Skills Compétences Canada











CONTEST DESCRIPTION

IT Network Systems Administration

POST-SECONDARY

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1 THE SKILLS FOR SUCCESS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY

The Government of Canada has updated the previous Essential Skills framework to the new Skills for Success model in response to the evolving labour market and changing skill requirements. This model outlines nine fundamental skills Canadians need to thrive in work, education, training, and daily life.

Skills/Compétences Canada aims to highlight the importance of these skills, vital for success in trade and technology careers. Competitors can see how Skills for Success are integrated into contest descriptions, projects, and project documents. Recognizing these skills during the competition helps competitors match tasks with specific skills necessary for success and understand how these skills apply within their trade or technology programs and future careers.

The nine key Skills for Success, validated for workplace success, are:

1. Numeracy
2. Communication
3. Collaboration
4. Adaptability
5. Reading
6. Writing
7. Problem Solving
8. Creativity and Innovation
9. Digital

These Skills for Success are detailed in sections 2.4 and/or 3.2 (to be completed by SCC) of your Contest Description and, if relevant, in your Project and supporting documents.

2 CONTEST INTRODUCTION

2.1 Description of the associated work role(s) or occupation(s)

https://www.skillscompetencescanada.com/en/skill_area/it-network-systems-administration/

2.2 Purpose of the Challenge

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

2.3 Duration of contest

12 hours, over 2 days

2.4 Skills and Knowledge to be tested

The competition evaluates a competitor’s knowledge of computers and networks, and systems administration of Windows and Linux operating systems.[7,9]

Skills for Success – [7]Problem Solving, [9]Digital

3 CONTEST DESCRIPTION

3.1 List of documents produced and timeline for when competitors have access to the documents on the Skills/Compétences Canada website.

DOCUMENT	DATE OF DISTRIBUTION
Release of Reference Architecture Documents	February 2027

3.2 Tasks that may be performed during the contest.

3.2.1 Skills for Success

- Create, interpret and modify written and graphical documentation[5,6]
- Calculate and apply to a network, an IPv4 and/or IPv6 addressing scheme using subnetting and/or Variable Length Subnet Mask (VLSM)[1,7]
- Troubleshoot hardware and/or software issues with network and/or desktop configuration[7,9]
- Implement, verify and troubleshoot networking device security[7,9]
- Design a network or server solution based on described requirements[9]

3.2.2 Technical Communications[2,6]

- Discuss and justify reasons for implementing technical solutions
- Articulate how and why a technical solution was applied
- Provide written communication on root causes
- Provide recommendations to improve infrastructure

3.2.3 Cybersecurity[1,5,7,9]

- Utilize third party software to capture network packets
- Analyze logs to determine vulnerabilities
- Identify, and mitigate the effects of malware using third party software

3.2.4 Networking[7,9]

- Configure, verify, and troubleshoot Local Area Network (LAN), Wide Area Network (WAN), Network Address Translation (NAT) and wireless networking services
- Configure, verify, and troubleshoot IPv4 and IPv6 routing protocols including Routing Information Protocol (RIP), Border Gateway Protocol (BGP), and Open Shortest Path First (OSPF), on Layer 3 devices
- Configure, verify, and troubleshoot route distribution and summarization
- Configure, verify, and troubleshoot spanning-tree operation
- Configure, verify, and troubleshoot ether-channel operation
- Configure, verify, and troubleshoot Virtual Local Area Networks (VLANs) and inter-VLAN communications and protocols
- Configure, verify, and troubleshoot access control lists for IPv4 and IPv6
- Configure, verify, and troubleshoot port security
- Configure, verify, and troubleshoot VPN tunnels
- Configure network monitoring and make decisions based on gathered data[7]

- Configure, verify, and troubleshoot network resiliency, redundancy, and high-availability solutions and protocols
- Automate network configuration, monitoring, and operational tasks using scripting, APIs, and automation tools

3.2.5 Server Operations[7,9]

- Configure, verify, and troubleshoot Active Directory infrastructure and related services, including group policies
- Configure, verify, and troubleshoot Active Directory Certificate Services
- Configure, verify, and troubleshoot authentication and authorization services
- Configure, verify, and troubleshoot web servers, including certificates
- Configure, verify, and troubleshoot server security
- Configure, verify, and troubleshoot data storage and sharing
- Configure, verify, and troubleshoot data permissions and ownership
- Configure, verify, and troubleshoot backups and restorations
- Configure, verify, and troubleshoot remote management
- Configure, verify, and troubleshoot server management and monitoring tools
- Configure, verify, and troubleshoot application package management, including custom package sources
- Automate tasks using batch files, shell scripts, APIs, and PowerShell
- Deploy, migrate, and troubleshoot containerized applications, including container networking, storage, security, and orchestration platforms

Skills for Success – [1]Numeracy, [2]Communication, [5]Reading, [6]Writing, [7]Problem Solving, [9]Digital

4 EQUIPMENT, MATERIAL, CLOTHING

4.1 Equipment and material provided as needed by Skills/Compétences Canada

- Suitable computer hardware
- Network Emulation/Simulation Software
- Virtualization software
- Windows Server (2019 or later) including both *Desktop Experience* and *Core* editions
- Windows 10 or 11
- Linux or Unix OS
- Public, private, and hybrid cloud platforms

COMPETITORS WILL BE REQUIRED TO USE THE MATERIAL AND EQUIPMENT PROVIDED BY SCC. ALL OTHER MATERIAL AND EQUIPMENT WILL BE REMOVED FROM THE SKILL AREA.

4.2 Equipment and material provided by the competitor

- Pen and Paper

4.3 Required clothing provided by the competitor

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

5 HEALTH AND SAFETY

5.1 Safety program

SCC has implemented a comprehensive safety program as health and safety is an integral part of our competitions. Our safety program includes guidelines and procedures to make the work environment in each skill area safer.

5.1.1 Safety manual

As part of our program a safety manual has been created to monitor and document health and safety within each skill area. It includes a definite plan of action designed to prevent accidents. The safety manual will be provided for every skill and these instructions must be followed and respected by all participants and officials at the SCNC.

5.1.2 Safety workshop

During orientation, Competitors will participate in a Safety workshop and they will be expected to work and maintain a safe working area during the competition. Any Competitor breaking any health, safety, and environmental rules, may be required to undertake a second safety workshop, this will not affect the Competitor's competition time.

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

- n/a

5.3 List of required personal protective equipment (PPE) provided by the competitor.

- n/a

6 ASSESSMENT

6.1 Point breakdown

Note: This list is subject to change.

TASKS	/100
Network	50
Server	50

7 CONTEST SPECIFIC RULES

Contest specific rules cannot contradict or take priority over the Competition Rules. They do provide specific details and clarity in areas that may vary from contest to contest. Any additional contest rules will be reviewed during the competitor orientation.

TOPIC/TASK	CONTEST SPECIFIC RULE

Appropriate use of technology	• Competitors are not allowed to bring USB/memory sticks into the skill area. • Competitors will have limited and supervised access to the Internet during the competition. Competitors are not allowed to bring personal laptops tablets, mobile phones, or any smart wearables (smartwatches, AI glasses, headphones, etc.) into the skill area. • Competitors are not allowed the use of any internet-based real-time communication tools or any other tools that facilitate direct communication with outside parties. • Competitors must not communicate between workstations on the local network.
Notes	• Competitors are not allowed to bring any personal notes into the skill area via digital or physical means. All notes taken by the competitor during the competition must remain on the Competitors desk or computer at all times. No notes may be taken outside of the skill area by any means.
Equipment failure	• In the occurrence of equipment failure Competitors must notify the National Technical Committee (NTC) immediately by raising their hand. NTC members will take note of the time that the Competitor is not able to make use of their equipment. Any time lost due to equipment failure will be provided to the Competitor at the end of the standard Module time. • No additional time will be granted for work not saved prior to the equipment failure.
Breaks	• No extra time will be given to Competitors who stop work during competition time to go to the bathroom or for those who break for a food and/or drink. When time is completed, all Competitors must stop all work on their computer immediately.
National Technical Committee (NTC) room	• Competitors are not allowed to enter the National Technical Committee meeting room in the skill area

8 ADDITIONAL INFORMATION

8.1 Interpreter

If a competitor requires the help of an interpreter once onsite during the competition, 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 may not be guaranteed.

8.2 Ties

- Tiebreaker #1: The competitor with the highest score in the Server module will be declared the winner.
- Tiebreaker #2: The competitor with the highest score in the Networking module will be declared the winner
- Tiebreaker #3: The winner will be determined by demonstrated professionalism and enthusiasm

8.3 Competition rules

Refer to the competition rules of the Skills Canada National Competition which can be found on our website.

9 NATIONAL TECHNICAL COMMITTEE MEMBERS

MEMBER ORGANIZATION	NAME
Newfoundland and Labrador	Charles Reid – Co-Chair
British Columbia	Andrew Mueller – Chair
Ontario	John Ulakovich
Manitoba	Tavare Tulloch
Alberta	Gerald Chung
New Brunswick	Adam Stapledon
Saskatchewan	Anthony Wood
Quebec	Marco Laporte

Contact the Skills/Compétences Canada national secretariat for any questions or concerns: Olga Malvine Rwemera (olgamr@skillscanada.com).