

## Chapter 2

# System Installation Notes

### 2.1 Overview

GateD relies on certain services of the UNIX kernel for the TCP/IP stack. These services include:

- IP forwarding table
- Setting of UDP checksum in some packets
- SNMP support (via snmpd/smux)
- Interfaces with the kernel to query interface status, routes, and timers
- Multicast support

GateD runs on a large number of platforms using the system functions specified above. To select the correct set of system functions, GateD uses autoconf-generated configuration files to build compile-time configurations. Refer to the Core Porting Guide for details on required functions and instructions on handling their absence.

This section provides notes on how to configure UNIX system functions that are needed on various systems.

### 2.2 UDP Checksums

RIP will refuse to run if it determines that UDP checksums are disabled in the kernel. Running without UDP checksums can lead GateD to propagate incorrect routing information, especially on serial links. This check does not help you determine if the RIP packets you receive are missing a checksum, but at least it prevents you from generating these packets and calls attention to the problem.

### 2.3 IP Multicast Support

The OSPF and RIP implementations make use of IP multicasting facilities. If these facilities are not present, functionality is reduced.

In order to support legacy operating systems, a route is installed in the unicast FIB with a next hop of the loopback interface, for each multicast group that is joined. This ensures that GateD receives copies of packets that it sends to a given multicast group.

#### 2.3.1 IP Multicast Routing Support

GateD includes support for multicast routing protocols. It implements the router portion of the IGMP protocol to determine local group membership information. Check your license agreement to see what multicast protocols are available in your GateD package. GateD is generally compatible with the 3.3 and 3.5 releases of the IP Multicast distribution from Xerox Parc.

### 2.3.2 KRT\_IPMULTI\_TTL0

With this model, the kernel also acts as a protocol independent multicast forwarding cache. Forwarding cache entries are generated on demand as data traffic is forwarded. It uses messages on the IGMP socket to communicate with the routing daemon and request that a forwarding cache entry be calculated. Examples of the use of this model include the *Xerox PARC IP Multicast 3.3 and 3.5* kernel releases.

## 2.4 Interfacing to the SNMP SMUX Interface

### 2.4.1 SMUX

GateD supports SNMP via the RFC 1227 SMUX interface. It is compiled and enabled by default. In order to retrieve SNMP information from GateD, a master agent must be running and listening for SMUX connections on TCP port 199.

GateD is known to interoperate with the net-snmp (UC-Davis) SNMP agent, which can be found at:

[net-snmp.sourceforge.net](http://net-snmp.sourceforge.net)

Instructions for building the master agent with SMUX support can be found in the distribution.

## 2.5 Running GateD on Various Systems

### 2.5.1 Turn off ICMP Redirect in Kernel

*HPUX* and any other system that lacks a routing socket must have ICMP when building RIP and BGP. Turn off ICMP-REDIRECT in the kernel (with `ndd -sst /dev/ip ip-ignore_redirect`). GateD handles the ICMP redirects.

### 2.5.2 Running GateD on BSD

For *BSD* variants, make sure ip-forwarding is enabled.

## 2.6 Compiling GateD on Systems with Shared Libraries

If an assertion failure occurs in `task_stdio_read()` it is because a file descriptor was improperly closed. This can occur when the named resolver libraries are improperly installed in the system shared libraries. If the socket used by the shared libraries is not statically initialized to `-1`, file descriptor zero will be closed when GateD calls `endhostent()`. The solution is to fix the shared libraries. A workaround would be to avoid using any symbolic names in the config file and specify `options noresolv ;`.