

Skills Canada National Competition

SCOPE DOCUMENT	
Competition Year	2012
Competition location	Edmonton, AB
Trade Number	39
Trade Name	IT- Network Systems Administration
Level	Post-Secondary

1. INTRODUCTION

1.1 Purpose of the Challenge

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

1.2 Duration of contest

14 hours

1.3 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.

2. CONTEST DESCRIPTION

2.1 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	

2.2 Tasks that may be performed during the contest

Hardware setup and initial configuration

- Identify, install and test hardware components
- Troubleshoot hardware failures
- Perform structured cabling tasks
- Install and configure virtual machines

- Use disk, system, and file management tools

Networking

- Interpret network diagrams
- Create network documentation in written and diagrammatic forms
- Operate basic network diagnostic software
- Calculate for and apply to a network, an addressing scheme including Variable Length Subnet Mask (VLSM) Internet Protocol (IP) V4 addressing
- Implement static and dynamic addressing services for hosts in a Local Area Network (LAN) environment
- Implement, verify and troubleshoot hardware and software network configuration
- Implement, verify, and troubleshoot securing of network devices
- Implement, verify, and troubleshoot network address translation
- Implement, verify, and troubleshoot Wide Area Network (WAN) links
- Implement an IP addressing scheme and IP Services to meet network requirements in a Small Office Home Office (SOHO) network
- Install wireless hardware and software on client machines
- Implement, verify, and troubleshoot wireless deployment
- Configure, verify, and troubleshoot securing of wireless communication
- Implement an IP addressing scheme and IP Services (including summarization) to meet network requirements in a medium-sized network
- Configure, verify, and troubleshoot spanning-tree operation on switches
- Configure, verify, and troubleshoot a switch with Virtual Local Area Network's (VLANs) and inter-switch communication
- Implement, verify and troubleshoot traffic flow management using access control lists
- Configure, verify, and troubleshoot basic router operation and routing
- Configure hardware and software to support 802.11i
- Work may be performed on physical or simulated Cisco hardware

Windows Server Operations

- Configure Domain Name System (DNS) for Active Directory
- Create and perform maintenance of Active Directory objects
- Configure, verify, and troubleshoot infrastructure services and roles
- Implement delegated administration
- Implement, verify and troubleshoot Group Policies

- Configure, verify and troubleshoot server security
- Perform data provisioning (i.e. shared resources, offline data)
- Perform and verify backups and restores
- Enable and configure remote management
- Configure, verify and troubleshoot IIS
- Automate tasks using batch files and PowerShell scripts
- Configure, verify, troubleshoot and perform automated server or workstation deployment
- Configure, verify and troubleshoot Active Directory infrastructure
- Configure, verify and troubleshoot Active Directory Certificate Services
- Configure, verify and troubleshoot Exchange Server

Linux Server Operations

- Installation of applications
- Configure and manage network and local storage devices and their respective file systems
- Set and modify file and directory 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
- Configure, verify and troubleshoot Apache web server
- Manage runlevels and system initialization from configuration files
- Configure, verify and troubleshoot 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
- Configure user access security with Pluggable Authentication Modules [PAM]

3. EQUIPMENT, MATERIAL, CLOTHING

3.1 Equipment provided by Skills/Compétences Canada

- Suitable computer hardware
- Linksys SOHO Integrated Router device

3.2 Material provided by Skills/Compétences Canada

- Cabling consumables
- Cisco Packet Tracer Software
- Suitable computer hardware
- VMWare virtualization software
- Windows Server 2008 R2
- Windows 7
- Centos 5 or higher

3.3 Equipment and material provided by the competitor

- LAN cable tester
- RJ45 cable crimper
- Pliers
- Snips
- Wire strippers
- Screwdrivers

3.4 Required clothing (Provided by competitor)

- Competitors must be dressed as appropriate for an office environment.

4. SAFETY REQUIREMENTS

4.1 List of required personal protective equipment (PPE) provided by competitors

- | | | |
|---|--|---|
| <input type="checkbox"/> Safety Glasses | <input type="checkbox"/> CSA approved Safety shoes | <input type="checkbox"/> Latex gloves |
| <input type="checkbox"/> Safety Gloves | <input type="checkbox"/> Welding helmet | <input type="checkbox"/> Dust Mask |
| <input type="checkbox"/> Hard Hat | <input type="checkbox"/> Welding gloves | <input type="checkbox"/> Leather gloves |
| <input type="checkbox"/> Hearing protection | <input type="checkbox"/> Respiratory protection | <input checked="" type="checkbox"/> No PPE required |

4.2 List of required personal protective equipment (PPE) provided by Skills/Compétences Canada (SCC)

- | | | |
|---|--|---|
| <input type="checkbox"/> Safety Glasses | <input type="checkbox"/> CSA approved Safety shoes | <input type="checkbox"/> Latex gloves |
| <input type="checkbox"/> Safety Gloves | <input type="checkbox"/> Welding helmet | <input type="checkbox"/> Dust Mask |
| <input type="checkbox"/> Hard Hat | <input type="checkbox"/> Welding gloves | <input checked="" type="checkbox"/> No PPE required |
| <input type="checkbox"/> Hearing protection | <input type="checkbox"/> Respiratory protection | <input checked="" type="checkbox"/> No additional PPE will be supplied by SCC |

5. ASSESSMENT

5.1 Point breakdown

Point Breakdown	/1000
Windows Administration	250
Systems Administration Scenarios	250
Linux Administration	250
Network Infrastructure	250

6. ADDITIONAL INFORMATION

6.1 Personal translation services

If a personal translator is required on site, the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this service might not be guaranteed.

6.2 Software requirements

If French software is required the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this software might not be guaranteed.

6.3 Computer keyboard requirements

English Keyboards will be provided, if a French keyboard is required the Skills/Compétences Canada Provincial/Territorial offices must advise Skills/Compétences Canada National Secretariat a minimum of 1 month prior to the competition or this keyboard might not be guaranteed.

6.4 Tie (No ties are allowed)

In the event of a tie, placement will be determined based on their answer to a theory based question.

6.5 Competition rules

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

7. NATIONAL TECHNICAL COMMITTEE MEMBERS

Region	Name
Pacific Region	Nolan Fretz
Western Region	Randy Hirose
Ontario	Nick Gommans
Québec	Michel Leduc
Atlantic Region	Rob Blanchard
Host Member	Doug Warden