

File I/O



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std::fs – the filesystem module



std::io - input/output module



Primary File Operations



std::fs::File::open



std::fs::File::create

DELETE

std::fs::remove_file



File (Rust struct)

The Rust "File" struct is a wrapper around an opened file. This struct wraps a **file descriptor** (file handle) and gives either read and/or write access to the opened file.



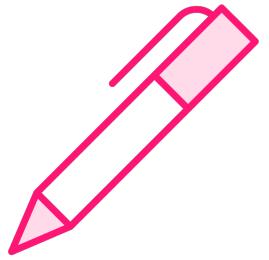
OpenOptions – custom file access permissions



File I/O



BufReader



BufWriter



The “write!” and “writeln!” macros



Reading Files

```
let mut foo_str = String::new();
let file_path = Path::new("foo.txt");

// Put the contents of the foo.txt file into a String
let mut foo_file = File::open(&file_path)?;
foo_file.read_to_string(&mut foo_str)?;
```



Reading Files

```
let file_path = Path::new("foo.txt");

// Read the contents of the foo.txt file line by line using BufReader
let mut foo_file = File::open(&file_path)?;

let buffer = BufReader::new(foo_file);

for line in buffer.lines() {
    println!("Current line: {}", line?);
}
```



**When the File struct is dropped,
the file descriptor/handle is
cleaned up!**



Writing Files

```
let file_path = Path::new("foo.txt");  
  
let mut foo_file = File::create(file_path)?;  
  
write!(foo_file, "foo text!")?;
```



Writing Files

```
let file_path = Path::new("foo.txt");

let mut foo_file = File::create(file_path)?;

let mut buffered_writer = BufWriter::new(foo_file);

writeln!(buffered_writer, "Write this text to the file!")?;

// Important to use flush explicitly with buffers so that errors get bubbled up
buffered_writer.flush()?
```



Opening Files With the Right Access Permissions

```
let mut my_file = OpenOptions::new()  
    .read(true)  
    .append(true) // also calls .write(true)  
    .create(true)  
    .open("/path/to/my_file.txt")?;
```



Demo



Reading files

- Reading into a string
- Buffered, line-by-line reading

Writing files

- Writing files using write macros
- Buffered writing

Exploring file access permissions

Deleting files

