

ERS 8600

Configuration and Operation

Administrators concerned with the operation or design of networks on the basis of ERS 8600 switches (marketed under the designation Passport 8600 in earlier times) can draw on a multitude of protocols and features to increase efficiency. To use them in an optimal manner, expertise in the handling of management tools and a well-based knowledge of protocol processes are imperative features. For efficient troubleshooting, ERS 8600 offers an easy-to-overview, graphics-orientated management interface with the Device Manager. The course gives the student a practice-orientated insight into the current switching technology and into the most important routing protocols. Moreover, it enables the students to configure these protocols in an actual network on the basis of ERS 8600 and to perform troubleshooting. A particular focus will be on the Device Manager.

Course Contents

- Ethernet as a LAN Technology
- Network Design under Consideration of the VLAN Structure
- Transparent Bridging and Spanning Tree
- Inter-VLAN Routing
- The Routing Protocols OSPF and BGP-4
- Hardware of the ERS 8600
- Management with the Device Manager and the Command Line Interface
- Troubleshooting in Switched Networks
- Configuration and Troubleshooting with the Management Tools
- Comprehensive Hands-On Exercises in an ERS-8600 Test Network
- Detailed Table of Contents

Detailed Table of Content

In this course, each participant will receive the comprehensive ExperTeach course documentation in English language.

Target Group

This course is tailor-made for network designers and administrators. In addition to imparting the background know-how about important technologies and protocols, the course focuses on the configuration and troubleshooting with the management tools of the ERS 8600.

Knowledge Prerequisites

For a successful participation in the course, knowledge on the sectors Ethernet and Internetworking is recommendable. This know-how is imparted, for instance, in the "Ethernet, Switching, and Routing" course.

Nortel Networks

Reservation and Registration

We will be glad to make a free and non-binding course reservation for you for the duration of two weeks. On www.experteach.de under *Registration*, you can conveniently make course reservations, registrations, and hotel reservations. Alternatively, call us under +49 6074 4868-0.

For closed groups of participants, we can modify the course contents according to your requirements. Do not hesitate to contact us!



5 days

€2,495 exclusive of V.A.T.

Course date (mm/dd/yy)/Location

09/13-09/17/10 Frankfurt 11/08-11/12/10 München

Up-to-date information: www.experteach-training.com PP8K



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<p>1 The Ethernet Routing Switch 8600</p> <p>1.1 Hardware of the ERS 8600</p> <p>1.1.1 Processor Card for the ERS 8600</p> <p>1.2 Modules for the ERS 8600</p> <p>1.2.1 The ATM Module 8672ATME</p> <p>1.3 Redundant Hardware Configuration</p> <p>2 Management in Switched Networks</p> <p>2.1 Management Tools for the ERS 8600</p> <p>2.1.1 The Command Line Interface (CLI)</p> <p>2.1.2 The Device Manager</p> <p>2.2 The Boot Sequence</p> <p>2.3 The Flash/PCMCIA File System</p> <p>2.4 The Basic Configuration</p> <p>2.4.1 Assigning System Names</p> <p>2.4.2 Assigning Passwords</p> <p>2.4.3 Configuration of Date and Time</p> <p>2.4.4 Working with Files</p> <p>2.5 Management of the ERS 8600</p> <p>2.5.1 The Management VLAN</p> <p>2.5.2 Configuration of Remote Management</p> <p>2.5.3 Management Access Policies</p> <p>2.5.4 The Syslog Feature</p> <p>2.5.5 SSH—The Secure Shell</p> <p>2.6 Simple Network Management Protocol—SNMP</p> <p>2.6.1 The Working Mode of SNMP</p> <p>2.6.2 An Example: Inquiry of a Routing Table</p> <p>2.6.3 Switched Networks Monitoring</p> <p>2.7 SNMPv3—An Overview</p> <p>2.7.1 The Application of SNMPv3</p> <p>2.8 Configuration of SNMPv3</p> <p>2.9 Troubleshooting</p> <p>2.9.1 Typical Errors</p> <p>2.9.2 Systematic Network Analysis</p> <p>3 Ethernet and IEEE 802.3 CSMA/CD</p> <p>3.1 Ethernet Variants</p> <p>3.1.1 Fast Ethernet</p> <p>3.1.2 Gigabit Ethernet</p> <p>3.1.3 Configuration of Interfaces</p> <p>3.2 Troubleshooting in Ethernet Networks</p> <p>4 Virtual LANs</p> <p>4.1 Defining Virtual LANs</p> <p>4.1.1 Application in In-House Networks</p> <p>4.1.2 VLANs in Multilayer Networks</p> <p>4.2 Port-Based VLANs</p> <p>4.2.1 Port-Based VLANs</p> <p>4.3 VLAN Trunk Protocols</p> <p>4.3.1 Standard IEEE 802.1Q</p> <p>4.3.2 Typical VLAN Configuration Errors</p> <p>4.4 Configuration on the ERS</p>	<p>4.5 TCP/IP—The Number 1</p> <p>4.5.1 IP Addresses</p> <p>4.5.2 Address Resolution</p> <p>4.5.3 Routing in the TCP/IP World</p> <p>4.6 Inter-VLAN Routing</p> <p>4.6.1 Layer-3 Switching</p> <p>4.6.2 Redundancy and Load Sharing</p> <p>4.6.3 Configuration of Inter-VLAN Routing</p> <p>5 Redundancy Concepts</p> <p>5.1 Proprietary Redundancy Concepts ERS 8600</p> <p>5.1.1 MultiLink Trunking (MLT)</p> <p>5.1.2 Split MultiLink Trunking (SMLT)</p> <p>5.1.3 Routed Split MLT (RSMLT)</p> <p>5.2 The Spanning Tree Protocol</p> <p>5.2.1 Operation Mode of STP</p> <p>5.2.2 Tuning the STP Parameters</p> <p>5.2.3 Independent VLAN Spanning Tree</p> <p>5.2.4 Configuration of the STP</p> <p>5.3 Virtual Router Redundancy Protocol (VRRP)</p> <p>5.3.1 Configuration of the VRRP</p> <p>6 OSPF—The Recommended IGP</p> <p>6.1 Theoretical Basics</p> <p>6.1.1 OSPF: The Packet Types</p> <p>6.1.2 The Exchange of Hellos</p> <p>6.1.3 OSPF Graphs</p> <p>6.1.4 The DR/BDR Concept</p> <p>6.1.5 Synchronization and Reliable Flooding</p> <p>6.2 Case Study: 1-Area Scenario</p> <p>6.3 The Area Philosophy</p> <p>6.3.1 Router Types</p> <p>6.3.2 Interpretation of the OSPF Database</p> <p>6.3.3 AS External Links</p> <p>6.3.4 Summary Links ASBR</p> <p>6.4 Add-On Configurations</p> <p>6.4.1 Virtual Links</p> <p>6.4.2 Stub Areas</p> <p>6.4.3 Not-so-Stubby Area (NSSA)</p> <p>6.5 The Configuration of the OSPF</p> <p>6.5.1 Configuration of Route Policies</p> <p>7 IP Multicasting with IGMP and PIM</p> <p>7.1 Switching in Multicast Environments</p> <p>7.1.1 Multicasting</p> <p>7.2 Tasks of the End Device</p> <p>7.2.1 IGMPv1 and IGMPv2</p> <p>7.2.2 IGMP Snooping</p> <p>7.3 IGMP Configuration on the ERS 8600</p> <p>7.3.1 IGMP Fast Leave Mode</p> <p>7.3.2 IGMP Multicast Access Control</p> <p>7.3.3 IGMP Snooping</p>	<p>7.4 Multicast Routing Concepts</p> <p>7.4.1 Problems: Non-Routable Addresses</p> <p>7.4.2 Reverse Path Tree (RPT)</p> <p>7.4.3 Source-Based Tree (SBT)</p> <p>7.4.4 Shared Tree</p> <p>7.5 PIM Dense Mode</p> <p>7.6 PIM Sparse Mode</p> <p>7.6.1 The Protocol</p> <p>7.6.2 The Routing Table</p> <p>7.7 PIM-SM Configuration on the ERS 8600</p> <p>7.7.1 PIM-SM Interface Configuration</p> <p>7.7.2 Candidate RP</p> <p>7.7.3 Display of the Interface Status</p> <p>7.7.4 Configuration of Static RPs</p> <p>7.7.5 Configuration of Multicast Routes</p> <p>7.7.6 PIM-SM Troubleshooting</p> <p>7.8 PIM Source-Specific Multicast</p> <p>7.8.1 PIM-SSM Configuration</p> <p>7.8.2 IGMPv3</p> <p>7.8.3 IGMP-SSM Configuration</p> <p>7.8.4 IGMP-SSM Channel Configuration</p> <p>8 Quality of Service and IP Traffic Filter</p> <p>8.1 Requirements of VoIP</p> <p>8.1.1 Delay</p> <p>8.1.2 Jitter</p> <p>8.1.3 Packet Loss</p> <p>8.1.4 Delay Analysis</p> <p>8.2 What Is Quality of Service?</p> <p>8.3 Nortel Service Classes and Prioritization According to IEEE802.1p</p> <p>8.4 IEEE 802.1Q and 802.1p</p> <p>8.5 DiffServ Field and DSCP</p> <p>8.6 Classes of Service and Per-Hop Behavior</p> <p>8.6.1 Expedited Forwarding</p> <p>8.6.2 Assured Forwarding</p> <p>8.7 Queueing on the ERS 8600</p> <p>8.7.1 Priority-Queueing and WRR</p> <p>8.7.2 ERS 8600 QoS Configuration</p> <p>8.7.3 Policing</p> <p>8.7.4 Shaping</p> <p>8.8 Configuration of IP Traffic Filters (Legacy Systems)</p>
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ExperTeach Gesellschaft für Netzwerkkompetenz mbH

Waldstr. 94 • D-63128 Dietzenbach
Phone +49 6074 4868-0 • Fax +49 6074 4868-109
info@experteach.de • www.experteach.de

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Status 06/19/2010