

# **XARPS**

## eXtensible Amateur Radio Payload Specification

Hudson Valley Digital Network

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# XARPS

XARPS stands for eXtensible **A**mateur **R**adio **P**ayload **S**pecification. Referencing the **Open Systems Interconnection model (OSI model)**, XARPS is an application layer protocol with link-level awareness for use by RF systems providing application level connectivity to other networked systems. ASCII (UTF-8) is used throughout the specification

## Payload Fields

Source	Destination	Options	Data Type	Data
9 bytes (string)	9 bytes (string)	1 byte (integer)	1 byte (integer)	235 bytes (string)

## Source and Destination

Each contain callsign/handle with SSID. Field size supports IARU decision for 7 character callsigns. Example source and destination data include W1FCC50, PURPLE53.

BEACON99 is a reserved word in the destination field for broadcast messages. You can change the SSID to another number for use in multicast

BEACON-XX	Target
99	ALL Stations (Broadcast)
88	ALL Gateways
77	ALL Radio Area Network (RAN)Stations
66	All Local RAN

## Options

Value	Option	Description
0x00 - 0x05	Reserved	
0x06	ACK Response	Response to ACK Request
0x07	ACK Request	Used when positive verification is required that a payload was received

## Data Type

Value	Type	Description
0x00	Reserved	Reserved
0x01	Battery	Battery voltage update
0x02	Time	Current time payload
0x03	Position Update	GPS position update
0x04	Weather Update	Weather station data
0x05	Text Message	Text message between stations
0x06	Broadcast	Broadcast Message to all stations
0x07	Last Seen Stations	Digest of recent stations

Value	Type	Description
0x08	Binary Data	Binary Data Transfer
0x09	APRS	APRS (encapsulated)
0x08 - 0x0F	Reserved	Reserved
0x50	HTTP	HTTP
0x71	Ident	Ident

### 0x00 Reserved

Not used

### 0x01 Battery

Fields are comma delimited

Voltage	Current Consumption	Capacity (%)
8 bytes (float )	8 bytes (float )	1 byte (integer)

### 0x02 Time

Field are comma delimited

EPOC	Uptime	Local Time
8 bytes (float )	8 byts (float )	28 byte (string)

### 0x03 Position Update

Field are comma delimited

Timestamp	Latitude	Longitude	Altitude	Alt Units	Lat Direction	Long Direction	Num Sat	Data Age	Station Type
8 bytes (float )	8 bytes (float )	8 bytes (float )	8 bytes (float )	2 bytes (string)	8 bytes (float )	8 bytes (float )	1 byte (integer)	8 bytes (float )	1 byte (integer)

Station types include:

Value	Type	Value	Type
0	Static land station	17	Coast Guard Boat
1	handheld	18	Command Boat
2	pedestrian	19	RESERVED
3	Civilian vehicle	20	Airport
4	Commercial vehicle	21	UAV
5	Police vehicle	22	Experiment Manned
6	Medical vehicle	23	Civilian Helicopter
7	fire vehicle	24	Civilian Fixed Wing
8	Federal vehicle	25	Commercial Fixed Wing
9	Command vehicle	26	Police Helicopter
10	Marina	27	Medical Helicopter
11	Float	28	Federal Helicopter

Value	Type	Value	Type
12	Swimmer	29	RESERVED
13	Civilian Boat	30	Active Emergency
14	Commercial Boat	31	Traffic Stop
15	Police Boat	32	Hazard Area
16	Fire Boat	33-255	reserved for future use

#### 0x04 Weather Update

Fields are comma delimited

Timestamp	Latitude	Longitude	Temperature	Humidity	Barometer	Wind Direction	Wind Speed
8 bytes (float)	8 bytes (float)	8 bytes (float)	1 byte (integer)	1 byte (integer)	8 bytes (float)	1 byte (integer)	1 byte (integer)

#### 0x05 Text Message

Free text field for text message between stations.

#### 0x06 Broadcast Message

Free text field for broadcast and beacon messages.

While BEACON99 as destination is reserved for any broadcast, it is recommended to BEACON and another SSID value if you wish to send multicast to targets types like club members for bulletins, etc.

#### 0x07 Last Seen Stations

Contains a comma delimited list of 15 most recently heard stations.

Station(0)	Timestamp	Station (...)	Timestamp (...)	Station(14)	Timestamp
9 bytes (string)	2 bytes (integer)	...	...	9 bytes (string)	2 bytes (integer)

#### 0x08 Binary Data

Binary Data Transfer

#### 0x08 APRS

APRS encapsulated

#### 0x50 HTTP

HTTP

#### 0x71 Ident

Ident