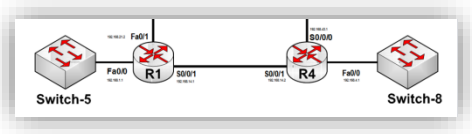
TECHNICAL TRAINING

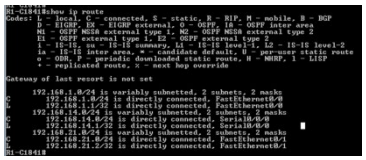
Basic Networking and IP Routing

TRN-NETWORK-IP-A/B/C

Course Specifics

Duration	5 days
Class Capacity	8 students
Materials provided	Instruction and user Manuals (USB) Student Handbook (e-Book) Datasheets (USB)





Course Description

Building a strong foundation of basic networking, switching, and routing concepts is key to a successful career in the converged microwave and IP routing technology space. Aviat customers who have expertise in microwave and RF technology now have a course that can get them up to speed on IP technologies.

The Basic Networking and IP Routing instructor-led course will take the student step-by-step through basics of networking, explaining functions of hubs, switches, VLANs, routers and related protocols and standards. Students will be able to engage in performing basic networking configuration and troubleshooting tasks with a new level of confidence.

The course covers fundamental concepts in the Ethernet/IP space such as IP addressing, subnetting, VLANs, switching and routing. Additionally, static routing and dynamic routing protocols commonly used in TCP/IP networking environments such as RIP and OSPF will be covered.

Detailed hands-on scenarios on how to configure and troubleshoot switching and routing platforms for each of the protocols will be part of the curriculum. Extensive hands-on labs (nearly 60-70% of the course duration) offer students with scenarios they will face in real deployments in their networks.

Courses are conducted by AVIAT expert trainers in a mentoring environment backed by their deep technology expertise and experience in implementation of microwave wireless and IP networks.

The **Basic Networking and IP Routing** course is conducted at Aviat Training locations or can be arranged at customer sites.

Target Audience

Courses are intended for those who want to gain knowledge of technologies in today's TCP/IP based networking environments and further their career prospects in the converged Microwave and IP routing space.

Objectives

Upon successfully completing this course, participants will be able to:

- Understand basic networking concepts involved in Ethernet networks, VLANs in a switching environment.
- Configure static routing, dynamic routing protocols such as RIP and OSPF.
- Understand IP addressing, subnetting and VLANs.
- Install, configure and troubleshoot switching and routing networking environments.
- Learn how to leverage the Aviat support site and knowledge base for ongoing help.

Prerequisites

1. Students must demonstrate prior completion of the **recommended eLearning before attending this course**. An attendance record from the prescribed eLearning courses such as the certification of completion will be requested during the registration process.
2. Participants must have an understanding of the binary and hexadecimal numbering systems and have basic computer skills. Additional recommendations for reading on these topics can be provided on request.
3. Each student must bring an IBM compatible laptop PC or an equivalent and have administrator rights on the PC.
   The PC must have minimum parameters of:
   - Intel i5 or later w/ 8GB of RAM and 250 Mb of free hard drive space
   - USB Port
   - USB to Serial adaptor (if no serial port on the PC)
   - Ethernet 10Base-T LAN port with RJ-45 connector for local Ethernet connection
   - 800x600 resolution, 256 color display (16-bit color)
   - Microsoft Windows XP, Vista, or Windows 7
   - TCP/IP installed and configured for LAN operation
   - Web browser (Google Chrome recommended)

Course Outline

Note: Topics may be added or changed based on ongoing improvements to this course content.

- Basic Networking Concepts
  - OSI model
  - Unicast, Multicast, Broadcast
  - Basics of layers and protocols
- Physical layer
  - How Ethernet works
  - Collisions and CSMA/CD protocol
  - Logical and physical topologies
- Data Link layer
  - Solving the collision domain problem
  - Resolving bridge loops
  - Spanning tree protocol
  - Selection of root bridge
  - Solving the collision domain problem
  - Resolving bridge loops
- Network Layer
  - How do IP hosts communicate?
  - Address Resolution Protocol (ARP)
  - IP Addressing
  - IP Sub-netting
- Layers 4-7 and applications
  - TCP and UDP
  - DNS, DHCP, ICMP
  - Session layer
  - Presentation layer
  - Application layer
- Switching and VLANs
  - VLAN design
  - Configuring VLANs
  - Trunking

  - Managing broadcast domains
- When and how to use Network Address Translation (NAT)
- Routing Protocols
  - Static and Dynamic routing
  - RIP
  - OSPF
- Troubleshooting switching and routing networks

Required Equipment for Training Sessions at Customer Sites

Classroom Setup

Sufficient in size to handle all participants, instructor, desks, chairs, classroom equipment. The room must have enough 110 AC (220) AC power and air conditioning to operate equipment, all students clients PC's and the server or radio as required.

Classroom Equipment

- Marker board, SVGA or Overhead projector and screen.

Desk and Chairs

- Desks or workstations with enough room for each student to write have open books, client PC and/or, keyboard and monitor.

Internet Access

- Internet access through the server or through client PC.

Pricing & Scheduling

Please contact your Aviat local sales team for a quote or email aviatcareeducate@aviatnet.com and request pricing for the following items:

TRN-NETWORK-IP-A	BASIC NETWORKING AND IP ROUTING - ILT, 5 DAYS, AVIAT TRAINING CENTER - OPEN ENROLLMENT -PER STUDENT
TRN-NETWORK-IP-B	BASIC NETWORKING AND IP ROUTING - ILT, 5 DAYS, AVIAT TRAINING CENTER- 10 STUDENTS MAX
TRN-NETWORK-IP-C	BASIC NETWORKING AND IP ROUTING - ILT, 5 DAYS, CUSTOMER LOCATION- 10 STUDENTS MAX
TRN-NETWORK-IP-E	BASIC NETWORKING AND IP ROUTING - ELEARNING