# Tutorial 2: Addressing

**Author:** *Dr Imed Romdhani*

**Tutorial outcomes:**

This tutorial aims to review the theoretical aspects of the IPv4 addressing and subnetting schemes for both classful and classless addressing environments.

**Questions**

**Answer briefly the following questions:**

1. What is the main ***drawback of classful addressing***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. Why subnetting cannot deal efficiency with the ***lack of IP addresses***, what is the recommended solution?

………………………………………………………………………………………………………………………………………………………………………………………………

1. Define ***CIDR***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What are the ***advantages*** of ***CIDR***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. How does ***VLSM*** work?

………………………………………………………………………………………………………………………………………………………………………………………………

1. Define what is meant by ***supernetting***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What are the ***advantages of supernetting***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. For which purpose a ***30-bit mask*** could be used?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What ***summarized addresses*** have in common?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What is ***route flapping***? Does it affect route aggregation?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What does ***NAT*** stand for?

………………………………………………………………………………………………………………………………………………………………………………………………

1. How do you ***disable automatic summarisation***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. Explain how does ***NAT work***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. How ***NAT translation*** can occur?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What is ***many-to-one NAT***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What is the main advantage of configuring a serial interface with ***IP unnumbered***?

………………………………………………………………………………………………………………………………………………………………………………………………

1. What is the purpose of ***IP helper addresses***?

………………………………………………………………………………………………………………………………………………………………………………………………

**Scenario for all exercises**

The assignment is the Class C address **192.168.10.0** and it must support the network shown in the diagram. The use of IP unnumbered or NAT is **not permitted** on this network. Create an addressing scheme that meets the requirements shown in the diagram.

**Exercise 1: VLSM**



……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**Exercise 2**

**Objective**

Create an addressing scheme using variable length subnet masking (VLSM).



………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………

**Exercise 3: VLSM**

**Objective**: Create an addressing scheme using VLSM.



……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………...........................................................................................................................................