

12TH PROVINCIAL SKILLS COMPETITION

2009 SKILLS CANADA NEWFOUNDLAND LABRADOR



39

IT AND NETWORK SUPPORT

Scope document Secondary and Post-secondary

Friday, April 3rd – College of the North Atlantic – PPD, St. John's

Duration of Contest: 6hrs.

PURPOSE OF THE CHALLENGE:

To evaluate each competitor's skills and to recognize outstanding competitors for excellence and professionalism in the field of IT and network support.

Skills and knowledge to be tested

Hardware setup and initial configuration

- Identify, install and test hardware components
- Troubleshoot hardware failures
- Perform structured cabling tasks
- Install and configure virtual machines
- Prepare hard drives for operating system setup
- Install and configure operating systems in a multi-boot environment
- Use disk imaging utilities
- Use disk, system, and file management tools

Networking

- Interpret network diagrams
- Calculate for, and apply to a network, an addressing scheme including Variable Length Subnet Mask (VLSM) Internet Protocol (IP) addressing
- Implement static and dynamic addressing services for hosts in a Local Area Network (LAN) environment
- Implement, verify, and troubleshoot securing of network devices
- Implement, verify, and troubleshoot traffic flow management using access control lists and 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

Post secondary competitors may be required to also demonstrate the following:

- Implement an IP addressing scheme and IP Services (including summarization) to meet network requirements in a medium-sized network
- Configure, verify, and troubleshoot a switch with Virtual Local Area Network's (VLANs) and inter-switch communication
- Configure, verify, and troubleshoot basic router operation and routing

12TH PROVINCIAL SKILLS COMPETITION

2009 SKILLS CANADA NEWFOUNDLAND LABRADOR

802.11 Wireless

- Install wireless hardware and software on client machines
- Implement, verify, and troubleshoot wireless deployment
- Configure, verify, and troubleshoot securing of wireless communication

Post secondary competitors may be required to also demonstrate the following:

- Configure software to support 802.1X

Windows Server Operations may include the following:

- Configure Domain Name System (DNS) for Active Directory
- Create and perform maintenance of Active Directory objects
- Configure 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
- Install and configure IIS
- Create, modify, and use scripts and automated tasks

Post secondary competitors may be required to also demonstrate the following:

- Configure and perform automated server deployment
- Configure Active Directory infrastructure
- Configure Active Directory Certificate Services
- Install and configure Exchange Server
- Install and configure Internet Security and Acceleration (ISA) Server

Linux Server Operations may include the following:

- Configure a boot loader
- Package management (e.g. resolving dependencies, updating applications)
- Perform network configuration on both wired and wireless equipment
- Configure and manage local storage devices and file systems
- Configure and manage network storage devices and file systems
- Set and modify file and directory permissions and ownership
- Perform and verify backups and restores
- Access and perform Input/Output (I/O) against removable media
- Determine and manage unnecessary services and processes
- Monitor and troubleshoot network activity
- Perform remote management
- Create, modify, and use shell scripts
- Create, modify, and delete user and group accounts
- Perform job scheduling
- Configure server-based network services (e.g. Hyper Text Transfer Protocol [HTTP])
- Manage runlevels and system initialization from configuration files
- Configure system logging and log files
- Configure system security
- Perform makefile tasks to support compiling applications and drivers

12TH PROVINCIAL SKILLS COMPETITION

2009 SKILLS CANADA NEWFOUNDLAND LABRADOR

Post secondary competitors may be required to also demonstrate the following:

- Configure server-based network services (e.g. 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 PAM

Equipment List

Equipment will be provided by either the competitor or Skills Canada - NL. The following list of equipment to be provided by the competitor is the minimum requirement for successful completion of the exam. **No software or computer storage devices are permitted on the competition site.**

Competitor will provide:

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

Skills Canada - NL will provide:

- Cabling consumables
- Linksys SOHO Integrated Router device
- Post-Secondary (in addition)
- Cisco Catalyst Switches with IOS 12.3 or higher
- Cisco Routers with IOS 12.3 or higher
- Cisco Aironet Access Point
- Suitable computer hardware
- VMWare virtualization software
- Windows Server 2008
- Windows XP Professional SP2 or higher
- Centos 5.2 or higher
- Fedora core 9 or higher

JUDGING CRITERIA

Competitors will be assessed on their ability to complete the above objectives

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

PROJECT DETAIL AVAILABILITY

Specific details of the project design will not be available outside of the competition times. Previous competition projects will not be posted on the web.

TECHNICAL COMMITTEE

- Jackie Reid (Chair) jackie.reid@cna.nl.ca
- Linda Pinsent linda.pinsent@cna.nl.ca
- Shawn Edwards sedwards@pathix.com