Data Synergy
LEADING IT SOLUTIONS

Data Synergy WolMAN Utility v5.2

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About Data Synergy

Data Synergy is a British company based in Sheffield. We have over 10 years' experience developing and supporting software solutions for enterprise PC deployment and management. We do not resell other vendors' products and do all of our development, sales and support from our UK base.

Our products have evolved through listening to customer ideas and applying our unrivalled knowledge of PC internals. If you have a suggestion for a new product or feature we would love to talk to you.

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PC Wake-on-LAN and Data Synergy WolMAN Utility

Overview

Wake-on-LAN (WoL) is a technique used to remotely power-on or resume computer equipment. WoL is platform independent and supported by most modern computers including both IBM compatible PCs and Apple Mac based systems. WoL is implemented using a special type of network message or packet. There are practical and security considerations to implementing WOL in an enterprise network.

This document explains the Data Synergy WolMAN tool. This may be used to investigate and debug WoL. A separate document explains the WoL protocol in more detail.

This document assumes the reader is familiar with common network terminology and system configuration.

Dual 32/64-bit Distribution

WolMAN is available as both 32-bit and 64-bit software. The 32-bit version may be used in mixed 32/64-bit workstations estates and offers identical features on 64-bit systems.

Data Synergy WolMAN Utility

The Data Synergy WolMAN tool is designed for testing and debugging common WoL scenarios. It allows various type of WoL packet to be sent and includes a convenient 'listen' function that can report if a WoL packet was actually received.

> **Tip:** The WolMAN listen function can be very useful to isolate computer Hardware/BIOS/Configuration issues from network issues. This feature will confirm if a WoL packet has been received on the client computer and if the WoL packet is valid. This confirmation will allow you to discount network problems when investigating WoL issues.

WolMAN is supplied as a single EXE file and requires no external dependencies to function. WolMAN is supported on Windows XP and later operating systems. The command-line syntax is:

```
WOLMAN mode [options]
```

Where *mode* is one of the following:

```
/INFO          - Display local network information
/SEND          - Send WOL packet (Requires MAC)
/PING          - Send PING packet (Requires IP)
/LISTEN        - Listen for remote WOL packet
/SLEEPNOW      - Sleep computer pending resume
/HIBERNATENOW  - Hibernate computer pending resume
/SHUTDOWNNOW   - Shutdown computer pending power-on
```

WOLMAN supports the following *send options*. These may be used to qualify the type of WoL packet sent:

```
/SENDLOCAL     - Send using local broadcast (Default)
/SENDSUBNET    - Send using subnet directed broadcast
/SENDDIRECT    - Send using directed packet
/SENDALL       - Send using all available methods
```

The following *additional options* may be used in various supported combinations:

```
/MAC:macaddr   - MAC address of PC to wake
/IP:ipaddress  - IP Address for listen / directed packet
/SUBNET:mask   - Subnet mask for directed broadcast
/PORT:port     - Specifies port for WOL packet
/SENDWAIT      - Wait for target computer response
/LISTENALL     - Report all WOL packets received
```

Getting network (MAC) information with WolMAN

The `/INFO` command displays network information for all currently **connected** network interfaces. This information includes the Interface name, MAC address, and any IP addresses.

For example:

```
00-1B-12-00-34-56           Intel(R) PRO 10/100 Network Connection
                            192.168.1.1 / 255.255.255.0

00-1D-60-AB-78-99           Realtek RTL8139/810x Family Fast Ethernet NIC
                            192.168.2.1 / 255.255.255.0
```

This reports two network interfaces:

Network Interface	MAC Address	IP Address	Subnet Mask
Intel(R) PRO 10/100	00-1B-12-00-34-56	192.168.1.1	255.255.255.0
Realtek RTL8139/810x	00-1D-60-AB-78-99	192.168.2.1	255.255.255.0

This information is relevant for both the sending and target computers in several ways:

- When sending a local broadcast the IP address and subnet mask of the **sending computer** indicate the available broadcast scope. Such broadcasts can be sent with /SENDLOCAL

- When sending a subnet broadcast the **last known** IP address and subnet mask of the **target computer** allow a subnet broadcast to be generated. The IP address is required to form the broadcast only and does not need to be currently assigned the target computer

- When sending any WoL packet the MAC Address is required for the **target computer.** This is used by the receiving computer to identify the request.

Sending Magic Packet using WolMAN

WolMAN supports three different WoL methods. These are:

Method	Required Parameters*	Use / Limitations
/SENDLOCAL (Default)	MAC address	Sends standard local broadcast. This is the simplest method but will only work within the current network broadcast segment. If the host computer has access to multiple network interfaces then the broadcast is sent through **every** available interface.
/SENDDIRECT	MAC address + IP Address	Sends unicast WoL packet to specific IP address. This may not work consistently on all systems and requires the target IP address to remain valid and in the local router ARP cache. This command is included for experimental use only.
/SENDSUBNET	MAC address + IP Address + Subnet mask	Sends SDB WoL packet. The IP address is used to generate the broadcast and does not need to be currently assigned. Ideally this should be the last known IP address for the target computer. As noted above this may require changes to the intermediate routers to operate correctly.

* All parameters refer to the **target** computer. The /PORT argument is optional. The default port used is 7.

In addition the /SENDALL command may be used to simultaneously send using all three methods. This requires all applicable parameters to be defined.

The /SENDWAIT command instructs WolMAN to wait for an ICMP (Ping) reply from the target computer. This requires the /IP argument to be specified.

For example, to send a local broadcast WoL packet to wake the computer with Mac Address 00-12-34-56-78-AB use the following command:

```
WOLMAN /SENDLOCAL /MAC:00-12-34-56-78-AB
```

To send a direct, unicast, WoL packet to a specific IP address:

```
WOLMAN /SENDDIRECT /MAC:00-12-34-56-78-AB
/IP:192.168.200.66
```

To send a SDB WoL packet:

```
WOLMAN /SENDSUBNET /MAC:00-12-34-56-78-AB
/IP:192.168.200.66 /SUBNET:255.255.255.0
```

> **Tip:** WolMAN will attempt to use **every** connected network interface to send the WoL packet. This is superior to the more basic functionality present in the legacy Data Synergy basic WoL 'proxy' software which only supports the first interface card.

Listening for Magic Packets with WolMAN

WolMAN includes a convenient listening function. This may be used on the **target computer** to determine if a sent WoL has actually arrived. This is useful because it is can sometimes be unclear if WoL has failed due to intermediate network issues or incorrect target computer configuration.

To listen for valid WoL packets (on the host computer) use the following command:

```
WOLMAN /LISTEN
```

WolMAN also includes a 'promiscuous' mode that can listen for any WoL packet including those not intended for the host computer. Such packets would not be expected to wake the computer:

```
WOLMAN /LISTEN /LISTENALL
```