IEEE P802.21  
Media Independent Handover Services

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| Requirements Document for TGd | | | | |
| Date: 2012-09-06 | | | | |
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Abstract

This document summarizes the TGd requirements as derived from the PAR and from analyzing the TGd use cases.

# Introduction

This document defines requirements for solutions addressing functionality to be provided by the TGd amendment.

Apart from setting functional requirements, this documents specifies performance requirements and constrains for solutions addressing functionality to be provided by the TGd amendment.

## Scope

The scope for deriving requirements is set by the P802.11d PAR [1], as well as by the TGd use case document [2].

## Definitions, acronyms, and abbreviations

**Authentication: A process that establishes the origin of information, or determines an entity’s identity [3].**

**Availability: Timely, reliable access to information by authorized entities [3].**

**Confidentiality:** **The property that sensitive information is not disclosed to unauthorized entities [3].**

**Integrity: The property that sensitive data has not been modified or deleted in an unauthorized and undetected manner [3].**

**Non-repudiation: A service that is used to provide assurance of the integrity and origin of data in such a way that the integrity and origin can be verified by a third party as having originated from a specific entity in possession of the private key of the claimed signatory** [3]**.**

## References

[1] IEEE 802.21d PAR. http://www.ieee802.org/21/802\_21d\_PAR.pdf

[2] https://mentor.ieee.org/802.21/dcn/12/21-12-0090-01-MuGM-use-case-reference-for-tgd.docx

[3] NIST Special Publication 800-57, Recommendation for Key Management – Part 1: General (Revised), March 2007.

# Requirements

## Functional requirements [What the system shall do]

### Multicast Communication

[Req2.1.1.1] The TGd amendment shall support multicast communication between a PoS, source of a multicast tree, and a group of nodes.

### Addressing

[Req2.1.2.1] The TGd amendment shall provide an addressing mechanism suitable for identifying the group.

### Multicast Transport

[Req2.1.3.1] The TGd amendment shall provide mechanisms for the MIHF to deliver information in a multicast way.

[Req2.1.3.1] The TGd amendment shall rely on already established L2, L3 or application layer multicast mechanisms to perform the multicast transport.

### Group Management

[Req2.1.4.1] The TGd amendment shall provide functionalities for managing groups of nodes. These functionalities include the creation/destruction of groups, join and leave operations and modifications to the group subscription.

### Security Requirements

[Req2.1.5.1] The TGd amendment shall provide mechanisms to perform authentication, confidentiality and integrity protection at the receiving node.

[Req2.1.5.2] The solution shall provide key management mechanisms.

## Performance requirements [How well the requirements should perform]

### Transparency to MIH Users

[Req2.2.1.1] The TGd amendment shall provide transport solutions transparent to the MIH User. The fact of using a multicast channel shall be transparent to the MIH User.

### Reduced signaling

[Req2.2.2.1] The TGd amendment shall provide mechanisms for group management incurring on lower overheads compared with unicast group management solutions.

### Scalability

[Req2.2.3.1] The mechanisms proposed in the TGd amendment shall scale from low to high capacity (in terms of computational power) devices.

[Req2.2.3.2] The mechanisms proposed in the TGd amendment for the transport of primitives, shall scale with the number of nodes.

## Constraints – [e.g. Technology, design, tools, and/or standards]

### Backward compatibility

[Req2.3.1.1] The TGd amendment shall be compatible or supersede the zero length MIHF\_ID behaviour

[Req2.3.1.2] The TGd amendment shall be compatible or supersede IEEE 802.21b mechanisms of group management.

[Req2.3.1.3] The TGd amendment shall minimize the changes introduced in the standard IEEE 802.21 protocol state machine and should clearly identify the IEEE 802.21 primitives allowed to be used in a multicast way.

# Multicast features and attributes

**(M: mandatory, O: optional, N: not supported)**

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| **Functionality** | **Level of requirement** |
| PoS to MN multicast | M |
| PoS (or MIH non-PoS) to PoS multicast | O |
| MN-sourced multicast | N |
| Multicast Sub-groups | N |
| Handling of duplicate multicast MIH data | M |
| Authentication [3] | M |
| Data Integrity [3] | M |
| Confidentiality [3] | O |
| Availability [3] | ? |
| Key management | M |

Note: Optional in previous table means “Optional to use” but the solution must provide this functionality.