

Instructions

- You have **2.5 hours** and there are a total of [a handful] tasks in this lab exam.
- You **must** attempt at least **one** VPN option and at least two of the remaining tasks.
- Your chosen option determines the number of additional tasks necessary for full marks.
- Partial marks will be awarded so it's **not** necessary to *complete* all tasks.
- Tasks are designed to be as independent as possible, so you may do the tasks in any order.
- For the short-answer questions, please put your responses directly on this exam paper.

This exam paper must be returned or you will get a score of 0.

Allowed Materials

- Pen, pencil, eraser (Note: **NO** electronic pens/pencils of any kind are permitted.)
- Lab notebook (hard bound, entirely hand-written)

Marking Scheme

**–5%** **Each** hostname that is not correctly set to include your Algonquin network ID (as shown) The weighting is shown for each task; exam scored out of a total of [ ~60 ] marks.

Use this checklist to confirm your progress through the exam process:

1. Setup: \*\*\* <https://LearningServicesLabs.nokia.com/> for **nrsxxx-...** accounts
  - Browse to: \*\*\* <https://training-ottawa1.alcatel-lucent.com> for **src-otte...u1** accounts
  - For the first screen, specify the same service as regular weekly labs: **student**
  - For the second screen, login using the credentials: **@@LOGIN@@**, **@@PSWD@@**
  - IP addresses and login credentials for your routers are given on the next page.
  - Use Putty (with or without the *batch file*) to connect to all 6 routers in the topology.
  - First**, start by configuring the hostnames for all routers; pre-pend your **network ID!**  
ie. **{Alg NetID}-{Device}** (For R1, the Professor would use "ande0001-R1")
2. Configuration Checklist:
  - Did you configure all the hostnames for all routers to include your **network ID??**
  - Choose from the configuration tasks on the following pages. Keep in mind that you need at least **@@@** marks to score a grade of "100%".
  - (Optional) You may call the lab Professor to verify each task once it is complete.
3. Configs automatically saved every ~5 mins  
The Nokia exam facility has battery-backup and does automatic saves every ~5 mins, so little if any work will get lost in the unlikely event of an interruption.

Supplied documentation

- Full topology diagram
- Full set of management IP addresses, and login credentials
- Access to SR OS command reference guides (pdf format; available on USB stick)

## Topology and IP Addressing

( A complete topology diagram is included.

- There are **six** Nokia SR7750 routers which need to be configured by you.
- Some routers act as Provider routers, other routers act as Customer devices
- The routers arrangement is similar to the "standard" topology in the course slide deck
- The IP addressing is pre-configured and mostly follows the standard scheme  
(R1 system IP = 10.10.10.1/32, link R1->R2 = 10.1.2.0/24)
- On multiple routers, OSPFv2 is pre-configured for area 0
- All other configuration is at system defaults
- You need to do **all** additional configuration and possibly modify existing configuration.
- There are connections to **four** additional routers which you can't configure (no password!)

What more is there to know? )

## Router Access Information

Exam Lab: **X** (eg. run the program: **PL-Putty.bat X** )

Router	Management IP
R1	192.168.X.A
R2	192.168.X.B
R3	192.168.X.C
R4	192.168.X.D
R5	192.168.X.E
R6	192.168.X.F

The login for each router is: **XXXXXX** / **XXXXXX** You may use the provided PL-Putty.bat program for auto-login, and use individual logins if you get disconnected from individual routers.

[The instructions include a handful of tasks, each one requiring configuration of one or more routers. When the configuration is complete and successful, there are 1-2 questions to answer which require the use of a suitable "show" commands.]

### Sample Configuration Instructions

Configure ..., as per the topology diagram. Once ... is successfully configured, answer the following questions:

Configure ..., as per the topology diagram. Verify Once ... is successfully configured, answer the following questions:

Prove ... by configuring ... Once everything is successfully configured, answer the following questions:

### Sample Questions for each Task

1. What is ...
2. How many ...
3. Where does .... appear

VERIFY .... ... When you find something not working, remember to try "**no shut**" first!!