Oauth 2 0 Getting Started In Web Api Security Volume 1 Api University Series

Summary OAuth 2 in Action teaches you the practical use and deployment of this HTTP-based protocol from the perspectives of a client, authorization server, and resource server. You'll learn how to confidently and securely build and deploy OAuth on both the client and server sides. Foreword by Ian Glazer. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Think of OAuth 2 as the web version of a valet key. It is an HTTP-based security protocol that allows users of a service to enable applications to use that service on their behalf without handing over full control. And OAuth is used everywhere, from Facebook and Google, to startups and cloud services. About the Book OAuth 2 in Action teaches you practical use and deployment of OAuth 2 from the perspectives of a client, an authorization server, and a resource server. You'll begin with an overview of OAuth and its components and interactions. Next, you'll get hands-on and build an OAuth client, an authorization server, and a protected resource. Then you'll dig into tokens, dynamic client registration, and more advanced topics. By the end, you'll be able to confidently and securely build and deploy OAuth on both the client and server sides. What's Inside Covers OAuth 2 protocol and design Authorization with OAuth 2 OpenID Connect and User-Managed Access Implementation risks JOSE, introspection, revocation, and registration Protecting and accessing REST APIs About the Reader Readers need basic programming skills and knowledge of HTTP and JSON. About the Author Justin Richer is a systems architect and software engineer. Antonio Sanso is a security software engineer and a security researcher. Both authors contribute to open standards and open source. Table of Contents Part 1 - First steps What is OAuth 2.0 and why should you care? The OAuth dance Part 2 - Building an OAuth 2 environment Building a simple OAuth client Building a simple OAuth protected resource Building a simple OAuth authorization server OAuth 2.0 in the real world Part 3 - OAuth 2 implementation and vulnerabilities Common client vulnerabilities Common protected resources vulnerabilities Common authorization server vulnerabilities Common OAuth token vulnerabilities Part 4 - Taking OAuth further OAuth tokens Dynamic client registration User authentication with OAuth 2.0 Protocols and profiles using OAuth 2.0 Beyond bearer tokens Summary and conclusions

The OAuth 2.0 authorization framework has become the industry standard in providing secure access to web APIs. It allows users to grant external applications access to their data, such as profile data, photos, and email, without compromising security. OAuth 2.0 Simplified is a guide to building an OAuth 2.0 server. Through high-level overviews, step-by-step instructions, and real-world examples, you will learn how to take advantage of the OAuth 2.0 framework while building a secure API.

This is a practical and fast-paced guide that gives you all the information you need to start implementing secure OAuth 2.0 implementations in your web applications.OAuth 2.0 Identity and Access Management Patterns is intended for software developers, software architects, and enthusiasts working with the OAuth 2.0 framework. In order to learn and understand the OAuth 2.0 grant flow, it is assumed that you have some basic knowledge of HTTP communication. For the practical examples, basic knowledge of HTML templating, programming languages, and executing commands in the command line terminal is assumed.

Design, develop, and deploy a real-world web application by leveraging modern open source technologies. This book shows you how to use ASP.NET Core to build cross-platform web applications along with SignalR to enrich the application by enabling real-time communication between server and clients. You will use Docker to containerize your application, integrate with GitHub to package the application, and provide continuous deployment to Azure’s IaaS platform. Along the way, Real-Time Web Application Development covers topics including designing a Materialize CSS theme, using a test-driven development approach with xUnit.net, and securing your application with the OAuth 2.0 protocol. To further your understanding of the technology, you will learn logging and exception handling; navigation using view components; and how to work with forms and validations. The rich code samples from this book can be used to retrofit or upgrade existing ASP.NET Core applications. What You Will Learn Design and develop a real-world web application Implement security and data storage with OAuth2 and Azure Table Storage Orchestrate real-time notifications through SignalR Use GitHub and Travis CI for continuous integration of code Master Docker containerization and continuous deployment with Docker Cloud to Azure Linux virtual machines Who This Book Is For Developers and software engineers interested in learning an end-to-end approach to application development using Microsoft technologies.

This book constitutes the thoroughly refereed post-conference proceedings of the workshops held at the 11th International Conference on Web Engineering, ICWE 2011, in Paphos, Cyprus, in June 2011. The 42 revised full papers presented were carefully reviewed and selected from numerous submissions . The papers are organized in sections on the Third International Workshop on Lightweight Composition on the Web (ComposableWeb 2011); First International Workshop on Search, Exploration and Navigation of Web Data Sources (ExploreWeb 2011); Second International Workshop on Enterprise Crowdsourcing (EC 2011); Seventh Model-Driven Web Engineering Workshop (MDWE 2011); Second International Workshop on Quality in Web Engineering (QWE 2011); Second Workshop on the Web and Requirements Engineering (WeRE 2011); as well as the Doctoral Symposium2011, and the ICWE 2011 Tutorials.

This book constitutes the proceedings of the 13th International Conference on Network and System Security, NSS 2019, held in Sapporo, Japan, in December 2019. The 36 full papers and 7 short papers presented together with 4 invited papers in this book were carefully reviewed and selected from 89 initial submissions. The papers cover a wide range of topics in the field, including authentication, access control, availability, integrity, privacy, confidentiality, dependability and sustainability of computer networks and systems.

Looking for Best Practices for RESTful APIs? This book is for you! Why? Because this book is packed with practical experience on what works best for RESTful API Design. You want to design APIs like a Pro? Use API description languages to both design APIs and develop APIs efficiently. The book introduces the two most common API description languages RAML, OpenAPI, and Swagger. Your company cares about its customers? Learn API product management with a customer-centric design and development approach for APIs. Learn how to manage APIs as a product and how to follow an API-first approach. Build APIs your customers love! You want to manage the complete API lifecycle? An API development methodology is proposed to guide you through the lifecycle: API inception, API design, API development, API publication, API evolution, and maintenance. You want to build APIs right? This book shows best practices for REST design, such as the correct use of resources, URIs, representations, content types, data formats, parameters, HTTP status codes, and HTTP methods. Your APIs connect to legacy systems? The book shows best practices for connecting APIs to existing backend systems. Your APIs connect to a mesh of microservices? The book shows the principles for designing APIs for scalable, autonomous microservices. You expect lots of traffic on your API? The

book shows you how to achieve high performance, availability and maintainability. You want to build APIs that last for decades? We study API versioning, API evolution, backward- and forward-compatibility and show API design patterns for versioning. The API-University Series is a modular series of books on API-related topics. Each book focuses on a particular API topic, so you can select the topics within APIs, which are relevant for you.

Create powerful applications to interact with popular service providers such as Facebook, Google, Twitter, and more by leveraging the OAuth 2.0 Authorization Framework About This Book Learn how to use the OAuth 2.0 protocol to interact with the world's most popular service providers, such as Facebook, Google, Instagram, Slack, Box, and more Master the finer details of this complex protocol to maximize the potential of your application while maintaining the utmost of security Step through the construction of a real-world working application that logs you in with your Facebook account to create a compelling infographic about the most important person in the world—you! Who This Book Is For If you are an application developer, software architect, security engineer, or even a casual programmer looking to leverage the power of OAuth, Mastering OAuth 2.0 is for you. Covering basic topics such as registering your application and choosing an appropriate workflow, to advanced topics such as security considerations and extensions to the specification, this book has something for everyone. A basic knowledge of programming and OAuth is recommended. What You Will Learn Discover the power and prevalence of OAuth 2.0 and use it to improve your application's capabilities Step through the process of creating a real-world application that interacts with Facebook using OAuth 2.0 Examine the various workflows described by the specification, looking at what they are and when to use them Learn about the many security considerations involved with creating an application that interacts with other service providers Develop your debugging skills with dedicated pages for tooling and troubleshooting Build your own rich, powerful applications by leveraging world-class technologies from companies around the world In Detail OAuth 2.0 is a powerful authentication and authorization framework that has been adopted as a standard in the technical community. Proper use of this protocol will enable your application to interact with the world's most popular service providers, allowing you to leverage their world-class technologies in your own application. Want to log your user in to your application with their Facebook account? Want to display an interactive Google Map in your application? How about posting an update to your user's LinkedIn feed? This is all achievable through the power of OAuth. With a focus on practicality and security, this book takes a detailed and hands-on approach to explaining the protocol, highlighting important pieces of information along the way. At the beginning, you will learn what OAuth is, how it works at a high level, and the steps involved in creating an application. After obtaining an overview of OAuth, you will move on to the second part of the book where you will learn the need for and importance of registering your application and types of supported workflows. You will discover more about the access token, how you can use it with your application, and how to refresh it after expiration. By the end of the book, you will know how to make your application architecture robust. You will explore the security considerations and effective methods to debug your applications using appropriate tools. You will also have a look at special considerations to integrate with OAuth service providers via native mobile applications. In addition, you will also come across support resources for OAuth and credentials grant. Style and approach With a focus on practicality and security, Mastering OAuth 2.0 takes a top-down approach at exploring the protocol. Discussed first at a high level, examining the importance and overall structure of the protocol, the book then dives into each subject, adding more depth as we proceed. This all culminates in an example application that will be built, step by step, using the valuable and practical knowledge you have gained.

A fun and easy guide to creating the next great Facebook app! Want to build the next runaway Facebook app like Farmville or Mafia Wars? Interested in leveraging Facebook app development as part of a marketing strategy? Whether you want to build your own Facebook app from scratch, extend an existing Facebook app, or create a game, this book gets you up and running in no time. Master the Facebook toolkit, get acquainted with the Facebook Markup and Query languages, navigate the Facebook API—even learn how to make money with your new app! Shows you how to build the next great Facebook application with just basic HTML and scripting skills Delves into what makes a good app and what makes a lucrative app Explores how to create Facebook apps for marketing and viral reach, creating apps that can make money, and Facebook game development Reviews the Facebook toolkit and gets you started with the My First Facebook application Covers Facebook Markup and Query languages, navigating the Facebook API, and how to create a compelling interface Create the next killer Facebook app with this approachable, fun guide!

Practical Node.js is your step-by-step guide to learning how to build a wide range of scalable real-world web applications using a professional development toolkit. Node.js is an innovative and highly efficient platform for creating web services. But Node.js doesn't live in a vacuum! In a modern web development, many different components need to be put together — routing, database driver, ORM, session management, OAuth, HTML template engine, CSS compiler and many more. If you already know the basics of Node.js, now is the time to discover how to bring it to production level by leveraging its vast ecosystem of packages. As a web developer, you'll work with a varied collection of standards and frameworks - Practical Node.js shows you how all those pieces fit together. Practical Node.js takes you from installing all the necessary modules to writing full-stack web applications by harnessing the power of the Express.js and Hapi frameworks, the MongoDB database with Mongoskin and Mongoose, Jade and Handlebars template engines, Stylus and LESS CSS languages, OAuth and Everyauth libraries, and the Socket.IO and Derby libraries, and everything in between. The book also covers how to deploy to Heroku and AWS, daemonize apps, and write REST APIs. You'll build full-stack real-world Node.js apps from scratch, and also discover how to write your own Node.js modules and publish them on NPM. You already know what Node.js is; now learn what you can do with it and how far you can take it!

Efficiently integrate OAuth 2.0 to protect your mobile, desktop, Cloud applications and APIs using Spring Security technologies. About This Book Interact with public OAuth 2.0 protected APIs such as Facebook, LinkedIn and Google. Use Spring Security and Spring Security OAuth2 to implement your own OAuth 2.0 provider Learn how to implement OAuth 2.0 native mobile clients for Android applications Who This Book Is For This book targets software engineers and security experts who are looking to develop their skills in API security and OAuth 2.0. Prior programming knowledge and a basic understanding of developing web applications are necessary. As this book's recipes mostly use Spring Security and Spring Security OAuth2, some prior experience with Spring Framework will be helpful. What You Will Learn Use Redis and relational databases to store issued access tokens and refresh tokens Access resources protected by the OAuth2 Provider using Spring Security Implement a web application that dynamically registers itself to the Authorization Server Improve the safety of your mobile client using dynamic client registration Protect your Android client with Proof Key for Code Exchange Protect the Authorization Server from COMPUTERS / Cloud Computing redirection In Detail OAuth 2.0 is a standard protocol for authorization and focuses on client development simplicity while providing

specific authorization flows for web applications, desktop applications, mobile phones, and so on. This book also provides useful recipes for solving real-life problems using Spring Security and creating Android applications. The book starts by presenting you how to interact with some public OAuth 2.0 protected APIs such as Facebook, LinkedIn and Google. You will also be able to implement your own OAuth 2.0 provider with Spring Security OAuth2. Next, the book will cover practical scenarios regarding some important OAuth 2.0 profiles such as Dynamic Client Registration, Token Introspection and how to revoke issued access tokens. You will then be introduced to the usage of JWT, OpenID Connect, and how to safely implement native mobile OAuth 2.0 Clients. By the end of this book, you will be able to ensure that both the server and client are protected against common vulnerabilities. Style and approach With the help of real-world examples, this book provides step by step recipes for troubleshooting and extending your API security. The book also helps you with accessing and securing data on mobile, desktop, and cloud apps with OAuth 2.0.

Got RESTful APIs? Great. API consumers love them. But today, such RESTful APIs are not enough for the evolving expectations of API consumers. Their apps need to be responsive, event-based and react to changes in near real-time. This results in a new set of requirements for the APIs, which power the apps. APIs now need to provide concepts such as events, notifications, triggers, and subscriptions. These concepts are not natively supported by the REST architectural style. In thios book we show how to engineer RESTful APIs that support events with a webhook infrastructure. What are the alternatives to webhooks? We study several approaches for realizing events, such as Polling, Long Polling, Webhooks, HTTP Streaming, Server-Sent Events, WebSockets, WebSub and GraphQL Subscriptions. All of these approaches have their advantages and disadvantages. Can webhooks communicate in real-time? We study the non-functional requirements of a webhooks infrastructure, in areas such as security, reliability and developer experience. How do well-known API providers design webhooks? We examine the webhook infrastructure provided by GitHub, BitBucket, Stripe, Slack, and Intercom. With the best practices, case studies, and design templates provided in this book, we want to help you extend your API portfolio with a modern webhook infrastructure. So you can offer both APIs and events that developers love to use.

Do you want to know how OpenID Connect works? This book is for you! Exploring how OpenID Connect works in detail is the subject of this book. We take a bottom-up approach and first study all the elements (actors, endpoints, and tokens) of OpenID Connect. This puts us in an excellent position for the second step: to understand the various OpenID Connect Flows - how the actors, endpoints, and tokens are put together to transmit identity claims securely. Do you wonder why there are several OpenID Connect Flows? Whether we use OpenID Connect from a mobile app, a script in a browser or from a secure backend server, there is an appropriate OpenID Connect Flow with the right tradeoffs in security, functionality, and convenience for each of these scenarios. This book helps you to choose the right one. Do you think that these OpenID Connect Flows are confusing? You are not alone; the OpenID Connect Flows tend to get confusing. However, with this book, we make it clear and easy to understand: We visualize these flows and show how to choose the flow that is appropriate for a given scenario. A picture says more than a 1000 words - that is why we explain the OpenID Connect Flows using easy to understand sequence diagrams. Do you want to understand how JWT works? This book explains what a JSON Web Token (JWT) is, how it is used in OpenID Connect, how it is constructed, what data it contains, how to read it, and how to protect its contents. Do you wonder why there are so many tokens in OpenID Connect and how to use them? There are JWT, JWS, JWE, access tokens, refresh tokens, identity tokens, and authorization codes. This book helps you to make sense of them all. Using examples, we explore how the tokens are used, constructed, signed, and encrypted. Why is OpenID Connect so popular? If used in the right way, OpenID Connect is powerful, and everyone loves it: End-users don't need to signup and remember a new password Business owners enjoy high conversion rates Developers don't get any grey hair over securely storing credentials Do you want to increase the conversion rate of your app? Signup and login to a new app become so smooth and convenient that end-users are much more likely to try a new app. It is supported, e.g. by Google, Yahoo, or Microsoft. Would you like to manage no credentials but still have authenticated users? For us developers of web and mobile apps, these signup and login features are attractive, too: we do not need to manage user credentials, and we get a higher conversion rate resulting in more new customers. In effect, this means cutting costs and increasing the number of new customers for our apps. Which programming language do you use in the book? This is not a programming book, don't expect implementations with a specific programming language or library. Instead, we focus on understanding OpenID Connect on a conceptual level, so we can design and architect apps that work with OpenID Connect. And OpenID Connect is the standard behind creating smooth login and signup experiences, increasing the customer signup rate, and creating highly converting apps.

Learn how to run large-scale, data-intensive workloads with Compute Engine, Google’s cloud platform. Written by Google engineers, this tutorial walks you through the details of this Infrastructure as a Service by showing you how to develop a project with it from beginning to end. You’ll learn best practices for using Compute Engine, with a focus on solving practical problems. With programming examples written in Python and JavaScript, you’ll also learn how to use Compute Engine with Docker containers and other platforms, frameworks, tools, and services. Discover how this IaaS helps you gain unparalleled performance and scalability with Google’s advanced storage and computing technologies. Access and manage Compute Engine resources with a web UI, command-line interface, or RESTful interface Configure, customize, and work with Linux VM instances Explore storage options: persistent disk, Cloud Storage, Cloud SQL (MySQL in the cloud), or Cloud Datastore NoSQL service Use multiple private networks, and multiple instances on each network Build, deploy, and test a simple but comprehensive cloud computing application step-by-step Use Compute Engine with Docker, Node.js, ZeroMQ, Web Starter Kit, AngularJS, WebSocket, and D3.js Every enterprise application creates data, whether it’s log messages, metrics, user activity, outgoing messages, or something else. And how to move all of this data becomes nearly as important as the data itself. If you’re an application architect, developer, or production engineer new to Apache Kafka, this practical guide shows you how to use this open source streaming platform to handle real-time data feeds. Engineers from Confluent and LinkedIn who are responsible for developing Kafka explain how to deploy production Kafka clusters, write reliable event-driven microservices, and build scalable stream-processing applications with this platform. Through detailed examples, you’ll learn Kafka’s design principles, reliability guarantees, key APIs, and architecture details, including the replication protocol, the controller, and the storage layer. Understand publish-subscribe messaging and how it fits in the big data ecosystem. Explore Kafka producers and consumers for writing and reading messages Understand Kafka patterns and use-case requirements to ensure reliable data delivery Get best practices for building data pipelines and applications with Kafka Manage Kafka in production, and learn to perform monitoring, tuning, and maintenance tasks Learn the most critical

metrics among Kafka’s operational measurements Explore how Kafka’s stream delivery capabilities make it a perfect source for stream processing systems

This open access two-volume set LNCS 11561 and 11562 constitutes the refereed proceedings of the 31st International Conference on Computer Aided Verification, CAV 2019, held in New York City, USA, in July 2019. The 52 full papers presented together with 13 tool papers and 2 case studies, were carefully reviewed and selected from 258 submissions. The papers were organized in the following topical sections: Part I: automata and timed systems; security and hyperproperties; synthesis; model checking; cyber-physical systems and machine learning; probabilistic systems, runtime techniques; dynamical, hybrid, and reactive systems; Part II: logics, decision procedures; and solvers; numerical programs; verification; distributed systems and networks; verification and invariants; and concurrency.

Whether you develop web applications or mobile apps, the OAuth 2.0 protocol will save a lot of headaches. This concise introduction shows you how OAuth provides a single authorization technology across numerous APIs on the Web, so you can securely access users’ data—such as user profiles, photos, videos, and contact lists—to improve their experience of your application. Through code examples, step-by-step instructions, and use-case examples, you’ll learn how to apply OAuth 2.0 to your server-side web application, client-side app, or mobile app. Find out what it takes to access social graphs, store data in a user’s online filesystem, and perform many other tasks. Understand OAuth 2.0’s role in authentication and authorization Learn how OAuth’s Authorization Code flow helps you integrate data from different business applications Discover why native mobile apps use OAuth differently than mobile web apps Use OpenID Connect and eliminate the need to build your own authentication system

Getting Started with OAuth 2.0Programming Clients for Secure Web API Authorization and Authentication"O'Reilly Media, Inc."

Prepare for the next wave of challenges in enterprise security. Learn to better protect, monitor, and manage your public and private APIs. Enterprise APIs have become the common way of exposing business functions to the outside world. Exposing functionality is convenient, but of course comes with a risk of exploitation. This book teaches you about TLS Token Binding, User Managed Access (UMA) 2.0, Cross Origin Resource Sharing (CORS), Incremental Authorization, Proof Key for Code Exchange (PKCE), and Token Exchange. Benefit from lessons learned from analyzing multiple attacks that have taken place by exploiting security vulnerabilities in various OAuth 2.0 implementations. Explore root causes, and improve your security practices to mitigate against similar future exploits. Security must be an integral part of any development project. This book shares best practices in designing APIs for rock-solid security. API security has evolved since the first edition of this book, and the growth of standards has been exponential. OAuth 2.0 is the most widely adopted framework that is used as the foundation for standards, and this book shows you how to apply OAuth 2.0 to your own situation in order to secure and protect your enterprise APIs from exploitation and attack. What You Will Learn Securely design, develop, and deploy enterprise APIs Pick security standards and protocols to match business needs Mitigate security exploits by understanding the OAuth 2.0 threat landscape Federate identities to expand business APIs beyond the corporate firewall Protect microservices at the edge by securing their APIs Develop native mobile applications to access APIs securely Integrate applications with SaaS APIs protected with OAuth 2.0 Who This Book Is For Enterprise security architects who are interested in best practices around designing APIs. The book is also for developers who are building enterprise APIs and integrating with internal and external applications.

This book offers an introduction to web-API security with OAuth 2.0 and OpenID Connect. In less than 50 pages you will gain an overview of the capabilities of OAuth. You will learn the core concepts of OAuth. You will get to know all four OAuth flows that are used in cloud solutions and mobile apps. If you have tried to read the official OAuth specification, you may get the impression that OAuth is complex. This book explains OAuth in simple terms. The different OAuth flows are visualized graphically using sequence diagrams. The diagrams allow you to see the big picture of the various OAuth interactions. This high-level overview is complemented with rich set of example requests and responses and an explanation of the technical details. In the book the challenges and benefits of OAuth are presented, followed by an explanation of the technical concepts of OAuth. The technical concepts include the actors, endpoints, tokens and the four OAuth flows. Each flow is described in detail, including the use cases for each flow. Extensions of OAuth are presented, such as OpenID Connect and the SAML2 Bearer Profile. Who should read this book? You do not have the time to read long books? This book provides an overview, the core concepts, without getting lost in the small-small details. This book provides all the necessary information to get started with OAuth in less than 50 pages. You believe OAuth is complicated? OAuth may seem complex with flows and redirects going back and forth. This book will give you clarity by introducing the seemingly complicated material by many illustrations. These illustrations clearly show all the involved interaction parties and the messages they exchange. You want to learn the OAuth concepts efficiently? This book uses many illustrations and sequence diagrams. A good diagram says more than 1000 words. You want to learn the difference between OAuth and OpenID Connect? You wonder when the two concepts are used, what they have in common and what is different between them. This book will help you answer this question. You want to use OAuth in your mobile app? If you want to access resources that are protected by OAuth, you need to get a token first, before you can access the resource. For this, you need to understand the OAuth flows and the dependencies between the steps of the flows. You want to use OAuth to protect your APIs? OAuth is perfectly suited to protect your APIs. You can learn which OAuth endpoints need to be provided and which checks need to be made within the protected APIs.

”A complete guide to the challenges and solutions in securing microservices architectures.” —Massimo Siani, FinDynamic Key Features Secure microservices infrastructure and code Monitoring, access control, and microservice-to-microservice communications Deploy securely using Kubernetes, Docker, and the Istio service mesh. Hands-on examples and exercises using Java and Spring Boot Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. Microservices Security in Action teaches you how to address microservices-specific security challenges throughout the system. This practical guide includes plentiful hands-on exercises using industry-leading open-source tools and examples using Java and Spring Boot. About The Book Design and implement security into your microservices from the start. Microservices Security in Action teaches you to assess and address security challenges at every level of a Microservices application, from APIs to infrastructure. You’ll find effective solutions to common security problems, including throttling and monitoring, access control at the API gateway, and microservice-to-microservice communication. Detailed Java code samples, exercises, and real-world business use cases ensure you can put what you’ve learned into action immediately. What You Will Learn Microservice security concepts Edge services with an API gateway Deployments with Docker, Kubernetes, and Istio Security testing at the code level

Communications with HTTP, gRPC, and Kafka This Book Is Written For For experienced microservices developers with intermediate Java skills. About The Author Prabath Siriwardena is the vice president of security architecture at WSO2. Nuwan Dias is the director of API architecture at WSO2. They have designed secure systems for many Fortune 500 companies. Table of Contents PART 1 OVERVIEW 1 Microservices security landscape 2 First steps in securing microservices PART 2 EDGE SECURITY 3 Securing north/south traffic with an API gateway 4 Accessing a secured microservice via a single-page application 5 Engaging throttling, monitoring, and access control PART 3 SERVICE-TO-SERVICE COMMUNICATIONS 6 Securing east/west traffic with certificates 7 Securing east/west traffic with JWT 8 Securing east/west traffic over gRPC 9 Securing reactive microservices PART 4 SECURE DEPLOYMENT 10 Conquering container security with Docker 11 Securing microservices on Kubernetes 12 Securing microservices with Istio service mesh PART 5 SECURE DEVELOPMENT 13 Secure coding practices and automation

Advanced API Security is a complete reference to the next wave of challenges in enterprise security--securing public and private APIs. API adoption in both consumer and enterprises has gone beyond predictions. It has become the ‘coolest’ way of exposing business functionalities to the outside world. Both your public and private APIs, need to be protected, monitored and managed. Security is not an afterthought, but API security has evolved a lot in last five years. The growth of standards, out there, has been exponential. That's where AdvancedAPI Security comes in--to wade through the weeds and help you keep the bad guys away while realizing the internal and external benefits of developing APIs for your services. Our expert author guides you through the maze of options and shares industry leading best practices in designing APIs for rock-solid security. The book will explain, in depth, securing APIs from quite traditional HTTP Basic Authentication to OAuth 2.0 and the standards built around it. Build APIs with rock-solid security today with Advanced API Security. Takes you through the best practices in designing APIs for rock-solid security. Provides an in depth tutorial of most widely adopted security standards for API security. Teaches you how to compare and contrast different security standards/protocols to find out what suits your business needs the best.

This book constitutes the refereed proceedings of the 12th International Conference on Detection of Intrusions and Malware, and Vulnerability Assessment, DIMVA 2015, held in Milan, Italy, in July 2015. The 17 revised full papers presented were carefully reviewed and selected from 75 submissions. The papers are organized in topical sections on attacks, attack detection, binary analysis and mobile malware protection, social networks and large-scale attacks, Web and mobile security, and provenance and data sharing.

Want to build APIs like Facebook? Since Facebook's framework for building APIs, GraphQL, has become publicly available, this ambition seems to be within reach for many companies. And that is great. But first, let's learn what GraphQL really is and - maybe even more importantly - let's figure out how to apply GraphQL to build APIs that consumers love. Do you like to learn hands-on? In this book, we take a hands-on approach to learning GraphQL. We first explore the concepts of the two GraphQL languages using examples. Then we start writing some code for our first GraphQL API. We develop this API step by step, from creating a schema and resolving queries, over mocking data and connecting data sources all the way to developing mutations and setting up event subscriptions. Are your API consumers important to you? This book shows you how to apply a consumer-oriented design process for GraphQL APIs, so you can deliver what your consumers really want: an API that solves their problems and offers a great developer experience. Do you want to enable the API consumers so they can build great apps? This book explains the GraphQL query language, which allows the API consumers to retrieve data, write data and get notified when data changes. More importantly, you let them decide, which data they really need from the API. Do you want to make your API easy and intuitive to use? This book shows you how to use the GraphQL schema language to define a type system for your API, which serves as a reference documentation and helps your API consumers write queries that are syntactically correct. Do you want to profit from what has worked for others? This book provides a collection of best practices for GraphQL that have worked for other companies, e.g. regarding pagination, authentication and caching. REST vs. GraphQL: Which one is better? GraphQL and REST are competing philosophies for building APIs. It is not in the scope of this book to compare or discuss the two approaches. The focus of this book is on a hands-on approach for learning GraphQL.

Leverage existing free open source software to build an identity and access management (IAM) platform that can serve your organization for the long term. With the emergence of open standards and open source software, it’s now easier than ever to build and operate your own IAM stack. The most common culprit of the largest hacks has been bad personal identification. In terms of bang for your buck, effective access control is the best investment you can make. Financially, it’s more valuable to prevent than to detect a security breach. That’s why Identity and Access Management (IAM) is a critical component of an organization’s security infrastructure. In the past, IAM software has been available only from large enterprise software vendors. Commercial IAM offerings are bundled as “suites” because IAM is not just one component. It’s a number of components working together, including web, authentication, authorization, cryptographic, and persistence services. Securing the Perimeter documents a recipe to take advantage of open standards to build an enterprise-class IAM service using free open source software. This recipe can be adapted to meet the needs of both small and large organizations. While not a comprehensive guide for every application, this book provides the key concepts and patterns to help administrators and developers leverage a central security infrastructure. Cloud IAM service providers would have you believe that managing an IAM is too hard. Anything unfamiliar is hard, but with the right road map, it can be mastered. You may find SaaS identity solutions too rigid or too expensive. Or perhaps you don’t like the idea of a third party holding the credentials of your users—the keys to your kingdom. Open source IAM provides an alternative. Take control of your IAM infrastructure if digital services are key to your organization’s success. What You’ll Learn Understand why you should deploy a centralized authentication and policy management infrastructure Use the SAML or Open ID Standards for web or single sign-on, and OAuth for API Access Management Synchronize data from existing identity repositories such as Active Directory Deploy two-factor authentication services Who This Book Is For Security architects (CISO, CSO), system engineers/administrators, and software developers

Learn to leverage the advanced capabilities of Keycloak, an open-source identity and access management solution, to enable authentication and authorization in applications Key Features Get up to speed with Keycloak, OAuth 2.0, and OpenID Connect using practical examples Configure, manage, and extend Keycloak for optimized security Leverage Keycloak features to secure different application types Book Description Implementing authentication and authorization for applications can be a daunting experience, often leaving them exposed to security vulnerabilities. Keycloak is an open-source solution for identity management and access management for modern applications. Keycloak - Identity and Access Management for Modern Applications is a

comprehensive introduction to Keycloak, helping you get started with using it and securing your applications. Complete with hands-on tutorials, best practices, and self-assessment questions, this easy-to-follow guide will show you how to secure a sample application and then move on to securing different application types. As you progress, you will understand how to configure and manage Keycloak as well as how to leverage some of its more advanced capabilities. Finally, you'll gain insights into securely using Keycloak in production. By the end of this book, you will have learned how to install and manage Keycloak as well as how to secure new and existing applications. What you will learn Understand how to install, configure, and manage Keycloak Secure your new and existing applications with Keycloak Gain a basic understanding of OAuth 2.0 and OpenID Connect Understand how to configure Keycloak to make it ready for production use Discover how to leverage additional features and how to customize Keycloak to fit your needs Get to grips with securing Keycloak servers and protecting applications Who this book is for Developers, sysadmins, security engineers, or anyone who wants to leverage Keycloak and its capabilities for application security will find this book useful. Beginner-level knowledge of app development and authentication and authorization is expected.

Microservices Security in Action teaches you how to address microservices-specific security challenges throughout the system. This practical guide includes plentiful hands-on exercises using industry-leading open-source tools and examples using Java and Spring Boot. Summary Unlike traditional enterprise applications, Microservices applications are collections of independent components that function as a system. Securing the messages, queues, and API endpoints requires new approaches to security both in the infrastructure and the code. Microservices Security in Action teaches you how to address microservices-specific security challenges throughout the system. This practical guide includes plentiful hands-on exercises using industry-leading open-source tools and examples using Java and Spring Boot. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Integrating independent services into a single system presents special security challenges in a microservices deployment. With proper planning, however, you can build in security from the start. Learn to create secure services and protect application data throughout development and deployment. As microservices continue to change enterprise application systems, developers and architects must learn to integrate security into their design and implementation. Because microservices are created as a system of independent components, each a possible point of failure, they can multiply the security risk. With proper planning, design, and implementation, you can reap the benefits of microservices while keeping your application data—and your company’s reputation—safe! About the book Microservices Security in Action is filled with solutions, teaching best practices for throttling and monitoring, access control, and microservice-to-microservice communications. Detailed code samples, exercises, and real-world use cases help you put what you’ve learned into production. Along the way, authors and software security experts Prabath Siriwardena and Nuwan Dias shine a light on important concepts like throttling, analytics gathering, access control at the API gateway, and microservice-to-microservice communication. You’ll also discover how to securely deploy microservices using state-of-the-art technologies including Kubernetes, Docker, and the Istio service mesh. Lots of hands-on exercises secure your learning as you go, and this straightforward guide wraps up with a security process review and best practices. When you’re finished reading, you’ll be planning, designing, and implementing microservices applications with the priceless confidence that comes with knowing they’re secure! What's inside Microservice security concepts Edge services with an API gateway Deployments with Docker, Kubernetes, and Istio Security testing at the code level Communications with HTTP, gRPC, and Kafka About the reader For experienced microservices developers with intermediate Java skills. About the author Prabath Siriwardena is the vice president of security architecture at WSO2. Nuwan Dias is the director of API architecture at WSO2. They have designed secure systems for many Fortune 500 companies. Table of Contents PART 1 OVERVIEW 1 Microservices security landscape 2 First steps in securing microservices PART 2 EDGE SECURITY 3 Securing north/south traffic with an API gateway 4 Accessing a secured microservice via a single-page application 5 Engaging throttling, monitoring, and access control PART 3 SERVICE-TO-SERVICE COMMUNICATIONS 6 Securing east/west traffic with certificates 7 Securing east/west traffic with JWT 8 Securing east/west traffic over gRPC 9 Securing reactive microservices PART 4 SECURE DEPLOYMENT 10 Conquering container security with Docker 11 Securing microservices on Kubernetes 12 Securing microservices with Istio service mesh PART 5 SECURE DEVELOPMENT 13 Secure coding practices and automation

Leverage your Salesforce experience to learn how to design high-performance end-to-end solutions using the Salesforce platform and prepare for the Salesforce Certified Technical Architect Review Board exam with this practical guide. You’ll be able to gain not only technical expertise but also the soft skills for communicating your solutions ...

Learn How to Use Swift on the Server! Server Side Swift with Vapor introduces you to the world of server development with the added bonus of using Swift. You'll learn how to build APIs, web sites, databases, application servers and use off site hosting solutions such as Heroku and AWS. You'll use many of Vapor's modules such as Fluent, Vapor's ORM, and Leaf, the templating engine for building web pages. Who This Book Is For This book is for iOS developers who already know the basics of iOS and Swift development and want to transfer that knowledge to writing server based applications. Topics Covered in Server Side Swift with Vapor: - HTTP: Learn the basics of how to make requests to and from servers. - Fluent: Learn how to use Fluent to save and manage your models in databases. - Controllers: Learn how to use controllers to route your requests and responses. - Leaf: Learn how Vapor's Leaf module and its templating language allow you to build dynamic web sites directly. - Middleware: Learn how built-in Vapor modules can assist with common tasks such as validating users, settings required response headers, serving static files and more. One thing you can count on: After reading this book, you'll be prepared to write your own server-side applications using Vapor and, of course, Swift

Know how to design and use identity management to protect your application and the data it manages. At a time when security breaches result in increasingly onerous penalties, it is paramount that application developers and owners understand identity management and the value it provides when building applications. This book takes you from account provisioning to authentication to authorization, and covers troubleshooting and common problems to avoid. The authors include predictions about why this will be even more important in the future. Application best practices with coding samples are provided. Solving Identity and Access Management in Modern Applications gives you what you need to design identity and access management for your applications and to describe it to stakeholders with confidence. You will be able to explain account creation, session and access management, account termination, and more. What You’ll Learn Understand key identity management concepts Incorporate essential design principles Design authentication and access control for a modern application Know the identity management frameworks and protocols used today (OIDC/ OAuth 2.0, SAML 2.0) Review historical failures and know how to avoid them Who This Book Is For Developers, enterprise or application architects, business application or product owners, and anyone involved in an application's

identity management solution

Choose the smarter way to learn about containerizing your applications and running them in production. Key Features Deploy and manage highly scalable, containerized applications with Kubernetes Build high-availability Kubernetes clusters Secure your applications via encapsulation, networks, and secrets Book Description Kubernetes is an open source orchestration platform for managing containers in a cluster environment. This Learning Path introduces you to the world of containerization, in addition to providing you with an overview of Docker fundamentals. As you progress, you will be able to understand how Kubernetes works with containers. Starting with creating Kubernetes clusters and running applications with proper authentication and authorization, you'll learn how to create high-availability Kubernetes clusters on Amazon Web Services (AWS), and also learn how to use kubeconfig to manage different clusters. Whether it is learning about Docker containers and Docker Compose, or building a continuous delivery pipeline for your application, this Learning Path will equip you with all the right tools and techniques to get started with containerization. By the end of this Learning Path, you will have gained hands-on experience of working with Docker containers and orchestrators, including SwarmKit and Kubernetes. This Learning Path includes content from the following Packt products: Kubernetes Cookbook - Second Edition by Hideto Saito, Hui-Chuan Chloe Lee, and Ke-Jou Carol Hsu Learn Docker - Fundamentals of Docker 18.x by Gabriel N. Schenker What you will learn Build your own container cluster Run a highly distributed application with Docker Swarm or Kubernetes Update or rollback a distributed application with zero downtime Containerize your traditional or microservice-based application Build a continuous delivery pipeline for your application Track metrics and logs for every container in your cluster Implement container orchestration to streamline deploying and managing applications Who this book is for This beginner-level Learning Path is designed for system administrators, operations engineers, DevOps engineers, and developers who want to get started with Docker and Kubernetes. Although no prior experience with Docker is required, basic knowledge of Kubernetes and containers will be helpful.

Learn how to build a wide range of scalable real-world web applications using a professional development toolkit. If you already know the basics of Node.js, now is the time to discover how to bring it to production level by leveraging its vast ecosystem of packages.With this book, you'll work with a varied collection of standards and frameworks and see how all those pieces fit together. Practical Node.js takes you from installing all the necessary modules to writing full-stack web applications. You'll harness the power of the Express.js and Hapi frameworks, the MongoDB database with Mongoskin and Mongoose. You'll also work with Pug and Handlebars template engines, Stylus and LESS CSS lanaguages, OAuth and Everyauth libraries, and the Socket.IO and Derby libraries, and everything in between. This exciting second edition is fully updated for ES6/ES2015 and also covers how to deploy to Heroku and AWS, daemonize apps, and write REST APIs. You'll build full-stack real-world Node.js apps from scratch, and also discover how to write your own Node.js modules and publish them on NPM. Fully supported by a continuously updated source code repository on GitHub and with full-color code examples, learn what you can do with Node.js and how far you can take it! What You'll Learn Manipulate data from the mongo console Use the Mongoskin and Mongoose MongoDB libraries Build REST API servers with Express and Hapi Deploy apps to Heroku and AWS Test services with Mocha, Expect and TravisCI Implement a third-party OAuth strategy with Everyauth Web developers who have some familiarity with the basics of Node.js and want to learn how to use it to build apps in a professional environment.

Starting your first project with Spring Boot can be a bit daunting given the vast options that it provides. This book will guide you step-by-step along the way to be a Spring Boot hero in no time. The book covers: * Setup of your project * Security and user management for your application * Writing REST endpoints * Connecting with a database from your application * Unit and integration testing for all aspects * Writing documentation for your REST endpoints * Support file upload from your REST API

Over 50 practical and useful recipes to help you perform data analysis with R by unleashing every native RStudio feature About This Book 54 useful and practical tasks to improve working systems Includes optimizing performance and reliability or uptime, reporting, system management tools, interfacing to standard data ports, and so on Offers 10-15 real-life, practical improvements for each user type Who This Book Is For This book is targeted at R statisticians, data scientists, and R programmers. Readers with R experience who are looking to take the plunge into statistical computing will find this Cookbook particularly indispensable. What You Will Learn Familiarize yourself with the latest advanced R console features Create advanced and interactive graphics Manage your R project and project files effectively Perform reproducible statistical analyses in your R projects Use RStudio to design predictive models for a specific domain-based application Use RStudio to effectively communicate your analyses results and even publish them to a blog Put yourself on the frontiers of data science and data monetization in R with all the tools that are needed to effectively communicate your results and even transform your work into a data product In Detail The requirement of handling complex datasets, performing unprecedented statistical analysis, and providing real-time visualizations to businesses has concerned statisticians and analysts across the globe. RStudio is a useful and powerful tool for statistical analysis that harnesses the power of R for computational statistics, visualization, and data science, in an integrated development environment. This book is a collection of recipes that will help you learn and understand RStudio features so that you can effectively perform statistical analysis and reporting, code editing, and R development. The first few chapters will teach you how to set up your own data analysis project in RStudio, acquire data from different data sources, and manipulate and clean data for analysis and visualization purposes. You'll get hands-on with various data visualization methods using ggplot2, and you will create interactive and multidimensional visualizations with D3.js. Additional recipes will help you optimize your code; implement various statistical models to manage large datasets; perform text analysis and predictive analysis; and master time series analysis, machine learning, forecasting; and so on. In the final few chapters, you'll learn how to create reports from your analytical application with the full range of static and dynamic reporting tools that are available in RStudio so that you can effectively communicate results and even transform them into interactive web applications. Style and approach RStudio is an open source Integrated Development Environment (IDE) for the R platform. The R programming language is used for statistical computing and graphics, which RStudio facilitates and enhances through its integrated environment. This Cookbook will help you learn to write better R code using the advanced features of the R programming language using RStudio. Readers will learn advanced R techniques to compute the language and control object evaluation within R functions. Some of the contents are: Accessing an API with R Substituting missing values by interpolation Performing data filtering activities R Statistical implementation for Geospatial data Developing shiny add-ins to expand RStudio functionalities Using GitHub with RStudio Modelling a recommendation engine with R Using R Markdown for static and dynamic reporting Curating a blog through RStudio Advanced statistical modelling with R and RStudio

IBM® API Connect is an API management solution from IBM that offers capabilities to create, run, manage, and secure APIs and microservices. By using these capabilities, the full lifecycle of APIs for on-premises and cloud environments can be managed. This IBM RedpaperTM publication describes practical scenarios that show the API Connect capabilities for managing the full API life cycle, creating, running, securing, and managing the APIs. This Redpaper publication is targeted to users of an API Connect based API strategy, developers, IT architects, and technical evangelists. If you are not familiar with APIs or API Connect, we suggest that you read the Redpaper publication

Getting Started with IBM API Connect: Concepts, Architecture and Strategy Guide, REDP-5349, before reading this publication.
Developers, designers, engineers, and creators can no longer afford to pass responsibility for identity and data security onto others. Web developers who don’t understand how to obscure data in transmission, for instance, can open security flaws on a site without realizing it. With this practical guide, you’ll learn how and why everyone working on a system needs to ensure that users and data are protected. Authors Jonathan LeBlanc and Tim Messerschmidt provide a deep dive into the concepts, technology, and programming methodologies necessary to build a secure interface for data and identity—without compromising usability. You’ll learn how to plug holes in existing systems, protect against viable attack vectors, and work in environments that sometimes are naturally insecure. Understand the state of web and application security today Design security password encryption, and combat password attack vectors Create digital fingerprints to identify users through browser, device, and paired device detection Build secure data transmission systems through OAuth and OpenID Connect Use alternate methods of identification for a second factor of authentication Harden your web applications against attack Create a secure data transmission system using SSL/TLS, and synchronous and asynchronous cryptography
API Security in Action teaches you how to create secure APIs for any situation. By following this hands-on guide you’ll build a social network API while mastering techniques for flexible multi-user security, cloud key management, and lightweight cryptography. Summary A web API is an efficient way to communicate with an application or service. However, this convenience opens your systems to new security risks. API Security in Action gives you the skills to build strong, safe APIs you can confidently expose to the world. Inside, you’ll learn to construct secure and scalable REST APIs, deliver machine-to-machine interaction in a microservices architecture, and provide protection in resource-constrained IoT (Internet of Things) environments. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology APIs control data sharing in every service, server, data store, and web client. Modern data-centric designs—including microservices and cloud-native applications—demand a comprehensive, multi-layered approach to security for both private and public-facing APIs. About the book API Security in Action teaches you how to create secure APIs for any situation. By following this hands-on guide you’ll build a social network API while mastering techniques for flexible multi-user security, cloud key management, and lightweight cryptography. When you’re done, you’ll be able to create APIs that stand up to complex threat models and hostile environments. What's inside Authentication Authorization Audit logging Rate limiting Encryption About the reader For developers with experience building RESTful APIs. Examples are in Java. About the author Neil Madden has in-depth knowledge of applied cryptography, application security, and current API security technologies. He holds a Ph.D. in Computer Science. Table of Contents PART 1 - FOUNDATIONS 1 What is API security? 2 Secure API development 3 Securing the Natter API PART 2 - TOKEN-BASED AUTHENTICATION 4 Session cookie authentication 5 Modern token-based authentication 6 Self-contained tokens and JWTs PART 3 - AUTHORIZATION 7 OAuth2 and OpenID Connect 8 Identity-based access control 9 Capability-based security and macaroons PART 4 - MICROSERVICE APIs IN KUBERNETES 10 Microservice APIs in Kubernetes 11 Securing service-to-service APIs PART 5 - APIs FOR THE INTERNET OF THINGS 12 Securing IoT communications 13 Securing IoT APIs
This book constitutes seven refereed workshops and symposiums, SpaCCS Workshops 2020, which are held jointly with the 13th International Conference on Security, Privacy, and Anonymity in Computation, Communication, and Storage, SpaCCS 2020, in Nanjing, China, in December 2020. The 48 papers were carefully reviewed and selected from 131 submissions and cover a broad range of topics on security, privacy and anonymity in computation communication, and storage, including the 11th International Workshop on Trust, Security and Privacy for Big Data (TrustData 2020), the 10th International Symposium on Trust, Security and Privacy for Emerging Applications (TSP 2020), the 9th International Symposium on Security and Privacy on Internet of Things (SPIoT 2020), the 6th International Symposium on Sensor-Cloud Systems (SCS 2020), the Second International Workshop on Communication, Computing, Informatics and Security (CCIS 2020), the First International Workshop on Intelligence and Security in Next Generation Networks (ISNGN 2020), the First International Symposium on Emerging Information Security and Applications (EISA 2020).