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| --- | --- |
| Project | **IEEE 802.21.1 Media Independent Services** **<**[**http://www.ieee802.org/21/**](http://www.ieee802.org/21/)**>** |
| Title | **MIIS basic schema and related problems** |
| DCN | **21-16-00-0047-03-REVP** |
| Date Submitted | **March 15, 2016** |
| Source(s) | Yoshikazu Hanatani (Toshiba) |
| Re: | Session #73, Macau |
| Abstract | This contribution provides a complete MIIS schema for 802.21m and 802.21.1. But, MIS\_IQ\_TYPE\_LIST and the MIIS schema are inconsistent. |
| Purpose | To fix the problems on the MIS\_IQ\_TYPE\_LIST and the MIIS schema. |
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Problems:

1. MIS\_IQ\_TYPE\_LIST defined in Table E.20 of the 21m includes following parameters, but they are not included in MIIS basic schema. I suggest to remove following parameters from MIS\_IQ\_TYPE\_LIST.
	* Bit 32: IE\_KEY\_DIST\_INF
	* Bit 33: IE\_PoS\_INTG\_ALG\_INF
	* Bit 34: IE\_PoS\_ENCR\_ALG\_INF
	* Bit 35: IE\_PoS\_PRF\_INF
2. Following parameters are included in MIIS basic schema, but MIS\_IQ\_TYPE\_LIST does not have corresponding parameter. They shall be added to MIS\_IQ\_TYPE\_LIST defined in Table E.7 of 21.1.
	* ie\_pos\_tunnel\_mgmt\_prto
	* ie\_pos\_ip\_nai
	* ie\_d2d\_peer\_id
	* ie\_d2d\_config
3. Following information elements should be included in Table 6 of 21.1.
	* ie\_pos\_tunnel\_mgmt\_prto
	* ie\_pos\_ip\_nai
4. Data type of NAI is not defined.

 Suggested remedy for Problem 1, Problem 2, and Problem 3.

Table .—Data type for MIS capabilities (in 21m)

|  |  |  |
| --- | --- | --- |
| MIS\_IQ\_TYPE\_LST | BITMAP (64) | A list of IS query types.Bitmap Values:Bit 0: Binary dataBit 1: RDF dataBit 2: RDF schema URLBit 3: RDF schemaBit 4: IE\_NETWORK\_TYPEBit 5: IE\_OPERATOR\_IDBit 6: IE\_SERVICE\_PROVIDER\_IDBit 7: IE\_COUNTRY\_CODEBit 8: IE\_NETWORK\_IDBit 9: IE\_NETWORK\_AUX\_IDBit 10: IE\_ROAMING\_PARTNERSBit 11: IE\_COSTBit 12: IE\_NETWORK\_QOSBit 13: IE\_NETWORK\_DATA\_RATEBit 14: IE\_NET\_REGULT\_DOMAINBit 15: IE\_NET\_FREQUENCY\_BANDSBit 16: IE\_NET\_IP\_CFG\_METHODSBit 17: IE\_NET\_CAPABILITIESBit 18: IE\_NET\_SUPPORTED\_LCPBit 19: (Reserved for IEEE 802.21.1)Bit 20: IE\_NET\_EMSERV\_PROXYBit 21: IE\_NET\_IMS\_PROXY\_CSCFBit 22: (Reserved for IEEE 802.21.1)Bit 23: IE\_POA\_LINK\_ADDRBit 24: IE\_POA\_LOCATIONBit 25: IE\_POA\_CHANNEL\_RANGEBit 26: IE\_POA\_SYSTEM\_INFOBit 27: IE\_POA\_SUBNET\_INFOBit 28: IE\_POA\_IP\_ADDRBit 29: IE\_AUTHENTICATOR\_LINK\_ADDRBit 30: IE\_AUTHENTICATOR\_IP\_ADDRBit 31: IE\_PoS\_IP\_ADDR~~Bit 32: IE\_KEY\_DIST\_INF~~~~Bit 33: IE\_PoS\_INTG\_ALG\_INF~~ ~~Bit 34: IE\_PoS\_ENCR\_ALG\_INF~~~~Bit 35: IE\_PoS\_PRF\_INF~~Bit 32-35: (Reserved for IEEE 802.21.1)Bit 36-63 (Reserved) |

**Table F.1—**Information element identifier values (in 21m)

|  |  |
| --- | --- |
| **Name of information element or container** | **IE Identifier** |
| IE\_NETWORK\_TYPE | 0x10000000 |
| IE\_OPERATOR\_ID | 0x10000001 |
| IE\_SERVICE\_PROVIDER\_ID | 0x10000002 |
| IE\_COUNTRY\_CODE | 0x10000003 |
| IE\_NETWORK\_ID | 0x10000100 |
| IE\_NETWORK\_AUX\_ID | 0x10000101 |
| IE\_ROAMING\_PARTNERS | 0x10000102 |
| IE\_COST | 0x10000103 |
| IE\_NETWORK\_QOS | 0x10000105 |
| IE\_NETWORK\_DATA\_RATE | 0x10000106 |
| IE\_NET\_REGULAT\_DOMAIN | 0x10000107 |
| IE\_NET\_FREQUENCY\_BANDS | 0x10000108 |
| IE\_NET\_IP\_CFG\_METHODS | 0x10000109 |
| IE\_NET\_CAPABILITIES | 0x1000010A |
| IE\_NET\_SUPPORTED\_LCP | 0x1000010B |
| IE \_NET \_MOB \_MGMT \_PROT a | 0x1000010C |
| IE\_NET\_EMSERV\_PROXY | 0x1000010D |
| IE\_NET\_IMS\_PROXY\_CSCF | 0x1000010E |
| IE \_NET \_MOBILE \_NETWORK a | 0x1000010F |
| IE\_D2D\_PEERID b | 0x10000110 |
| IE\_D2D\_CONFIG b | 0x10000111 |
| IE\_POA\_LINK\_ADDR | 0x10000200 |
| IE\_POA\_LOCATION | 0x10000201 |
| IE\_POA\_CHANNEL\_RANGE | 0x10000202 |
| IE\_POA\_SYSTEM\_INFO | 0x10000203 |
| IE\_POA\_SUBNET\_INFO | 0x10000204 |
| IE\_POA\_IP\_ADDR | 0x10000205 |
| IE\_AUTHENTICATOR\_LINK\_ADDR | 0x10000206 |
| IE\_AUTHENTICATOR\_IP\_ADDR | 0x10000207 |
| IE\_PoS\_IP\_ADDR | 0x10000208 |
|  IE\_PoS\_TUNN\_MGMT\_PRTO a | 0x10000209 |
|  IE\_PoS\_NAI a | 0x1000020A |
| IE\_CONTAINER\_LIST\_OF\_NETWORKS | 0x10000300 |
| IE\_CONTAINER\_NETWORK | 0x10000301 |
| IE\_CONTAINER\_POA | 0x10000302 |
| a This parameter is reserved for handover use case as defined in IEEE 802.21.1-XXXX, Table F.1.b This parameter is reserved for D2D use case as defined in IEEE 802.21.1-XXXX, Table F.1. |

Table 9- Information elements (in 21m)

|  |
| --- |
| **PoA-specific higher layer service information elements** |
| IE\_AUTHENTICATOR\_IP\_ADDR | The IP address of the authenticator, which serves the PoA. | IP\_ADDR |
| IE\_POA\_SUBNET\_INFO | Information about subnets supported by a typical PoA. | IP\_SUBNET\_INFO |
| IE\_POA\_IP\_ADDR | IP Address of PoA. | IP\_ADDR |
| IE\_PoS\_IP\_ADDR | PoS/s IP address | IP\_ADDR |
| ~~IE\_PoS\_TUNN\_MGMT\_PRTO~~ | ~~Type of tunnel management protocol supported.~~ | ~~IP\_TUNN\_MGMT~~ |
| ~~IE\_PoS\_NAI~~ | ~~NAI of the PoS~~ | ~~NAI~~ |

**Table E.7—Data type for MIS capabilities (in 21.1)**

|  |  |  |
| --- | --- | --- |
| MIS\_IQ\_TYPE\_LIST | BITMAP (64) | A list of IS query types.Bitmap Values:Bit 19: IE\_NET\_MOB\_MGMT\_PROTBit 22: IE\_NET\_MOBILE\_NETWORKBit 32: IE\_PoS\_TUNN\_MGMT\_PRTOBit 33: IE\_PoS\_NAIBit 34: IE\_D2D\_PREERIDBit 35: IE\_D2D\_CONFIGFor all other bits see IEEE Std 802.21-XXXX |

1.
2. **—Information elements (in 21.1)**

|  |  |  |
| --- | --- | --- |
| **Name of information element** | **Description** | **Data type** |
| **Access network specific information elements** |
| IE\_NET\_MOB\_MGMT\_PROT | Type of mobility management protocol supported. | IP\_MOB\_MGMT |
| IE\_NET\_MOBILE\_NETWORK | Indicator whether the access network itself is mobile. | BOOLEAN |
| IE\_PoS\_TUNN\_MGMT\_PRTO | Type of tunnel management protocol supported. | IP\_TUNN\_MGMT |
| IE\_PoS\_NAI | NAI of the PoS | ~~NAI~~MISF\_ID |

**Table F.1—Information element identifier values (in 21.1)**

|  |  |
| --- | --- |
| **Name of information element or container** | **IE Identifier**a |
| IE \_NET \_MOB \_MGMT \_PROT | 0x1000010C |
| IE \_NET \_MOBILE \_NETWORK | 0x1000010F |
| IE\_D2D\_PEERID | 0x10000110 |
| IE\_D2D\_CONFIG | 0x10000111 |
|  IE\_PoS\_TUNN\_MGMT\_PRTO | 0x10000209 |
|  IE\_PoS\_NAI | 0x1000020A |
|  |  |
|  |  |

aFor all other IE identifier values see IEEE Std 802.21-XXXX

**Complete MIIS basic schema**

<?xml version="1.0"?>

 <!DOCTYPE rdf:RDF [

 <!ENTITY rdf "http://www.w3.org/1999/02/22-rdf-syntax-ns#">

 <!ENTITY rdfs "http://www.w3.org/2000/01/rdf-schema#">

 <!ENTITY misbasic "URL\_TO\_BE\_ASSIGNED#">

 <!ENTITY owl "http://www.w3.org/2002/07/owl#">

 <!ENTITY xsd "http://www.w3.org/2001/XMLSchema#">

]>

<rdf:RDF xmlns:rdf="&rdf;" xmlns:rdfs="&rdfs;"

 xmlns:misbasic="&misbasic;" xml:base="&misbasic;"

 xmlns:owl="&owl;" xmlns:xsd="&xsd;">

 <owl:Ontology rdf:about="">

 <rdfs:label>

 Basic Schema for IEEE 802.21 Information Service

 </rdfs:label>

 <owl:versionInfo>1.0</owl:versionInfo>

 </owl:Ontology>

 <owl:DatatypeProperty rdf:ID="ie\_identifier">

 <rdfs:subPropertyOf rdf:resource="&rdfs;label"/>

 <rdfs:range rdf:resource="&xsd;hexBinary"/>

 <rdfs:comment>

 A type identifier values for Information Elements.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="bit\_number">

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 This property represents a bit number that has

 the value as true.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_container\_list\_of\_networks">

 <misbasic:ie\_identifier>0x10000300</misbasic:ie\_identifier>

 <rdfs:range rdf:resource="#LIST\_OF\_NETWORKS"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="LIST\_OF\_NETWORKS">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_container\_network"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:ObjectProperty rdf:ID="ie\_container\_network">

 <misbasic:ie\_identifier>0x10000301</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#LIST\_OF\_NETWORKS"/>

 <rdfs:range rdf:resource="#NETWORK"/>

 <rdfs:comment>

 This class contains General Information depicting and Access

 Network Specific Information.

 </rdfs:comment>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="NETWORK">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_network\_type"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_operator\_id"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:ObjectProperty rdf:ID="ie\_network\_type">

 <misbasic:ie\_identifier>0x10000000</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#NETWORK\_TYPE"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="NETWORK\_TYPE">

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="link\_type">

 <rdfs:domain rdf:resource="#NETWORK\_TYPE"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 <rdfs:comment>

 Link type of a network. The following values are assigned:

 1: Wireless - GSM

 2: Wireless - GPRS

 3: Wireless - EDGE

 15: Ethernet

 18: Wireless - Other

 19: Wireless - IEEE 802.11

 22: Wireless - CDMA2000

 23: Wireless - UMTS

 24: Wireless - cdma-2000-HRPD

 27: Wireless - IEEE 802.16

 28: Wireless - IEEE 802.20

 29: Wireless - IEEE 802.22

 40: DVB

 41: T-DMB

 42: ATSC-M/H

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="subtype">

 <rdfs:subPropertyOf rdf:resource="#bit\_number"/>

 <rdfs:domain rdf:resource="#NETWORK\_TYPE"/>

 <rdfs:comment>

 The range of #bit\_number is 0-63.

 </rdfs:comment>

 </owl:ObjectProperty>

 <owl:DatatypeProperty rdf:ID="type\_ext">

 <rdfs:domain rdf:resource="#NETWORK\_TYPE"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_operator\_id">

 <misbasic:ie\_identifier>0x10000001</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#OPERATOR\_ID"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="OPERATOR\_ID">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#op\_name"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#op\_namespace"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="op\_name">

 <rdfs:domain rdf:resource="#OPERATOR\_ID"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 The value is a non NULL terminated

 string whose length shall not exceed 253 octets.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="op\_namespace">

 <rdfs:domain rdf:resource="#OPERATOR\_ID"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 A value of Operator Type:

 0: GSM/UMTS

 1: CDMA

 2: REALM

 3: ITU-T/TSB

 4: General

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="ie\_service\_provider\_id">

 <misbasic:ie\_identifier>0x10000002</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 A non-NULL terminated string whose length shall not exceed 253 octets.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="ie\_country\_code">

 <misbasic:ie\_identifier>0x10000003</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="ie\_network\_id">

 <misbasic:ie\_identifier>0x10000100</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 A non-NULL terminated string whose length shall not exceed 253 octets.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="ie\_network\_aux\_id">

 <misbasic:ie\_identifier>0x10000101</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 It is SSID if network type is IEEE 802.11.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_roaming\_partner">

 <misbasic:ie\_identifier>0x10000102</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#OPERATOR\_ID"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="ie\_cost">

 <misbasic:ie\_identifier>0x10000103</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#COST"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="COST">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#cost\_unit"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#cost\_value"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#cost\_curr"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="cost\_unit">

 <rdfs:domain rdf:resource="#COST"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 The unit of the cost:

 0: second

 1: minute

 2: hours

 3: day

 4: week

 5: month

 6: year

 7: free

 8: flat rate

 9-255: Reserved

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="cost\_value">

 <rdfs:domain rdf:resource="#COST"/>

 <rdfs:range rdf:resource="&xsd;double"/>

 <rdfs:comment>

 The cost value in Currency/Unit

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="cost\_curr">

 <rdfs:domain rdf:resource="#COST"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 A three-letter currency code(e.g. "USD") specified by

 ISO 4217.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_network\_qos">

 <misbasic:ie\_identifier>0x10000105</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#QOS\_LIST"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="QOS\_LIST">

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="num\_qos\_types">

 <rdfs:domain rdf:resource="#QOS\_LIST"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="COS">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#cos\_id"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#cos\_value"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="cos\_id">

 <rdfs:domain rdf:resource="#COS"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 A type to represent a class of service identifier.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="cos\_value">

 <rdfs:domain rdf:resource="#COS"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="min\_pk\_tx\_delay">

 <rdfs:domain rdf:resource="#QOS\_LIST"/>

 <rdfs:range rdf:resource="#COS"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="avg\_pk\_tx\_delay">

 <rdfs:domain rdf:resource="#QOS\_LIST"/>

 <rdfs:range rdf:resource="#COS"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="max\_pk\_tx\_delay">

 <rdfs:domain rdf:resource="#QOS\_LIST"/>

 <rdfs:range rdf:resource="#COS"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="pk\_delay\_jitter">

 <rdfs:domain rdf:resource="#QOS\_LIST"/>

 <rdfs:range rdf:resource="#COS"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="pk\_loss\_rate">

 <rdfs:domain rdf:resource="#QOS\_LIST"/>

 <rdfs:range rdf:resource="#COS"/>

 </owl:ObjectProperty>

 <owl:DatatypeProperty rdf:ID="ie\_network\_data\_rate">

 <misbasic:ie\_identifier>0x10000106</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 </owl:DatatypeProperty>

<owl:ObjectProperty rdf:ID="ie\_net\_regulat\_domain">

 <misbasic:ie\_identifier>0x10000107</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#REGU\_DOMAIN"/>

 </owl:ObjectProperty>

<owl:Class rdf:ID="REGU\_DOMAIN">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#regu\_domain\_country\_code"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#regu\_class"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

</owl:Restriction>

 </rdfs:subClassOf>

</owl:Class>

<owl:DatatypeProperty rdf:ID="regu\_domain\_country\_code">

 <rdfs:domain rdf:resource="#REGU\_DOMAIN"/>

 <rdfs:range rdf:resource="&xsd;String"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="regu\_class">

 <rdfs:domain rdf:resource="#REGU\_DOMAIN"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 </owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="ie\_net\_frequency\_bands">

 <misbasic:ie\_identifier>0x10000108</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_net\_ip\_cfg\_methods">

 <misbasic:ie\_identifier>0x10000109</misbasic:ie\_identifier>

<rdfs:domain rdf:resource="#NETWORK"/>

<rdfs:range rdf:resource="#IP\_CONFIG"/>

</owl:ObjectProperty>

<owl:Class rdf:ID="IP\_CONFIG">

<rdfs:subClassOf>

<owl:Restriction>

<owl:onProperty rdf:resource="#ip\_cfg\_mthds"/>

<owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

</owl:cardinality>

</owl:Restriction>

</rdfs:subClassOf>

</owl:Class>

<owl:DatatypeProperty rdf:ID="ip\_cfg\_mthds">

 <rdfs:subPropertyOf rdf:resource="#bit\_number"/>

 <rdfs:domain rdf:resource="#NETWORKIP\_CONFIG"/>

 <rdfs:comment>

 The range of #bit\_number is 0-31.

 </rdfs:comment>

</owl:DatatypeProperty>"/>

<owl:DatatypeProperty rdf:ID="dhcp\_serv">

<rdfs:domain rdf:resource="#IP\_CONFIG"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

</owl:DatatypeProperty>"/>

<owl:DatatypeProperty rdf:ID="fn\_agnt">

<rdfs:domain rdf:resource="#IP\_CONFIG"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

</owl:DatatypeProperty>"/>

<owl:DatatypeProperty rdf:ID="acc\_rtr">

<rdfs:domain rdf:resource="#IP\_CONFIG"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

</owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_net\_capabilities">

 <misbasic:ie\_identifier>0x1000010A</misbasic:ie\_identifier>

 <rdfs:subPropertyOf rdf:resource="#bit\_number"/>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:comment>

 The range of #bit\_number is 0-31.

 </rdfs:comment>

 </owl:ObjectProperty>

 <owl:DatatypeProperty rdf:ID="ie\_net\_supported\_lcp">

 <misbasic:ie\_identifier>0x1000010B</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_net\_mob\_mgmt\_prot">

 <misbasic:ie\_identifier>0x1000010C</misbasic:ie\_identifier>

 <rdfs:subPropertyOf rdf:resource="#bit\_number"/>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:comment>

 The range of #bit\_number is 0-15.

 </rdfs:comment>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="ie\_net\_emserv\_proxy">

 <misbasic:ie\_identifier>0x1000010D</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#PROXY\_ADDR"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="PROXY\_ADDR">

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="proxy\_addr\_ip">

 <rdfs:domain rdf:resource="#PROXY\_ADDR"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="proxy\_addr\_fqdn">

 <rdfs:domain rdf:resource="#PROXY\_ADDR"/>

 <rdfs:range rdf:resource="&xsd;String"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_net\_ims\_proxy\_cscf">

 <misbasic:ie\_identifier>0x1000010E</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#PROXY\_ADDR"/>

 </owl:ObjectProperty>

<owl:DatatypeProperty rdf:ID="ie\_net\_mobile\_network">

 <misbasic:ie\_identifier>0x1000010F</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="&xsd;boolean"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_container\_poa">

 <misbasic:ie\_identifier>0x10000302</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#POA"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="POA">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_poa\_link\_addr"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_poa\_location"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_poa\_channel\_range"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_poa\_system\_info"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_poa\_subnet\_info"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_poa\_ip\_addr"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_authenticator\_link\_addr"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_authenticator\_ip\_addr"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_pos\_ip\_addr"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_pos\_tunn\_mgmt\_prto"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ie\_pos\_nai"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:comment>

 This class contains all the information depicting a PoA.

 </rdfs:comment>

 </owl:Class>

 <owl:ObjectProperty rdf:ID="ie\_poa\_link\_addr">

 <misbasic:ie\_identifier>0x10000200</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#LINK\_ADDR"/>

 </owl:ObjectProperty>

<owl:Class rdf:ID="LINK\_ADDR">

</owl:Class>

<owl:DatatypeProperty rdf:ID="mac\_addr">

<rdfs:domain rdf:resource="#LINK\_ADDR"/>

<rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

</owl:DatatypeProperty>

<owl:Class rdf:ID="LINK\_ADDR\_3GPP\_3G">

<rdfs:subClassOf rdf:resource="#LINK\_ADDR"/>

</owl:Class>

<owl:DatatypeProperty rdf:ID="link\_addr\_3gpp\_3g\_cell\_id\_plmn\_id">

<rdfs:domain rdf:resource="#LINK\_ADDR\_3GPP\_3G"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="link\_addr\_3gpp\_3g\_cell\_id\_cell\_id">

<rdfs:domain rdf:resource="#LINK\_ADDR\_3GPP\_3G"/>

<rdfs:range rdf:resource="&xsd;unsignedInt"/>

</owl:DatatypeProperty>

<owl:Class rdf:ID="LINK\_ADDR\_3GPP\_2G">

<rdfs:subClassOf rdf:resource="#LINK\_ADDR"/>

</owl:Class>

<owl:DatatypeProperty rdf:ID="link\_addr\_3gpp\_2g\_cell\_id\_plmn\_id">

<rdfs:domain rdf:resource="#LINK\_ADDR\_3GPP\_2G"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="link\_addr\_3gpp\_2g\_cell\_id\_lac">

<rdfs:domain rdf:resource="#LINK\_ADDR\_3GPP\_2G"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="link\_addr\_3gpp\_2g\_cell\_id\_ci">

<rdfs:domain rdf:resource="#LINK\_ADDR\_3GPP\_2G"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="\_3gpp\_addr">

<rdfs:domain rdf:resource="#LINK\_ADDR"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="\_3gpp2\_addr">

<rdfs:domain rdf:resource="#LINK\_ADDR"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:DatatypeProperty rdf:ID="link\_addr\_other\_l2\_addr">

<rdfs:domain rdf:resource="#LINK\_ADDR"/>

<rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:ObjectProperty rdf:ID="ie\_poa\_location">

 <misbasic:ie\_identifier>0x10000201</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#LOCATION"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="LOCATION">

 </owl:Class>

 <owl:Class rdf:ID="BIN\_GEO\_LOC">

 <rdfs:subClassOf rdf:resource="#LOCATION"/>

 <rdfs:comment>

 This class has properties that represent geographic coordinate.

 The format is based on the Location Configuration Information (LCI)

 defined in RFC 6225.

 </rdfs:comment>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="la\_res">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="latitude">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;double"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="lo\_res">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="longitude">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;double"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="at">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 Following codes are defined:

 1: Meters: in 2s-complement fixed-point 22-bit integer part with

 8-bit fraction. If AT = 1, an AltRes value 0.0 would indicate

 unknown altitude. The most precise Altitude would have an AltRes

 value of 30. Many values of AltRes would obscure any variation

 due to vertical datum differences.

 2: Floors: in 2s-complement fixed-point 22-bit integer part with

 8-bit fraction. AT = 2 for Floors enables representing altitude in

 a form more relevant in buildings which have different

 floor-to-floor dimensions.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="alt\_res">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 Altitude resolution. 6 bits indicating the number of valid bits

 in the altitude. Values above 30 (decimal) are undefined and

 reserved.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="altitude">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;double"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="datum">

 <rdfs:domain rdf:resource="#BIN\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 Following codes are defined:

 1: WGS

 2: NAD 83 (with associated vertical datum for North American

 vertical datum for 1998)

 3: NAD 83 (with associated vertical datum for Mean Lower Low Water

 (MLLW))

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="XML\_GEO\_LOC">

 <rdfs:subClassOf rdf:resource="#LOCATION"/>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="xml\_geo\_loc">

 <rdfs:domain rdf:resource="#XML\_GEO\_LOC"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 Geo address elements as described in RFC4119.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="BIN\_CIVIC\_LOC">

 <rdfs:subClassOf rdf:resource="#LOCATION"/>

 <rdfs:comment>

 This class has properties that represent civic address.

 The format is defined in IETF RFC 4676.

 </rdfs:comment>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="civic\_cntry\_code">

 <rdfs:domain rdf:resource="#BIN\_CIVIC\_LOC"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 Two-letter ISO 3166 country code in capital ASCII letters.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="civic\_addr">

 <rdfs:domain rdf:resource="#BIN\_CIVIC\_LOC"/>

 <rdfs:range rdf:resource="#CIVIC\_ADDR"/>

 <rdfs:comment>

 This property contains the civic address elements.

 The format of the civic address elements is described

 in Section 3.4 of IETF RFC 4676 with a TLV pair

 (whereby the Type and Length fields are one octet long).

 </rdfs:comment>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="CIVIC\_ADDR">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#catype"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#cavalue"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="catype">

 <rdfs:domain rdf:resource="#CIVIC\_ADDR"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 A one-octet descriptor of the data civic address value.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="cavalue">

 <rdfs:domain rdf:resource="#CIVIC\_ADDR"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 The civic address value.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="XML\_CIVIC\_LOC">

 <rdfs:subClassOf rdf:resource="#LOCATION"/>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="xml\_civic\_loc">

 <rdfs:domain rdf:resource="#XML\_CIVIC\_LOC"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 <rdfs:comment>

 Geo address elements as described in RFC4119.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="LOCATION\_CELL\_ID">

 <rdfs:subClassOf rdf:resource="#LOCATION"/>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="location\_cell\_id">

 <rdfs:domain rdf:resource="#LOCATION\_CELL\_ID"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_poa\_channel\_range">

 <misbasic:ie\_identifier>0x10000202</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#CH\_RANGE"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="CH\_RANGE">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#low\_ch\_range"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#high\_ch\_range"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="low\_ch\_range">

 <rdfs:domain rdf:resource="#CH\_RANGE"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 <rdfs:comment>

 Lowest channel frequency in MHz

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="high\_ch\_range">

 <rdfs:domain rdf:resource="#CH\_RANGE"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 <rdfs:comment>

 Highest channel frequency in MHz

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_poa\_system\_info">

 <misbasic:ie\_identifier>0x10000203</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#SYSTEM\_INFO"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="SYSTEM\_INFO">

 </owl:Class>

 <owl:ObjectProperty rdf:ID="system\_info\_network\_type">

 <rdfs:domain rdf:resource="#SYSTEM\_INFO"/>

 <rdfs:range rdf:resource="#NETWORK\_TYPE"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="system\_info\_link\_addr">

 <rdfs:domain rdf:resource="#SYSTEM\_INFO"/>

 <rdfs:range rdf:resource="#LINK\_ADDR"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="system\_info\_parameters">

 <rdfs:domain rdf:resource="#SYSTEM\_INFO"/>

 <rdfs:range rdf:resource="#PARAMETERS"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="PARAMETERS">

 </owl:Class>

 <owl:Class rdf:ID="DCD\_UCD">

 <rdfs:subClassOf rdf:resource="#PARAMETERS"/>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="base\_id">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="bandwidth">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="du\_ctr\_frequency">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedLong"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="eirp">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="ttg">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="rtg">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="down\_burst\_profile">

 <rdfs:subPropertyOf rdf:resource="#bit\_number"/>

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="up\_burst\_profile">

 <rdfs:subPropertyOf rdf:resource="#bit\_number"/>

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="initial\_code">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="ho\_code">

 <rdfs:domain rdf:resource="#DCD\_UCD"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="SIB">

 <rdfs:subClassOf rdf:resource="#PARAMETERS"/>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="cell\_id">

 <rdfs:domain rdf:resource="#SIB"/>

 <rdfs:range rdf:resource="&xsd;unsignedInt"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="fq\_code\_num">

 <rdfs:domain rdf:resource="#SIB"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:Class rdf:ID="SYS\_PARAMS">

 <rdfs:subClassOf rdf:resource="#PARAMETERS"/>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="base\_id">

 <rdfs:domain rdf:resource="#SYS\_PARAMS"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="pilot\_pn">

 <rdfs:domain rdf:resource="#SYS\_PARAMS"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="freq\_id">

 <rdfs:domain rdf:resource="#SYS\_PARAMS"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="band\_class">

 <rdfs:domain rdf:resource="#SYS\_PARAMS"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="ie\_poa\_subnet\_info">

 <misbasic:ie\_identifier>0x10000204</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#IP\_SUBNET\_INFO"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="IP\_SUBNET\_INFO">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#ip\_prefix\_len"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#subnet\_address"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="ip\_prefix\_len">

 <rdfs:domain rdf:resource="#IP\_SUBNET\_INFO"/>

 <rdfs:range rdf:resource="&xsd;unsignedByte"/>

 <rdfs:comment>

 The bit length of the prefix of the subnet to which subnet\_address

 property belongs. The prefix\_length is less than or equal to 32

 for IPv4 subnet and less than or equal to 128 for IPv6 subnet.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:ObjectProperty rdf:ID="subnet\_address">

 <rdfs:domain rdf:resource="#IP\_SUBNET\_INFO"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

 <rdfs:comment>

 An IP address of the PoA encoded as Address base type defined in

 RFC6733. The first 2-octet contains AddressType, which may be

 either 1 (IPv4) or 2 (IPv6). If AddressType==1, the subnet\_address

 property contains a 4-octet IPv4 address. If AddressType==2, the

 subnet\_address property contains a 16-octet IPv6 address.

 </rdfs:comment>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="ie\_poa\_ip\_addr">

 <misbasic:ie\_identifier>0x10000205</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

 </owl:ObjectProperty>

 <owl:Class rdf:ID="TRANSPORT\_ADDR">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#address\_type"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="#address\_value"/>

 <owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

 </owl:Class>

 <owl:DatatypeProperty rdf:ID="address\_type">

 <rdfs:domain rdf:resource="#TRANSPORT\_ADDR"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

 <rdfs:comment>

 An Address Family defined in

 http://www.iana.org/assignments/address-family-numbers.

 </rdfs:comment>

 </owl:DatatypeProperty>

 <owl:DatatypeProperty rdf:ID="address\_value">

 <rdfs:domain rdf:resource="#TRANSPORT\_ADDR"/>

 <rdfs:range rdf:resource="&xsd;hexBinary"/>

 <rdfs:comment>

 An address value specific to address\_type.

 </rdfs:comment>

 </owl:DatatypeProperty>

<owl:ObjectProperty rdf:ID="ie\_authenticator\_link\_addr">

 <misbasic:ie\_identifier>0x10000206</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#LINK\_ADDR"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="ie\_authenticator\_ip\_addr">

 <misbasic:ie\_identifier>0x10000207</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="ie\_pos\_ip\_addr">

 <misbasic:ie\_identifier>0x10000208</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#TRANSPORT\_ADDR"/>

 </owl:ObjectProperty>

 <owl:ObjectProperty rdf:ID="ie\_pos\_tunnel\_mgmt\_prto">

 <misbasic:ie\_identifier>0x10000209</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="#bit\_number"/>

 <rdfs:comment>

 The range of #bit\_number is 0-15.

 </rdfs:comment>

 </owl:ObjectProperty>

<owl:DatatypeProperty rdf:ID="ie\_pos~~\_ip~~\_nai">

 <misbasic:ie\_identifier>0x1000020A</misbasic:ie\_identifier>

 <rdfs:domain rdf:resource="#POA"/>

 <rdfs:range rdf:resource="&xsd;string"/>

 </owl:DatatypeProperty>

<owl:ObjectProperty rdf:ID="ie\_d2d\_peerid">

 <misbasic:ie\_type\_identifier>0x10000110</misbasic:ie\_type\_identifier>

<rdfs:domain rdf:resource="#NETWORK"/>

 <rdfs:range rdf:resource="#D2D\_PEERID"/>

 </owl:ObjectProperty>

<owl:Class rdf:ID="D2D\_PEERID">

 <rdfs:subClassOf><owl:Restriction>

<owl:onProperty rdf:resource="#misf\_id"/>

<owl:cardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:cardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

</owl:Class>

<owl:DatatypeProperty rdf:ID="misf\_id">

 <rdfs:domain rdf:resource="#D2D\_PEERID"/>

 <rdfs:range rdf:resource="&xsd;string"/>

</owl:DatatypeProperty>

<owl:ObjectProperty rdf:ID="ie\_d2d\_config">

 <misbasic:ie\_type\_identifier>0x10000111</misbasic:ie\_type\_identifier>

<rdfs:domain rdf:resource="#NETWORK"/>

<rdfs:range rdf:resource="#D2D\_CONFIG"/>

 </owl:ObjectProperty>

<owl:Class rdf:ID="D2D\_CONFIG">

 <rdfs:subClassOf>

 <owl:Restriction>

 <owl:onProperty rdf:resource="# freq\_id"/>

 <owl:minCardinality rdf:datatype="&xsd;nonNegativeInteger">1

 </owl:minCardinality>

 </owl:Restriction>

 </rdfs:subClassOf>

</owl:Class>

<owl:DatatypeProperty rdf:ID="freq\_id">

 <rdfs:domain rdf:resource="#D2D\_CONFIG"/>

 <rdfs:range rdf:resource="&xsd;unsignedShort"/>

</owl:DatatypeProperty>

</rdf:RDF>