

Python Network Programming Cookbook

Network programming has always been a demanding task. With full-featured and well documented libraries all the way up the stack, Python makes network programming the enjoyable experience it should be. Starting with a walkthrough of today's major networking protocols, with this book you'll learn how to employ Python for network programming, how to request and retrieve web resources, and how to extract data in major formats over the Web. You'll utilize Python for e-mailing using different protocols and you'll interact with remote systems and IP and DNS networking. As the book progresses, socket programming will be covered, followed by how to design servers and the pros and cons of multithreaded and event-driven architectures. You'll develop practical client-side applications, including web API clients, e-mail clients, SSH, and FTP. These applications will also be implemented through existing web application frameworks.

Master efficient parallel programming to build powerful applications using Python About This Book Design and implement efficient parallel software Master new programming techniques to address and solve complex programming problems Explore the world of parallel programming with this book, which is a go-to resource for different kinds of parallel computing tasks in Python, using examples and topics covered in great depth Who This Book Is For Python Parallel Programming Cookbook is intended for software developers who are well versed with Python and want to use parallel programming techniques to write powerful and efficient code. This book will help you master the basics and the advanced of parallel computing. What You Will Learn Synchronize multiple threads and processes to manage parallel tasks Implement message passing communication between processes to build parallel applications Program your own GPU cards to address complex problems Manage computing entities to execute distributed computational tasks Write efficient programs by adopting the event-driven programming model Explore the cloud technology with Django and Google App Engine Apply parallel programming techniques that can lead to performance improvements In Detail Parallel programming techniques are required for a developer to get the best use of all the computational resources available today and to build efficient software systems. From multi-core to GPU systems up to the distributed architectures, the high computation of programs throughout requires the use of programming tools and software libraries. Because of this, it is becoming increasingly important to know what the parallel programming techniques are. Python is commonly used as even non-experts can easily deal with its concepts. This book will teach you parallel programming techniques using examples in Python and will help you explore the many ways in which you can write code that allows more than one process to happen at once. Starting with introducing you to the world of parallel computing, it moves on to cover the fundamentals in Python. This is followed by exploring the thread-based parallelism model using the Python threading module by synchronizing threads and using locks, mutex, semaphores queues, GIL, and the thread pool. Next you will be taught about process-based parallelism where you will synchronize processes using message passing along with learning about the performance of MPI Python Modules. You will then go on to learn the asynchronous parallel programming model using the Python asyncio module along with handling

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exceptions. Moving on, you will discover distributed computing with Python, and learn how to install a broker, use Celery Python Module, and create a worker. You will also understand the StarCluster framework, Pycsp, Scoop, and Disco modules in Python. Further on, you will learn GPU programming with Python using the PyCUDA module along with evaluating performance limitations. Next you will get acquainted with the cloud computing concepts in Python, using Google App Engine (GAE), and building your first application with GAE. Lastly, you will learn about grid computing concepts in Python and using PyGlobus toolkit, GFTP and GASS COPY to transfer files, and service monitoring in PyGlobus. Style and approach A step-by-step guide to parallel programming using Python, with recipes accompanied by one or more programming examples. It is a practically oriented book and has all the necessary underlying parallel computing concepts.

New edition of the bestselling guide to mastering Python Networking, updated to Python 3 and including the latest on network data analysis, Cloud Networking, Ansible 2.8, and new libraries Key Features Explore the power of Python libraries to tackle difficult network problems efficiently and effectively, including pyATS, Nornir, and Ansible 2.8 Use Python and Ansible for DevOps, network device automation, DevOps, and software-defined networking Become an expert in implementing advanced network-related tasks with Python 3 Book Description Networks in your infrastructure set the foundation for how your application can be deployed, maintained, and serviced. Python is the ideal language for network engineers to explore tools that were previously available to systems engineers and application developers. In Mastering Python Networking, Third edition, you'll embark on a Python-based journey to transition from traditional network engineers to network developers ready for the next-generation of networks. This new edition is completely revised and updated to work with Python 3. In addition to new chapters on network data analysis with ELK stack (Elasticsearch, Logstash, Kibana, and Beats) and Azure Cloud Networking, it includes updates on using newer libraries such as pyATS and Nornir, as well as Ansible 2.8. Each chapter is updated with the latest libraries with working examples to ensure compatibility and understanding of the concepts. Starting with a basic overview of Python, the book teaches you how it can interact with both legacy and API-enabled network devices. You will learn to leverage high-level Python packages and frameworks to perform network automation tasks, monitoring, management, and enhanced network security followed by Azure and AWS Cloud networking. Finally, you will use Jenkins for continuous integration as well as testing tools to verify your network. What you will learn Use Python libraries to interact with your network Integrate Ansible 2.8 using Python to control Cisco, Juniper, and Arista network devices Leverage existing Flask web frameworks to construct high-level APIs Learn how to build virtual networks in the AWS & Azure Cloud Learn how to use Elastic Stack for network data analysis Understand how Jenkins can be used to automatically deploy changes in your network Use PyTest and Unittest for Test-Driven Network Development in networking engineering with Python Who this book is for Mastering Python Networking, Third edition is for network engineers, developers, and SREs who want to use Python for network automation, programmability, and data analysis. Basic familiarity with Python programming and networking-related concepts such as Transmission Control Protocol/Internet Protocol (TCP/IP) will be useful.

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Get More from your Network with Automation tools to increase its effectiveness. About This Book Get started with network automation (and different automation tasks) with relevant use cases Apply software design principles such as Continuous Integration and DevOps to your network toolkit Guides you through some best practices in automation Who This Book Is For If you are a network engineer looking for an extensive guide to help you automate and manage your network efficiently, then this book is for you. What You Will Learn Get the detailed analysis of Network automation Trigger automations through available data factors Improve data center robustness and security through specific access and data digging Get an Access to APIs from Excel for dynamic reporting Set up a communication with SSH-based devices using netmiko Make full use of practical use cases and best practices to get accustomed with the various aspects of network automation In Detail Network automation is the use of IT controls to supervise and carry out every-day network management functions. It plays a key role in network virtualization technologies and network functions. The book starts by providing an introduction to network automation, SDN, and its applications, which include integrating DevOps tools to automate the network efficiently. It then guides you through different network automation tasks and covers various data digging and reporting methodologies such as IPv6 migration, DC relocations, and interface parsing, all the while retaining security and improving data center robustness. The book then moves on to the use of Python and the management of SSH keys for machine-to-machine (M2M) communication, all followed by practical use cases. The book also covers the importance of Ansible for network automation including best practices in automation, ways to test automated networks using different tools, and other important techniques. By the end of the book, you will be well acquainted with the various aspects of network automation. Style and approach A clear, concise, and straightforward book that will enable you to automate networks and improve performance.

Discover practical solutions for a wide range of real-world network programming tasks About This Book Solve real-world tasks in the area of network programming, system/networking administration, network monitoring, and more. Familiarize yourself with the fundamentals and functionalities of SDN Improve your skills to become the next-gen network engineer by learning the various facets of Python programming Who This Book Is For This book is for network engineers, system/network administrators, network programmers, and even web application developers who want to solve everyday network-related problems. If you are a novice, you will develop an understanding of the concepts as you progress with this book. What You Will Learn Develop TCP/IP networking client/server applications Administer local machines' IPv4/IPv6 network interfaces Write multi-purpose efficient web clients for HTTP and HTTPS protocols Perform remote system administration tasks over Telnet and SSH connections Interact with popular websites via web services such as XML-RPC, SOAP, and REST APIs Monitor and analyze major common network security vulnerabilities Develop Software-Defined Networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Controllers Emulate simple and complex networks with Mininet and its extensions for network and systems emulations Learn to configure and build network systems and Virtual Network Functions (VNF) in heterogeneous deployment environments Explore various Python modules to program the Internet In Detail Python Network Programming Cookbook - Second Edition highlights the major aspects

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of network programming in Python, starting from writing simple networking clients to developing and deploying complex Software-Defined Networking (SDN) and Network Functions Virtualization (NFV) systems. It creates the building blocks for many practical web and networking applications that rely on various networking protocols. It presents the power and beauty of Python to solve numerous real-world tasks in the area of network programming, network and system administration, network monitoring, and web-application development. In this edition, you will also be introduced to network modelling to build your own cloud network. You will learn about the concepts and fundamentals of SDN and then extend your network with Mininet. Next, you'll find recipes on Authentication, Authorization, and Accounting (AAA) and open and proprietary SDN approaches and frameworks. You will also learn to configure the Linux Foundation networking ecosystem and deploy and automate your networks with Python in the cloud and the Internet scale. By the end of this book, you will be able to analyze your network security vulnerabilities using advanced network packet capture and analysis techniques. Style and approach This book follows a practical approach and covers major aspects of network programming in Python. It provides hands-on recipes combined with short and concise explanations on code snippets. This book will serve as a supplementary material to develop hands-on skills in any academic course on network programming. This book further elaborates network softwarization, including Software-Defined Networking (SDN), Network Functions Virtualization (NFV), and orchestration. We learn to configure and deploy enterprise network platforms, develop applications on top of them with Python.

Intended to anyone interested in numerical computing and data science: students, researchers, teachers, engineers, analysts, hobbyists... Basic knowledge of Python/NumPy is recommended. Some skills in mathematics will help you understand the theory behind the computational methods.

This second edition of Foundations of Python Network Programming targets Python 2.5 through Python 2.7, the most popular production versions of the language. Python has made great strides since Apress released the first edition of this book back in the days of Python 2.3. The advances required new chapters to be written from the ground up, and others to be extensively revised. You will learn fundamentals like IP, TCP, DNS and SSL by using working Python programs; you will also be able to familiarize yourself with infrastructure components like memcached and message queues. You can also delve into network server designs, and compare threaded approaches with asynchronous event-based solutions. But the biggest change is this edition's expanded treatment of the web. The HTTP protocol is covered in extensive detail, with each feature accompanied by sample Python code. You can use your HTTP protocol expertise by studying an entire chapter on screen scraping and you can then test lxml and BeautifulSoup against a real-world web site. The chapter on web application programming now covers both the WSGI standard for component interoperability, as well as modern web frameworks like Django. Finally, all of the old favorites from the first edition are back: E-mail protocols like SMTP, POP, and IMAP get full treatment, as does XML-RPC. You can still learn how to code Python network programs using the Telnet and FTP protocols, but you are likely to appreciate the power of more modern alternatives like the paramiko SSH2 library. If you are a Python programmer who needs to learn the network, this is the book that you want by your

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side.

Over 90 recipes to help you develop widgets, forms, layouts, charts, and much more using the latest features of Python 3

Key Features

- Use object-oriented programming to develop impressive GUIs in Python
- Create interesting charts to visually represent data using Matplotlib
- Develop GUIs with the latest versions of tkinter, PyQt5, and wxPython frameworks

Book Description

Python is a multi-domain, interpreted programming language that is easy to learn and implement. With its wide support for frameworks to develop GUIs, you can build interactive and beautiful GUI-based applications easily using Python. This third edition of Python GUI Programming Cookbook follows a task-based approach to help you create effective GUIs with the smallest amount of code. Every recipe in this book builds upon the last to create an entire, real-life GUI application. These recipes also help you solve problems that you might encounter while developing GUIs. This book mainly focuses on using Python's built-in tkinter GUI framework. You'll learn how to create GUIs in Python using simple programming styles and object-oriented programming (OOP). As you add more widgets and expand your GUI, you will learn how to connect to networks, databases, and graphical libraries that greatly enhance the functionality of your GUI. You'll also learn how to use threading to ensure that your GUI doesn't become unresponsive. Toward the end, you'll learn about the versatile PyQt GUI framework, which comes along with its own visual editor that allows you to design GUIs using drag and drop features. By the end of the book, you'll be an expert in designing Python GUIs and be able to develop a variety of GUI applications with ease.

What you will learn

- Create amazing GUIs with Python's built-in tkinter module
- Customize GUIs using layout managers to arrange GUI widgets
- Advance from the typical waterfall coding style to an OOP style using Python
- Develop beautiful charts using the free Matplotlib Python module
- Use threading in a networked environment to make GUIs responsive
- Discover ways to connect GUIs to a MySQL database
- Understand how unit tests can be created and internationalize GUI
- Delve into the world of GUI creation using PyQt5

Who this book is for

If you're a programmer or developer looking to enhance your Python skills by writing powerful GUI applications, this book is for you. Familiarity with the Python programming language is necessary to get the most out of the book.

Learn effective C++ network programming with Boost.Asio and become a proficient C++ network programmer

About This Book

Learn efficient C++ network programming with minimum coding using Boost.Asio

Your one-stop destination to everything related to the Boost.Asio library

Explore the fundamentals of networking to choose designs with more examples, and learn the basics of Boost.Asio

Who This Book Is For

This book is for C++ Network programmers with basic knowledge of network programming, but no knowledge of how to use Boost.Asio for network programming.

What You Will Learn

- Prepare the tools to simplify network programming in C++ using Boost.Asio
- Explore the networking concepts of IP addressing, TCP/IP ports and protocols, and LAN topologies
- Get acquainted with the usage of the Boost libraries
- Get to know more about the content of Boost.Asio network programming and Asynchronous programming
- Establish communication between client and server by creating client-server application
- Understand the various functions inside Boost.Asio C++ libraries to delve into network programming
- Discover how to debug and run the code successfully

In Detail

Boost.Asio is a C++ library used for network programming operations. Organizations

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use Boost because of its productivity. Use of these high-quality libraries speed up initial development, result in fewer bugs, reduce reinvention-of-the-wheel, and cut long-term maintenance costs. Using Boost libraries gives an organization a head start in adopting new technologies. This book will teach you C++ Network programming using synchronous and asynchronous operations in Boost.Asio with minimum code, along with the fundamentals of Boost, server-client applications, debugging, and more. You will begin by preparing and setting up the required tools to simplify your network programming in C++ with Boost.Asio. Then you will learn about the basic concepts in networking such as IP addressing, TCP/IP protocols, and LAN with its topologies. This will be followed by an overview of the Boost libraries and their usage. Next you will get to know more about Boost.Asio and its concepts related to network programming. We will then go on to create a client-server application, helping you to understand the networking concepts. Moving on, you will discover how to use all the functions inside the Boost.Asio C++ libraries. Lastly, you will understand how to debug the code if there are errors found and will run the code successfully. Style and approach An example-oriented book to show you the basics of networking and help you create a network application simply using Boost.Asio, with more examples for you to get up and running with Boost.Asio quickly.

Nowadays, configuring a network and automating security protocols are quite difficult to implement. However, using Python makes it easy to automate this whole process. This book explains the process of using Python for building networks, detecting network errors, and performing different security protocols using Python Scripting.

This book primarily targets Python developers who want to learn and use Python's machine learning capabilities and gain valuable insights from data to develop effective solutions for business problems.

Master over 170 recipes that will help you turn QGIS from a desktop GIS tool into a powerful automated geospatial framework
About This Book Delve into the undocumented features of the QGIS API Get a set of user-friendly recipes that can automate entire geospatial workflows by connecting Python GIS building blocks into comprehensive processes This book has a complete code upgrade to QGIS 2.18 and 30 new, valuable recipes Who This Book Is For This book is for geospatial analysts who want to learn more about automating everyday GIS tasks as well as programmers responsible for building GIS applications. The short, reusable recipes make concepts easy to understand and combine so you can build larger applications that are easy to maintain. What You Will Learn Use Python and QGIS to produce captivating GIS visualizations and build complex map layouts Find out how to effectively use the poorly-documented and undocumented features of the QGIS Python API Automate entire geospatial workflows by connecting Python GIS building blocks into comprehensive processes Create, import, and edit geospatial data on disk or in-memory Change QGIS settings programmatically to control default behavior Automatically generate PDF map books Build dynamic forms for field input In Detail QGIS is a desktop geographic information system that facilitates data viewing, editing, and analysis. Paired with the most efficient scripting language—Python, we can write effective scripts that extend the core functionality of QGIS. Based on version QGIS 2.18, this book will teach you how to write Python code that works with spatial data to automate geoprocessing tasks in QGIS. It will cover topics such as querying and editing vector data and using raster data. You will also

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learn to create, edit, and optimize a vector layer for faster queries, reproject a vector layer, reduce the number of vertices in a vector layer without losing critical data, and convert a raster to a vector. Following this, you will work through recipes that will help you compose static maps, create heavily customized maps, and add specialized labels and annotations. As well as this, we'll also share a few tips and tricks based on different aspects of QGIS. Style and approach This book follows a recipe-based problem-solution approach to address and dispel challenges faced when implementing and using QGIS on a regular basis.

Complete recipes spread across 15 chapters to help you overcome commonly faced issues by Python for everybody across the globe. Each recipe takes a problem-solution approach to resolve for effective Python. Key Features Develop expressive and effective Python programs Best practices and common idioms through carefully explained recipes Discover new ways to apply Python for data-focused development Make use of Python's optional type annotations Book Description Python is the preferred choice of developers, engineers, data scientists, and hobbyists everywhere. It is a great language that can power your applications and provide great speed, safety, and scalability. It can be used for simple scripting or sophisticated web applications. By exposing Python as a series of simple recipes, this book gives you insight into specific language features in a particular context. Having a tangible context helps make the language or a given standard library feature easier to understand. This book comes with 133 recipes on the latest version of Python 3.8. The recipes will benefit everyone, from beginners just starting out with Python to experts. You'll not only learn Python programming concepts but also how to build complex applications. The recipes will touch upon all necessary Python concepts related to data structures, object oriented programming, functional programming, and statistical programming. You will get acquainted with the nuances of Python syntax and how to effectively take advantage of it. By the end of this Python book, you will be equipped with knowledge of testing, web services, configuration, and application integration tips and tricks. You will be armed with the knowledge of how to create applications with flexible logging, powerful configuration, command-line options, automated unit tests, and good documentation. What you will learn See the intricate details of the Python syntax and how to use it to your advantage Improve your coding with Python readability through functions Manipulate data effectively using built-in data structures Get acquainted with advanced programming techniques in Python Equip yourself with functional and statistical programming features Write proper tests to be sure a program works as advertised Integrate application software using Python Who this book is for The Python book is for web developers, programmers, enterprise programmers, engineers, and big data scientists. If you are a beginner, this book will get you started. If you are experienced, it will expand your knowledge base. A basic knowledge of programming would help.

Portable, powerful, and a breeze to use, Python is the popular open source object-oriented programming language used for both standalone programs and scripting applications. It is now being used by an increasing number of major organizations, including NASA and Google. Updated for Python 2.4, The Python Cookbook, 2nd Edition offers a wealth of useful code for all Python programmers, not just advanced practitioners. Like its predecessor, the new edition provides solutions to problems that Python programmers face everyday. It now includes over 200 recipes that range from simple tasks, such as working with dictionaries and

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list comprehensions, to complex tasks, such as monitoring a network and building a templating system. This revised version also includes new chapters on topics such as time, money, and metaprogramming. Here's a list of additional topics covered: Manipulating text Searching and sorting Working with files and the filesystem Object-oriented programming Dealing with threads and processes System administration Interacting with databases Creating user interfaces Network and web programming Processing XML Distributed programming Debugging and testing Another advantage of The Python Cookbook, 2nd Edition is its trio of authors--three well-known Python programming experts, who are highly visible on email lists and in newsgroups, and speak often at Python conferences. With scores of practical examples and pertinent background information, The Python Cookbook, 2nd Edition is the one source you need if you're looking to build efficient, flexible, scalable, and well-integrated systems.

Python Network Programming Cookbook Packt Publishing Ltd

Over 50 recipes covering all you need to know about AWS networking About This Book Master AWS networking concepts with AWS Networking Cookbook. Design and implement highly available connectivity and multi-regioned AWS solutions A recipe-based guide that will eliminate the complications of AWS networking. A guide to automate networking services and features Who This Book Is For This book targets administrators, network engineers, and solution architects who are looking at optimizing their cloud platform's connectivity. Some basic understanding of AWS would be beneficial. What You Will Learn Create basic network in AWS Create production grade network in AWS Create global scale network in AWS Security and Compliance with AWS Network Troubleshooting, best practices and limitations of AWS network Pricing model of AWS network components Route 53 and Cloudfront concepts and routing policies VPC Automation using Ansible and CloudFormation In Detail This book starts with practical recipes on the fundamentals of cloud networking and gradually moves on to configuring networks and implementing infrastructure automation. This book then supplies in-depth recipes on networking components like Network Interface, Internet Gateways, DNS, Elastic IP addresses, and VPN CloudHub. Later, this book also delves into designing, implementing, and optimizing static and dynamic routing architectures, multi-region solutions, and highly available connectivity for your enterprise. Finally, this book will teach you to troubleshoot your VPC's network, increasing your VPC's efficiency. By the end of this book, you will have advanced knowledge of AWS networking concepts and technologies and will have mastered implementing infrastructure automation and optimizing your VPC. Style and approach A set of exciting recipes on using AWS Networking services more effectively.

Discover solutions to all your Tkinter and Python GUI development problems Key Features Integrate efficient Python GUI programming techniques with Tkinter Efficiently implement advanced MVC architectures in your Python GUI apps Solve all your problems related to Tkinter and Python GUI development Book Description As one of the more versatile programming languages, Python is well-known for its batteries-included philosophy, which includes a rich set of modules in its standard library; Tkinter is the library included for building desktop applications. Due to this, Tkinter is a common choice for rapid GUI development, and more complex applications can benefit from the full capabilities of this library. This book covers all of your Tkinter and Python GUI development problems and solutions. Tkinter GUI Application

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Development Cookbook starts with an overview of Tkinter classes and at the same time provides recipes for basic topics, such as layout patterns and event handling. Next, we cover how to develop common GUI patterns, such as entering and saving data, navigating through menus and dialogs, and performing long-running actions in the background. You can then make your apps leverage network resources effectively and perform graphical operations on a canvas and related tasks such as detecting collisions between items. Finally, this book covers using themed widgets, an extension of Tk widgets that have a more native look and feel. Finally, this book covers using the canvas and themed widgets. By the end of the book, you will have an in-depth knowledge of Tkinter classes, and will know how to use them to build efficient and rich GUI applications. What you will learn

- Add widgets and handle user events
- Lay out widgets within windows using frames and the different geometry managers
- Configure widgets so that they have a customized appearance and behavior
- Improve the navigation of your apps with menus and dialogs
- Apply object-oriented programming techniques in Tkinter applications
- Use threads to achieve responsiveness and update the GUI
- Explore the capabilities of the canvas widget and the types of items that can be added to it
- Extend Tkinter applications with the TTK (themed Tkinter) module

Who this book is for This book is for Python developers who are familiar with the basics of the language syntax, data structures, and OOP. You do not need previous experience with Tkinter or other GUI development libraries.

Over 50+ hands-on recipes to help you pen test networks using Python, discover vulnerabilities, and find a recovery path

About This Book

- Learn to detect and avoid various types of attack that put system privacy at risk
- Enhance your knowledge of wireless application concepts and information gathering through practical recipes
- Learn a pragmatic way to penetration-test using Python, build efficient code, and save time

Who This Book Is For If you are a developer with prior knowledge of using Python for penetration testing and if you want an overview of scripting tasks to consider while penetration testing, this book will give you a lot of useful code for your toolkit. What You Will Learn

- Learn to configure Python in different environment setups.
- Find an IP address from a web page using BeautifulSoup and Scrapy
- Discover different types of packet sniffing script to sniff network packets
- Master layer-2 and TCP/ IP attacks
- Master techniques for exploit development for Windows and Linux
- Incorporate various network- and packet-sniffing techniques using Raw sockets and Scrapy

In Detail Penetration testing is the use of tools and code to attack a system in order to assess its vulnerabilities to external threats. Python allows pen testers to create their own tools. Since Python is a highly valued pen-testing language, there are many native libraries and Python bindings available specifically for pen-testing tasks. Python Penetration Testing Cookbook begins by teaching you how to extract information from web pages. You will learn how to build an intrusion detection system using network sniffing techniques. Next, you will find out how to scan your networks to ensure performance and quality, and how to carry out wireless pen testing on your network to avoid cyber attacks. After that, we'll discuss the different kinds of network attack. Next, you'll get to grips with designing your own torrent detection program. We'll take you through common vulnerability scenarios and then cover buffer overflow exploitation so you can detect insecure coding. Finally, you'll master PE code injection methods to safeguard your network. Style and approach This book takes a recipe-based approach to solving real-world problems in pen testing. It is structured in stages from the initial assessment of a system through exploitation to post-exploitation tests, and provides scripts that can be used or modified for in-depth penetration testing.

Today Network Automation can be used for provisioning, configurations, identifying rogue devices, mitigating security attacks, compliance, audits, capacity planning and scores of other network deployment activities. It has helped in enhancing network visibility and has empowered the network engineers to make faster, smarter network decisions, optimize uptime and performance, enhance security, and enable innovation instead of spending endless cycles in managing the network. This book has been written for Network Engineers and Network Managers who

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are starting to explore network automation. This book is a good starting point for Network Engineers who learnt Programming in their earlier academic or work career and haven't used it in a long time or those Network Engineers who are learning Programming and Automation for the first time. The book has example Python Scripts which readers can practice and improve their job potential and make the networks more resilient and scalable.

Written for developers who want build applications using Twisted, this book presents a task-oriented look at this open source, Python- based technology.

Demonstrates the programming language's strength as a Web development tool, covering syntax, data types, built-ins, the Python standard module library, and real world examples.

Explore the features included in the latest versions of MQTT for IoT and M2M communications and use them with modern Python 3. Key Features Make your connected devices less prone to attackers by understanding security mechanisms Take advantage of MQTT features for IoT and Machine-to-Machine communications The only book that covers MQTT with a single language, Python Book Description MQTT is a lightweight messaging protocol for small sensors and mobile devices. This book explores the features of the latest versions of MQTT for IoT and M2M communications, how to use them with Python 3, and allow you to interact with sensors and actuators using Python. The book begins with the specific vocabulary of MQTT and its working modes, followed by installing a Mosquitto MQTT broker. You will use different utilities and diagrams to understand the most important concepts related to MQTT. You will learn to make all the necessary configuration to work with digital certificates for encrypting all data sent between the MQTT clients and the server. You will also work with the different Quality of Service levels and later analyze and compare their overheads. You will write Python 3.x code to control a vehicle with MQTT messages delivered through encrypted connections (TLS 1.2), and learn how leverage your knowledge of the MQTT protocol to build a solution based on requirements. Towards the end, you will write Python code to use the PubNub cloud-based real-time MQTT provider to monitor a surfing competition. In the end, you will have a solution that was built from scratch by analyzing the requirements and then write Python code that will run on water-proof IoT boards connected to multiple sensors in surfboards. What you will learn Learn how MQTT and its lightweight messaging system work Understand the MQTT puzzle: clients, servers (formerly known as brokers), and connections Explore the features included in the latest versions of MQTT for IoT and M2M communications Publish and receive MQTT messages with Python Learn the difference between blocking and threaded network loops Take advantage of the last will and testament feature Work with cloud-based MQTT interfaces in Python Who this book is for This book is for developers who want to learn about the MQTT protocol for their IoT projects. Prior knowledge of working with IoT and Python will be helpful.

Discover practical solutions for a wide range of real-world network programming tasks About This Book* Solve real-world tasks in the area of network programming, system/networking administration, network monitoring, and more.* Familiarize yourself with the fundamentals and functionalities of SDN* Improve your skills to become the next-gen network engineer by learning the various facets of Python programming Who This Book Is For This book is for network engineers, system/network administrators, network programmers, and even web application developers who want to solve everyday network-related problems. If you are a novice, you will develop an understanding of the concepts as you progress with this book. What You Will Learn* Develop TCP/IP networking client/server applications* Administer local machines' IPv4/IPv6 network interfaces* Write multi-purpose efficient web clients for HTTP and HTTPS protocols* Perform remote system administration tasks over Telnet and SSH connections* Interact with popular websites via web services such as XML-RPC, SOAP, and REST

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APIs* Monitor and analyze major common network security vulnerabilities* Develop Software-Defined Networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Controllers* Emulate simple and complex networks with Mininet and its extensions for network and systems emulations* Learn to configure and build network systems and Virtual Network Functions (VNF) in heterogeneous deployment environments* Explore various Python modules to program the InternetIn DetailPython Network Programming Cookbook - Second Edition highlights the major aspects of network programming in Python, starting from writing simple networking clients to developing and deploying complex Software-Defined Networking (SDN) and Network Functions Virtualization (NFV) systems. It creates the building blocks for many practical web and networking applications that rely on various networking protocols. It presents the power and beauty of Python to solve numerous real-world tasks in the area of network programming, network and system administration, network monitoring, and web-application development. In this edition, you will also be introduced to network modelling to build your own cloud network. You will learn about the concepts and fundamentals of SDN and then extend your network with Mininet. Next, you'll find recipes on Authentication, Authorization, and Accounting (AAA) and open and proprietary SDN approaches and frameworks. You will also learn to configure the Linux Foundation networking ecosystem and deploy and automate your networks with Python in the cloud and the Internet scale. By the end of this book, you will be able to analyze your network security vulnerabilities using advanced network packet capture and analysis techniques. Style and approach This book follows a practical approach and covers major aspects of network programming in Python. It provides hands-on recipes combined with short and concise explanations on code snippets. This book will serve as a supplementary material to develop hands-on skills in any academic course on network programming. This book further elaborates network softwarization, including Software-Defined Networking (SDN), Network Functions Virtualization (NFV), and orchestration. We learn to configure and deploy enterprise network platforms, develop applications on top of them with Python.

Become well-versed with network programmability by solving the most commonly encountered problems using Python 3 and open-source packages

Key Features

- Explore different Python packages to automate your infrastructure
- Leverage AWS APIs and the Python library Boto3 to administer your public cloud network efficiently
- Get started with infrastructure automation by enhancing your network programming knowledge

Book Description Network automation offers a powerful new way of changing your infrastructure network. Gone are the days of manually logging on to different devices to type the same configuration commands over and over again. With this book, you'll find out how you can automate your network infrastructure using Python. You'll get started on your network automation journey with a hands-on introduction to the network programming basics to complement your infrastructure knowledge. You'll learn how to tackle different aspects of network automation using Python programming and a variety of open source libraries. In the book, you'll learn everything from templating, testing, and deploying your configuration on a device-by-device basis to using high-level REST APIs to manage your cloud-based infrastructure. Finally, you'll see how to automate network security with Cisco's Firepower APIs. By the end of this Python network programming book, you'll have not only gained a holistic overview of the different methods to automate the configuration and maintenance of network devices, but also learned how to automate simple to complex networking tasks and overcome common network programming challenges. What you will learn

- Programmatically connect to network devices using SSH (secure shell) to execute commands
- Create complex configuration templates using Python
- Manage multi-vendor or multi-device environments using network controller APIs or unified interfaces
- Use model-driven programmability to retrieve and change device configurations
- Discover how to automate post modification network infrastructure tests
- Automate your network security using Python and Firepower APIs

Who this book is for This book is for network

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engineers who want to make the most of Python to automate their infrastructure. A basic understanding of Python programming and common networking principles is necessary. Table of Contents • A Primer on Python 3 • Connecting to Network Devices via SSH Using Paramiko • Building Configuration Templates Using Jinja2 • Configuring Network Devices Using Netmiko • Model-Driven Programmability with NETCONF and ncclient • Automating Complex Multi-Vendor Networks with NAPALM • Automating Your Network Tests and Deployments with pyATS and Genie • Configuring Devices Using RESTCONF and requests • Consuming Controllers and High-Level Networking APIs with requests • Incorporating Your Python Scripts into an Existing Workflow by Writing Custom Ansible Modules • Automating AWS Cloud Networking Infrastructure Using the AWS Python SDK • Automating Your Network Security Using Python and the Firepower APIs

Over 80 object-oriented recipes to help you create mind-blowing GUIs in Python About This Book Use object-oriented programming to develop amazing GUIs in Python Create a working GUI project as a central resource for developing your Python GUIs Packed with easy-to-follow recipes to help you develop code using the latest released version of Python Who This Book Is For If you are a Python programmer with intermediate level knowledge of GUI programming and want to learn how to create beautiful, effective, and responsive GUIs using the freely available Python GUI frameworks, this book is for you. What You Will Learn Create amazing GUIs with Python's built-in Tkinter module Customize the GUIs by using layout managers to arrange the GUI widgets Advance to an object-oriented programming style using Python Develop beautiful charts using the free Matplotlib Python module Use threading in a networked environment to make the GUIs responsive Discover ways to connect the GUIs to a database Understand how unit tests can be created and internationalize the GUI Extend the GUIs with free Python frameworks using best practices In Detail Python is a multi-domain, interpreted programming language. It is a widely used general-purpose, high-level programming language. It is often used as a scripting language because of its forgiving syntax and compatibility with a wide variety of different ecosystems. Its flexible syntax enables developers to write short scripts while at the same time, they can use object-oriented concepts to develop very large projects. Python GUI Programming Cookbook follows a task-based approach to help you create beautiful and very effective GUIs with the least amount of code necessary. This book uses the simplest programming style, using the fewest lines of code to create a GUI in Python, and then advances to using object-oriented programming in later chapters. If you are new to object-oriented programming (OOP), this book will teach you how to take advantage of the OOP coding style in the context of creating GUIs written in Python. Throughout the book, you will develop an entire GUI application, building recipe upon recipe, connecting the GUI to a database. In the later chapters, you will explore additional Python GUI frameworks, using best practices. You will also learn how to use threading to ensure your GUI doesn't go unresponsive. By the end of the book, you will be an expert in Python GUI programming to develop a common set of GUI applications. Style and approach Every recipe in this programming cookbook solves a problem you might encounter in your programming career. At the same time, most of the recipes build on each other to

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create an entire, real-life GUI application.

The latest in modern Python recipes for the busy modern programmer About This Book Develop succinct, expressive programs in Python Learn the best practices and common idioms through carefully explained and structured recipes Discover new ways to apply Python for the new age of development Who This Book Is For The book is for web developers, programmers, enterprise programmers, engineers, big data scientist, and so on. If you are a beginner, Python Cookbook will get you started. If you are experienced, it will expand your knowledge base. A basic knowledge of programming would help. What You Will Learn See the intricate details of the Python syntax and how to use it to your advantage Improve your code readability through functions in Python Manipulate data effectively using built-in data structures Get acquainted with advanced programming techniques in Python Equip yourself with functional and statistical programming features Write proper tests to be sure a program works as advertised Integrate application software using Python In Detail Python is the preferred choice of developers, engineers, data scientists, and hobbyists everywhere. It is a great scripting language that can power your applications and provide great speed, safety, and scalability. By exposing Python as a series of simple recipes, you can gain insight into specific language features in a particular context. Having a tangible context helps make the language or standard library feature easier to understand. This book comes with over 100 recipes on the latest version of Python. The recipes will benefit everyone ranging from beginner to an expert. The book is broken down into 13 chapters that build from simple language concepts to more complex applications of the language. The recipes will touch upon all the necessary Python concepts related to data structures, OOP, functional programming, as well as statistical programming. You will get acquainted with the nuances of Python syntax and how to effectively use the advantages that it offers. You will end the book equipped with the knowledge of testing, web services, and configuration and application integration tips and tricks. The recipes take a problem-solution approach to resolve issues commonly faced by Python programmers across the globe. You will be armed with the knowledge of creating applications with flexible logging, powerful configuration, and command-line options, automated unit tests, and good documentation. Style and approach This book takes a recipe-based approach, where each recipe addresses specific problems and issues. The recipes provide discussions and insights and an explanation of the problems.

If you need help writing programs in Python 3, or want to update older Python 2 code, this book is just the ticket. Packed with practical recipes written and tested with Python 3.3, this unique cookbook is for experienced Python programmers who want to focus on modern tools and idioms. Inside, you'll find complete recipes for more than a dozen topics, covering the core Python language as well as tasks common to a wide variety of application domains. Each recipe contains code samples you can use in your projects right away, along with a discussion about how and why the solution

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works. Topics include: Data Structures and Algorithms Strings and Text Numbers, Dates, and Times Iterators and Generators Files and I/O Data Encoding and Processing Functions Classes and Objects Metaprogramming Modules and Packages Network and Web Programming Concurrency Utility Scripting and System Administration Testing, Debugging, and Exceptions C Extensions

* Covers low-level networking in Python —essential for writing a new networked application protocol. * Many working examples demonstrate concepts in action -- and can be used as starting points for new projects. * Networked application security is demystified. * Exhibits and explains multitasking network servers using several models, including forking, threading, and non-blocking sockets. * Features extensive coverage of Web and E-mail. Describes Python's database APIs.

Violent Python shows you how to move from a theoretical understanding of offensive computing concepts to a practical implementation. Instead of relying on another attacker's tools, this book will teach you to forge your own weapons using the Python programming language. This book demonstrates how to write Python scripts to automate large-scale network attacks, extract metadata, and investigate forensic artifacts. It also shows how to write code to intercept and analyze network traffic using Python, craft and spoof wireless frames to attack wireless and Bluetooth devices, and how to data-mine popular social media websites and evade modern anti-virus. Demonstrates how to write Python scripts to automate large-scale network attacks, extract metadata, and investigate forensic artifacts Write code to intercept and analyze network traffic using Python. Craft and spoof wireless frames to attack wireless and Bluetooth devices Data-mine popular social media websites and evade modern anti-virus

Over 60 recipes to help you design interactive, smart, and cross-platform GUI applications Key Features Get succinct QT solutions to pressing GUI programming problems in Python Learn how to effectively implement reactive programming Build customized applications that are robust and reliable Book Description PyQt is one of the best cross-platform interface toolkits currently available; it's stable, mature, and completely native. If you want control over all aspects of UI elements, PyQt is what you need. This book will guide you through every concept necessary to create fully functional GUI applications using PyQt, with only a few lines of code. As you expand your GUI using more widgets, you will cover networks, databases, and graphical libraries that greatly enhance its functionality. Next, the book guides you in using Qt Designer to design user interfaces and implementing and testing dialogs, events, the clipboard, and drag and drop functionality to customize your GUI. You will learn a variety of topics, such as look and feel customization, GUI animation, graphics rendering, implementing Google Maps, and more. Lastly, the book takes you through how Qt5 can help you to create cross-platform apps that are compatible with Android and iOS. You will be able to develop functional and

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appealing software using PyQt through interesting and fun recipes that will expand your knowledge of GUIs What you will learn Use basic Qt components, such as a radio button, combo box, and sliders Use QSpinBox and sliders to handle different signals generated on mouse clicks Work with different Qt layouts to meet user interface requirements Create custom widgets and set up customizations in your GUI Perform asynchronous I/O operations and thread handling in the Python GUI Employ network concepts, internet browsing, and Google Maps in UI Use graphics rendering and implement animation in your GUI Make your GUI application compatible with Android and iOS devices Who this book is for If you're an intermediate Python programmer wishing to enhance your coding skills by writing powerful GUIs in Python using PyQt, this is the book for you.

Power up your network applications with Python programming Key Features Master Python skills to develop powerful network applications Grasp the fundamentals and functionalities of SDN Design multi-threaded, event-driven architectures for echo and chat servers Book Description This Learning Path highlights major aspects of Python network programming such as writing simple networking clients, creating and deploying SDN and NFV systems, and extending your network with Mininet. You'll also learn how to automate legacy and the latest network devices. As you progress through the chapters, you'll use Python for DevOps and open source tools to test, secure, and analyze your network. Toward the end, you'll develop client-side applications, such as web API clients, email clients, SSH, and FTP, using socket programming. By the end of this Learning Path, you will have learned how to analyze a network's security vulnerabilities using advanced network packet capture and analysis techniques. This Learning Path includes content from the following Packt products: Practical Network Automation by Abhishek Ratan Mastering Python Networking by Eric Chou Python Network Programming Cookbook, Second Edition by Pradeeban Kathiravelu, Dr. M. O. Faruque Sarker What you will learn Create socket-based networks with asynchronous models Develop client apps for web APIs, including S3 Amazon and Twitter Talk to email and remote network servers with different protocols Integrate Python with Cisco, Juniper, and Arista eAPI for automation Use Telnet and SSH connections for remote system monitoring Interact with websites via XML-RPC, SOAP, and REST APIs Build networks with Ryu, OpenDaylight, Floodlight, ONOS, and POX Configure virtual networks in different deployment environments Who this book is for If you are a Python developer or a system administrator who wants to start network programming, this Learning Path gets you a step closer to your goal. IT professionals and DevOps engineers who are new to managing network devices or those with minimal experience looking to expand their knowledge and skills in Python will also find this Learning Path useful. Although prior knowledge of networking is not required, some experience in Python programming will be helpful for a better understanding of the concepts in the Learning Path.

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Master the art of using Python for a diverse range of network engineering tasks

Key Features Explore the power of Python libraries to tackle difficult network problems efficiently and effectively Use Python for network device automation, DevOps, and software-defined networking Become an expert in implementing advanced network-related tasks with Python

Book Description Networks in your infrastructure set the foundation for how your application can be deployed, maintained, and serviced. Python is the ideal language for network engineers to explore tools that were previously available to systems engineers and application developers. In this second edition of *Mastering Python Networking*, you'll embark on a Python-based journey to transition from traditional network engineers to network developers ready for the next-generation of networks. This book begins by reviewing the basics of Python and teaches you how Python can interact with both legacy and API-enabled network devices. As you make your way through the chapters, you will then learn to leverage high-level Python packages and frameworks to perform network engineering tasks for automation, monitoring, management, and enhanced security. In the concluding chapters, you will use Jenkins for continuous network integration as well as testing tools to verify your network. By the end of this book, you will be able to perform all networking tasks with ease using Python.

What you will learn Use Python libraries to interact with your network Integrate Ansible 2.5 using Python to control Cisco, Juniper, and Arista eAPI network devices Leverage existing frameworks to construct high-level APIs Learn how to build virtual networks in the AWS Cloud Understand how Jenkins can be used to automatically deploy changes in your network Use PyTest and Unittest for Test-Driven Network Development

Who this book is for *Mastering Python Networking* is for network engineers and programmers who want to use Python for networking. Basic familiarity with Python programming and networking-related concepts such as Transmission Control Protocol/Internet Protocol (TCP/IP) will be useful.

A guide to developing network programs covers networking fundamentals as well as TCP and UDP sockets, multicasting protocol, content handlers, servlets, I/O, parsing, Java Mail API, and Java Secure Sockets Extension.

An easy-to-follow guide full of hands-on examples on real-world networking tasks. It covers the advanced topics of network programming in Python using a set of selected recipes. If you are a network programmer, system/network administrator, or a web application developer, this book is ideal for you. You should have a basic familiarity with the Python programming language and TCP/IP networking concepts. However if you are a novice, you will develop an understanding of the concepts as you progress with this book. This book will serve as a supplementary material for developing hands-on skills in any academic course on network programming.

Become an expert in implementing advanced, network-related tasks with Python.

About This Book Build the skills to perform all networking tasks using Python with ease Use Python for network device automation, DevOps, and software-defined networking Get practical guidance to networking with Python

Who This Book Is For If you are a network engineer or a programmer who wants to use Python for networking, then this book is for you. A basic familiarity with networking-related concepts such as TCP/IP and a familiarity with Python programming will be

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useful. What You Will Learn Review all the fundamentals of Python and the TCP/IP suite Use Python to execute commands when the device does not support the API or programmatic interaction with the device Implement automation techniques by integrating Python with Cisco, Juniper, and Arista eAPI Integrate Ansible using Python to control Cisco, Juniper, and Arista networks Achieve network security with Python Build Flask-based web-service APIs with Python Construct a Python-based migration plan from a legacy to scalable SDN-based network. In Detail This book begins with a review of the TCP/ IP protocol suite and a refresher of the core elements of the Python language. Next, you will start using Python and supported libraries to automate network tasks from the current major network vendors. We will look at automating traditional network devices based on the command-line interface, as well as newer devices with API support, with hands-on labs. We will then learn the concepts and practical use cases of the Ansible framework in order to achieve your network goals. We will then move on to using Python for DevOps, starting with using open source tools to test, secure, and analyze your network. Then, we will focus on network monitoring and visualization. We will learn how to retrieve network information using a polling mechanism, ?ow-based monitoring, and visualizing the data programmatically. Next, we will learn how to use the Python framework to build your own customized network web services. In the last module, you will use Python for SDN, where you will use a Python-based controller with OpenFlow in a hands-on lab to learn its concepts and applications. We will compare and contrast OpenFlow, OpenStack, OpenDaylight, and NFV. Finally, you will use everything you've learned in the book to construct a migration plan to go from a legacy to a scalable SDN-based network. Style and approach An easy-to-follow guide packed with hands-on examples of using Python for network device automation, DevOps, and SDN.

Achieve improved network programmability and automation by leveraging powerful network programming concepts, algorithms, and tools Key Features Deal with remote network servers using SSH, FTP, SNMP and LDAP protocols. Design multi threaded and event-driven architectures for asynchronous servers programming. Leverage your Python programming skills to build powerful network applications Book Description Network programming has always been a demanding task. With full-featured and well-documented libraries all the way up the stack, Python makes network programming the enjoyable experience it should be. Starting with a walk through of today's major networking protocols, through this book, you'll learn how to employ Python for network programming, how to request and retrieve web resources, and how to extract data in major formats over the web. You will utilize Python for emailing using different protocols, and you'll interact with remote systems and IP and DNS networking. You will cover the connection of networking devices and configuration using Python 3.7, along with cloud-based network management tasks using Python. As the book progresses, socket programming will be covered, followed by how to design servers, and the pros and cons of multithreaded and event-driven architectures. You'll develop practical clientside applications, including web API clients, email clients, SSH, and FTP. These applications will also be implemented through existing web application frameworks. What you will learn Execute Python modules on networking tools Automate tasks regarding the analysis and extraction of information from a network Get to grips with asynchronous programming modules available in Python Get to grips with IP address manipulation modules using Python programming Understand the main frameworks available in Python that are focused on web application Manipulate IP addresses and perform CIDR calculations Who this book is for If you're a Python developer or a system administrator with Python experience and you're looking to take your first steps in network programming, then this book is for you. If you're a network engineer or a network professional aiming to be more productive and efficient in networking programmability and automation then this book would serve as a useful resource. Basic knowledge of Python is assumed.

Take your network automation skills to the next level with practical recipes on managing network devices from a variety of vendors like Cisco,

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Juniper, and Arista Key Features Use Ansible to automate network infrastructure with the help of step-by-step instructions Implement network automation best practices to save cost, avoid critical errors, and reduce downtime Deliver a robust automation framework by integrating Ansible with NAPALM, NetBox, and Batfish Book Description Network Automation Cookbook is designed to help system administrators, network engineers, and infrastructure automation engineers to centrally manage switches, routers, and other devices in their organization's network. This book will help you gain hands-on experience in automating enterprise networks and take you through core network automation techniques using the latest version of Ansible and Python. With the help of practical recipes, you'll learn how to build a network infrastructure that can be easily managed and updated as it scales through a large number of devices. You'll also cover topics related to security automation and get to grips with essential techniques to maintain network robustness. As you make progress, the book will show you how to automate networks on public cloud providers such as AWS, Google Cloud Platform, and Azure. Finally, you will get up and running with Ansible 2.9 and discover troubleshooting techniques and network automation best practices. By the end of this book, you'll be able to use Ansible to automate modern network devices and integrate third-party tools such as NAPALM, NetBox, and Batfish easily to build robust network automation solutions. What you will learn Understand the various components of Ansible Automate network resources in AWS, GCP, and Azure cloud solutions Use IaC concepts to design and build network solutions Automate network devices such as Cisco, Juniper, Arista, and F5 Use NetBox to build network inventory and integrate it with Ansible Validate networks using Ansible and Batfish Who this book is for This Ansible network automation book is for network and DevOps engineers interested in automating complex network tasks. Prior understanding of networking and basic Linux knowledge is required.

Introduction to Python Programming is written for students who are beginners in the field of computer programming. This book presents an intuitive approach to the concepts of Python Programming for students. This book differs from traditional texts not only in its philosophy but also in its overall focus, level of activities, development of topics, and attention to programming details. The contents of the book are chosen with utmost care after analyzing the syllabus for Python course prescribed by various top universities in USA, Europe, and Asia. Since the prerequisite know-how varies significantly from student to student, the book's overall overture addresses the challenges of teaching and learning of students which is fine-tuned by the authors' experience with large sections of students. This book uses natural language expressions instead of the traditional shortened words of the programming world. This book has been written with the goal to provide students with a textbook that can be easily understood and to make a connection between what students are learning and how they may apply that knowledge. Features of this book This book does not assume any previous programming experience, although of course, any exposure to other programming languages is useful This book introduces all of the key concepts of Python programming language with helpful illustrations Programming examples are presented in a clear and consistent manner Each line of code is numbered and explained in detail Use of f-strings throughout the book Hundreds of real-world examples are included and they come from fields such as entertainment, sports, music and environmental studies Students can periodically check their progress with in-chapter quizzes that appear in all chapters Like sysadmins before them, network engineers are finding that they cannot do their work manually anymore. As the field faces new protocols, technologies, delivery models, and a pressing need for businesses to be more agile and flexible, network automation is becoming essential. This practical guide shows network engineers how to use a range of technologies and tools—including Linux, Python, JSON, and XML—to automate their systems through code. Network programming and automation will help you simplify tasks involved in configuring, managing, and operating network equipment, topologies, services, and connectivity. Through the course of the book, you'll learn the basic

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skills and tools you need to make this critical transition. This book covers: Python programming basics: data types, conditionals, loops, functions, classes, and modules Linux fundamentals to provide the foundation you need on your network automation journey Data formats and models: JSON, XML, YAML, and YANG for networking Jinja templating and its applicability for creating network device configurations The role of application programming interfaces (APIs) in network automation Source control with Git to manage code changes during the automation process How Ansible, Salt, and StackStorm open source automation tools can be used to automate network devices Key tools and technologies required for a Continuous Integration (CI) pipeline in network operations

Over 25 hands-on recipes to create robust and highly-efficient cross-platform distributed applications with the Boost.Asio library About This Book Build highly efficient distributed applications with ease Enhance your cross-platform network programming skills with one of the most reputable C++ libraries Find solutions to real-world problems related to network programming with ready-to-use recipes using this detailed and practical handbook Who This Book Is For If you want to enhance your C++ network programming skills using the Boost.Asio library and understand the theory behind development of distributed applications, this book is just what you need. The prerequisite for this book is experience with general C++11. To get the most from the book and comprehend advanced topics, you will need some background experience in multithreading. What You Will Learn Boost your working knowledge of one of the most reputable C++ networking libraries—Boost.Asio Familiarize yourself with the basics of TCP and UDP protocols Create scalable and highly-efficient client and server applications Understand the theory behind development of distributed applications Increase the security of your distributed applications by adding SSL support Implement a HTTP client easily Use iostreams, scatter-gather buffers, and timers In Detail Starting with recipes demonstrating the execution of basic Boost.Asio operations, the book goes on to provide ready-to-use implementations of client and server applications from simple synchronous ones to powerful multithreaded scalable solutions. Finally, you are presented with advanced topics such as implementing a chat application, implementing an HTTP client, and adding SSL support. All the samples presented in the book are ready to be used in real projects just out of the box. As well as excellent practical examples, the book also includes extended supportive theoretical material on distributed application design and construction. Style and approach This book is a set of recipes, each containing the statement and description of a particular practical problem followed by code sample providing the solution to the problem and detailed step-by-step explanation. Recipes are grouped by topic into chapters and ordered by the level of complexity from basic to advanced.

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