



AT-AR450S

Enterprise Branch VPN Appliance

AT-AR450S-xx

- High performance security
- 1 x 10/100TX WAN port
- 1 x 10/100TX DMZ port
- 5 x 10/100TX LAN ports
- 2 x asynchronous RS232 ports

INDUSTRY-LEADING PLATFORM

A versatile one-rack unit, the Allied Telesyn AT-AR450S Security Appliance provides seven securable 10/100 Fast Ethernet interfaces and two asynchronous (RS-232) ports. Providing superior security, manageability, adaptability, and performance features, the AT-AR450S is a cost-effective platform specifically designed to meet the need of branch organizations deploying VPNs.

AES-ENCRYPTED VPN

The AT-AR450S supports the Advanced Encryption Standard (AES), the most advanced encryption method used to open secured VPN channels. AES is a Federal Information Processing Standard (FIPS 197) that specifies a cryptographic algorithm for use by U.S. Government organizations to protect sensitive, unclassified information.

ICSA-CERTIFIED STATEFUL INSPECTION FIREWALL

Allied Telesyn's state-of-the-art ICSA certified Stateful Inspection Firewall is available for AT-AR450S Series routers, protecting private networks by monitoring both packet content and session status. The firewall defends against a wide range of Denial of Service (DoS) attacks including Ping of Death, SYN/FIN flooding, Smurf attacks, port scans, fragment attacks, and IP spoofing. The firewall also triggers e-mail alerts when such attacks are detected. AT-AR450S Series routers create a comprehensive security audit trail of event triggers, firewall event-logging, and accounting information. Network administrators can use the built-in dual 10/100Mbps Ethernet interfaces to create separate LAN subnets, and the additional 10Mbps Ethernet Port Interface Cards (PICs) may be used to create extra LAN subnets for DMZ applications or to connect to external xDSL modems for broadband applications.

SOFTWARE QOS

Allied Telesyn's AlliedWare software release 2.7.1 provides advanced QoS and shaping features on the AT-AR440S. There are five key new QoS features available in this release—Bandwidth Metering, RED Curves, Mixed Scheduling, Virtual Bandwidth, and DAR. This release also supports eight queues per interface. Dynamic Application Recognition (DAR) is used to snoop for session setup exchanges and dynamically create classifiers that match the voice and video packets in the session. For more information about these advanced QoS features, see the Allied Telesyn Advanced QoS White Paper (November 2004) available on our website.

TRIGGERED EVENTS & SCRIPTS

An ordered sequence of scripts and router commands are executed when certain events occur, providing a powerful mechanism for automating the execution of router commands in response to specific events. Each trigger may reference multiple scripts and any script can be used by any trigger. Using this feature, AT-AR450S can send e-mail alerts to network managers when trouble occurs, or it can shut down interfaces to protect against suspected attacks.

TRAFFIC SHAPING & QUALITY OF SERVICE (QOS)

Advanced traffic-shaping features such as the Resource reSerVation Protocol (RSVP) and the Bandwidth Allocation Control Protocol (BACP) ensure support for multimedia applications. Policy-routing allows the distribution of data based on traffic type (WWW versus FTP, etc.), type of WAN link, and source and destination addresses. Priority routing is provided to support CoS applications—video, voice, email, web browsing.

TERMINAL SERVER

The AT-AR450S can provide terminal server functionality to manage devices like PBXs and print servers through asynchronous ports. This allows system administrators to remotely and securely monitor and manage other devices via the integrated RS232 ports.

KEY FEATURES

- Stateful Inspection Firewall
- AES 3DES DES
- Hardware-based Encryption
- 512 IPSEC/ISAKMP VPN
- Intrusion detection & Attach Alert System
- Support Windows XP & 2000
- VPN clients using pre-shared keys & also using X509 certificates
- MD5 / SHA
- L2TP
- PPPoE
- Protection against Denial-of-Service attacks
- PAP/CHAP user authentication
- RADIUS/TACAS+ look-up
- SMTP & HTTP proxy
- SSH / SSL
- 802.1X*
- 5 x 10/100Mbps Ethernet LAN ports
- 1 x 10/100Mbps Ethernet WAN port
- 1 x 10/100Mbps Ethernet DMZ port
- 2 Asynchronous ports

* Please check with your local sales representative for more information

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HARDWARE FEATURES

CPU

The 400 MHz base CPU card supports:
 5 x 10/100 Ethernet Switch Ports for VLANs
 1 x 10/100 Ethernet (ETH0) WAN Port
 1 x 10/100 Ethernet (ETH1) DMZ Port
 1 x Internal Hardware Security Accelerator

Ports

The AT-AR450S has multiple 10Base-T/100Base-TX ports:
 5 x 10/100Mbps half or full duplex Ethernet LAN ports
 1 x 10/100Mbps half or full duplex Ethernet WAN port
 1 x 10/100Mbps half or full duplex Ethernet DMZ port
 2 x asynchronous (RS-232)

MDI/MDI-X

The WAN and DMZ ports are wired as MDI. The 5 LAN ports are wired as MDI-X. The 5 LAN ports also have MDI/MDI-X auto-crossover.

Main Memory - SDRAM

Expandable SDRAM support - 64MB, 128MB and 256MB of ECC SDRAM is provided on a single 168-pin DIMM, with a default DIMM size of 64MB fitted.

FLASH Memory

16MB used for software and configuration data storage.

Universal AC Power Supply

The AT-AR450S has a universal AC input connector and a power switch on its rear panel. The router requires a power input of 100-240 VAC at 50-60Hz.

Real Time Clock (RTC)

The RTC keeps track of current date and time. During times when the system has been powered down, a backup battery supplies power to the RTC.

RELIABILITY

System MTBF	90,000 hours min
PSU MTBF	150,000 hours min
Base MTBF	533,000 hours min

POWER CHARACTERISTICS

100-240vAC, 50 - 60Hz

ENVIRONMENTAL SPECIFICATIONS

Operating temp: 0°C – 40°C
 (32°F – 104°F)
 Storage temp: -25°C – 70°C
 (-13°F – 158°F)
 Relative humidity: 5 – 95% non-condensing

PHYSICAL CHARACTERISTICS

IU rack mount, Depth 190mm Width 305mm
 Weight: 1.75 kg (3.75lbs)

ELECTRICAL/MECHANICAL APPROVALS

EMC: Emissions: EN55022 class A, FCC class A,
 VCCI class A, AS/NZS CISPR22 class A
 Immunity: EN55024

Safety: UL60950, CAN/CSA-C22.2NO. 60950-00,
 EN60950

Listing: UL, cUL, TUV

SOFTWARE FEATURES

Secure VPN option
 ICSA Certified IPsec (AES, 3DES, DES, DES-MAC, MD5, SHA-1)
 Stateful Inspection Firewall
 Network Address Translation (NAT)
 CLI, PAP and CHAP
 RADIUS, TACACS
 PKI for IKE/IPsec
 SSL
 SecureShell remote management
 UPnP v1.0
 Generic Routing Encapsulation
 Dynamic IP address assignment
 L2TP (Layer 2 Tunneling Protocol)
 DHCP
 PPPoE
 IP packet filtering
 IP multihoming
 Demand IP and IPX
 IPX/SPX spoofing
 Spanning tree on Bridge Ports
 BAP/BACP (Bandwidth Allocation Protocol)
 PPP multilink
 Callback
 IP/IPX and bridge filtering
 Advanced routing protocols OSPF, BGP4, RIP and RIPv2
 Multicast protocols DvMRP, PIM-SM, PIM-DM
 SNMP management v2c and SNMPv3
 GUI
 OSI
 Load Balancer
 IPv6
 IP, IPX and AppleTalk routing
 RSVP
 VRRP
 IP Packet prioritization
 STAC data compression (s/w only)

STANDARDS AND PROTOCOLS

GENERAL ROUTING

RFC 1918	IP Addressing
RFC 791	IP
RFC 950	Subnetting, ICMP
RFC 1812	Router Requirements
RFC 1055	SLIP
RFC 1122	Internet Host Requirements
RFC 1582	RIP on Demand Circuits

"IPX Router Specification", v1.2, Novell, Inc., Part Number 107-000029-001

RFC 792	ICMP
RFC 1288	Finger
RFC 1701	GRE
RFC 1702	GRE over IPv4
RFC 2131	DHCP
RFC 1542	BootP
RFC 826	ARP
RFC 925	Multi-LAN ARP
RFC 3232	Assigned Numbers
RFC 2661	L2TP
RFC 2822	Internet Message Format
RFC 903	Reverse ARP
RFC 1027	Proxy ARP
RFC 793	TCP
RFC 768	UDP
RFC 1144	Van Jacobson's Compression
AppleTalk	
ISO 9542	End System to Intermediate System Protocol
RFC 2390	Inverse Address Resolution Protocol
ISO 10589	Technical Corrigendums 1,2,3, ISO
ISO 8473	Intermediate System to Intermediate System relevant parts of ISO 8348/Add2, ISO 8648, ISO TR9577 Open System Interconnection
RFC 1332	The PPP Internet Protocol Control Protocol (IPCP)
RFC 1334	PPP Authentication Protocols
RFC 1377	The PPP OSI Network Layer Control Protocol (OSINLCP)
RFC 1378	The PPP AppleTalk Control Protocol (ATCP)
RFC 1570	PPP LCP Extensions
RFC 1598	PPP in X.25
RFC 1618	PPP over ISDN
RFC 1661	The Point-to-Point Protocol (PPP)
RFC 1762	The PPP DECnet Phase IV Control Protocol (DNCP)
RFC 1962	The PPP Compression Control Protocol (CCP)
RFC 1968	The PPP Encryption Control Protocol (ECP)
RFC 1974	PPP Stac LZS Compression Protocol
RFC 1877	An Architecture for IPv6 Unicast Address Allocation
RFC 1978	PPP Predictor Compression Protocol
RFC 1989	PPP Link Quality Monitoring
RFC 1990	The PPP Multilink Protocol (MP)
RFC 1994	PPP Challenge Handshake Authentication Protocol (CHAP)
RFC 2125	The PPP Bandwidth Allocation Protocol (BAP) / The PPP Bandwidth Allocation Control Protocol (BACP)
RFC 2516	A Method for Transmitting PPP Over Ethernet (PPPoE)
RFC 2878	PPP Bridging Control Protocol (BCP)
RFC 3619	EAPS
RFC 3022	Traditional NAT
RFC 1552	The PPP Internetworking Packet Exchange Control Protocol (IPXCP)
RFC 1256	ICMP Router Discovery Messages

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OSPF

RFC 1583	OSPF Version 2
RFC 1245	OSPF Protocol Analysis
RFC 1246	Experience with the OSPF Protocol
RFC 1586	OSPF over Frame Relay
RFC 1793	Extending OSPF to Support Demand Circuits
RFC 2328	OSPFv2
RFC 1587	The OSPF NSSA Option

BGP-4

RFC 1771	Border Gateway Protocol 4
RFC 3065	Autonomous System Confederations for BGP
RFC 1997	BGP Communities Attribute
RFC 1998	Multi-home Routing
RFC 2918	Route Refresh Capability for BGP-4
RFC 2858	Multiprotocol Extensions for BGP-4
RFC 2842	Capabilities Advertisement with BGP-4
RFC 2385	Protection of BGP Sessions via the TCP MD5 Signature Option

IP MULTICASTING

RFC 2236	IGMPv2
RFC 1075	DVMRP
draft-ietf-idmr-dvmrp-v3-9 DVMRP	
RFC 1812	Router Requirements
RFC 1112	Host Extensions
RFC 2715	Interoperability Rules for Multicast Routing Protocols
RFC 2362	PIM-SM

draft-ietf-pim-dm-new-v2-04 PIM-DM

draft-ietf-pim-sm-v2-new-09 PIM-SM

QUALITY OF SERVICE

RFC 1349	Type of Service in the IP Suite
IEEE 802.1p	Priority Tagging
RFC 2205	Reservation Protocol
RFC 2211	Controlled-Load
RFC 2475	An Architecture for Differentiated Services
RFC 2697	A Single Rate Three Color Marker
RFC 2698	A Two Rate Three Color Marker
RFC 3246	An Expedited Forwarding PHB (Per-Hop Behavior)
RFC 2597	Assured Forwarding PHB Group

RIP

RFC 1058	RIP v1
RFC 1723	RIP v2

MANAGEMENT

RFC 1155	MIB
RFC 1157	SNMP
RFC 1212	Concise MIB definitions
RFC 1213	MIB-II
RFC 1643	Ethernet MIB
RFC 1657	Definitions of Managed Objects for BGP-4 using SMIv2
RFC 1493	Bridge MIB

RFC 1515	Definitions of Managed Objects for IEEE 802.3 MAUs
RFC 1573	Evolution of the Interfaces Group of MIB-II
RFC 2011	SNMPv2 MIB for IP using SMIv2
RFC 2012	SNMPv2 MIB for TCP using SMIv2
RFC 2096	IP Forwarding Table MIB
RFC 2338	VRMP
RFC 2576	Coexistence of SNMPv1, v2 & v3
RFC 2578	Structure of Management Information Version2 (SMIv2)
RFC 2579	Textual Conventions for SMIv2
RFC 2580	Conformance Statements for SMIv2
RFC 2665	Definitions of managed objects for the Ethernet-like Interface Types
RFC 2674	Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (VLAN)
RFC 2790	Host MIB
RFC 2819	RMON (groups 1,2,3 and 9)
RFC 2856	Textual Conventions for Additional High Capacity Data Types
RFC 3164	Syslog Protocol
RFC 3410	Introduction to SNMPv3
RFC 3411	An Architecture (SNMP)
RFC 3412	MPD for SNMPv3
RFC 3413	SNMPv3 Applications
RFC 3414	USM for SNMPv3
RFC 3415	VACM for SNMPv3
RFC 3416	Protocol Operations for SNMP v2c & v3
RFC 3417	Transport Mappings for SNMPv3
RFC 3418	MIB for SNMP v2c & v3

draft-ietf-bridge-8021x-00.txt Port Access Control MIB

SECURITY

IEEE 802.1x	Port Based Network Access Control
RFC 1779	X509 String Representation of Distinguished Names
RFC 2459	PKI Internet X.509 Public Key Infrastructure Certificate and CRL Profile
RFC 2511	PKI Internet X.509 Certificate Request Message Format
RFC 2559	PKI Internet X.509 Public Key Infrastructure Operational Protocols — LDAPv2
RFC 2587	PKI Internet X.509 Public Key Infrastructure LDAPv2 Schema
RFC 2510	PKI Internet X.509 Public Key Infrastructure Certificate Management Protocols
RFC 2585	PKI Internet X.509 Public Key Infrastructure Operational Protocols: FTP and HTTP
PKCS	#10 Certificate Request Syntax Standard
Draft-IETF-PKIX-CMP-Transport-Protocols-01 Transport Protocols for CMP	
RFC 1492	TACACS An Access Control Protocol
draft-grant-tacacs-02.txt TACACS+	
RFC 959	FTP File Transfer Protocol
RFC 1413	IDP Identification Protocol

Draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol

RFC 1858	Fragmentation
RFC 2865	Radius
RFC 2866	Radius Accounting

ENCRYPTION

FIPS 46	DES Data Encryption Standard
FIPS 46-3	3DES Triple Data Encryption Standard
FIPS 197	AES Advanced Encryption Standard
FIPS 180	SHA-1 Secure Hash Algorithm
FIPS 186	RSA public key algorithm

RFC 2104	HMAC Keyed-Hashing for Message Authentication
RFC 2451	The ESP CBC-Mode Cipher Algorithms

IPSEC

RFC 2402	AH - IP Authentication Header
RFC 2403	IPsec Authentication - MD5
RFC 2410	IPsec encryption — NULL
RFC 2411	IP Security Document Roadmap
RFC 2412	OAKLEY
RFC 2409	IKE
RFC 2408	ISAKMP
RFC 2407	IPsec DOI
RFC 2406	ESP - IPsec encryption
RFC 2405	IPsec Encryption — DES
RFC 2404	IPsec Authentication - SHA-1
RFC 2401	Security Architecture for IP
RFC 1828	IP Authentication using Keyed MD5
RFC 2395	Ipsec Compression - LZS
RFC 2451	The ESP CBC-Mode Cipher Algorithms
RFC 1829	ESP DES-CBC Transform
RFC 3173	IPComp — IPsec compression

IPV6

draft-ietf-ngtrans-hometun-01 IPv6 over IPv4 tunnels for home to Internet access

RFC 1981	Path MTU Discovery for IPv6
RFC 2362	PIM-SM
RFC 2375	IPv6 Multicast Address Assignments
RFC 2460	IPv6
RFC 2080	RIPng for IPv6
RFC 2461	Neighbour Discovery for IPv6
RFC 2462	IPv6 Stateless Address Autoconfiguration
RFC 2463	ICMPv6
RFC 2464	Transmission of IPv6 Packets over Ethernet Networks
RFC 2472	IPv6 over PPP
draft-vida-mid-v2-08 Multicast Listener Discovery (MLD) for IPv6, Version 2	
RFC 2526	Reserved IPv6 Subnet Anycast Addresses
RFC 2711	IPv6 Router Alert Option
RFC 3056	Connection of IPv6 Domains via IPv4 Clouds
RFC 3315	DHCPv6

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RFC 3633	IPv6 Prefix Options for Dynamic Host Configuration Protocol
RFC 3596	DNS Extensions to support IPv6
RFC 3513	IPv6 Addressing Architecture
RFC 3484	Default Address Selection for IPv6
RFC 2710	Multicast Listener Discovery (MLD) for IPv6
RFC 2893	Transition Mechanisms for IPv6 Hosts and Routers
RFC 3307	Allocation Guidelines for IPv6 Multicast Addresses
RFC 3587	IPv6 Global Unicast Address Format
RFC 3646	DNS Configuration options for Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
RFC 2365	Administratively Scoped IP Multicast
RFC 3306	Supported IPv6 standards
RFC 2529	Transmission of IPv6 over IPv4 Domains without Explicit Tunnels

SERVICES

RFC 2821	SMTP
RFC 2049	MIME
RFC 1945	HTTP/1.0
RFC 1985	SMTP Service Extension
RFC 1305	NTP v3
RFC 1510	Network Authentication
RFC 2156	MIXER
RFC 932	Subnetwork addressing scheme
RFC 1350	TFTP
RFC 1179	Line printer daemon protocol
RFC 854	Telnet Protocol Specification
RFC 855	Telnet Option Specifications
RFC 856	Telnet Binary Transmission
RFC 857	Telnet Echo Option
RFC 858	Telnet Suppress Go Ahead Option
RFC 2217	Telnet Com Port Control Option
RFC 1091	Telnet terminal-type option

SSL

RFC 2246	The TLS Protocol Version 1.0
Draft freier ssl version 3.02.txt	SSLv3

ETHERNET

IEEE 802.1D	MAC Bridges
IEEE 802.1G	Remote MAC Bridging
IEEE 802.2	Logical Link Control
IEEE 802.3u	100BASE-T
IEEE 802.3x	Full Duplex Operation
IEEE 802.3ac	VLAN TAG
IEEE 802.1Q	Virtual LANs
IEEE 802.1v	VLAN Classification by Protocol and Port
RFC 894	Ethernet II Encapsulation

STP/RSTP

IEEE 802.1w	2001 RSTP
IEEE 802.1t	2001 802.1D maintenance



ORDERING INFORMATION

AT-AR450S-xx

High performance security
 1 x 10/100TX WAN port
 1 x 10/100TX DMZ port
 5 x 10/100TX LAN ports
 2 x asynchronous RS232 ports

Where xx = 10 for U.S. power cord
 = 20 for no power cord
 = 30 for U.K. power cord
 = 40 for Australian power cord
 = 50 for European power cord

OPTIONS

AT-AR400-ADVL3UPGRD

Advanced Layer 3 Upgrade including IPv6, BGP4, Loadbalancer

AT-AR-AES

AES encryption feature license

AT-AR-3DES

3DES encryption feature license

AT-AES/3DES

AES and 3DES bundled feature license

AT-AR450S OS

Operating system upgrade

ABOUT ALLIED TELESYN

Allied Telesyn was founded in 1987 with the goal of producing reliable, standards-based networking products. Focused on Ethernet/IP solutions geared to applications, Allied Telesyn offers access-edge products like switches, fiber/copper MAPs, and CPE. We're also a leading global manufacturer of media converters, unmanaged switches, and NICs. Our customer-driven approach has made Allied Telesyn the ideal choice for IT professionals looking for high-quality, feature-rich network solutions at a lower price. Allied Telesyn – It's Our Network, Too.

www.alliedtelesyn.com

USA Headquarters

19800 North Creek Pkwy, Suite 200, Bothell, WA 98011, USA
 Tel 800.424.4284 Fax 425.481.3895

European Headquarters (Corporate) (European Sales)

Via Motta 24, 6830 Chiasso, Switzerland
 Tel (+41) 91 697.69.00 Fax (+41) 91 697.69.11
 Tel (+39) 02 414.112.1 Fax (+39) 02 414.112.61