

# Creating Automated Tests for File Access Code



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# Module Overview

**The problems with testing file access code**

**An overview of System.IO.Abstractions**

**Refactor processors for testability**

**Add a TextFileProcessor test**

**Add a BinaryFileProcessor test**

**Add a CsvFileProcessor test**

**Asserting mock file output with  
ApprovalTests**



# The Problems with Testing File Access Code

Physical path(s)

Test execution speed

Setup complexity

Additional cleanup  
code

Read/write?  
Security?  
Every PC?  
CI server?

IO overhead  
Slow to run  
Later feedback  
Run as often?

Files/dirs exist?  
Existing files?  
Overwrite?

Test files  
Test directories



# An Overview of System.IO.Abstractions

Abstraction layer for the file system

Provides testable file IO access

IFileSystem interface

FileSystem class



# An Overview of System.IO.Abstractions



Aims to have same API as:  
**System.IO.File**  
**System.IO.Directory**  
Etc.



**System.IO.File**.ReadAllText(...)



**IFileSystem.File**.ReadAllText(...)



# An Overview of System.IO.Abstractions

Production

**FileSystem instance**

Test

**Mock IFileSystem**  
**System.IO.Abstractions.TestingHelpers**  
**MockFileSystem**  
**MockFileData**





# Module Summary

## The problems with testing file access code

- Test execution speed
- Setup/clean-up code

## An overview of System.IO.Abstractions

## Refactored processors for testability

- IFileSystem constructor parameter
- new FileSystem()

## Added tests

- new MockFileData(...)
- new MockFileSystem()
- mockFileSystem.AddFile(...)
- mockFileSystem.GetFile(...)

## Approvals.Verify(...)



## Resources and Further Learning

### Pluralsight courses:

- Testing .NET Code with xUnit.net 2: Getting Started [<https://bit.ly/xunitcourse>]
- Dynamic C# Fundamentals [<https://bit.ly/pscsdynamic>]
- Approval Tests for .NET [<https://bit.ly/approvaltests>]

### Documentation:

- System.IO [<https://bit.ly/pssystemio6>]
- CsvHelper [<https://bit.ly/pscsvhelper>]

### Code:

- System.IO.Abstractions [<https://bit.ly/pssysio>]
- CsvHelper [<https://bit.ly/csvhelpercode>]

