Modus-RIA major features

TCP/IP protocol suite:

- **Firewall and NAT** - stateful packet filtering; Peer-to-Peer protocol filtering; source and destination NAT; classification by source MAC, IP addresses (networks or a list of networks) and address types, port range, IP protocols, protocol options (ICMP type, TCP flags and MSS), interfaces, internal packet and connection marks, ToS (DSCP) byte, content, matching sequence/frequency, packet size, time and more...

- **Routing** - Static routing; Equal cost multi-path routing; Policy based routing (classification done in firewall); RIP v1 / v2, OSPF v2, BGP v4

- **Data Rate Management** - Hierarchical HTB QoS system with bursts; per IP / protocol / subnet / port / firewall mark; PCQ, RED, SFQ, FIFO queue; CIR, MIR, contention ratios, dynamic client rate equalizing (PCQ), bursts, Peer-to-Peer protocol limitation

- **HotSpot** - HotSpot Gateway with RADIUS authentication and accounting; true Plug-and-Play access for network users; data rate limitation; differentiated firewall; traffic quota; real-time status information; walled-garden; customized HTML login pages; iPass support; SSL secure authentication; advertisement support

- **Point-to-Point tunneling protocols** - PPTP, PPPoE and L2TP Access Concentrators and clients; PAP, CHAP, MSCHAPv1 and MSCHAPv2 authentication protocols; RADIUS authentication and accounting; MPPE encryption; compression for PPPoE; data rate limitation; differentiated firewall; PPPoE dial on demand

- **Simple tunnels** - IPIP tunnels, EoIP (Ethernet over IP)

- **IPsec** - IP security AH and ESP protocols; MODP Diffie-Hellman groups 1,2,5; MD5 and SHA1 hashing algorithms; DES, 3DES, AES-128, AES-192, AES-256 encryption algorithms; Perfect Forwarding Secrecy (PFS) MODP groups 1,2,5

- **Proxy** - FTP and HTTP caching proxy server; HTTPS proxy; transparent DNS and HTTP proxying; SOCKS protocol support; DNS static entries; support for caching on a separate drive; access control lists; caching lists; parent proxy support

- **DHCP** - DHCP server per interface; DHCP relay; DHCP client; multiple DHCP networks; static and dynamic DHCP leases; RADIUS support

- **VRRP** - VRRP protocol for high availability

- **NTP** - Network Time Protocol server and client; synchronization with GPS system

- **Monitoring/Accounting** - IP traffic accounting, firewall actions logging, statistics graphs accessible via HTTP

- **SNMP** - read-only access

- **M3P** - MikroTik Packet Packer Protocol for Wireless links and Ethernet

- **MNDP** - MikroTik Neighbor Discovery Protocol; also supports Cisco Discovery Protocol (CDP)

- **Tools** - ping; traceroute; bandwidth test; ping flood; telnet; SSH; packet sniffer; Dynamic DNS update tool, Layer 2 connectivity

- **Wireless** - IEEE802.11a/b/g wireless client and Access Point; Nsetreme and Nstreme2 proprietary protocols; Wireless Distribution System (WDS) support; virtual AP; 40 and 104 bit WEP; WPA pre-shared key authentication; access control list; authentication on RADIUS server; roaming (for wireless client); Access Point bridging

- **Bridge** - spanning tree protocol; multiple bridge interfaces; bridge firewalling, MAC NATtinng

- **VLAN** - IEEE802.1q Virtual LAN support on Ethernet and wireless links; multiple VLANs; VLAN bridging

Configuration possibilities

RouterOS provides powerful command-line configuration interface. You can also manage the router through WinBox - the easy-to-use remote configuration GUI for Windows -, which provides all the benefits of the command-line interface, without the actual "command-line", which may scare novice users. Web-based configuration is provided for some most popular functionality. Major features:

- Clean and consistent user interface
- Runtime configuration and monitoring
- Multiple connections
- User policies
- Action history, undo/redo actions
- safe mode operation
- Scripts can be scheduled for executing at certain times, periodically, or on events. All command-line commands are supported in scripts

Router may be managed through the following interfaces (note that until a valid IP configuration is enteres, telnet and SSH connections are not possible):

- **Serial console** - any (you may choose any one; the first, also known as COM1, is used by default) RS232 asynchronous serial port, which is by default set to 9600bit/s, 8 data bits, 1 stop bit, no parity, hardware (RTS/CTS) flow control

- **Telnet** - telnet server is running on 23 TCP port by default

- **SSH** - SSH (secure shell) server is running on 22 TCP port by default (available only if **security** package is installed)

- **MAC Telnet** - MikroTik MAC Telnet potocol server is by default enabled on all Ethernet-like interfaces

- **Winbox** - Winbox is a RouterOS remote administration GUI for Windows, that uses 8291 TCP port. It may also connect routers by their MAC addresses

- **Webbox** - http based remote administration using standard web browser