

Contest Description

COMPETITION DATE: March 19, 2022	CONTEST AREA NAME: IT Network System Administration
CONTEST AREA NUMBER: 39	LEVEL: Post-Secondary
DURATION OF CONTEST: 6 hours	LOCATION: College of the North Atlantic - Prince Philip Dr. Campus

CONTEST INTRODUCTION

Purpose of the Challenge.

To evaluate each competitor's skills and to recognize excellence and professionalism in the field of IT network systems administration.

Skills and Knowledge to be tested.

The competition evaluates a competitor's knowledge of computer and network hardware, and systems administration of Windows and Linux operating systems.

CONTEST DESCRIPTION

List of documents produced and timeline for when competitors have access to the documents.

DOCUMENT	DATE OF DISTRIBUTION VIA WEBSITE
No other competition document will be released prior to the competition	

I ask that the following may be performed during the contest.

Essential Skills

- Create, interpret and modify textual and graphical documentation.
- Calculate and apply to a network, an IPv4 and/or IPv6 addressing scheme using subnetting and/or Variable Length Subnet Mask (VLSM).
- Troubleshoot hardware and/or software issues with network and/or desktop configuration.
- Implement, verify and troubleshoot networking device security.

Hardware setup and initial configuration

- Identify, install and test hardware components.
- Troubleshoot hardware failures.
- Install and configure virtual machines.
- Use disk, system, and file management tools.
- Prepare and manage disk volumes including redundancy.

Networking

- Implement, verify, and troubleshoot Local Area Network (LAN), Wide Area Network (WAN), Network Address Translation (NAT) and wireless networking services.
- Implement, verify, and troubleshoot IPv4 and IPv6 routing protocols including Routing Information Protocol (RIP), Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP) on Layer 3 devices.
- Implement, verify, and troubleshoot route distribution and route summarization.
- Implement, verify, and troubleshoot spanning-tree operation.
- Implement, verify, and troubleshoot ether-channel operation.
- Implement, verify, and troubleshoot Virtual Local Area Networks (VLANs) and inter-VLAN communications.
- Implement, verify, and troubleshoot access control lists (ACLs) for IPv4 and IPv6.
- Implement, verify, and troubleshoot port security.
- Implement, verify, and troubleshoot Virtual Private Network (VPN) tunnel.
- Implement network monitoring and make decisions based on gathered data.
- Implement, verify, and troubleshoot IOS images and licensing.
- Implement, verify, and troubleshoot First Hop Redundancy Protocols (FHRP)

Windows Server Operations

- Configure Domain Name System (DNS), Dynamic Host Control Protocol (DHCP), and Active Directory (AD)
- Create and perform maintenance of Active Directory objects
- Configure, verify, and troubleshoot infrastructure services and roles
- Delegate administrative roles
- Implement and verify Group Policies
- Manage server security, including windows firewall
- Perform data provisioning (i.e. shared resources, offline data)
- Perform and verify backups and restores
- Enable and configure remote management
- Manage Internet Information Service (IIS) services
- Automate tasks using batch files and PowerShell scripts
- Perform automated server or workstation deployment
- Manage Active Directory infrastructure
- Deploy Active Directory Certificate Services

- Manage Server upgrades and/or migrations including Active Directory services

Linux Server Operations

- Application package management, including custom package sources
- Configure and manage network and local storage devices and their respective file systems including RAID
- Set and modify file and directory permissions, special permissions, and ownership
- Perform and verify backups and restores
- Monitor and troubleshoot network activity
- Perform remote management
- Create, modify, and use shell scripts with BASH
- Create, modify, and delete user and group accounts
- Perform job scheduling
- Manage and troubleshoot HTTP, and FTP services
- Manage runlevels and system initialization from configuration files
- Configure and verify system security
- Configure server-based network services (e.g. Domain Name Service [DNS], Dynamic Host Control Protocol [DHCP], Server Message Block [SMB])
- Set up environment variables; set process and special permissions
- Implement security auditing for files and authentication
- Set up user-level security, such as LDAP and NIS
- Configure user access security with Pluggable Authentication Modules [PAM]

Note: Competitors will not be allowed to compete if the above items are not brought and used.

EQUIPMENT, MATERIAL, CLOTHING

Equipment and Material supplied by Skills Canada-Newfoundland and Labrador

- [Pen and paper](#)

Equipment and Material Competitor must supply:

- [Pen and paper](#)

Required clothing (Provided by competitor)

- [N/A](#)

SAFETY REQUIREMENTS

The health, safety and welfare of all individuals involved with Skills Canada NL are of vital importance. Safety is a condition of participation and shall not be sacrificed for the sake of expediency. At the discretion of the judges and technical committees, any competitor can be denied the right to participate should they not have the required proper safety equipment and/or act in an unsafe manner that can cause harm to themselves or others.

- No PPE required

Note: Competitors may have to follow CNA COVID protocols during competition.

List of required personal protective equipment (PPE) supplied by Skills Canada NL:

- Mask

List of required personal protective equipment (PPE) supplied by Competitors:

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Note: Competitors will not be allowed to compete if the above items are not brought and used.

EVALUATION/JUDGING CRITERIA

Point Breakdown

POINT BREAKDOWN	/1000
Windows Administration	250
Troubleshooting	250
Linux Administration	250
Network Infrastructure	250

ADDITIONAL INFORMATION

Tie (No ties are allowed)

In the event of a tie, the competitor with the highest score in the Troubleshooting criteria, if this score is tied placement will be determined on highest score in the networking criteria, if still tied placement will be determined on highest score in the Linux criteria.

Competition Rules

Please refer to the competition rules for all general SCPC information.

PROVINCIAL TECHNICAL COMMITTEE MEMBERS

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