Routers

AT-AR440S
Annex A ADSL Router

AT-AR440S
1 x ADSL port, 5 x 10/100T ports, 1x PIC slot

ADSL business class routing solution

The AT-AR440S is a competitively priced, business-class, ADSL, VPN router. This desktop, broadband router allows businesses to take advantage of cost effective DSL connections without compromising on bandwidth, throughput, features, or security.

The AT-AR440S has been designed with the needs of the branch office or small to medium business in mind and comes with dying gasp and the WAN back-up features businesses expect.

The AT-AR440S comes with, or has as optional extras, all the software features necessary for a product of this type, such as:

- An extensive VPN capability
- Comprehensive ADSL support
- An extensive QoS suite
- Multiple routing protocols
- A comprehensive configuration and management suite

Extensive VPN capability

The AT-ARR440S provides extensive IPSec based VPN capability, allowing the interconnection of branch offices, remote tele-workers, and other users who require secure access to a corporate network. This capability provides a cost effective alternative to long-distance dial-in, leased line or frame-relay connections. The AT-AR440S comes complete with integrated hardware acceleration to maximise encryption and throughput during secure communication. The product is compatible with key IPSec VPN clients.

Security

In addition to hardware-based encryption, the AT-AR440S comes with other security features, such as traffic filtering with event logging. Traffic filtering uses the source and destination addresses, port, protocol and TCP packet types to provide control over traffic that passes through the AT-AR440S. The AT-AR440S' Stateful Inspection firewall provides an increased level of security and HTTP and SMTP proxies provide improved control over web and mail communication.

Flexibility of modular routing

A Port Interface Card (PIC) port on the AT-AR440S provides businesses with a high degree of flexibility, enabling them to future proof their investment, obtain additional functionality or make use of WAN back-up options. For example, a backup WAN card, such as an ISDN card, can be installed in the PIC port enabling businesses to protect themselves against ADSL downtime. The PIC options available also enable businesses to achieve a higher LAN density without purchasing an additional switch. The AT-AR440S PIC port is compatible with a range of PICs, including BRI/PRI ISDN, high-speed E1/T1, synchronous, multiport 10/100T and VoIP.

Performance

The AT-AR440S is the first in a family of modular routers that will provide a significant improvement in the performance of Allied Telesyn's modular router family. The 300MHz CPU within the AT-AR440S ensures that large packets are forwarded at wirespeed and that small packets are forwarded with minimal delay.

Comprehensive management and configuration

The AT-AR440S comes with a comprehensive suite of management features and is also compatible with SNMP based management packages. An extensive command set is available via the Command Line Interface (CLI), and a browser-based Graphical User Interface (GUI) is also provided to simplify configuration and management of the AT-AR440S. The GUI provides access to default set-ups in key management areas and provides access to regional settings. Allied Telesyn's SNMP support extends to SNMPv3, which provides the option of secure management.

Key features

- 1 x Annex A ADSL port
- Modular Router – 1 PIC slot that supports a range of LAN/WAN interfaces
- Integrated encryption engine supporting DES, 3DES and AES
- 5 x 10/100Mbps Ethernet switched LAN ports, any port can also be reconfigured as a DMZ
- Secure VPN capability with IPSec
- Automatic WAN back-up
- Business class value-add software features available
  - Stateful Inspection Firewall
  - QoS
  - IPv6
- SNMP and CLI management
- Web GUI
- Dying gasp

AT-AR440S, Annex A ADSL Router

FEATURE SUMMARY

ADSL

Annex A
G992.1 G.DMT
ANSI T1.413
Downstream datarate: Up to 12Mbps♦
Upstream datarate: Up to 1Mbps♦
Connector: RJ-11
30 PVCs
Dying gasp
RFC 2684 MPoA Encapsulation over ATM (IP, bridging & encapsulated routing)
RFC 2364 PPPoA
RFC 2516 PPPoE
RFC 2225 IPoA Classical IP & ARP over ATM

ROUTING

PPP and IP Routing
RIPv1 & v2
DHCP
OSPF
DVMRP* (including draft_ietf_idmr_dvmrp_v3_10)
BGP-4*
IPX
AppleTalk
NAT

WAN PROTOCOLS

X.25
Frame Relay
DecNet

VPN

L2TP
NAT-T+
MS™ XP VPN client interoperability

SECURITY

Hardware acceleration*
IPSec
IKE
ISAKMP
PKI
SSH
SSL
SMTP & HTTP Proxy*
Authentication: RADIUS, TACACS, MD5, PAP, CHAP
Encryption: DES, 3DES*, AES*
IP Filtering
Firewall: Stateful Inspection*

QOS

IP
- RSVP
- IP Packet Prioritisation
- Prioritisation based on TOS & Diffserve+
- Low latency queuing (LLQ)+
- Weighted fair queuing+

ATM

- Per VC queuing and traffic shaping+
- Unspecified Bit Rate (UBR)
- Constant Bit Rate (CBR)+
- Nonreal-time Variable Bit Rate (VBRnrt)

Only nature can do better

MANAGEMENT

CLI
Browser Based GUI
SNMPv3

IPV6+

RIPng
IPv6 RFC 2460
Neighbour discovery RFC 2461
Stateless address auto-configuration RFC 2462
ICMP v6 RFC 2463
Transmission of IPv6 packets RFC 2464
Connection of IPv6 domains via IPv4 clouds RFC 3056
PIM

♦ Maximum specified by ADSL chip-set vendor, achieved speeds are dependent on DSLAM and line characteristics, including length.

* Software features requiring the purchase of a feature license.

\+ Features targeted for a future software release.

RELIABILITY

MTBF: 120 000 hrs
Warranty: 24 months

REDUNDANCY

External modem backup
VRRP

HARDWARE FEATURES

1 x ADSL Port
5 x 10/100Mbps Switch
1 x Async Console port
1 x Port Interface Card (PIC) slot
DMZ port: Obtained by configuring one of the switch ports

PROCESSOR

300MHz
Internal security encryption engine

MEMORY

64MB RAM
16MB Flash

POWER CHARACTERISTICS

Input Voltage: 100-240V AC, 50-60 Hz
Max Power Consumption: 40W
Internal Battery Backup (1 year)

PHYSICAL

Dimensions: 355mm (W) x 45mm (H) x 200mm (D)
Weight: 330gm

ENVIRONMENTAL

Operating Temp: 0°C to 40°C
Storage Temp: -25°C to 70°C
Operating relative humidity: 5 to 80% non-condensing
Acoustic Level: ANSI S12.10 - Desktop 47 dBA

APPROVALS & CERTIFICATIONS

UL
TUV
UL60950
EN60950
EN55022 class A
EN55024
FCC class A
VCCI class A
AS/NZS CISPR22 class A
CE

OPTIONAL EXTRAS

Rackmount kit

PICs:

- AR020 Primary rate ISDN
- AR021 Basic rate ISDN
- AR022 10Mbps Ethernet
- AR023 2Mbps Synchronous
- AR024 Four port Asynchronous
- AR026 Four port 10/100T
- AR027 FXS VoIP

COUNTRY OF ORIGIN

Singapore

STANDARDS AND PROTOCOLS

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

ENCRYPTION

FIPS 46-3 DES
FIPS 46-3 3DES
FIPS 180 SHA-1
FIPS 186 RSA
FIPS 197 AES
RFC 2104 HMAC
RFC2451 ESP CBC-Mode Cipher Algorithms

ETHERNET

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

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 IPX Router Specification
RFC 792 ICMP
RFC 1288 Finger
RFC 1701 GRE
RFC 1702 GRE over IPv4
RFC 2131 DHCP

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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
RFC 1142 OSI IS-IS Intra-domain Routing Protocol
ISO 10589, ISO 10589 Technical Corrigendums 1, 2, 3, ISO Intermediate System-to-Intermediate System
ISO 8473, relevant parts of ISO 8348(X.213), ISO 8343/ Add2, ISO 8648, ISO TR 9577 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 1877 PPP Internet Protocol Control Protocol Extensions for Name Server Addresses
RFC 1962 The PPP Compression Control Protocol (CCP)
RFC 1968 The PPP Encryption Control Protocol (ECP)
RFC 1974 PPP Stac LZS Compression Protocol
RFC 1977 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 PPP Internetworking Packet eXchange Protocol IPXCP

IP MULTICASTING

RFC 2236 IGMPv2
RFC 1075 DVMRP
draft-ietf-idmr-dvmrp-v3-9 DVMRP
RFC 1112 Host Extensions
RFC 1812 Router Requirements
RFC 2715 Interoperability Rules for Multicast Routing Protocols
RFC 2362 PIM-SM
draft-ietf-pim-dm-new-v2-01 PIM-DM
draft-ietf-pim-sm-v2-new-05 PIM-SM

IPSEC

RFC 2393 IPComp - IPSec compression
RFC 2395 IPSec Compression - LZS
RFC 2401 Security Architecture for IP
RFC 2402 AH - IP Authentication Header
RFC 2403 IPSec Authentication - MD5
RFC 2404 IPSec Authentication - SHA-1
RFC 2405 IPSec Encryption - DES
RFC 2406 ESP - IPSec encryption
RFC 2407 IPSec DOI
RFC 2408 ISAKMP
RFC 2409 IKE
RFC 2410 IPSec encryption - NULL
RFC 2411 IP Security Document Roadmap
RFC 2412 OAKLEY
RFC 1829 IPSec algorithm

IPv6

draft-ietf-ngtrans-hometun-01 IPv6 over IPv4 tunnels for home to Internet access
RFC 1886 DNS Extensions to support IPv6
RFC 1981 Path MTU Discovery for IPv6
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6
RFC 2080 RIPng for IPv6
RFC 2373 IPv6 Addressing Architecture
RFC 2461 Neighbour Discovery for IPv6
RFC 2462 IPv6 Stateless Address Auto-configuration
RFC 2463 ICMPv6
RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
RFC 2472 IPv6 over PPP
RFC draft-vida-mld-v2 Multicast Listener Discovery (MLD) for IPv6
draft-ietf-ngtrans-introduction-to-ipv6-transition-06 An overview of the introduction of IPv6 in the Internet
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
RFC 3633 IPv6 Prefix options for Dynamic Host Configuration Protocol

MANAGEMENT

RFC 1155 MIB
RFC 1157 SNMP
RFC 1213 MIB-II
RFC 1643 Ethernet MIB
RFC 1493 Bridge MIB
RFC 2790 Host MIB
RFC 1573 Evolution of the Interfaces Group of MIB-II
RFC 2338 VRRP
RFC 1757 RMON (groups 1,2,3 and 9)
RFC 3418 MIB for SNMPv2c
RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions (VLAN)
RFC 2665 Definitions of Managed Objects for the Ethernet-like Interface Types
RFC 2580 Conformance Statements for SMIv2
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2096 IP Forwarding Table MIB
RFC 2012 SNMPv2 MIB for TCP using SMIv2
RFC 2011 SNMPv2 MIB for IP using SMIv2
RFC 1657 Definitions of Managed Objects for BGP-4 using SMIv2
RFC 1515 Definitions of Managed Objects for IEEE 802.3 MAUs
RFC 3417 Transport Mappings for the Simple Network Management Protocol (SNMP)
RFC 2856 Textual Conventions for Additional High Capacity Data Types
RFC 2579 Textual Conventions for SMIv2
RFC 1212 Concise MIB definitions
RFC 2576 Coexistence between V1, V2, and V3 of the Internet-standard Network Management Framework
RFC 3164 Syslog Protocol
RFC 3410 Introduction and Applicability Statements for Internet-Standard Management Framework
RFC 3411 An Architecture for Describing SNMP Management Frameworks
RFC 3412 Message Processing and Dispatching for the SNMP
RFC 3413 SNMP Applications
RFC 3414 User-based Security Model (USM) for SNMPv3
RFC 3415 View-based Access Control Model (VACM) for the SNMP

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RFC 3416 Version 2 of the Protocol Operations for SNMP
RFC 3417 Transport Mappings for the SNMP
RFC 3418 MIB for SNMP
draft-ietf-bridge-8021x-00.txt Port Access Control MIB

OSPF
RFC 1245 OSPF protocol analysis
RFC 1246 Experience with the OSPF protocol
RFC 1583 OSPFv2
RFC 1793 Extending OSPF to Support Demand Circuits
RFC 1586 OSPF over Frame Relay

QOS
RFC 1349 Type of Service in the IP Suite
RFC 2205 Reservation Protocol
RFC 2211 Controlled-Load
RFC 2475 An Architecture for Differentiated Services
IEEE 802.1p Priority Tagging

RIP
RFC 1058 RIPv1
RFC 1723 RIPv2

SECURITY
IEEE 802.1x Port-based Network Access Control
draft-ylonen-ssh-protocol-00.txt SSH Remote Login Protocol
RFC 1779 X.500 String Representation of Distinguished Names
RFC 2459 X.509 Certificate and CRL profile
RFC 2511 X.509 Certificate Request Message Format
RFC 2559 PKI X.509 LDAPv2
RFC 2587 PKI X.509 LDAPv2 Schema
RFC 2510 PKI X.509 Certificate Management Protocols
RFC 2585 PKI X.509 Operational Protocols
PKCS #10 Certificate Request Syntax Standard
draft-IETF-PKIX-CMP-Transport-Protocols-01 Transport Protocols for CMP
RFC 2865 RADIUS
RFC 2866 RADIUS Accounting
RFC 1492 TACACS
draft-grant-tacacs-02.txt TACACS+
RFC 1413 IDP
RFC 1858 Fragmentation

SERVICES
RFC 2821 SMTP
RFC 2049 MIME
RFC 1985 SMTP Service Extension
RFC 1305 NTPv3
RFC 1510 Network Authentication
RFC 2156 MIXER
RFC 854 Telnet Protocol Specification
RFC 855 Telnet Options Specifications
RFC 856 Telnet Binary Transmission
RFC 857 Telnet Echo Option
RFC 858 Telnet Suppress Go Ahead Option
RFC 1091 Telnet terminal-type option
RFC 1350 TFTP
RFC 932 Subnetwork addressing scheme
RFC 1945 HTTP/1.0
RFC 959 FTP

SSL
RFC 2246 The TLS Protocol Version 1.0
draft-freier-ssl-version3-02.txt SSLv3

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

X.25
RFC 1356 Multiprotocol Interconnect on X.25 and ISDN in the Packet Mode
ITU-T Recommendations X.25 (1988), X.121 (1988), X.25

XDSL
RFC 2364 PPP Over AAL5
RFC 2225 IPoA Classical IP & ARP over ATM
RFC 2684 IPoE Multiprotocol encapsulation over ATM
Annex A
G992.1, G.DMT
ANSI T1.413

ISDN
ANSI T1.231-1997
ANSI T1.403-1995
ANSI T1.408-1990
AT&T TR 54016-1989
Austel TS 013.1:1990
Bellcore SR-3887 1997
TS 013.2:1990
TS 014.1:1990
TS 014.2:1990
ITU G.703
ITU G.704
ITU G.706
ITU-T Recommendations G.703 (1972)
ITU-T Recommendation Q.922
G.794 (1988)
G.706 (1988)
I.120 (1988)
I.121 (1988)
I.411 (1988)
I.430 (1988)
I.431 (1988)
Q.920 (1988)
Q.921 (1988)
Q.930 (1988)
Q.931 (1988)
ETSI Specifications ETS 300 011:1991
ETS 300 012:1992
ETS 300 102-1:1990
ETS 300 1022:1990
ETS 300 125:1991
ETS 300 153:1992
ETS 300 156:1992
New Zealand Telecom TNA 134
German Monopol (BAPT 221)
Japan NTT I.430-a
Rockwell Bt8370 Fully Integrated T1/E1 Framer and Line Interface datasheet
Technical Reference of Frame Relay Interface, Ver. 1, November 1993, Nippon Telegraph and Telephone Corporation

FRAME RELAY
ANSI T1S1 Frame Relay
RFC 1490, 2427 Multiprotocol Interconnect over Frame Relay

ORDERING INFORMATION

AT-AR440S-xx
Annex A ADSL Router

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

Port Interface Card (PIC) Options
AT-AR020 PRI/E1/T1/Frame Relay with integrated CSU/DSU
AT-AR021 (U) Single basic rate ISDN
AT-AR021 (S/T) Single basic rate ISDN
AT-AR022 Single 10Mbps Ethernet
AT-AR023 Single synchronous to 2Mbps – AT-V.35DTE-00 or AT-V.21DTE-00 cable required
AT-AR024 Four asynchronous to 115kbps
AT-AR026 Four 10/100 Ethernet ports
AT-AR027 VoIP FXS

Options

AT-AR-AES
AES encryption (feature license)

AT-AR-3DES
3DES encryption (feature license)

AT-AES/3DES
AES and 3DES bundled (feature license)

AT-AR400 – ADVL3UPGRD
AR400 series advanced Layer 3 upgrade – includes IPv6, BGP-4, IS-IS and load balancer

Only nature can do better

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