

Zero-Configuration Multicast Address Assignment

IETF 118

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National Marine Electronics Association

Document Overview

- [draft-ietf-pim-zeroconf-mcast-addr-alloc-ps](#)
 - Problem statement
- [draft-ietf-pim-updt-ipv6-dyn-mcast-addr-grp-id](#)
 - Creates IANA registry for dynamic multicast address assignment protocols
 - Changes group ID allocation for MADCAP protocol
 - -01 version: editorial changes
- [draft-ietf-pim-ipv6-zeroconf-assignment](#)
 - mDNS-based zeroconf solution
 - Primarily intended for L2 networks
 - Reserves group IDs 0x90000000-0x9FFFFFFF

Thank You!

OneNet Progress



- Discussed IETF work at last meeting
- Currently reserved ff0X::160-16f with IANA
- Interim solution: use ff02::168-16f for OneNet-specific approach
- Replace with IETF solution when published

- Will deliver presentation on OneNet to the IAB

Proof-of-Concept

- <https://github.com/nkarstens/mdns-zeroconf-mcast>

`mdns-zeroconf-mcast [OPTION]`

Options:

```
-i --intf=interface  The network interface to use
-n --name=name       The name of the application
-g --groupid=id      32-bit group ID in hexadecimal
-t --ttl=ttl         Record TTL in seconds (optional, defaults to 1 hour)
-h --help            Prints help message
```

- Simulates advertising and collision detection
 - Use iptables to simulate partition & repair
- Actual use would have random group IDs and persistent storage

The “Null and Void” Port (Problem)

- The transport layer is used to multiplex applications on the same host. Applications are identified by the port.
- With multicast, the application can be identified by the destination multicast address, making the port irrelevant.
- Current practice requires developers to reserve a port with IANA.

The “Null and Void” Port (Proposal)

- Reserve port 49151 (last “user” port according to RFC 6335, section 6) as the “Null and Void” port.
- Conformant stacks will prevent applications from exclusively reserving this port.
- Conformant applications will not exclusively reserve the port.
- Alternative name: “Multicast Application” Port
- We can do this right now!

The “Null and Void” Port (Demo)

- Transmitter, Terminal 1:

```
socat STDIN UDP4-DATAGRAM:239.0.0.1:49151,ip-multicast-if=172.16.6.100
```

Output interface address

- Transmitter, Terminal 2:

```
socat STDIN UDP4-DATAGRAM:239.0.0.2:49151,ip-multicast-if=172.16.6.100
```

- Receiver, Terminal 1:

```
socat UDP4-RECVFROM:49151,bind=239.0.0.1,ip-add-membership=239.0.0.1:172.16.1.132,fork STDOUT
```

Bind to multicast address

Interface address

- Receiver, Terminal 2:

```
socat UDP4-RECVFROM:49151,bind=239.0.0.2,ip-add-membership=239.0.0.2:172.16.1.132,fork STDOUT
```

Receive multiple messages
without terminating



239.0.0.1 →

239.0.0.2 →

