



## DMH Software Overview

For the last 15 years, DMH Software is a recognized global leader in SNMP Agent solutions with over 50 customers worldwide. It provides field proven portable, real-time and extensible C and Java implementations of SNMP Agents (SNMPv1, SNMPv2c, SNMPv3). DMH Software's SDK includes a SMIv2 MIB-Compiler for rapid MIB development. The agent can be used in a wide range of platforms - from very small embedded systems such as 8bit 8051, and up to 64bit systems. In addition, the agent can fit proprietary RTOS, Standard RTOS or no RTOS. Since DMH's portable software is highly portable, it offers a free platform integration (if such integration is required).

DMH Software is recognized for its high-quality software products, open architecture, highly professional coding and documentation and small code size which is ideal for small secured mission-critical systems. DMH Software is proud of its fast project customization and urgent customer response time.

DMH Software is a private company which operates out of Acton, Massachusetts and includes an experienced team in embedded software, communications, and SNMP. For more information please visit us on our web site: <http://dmhsoftware.com>

### Our Customers

DMH Software has more than 50 customers worldwide. Our customers operate in a variety of markets such as US government, transportation, telecommunication, data networking, cable TV, security and other areas. As a company policy, each customer, large or small, is getting personal care during the project and later on. DMH will meet all customer needs in business model flexibility, time to market, software updates, support calls, MIB development, custom work and other unique requirements. A small partial list of customers is outlined below:





Please contact DMH for a larger list of customers

### Our Partners

DMH Software develops technology and marketing relationships with partners for the benefit of our joint customers. These benefits include faster time to market, predictable performance and schedule as well as peace of mind. Below is a small partial list of DMH Software's partners:



### Our technology

DMH Software technology is based on 15 years of SNMP industry experience and many more years of telecommunication and data communication team's experience. DMH portable software is platform, compiler and RTOS independent which was proven by porting to numerous platforms and CPU architectures from the smallest 8 bit configuration to 64 bit large system. DMH is using the Doxygen documentation tool to provide always updated source code for the benefit of the customers. Some of the platforms our customers use are detailed below:

|                        |   |
|------------------------|---|
| Platform               | NetBurner Core Modules, Maxim-Dallas/TINI, Beck IPC@CHIP, Datalight, Wiznet                 |
| Real-Time OS           | MS-Windows, Linux, C/OS-II, Citrix ETS, VMS, Solaris, DOS like systems, VxWorks, other RTOS |
| Compiler               | GNU GCC, Keil C51, Borland, Microsoft, every ANSI C/C++ compiler                            |
| SNMP management system | HP Openview, MG-SOFT, Castlerock SNMPc, Net-SNMP  |

DMH product suite share the following unique technology based advantages

- Field proven. DMH SNMP-agent is used and deployed in many commercial products and integrated in many types of systems. It supports generic Transport domain and Network addresses, specifically it is designed to work with both IPv4, IPv6 and dual protocol stacks
- Updated and complete code. DMH products are updated to the most recent RFC and DOCSIS standards. For example, Advanced Encryption System (AES) was supported when the standard was finalized. In addition, DMH code successfully passed the SNMP (all versions) of the most rigorous industry tests including DOCSIS and was field tested against most available SNMP management systems.
- Performance. DMH SNMP-agent is very small to fit with the smallest platforms such as those based on 8051. Excellent runtime performance.
- Faster integration time. DMH code is following high standard of open and flexible software engineering design. This allows smooth updates, changes and custom additions. It allows fast and easy integration of a new RTOS. Another example is the smooth upgrade from SNMPv2c to SNMPv3. In addition, DMH SNMP-agent can be compiled and work on your software development platform (e.g Windows, Linux, Solaris etc).

- Excellent and updated documentation. DMH uses Doxygen to provide clear and updated documentation. This is crucial for software engineers who need to meet urgent deadlines
- Advanced MIB compiler. The SMIV2 MIB-compiler generates a lot of code to help you add the support for private MIB objects. MIB development is very easy and fast. Intelligent support for scalar and tabular MIBs. Accepts standard smiv1/v2 asn.1 MIB and generate several output formats.

## Our Products

DMH Software licenses highly portable software components designed for embedded real-time systems and other systems. All the components are implemented in 100% ANSI-C. Some components were modified to meet specific compiler and system requirements but without compromising ANSI-C conformance.

We designed our components as portable as possible and ready to be integrated by any given system. The requirements from the hosting system are minimal. All the APIs are will defined and specified by "h" files and documentation. The source code is clear and well documented.

### SNMP Agent

DMH Advanced Snmp-Agent is highly portable and designed to be integrated in any given system. It is used in host systems such as w32/w16 MS Windows platforms, Unix platforms, Linux, DOS etc. It is designed to be used in real-time embedded systems such as switches, routers, bridges, printers, UPS, Modems, Cable Modem (SNMPv3 DOCSIS), DSL Modems and more. The SNMP-agent is used in small 16/8bit CPU systems as well as high capacity switching systems using 64bit CPUs.

DMH offers three types of SNMP Agents: SNMPv1 Agent, SNMPv2c Agent and SNMPv3 Agent. The MIB API for all agents is identical. The migration path between SNMP versions is smooth. If you decide to upgrade your SNMP-agent - all your MIB support will continue to work. All of our SNMP Agents pass the most aggressive testers in the industry and commercially used in many types of systems.

The SNMPv3 Agent adds Authentication and Privacy to SNMPv2c or SNMPv1. DMH offers a full implementation of SNMPv3 Agent including all related MIBs. Our SNMPv3 Agent passes DOCSIS tests passes the most aggressive tests in the industry. It is commercially used in DOCSIS systems as well as other systems that require SNMPv3.

### MIB Compiler

DMH SMIV2 MIB-Compiler for rapid MIB development for the DMH Advanced SNMP-Agent. The compiler generates "c" and "h" files with most of the code required to support the specific

MIBs. The generated files need to be modified to access the actual data of your system. The MIB-Compiler supports both SMIV2 and SMIV1. It can compile published IETF and IANA ASN.1 MIB files. The compiler does not require special directive or changes in MIB files. The MIB-Compiler can process input files in the standard SMIV2/1 ASN.1 format. We have tested most of the IETF and IANA MIB definition files.

### HTTP/WEB Server

DMH HTTP/Web Server is highly portable and designed to be integrated in any given system and TCP services. It is designed for real-time embedded systems such as switches, routers, bridges, printers, UPS, Modems, Cable Modem (SNMPv3 DOCSIS), DSL Modems, etc. The HTTP Server does not assume file system but can use html files as an option. The Html2c translator takes an HTML file and convert its content to a data file used by the HTTP server.

### UDP/IP Stack

DMH UDP/IP Stack implements the basic software modules required by an IP Node on the Internet. It gives your system an IP "identity" and enables it to be connected to the Internet. The UDP/IP stack serves as a basis for SNMP implementation over UDP. The product can be used for other purposes, such as DHCP or BOOTP for system bootstrapping, Memory-Image download using Trivial File Transfer Protocol (TFTP), or other user applications. All software modules conform to the relevant up-to-date RFCs

### TCP/IP Stack

DMH TCP/IP Stack is the basic UDP/IP Stack, with the addition of TCP module. TCP is required by applications that use the TCP transport. For example HTTP/Web Server, Telnet, SSH etc.

## Our Services

**Integration** - DMH offers integration services for all of its portable software. We will integrate our software components to your specific hosting system, operating-system and the specific environment.

**SNMP Agent Integration** - If you use our TCP/IP stack, our SNMP-agent already comes as an integral part of the system (SNMP-agent plus IPstack). Our IPstack offers a complete implementation of MIB-II (statistic counters and tables). The SNMP-agent implements the SNMP access (get, get-next, set etc.) of all MIB-II. It uses the MIB-II API offered by the IPstack. If you use a platform specific TCP/IP stack, there is a good chance our SNMP-agent is already integrated with the TCP/IP stack you are using.

**Free SNMP Agent Integration** - If you use a platform specific TCP/IP stack, to which our SNMP-agent has not been integrated yet - we offer to integrate our SNMP-agent to your system at no cost to you. We will do this integration for FREE with a limit of up to 40 hours.

**HTTP/Web Server Integration** - If you use our TCP/IP stack, our http-server already comes as an integral part of the system. If you use a platform specific TCP/IP stack, to which our http-server has not been integrated yet - we offer to integrate our http-server to your system at no cost to you. We will do this integration for FREE with a limit of up to 40 hours.

**Special Requirements** - DMH can make changes to its software components in order to meet specific customer requirements. If your system architecture presents special requirements, DMH will make changes according to your specification and requirements.

**MIB Design** – DMH will design your private MIBs according to your specification and requirements. MIB design and specification is independent of the SNMP-agent or SNMP manager your using. The outcome of the MIB design and specification is a file in SMIV2 (or SMIV1) format of your MIBs. The MIB file is the input for both the SNMP Manager and to MIB-Compiler that generates the SNMP-agent "c" and "h" files.

**MIB Development and Testing** –

- Full implementation. If your MIBs are already defined or your system requires implementation of industry standard MIBs, we offer a full implementation and testing of your MIB. We use our excellent SMIV2 MIB-Compiler to generate the "c" and "h" files of the MIBs, then add system specific code to access actual data, according to the hosting-system (your system) specification.
- MIB testing. We will test your MIBs either in a simulated environment (w32, Linux etc.) or on your target system.
- MIBs for other agents. DMH also offers to implement your MIB for other SNMP-agents. If you use a non DMH SNMP-agent we will develop your MIB for the specific SNMP-agent of choice. For this DMH will need your SNMP-agent and related tools.
- DMH offers MIB conversion from other SNMP-agent (e.g net-SNMP, envoy)

**Turn-Key Systems and Turn-Key Projects** - DMH offers a complete Turn-Key software design and implementation. This include all or selected part of the portable components we offer. There is a good selection of platforms of various size and price range which offer an integral TCP/IP stack. DMH SNMP-agent and web-server are offered on many of those platforms. If you need to add management capability such as SNMP-agent or web-server to your system, we offer to:

**Software Maintenance** – DMH offers an annual Maintenance contract to our customers. The contract includes:

- Fixes of problems discovered in our software components.
- Changes to meet specific requirements.

**Software Upgrade** – DMH offers an annual contract in which our customers receive source code changes as well as new release of software development tools. DMH constantly makes changes to its software components to:

- Improve performance and memory requirements.
- Add new features.
- Improve existing API for various components.
- Meet industry standard specification.
- Meet platform specific requirements. Our goal is making our software available on a large variety of CPU architectures, platforms and operating environment.
- Improve development tools such as MIB-Compiler and html2c translator to ease the development of MIB and Web support.