IEEE P802.11
Wireless LANs

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| TGai Requirements Document |
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Abstract

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

The methodology on how to show compliance to these requirents will be specified in a TGai Evaluation Methodology Document that will also specify the subset of requirements which are mandatory to be met in order for a proposal to be considered for inclusion in the TGai amendment.

# Introduction

## Purpose

This document defines requirements used for:

* verifying that draft text submitted for inclusion in the IEEE P802.11ai amendment meets the criteria set by the IEEE 802.11ai PAR, and
* evaluating draft text proposals by gauging how much functionality they support and how well the systems performs.

## Scope

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

## Definitions, acronyms, and abbreviations

<<< Relevant defintions, e.g. based on the use case document, to be included here. >>>

FILS: Fast Initial Link Setup

## References

[1] 11-10/1152r01: Fast Initial Link Set-UP Project Authorizaiton Request

[2] 11-10/0238r15: TGai Use Cases

[3] 11-10/1152r01: Fast Initial Link Set-Up PAR

[4] xxxx TGai Evaluation Methodology

# Requirements

## Functional requirements [What the system shall do]

### Concurrency in information exchange

Reducing the number of messages transmitted over the air per user frees airtime and may increase the number of users that may simultaneously enter an ESS. Concurrency in the exchange of higher layer protocol messages while setting up the 802.11 MAC link is considered is worth exploring.

[Req2.1.1.1] Submissions are required to demonstrate during the link setp-up phase support for concurreny in the exchange of (selected) information usually contained in higher layer protocol messages.

### Reuse of existing security scheme

[Req2.1.2.1] Submissions are required to support Secure Authentication Phase employing Robust Security Network Association (RSNA) or supply.

[Req2.1.2.2] Submissions are required to show compelling evidence that any additional alternate security schemes used during the FILS are at least as secure as RSNA.

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

Per PAR, the TGai amendment shall enable devices to effectively work in an environment where mobile devices are constantly entering and leaving the coverage area of an existing extended service set (ESS) and thereby have to do an initial link set-up to establish wireless local area network connectivity.

### Scalability

[ReqYY] Submissions are required to show compelling evidence that mechanisms provided scale with a high number of users simultaneously entering an ESS.

[ReqYY] Submissions are required to show compelling evidence for the support of fast initial link set-up for at least 100 stations entering an existing ESS within 1 second.

[ReqYY] All devices are required to support fast initial link set-up for media loads of up to 50%.

### Link Set-Up Time

[ReqYY] All devices are required to support mechanisms enabling an Initial Link Set-Up in less than 100 ms.

## Non-Functional requirements, such as reliability, safety, environmental [temperature]

## Enabling requirements [Production, development, testing, training, support, deployment, and disposal].

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

### Maintaining existing security level

[ReqYY] New fast initial link set-up methods shall not degrade the security offered by Robust Security Network Association (RSNA) already defined in 802.11.

### Backward compatibility

The TGai amendment shall not depricate existing security mechanims of IEEE 802.11. The following requirement is broader and covers that particual aspect set by the PAR [1].

[ReqYY] All TGai devices are required to maintain backward compatibility with extinging IEEE 802.11 devices.

# Non-Requirements

# Verification

The TGai Evaluation Methodology Dodument [3] defines the procedure on verifying that the requirements in Section 3 are met. It also defines the subset of requirements mandatory to be met in order to have draft amending text considered for inclusion in the TGai amendment.

 Submissions shall indicate their level of compliance to requirements to each of the requirements in this document: “full”, “partial”, “n/a”.