

## SCOPE DOCUMENT

<b>Competition Year</b>	2012
<b>Competition Location</b>	RRC – The Roblin Centre (formally Princess campus)
<b>Trade Number</b>	39
<b>Trade Name</b>	IT- Network Systems Administration
<b>Level</b>	Post-Secondary – Maximum number of competitors - 10

### 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. Time

8:00 till 11:00 a.m. and 11:30 till 2:30 p.m.

#### 1.3. Duration of Contest

6 hours

### Skills and Knowledge to be tested

1.4. 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.

- 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
- Prepare hard drives for operating system setup
- Use disk imaging utilities
- Use disk, system, and file management tools
- Produce technical and end-user documentation

### 2.3. 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 using Variable Length Subnet Mask (VLSM) Internet Protocol addressing (IP v4)
- 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

### 3. 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
- Configure, verify and troubleshoot Network Policy and Access Services (NAP)

#### 4. 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

#### 5. Equipment, Material, Clothing

**5.1. Equipment provided by Skills Manitoba**

- Suitable computer hardware and network devices

**5.2. Material provided by Skills Manitoba**

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

**5.3. Equipment and material provided by the competitor**

- Screwdrivers
- Anti-static wrist strap

**5.4. Required clothing (Provided by competitor)**

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

**6. Safety Requirements**

**6.1. No personal protective equipment (PPE) is required**

**7. Assessment**

**7.1. Point Breakdown**

<b>Point Breakdown</b>	<b>/1000</b>
<b>Windows Administration</b>	<b>350</b>
<b>Linux Administration</b>	<b>200</b>
<b>Network Infrastructure</b>	<b>350</b>
<b>Documentation</b>	<b>100</b>

**NATIONAL COMPETITION ELIGIBILITY:**

- A mark of **70% or higher** must be scored by the gold medalist in order to attend the National Skills Competition

## 8. Additional Information

### 8.1. Tie (No ties are allowed)

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

### 8.2. Competition rules

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

## 9. Manitoba Technical Committee Members

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