- Put directory at known location on disk
- Directory contains `hname`, `inumber` pairs
- If one user uses a name, no one else can
- Many ancient personal computers work this way

Approach 2 : Single directory for each user

- Still clumsy, and 1s on 10,000 files is a real pain

Approach 3 : Hierarchical name spaces

- Allow directory to map names to files or other directories
- File system forms a tree (or graph, if links allowed)
- Large name spaces tend to be hierarchical
(ip addresses, domain names, scoping in programming languages, etc.)