AMD

PCnet™-Family Software
Magic Packet Utility
User Guide

Systems Software Engineering,
Network Products Division,
Advanced Micro Devices,
Sunnyvale, CA 94088, USA

Feature Overview

AMD's Magic Packet utility is a convenient tool for system administrators for remotely powering up groups of workstations at preset times. The utility provides the following two basic functions:

- Creates a table of IP and hardware addresses for all hosts in a local area network.
- Associates each group of workstations/hosts to an alarm clock, and power on each group when the time comes.

This utility supports the Microsoft Windows NT 4.0 and Windows 95 operating system environments.

User Interface

The utility's user interface carries all the desirable features that are standard in today's Windows 95 or Windows NT 4.0 based applications. It has the editing capability of Notepad. It has a tool bar, and when the mouse cursor rests on a button a short tooltip message is displayed. It also has a status panel and context sensitive help. Shown below is the main window of the Magic Packet utility. This utility works with ASCII text files, because it relies on text files to carry out various tasks.
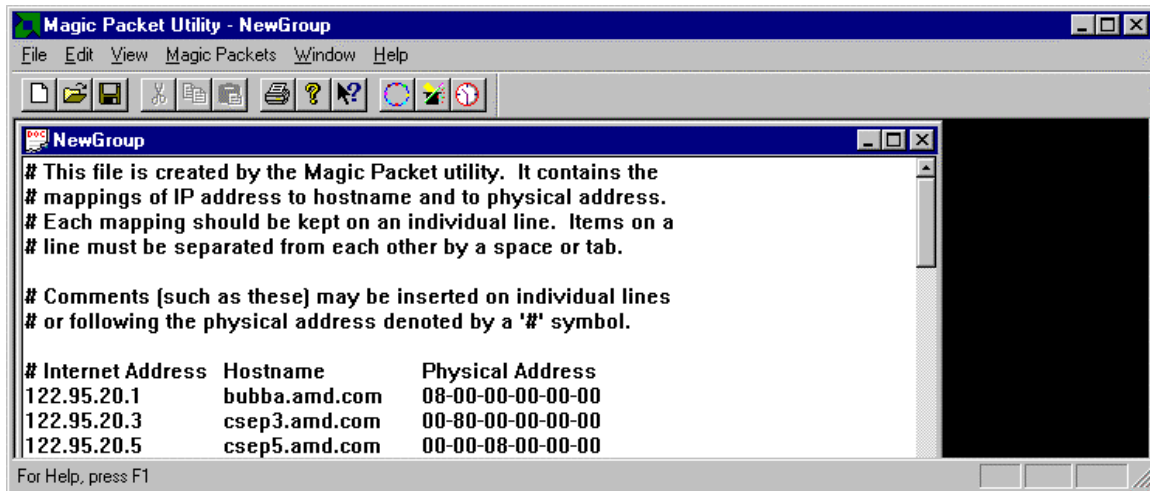
Except for the *MagicPackets* top menu choice, all other menu choices are standard. The *MagicPackets* menu choice presents three options each of which are described in detail below. Alternatively, the user can choose a MagicPackets operation by clicking on the buttons in the tool bar.
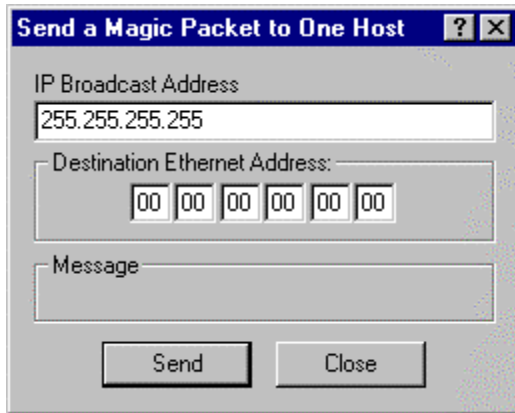
Magic Packet Features

The figure below shows the *MagicPackets* menu items. The following sections describe the usage and significance of those menu items.

Send a Magic Packet to One Host

The menu choice for this operation is called "Power on One Host". Selecting this option will result in the dialog box shown below.
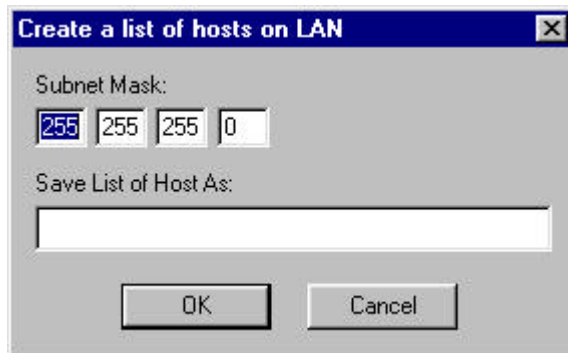

The IP Broadcast Address is used to send a Magic Packet to one host on the network. If the IP Broadcast box is not filled in, the default destination will be the IP broadcast address (255.255.255.255).

A default Ethernet address is shown to let the user know the format of the address. For the program to correctly generate a magic packet, the Ethernet address must be specified.

Create a List of Hosts on the Local Network

The menu choice for this operation is called "Create a List of Hosts". This operation creates an ASCII text file listing the IP address, hostname, and Ethernet address for each host in the local area network. The following figure shows the dialog box that will appear when the "Create a List of Hosts" option is selected.

```
Create a list of hosts on LAN          [X]

Subnet Mask:
[255] [255] [255] [0  ]

Save List of Host As:

[                                      ]


        [   OK   ]      [  Cancel  ]
```

The dialog box asks for a subnet mask, since there might be networks where the last byte of the IP address is further subdivided into smaller networks. Actually, the default subnet mask as shown here would produce the same result, because any host beyond the local network will not show up in the ARP cache. However, supplying the correct subnet mask would speed up this operation.

If the user doesn't provide the filename to store the resulting list of hosts, the default filename is "newgroup.mp". MP is the default extension for files created by this utility.
The utility doesn't distinguish between printers and routers from workstations, and it can only create a list of hosts in a local network, because any host beyond the local area does not show up in the local machine's ARP cache (the utility relies on the ARP.EXE utility to build a table of IP and Ethernet addresses). Since this utility can be used in conjunction with other network management applications, a table of IP and Ethernet addresses can also be obtained from other more powerful applications. In any case, the System Administrator should review the contents of the file to ensure proper format. The format of the list is similar to that of the HOSTS and LMHOSTS files, except that these files don't have a third field listing the Ethernet address.

Here's a listing of the HOSTS file:

```
# Copyright (c) 1994 Microsoft Corp.
# This is a sample HOSTS file used by Microsoft TCP/IP for Chicago
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97       rhino.acme.com      # source server
#       38.25.63.10       x.acme.com          # x client host
        127.0.0.1         localhost
```

Here's the format of the list file created by this utility:

```
#IP ADDRESS      HOST NAME               ETHERNET ADDRESS
   139.95.26.1        bubba.amd.com          08-00-20-73-43-4f  # Whatever
   139.95.26.8        csep8.amd.com          00-80-5f-88-56-0a
   139.95.26.9        csep9.amd.com          00-80-5f-02-4e-09
```

Powering On a Group of Workstations

The menu choice for this operation is called "Group Power on". The following dialog box will be displayed when this option is selected.
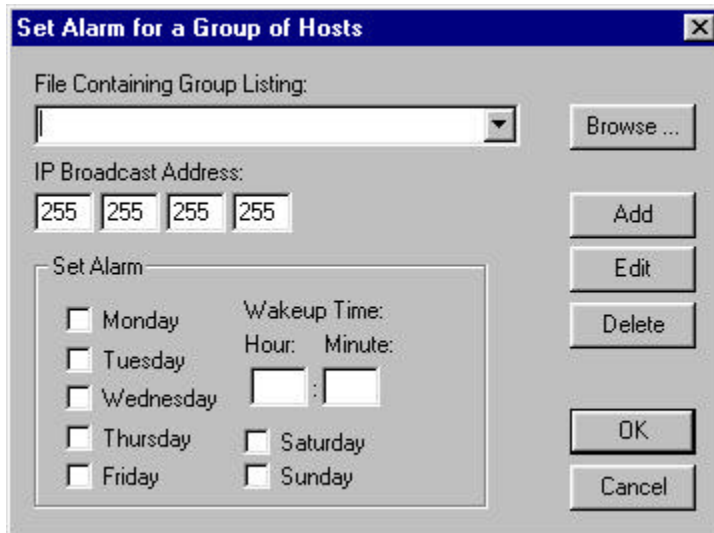

This operation is the heart of this utility because it allows the System Administrators to remotely power on a group of workstations at predetermined times. To do so, the user must first create a file for each group of hosts to be powered on together. Creating a group file can be done by cutting up the list file generated in the previous section into smaller files. The user will then need to assign a wake up time to each group as shown in the above figure.

As the dialog box above shows, each group of workstations/hosts is associated to an IP broadcast address, the days of the week, and a time when these workstations/hosts should be powered on. The utility offers the user the option to select the days of the week when wake up calls should be made. Although this utility must be run continually for the wake up call to work, the group and alarm clock settings should be permanent, so that the user doesn't have to redefine groups and settings each time this utility is terminated and restarted.

There are six buttons in this panel, and their function is almost self explanatory. The "Add" button is used to add a new group. The "Edit" button is to change the settings for an existing group. The "Delete" button is to delete a group and its associated alarm clock. The "OK" button is to dismiss the dialog box and save the current settings. The "Cancel" button is to dismiss the dialog box without saving the settings. The "Browse" button is to search for a file. Next to the "Browse" button is a combo box where existing groups can be selected by clicking on the down arrow.
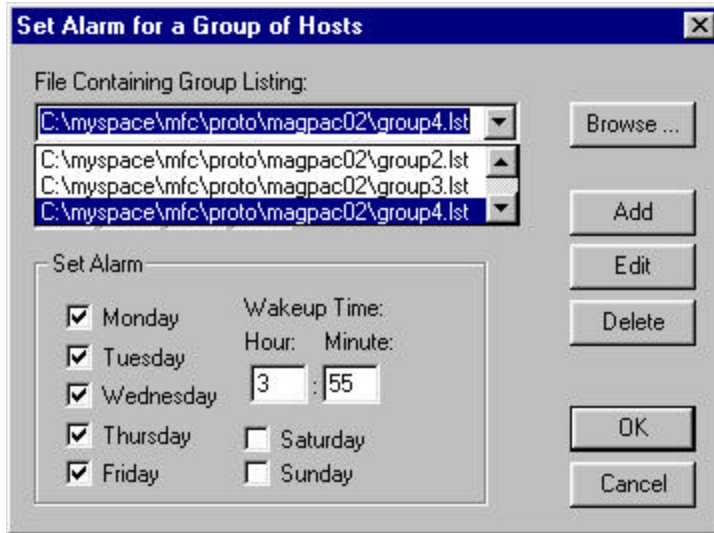
It takes less than 3 seconds to broadcast magic packets to 70 hosts in a local network, but to wake up a group of host in the wide area network might take much longer. Therefore it is advisable to separate alarm for each group by five to ten minutes, since there is only one timer that checks the time once every minute.