KAKATIYA INSTITUTE OF TECHNOLOGY & SCIENCE

Warangal – 506 015, Telangana, INDIA (An AUTONOMOUS INSTITUTE under Kakatiya University, Warangal)

काकतीय प्रौद्योगिकी एवं विज्ञान संस्थान वरंगल – ५०६०१५.

Estd-1980

KITSW

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Networking Academy

CCNA-RS COURSE OUTLINE

CCNA-RS course has 2 modules. Module-1 is "**Introduction to Networks** (ITN)" and Module-2 is "**Routing & Switching Essentials** (RSE)".

MODULE-1:

Introduction to Networks Course Outline

Table 1. Introduction to Networks Course Outlines

Chapter	Introduction to Networks
1	Explore the Network
2	Configure a Network Operating System
3	Network Protocols and Communications
4	Network Access
5	Ethernet
6	Network Layer
7	IP Addressing
8	Subnetting IP Networks
9	Transport Layer
10	Application Layer
11	Build a Small Network

MODULE-2:

Routing & Switching Essentials Course Outline

Table 1. Routing & Switching Essentials Course Outlines

Chapter	Routing and Switching Essentials
1	Routing Concepts
2	Static Routing
3	Dynamic Routing
4	Switched Networks
5	Switch Configuration
6	VLANs
7	Access Control Lists
8	DHCP
9	NAT for IPv4
10	Device Discovery, Management, and Maintenance

CCNA-RS COURSE OUTCOMES

MODULE-1: Introduction to Networks (ITN)

CCNA R&S: Introduction to Networks (ITN) covers networking architecture, structure, and functions. The course introduces the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations to provide a foundation for the curriculum.

By the end of the course, students will be able to:

- Explain network technologies.
- Explain how devices access local and remote network resources.
- Describe router hardware.
- Explain how switching operates in a small to medium-sized business network.
- Design an IP addressing scheme to provide network connectivity for a small to medium-sized business network.
- Configure initial settings on a network device.
- Implement basic network connectivity between devices.
- Configure monitoring tools available for small to medium-sized business networks.

MODULE-2: Routing & Switching Essentials (RSE)

CCNA R&S: Routing and Switching Essentials (RSE) covers the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality.

By the end of the course, students will be able to:

- Determine how a router will forward traffic based on the contents of a routing table.
- Explain how switching operates in a small to medium-sized business network.
- Use monitoring tools and network management protocols to troubleshoot data networks.
- Configure monitoring tools available for small to medium-sized business networks.
- Configure initial settings on a network device.
- Configure Ethernet switch ports.
- Implement VLANs.
- Implement static routing.
- Implement DHCP on a router.
- Implement network address translation (NAT).
- Implement access control lists (ACLs) to filter traffic.

Certification and Careers

The CCNA Routing & Switching curriculum helps students develop workforce readiness skills and builds a foundation for success in networking-related careers and degree programs.

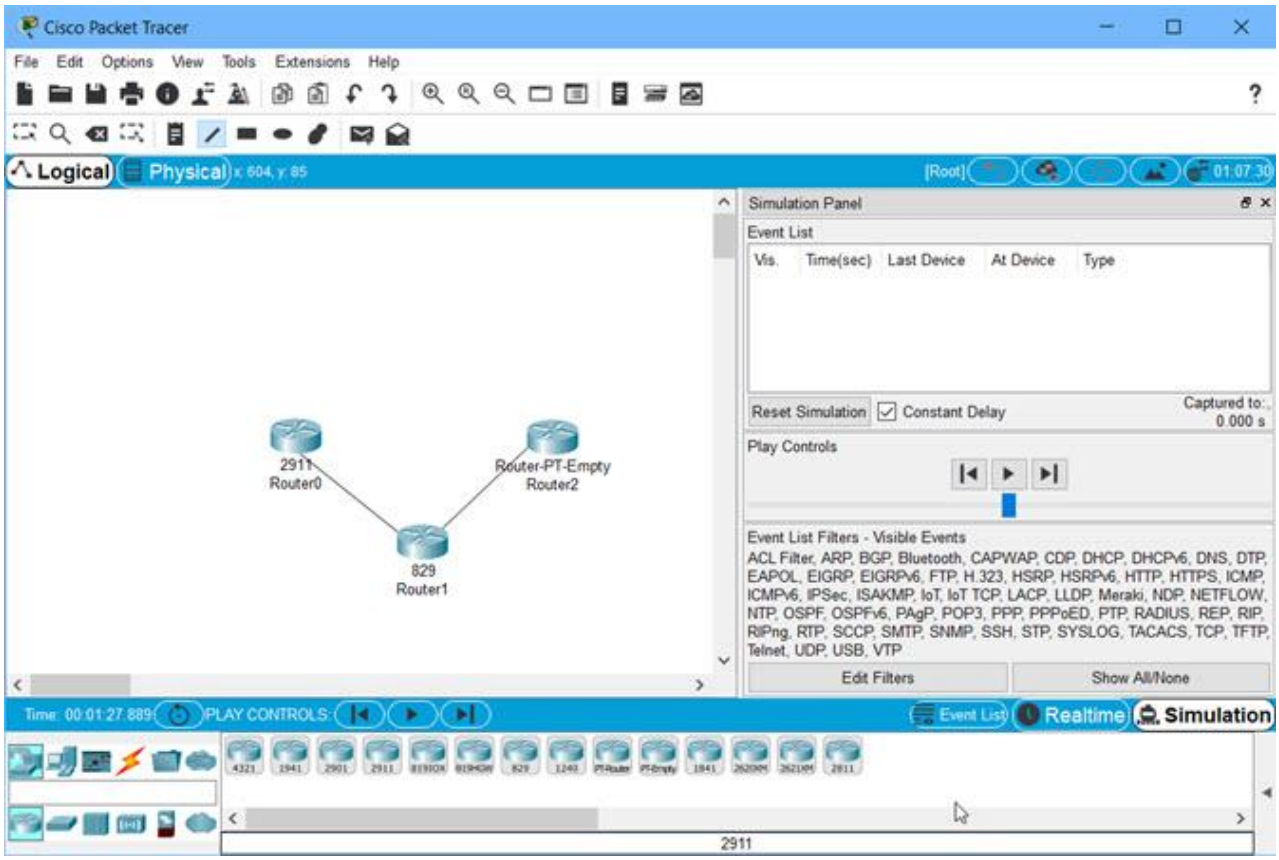
CISCO PACKET TRACER

Overview

Packet Tracer is an innovative network configuration simulation and visualization tool used for activities and assessment in many Cisco Networking Academy courses:

The benefits of using Packet Tracer include:

- Supplement classroom equipment with realistic simulations and visualize internal processes in real-time
- Multiuser, real-time collaboration and competition for dynamic learning
- Authoring and localization of structured learning activities such as labs, demonstrations, quizzes, exams, and games
- Students explore concepts, conduct experiments, and test their understanding of network building
- Design, build, configure, and troubleshoot complex networks using virtual equipment
- Can be used for lectures, group and individual labs, homework, games, and competitions
- Supports feature expansion through external applications using an API



CISCO PACKET TRACER : SIMULATION & VISUALIZATION TOOL

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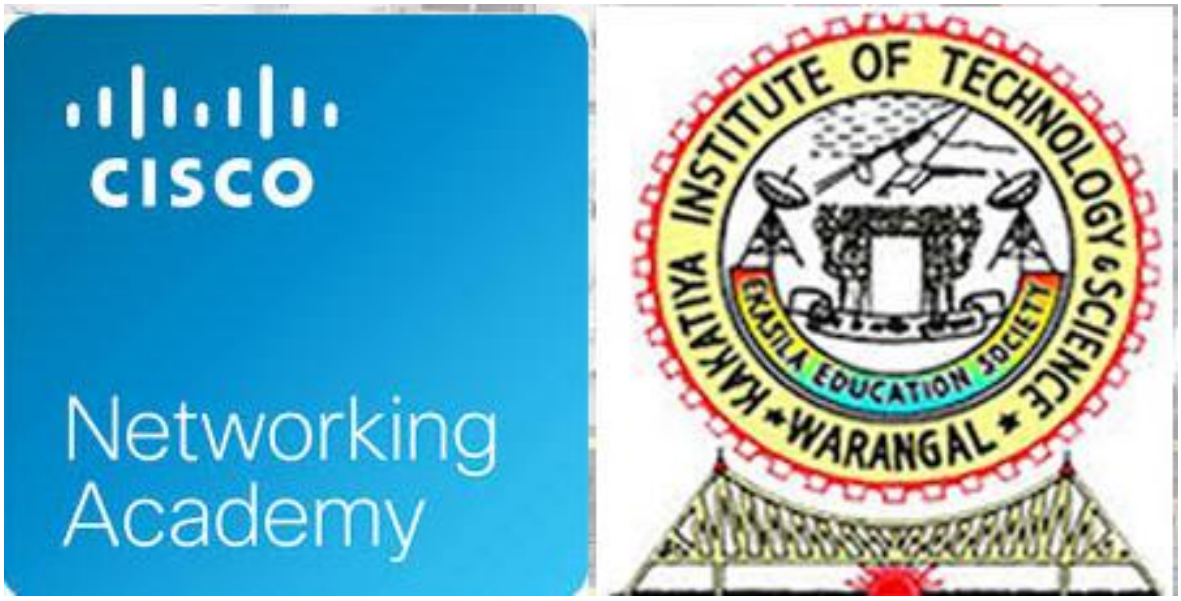
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