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Course Syllabus

Network Troubleshooting and Tools

Instructor Name: Jeff Brown

Instructor Website: https://jeffbrown.tech

Instructor Contact: Twitter: @JeffWBrown

Course Creation Date: 12/12/2019

Course Description and Goals

Course Description: In this course, we will learn how to perform basic network troubleshooting using common command line tools in a Windows environment. We will understand how to verify local network configuration and test connectivity from our local system to other network resources. After this troubleshooting is completed, we will look at how to verify other network connectivity issues such as domain name resolution, route tables, and how to test ports and protocols. The course will also cover what advanced network troubleshooting tools are available outside the Windows command line from third-party providers. Finally, we take an introductory look at common network devices and how to troubleshoot the installation and configuration of those devices.

Prerequisites: In order to be successful in this course, the student should have previous knowledge or experience in the following concepts:

- Network Interface Card (NIC) configuration on a Windows-based operating system
- Internet Protocol (IP) basics such as IP addresses, subnet masks, and gateways
- Comfortable with working with the command line

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Study Resources:

https://docs.microsoft.com/windows-server/administration/windows-commands/ipconfig

https://docs.microsoft.com/windows-server/administration/windows-commands/ping

https://docs.microsoft.com/windows-server/administration/windows-commands/tracert

https://docs.microsoft.com/windows-server/administration/windows-commands/telnet

https://docs.microsoft.com/previous-versions/windows/it-pro/windows-server-2008-R2-and-2008/cc771275(v=ws.10)

https://docs.microsoft.com/windows-server/administration/windows-commands/nslookup

https://docs.microsoft.com/windows-server/administration/windows-commands/nbtstat

https://docs.microsoft.com/windows-server/administration/windows-commands/arp

https://docs.microsoft.com/previous-versions/windows/it-pro/windows-server-2008-R2-and-2008/cc725935(v=ws.10)

https://docs.microsoft.com/en-us/windows-server/administration/windows-commands/route_ws2008

https://blogs.msdn.microsoft.com/canberrapfe/2012/03/30/capture-a-network-trace-without-installing-anything-capture-a-network-trace-of-a-reboot/

https://www.wireshark.org/

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https://www.telerik.com/fiddler

Course Goals: By the end of this course, students should be able to:

- ❏ Verify network configurations
- ❏ Troubleshoot network connectivity
- ❏ Verify domain name resolution
- ❏ Modify route tables
- ❏ Test ports and protocols
- ❏ Understand available advanced networking tools
- ❏ Understand troubleshooting network devices

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Course Outline

Module 1 | Course Introduction

      Lesson 1.1: Course and Instructor Introduction (3:44)

Module 2 | Network Troubleshooting Tools

      Lesson 2.1: Testing Network Connectivity (14:04)

      Lesson 2.2: Testing Name Resolution (12:51)

      Lesson 2.3: Advanced Networking Tools (12:25)

      Lesson 2.4: Capturing Network Traffic (7:51)

Module 3 | Troubleshoot Network Devices

      Lesson 3.1: Troubleshooting Network Devices (7:02)

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