

Project	<b>IEEE 802.16 Broadband Wireless Access Working Group</b> < <a href="http://ieee802.org/16">http://ieee802.org/16</a> >	
Title	<b>TLV Definitions for Management Signaling Messages</b>	
Date Submitted	<b>2006-07-12</b>	
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Re:		
Abstract	This contribution proposes TLV definitions for Management Signalling Messages.	
Purpose	Adoption	
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7 **Configuration Information) format as defined in RFC3825. Latitude and longitude are represented in 34 bits**

8 **fixed-point 2s-complement number, consisting of 9 bits of integer and 25 bits of fraction. Altitude is**

9 **represented in 30 bits fixed-point 2s-complement number with 22 bits of integer and 8 bits of fraction.**

10 **Latitude and longitude should be normalized to within +/- 90 degrees and +/- 180 degrees, respectively. Each**

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5 **35– MS geo location not supported** .....6

6 **Others – reserved**.....6

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## 2 1. Introduction

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3 This contribution proposes TLV definitions for Management Signalling Messages.

## 4 2. Proposed Text

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### 5 2. References

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6 *[Add the following reference:]*

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7 IETF RFC3825 “Dynamic Host Configuration Protocol Option for Coordinate-based Location  
8 Configuration Information”, July 2004

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#### 9 6.3.2.3.64.1 Query IE Request message (QRY\_IE-REQ)

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11 *[Add the following subclauses:]*

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13 The QRY\_IE-REQ may include the following TLVs.

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##### 15 **MS Geo location (see 11. 23.1)**

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MS geo location in Latitude, Longitude, and altitude to be provided from GPS  
or other location measurement method.

##### MS inventory data:

Note: MS only reports vendor ID

Software ID (11.2.2.3) – Software version

Hardware ID (see 11.2.2.2) – Hardware version

#### 6.3.2.3.64.2 Query IE Response message (QRY\_IE-RSP)

*[Add the following subclauses:]*

The QRY\_IE-RSP may include the following TLVs.

##### MS Geo location (see 11.23.1)

It contains MS geo location in Latitude, Longitude, and altitude. If MS can't  
report geo location, it shall return “MS geo location not supported” code.

##### MS inventory data

Software ID (see 11.2.2.3) – Software version

Hardware ID (see 11.2.2.2) – Hardware version

## 1 11.23 Management Signaling TLVs

### 1 11.23.1 MS Location

2 The fields indicate the MS location in latitude, longitude, and altitude that are based on the LCI (Location  
3 Configuration Information) format as defined in RFC3825. Latitude and longitude are represented in 34 bits  
4 fixed-point 2s-complement number, consisting of 9 bits of integer and 25 bits of fraction. Altitude is  
5 represented in 30 bits fixed-point 2s-complement number with 22 bits of integer and 8 bits of fraction.  
6 Latitude and longitude should be normalized to within +/- 90 degrees and +/- 180 degrees, respectively.  
7 Each field also includes resolution bits that define the number of valid bits in the fixed-point value. Here are  
8 the definition of 2s-complement number.

- 3 Positive numbers
- 4 ▪ Latitude – North
  - 5 ▪ Longitude – East
  - 6 ▪ Altitude – above ground
- 7 Negative numbers
- 8 ▪ Latitude – South
  - 9 ▪ Longitude – West
  - 10 ▪ Altitude – below ground
- 11

12 The structure of these fields shall be little-endian.

Name	Type	Length	Value	Scope
Longitude	1	5	Bits # 0-5: longitude resolution	QRY_IE-REQ
			1-34 – number of valid bits in fixed-point value of longitude value	QRY_IE-RSP
Latitude	2	5	35 – MS geo location not supported	
			Others – reserved	
Altitude	3	5	Bits # 6-14: longitude integer	QRY_IE-REQ
			Bits # 15-39: longitude fraction	QRY_IE-RSP
Altitude	3	5	Bits # 0-5: latitude resolution	QRY_IE-REQ
			1-34 – number of valid bits in fixed-point value of latitude value	QRY_IE-RSP
Altitude	3	5	35 – MS geo location not supported	
			Others – reserved	
Altitude	3	5	Bits # 6-14: latitude integer	QRY_IE-REQ
			Bits # 15-39: latitude fraction	QRY_IE-RSP
Altitude	3	5	Bits # 0-3: altitude type	QRY_IE-REQ
			1 – meters	QRY_IE-RSP
Altitude	3	5	2 – floors	
			Others – reserved	
Altitude	3	5	Bits # 4-9: altitude resolution	
			1-30 – number of valid bits in fixed-point value of altitude value	
Altitude	3	5	31 – MS geo location not supported	
			Others – reserved	
Altitude	3	5	Bits # 10-31: altitude integer	
			Bits # 32-39: altitude fraction	

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