NAME

metis.cfg — **metis.cfg** is an example of a configuration file usable with **metis_daemon(1)**, though there is nothing special about the actual filename. Each line of the configuration file is also usable with **metis_control(1)**. This document specifies all available command lines used to configure and query Metis.

All commands have a 'help', so typing 'help command' will display on-line help.

In a configuration file, lines beginning with '#' are comments.

ADD COMMANDS

add connection ether *symbolic dmac interface*

Adds an Ethernet connection on *interface* to the given destination MAC address. The *symbolic* name is a symbolic name for the connection, which may be used in later commands, such as **add route**. There must be an Ethernet Listener on the specified interface (see **add listener**), and the connection will use the same EtherType as the Listener. The *dmac* destination MAC address is in hexidecimal with optional "−" or ":" separators.

A connection is a target for a later route assignment or for use as an ingress identifier in the PIT. When using a broadcast or group address for a connection, an Interest routed over that connection will be broadcast. Many receivers may respond. When Metis receives a broadcast Interest it uses the unicast source MAC for the reverse route −− it will automatically create a new connection for the source node and put that in the PIT entry, so a Content Object answering the broadcast Interest will only be unicast to the previous hop.

add connection ether conn7 e8-06-88-cd-28-de em3

add connection ether bcast0 FFFFFFFFFFFF eth0

add connection (tcp|udp) *symbolic remote_ip remote_port local_ip local_port*

Opens a connection to the specific *remote_ip* (which may be a hostname, though you do not have control over IPv4 or IPv6 in this case) on *remote_port*. The local endpoint is given by *local_ip local_port*. While the *local_ip local_port* are technically optional parameters, the system's choice of local address may not be what one expects or may be a different protocols (4 or 6). The default port is 9695.

A TCP connection will go through a TCP connection establishment and will not register as UP until the remote side accepts. If one side goes down, the TCP connection will not auto-restart if it becomes availble again.

A UDP connection will start in the UP state and will not go DOWN unless there is a serious network error.

Opens a connection to 1.1.1.1 on port 1200 from the local address 2.2.2.2 port 1300
add connection tcp conn0 1.1.1.1 1200 2.2.2.2 1300

opens connection to IPv6 address on port 1300
add connection udp barney2 fe80::aa20:66ff:fe00:314a 1300

add listener (tcp|udp) *symbolic ip_address port*

add listener ether *symbolic interfaceName ethertype*

add listener local *symbolic path*

> Adds a protocol listener to accept packets of a given protocol (TCP or UDP or Ethernet). The *symbolic* name represents the listener and will be used in future commands such as access list restrictions. If using a configuration file on **metis_daemon**, you must include a listener on localhost for local applications to use.

> The *ip_address* is the IPv4 or IPv6 local address to bind to. The *port* is the TCP or UDP port to bind to.

> The *interfaceName* is the interface to open a raw socket on (e.g. "eth0"). The *ethertype* is the EtherType to use, represented as a 0x hex number (e.g. 0x0801) or an integer (e.g. 2049).

> The *path* parameter specifies the file path to a unix domain socket. Metis will create this file and remove it when it exits.

> Listens to 192.168.1.7 on tcp port 9695 with a symbolic name 'homenet'
>> add listener tcp homenet 192.168.1.7 9695

> Listens to IPv6 localhost on udp port 9695
>> add listener udp localhost6 ::1 9695

> Listens to interface 'en0' on ethertype 0x0801
>> add listener ether nic0 en0 0x0801

add route *symbolic prefix prefix*

> Adds a static route to a given *prefix* to the FIB for longest match.

> Currently, the *symbolic* and *cost* are not used.

LIST COMMANDS

list connections

> Enumerates the current connections to Metis. These include all TCP, UDP, Unix Domain, and Ethernet peers. Each connection has an connection ID (connid) and a state (UP or DOWN) followed by the local (to metis) and remote addresses.

list interfaces

> Enumerates the system interfaces available to Metis. Each interface has an Interface ID, a 'name' (e.g. 'eth0'), an MTU as reported by the system, and one or more addresses.

list routes   Enumerates the routes installed in the FIB. The *iface* is the out-bound connection. The *protocol* is the the routing protocol that injected the route. *route* is the route type. 'LONGEST' means longest matching prefix and 'EXACT' means exact match. Only 'LONGEST' is supported. *cost* is the cost of the route. It is not used. *next* is the nexthop on a multiple access interface. it is not used because the current implementation uses one connection (iface) per neighbor. *prefix* is the CCNx name prefix for the route.

Examples

> list connections
23   UP inet4://127.0.0.1:9695 inet4://127.0.0.1:64260 TCP

> list interfaces
int   name lm   MTU
24   lo0 lm   16384 inet6://[::1%0]:0
inet4://127.0.0.1:0
inet6://[fe80::1%1]:0
25   en0 m   1500 link://3c-15-c2-e7-c5-ca
inet6://[fe80::3e15:c2ff:fee7:c5ca%4]:0
inet4://13.1.110.60:0
inet6://[2620::2e80:a015:3e15:c2ff:fee7:c5ca%0]:0
inet6://[2620::2e80:a015:a4b2:7e10:61d1:8d97%0]:0
26   en1 m   1500 link://72-00-04-43-4e-50
inet4://192.168.1.1:0
27   en2 m   1500 link://72-00-04-43-4e-51
28   bridge0 m   1500 link://3e-15-c2-7e-96-00
29   p2p0 m   2304 link://0e-15-c2-e7-c5-ca

> list routes
iface protocol route   cost   next prefix
23   STATIC LONGEST   1 −−-.−−-.−−-.−−-/.... lci:/foo/bar
Done

REMOVE COMMANDS
remove connection
            Not implemented.

remove route
            Not implemented.

MISC COMMANDS
quit   In interactive mode of **metis_control**, it cause the program to exit.

set debug   Turns on the debugging flag in **metis_control** to display information about its connection to
            Metis.

unset debug
            Turns off the debugging flag in **metis_control** to display information about its connection to
            Metis.

USAGE
Example Linux metis.cfg configuration file

#local listeners for applications
add listener tcp local0 127.0.0.1 9695
add listener udp local1 127.0.0.1 9695
add listener local unix0 /tmp/metis.sock

add ethernet listener and connection
add listener ether nic0 eth0 0x0801

add connection ether conn0 ff:ff:ff:ff:ff:ff eth0
add route conn0 lci:/ 1

add UDP tunnel to remote system
add connection udp conn1 ccnx.example.com 9695
add route conn1 lci:/eample.com 1

Example one-shot metis_control commands

metis_control list routes
metis_control add listener local unix0 /tmp/metis.sock

SEE ALSO
metis_control(1) metis_daemon(1)

CAVEATS
BUGS
•   The output of 'list interfaces' is difficult to read because multiple addresses do not align.

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