

2013

2 Save Energy Limited

[NETWORK OWL MULTICAST PROTOCOL]

Description of the XML data packets sent by the Network OWL via multicast UDP, multicast settings and links to example source code. For use with Network OWL firmware v2.0

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CHANGE HISTORY

Date	Author	Description
25/01/2013	BW	Initial draft containing example packets

INTRODUCTION

MULTICAST CONFIGURATION

SETTINGS

The Network OWL sends UDP packets to the following multicast group:

Address: 224.192.32.19

Port: 22600

There are a number of multicast examples available on the internet, some listed below. The values above can be used with these examples to get you started receiving multicast data from the Network OWL.

Java

<http://lycog.com/programming/multicast-programming-java/>

C/C++

<http://ntrg.cs.tcd.ie/undergrad/4ba2/multicast/antony/example.html>

MULTICAST PACKETS

ELECTRICITY DATA PACKET

EXAMPLE PACKET

```
<electricity id='443719999999'>
  <signal rssi='-71' lqi='127'/>
  <battery level='100%'/>
  <chan id='0'><curr units='w'>483.00</curr><day units='wh'>10244.99</day></chan>
  <chan id='1'><curr units='w'>0.00</curr><day units='wh'>0.00</day></chan>
  <chan id='2'><curr units='w'>0.00</curr><day units='wh'>0.00</day></chan>
</electricity>
```

PARAMETERS

The <chan> tags contain data for the current reading (<curr>) and the daily total (<day>) for each of the channels/phases on the electricity transmitter. If the transmitter only has 1 channel, the last 2 channels will always contain 0 values.

Tag	Attribute	Description
Electricity	Id	The MAC Address of the Network OWL
Signal	rssi	Receive signal strength (dBm)
Signal	lqi	Link quality (closer to 0 the better)
Battery	level	Percentage of battery remaining
Chan	id	Transmitter channel number
Curr/Day	units	Units for the value in the xml tag. wh = Watt Hours, divide by 1000 to get kWh w = watts

SOLAR DATA PACKET

EXAMPLE PACKET

```
<solar id='00A0C914C851'>
  <current><generating units='w'>0.00</generating><exporting units='w'>0.00</exporting></current>
  <day><generated units='wh'>0.00</generated><exported units='wh'>0.00</exported></day>
</solar>
```

PARAMETERS

The main <solar> tag contains sections for the current solar readings (<current>) and the totals for the day (<day>). Both sections have <generated> and <exported> tags that contain the values for power generated by the PV system and power exported to the electricity grid.

Tag	Attribute	Description
Solar	Id	The MAC Address of the Network OWL
Curr/Day	units	Units for the value in the xml tag. wh = Watt Hours, divide by 1000 to get kWh w = watts

WEATHER DATA PACKET

EXAMPLE PACKET

```
<weather id='00A0C914C851' code='263'>
  <temperature>19.00</temperature>
  <text>Patchy light drizzle</text>
</weather>
```

PARAMETERS

The <weather> tag contains temperature and text subsections. The <temperature> is the current outside temperature for the postcode assigned to the Network OWL. The text is a textural description of the weather at that postcode.

Tag	Attribute	Description
Weather	id	The MAC Address of the Network OWL
Weather	code	Weather condition code (see below)

WEATHER CODES

Code	Description
113	Clear/Sunny
116	Partly Cloudy
119	Cloudy
122	Overcast
143	Mist
176	Patchy rain nearby
179	Patchy snow nearby
182	Patchy sleet nearby
185	Patchy freezing drizzle nearby
200	Thundery outbreaks
227	Blowing snow
230	Blizzard
248	Fog
260	Freezing fog
263	Patchy light drizzle
266	Light drizzle
281	Freezing drizzle
284	Heavy freezing drizzle
293	Patchy light rain
296	Light rain
299	Moderate rain at times
302	Moderate rain
305	Heavy rain at times
308	Heavy rain
311	Light freezing rain
314	Moderate or Heavy freezing rain
317	Light sleet
320	Moderate or heavy sleet
323	Patchy light snow

326	Light snow
329	Patchy moderate snow
332	Moderate snow
335	Patchy heavy snow
338	Heavy snow
350	Ice pellets
353	Light rain shower
356	Moderate or heavy rain shower
359	Torrential rain shower
362	Light sleet showers
365	Moderate or heavy sleet showers
368	Light snow showers
371	Moderate or heavy snow showers
374	Light showers of ice pellets
377	Moderate or heavy showers of ice pellets
386	Patchy light rain in area with thunder
389	Moderate or heavy rain in area with thunder
392	Patchy light snow in area with thunder
395	Moderate or heavy snow in area with thunder

HEATING DATA PACKET

EXAMPLE PACKET

```
<heating id='00A0C914C851'>
  <signal rssi='-61' lqi='48'/>
  <battery level='2730mV'/>
  <temperature until='1359183600' zone='0'>
    <current>22.37</current>
    <required>15.00</required>
  </temperature>
</heating>
```

PARAMETERS

The <heating> tag contains a temperature subsection, which contains the current room temperature (<current>) and the required room temperature (<required>). Both values are in degrees Celsius.

Tag	Attribute	Description
Heating	Id	The MAC Address of the Network OWL
Signal	rssi	Receive signal strength (dBm)
Signal	lqi	Link quality (closer to 0 the better)
Battery	level	Battery voltage reading in millivolts
Temperature	until	Timestamp of the end of the current comfort/standby period
Temperature	Zone	Current active heating zone