MultiGate Mac: General Information

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TOPIC --

MultiGate Mac is a software router/gateway for Macintosh II computers from
Network Resources Corporation. It supports

• AppleTalk and TCP/IP routing

• IP in DDP encapsulation (MacIP support for MacTCP clients)

• Up to five Ethernet cards and one LocalTalk.

DISCUSSION --

MultiGate Mac can run as a concurrent AppleShare application, or under
MultiFinder or System 7 with a mail gateway. The only requirement is that
an additional Ethernet card be used for other services besides the gateway,
because MultiGate Mac requires dedicated cards for routing.

MacIP support lets MacTCP clients on LocalTalk access TCP/IP host
computers. MultiGate Mac can be used to connect an AppleTalk internetwork
to a TCP/IP backbone and provide IP in DDP encapsulation for up to 254
Macintosh computers anywhere on the AppleTalk internetwork. Flexible IP
support allows for static addressing via MacTCP, MacTCP server mode, or a
combination of the two.

MultiGate Mac also supports an alternative host access scheme, based on the
MultiGate Stream Protocol. This user-friendly protocol is highly efficient
on limited-bandwidth networks (LocalTalk, for example).

MultiGate Mac supports full TCP/IP interior gateway routing between Ethernet
segments. This includes support for RIP, proxy-ARP, and RFC-950 subnetting.
SNMP support is also provided.

Configuration

ConfigureIt!, a HyperCard stack, makes it easy to configure the gateway.
ConfigureIt! builds a text file that is read by the gateway at startup.

(This file can also be edited using TeachText.)

When MultiGate Mac reads the configuration file, it does extensive error
checking to make sure the configuration is valid. It checks for syntax
errors in the configuration file, and when the network protocols are
initialized, it checks for such items as valid network numbers, consistent
subnet masks, duplicate addresses, etc. If it detects an error, the gateway
logs a message to the monitor, detailing the problem. The user can then
correct the problem and try again.

Once the gateway is running, it continues to monitor the network. It shuts
down only if it encounters a serious network error. In such a case, it
logs a message to the monitor.

Operations Interface

A password-protected Operations Interface is accessible via any computer
capable of establishing a Telnet session. This powerful interface provides
detailed information on gateway status, port statistics, and gateway
configuration. It also provides detailed network information, including
AppleTalk routing information, with statistics on network usage, IP routing,
encapsulation mapping tables and activity, ARP and AARP tables, "pinging" of
AppleTalk or IP devices, tracking and logging of network error packets, and
so on.

The error tracking feature is useful for isolating network faults; it lets
the user view the first 100 bytes of each protocol layer in an error
packet that has been saved. This information can be used to pinpoint the
offending entity. Over 100 network errors on the AppleTalk and IP networks
are tracked.

Features of the Telnet Interface

• Prints AARP tables (AT->EN mapping tables).

• Prints ARP tables (IP->EN mapping tables).

• Prints the gateway configuration.

• Evaluates expressions in octal, decimal, and hex.

• DNS lookups of names.

• Can dump specific portions of router memory (like MacsBug).

• Prints a summary of various errors and events recorded by the router
  including: packets dropped due to unknown AT network, packets dropped due
  to unknown EN address (via AARP), hop count overflow, error packets saved
  by router. Over 100 types of error packets are saved. The first 100 bytes
  of each protocol layer can be dumped for analysis to determine originating
  device, destination, type of packet, etc. Many events other than those
  listed above are recorded by the gateway.

- Logs errors to your screen in real time.

- Can define the format packets are logged with.

- Can log packets to/from a given address of given type in real time.

- Can shut down the gateway.

- Dumps address mapping for IP-in-DDP encapsulation.

- Prints summary of each TCP<->MSP connection.

- Prints the detailed state of a specific connection.

- Dumps the entire AT<->IP mapping tables.

- Dumps NBP address tables.

- Does an NBP lookup and prints the results.

- Dumps info about packet buffer at a given address.

- Sends and times Echo packets to the named host (AppleTalk or IP).

- Can restart the gateway.

- Dumps the RTMP tables for all AppleTalk nets.

- Dumps the RIP tables for all IP nets.

- Gives the RTMP or RIP entry for a defined network#.

- Prints the status of the gateway and detailed statistics on each port.

- Traces connections.

- Displays current software version.

- Flushes the ARP/AARP entry for a particular address.

- Dumps the RTMP table for each net in that zone.

Security

The current version of MultiGate Mac provides the following:

- Filtering of inbound Telnet sessions to connected networks

- The ability to declare a network insecure. This means that the gateway
  won't respond to RTMP tables and RIP tables on a given network, unless
  the router providing the tables is statically configured in the gateway
  configuration file.

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MultiGate 2000
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The functionality of MultiGate Mac is also available with NRC's dedicated
LocalTalk-to-Ethernet hardware router, MultiGate 2000.  The software module,
called IPGate, provides all the features of MultiGate Mac other than
Ethernet-to-Ethernet routing.  Instead of logging start-up errors to the
screen, IPGate logs them to NVRAM and then reboots from PROM code (ensuring
that the router will come back up).  MultiGate Manager Jr. can then be used
to retrieve the error code from NVRAM.  Users can then analyze the error,
make the appropriate corrections to the router configuration, and then
download a new image to the router.


For more information, search on "Network Resources".
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