

# PowerShell 5/4: Automating Windows administration

Hands-on course of 3 days - 21h

Ref.: ATU - Price 2024: CHF2 030 (excl. taxes)

## EDUCATIONAL OBJECTIVES

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

Write scripts in Windows with PowerShell 5.x

Manage users with PowerShell scripts

Automate administrative tasks in Windows with PowerShell

Format output messages

Use background processing and remote administration features

## TEACHING METHODS

Active learning based on examples, demonstrations, experience-sharing, real cases, and an evaluation of what was learned from the training.

## HANDS-ON WORK

Discussions, experience-sharing, demonstrations, tutorials, and real cases.

## CERTIFICATION

If registering for the AVIT® Automating Administration With Windows PowerShell certification option, you must do so at the same time as course registration. The exam is a multiple-choice test lasting one-and-a-half to two hours. The result indicates your skill level. Merely taking the course is not sufficient to achieve a maximum score. The exam must be both scheduled and then taken online within 4 weeks following the start of your session.

## THE PROGRAMME

last updated: 07/2021

### 1) Basics of the language

- The connection between PowerShell and .NET.
- Principle, functionality, and usage of commands and cmdlets.
- Pipelines: Behavior of flows and configuring them. Code simplification, the pipelinevariable.
- Where-objects filters, foreach loops.
- Variables, types of operators.
- Windows ISE Version 5, a new scripting environment.

*Hands-on work* : Learn about and register for the AVIT® certification option. Using different cmdlets, using the pipe, the pipelinevariable. Using the first commands. Use of filters.

### 2) Types and operators

- Type system, conversion rules.
- Variables, definition, scope.
- Basic types.
- Regular expressions. Qualifier.
- Operators (arithmetical, assignment, logical, string, redirect. etc.).
- Comparators and collections.

*Hands-on work* : Using variables, operators, and regular expressions.

## 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.

## 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.

### 3) Control structures and functions

- Control structures using cmdlets.
- Conditional structures.
- for loop. while loop. foreach loop.
- Switch structure.
- Functions, scope modifiers.
- Execution phases of a function.
- Using functions in a pipeline.
- Passing arguments to a script.

*Hands-on work : Implementing control structures. Using and configuring functions.*

### 4) Using cmdlettes and modules

- Archive management (compress-archive, expand-archive).
- Web cmdlettes (invoke-webrequest, invoke-restmethod).
- Cmdlettes for managing your servers and workstations (add-computer, restart-computer).
- Network management cmdlettes (new-net\*, get-net\*, get-bgprouter, etc.).
- Administration cmdlettes (get-event, start-process, etc.).
- File management (get-content, tee-object, import-csv, convertto-html, and style sheets).

*Hands-on work : Retrieving an RSS flow from the Internet. Creating a Web page with the use of a style sheet, a script for geolocating IP addresses connected to workstations. Modifying IP addresses remotely, incorporating a computer into a domain. Remote ZIP decompression.*

### 5) Using CIM objects

- The CIM (Common Information Model) data model. CIM and WMI.
- New cmdlet for managing the WMI (get-ciminstance, new-cimsession, etc.).
- Difference between get-wmiobject and get-ciminstance.
- Listing WMI classes, complete aid.
- Using WMI methods and properties (sharing a workstation, testing for the presence of machines on the network, etc.).

*Hands-on work : Finding a workstation's shares. Remotely deleting applications, remotely editing a gateway. Retrieving information.*

### 6) Using .NET and COM

- Using object libraries to manipulate the system's components.
- Using .NET classes (ping, udp, credential, etc.).
- System classes.
- PowerShell and the GUI: Introduction to XAML.

*Hands-on work : Creating an XAML form. Creating a secure authentication script for connecting to servers, wake-on-LAN script.*

### 7) Managing PowerShell V3 modules, packages

- How a module operates. Listing modules.
- The module DHCP, DNS, hyper-V.
- The Active Directory module.
- The commands: Find and install modules (find-module, install-module...).
- Package management.

*Hands-on work : Creating a user in Active Directory, querying objects in Active Directory, installing a module loading on the Internet, settings.*

### 8) Com objects

- Listing the available com objects.
- New performances of com objects.
- Creating and editing an Excel workbook.

- Opening a PowerPoint or Word file.

*Hands-on work* : Creating an Excel workbook, retrieving server data (disk space, IP, process, applications, etc.).

### 9) The best cmdlettes and PowerShell tips

- commands: get-random, get-process, get-service.

- Turning the text into an object (ConvertFrom-String).

- The Psedit command.

- Creating symbolic links (new-item).

- The basic commands get-filehash, get-disk, get-hotfix.

- Commands and variables: new-guid, new-smbshare, new-timespan.

- Online option: Schedule and take the AVIT® exam within 4 weeks.

*Hands-on work* : Creating a password generator. File integrity check, NTFS permission.

Generating a time counter, creating sharing.

## DATES

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REMOTE CLASS

2024 : 08 Jul, 07 Oct