

IPv4 Broadcast Address

A Broadcast Address is an special values in the host-identification part of an IP address.

It is used to sending data multiple recipients at the same time, for example to allow one device to communicate with all other devices on the network at once.

The device sends its messages to the broadcast address, and the network hardware propagates it to every other device in the group (the broadcast domain).

Calculation

The broadcast address for an IPv4 host is calculated through [bitwise OR](#) using the [subnet mask](#) and the host [IP address](#).

Example: For broadcasting a packet to an entire IPv4 subnet using the private IP address space $172.16.0.0/12$, which has the [subnet mask](#) $255.240.0.0$, the broadcast address is $172.16.0.0 | 0.15.255.255 = 172.31.255.255$.

The IP broadcast address $255.255.255.255$ is limited to use for the local (zero / $0.0.0.0$) network. Traffic to this address is not forwarded to other networks.

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