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| Title | **IRPs and NRMs for Network Management Portion TGg Specification** |
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| Re: | IEEE 802.16g-04/03 and IEEE 802.16g-04/04 |
| Abstract | This contribution begins the process of establishing the protocol neutral specification for network management as part of the P802.16g |
| Purpose | To demonstrate an approach that is used for the development of protocol neutral network management specifications |
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# 14.3 Information Model Aspects

For the purpose of Management Interface development an Interface Methodology known as Integration Reference Point (IRP) was developed to promote the wider adoption of standardized Management interfaces in telecommunication networks. The IRP methodology employs Protocol & Technology Neutral modeling methods as well as protocol specific solution sets to help achieve its goals. The Integration Reference Point is a methodology to aid a modular approach to the development of standards interfaces.

There are three cornerstones to the IRP approach:

1. Top-down, process-driven modeling approach
   The process begins with a requirements phase, the aim at this step is to provide conceptual and use case definitions for a specific interface aspect as well as defining subsequent requirements for this IRP.

2. Technology-independent modeling
   The second phase of the process is the development of a protocol independent model of the interface. This protocol independent model is specified in the IRP Information Service.

3. Standards-based technology-dependent modeling
   The third phase of the process is to create one or more interface technology and protocol dependent models from the Information Service model. This is specified in the IRP Solution Set(s).

# 14.4.3 Information Service Models

Information Service Models refer to both Interface IRPs and NRM IRPs.

This section is providing the IEEE 802.16 protocol neutral (IS) resource model (NRM/MIB) definitions.

## *Information entities imported and local labels*

| **Label reference** | **Local label** |
|---|---|
| information object class, ManagedElement | ManagedElement |
| information object class, ManagedFunction | ManagedFunction |
| information object class, SubNetwork | SubNetwork |
| information object class, Top | Top |

## *14.4.3.2 Class diagram*

14.4.3.2.1 Attributes and relationships

Figure 1. establishes the naming and containment for the protocol neutral network management models of the 802.16 standard. The inheritance diagram show in Figure 2. is based on 802.16e and 802.16-2004. This diagram establishes the context of the IOC and shows ME's as inventory items and MF's as the functions that perform functions in the 802.16 network.

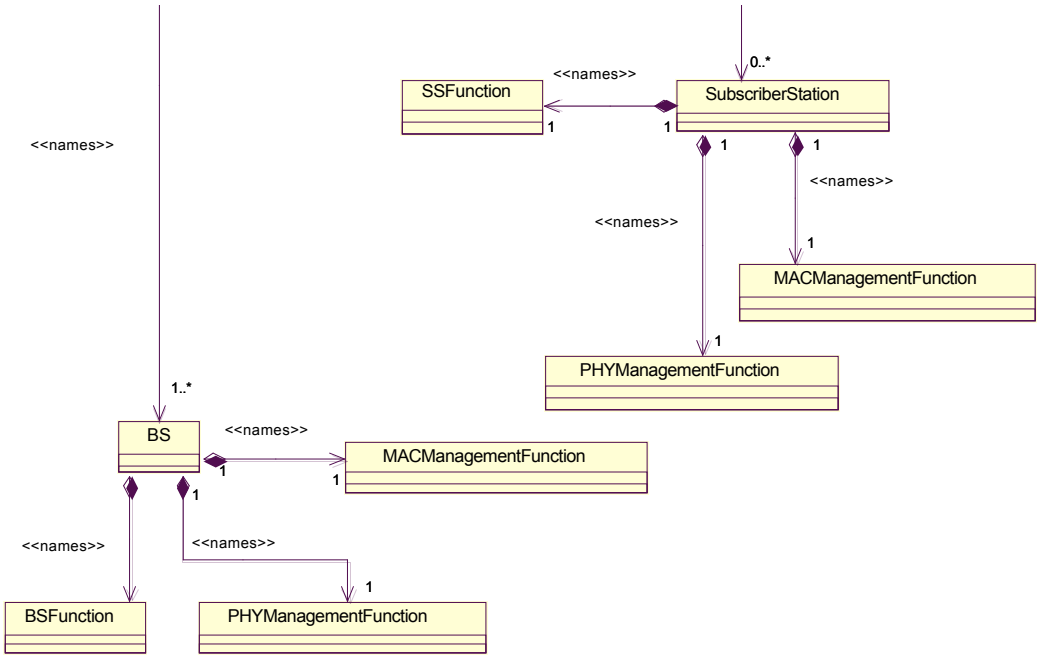


Figure 1. Containment and Naming Diagram

14.4.3.2.2 Inheritance

This clause depicts the inheritance relationships that exist between information object classes.

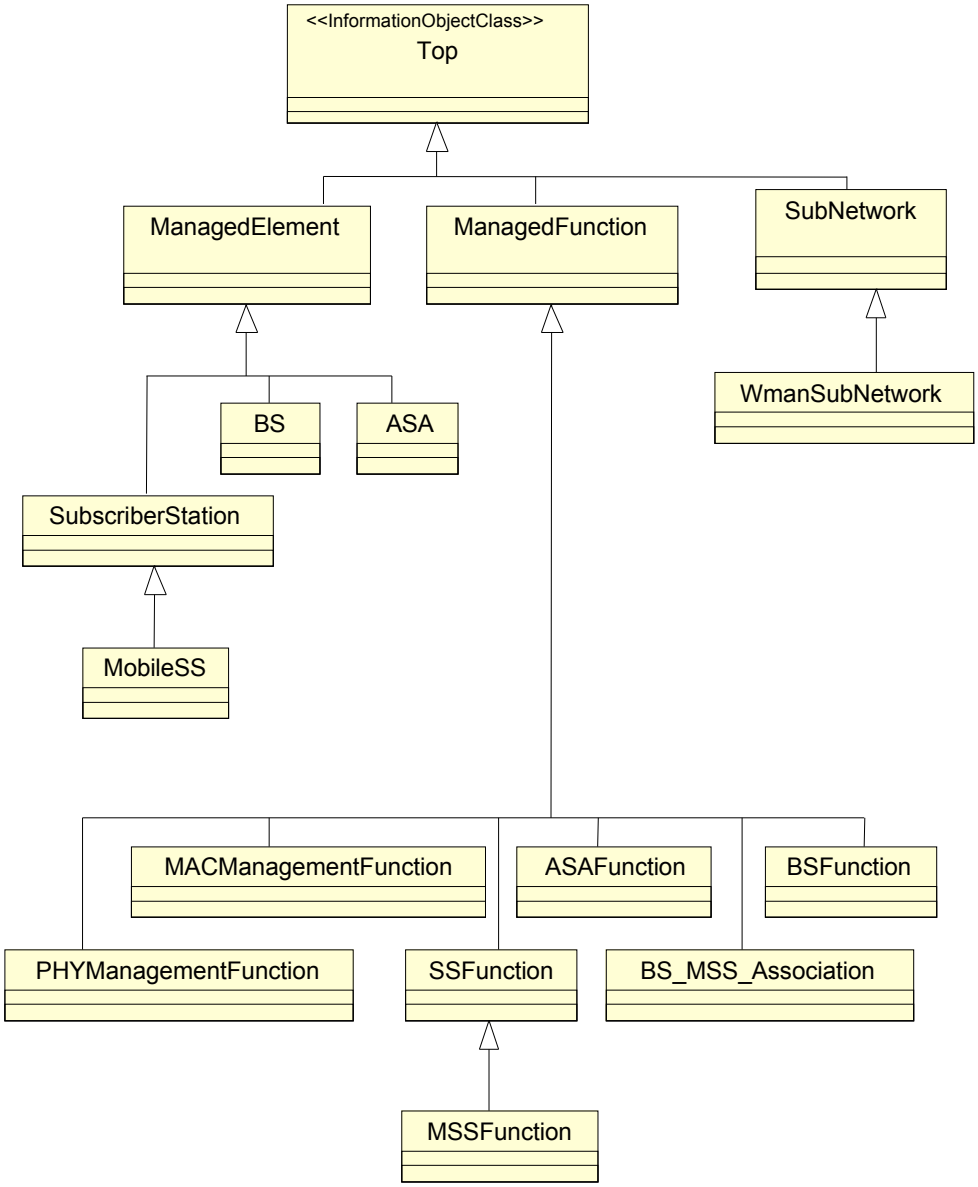


Figure 2. Inheritance Diagram

## *14.4.3.3 Information object classes definition*

### 14.4.3.3.1 IOC `BsFunction`

#### 14.4.3.3.1.1 Definition

This IOC represents a WMAN base station. For more information, see [zz]. It is derived from `ManagedFunction`.

<Section Note: This table is just a template for reference.>

#### 14.4.3.3.1.2 Attributes

| Attribute name | Defined in | Visibility | Support Qualifier | Read Qualifier | Write Qualifier |
|---|---|---|---|---|---|
| BsFunctionId | – | + | M | M | – |
| objectClass | Top | $+^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ | $–^{inherited}$ |
| objectInstance | Top | $+^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ | $–^{inherited}$ |
| userLabel | ManagedFunction | $+^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ |
| aaa | – | + | O | M | – |
| bbb | – | + | O | M | – |
| yyy | – | + | O | M | – |
| zzz | – | + | O | M | – |

### 14.4.3.3.2 IOC `WmanSsFunction`

#### 14.4.3.3.2.1 Definition

This IOC represents a WMAN subscriber station. For more information, see [zz]. It is derived from `ManagedFunction`.

#### 14.4.3.3.2.2 Attributes

| Attribute name | Defined in | Visibility | Support Qualifier | Read Qualifier | Write Qualifier |
|---|---|---|---|---|---|
| SsFunctionId | – | + | M | M | – |
| objectClass | Top | $+^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ | $–^{inherited}$ |
| objectInstance | Top | $+^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ | $–^{inherited}$ |
| userLabel | ManagedFunction | $+^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ | $M^{inherited}$ |
| ccc | – | + | O | M | – |
| ddd | – | + | O | M | – |
| www | – | + | O | M | – |
| xxx | – | + | O | M | – |

#### 14.4.3.3.3 IOC xxx

#### 14.4.3.3.X IOC yyy

### 14.4.3.4 Information relationships definition

### 14.4.3.5 Notifications

### 14.4.3.6 Information attributes definition

#### 14.4.3.6.1 Definition and legal values

| Attribute Name | Definition | Legal Values |
|---|---|---|
| BsFunctionId | It contains 'name+value' that is the RDN, when naming an instance, of this object class containing this attribute.This RDN uniquely identifies the object instance within the scope of its containing (parent) object instance. | – |
| SsFunctionId | | – |
| ZzzId | | – |
| aaa | tbd | tbd |
| bbb | tbd | tbd |
| ccc | tbd | tbd |
| ddd | tbd | tbd |
| objectClass | As defined in [zz]: An attribute which captures the name of the class from which the object instance is an occurrence of. | – |
| objectInstance | As defined in [zz]: An information which captures the Distinguished Name of any object. | – |
| userLabel | Based on definition from [zz]: A user-friendly (and user assigned) name of the associated instance. | – |
| www | tbd | tbd |
| xxx | tbd | tbd |
| yyy | tbd | tbd |
| zzz | tbd | tbd |