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Title	**Corrections for the Protocol Stack of Security Layer**	
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Re:	IEEE P802.16e/D7	
Abstract	The document contains suggestions on the changes into IEEE 802.16e/D7 that would correct the protocol stack of security layer.	
Purpose	Adoption of proposed changes into P802.16e/D7	
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Corrections for the Protocol Stack of Security Layer

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Introduction

The protocol stack for the security components of the system is defined in the P802.16/D7.

However, the protocol stack doesn't fully support all security sub-functions; it skips some important security components and is wrong-arranged.

The new following security components need to be considered, compared to the existing security protocol stack (Figure 130j and Figure 130k).

- Traffic Data Encryption/Authentication Processing: Stack for processing the traffic data encryption/decryption and authentication as data plane
- Message Authentication Processing: Stack for executing message authentication function as control plane, e.g., HMAC or OMAC
- PKM Control Management: Stack for entirely managing the PKM version 1 and the PKM version 2, and controlling all security components
- Authorization Control: Stack for controlling the authorization key state machine
- SA Control: Stack for controlling multiple traffic encryption key state machines

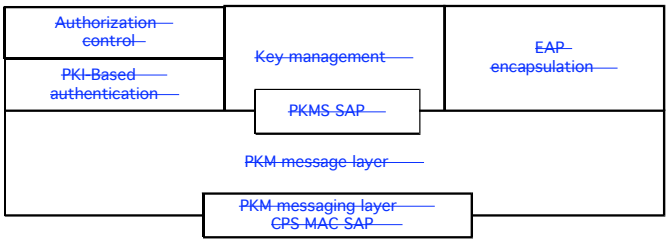
The following security components, which are defined in the P802.16/D7, are needed to be clearly arranged in the security protocol stack.

- Control Message Processing: Stack for processing the PKM-related MAC messages. Since the general MAC messages (e.g., DSA-REQ, DSA-RSP, and so on) are made in the MAC CPS layer, it is reasonable that the function for processing PKM-related MAC message should be executed in the PKM CPS layer.

Proposed changes to IEEE 802.16e/D7

7.1 Architecture

[Exchange Figure 130j for the following new Figure and Add contents below Figure 130j as follows:]



~~**Figure 130j-Security sublayer**~~

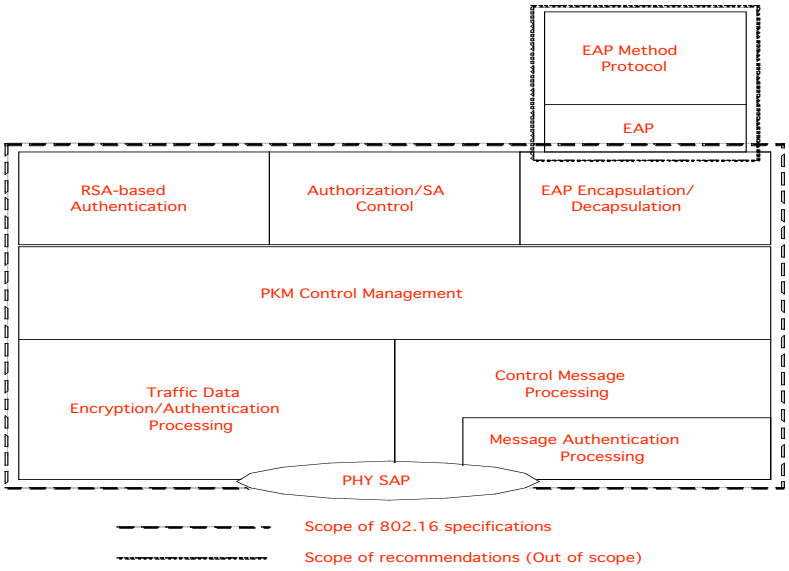


Figure 130j-Security sublayer

- PKM Control Management: This stack controls all security components. Various keys are derived and generated in this stack.
- Traffic Data Encryption/Authentication Processing: This stack encrypts or decrypts the traffic data and executes the authentication function for them.
- Control Message Processing: This stack processes the various PKM-related MAC messages.
- Message Authentication Processing: This stack executes message authentication function. The HMAC, OMAC, or several short-HMACs can be supported.
- RSA-based Authentication: This stack performs the RSA-based authentication function using the SS's X.509 certificate, when the RSA-based authorization policy is negotiated between an SS and a BS.
- EAP Encapsulation/Decapsulation: This stack provides the interface to the EAP-related authentication protocols, when the EAP-based authentication or the authenticated EAP-based authorization policy is negotiated between an SS and a BS.
- Authorization/SA Control: This stack controls the authorization key state machine and the traffic encryption key state machine.
- EAP and EAP Method Protocol: These stacks are out of scope.

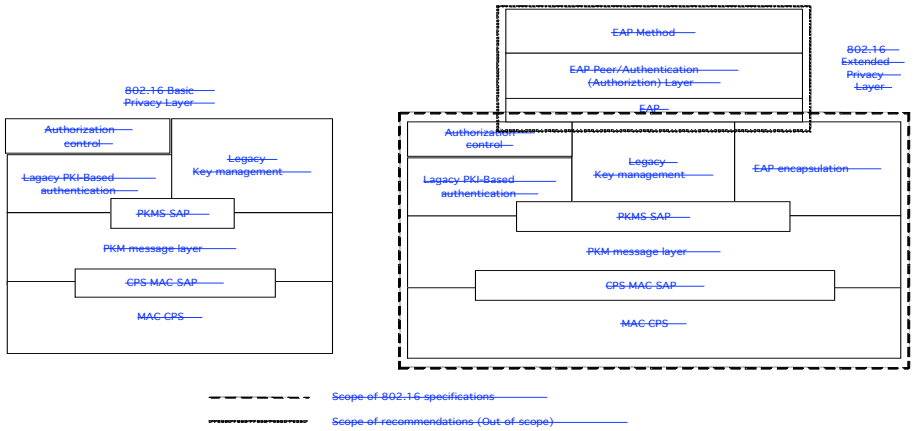
7.1.3.2 PKM EAP authentication

[Modify the sub-clause 7.1.3.2 as follows:] and [Delete Figure 130k]

PKM EAP Authentication uses Extensible Authentication Protocol [IETF RFC 3748] in conjunction with a vendor-selected standardized EAP Method (eg. EAP-TLS [IETF RFC 2716]). The EAP method will use a particular kind of credential – such as an x.509 certificate in the case of EAP-TLS, or a Subscriber Identity Module in the case of EAP-SIM.

The particular credentials and EAP methods that are to be used are outside of the scope of this specification, but they should be selected with awareness of the security issues described in [IETF RFC 3748] section 7.

~~Figure 130k shows the relationship between the lower levels of the 802.16 MAC and the generic EAP components (and the interface between them).~~



~~Figure 130k Comparison of the Basic and Extended~~

~~Privacy Layers (Control plane)~~