

AIS_Hackathon – Day 2

RFCs & Code Equivalent

RFC4213

Reference: <https://tools.ietf.org/html/rfc4213>

Participants:

Mohamed Aliouat (DragonFlyBSD) – In progress

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Changes in RFC 4213

- Removed automatic tunneling
- Removed use of IPv4-compatible IPv6 addresses

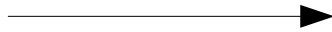
Why?

- IPv4-compatible IPv6 addresses are no longer in use
- Used during the transition from IPv4 to IPv6

IPv4 compatible IPv6 add

- `::ffff:192.0.2.128 --> 192.0.2.128`

IPv6 Address



Network
Stack

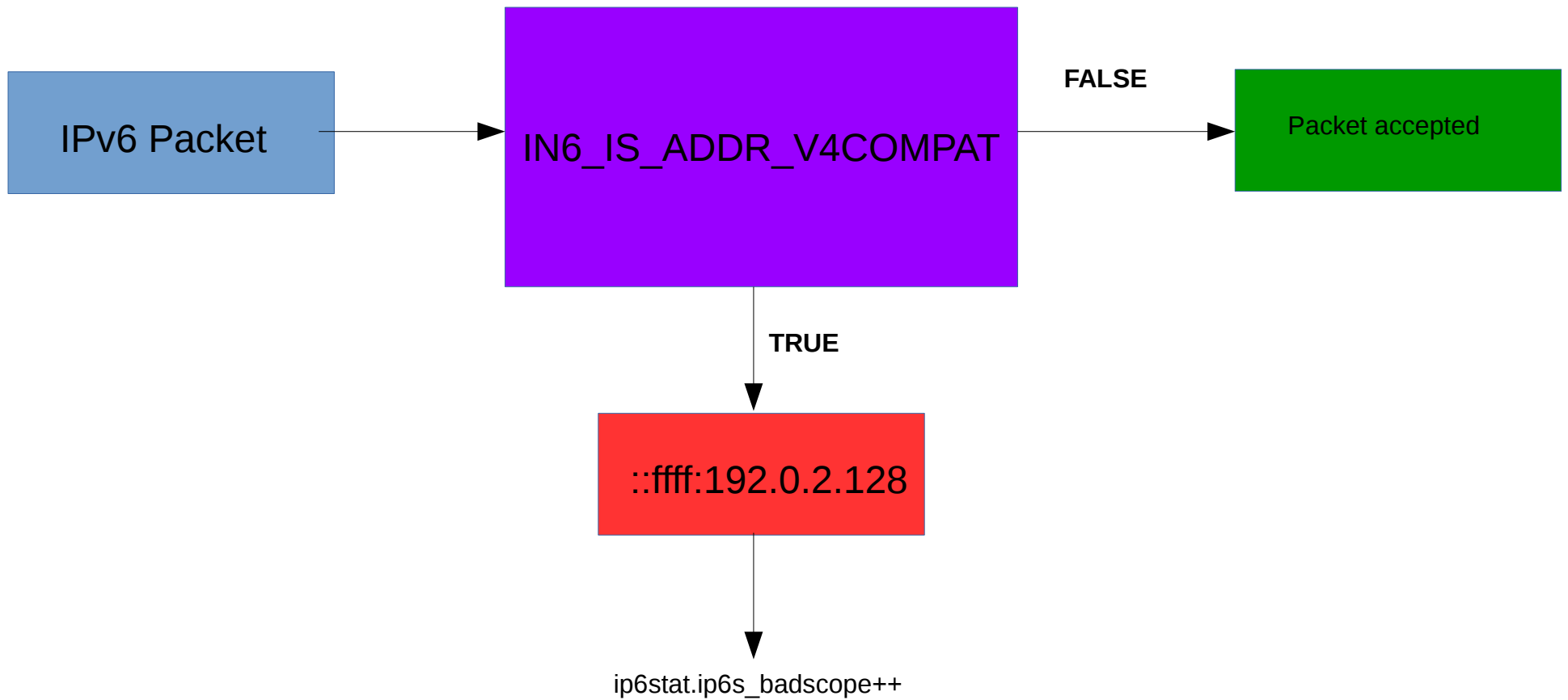
Linux (/src)
Kernel
Source

Network Stack
src/sys/netinet6

Check

ip6_input.c

ip6_input.c



Change - /sys/netinet6/ip6_input.c

```

-#if 0
+
+   /*
+    * Reject packets with IPv4 compatible addresses (auto tunnel).
+    *
-   * The code forbids auto tunnel relay case in RFC1933 (the check is
-   * stronger than RFC1933). We may want to re-enable it if mech-xx
-   * is revised to forbid relaying case.
+   * The code forbids automatic tunneling as per RFC4213.
+   */
+   if (IN6_IS_ADDR_V4COMPAT(&ip6->ip6_src) ||
+       IN6_IS_ADDR_V4COMPAT(&ip6->ip6_dst)) {
+       ip6stat.ip6s_badscope++;
+       goto bad;
+   }
-#endif
```

Compile kernel

- Compilation Successful!
- RFC 4213 Compliant FreeBSD Kernel

Summary

- - → Packet arrives at network stack
- --> Check is done in ip6_input.c
- --> API : IN6_IS_ADDR_V4COMPAT
- Returns true if address is IPv4 compatible IPv6 add otherwise false
- --> The check is done on both src and dst of packet structure
- --> if true, packet dropped silently + increment stack counters

In Progress: Working on RFC 8021

Reference: <https://tools.ietf.org/html/rfc8021>