

# IEEE 802.1ag Ethernet OAM

## An Open Source Implementation



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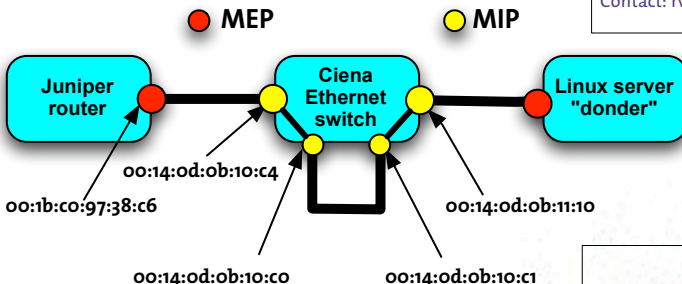
The IEEE 802.1ag standard is a set of protocols for Ethernet OAM (Operations, Administration, and Management). The `dot1ag-utils` software package is an Open Source (new BSD License) implementation of the IEEE 802.1ag protocol and is supported on Linux, FreeBSD and MacOSX servers. The package implements Loopback Messages (L2 ping), Link Trace Messages (L2 trace) and Continuity Check Message (reachability).



```
donder# l2ping -i eth5 -v 123 -l7 -c3 00:1b:co:97:38:c6
CFM LBM to 00:1b:co:97:38:c6
64 bytes from 00:1b:co:97:38:c6, sequence 423844328, 0.934 ms
64 bytes from 00:1b:co:97:38:c6, sequence 423844329, 0.714 ms
64 bytes from 00:1b:co:97:38:c6, sequence 423844330, 0.825 ms
donder#
```

### Release Schedule

Beta release planned for May 2011  
First release planned for Summer 2011  
New BSD License  
Supported on Linux, FreeBSD and MacOSX  
Implements LBM, LBR, LTM, LTR and CC  
Implemented as user space programs  
Looking for beta testers  
Contact: [rvdp@sara.nl](mailto:rvdp@sara.nl)



MEP: Maintenance End Point  
MIP: Maintenance Intermediate Point

```
donder# l2trace -i eth5 -v 123 -l7 00:1b:co:97:38:c6
Sending CFM LTM probe to 00:1b:co:97:38:c6
ttl 1: LTM with id 370615977
  reply from 00:14:od:ob:10:c1, id=370615977, ttl=0, RlyFDB
ttl 2: LTM with id 370615978
  reply from 00:14:od:ob:10:c1, id=370615978, ttl=1, RlyFDB
  reply from 00:14:od:ob:10:c4, id=370615978, ttl=0, RlyFDB
ttl 3: LTM with id 370615979
  reply from 00:14:od:ob:10:c1, id=370615979, ttl=2, RlyFDB
  reply from 00:14:od:ob:10:c4, id=370615979, ttl=1, RlyFDB
  reply from 00:1b:co:97:38:c6, id=370615979, ttl=0, RlyHit
```

### IEEE 802.1ag Functionality

#### Continuity Check (CC)

- Periodic hello messages
- Detect loss of connectivity
- Multicast sent by MEP, no replies sent
- Processed by MIP/MEP

#### Loopback Message/Reply (LBM/LBR)

- L2 ping sent manually from CLI
- Unicast sent by MEP, unicast reply by MIP/MEP

#### Link Trace Message/Reply (LTM/LTR)

- L2 traceroute sent manually from CLI
- Multicast sent by MEP, unicast replies by MIP/MEP
- LTM is forwarded until TTL is zero
- LTM is forwarded until target MIP/MEP is reached