SpiralTrain
developer courses

Python Network Automation

Duration: 4 days   **Price: € 2450**

Open Schedule

Audience Course Python Network Automation
The Course Python Network Automation is intended for developers and system administrators who want to learn how to use Python to configure and analyze network equipment.

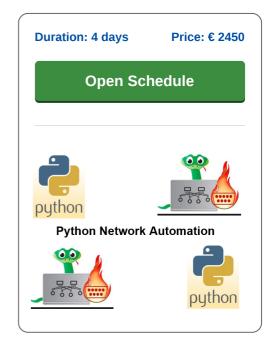### Prerequisites for the Python Network Automation Training
Experience with Python programming is not strictly necessary to participate in this course. Experience with Python programming is beneficial to good understanding.

Implementation Training Python Network Automation
The theory in the course Python Network Automation is discussed on the basis of presentation slides. Illustrative demos clarify the concepts. The theory is interchanged with exercises. Course times are from 9:30 to 16:30.

Certificate Python Network Automation
Participants receive an official certificate Python Network Automation after successful completion of the course.

Python Network Automation

Content Course Python Network Automation

In the course Python Network Automation participants learn to use Python and special Python networking libraries to automatically manage and configure networks. The focus is on the use of Python for interacting with network equipment. The course uses the Graphical Network Simulator-3, GNS3, with which complex networks can be simulated. Network engineers can use the acquired knowledge directly in their daily work.

Python Intro
The course starts with a discussion of the basic Python syntax with variables, data types, control flow, functions, modules and packages.

Classes and Objects
Next attention is paid to classes and objects in Python, including encapsulation, inheritance, polymorphism and abstract classes.

Python Libraries
Widely used Python libraries such as those for regular expressions and the access of files including XML and JSON files are on the program of the course as well.

Python Network Access
The Graphical Network Simulator-3, GNS3, is then loaded with images of Cisco IOS, Juniper vSRX and Arista vEOS to access and configure these network systems with Python.

Serial Connections
Setting up serial connections, encoding and decoding, configuring Cisco devices and module enhancement are treated also.

Network Automation
Then the course will discuss the automation of networks with the SSH tools Paramiko and Netmiko and the open source Napalm Network API.

Parallel Processing
Finally, after a treatment of making backups, parallel processing in Python with multiple threads and processes is on the program. Netmiko is used here as well.

Modules Course Python Network Automation

Module 1 : Python Essentials	Module 2 : Classes and Objects	Module 3 : Python Libraries
Python 2 versus Python 3	Python Object Orientation	Regular Expressions
Lines and Indentation	Creating Classes	Logging
Python Data Types	Class Members	Log Configuration
Numbers and Strings	Creating and Using Objects	Generators
Lists and Tuples	Property Syntax	Unit Testing
Sets and Dictionaries	Static Methods	Dates and Times
Python Flow Control	Encapsulation	JSON Access
Comprehensions	Inheritance and Polymorphism	XML Access
Functions	Constructor Chaining	Numpy Library
Modules and Packages	Overriding Methods	Pandas Library
Exception Handling	Abstract Classes	Plotting
Module 4 : Python Network Access	**Module 5 : File Access**	**Module 6 : Serial Connections**
VM Installations	Creating Files	Bytes Objects
Install GNS3 VM	File Processing	Encoding and Decoding
Cisco IOS Images	Reading Files	Communication Basics
Juniper vSRX Images	Tell, Seek and Cursors	Connecting to Console Port
Arista vEOS Images	With Keyword	Open Connection to Device
Connect to Images	Reading into List	Configure Cisco Devices
Cisco IOS in GNS3	CSV File Access	Pyserial Refactoring
Arista vEOS in GNS3	CSV Custom Delimiters	Custom Serial Module
Juniper vSRX in GNS3	Iterating over Files	Module Enhancement
Configuring Images	Copying Files	Configuration Automation
Module 7 : Network Automation	**Module 8 : Backups**	**Module 9 : Parallel Processing**
Telnet Protocol Basics	Cisco Backup Configuration	Processing Theory
Connecting to Network Devices	Secure Copying with SCP	Multiple Threads
getpass Module	Netmiko Prompt	Multiple Processing
Configure Multiple Devices	Global Config Mode	Subprocess Module
Configure Loopback Interfaces	Backup Improvement	Os Module
Automation with Paramiko	Preparing Router for SCP	Synchronization
SSH on Cisco Devices	Configure EOS Switches	Global Interpreter Lock
Configure OSPF	Check Interface Status	Multiprocessing with Netmiko
Automation with Netmiko	Merging Configurations	Shutil Module
Automation with Napalm	Configuration Rollback	Troubleshooting Netmiko