

Networking

You have heard all of these networking terms before: TCP/IP, VPN, sockets, SSL, frame relay, NAT, IPv6, routers, Ethernet, fiber channel, DSL, ISPs and many more. This course of study will provide sessions that cover these subjects from introductory sessions to advanced configuration sessions and labs. If you want to learn how a network works from the physical layer all the way up to the top of the application network interface layer, these sessions are for you.

Introduction to TCP/IP	
22MC: Mon 9:30 - 10:45, Cheekwood A/B, Opryland Hotel	
ID:402985	
Level: Intermediate	TCP/IP is the protocol of the past, present, and future of network computing. With its basis as the access mechanism to the Internet, everyone needs to understand the fundamentals of TCP/IP.
Course: Networking	
Speaker: Kevin Mort Arrow Electronics - Support Net Division	In this session, attendees will learn: <ol style="list-style-type: none">1. The TCP/IP protocol architecture and how it has evolved.2. The background required to understand the basics of TCP/IP.3. How TCP/IP works in layers, and what each layer does.4. Some of the strengths of TCP/IP.5. The core components and how vendors have enhanced these to fit within existing environments.6. The new elements Internet networking brings to the table.

Introduction to TCP/IP Sockets Programming	
23GA: Mon 11 - 12:15, Governor's Ballroom A, Opryland Hotel	
ID:402218	
Level: Intermediate	Now that you have your TCP/ IP network all set up and the basic applications such as TELNET and FTP running, you need to consider providing applications that are specialized to your business's networked environment. This means that you need to do some sockets programming. How do you do that?
Course: Networking	
Speaker: Kent Bruinsma IBM Corporation	This session will start with an overview of i5/OS sockets, and then teach you: <ol style="list-style-type: none">1. What an address family is and which ones are supported.2. The basics of i5/OS sockets programming - including code examples (in C, RPG, and Java) that can be used as building blocks for your sockets application.

V6R1: What's New for i5/OS TCP/IP and SNA Networking	
22GA: Mon 9:30 - 10:45, Governor's Ballroom A, Opryland Hotel	
ID:500122	
Level: All	This session will provide an overview of the major networking enhancements that are available in i5/OS V6R1. Please plan to attend this session to find out how these various networking enhancements can help improve your networking environment. Topics will include enhancements for TCP/IP networking such as IPv6, Open Shortest Path First (OSPF) routing protocol, DNS Bind 9, security enhancements to SMTP/POP, FTP enhancements, as well as improvements to the starting and ending of TCP/IP and the TCP/IP system jobs.
Course: Networking	
Speaker: Kent Bruinsma IBM Corporation	

TCP/IP Troubleshooting Tools and Techniques	
25CA: Mon 2 - 3:15, Canal A, Opryland Hotel	
ID:420047	
Level: Intermediate	This session will cover network troubleshooting tools and techniques. We will focus on classifying network problems in order to determine what tools to use to troubleshoot them. We will look at some general tools of the trade like ping, traceroute, pchar, and sniffers . Attendees should have a good understanding of network management practices and the importance of constructing network baselines to aid in identifying network problems.
Course: Networking	
Speaker: Laura J. Knapp IBM Corporation	By the end of this session, attendees will be able to: <ol style="list-style-type: none">1. Understand the tools for troubleshooting networks.2. Determine the critical techniques to allow effective network problem resolution.3. Implement successful tools and techniques in your organization.

Tips and Techniques for Optimizing TCP/IP Throughput

31MF: Tue 8 - 9:15, Cheekwood G, Opryland Hotel

ID:510055

Level:
All

Course:
Networking

Speaker:
Kent
Bruinsma
IBM Corporation

This session will provide information about how to optimize throughput for TCP/IP connections. Proper TCP/IP configuration settings on i5/OS and in the network are necessary and need to be consistent. A discussion of what types of traces to capture and how to capture them will also be discussed. Finally, information will be provided on how to design and develop a socket application so that optimal performance and throughput can be obtained.

Mobile Computing & Bar Coding Technology

31MC: Tue 8 - 9:15, Cheekwood A/B, Opryland Hotel

ID:520005

Level:
All

Course:
Networking

Speaker:
Marc R.
Doyon
Quatred, LLC

There are many innovations in Mobile Computing and Bar Coding technology that may be used to implement an integrated solution for your i5/OS applications. This session will discuss various deployment scenarios for Mobile Computing and the do's and don'ts of bar coding.

This session will cover:

1. The basics of mobile computing technology.
2. Communications architecture and i5/OS connectivity options.
3. How to successfully implement bar coding.
4. RFID.

IP Addressing, Routing and i5/OS IP Configuration

32CB: Tue 9:30 - 12:15, Canal B, Opryland Hotel

ID:490010

Level:
Advanced

Course:
Networking

Speaker:
Larry Bolhuis
Arbor Solutions,
Inc.

In this session we will explain IP addresses, why they are needed, how they are formed and used. Next we will discuss IP routing and how that works. In the second half of the session we will discuss configuring IP on i5/OS. We will discuss virtual IP addresses, load balancing and routing. Finally we will discuss some of the TCP/IP servers that run in i5/OS such as everyone's favorite QZDASOINIT and how to make it behave.

By the end of this session, attendees will know:

1. What IP Addresses are; how they are formed and used.
2. How IP Routing works.
3. How to configure IP in i5/OS, including virtual IP.
4. How to take advantage of Load Balancing and Network Redundancy.

V6R1: IPv6 Support in i5/OS

32MF: Tue 9:30 - 10:45, Cheekwood G, Opryland Hotel

ID:500010

Level:
Beginner

Course:
Networking

Speaker:
Christy
Norman
IBM Corporation

The IP addresses that we all know and love are running out. The migration to the next generation of the Internet Protocol (IPv6) has already begun! What is IPv6 and why should you care? Come find out.

By the end of this session, attendees will know:

1. What the key differences are between IPv4 and IPv6.
2. Potential business reasons for migrating.
3. How to configure IPv6 on i5/OS and still support IPv4.
3. How to update socket applications to support IPv6.

V6R1: i5/OS Network Security

33MF: Tue 11 - 12:15, Cheekwood G, Opryland Hotel

ID:470080

Level:
All

Course:
Networking

Speaker:
Tim
Mullenbach
IBM Corporation

Does your i5/OS partition have a network interface card with a cable plugged into it? You bet it does. That means protecting your i5/OS partition from the other end of that cable is important. This session will focus on native i5/OS capabilities that can be used as a last line of defense regardless of where i5/OS is positioned in the network.

Among other things, this session will explain:

1. Packet Filtering
2. Intrusion Detection
3. Port Restrictions
4. SOCKS

RFID Security Concerns: Fact & Fiction

33MA: Tue 11 - 12:15, Hermitage A, Opryland Hotel

ID:540036

Level:
All

Course:
Networking

Speaker:
Marc R.
Doyon
Quatred, LLC

Have you heard about Spy Chips that provide strangers x-ray vision powers to spy on you and to identify both you and the things you're wearing and carrying? How about strangers being able to read your credit card information off your credit card in your wallet or your passport in your brief case? As a result of these types of stories, privacy is becoming a critical concern for RFID consumers as well as RFID integration specialists.

The primary objective of this session is to provide you with a clear understanding of RFID security concerns, help you distinguish fact from fiction, and discuss state-of-the-art solutions being deployed to help alleviate RFID security issues.

i5/OS VPN Technologies and Solutions

35MG: Tue 2 - 3:15, Cheekwood H, Opryland Hotel

ID:404135

Level:
Intermediate

Course:
Networking

Speaker:
Fant Steele
IBM Corporation

What are VPNs? Virtual Private Networks (VPNs) can be effective in extending the reach of your networks in a secure manner. The session will cover the VPN technologies natively supported on the iSeries, how the IP Security Protocol (IPsec) coexists with Network Address Translation (NAT) and the latest technology developments in the VPN area.

By the end of this session, attendees will understand:

1. The technologies of VPNs (IKE and IPsec).
2. How access control and address translation affect VPNs.
3. How VPNs can be extended to work with firewalls (UDP encapsulation and NAT traversal).
4. How to configure and use these technologies on i5/OS.
5. What's new in V5R4 and what are the latest emerging VPN technologies.

Troubleshooting TCP/IP on i5/OS

36MG: Tue 3:30 - 4:45, Cheekwood H, Opryland Hotel

ID:430029

Level:
Intermediate

Course:
Networking

Speaker:
Christy
Norman
IBM Corporation

If you have difficulty diagnosing TCP/IP problems, this session is for you! This session will elaborate on TCP/IP basics in order to further your understanding of what could really be going on in your network. Primarily, it will cover where to look for messages, TCP/IP related jobs and how to sort through job logs, running various types of traces (and when to use which), the use of i5/OS TCP/IP utilities such as Ping, Traceroute and the extensive Netstat screens.

Intermediate TCP/IP Sockets Programming

37MG: Tue 5 - 6:15, Cheekwood H, Opryland Hotel

ID:450042

Level:
Intermediate

Course:
Networking

Speaker:
Tim Mullenbach
IBM Corporation

Now that you understand basic TCP/IP programming concepts, what else can you do? In this session learn how to develop complex socket applications that are capable of handling connections/ data arriving from multiple clients and that make efficient use of system resources. Applications that utilize non-blocking, multi-threaded programming, and asynchronous I/O techniques to obtain optimum performance and throughput. Example programs that illustrate each of these advanced topics will be provided.

RFID Technology System i Connectivity & Integration

37CE: Tue 5 - 6:15, Canal E, Opryland Hotel

ID:480073

Level:
Beginner

Course:
Networking

Speaker:
Marc R. Doyon
Quatred, LLC

This session breaks down all the pieces of the RFID puzzle to help you understand how to select, build, and deploy a complete RFID solution. A real life example of a Wal-Mart top 100 supplier, plus several other implementations will be discussed in detail. The speaker will share many real life examples and lessons learned with those attending.

By the end of this session, attendees will understand:

1. The components of an RFID solution.
2. Where RFID works and where it does not.
3. Some challenges associated with implementing RFID.

V6R1: Secure Sockets Layer (SSL) on i5/OS

41AD: Wed 8 - 9:15, Delta Ballroom C, Opryland Hotel

ID:403278

Level:
Intermediate

Course:
Networking

Speaker:
Tim Mullenbach
IBM Corporation

A must session if Secure Sockets Layer (SSL) is used on your system. V6R1 contains the most significant changes in System SSL in five releases and the changes impact all existing System SSL users. What is System SSL? System SSL will be described in detail, but in short it is the SSL implementation used by most applications running on i5/OS. This is not a programming class however concepts critical for making sound application designs are explained. This should be of great interest to programmers and administrators alike regardless of what release you are on.

In this session, you will learn:

1. What is System SSL and what is not System SSL.
2. How to use the SSL System Values introduced in V6R1.
3. Unique SSL concepts on i5/OS:
 - a) Digital Certificate Manager - Application IDs etc.
 - b) Secure Java flavors (more than you can count!)
 - c) Hardware card support

OPEN LAB: V6R1: i5/OS TCP/IP

43LC: Wed 11 - 12:15, Bayou E, Opryland Hotel

44LC: Wed 12:30 - 1:45, Bayou E, Opryland Hotel

ID:403139

Level:
All

Course:
Networking

Speakers:
Christy Norman
IBM Corporation
Tim Mullenbach
IBM Corporation

Attendees may choose from these lab exercises:

1. How to do basic TCP/IP configuration in i5/OS.
2. Introduction to IPv6 and how to configure an IPv6 interface.
3. How to configure a Virtual IPv4 and/or IPv6 interfaces and use them for fault tolerance.
4. How to view active TCP/IP interfaces, routes, and connections.
5. A way to see if another system is active on the network.
6. How to use TELNET, FTP, and LPD/LPR.

This open lab contains the following modules:

1. TCP/IP Configurations (520297)
2. TCP/IP Utilities (520298)
3. PC to i5/OS (520299)

OPEN LAB: Advanced TCP/IP Server Configuration

43LC: Wed 11 - 12:15, Bayou E, Opryland Hotel

44LC: Wed 12:30 - 1:45, Bayou E, Opryland Hotel

ID:404084

Level:
Advanced

This advanced lab is best suited for those having some basic understanding of TCP/IP and communications.

Course:
Networking

The following modules are offered during this work-at-your-own-pace open lab:

Speakers:
Kent
Bruinsma
IBM Corporation
Christy
Norman
IBM Corporation

1. Dynamic Host Configuration Protocol (520252)
2. Domain Name System (520253)
3. IP Routing (520254)
4. IP Network Address Translation (520255)
5. IP Filtering (520256)
6. Intrusion Detection System (520257)

OPEN LAB: TCP/IP Sockets Programming

43LC: Wed 11 - 12:15, Bayou E, Opryland Hotel

44LC: Wed 12:30 - 1:45, Bayou E, Opryland Hotel

ID:450043

Level:
Intermediate

This is a work-at-your-own-pace open lab.

Course:
Networking

Are you currently an i5/OS programmer who would like to try writing programs that communicate across a network? This open lab will allow you to do just that. Most of the exercises will be provided in C, but some will be provided for RPG and Java as well. These examples will allow you to write a client/server application, secure it with SSL, and even convert it to additionally support an IPv6 network.

Speakers:
Tim
Mullenbach
IBM Corporation
Kent
Bruinsma
IBM Corporation

It is suggested that you attend the Intro to TCP/IP Sockets Programming (402218) class prior to this class or have a high level understanding of C programming and the sockets programming interfaces.

This open lab contains the following modules:

1. Develop a simple TCP/ IP sockets application (520300)
2. Develop a simple SSL sockets application (520301)
3. Develop a simple IPv6 sockets application (520302)

OPEN LAB: V6R1: Playing with VPNs

43LC: Wed 11 - 12:15, Bayou E, Opryland Hotel

44LC: Wed 12:30 - 1:45, Bayou E, Opryland Hotel

ID:490005

Level:
Advanced

This is a work-at-your-own-pace open lab.

Course:
Networking

Virtual Private Networks (VPN) are a frequently-used networking technology. They were first introduced on the System i in V4R4. With a globally-dispersed work force and a growing demand for flexible work locations, companies are asking: How can we best exploit the Internet for our business?

Speaker:
Fant Steele
IBM Corporation

This LAB is intended to introduce those who have some TCP/ IP and communications experience to two key VPN customer scenarios. These are: branch office connections, and remote user connections. Each team will have hands-on configurations exercises, of both Windows and i5/OS.

This open lab contains the following modules:

1. Configure and use a remote user VPN (520247)
2. Configure and use a Branch Office VPN. (520248)
3. Digital certificates to verify VPN partners. (520249)

COOL SESSION: Voice on My i, Tell Me More!!

43GD: Wed 11 - 12:15, Governor's Chamber C, Opryland Hotel

ID:520196

Level:
All

Find out why the System i is a great solution for integrating telephony and data. Learn how The Fashion Institute of Design & Merchandising (FIDM) moved from traditional telephone switches on an ATM network to telephony on the System i using an MPLS network. Roxanne will share with you why FIDM chose the IBM/3com solution, the business justification for the decision, and the process of implementation.

Course:
Developing
Business Skills

Speaker:
Roxanne
Reynolds-Lair
Fashion Institute of
Design & Merch

She will outline the challenges faced and the obstacles overcome for a successful deployment of 6 locations on the same weekend. Roxanne will also address future plans for integration with data applications. Members of the FIDM IT team will be on hand to answer questions.

Wireless Switches and Mobile Management

44GG: Wed 12:30 - 1:45, Governor's Ballroom D, Opryland Hotel

ID:408190

Level:
Beginner

Course:
Networking

Speaker:
Marc R. Doyon
Quatred, LLC

This session breaks down all the pieces of a wireless switch infrastructure and helps you understand how to select, build, and deploy a complete wireless backbone. Mobile Management dilemmas and solutions will also be discussed. An actual wireless network will be deployed and studied.

In this session, attendees will learn:

1. About wireless switch and mobile management solutions.
2. The benefits of utilizing a wireless switch infrastructure.
3. The various components of a wireless infrastructure/mobile management.

FTP Techniques & Tools

46CC: Wed 3:30 - 4:45, Canal C, Opryland Hotel

ID:470057

Level:
All

Course:
Networking

Speaker:
Drew Dekreon

This session addresses techniques for making the most of the FTP client on the system: creating scripts; adding notes to results; evaluating success of transfers; how to create a dynamic script for file transfers using sample programs included in the handouts; and how to troubleshoot common network problems associated with FTP.

By the end of this session, attendees will be able to:

1. Describe the network interactions related to FTP.
2. Manage FTP transfer scripts.
3. Programmatically handle results of transfers.
4. Use FTP scripts with substitutable values.

Fault Tolerant Networking in i5/OS

46GC: Wed 3:30 - 4:45, Governor's Chamber D, Opryland Hotel

ID:500215

Level:
All

Course:
Networking

Speaker:
Christy Norman
IBM Corporation

In today's high-volume networking environments, even the briefest periods of downtime can be costly. Whether your network experiences downtime due to unexpected device failure or periodic maintenance, there is a way to greatly limit outages using Virtual IP Addresses (VIPAs) and load-balancing. Unlike traditional IP addresses, these IP addresses can "float" from one adapter to another, enabling immense flexibility and transparent failover in a potentially disastrous situation. Load-balancing can be leveraged using multiple adapters.

This session will cover VIPAs, their underlying functionality, various uses and benefits, as well as simple setup and examples. We'll also touch on how to maximize adapter functionality with advanced routing techniques.

Understanding IP Version 6

47CC: Wed 5 - 6:15, Canal C, Opryland Hotel

ID:402998

Level:
Intermediate

Course:
Networking

Speaker:
Laura J. Knapp
IBM Corporation

Learn about features introduced with the new standard for TCP/IP: IPv6. Examine issues related to addressing, security, reliability, and multicasting with IPv6. Discover how to integrate IPv6 into your existing IPv4 networks, coming away with a clear understanding of tunneling and other integration technologies.

Setting up an 802.11 WiFi Network

51GC: Thu 8 - 9:15, Governor's Chamber D, Opryland Hotel

ID:470053

Level:
Beginner

Course:
Networking

Speaker:
Laura J. Knapp
IBM Corporation

This session will cover the technology and practical considerations for setting up a WiFi (802.11) network in a home or small business. WiFi provides a great opportunity to improve the connectivity of your users. There are a number of considerations, particularly related to security, that have to be considered.

By the end of this session, attendees will be able to:

1. Understand 802.11 technology.
2. Understand how to secure a WiFi network.
3. Understand the options available.

Why Can't I Connect to the Wireless Network? A Practical Exploration of the Technologies

52GC: Thu 9:30 - 10:45, Governor's Chamber D, Opryland Hotel

ID:480101

Level:
Advanced

Course:
Networking

Speaker:
Laura J.
Knapp
IBM Corporation

Wireless Local Area Networks (WLANs) are an accepted part of our business and daily lives. When they work and we can connect they provide unparalleled freedom while allowing us to stay in touch. But what about the times when you cannot connect and others appear to have no problems getting in? This session explores the overall wireless world and explains the technology and why you might be having problems in getting a stable connection!

SNA for the 21st Century - Implementing Enterprise Extender

52MC: Thu 9:30 - 10:45, Cheekwood A/B, Opryland Hotel

ID:540202

Level:
All

Course:
Networking

Speaker:
Fant Steele
IBM Corporation

While i5/OS will continue to support SNA, the new I/O adapters will support TCP/IP only. This session will review the considerations you should use when evaluating the impact of this on your environment and present the options available to you. This may include moving away from SNA or simply planning for the use of the Enterprise Extender product to continue with SNA. We will also cover the considerations involved if you decide to move away from SNA. The steps required to move existing SNA connections to Enterprise Extender will be covered.

Securing a Wireless LAN

53GC: Thu 11 - 12:15, Governor's Chamber D, Opryland Hotel

ID:420041

Level:
Intermediate

Course:
Networking

Speaker:
Laura J.
Knapp
IBM Corporation

Wireless LANs offer a whole new security challenge at the office. This session will review some of the vulnerabilities you face as you move off the wire, and what security solutions you can implement to solve them.

Another challenge we face is combination of wireless LANs and always on connections at home, plus the use of telecommuting by companies large and small. This combination of technologies means that security needs to be a major consideration, not just at home, but for the office access as well. Come explore the potential vulnerabilities that implementing a telecommuting rollout can produce and more importantly find ways to deal with these vulnerabilities.

By the end of this session, attendees will be able to:

1. Understand wireless LAN security options today.
2. Describe the limitations of the existing options.
3. Evaluate emerging solutions to provide better security.