

Wake-on-LAN

Wake-on-LAN is also known as WoL. This technology was developed to tell computers to power on from a powered off state by software across the network. By incorporating this technology into computer networks, administrators are given the ability to complete off-hours maintenance at remote locations. This eliminates any need for sending out a technician which saves money.

When a computer is powered off, the ethernet card remains on listening for WoL packets. Once a packet is sent with the correct MAC address, the system will turn on.

Configuring BIOS Settings

In order to enable remote wake-ups on your systems, the BIOS settings must be configured to enable WOL. The BIOS settings can be slightly different depending on the system. Once the BIOS is setup to allow WoL, you can configure policies through SyAM's Management Utilities.

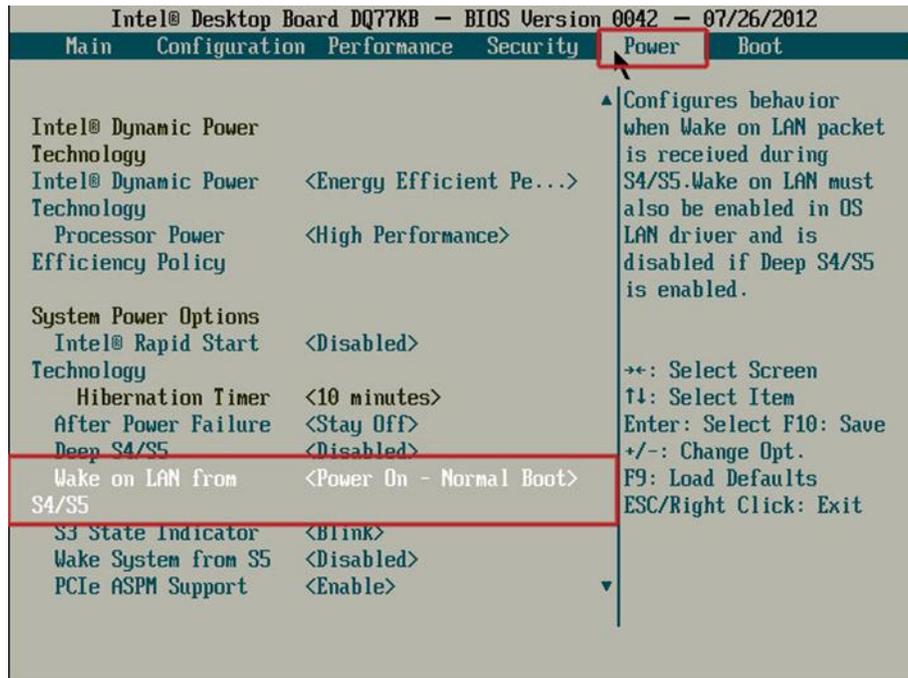
Settings for Wake on LAN are usually displayed under Power Management. Once you select Power Management, you will see an option to enable Wake-on LAN.

Apple computers tend to have the WOL settings in the BIOS already enabled by default.

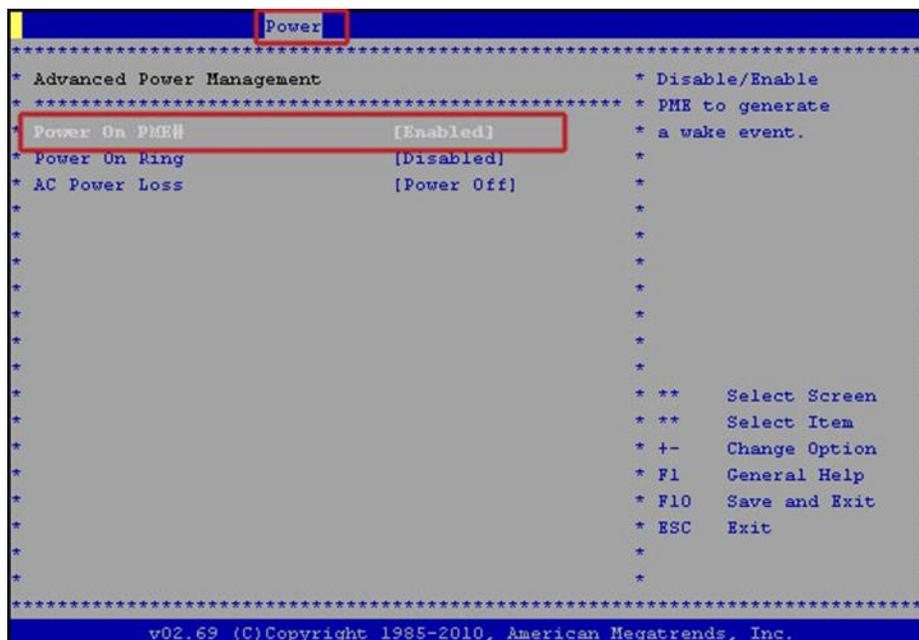
In addition to configuring the BIOS settings, it is sometimes required to enable the WOL feature on the network interface card or on-board silicon.

Below are screenshots that show examples of how to set up a Wake-on-LAN through Intel, AMI and Dell BIOS. Notice that the Intel BIOS example shows that the WoL will occur from S4/S5. This indicates that the WoL will occur from a hibernation or "soft off" system state. Please see [system power states](#) for descriptions on what each state means.

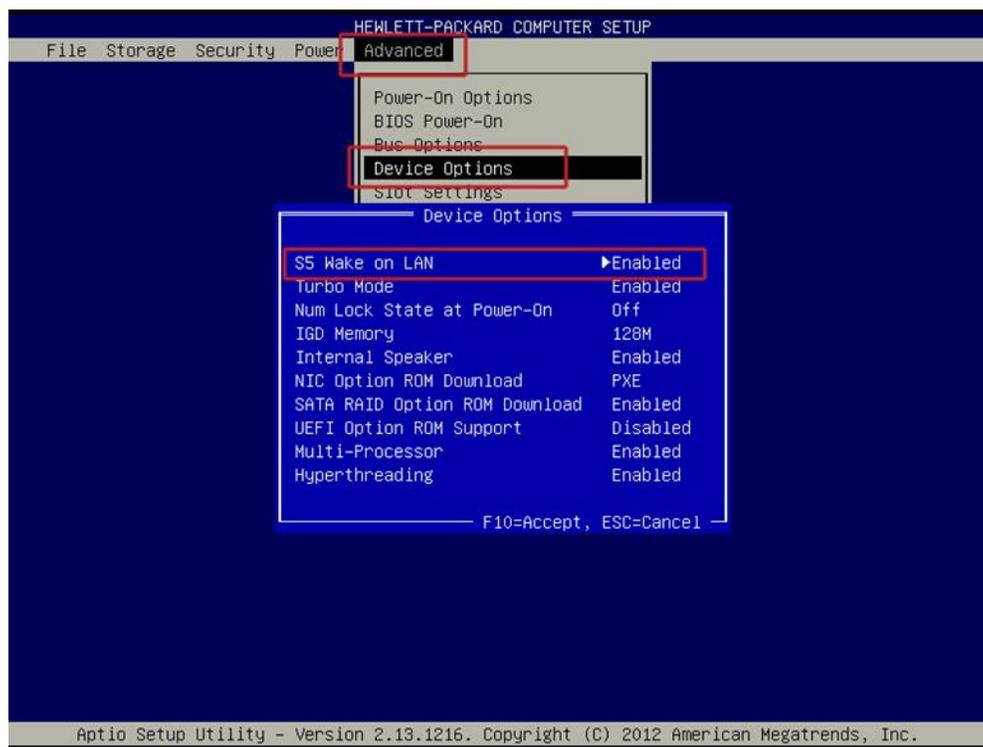
Intel BIOS



AMI BIOS



HP BIOS



System Power States

ACPI State	Power State	Explanation
S0	Working	The system is fully operable and running
S1 S2 S3	Sleep	The system appears to be off and power consumption is reduced to one of these levels based on the settings of the system
S4	Hibernation	The system appears to be off and power consumption is reduced to the lowest level based on the settings of the system. Applications and documents are saved.
S5	Soft Off	The system appears to be off but some components remain powered on to allow for a wake up.

Management Utilities and System Area Manager WoL Capabilities

Feature	Management Utilities V5	System Area Manager
Wake up Single System On Demand	Yes	Yes
Wake Up Group of Systems	Yes	No
Schedule Wake Ups of Systems	Yes	No

Management Utilities WoL

Wake on LAN can be configured to wake client systems on the network. This feature must be supported by the client system hardware.

To create a Wake-on-LAN template, go to the functions menu bar and expand the Configure Templates category. Then select Wake on LAN.

In order to enable WoL, remember to enable the function under the BIOS settings of the system.

SyAM's Management Utilities enables you to create Wake-on-LAN templates that can be configured with one of the following three settings:

- Local Subnet Broadcast
 - To wake systems on the same subnet as the Management Utilities server, select Local Subnet Broadcast and enter the broadcast subnet IP address
- Unicast Packet
 - Select Unicast packet to target system in another subnet
 - The nearest router to the target system must have a static entry in its ARP table for that system
- Broadcast Relay
 - This feature sends a wake packet through a relay system on the target subnet.
 - The relay system must be running the System Client and must be managed by the System Area Manager.
 - To configure a template using broadcast relay, enter the broadcast subnet IP and the name or IP address of the relay system.

Creating a Template

Local Subnet Broadcast

To wake systems on the same subnet as the Management Utilities server, select Local Subnet Broadcast and enter the broadcast subnet IP address.

The screenshot shows a 'Configure Template' dialog box for a 'Wake On LAN Template'. The title bar reads 'Configure Template' and the main title is 'Wake On LAN Template'. Below the title, it says 'Define the settings for wake on LAN commands issued to systems in your network.' The 'Template Name' field contains 'Local Subnet'. Under 'Wake On LAN Settings', there are three radio button options: 'Local Subnet Broadcast' (selected), 'Unicast packet to target system in another subnet', and 'Relay broadcast to another subnet'. A 'Broadcast Subnet' field contains the value '255.255.255.0'. At the bottom are 'Save Changes' and 'Cancel' buttons. On the right, an 'Existing Templates' panel lists 'Local Subnet' and 'Relay 200 Network'. Below this panel is a 'New Template' section with 'Copy' and 'Remove' buttons.

Existing Templates	
Local Subnet	
Relay 200 Network	

New Template	
Copy	Remove

Unicast packet

Because routers do not normally forward broadcast packets, one feature to wake systems on another subnet is a unicast packet. A unicast packet can be sent to a target system. The nearest router to the target system must have a static entry in its ARP table for that system.

The screenshot shows a web-based configuration interface for a 'Wake On LAN Template'. The main title is 'Configure Template' and the specific template is 'Wake On LAN Template'. Below the title, there is a text box for 'Template Name' containing 'Unicast Packet'. The 'Wake On LAN Settings' section contains three radio button options: 'Local Subnet Broadcast', 'Unicast packet to target system in another subnet' (which is selected and highlighted with a red box), and 'Relay broadcast to another subnet'. A note below the selected option states: 'The closest router to the target system MUST have a corresponding static entry in the ARP table.' At the bottom of the main form are 'Save Changes' and 'Cancel' buttons. On the right side, there is a sidebar with 'Existing Templates' (listing 'Local Subnet' and 'Relay 200 Network') and a 'New Template' section with 'Copy' and 'Remove' buttons.

Configure Template

Wake On LAN Template

Define the settings for wake on LAN commands issued to systems in your network.

Template Name:

Wake On LAN Settings
Please select one of the options below:

Local Subnet Broadcast

Unicast packet to target system in another subnet

The closest router to the target system MUST have a corresponding static entry in the ARP table.

Relay broadcast to another subnet

Existing Templates

- Local Subnet
- Relay 200 Network

New Template

Broadcast Relay

The broadcast Relay feature sends a wake packet through a relay system on the target subnet. The relay system must be running the System Client and must be managed by the System Area Manager. To configure a template using broadcast relay, enter the broadcast subnet IP and the name or IP address of the relay system.

The screenshot shows the 'Configure Template' web interface for 'Wake On LAN Template'. The page title is 'Configure Template' and the main heading is 'Wake On LAN Template'. Below the heading, it says 'Define the settings for wake on LAN commands issued to systems in your network.'

The 'Template Name' field is set to 'Relay 200 Network'.

The 'Wake On LAN Settings' section has the instruction 'Please select one of the options below:'. There are three radio button options:

- Local Subnet Broadcast
- Unicast packet to target system in another subnet
- Relay broadcast to another subnet

The 'Relay broadcast to another subnet' option is selected and highlighted with a red box. Below it, the 'Broadcast Subnet' field is set to '255.255.255.0'.

Below the radio buttons, there is a note: 'System must have the client installed and managed, be powered on, and in the same physical LAN segment as the target systems.'

There are two more fields highlighted with red boxes:

- 'Name' field: empty
- 'IP Address' field: set to '192.168.200.29'

At the bottom of the form, there are 'Save Changes' and 'Cancel' buttons.

On the right side, there is a panel titled 'Existing Templates' with a list containing 'Local Subnet' and 'Relay 200 Network'. Below this panel is a 'New Template' section with 'Copy' and 'Remove' buttons.

Scheduling a Wake on LAN Job

Systems that support the Wake on LAN feature can be activated through Management Utilities. In order to schedule a Wake on LAN job, a Wake on LAN template must be created. Click configure schedule to set policies on when to issue a Wake on LAN command. Be sure to save any changes.

Configure Template

Add / Edit A Job...

Create a job that will run one or more times using templates that you have created.

Job Details

Job Name:

Create groups for failure codes

Schedule Summary...

Frequency: Every Day
Intelligent Removal Once Completed Successfully: Disabled
Enforce Blackout Calendar
Start Date: Tuesday, November 13, 2012
Run Time: 07:00
Days: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

Task Name				
Issue Wake On LAN Command	↑	↓	Edit	✖

Once the desired template is selected, right click on a system in Groups to schedule the job for a single system, for selected machines, or for the entire group.

The screenshot shows a network management interface for an 'Office' group. A table lists various systems with columns for OU, IP, MAC, Name, OS, Client, Type, Mgd, Area Manager, and Power. A context menu is open over the table, offering actions such as 'Apply to Selected Machines', 'Schedule a job...', 'Client Deployment', 'Set Location or Function', 'Set Notification Settings', 'Patch Management', 'Set Power Schedule', 'Set Remote Console Settings', 'Shutdown', 'Set Area Manager IP Address', 'Set System Alert Matrix', 'Deploy Third Party Software', 'Issue Wake On LAN Command', 'Wait', 'Patch Scan Now', 'Refresh Selected Systems', and 'Add to Restricted Access List'. A sub-menu is also visible, containing 'Manage Job Templates', 'New Template', 'Deploy Client Set Power + IP', and 'Wake on LAN - Office Network'.

OU	IP (1st)	MAC	Name	OS	Client	Type	Mgd	Area Manager	Power
			EWAY-7450R	Microsoft Windows 7	V4.48.440-	Desktop	Yes	192.168.10	O
			VERMONITOR	Microsoft Windows 7 E	V4.49.000-	Desktop	Yes	192.168.20	O
					V4.49.000-	Desktop	No		O
					V4.49.000-	Desktop	No		O
					V4.45.000-	Desktop	No		O
					[Linux]	Server	No		O
			M-BIGSERVER	Microsoft Windows Ser	V4.49.000-	Server	No		O
						Unknown	No		O
			RKSTATION-NT2	Microsoft Windows 7 P	V4.47.950-	Desktop	Yes	192.168.10	O
			AN-E81T7RVBQ	Microsoft(R) Windows	V4.47.340-	Server	Yes	192.168.20	O
			SERVER			Unknown	No		O
			Q35M-S2-2-RT	Microsoft Windows XP	V4.45.765-	Desktop	No		O
			BERTS-DESKTOP	Microsoft Windows 7 P	V4.48.450-	Desktop	No		O
						Unknown	No		O

Click the Run Job button to place the job in the schedule.

Details

Add / Edit A Job...

Create a job that will run one or more times using templates that you have created.

Job Details

Job Name:

Save Job as Template (after running job)

Remove devices from the following group upon successful completion: Office

Create groups for failure codes

Schedule Summary...

Frequency: Every Day

Intelligent Removal Once Completed Successfully: Disabled

Enforce Blackout Calendar

Start Date: Tuesday, November 13, 2012

Run Time: 07:00

Days: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

Task Name				
Issue Wake On LAN Command	↑	↓	Edit	✖

Affected Systems (1)

WN7X64

System Area Manager WOL Capabilities

Wake on LAN capability allows central administrators to power up a WoL enabled managed system. As stated previously, the BIOS settings must be configured to enable WoL in order for the job to function properly. The System Area Manager allows administrators to wake computers one system at a time. To schedule WoL jobs or to wake multiple computers at one time you would need to use Management Utilities

- To wake a system, it must be in the Shutdown health state.
- The IP address and MAC address of the system is automatically populated by the System Area Manager
- Click the “Wake System” button to wake the system remotely.

