

Dynamic Routing Protocols in ns-3

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

Karthik Chandrasekhar and Josiga S

Domain: Dr. R. Radha, Dr. X. Anita

& Dr. T. Subbulakshmi

VIT Chennai

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Learning Objectives

In this tutorial, we will learn to



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In this tutorial, we will learn to

- Create a multi-path topology



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- ▶ Create a multi-path topology
- ▶ Schedule down times for links



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In this tutorial, we will learn to

- ▶ Create a multi-path topology
- ▶ Schedule down times for links
- ▶ Implement OSPF dynamic routing



System Requirements

To record this tutorial, I am using



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► **Ubuntu Linux 22.04 OS**



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▶ **ns-3.38**



System Requirements

To record this tutorial, I am using

- ▶ **Ubuntu Linux 22.04 OS**
- ▶ **ns-3.38**
- ▶ **NetAnim visualizer tool**



Pre-requisites

To follow this tutorial



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To follow this tutorial

- ▶ You must have basic knowledge of Linux and ns-3



Pre-requisites

To follow this tutorial

- ▶ You must have basic knowledge of Linux and ns-3
- ▶ For pre-requisite Linux and ns-3 tutorials, please visit <https://www.spoken-tutorial.org/>



Code Files

- The files used in this tutorial are provided in the Code files link



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- ▶ Please download and extract the files



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- ▶ Please download and extract the files
- ▶ Make a copy and then use them while practicing



What is OSPF Routing?

- **Open Shortest Path First (OSPF)**
is a link state routing protocol

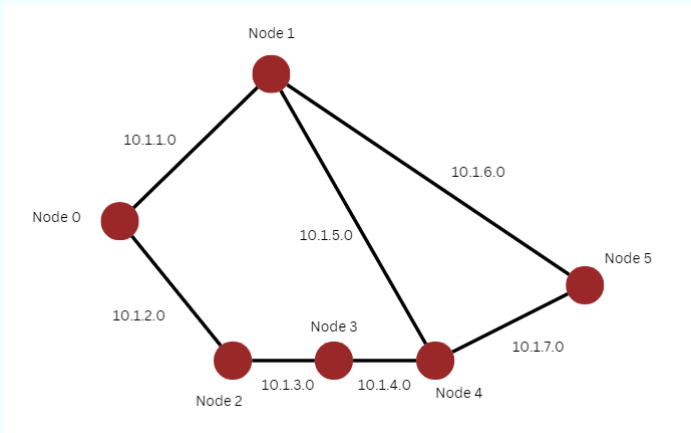


What is OSPF Routing?

- ▶ **Open Shortest Path First (OSPF)** is a link state routing protocol
- ▶ **It determines the shortest path between the source and the destination**



Topology



Summary

In this tutorial, we have learnt to

- ▶ Create a multi-path topology
- ▶ Schedule down times for links
- ▶ Implement OSPF dynamic routing



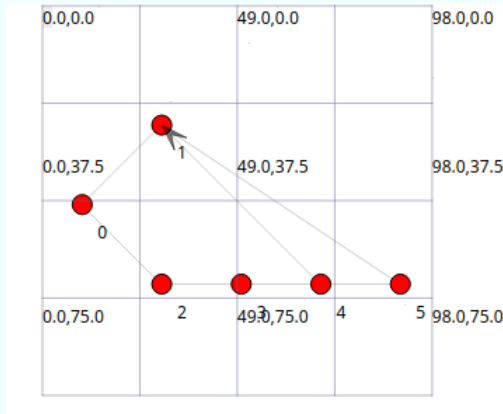
Assignment

As an assignment, please do the following

- ▶ **Modify the code for this tutorial**
- ▶ **Make the link between node 1 and node 4 down at 5 seconds**
- ▶ **Generate an XML file for animation**



Assignment - Observation



About the Spoken Tutorial Project

- ▶ Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- ▶ It summarises the Spoken Tutorial project
- ▶ If you do not have good bandwidth, you can download and watch it



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Answers for THIS spoken tutorial

- ▶ Questions in THIS Spoken Tutorial?
- ▶ Visit <https://forums.spoken-tutorial.org>
- ▶ Choose the minute and second where you have the question
- ▶ Explain your question briefly
- ▶ The Spoken Tutorial project will ensure an answer
- ▶ You will have to register to ask questions



- For any general or technical questions on ns-3, visit the FOSSEE forum and post your question

<https://forums.fossee.in/>



Acknowledgement

- ▶ **Spoken Tutorial Project was established by the Ministry of Education, Government of India.**



Acknowledgement

- ▶ We thank Dr.Moyukh Laha from IIT Kharagpur for his domain support
- ▶ We would also like to thank Dr. R. Radha, Dr. X. Anita, and Dr. T. Subbulakshmi from VIT, Chennai for their support



Thank you

- ▶ This is Josiga, a FOSSEE Summer fellow 2023, IIT Bombay signing off

