



HF Location & Information Sharing Protocol – HF-LISP (S5066-APP10)

25th April 2022

Version: 1.0

Status: Experimental

1 Purpose

This protocol defines the HF Location and Information Sharing Protocol (HF-LISP), which a protocol operating over STANAG 5066 to provide location and other information about an HF node.

HF-LISP enables information to be broadcast (unreliable datagram service) or unicast (reliable or unreliable datagram service). Information can be sent spontaneously, or in response to specific requests.

Location and bearing information may be of general interest. This information can also be used to help optimize choice and configuration of HF communication components and transmission location. It can also be used to optimize ring topology for STANAG 5066 Annex L Wireless Ring Token Protocol.

This protocol provides an extensible framework for sharing information from nodes. It is loosely modelled on the Automatic Identification System (AIS) used for tracking ships. A set of information attributes is defined in this specification, in a way the enables other attributes to be easily added.

2 HF-LISP Core Protocol

HF-LISP specifies two messages:

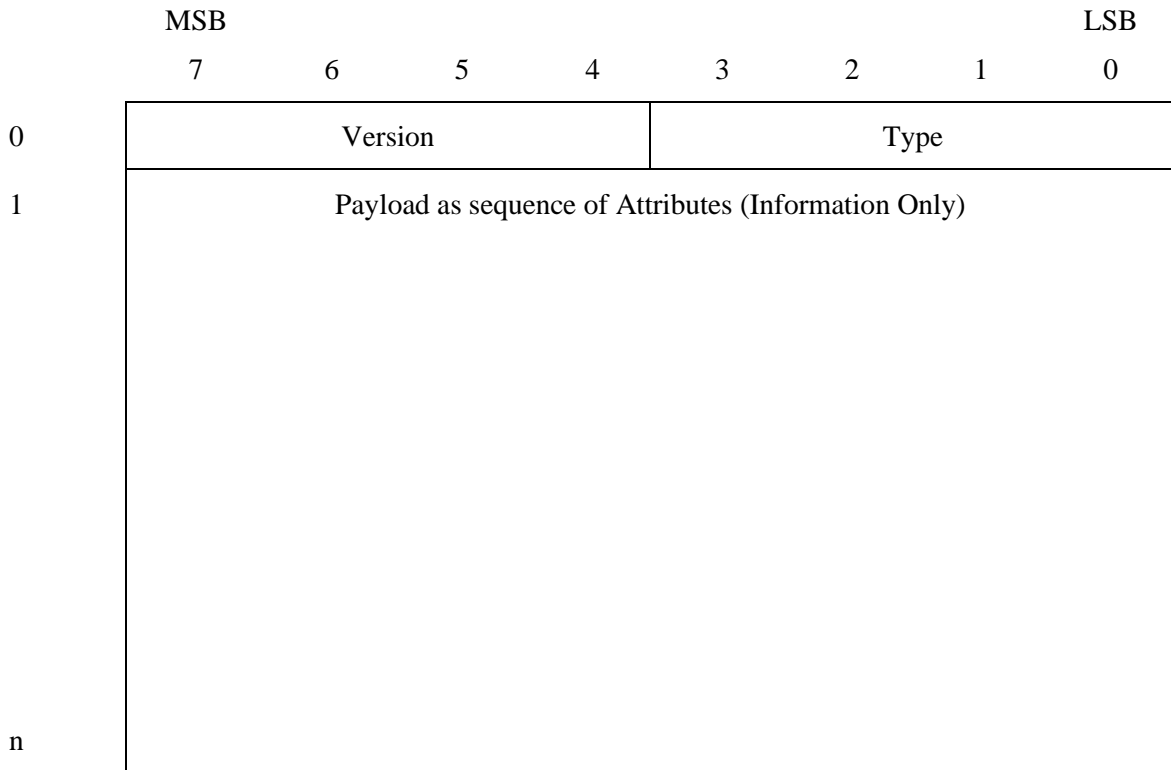
1. Request-Information. This is sent by a node to request information.
2. Information. This sends information as a set of attributes.

Both messages can be sent:

1. Broadcast to all nodes using non-ARQ Unidata; or
2. Unicast to a single node. This **shall** use ARQ UnidataService unless the recipient is known to be EMCON in which case the Non-ARQ Unidata service is used.

Responses to Request-Information **shall** be sent unicast to the requester.

The Unitat is encoded as follows:

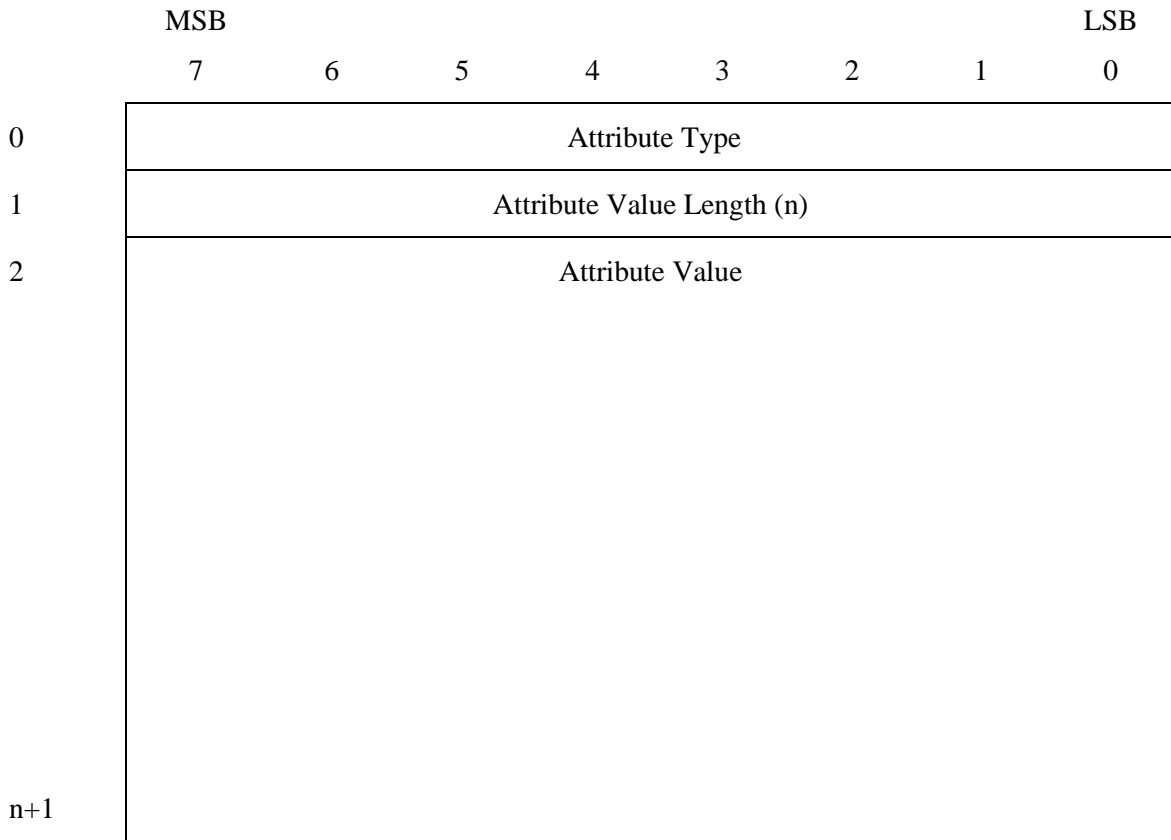


Version is set to 1 for this version of the HF-LISP Protocol.

The Type field encodes an Integer. The value is interpreted as in the following table.

Type	Encoding	Description
Information Request	0	Request for Information. This is single byte only.
Information	1	Information encoded as a set of attributes in the payload.

Attributes are encoded as follows:



The Attribute Type is an integer specifying the Attribute. Types 0-127 are reserved for current and future versions of this standard. Type 128-255 are for private use.

The Attribute Value Length byte specifies the length of the Attribute Value in bytes.

3 Attribute Definitions

This section sets out a set of attribute definitions. Information may include any selection of these attributes chosen by the sender.

Attribute	Type	Size	Notes & Encoding
Latitude	0	4	Latitude: +/- 90 degrees. Encoded integer representation of decimal degrees to five decimal places. Value = (latitude * 10 ⁵) + 2 ⁶³

Attribute	Type	Size	Notes & Encoding
Longitude	1		Longitude: +/- 180 degrees. Encoded integer representation of decimal degrees to five decimal places. Value = (longitude * 10 ⁵) + 2 ⁶³
Time	2	6	Date-Time is a six-byte unsigned integer, representing time in milliseconds since January 1 st 1970. This is set to the time that the location was measured.
Bearing	3	2	Integer recording bearing from True North in units of 0.1 degree
Speed	4	2	Speed in Knots
Altitude	5	2	Altitude of aircraft in meters above mean sea level
Node Type	6	1	Integer interpreted as: <ul style="list-style-type: none"> • 0 – Fixed site • 1 – Ship • 2 – Aircraft • 3 – Land Vehicle
ALE Address	7	Variable	ALE address encoded at IA5 Characters
Name	8	Variable	Name of node encoded at IA5 Characters
Length	9	1	Length of unit in meters
Draught	10	1	Draught of ship in units of 100 cm
IMO Ship Identification Number	11	Variable	Encoded at IA5 Characters
Radio Call Sign	12	Variable	Encoded at IA5 Characters
Destination	13	Variable	Encoded at IA5 Characters

4 Recommended SAP ID

Prior to an official assignment, it is recommended to run this protocol over SAP ID 14.