

When I Grow Up, I Want to Write API Docs

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Overview

- What are APIs?
- What are the different kinds of API docs?
- Who is the audience for API docs?
- What is the need for API docs?

What Are APIs?

- An Application Program(ming) Interface is the interface between two software components (client and server) that
 - allows the client to access the functionality of the server
 - is defined at the source code level
- An API is a set of named operations exposed by a server and available to clients

Interface

- An interface is a shared surface between two systems that facilitates communication
 - by the transferal of data
 - using a protocol to send and receive messages

Software Components

- The two components are usually
 - an application (being written by your audience)
 - a class library (written by your company)
- A software component consists of
 - operations (AKA methods, procedures, subroutines, functions, etc.) - syntax, API
 - implementation (AKA classes libraries, DLL, modules, etc.) - semantics, binary code

Functionality

- A component's functionality is its behavior based on
 - its internal state
 - the implementation of its operations
- A component's specification is a plain language description of its functionality
- A component's implementation is written in a programming language

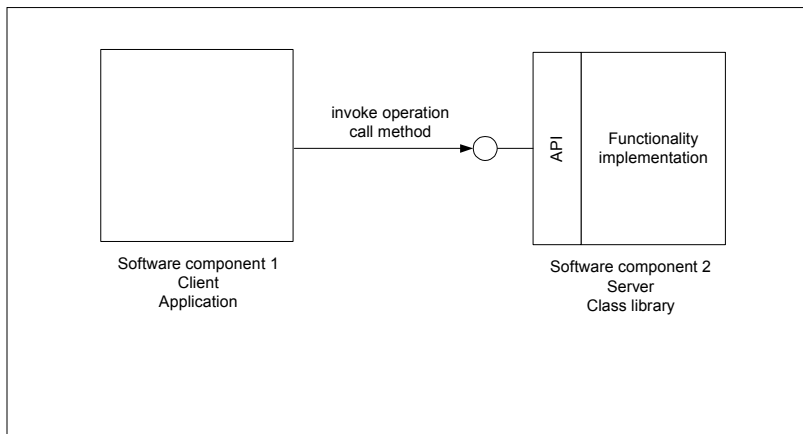
Source and Binary Code

- Source code is
 - plain text (can be read by humans)
 - comprehensible by humans
- Binary (or executable) code is
 - numeric (can be executed by computers)
 - not easily comprehensible by humans
- Compilation is the process of turning source code into binary code

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Diagram



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Kinds of APIs

- Class libraries
- Application plug-in APIs
 - Photoshop
 - Netscape web browser
- Class framework
 - JFC (Java Foundation Classes / Swing)
 - MFC (Microsoft Foundation Classes)

Contracts, Standards, and Signatures

- APIs are contracts between software components
- Operations have signatures
 - name of operation
 - parameters (names and types)
 - return type

Examples of Interfaces

- Physical
 - automobile
 - VCR
- Software
 - GUI application, (e.g., word processor)
 - client-server, (e.g., web browser or server)
 - application and class library (e.g., applet)

Automobile Interface

Between the driver and the car

- from car to driver
 - dials
 - indicator lights
- to car from driver
 - gas and brake pedals
 - steering wheel
 - ignition switch

Graphical User Interface

Between a human user and a word processing software application

- from application to user
 - words in window
 - changes icon
- to application from user
 - menus
 - keys
 - mouse

Client-Server Interface

Between a web browser and a web server

- requests for a service (from browser to server)
- responses (to browser from server)
- protocol (HTTP)
 - methods: GET, POST, etc.
 - headers, bodies of requests and responses

Application and Class Library

Examples

- Applets (written in Java and run from within a web browser)
- Plug-ins (third party software add-ins for applications like Photoshop or Frame, extend functionality of the program)

Kinds of API Docs

- Reference guide (the “what”)
 - libraries (non-OOP)
 - class libraries (OOP)
- Programmers’ guide (the “how”)
 - tutorials
- Installation and administrator’s guides
- Readmes, white papers, technical notes, specifications

Class References

- Descriptions of the API - syntax
 - classes
 - methods
- Tends towards more complete coverage of API
- More of a dictionary or a reference (i.e., does not give details of how all the pieces fit together)

Programmer's Guides

- Description of the specification - semantics
- Tends towards less complete coverage of the API
- Tutorials and practical examples with higher-level descriptions of the API
- More conceptual or encyclopedic

Who Is the Audience?

- Software developers
 - familiarity with programming languages (C++, Java, C, assembler, etc.)
 - need to know concepts and background (purpose of the library, context, etc.)
- Also product managers, technical support, QA, et al.

What Is the Need?

- How to
 - use the APIs from their programs
 - access the functionality
 - what is it?
 - how to access it?
- Saves development time
- Makes development possible

Compare with Other Interface Docs

- Automobile
 - parts list, owner's guide, fix-it manual
- GUI
 - reference, user manual, tutorial
- Client-Server
 - specification (RFC 1945)
- Photoshop Plugin
 - Adobe Photoshop SDK

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What is an SDK?

- Software Developer's Kit
 - also software development kit
- An SDK consists of:
 - tools (e.g., compilers, linkers, IDEs, etc.)
 - class libraries
 - documentation
- Sun JDK or MS Developers' Studio

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What Background Does a Tech Writer Need to Write API Docs?

- A familiarity with programming
 - the techniques - ability to work with highly abstract programming concepts
 - the culture - a common language with developers
- 3 - 5 years experience as a technical writer

Summary

- APIs are the interface between two separate software components
- API docs describe
 - the interfaces (classes, operations, etc.)
 - the functionality (the services that a component offers)
 - high-level, abstract programming concepts