

AZ-040

Automating Administration with PowerShell



Rest API $\xrightarrow{\text{auto Rest}}$ Cndlet

Thomas Jäkel

brainymotion

Lead Trainer Cloud Infrastructure

Microsoft Certified Trainer since 1999

Heidelberg

github.com/www42/AZ-040

Jeff Shover



Windows system administrator role

Windows system administrators install, configure, and maintain Windows operating systems. They also manage the transition of on-premises environments to hybrid environments that use Microsoft Azure or Microsoft 365 as the cloud component. By using PowerShell, they can automate many of their tasks.

About this course: Prerequisites

Before attending this course, students must have:

- Experience with Windows networking technologies and implementation.
- Experience with Windows Server administration, maintenance, and troubleshooting.
- Experience with Windows Client administration, maintenance, and troubleshooting.

Get-NetIPAddress

Ctl-Space

Course outline

- Module 1: Getting started with Windows PowerShell
- Module 2: Windows PowerShell for local systems administration
- Module 3: Working with the Windows PowerShell pipeline
- Module 4: Using PSProviders and PSDrives
- Module 5: Querying management information by using CIM and WMI
- Module 6: Working with variables, arrays, and hash tables
- Module 7: Windows PowerShell scripting
- Module 8: Administering remote computers with Windows PowerShell
- Module 9: Managing Azure resources with PowerShell
- Module 10: Managing Microsoft 365 services with PowerShell
- Module 11: Using background jobs and scheduled jobs

ISE (VS Code)
Lab

dir

OO

C: HKLM:

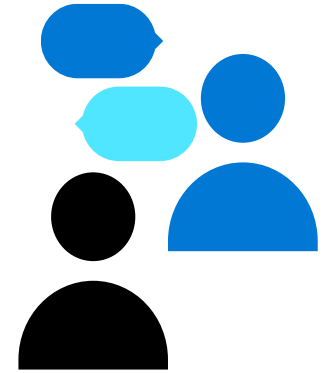
\$date = Get-Date

Scripting
Module

Hello! Student introduction

Let's get acquainted:

- Your name
- Company affiliation
- Title/function
- Microsoft Azure experience
- Your expectations for the course



Pause bis 11¹⁰ Uhr

aka.ms/Learn



Welcome back, Thomas Jäkel

Some items for you since your last visit:



CERTIFICATION

Microsoft Certified: Azure Fundamentals

Next module: Describe cloud computing

Dismiss

Start



COLLECTION

Build 2022 Intro to Tech Skills Collection

Next module: [Develop a growth mindset](#)

Dismiss

Start



EXAM

[Managing Microsoft Teams](#)

Next module: [Explore Microsoft Teams](#)

Dismiss

Start

[Help us customize your path](#)

[See all activity](#)

We think you might like these



LEARNING PATH

AZ-204: Create Azure App Service web apps



LEARNING PATH

AZ-204: Integrate caching and content delivery within

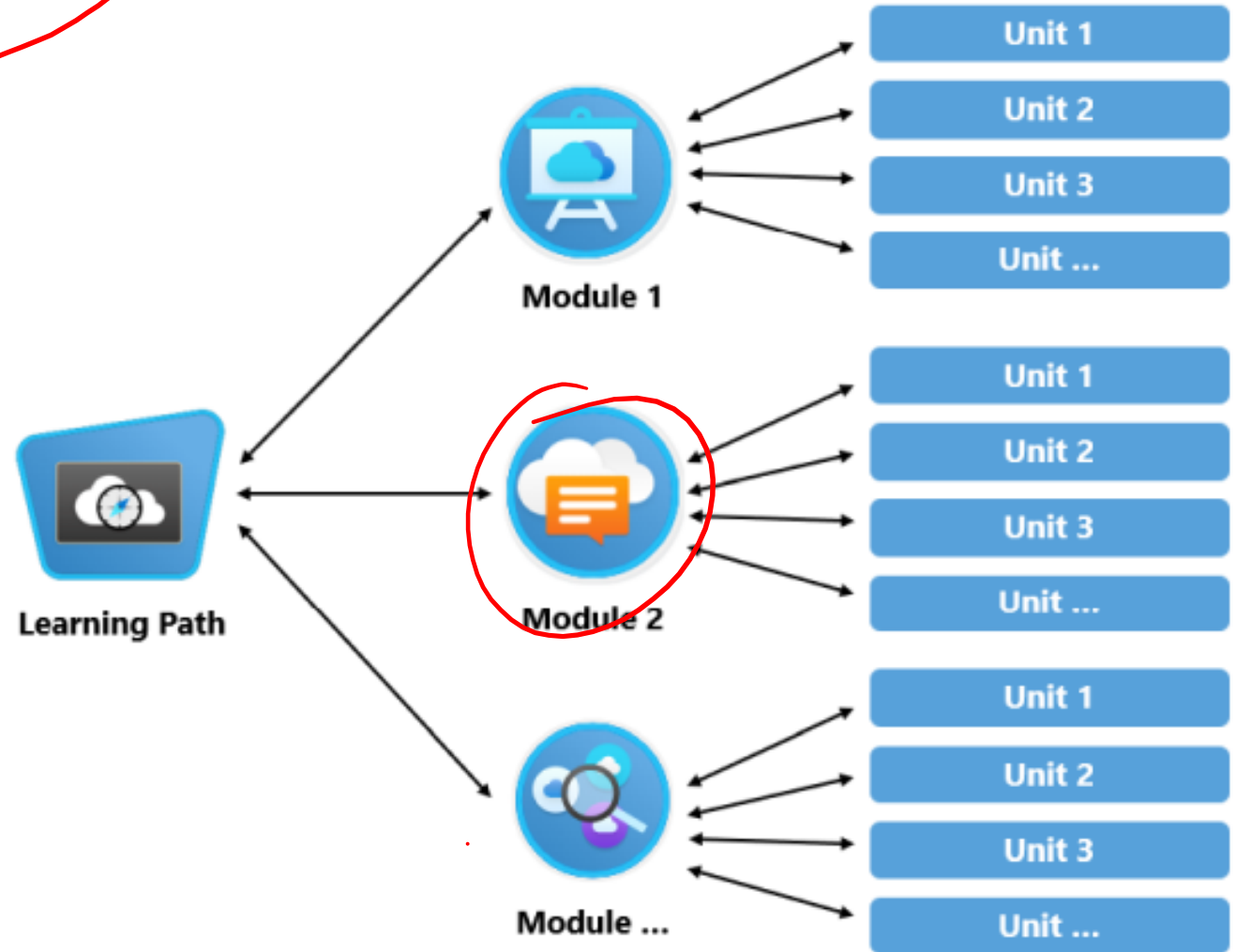


LEARNING PATH

AZ-204: Implement user authentication and authorization

Microsoft Learn

- Learning Paths
- Sandboxes
- Exam Registration
- Transcript
- Collections
- Badges



powershell

Search

Learning Path ✕

LEARNING PATH

Automate administrative tasks by using PowerShell

🕒 2 hr 57 min

Visual Studio Code • Student • Beginner



+ Save

LEARNING PATH

Get started with Windows PowerShell

🕒 2 hr 13 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Create and manage background jobs and scheduled jobs in Windows PowerShell

🕒 1 hr 25 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Maintain system administration tasks in Windows PowerShell

🕒 2 hr 3 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Work with the Windows PowerShell pipeline

🕒 3 hr 30 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Create and modify scripts by using Windows PowerShell

🕒 3 hr 41 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Use variables, arrays, and hash tables in Windows PowerShell scripts

🕒 1 hr 12 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Administer remote computers by using Windows PowerShell

🕒 2 hr 23 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Manage cloud resources by using Windows PowerShell

🕒 2 hr 5 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Manage Microsoft 365 services by using Windows PowerShell

🕒 3 hr 8 min

Azure • Administrator • Intermediate



+ Save

LEARNING PATH

Work with PowerShell providers and PowerShell drives in Windows PowerShell

🕒 1 hr 13 min

Azure • Administrator • Intermediate



+ Save

Exercise - Discover objects

1 minute

Sandbox activated! Time remaining: 1 hr 55 min

You have used 1 of 10 sandboxes for today. More sandboxes will be available tomorrow.

In some scenarios, you'll need to manage processes on a machine. If you need to stop some of the processes, you might want to track what processes are running, how many resources they're using, and their process IDs.

Discover an object by using Get-Member

You know that the `Get-Process` cmdlet lists information about processes. Now, you want to find what other cmdlets work with processes and what a process consists of.

In this scenario, you'll use the `Get-Member` cmdlet.

1. Run `Get-Process`:

PowerShell

Copy

`Get-Process`

The table-like response consists of all processes that are running on your machine. The exact response depends on what is running on your machine. Choose a process name from the column on the right, and then use it as an argument for your next command.

2. Run `Get-Process` again. This time, use the process name and pipe `Get-Member`.

PowerShell


Copy

PS /home/thomas_jaekel> `Get-Process`

NPM(K)	PM(M)	WS(M)	CPU(s)	Id	SI	ProcessName
0	0.00	93.02	2.67	20	1	node
0	0.00	403.88	13.46	130	127	pwsh
0	0.00	3.12	0.00	129	127	runuser
0	0.00	3.27	0.01	1	1	startNode.sh
0	0.00	3.16	0.00	127	127	startPwsh.sh

PS /home/thomas_jaekel>

aka.ms/TrainCertPoster



Become Microsoft Certified

Learn more at: microsoft.com/certifications

★ Expert certification title

🔒 This certification has prerequisites

MB-300 + MB-310 Exam requirements

	Azure	Dynamics 365	Microsoft 365	Power Platform	Security, Compliance, and Identity
Fundamentals Master the basics	<div>Azure Fundamentals AZ-900</div> <div>Azure AI Fundamentals AI-900</div> <div>Azure Data Fundamentals DP-900</div>	<div>Dynamics 365 Fundamentals (CRM) MB-910</div> <div>Dynamics 365 Fundamentals (ERP) MB-920</div>	<div>Microsoft 365 Fundamentals MS-900</div>	<div>Power Platform Fundamentals PL-900</div>	<div>Security, Compliance, and Identity Fundamentals SC-900</div>
Role-based Expand your technical skill set	<div>Azure Administrator Associate AZ-104</div> <div>Azure Developer Associate AZ-204</div> <div>Azure Security Engineer Associate AZ-500</div> <div>Azure Stack Hub Operator Associate AZ-600</div> <div>Azure Network Engineer Associate AZ-700</div> <div>Windows Server Hybrid Administrator Associate AZ-800 + AZ-801</div> <div>Azure AI Engineer Associate AI-102</div> <div>Azure Data Scientist Associate DP-100</div> <div>Azure Data Engineer Associate DP-203</div> <div>Azure Database Administrator Associate DP-300</div> <div>Azure Enterprise Data Analyst Associate DP-500</div> <div>DevOps Engineer Expert AZ-400</div> <div>Azure Solutions Architect Expert AZ-305</div>	<div>Dynamics 365 Sales Functional Consultant Associate MB-210</div> <div>Dynamics 365 Marketing Functional Consultant Associate MB-220</div> <div>Dynamics 365 Customer Service Functional Consultant Associate MB-230</div> <div>Dynamics 365 Field Service Functional Consultant Associate MB-440</div> <div>Dynamics 365 Finance Functional Consultant Associate MB-300 + MB-310</div> <div>Dynamics 365 Supply Chain Management, Manufacturing Functional Consultant Associate MB-300 + MB-320</div> <div>Dynamics 365 Supply Chain Management Functional Consultant Associate MB-300 + MB-330</div> <div>Dynamics 365 Commerce Functional Consultant Associate MB-300 + MB-340</div> <div>Dynamics 365 Finance and Operations Apps Developer Associate MB-300 + MB-500</div> <div>Dynamics 365 Finance and Operations Architect Expert MB-700</div> <div>Dynamics 365 Business Central Functional Consultant Associate MB-400</div>	<div>Teams Application Developer Associate MS-600</div> <div>Messaging Administrator Associate MS-203</div> <div>Modern Desktop Administrator Associate MD-100 + MD-101</div> <div>Security Administrator Associate MS-500</div> <div>Teams Administrator Associate MS-700</div> <div>Teams Voice Engineer Expert MS-720</div> <div>Enterprise Administrator Expert MS-100 + MS-101</div>	<div>Power Platform App Maker Associate PL-100</div> <div>Power Platform Functional Consultant Associate PL-200</div> <div>Power BI Data Analyst Associate PL-300</div> <div>Power Platform Developer Associate PL-400</div> <div>Power Automate RPA Developer Associate PL-500</div> <div>Power Platform Solution Architect Expert PL-600</div>	<div>Azure Security Engineer Associate AZ-500</div> <div>Identity and Access Administrator Associate SC-300</div> <div>Microsoft 365 Security Administrator Associate MS-500</div> <div>Information Protection Administrator Associate SC-400</div> <div>Security Operations Analyst Associate SC-200</div> <div>Cybersecurity Architect Expert SC-100</div>
Specialty Deepen your technical skills and manage industry solutions	<div>Azure for SAP Workloads Specialty AZ-120</div> <div>Azure Virtual Desktop Specialty AZ-140</div> <div>Azure Support Engineer for Connectivity Specialty AZ-720</div> <div>Azure IoT Developer Specialty AZ-220</div> <div>Azure Cosmos DB Developer Specialty DP-420</div>	<div>Customer Data Platform Specialty MB-260</div>	<div>Exchange Online Support Engineer Specialty MS-220</div> <div>Teams Support Engineer Specialty MS-740</div>		

aka.ms/TrainCertPoster | LAST UPDATED AUG 2022

© Microsoft 2022

Hands-on labs

- This course requires access to the Azure platform. Access to Azure might be provided through one of the following options:
 - An Azure pass that the Learning Partner or the ALH gives out to students.
 - As part of an ALH Azure solution. Your instructor will provide more information regarding access to Azure.
- You'll use a Microsoft Learning Azure Pass to access Azure.
- After you set up your subscription, check the dollar balance of your Azure Pass within Azure.
- Be aware of how much you're consuming and don't allow Azure components to run overnight or for extended periods.
- Lab instructions are in a GitHub repository. For this class use the *<your region>* location.

go deploy - Lab Umgebung

go deploy AZ-040T00 (CS) | Lab 01

Home Lab Guide Microsoft Learn

Lab Guide

Task 1: Start the console application as Administrator, and pin the Windows PowerShell icon to the taskbar

- 1. On **LON-CL1**, send the **CTRL+ALT+DEL** command and then log in as **ADATUM\Administrator** with the password **Pa55w.rd**.
- 2. Select **Start**.
- 3. Enter **powershell** to display the Windows PowerShell icon. Make sure that the icon name displays **Windows PowerShell** and not **Windows PowerShell (x86)**.
- 4. Right-click **Windows PowerShell** or activate its context menu, and then select **Run as administrator**.
- 5. Make sure that the window title bar reads **Administrator** and doesn't include the text **(x86)**. This indicates that it is the 64-bit console application and that an administrator is running it.
- 6. On the taskbar, right-click the **Windows PowerShell** icon or

Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

Untitled1.ps1* X

1 Get-Date

PS C:\Users\Administrator.ADATUM> Get-Date
Sunday, November 13, 2022 9:13:21 AM

PS C:\Users\Administrator.ADATUM> |

Completed Ln 7 Col 35 120%

Start

Type here to search

9:13 AM 11/13/2022

Facilities

- Class hours
- Building hours
- Parking
- Restrooms
- Meals
- Phones
- Messages
- Internet access
- Recycling
- Emergency procedures

9⁰⁰

12³⁰ - 13³⁰

17⁰⁰

