Publication date : 02/01/2024

Course : Python, advanced system administration

Develop Python scripts for systems and network management

Practical course - 2d - 14h00 - Ref. PYR

Price : 1500 CHF E.T.

You've got the basics of Python, but want to take your administration scripting skills a step further. This advanced Python course takes you into the analysis and manipulation of large-scale network data. You'll learn how to generate GUIs and PDFs with Python to communicate your results.

Teaching objectives

At the end of the training, the participant will be able to:

- Perform complex system administration tasks with Python
- Create SNMP and NetCONF probes
- Analyze network traffic
- Encrypt your data
- Handling voluminous data
- Create graphical interfaces for your scripts

Intended audience

System administrators, devops, developers wishing to use the Python language in greater depth.

Prerequisites

Knowledge of the Python language or our introductory Python course for system administrators.

Practical details

Exercise

Numerous exercises are used to illustrate the topics.

Teaching methods

Active pedagogy, feedback and demonstrations are used by the trainer to help participants put their new skills into practice more quickly.

Course schedule

PARTICIPANTS

System administrators, devops, developers wishing to use the Python language in greater depth.

PREREQUISITES

Knowledge of the Python language or our introductory Python course for system administrators.

TRAINER QUALIFICATIONS

The experts leading the training are specialists in the covered subjects. They have been approved by our instructional teams for both their professional knowledge and their teaching ability, for each course they teach. They have at least five to ten years of experience in their field and hold (or have held) decision-making positions in companies.

ASSESSMENT TERMS

The trainer evaluates each participant's academic progress throughout the training using multiple choice, scenarios, hands-on work and more.
Participants also complete a placement test before and after the course to measure the skills they've developed.

1 Advanced scripting

- Encrypt and decrypt files with AES/PGP.
- Handle large CSV files (several GB) with Vaex and Dask.
- Handle XML files.
- Create PDF files.
- Add a graphical interface to your scripts.
- Parallelize your system administration scripts with threading and multiprocessing libraries.

Hands-on work

This chapter is made up of several TPs on each of the subjects covered, in the style of a cookbook.

2 Network administration with Python

- Quick reminder: TCP/IP protocols, OSI layers, routing and address translation.
- Scan network ports with sockets.
- Use SNMP and NetCONF protocols with Python.
- Capture TCP packets with Scapy and read PCAP files.
- Send SMS messages.
- Analyze network vulnerabilities with Nessus and nessrest.

Hands-on work

Perform the "ping of death" attack with Scapy. Create an SNMP/OpenMP probe. Geolocate IP addresses resulting from an analysis, display them on an OpenStreetMap. Produce a PDF report.

TEACHING AIDS AND TECHNICAL RESOURCES

• The main teaching aids and instructional methods used in the training are audiovisual aids, documentation and course material, hands-on application exercises and corrected exercises for practical training courses, case studies and coverage of real cases for training seminars.
• At the end of each course or seminar, ORSYS provides participants with a course evaluation questionnaire that is analysed by our instructional teams.
• A check-in sheet for each half-day of attendance is provided at the end of the training, along with a course completion certificate if the trainee attended the entire session.

TERMS AND DEADLINES

Registration must be completed 24 hours before the start of the training.

ACCESSIBILITY FOR PEOPLE WITH DISABILITIES

Do you need special accessibility accommodations? Contact Mrs. Fosse, Disability Manager, at psh-accueil@orsys.fr to review your request and its feasibility.

Dates and locations

REMOTE CLASS
2026 : 1 July, 14 Oct., 2 Dec.