

“ICMP Extensions for Environmental Impact”

draft-pignataro-eimpect-icmp-00

Carlos Pignataro , [Jainam Parikh](#) , [Ron Bonica](#)

The Objective

1. Visibility on environmental impact info
2. Use transactionally or via automation

Abstract

This document defines a data structure that can be appended to selected ICMP messages. The ICMP extension defined herein can be used to gain visibility on environmental impact information on the Internet by providing per-hop (i.e., per topological network node) power metrics and other current or future sustainability metrics. This will contribute to achieving an objective mentioned in the IAB E-Impact workshop.

The techniques presented are useful not only in a transactional setting (e.g., a user-issued traceroute or a ping request), but also in a scheduled automated setting where they may be run periodically in a mesh across an administrative domain to map out environmental-impact metrics.

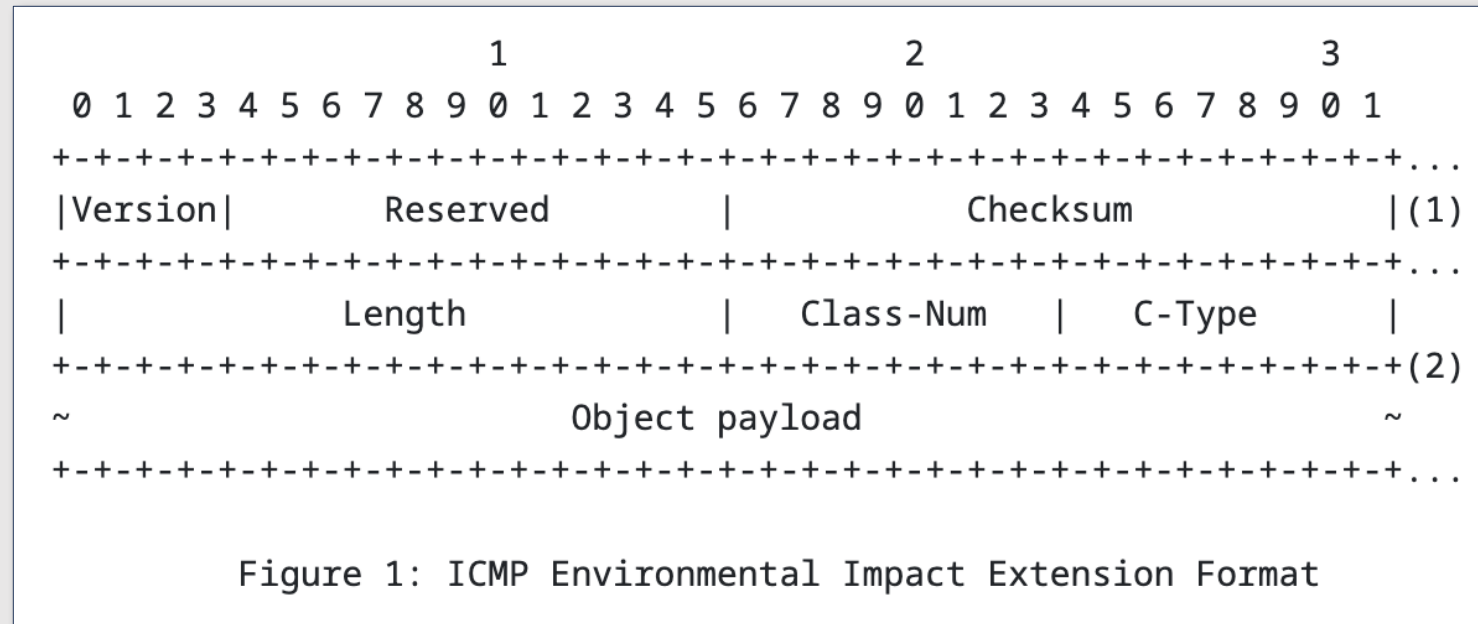
(*) at the design of new protocols and services and extensions

How?

4. ICMP Environmental Impact Extension

This section defines the Environmental Impact Object, an ICMP extension object with a Class-Num (Object Class Value) of TBA that can be appended to the following messages, as per [RFC4884] and [RFC8335]:

- * ICMPv4 Time Exceeded
- * ICMPv4 Destination Unreachable
- * ICMPv4 Parameter Problem
- * ICMPv4 Extended Echo Reply [RFC8335]
- * ICMPv6 Time Exceeded
- * ICMPv6 Destination Unreachable
- * ICMPv6 Extended Echo Reply [RFC8335]



Questions

We had defined one Information Element, which other ones are of use?

The following C-Type values are currently defined.

1. Power Consumption Sub-Object

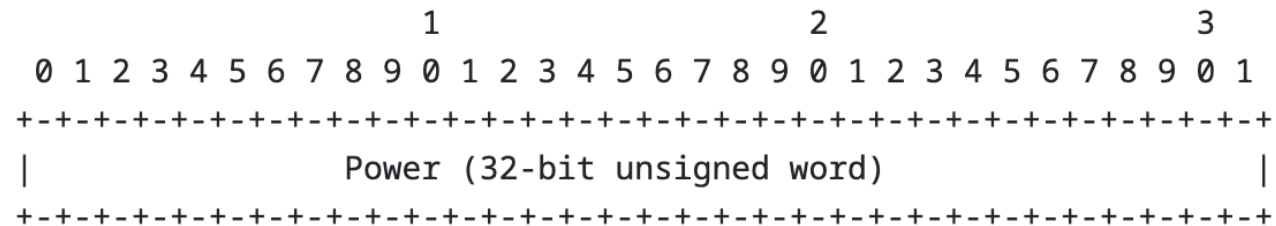


Figure 3: Power Extension Sub-Object

Thanks!

Carlos Pignataro , [Jainam Parikh](#) , [Ron Bonica](#)