

# **XARPS**

## eXtensible Amateur Radio Payload Specification

Hudson Valley Digital Network

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v0.5

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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. Fields are right justified and padded. Example source and destination data include W1FCC50, PURPLE53.

NOCALL00 is a reserved word in the source field for local testing requiring no RF to be transmitted.

BEACON99 is a reserved word in the destination field for broadcast messages. You can change the SSID for multicast behavior in the table below

BEACON-XX	Target
99	ALL Local RAN (Radio Area Network)
89	ALL RAN Gateways
16-70	Application Specific

## Options

Value	Option	Description
0 - 5	Reserved	
6	ACK Response	Response to ACK Request
7	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	Telemetry	Telemetry
0x06	Binary Data	Binary Data Transfer

Value	Type	Description
0x07	Text Message	Text message
0x08	APRS	APRS (encapsulated)
0x09	Last Seen Stations	Last 15 stations heard
0x0A - 0x23	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 bytes (float )	28 bytes (string)

### 0x03 Position Update

Field are comma delimited

Timestamp	Object Type	Latitude	Longitude	Altitude	Alt Units
8 bytes (float )	1 byte (integer)	8 bytes (float )	8 bytes (float )	8 bytes (float )	1 byte (integer)

Object types include:

Value	Type	Value	Type
0x00	Static land station	0x11	Coast Guard Boat
0x01	handheld	0x12	Command Boat
0x02	pedestrian	0x13	RESERVED
0x03	Civilian vehicle	0x14	Airport
0x04	Commercial vehicle	0x15	UAV
0x05	Police vehicle	0x16	Experiment Manned
0x06	Medical vehicle	0x17	Civilian Helicopter
0x07	fire vehicle	0x18	Civilian Fixed Wing
0x08	Federal vehicle	0x19	Commercial Fixed Wing
0x09	Command vehicle	0x1A	Police Helicopter
0x0A	Marina	0x1B	Medical Helicopter

Value	Type	Value	Type
0x0B	Float	0x1C	Federal Helicopter
0x0C	Swimmer	0x1D	Active Emergency
0x0D	Civilian Boat	0x1E	Traffic Stop
0x0E	Commercial Boat	0x1F	Hazard Area
0x0F	Police Boat	0x20 - 0xFF	reserved for future use
0x10	Fire Boat		

#### 0x04 Weather Update

Fields are comma delimited

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

#### 0x05 Telemetry

TBD.

Message
235 bytes (string)

#### 0x06 Binary Data

Binary Data Transfer.

Message
235 bytes (string)

#### 0x07 Text Message

Free text field for text messages directed, broadcast, or multicast as dictated by destination. 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.

Message
235 bytes (string)

**0x08 APRS**

APRS encapsulated.

Message
235 bytes (string)

**0x09 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)

**0x50 HTTP**

HTTP

**0x71 Ident**

Ident