IEEE P802.11
Wireless LANs
Clause 7 Improvements

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Abstract

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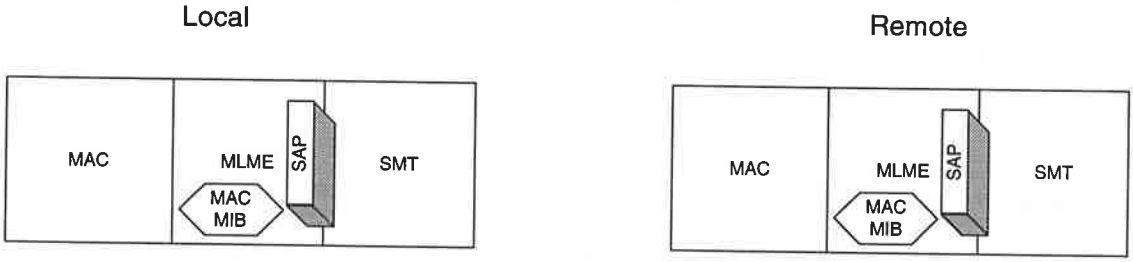

6.2

6.3 MLME Service Access Point Interface

They are of the general form of ACTION.request followed by ACTION.confirm. When external communication is involved, a complementary set of ACTION.indication and ACTION.response shall be supported over the MLME SAP.

6.3.1 Power Management

This mechanism supports the process of establishment and maintenance of the power management mode of a STA.

6.3.1.1 MLME_POWER_MGT.request

Function
This primitive requests a change in the power management mode.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ POWER_MGT.request    (
                             power_mgt_parameters
                             )
```

When Generated

This primitive is generated by the Local SMT to implement the power savings strategy of an implementation. It may include parameters for number of beacon intervals to sleep and a Boolean flag controlling waking for DTIMs. Should include a mandatory enable/disable Boolean.

Effect of Receipt

Sets the operational parameters of the station's power management facility.

6.3.1.2 MLME_ POWER_MGT.confirm

Function
This primitive confirms the change in power management mode.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ POWER_MGT.confirm    (
                             operation_successful
                             )
```

The operation_successful parameter is returned to indicate the results of the power management request.

When Generated

This primitive is generated by the MLME as a result of a MLME_POWER_MGT.request to establish a new power management mode. It is not generated until the change has completed.

Effect of Receipt

STA is notified of the change of power management mode.

6.3.2 Scan

This mechanism supports the process of determining the characteristics of the available BSS'.

6.3.2.1 MLME_SCAN.request

Function
This primitive requests a survey of potential BSS' which the STA may later elect to try to join.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_SCAN.request    (
                       BSS_type,
                       BSS_ID,
                       scan_type,
```

starting_channel,
channel_list,
channel_time
)

The BSS_type parameter shall indicate whether infrastructure BSSs Independent BSSs, or both , are to be included in the scan.

The BSS_ID parameter shall identify a specific or broadcast BSS_ID.

The scan_type parameter shall specify a value which indicates active or passive scanning.

The starting_channel parameter shall specify a value which corresponds to first channel to visit when looking for a BSS.

The channel_list parameter shall specify a value which corresponds to a list of all the channels to check.

The channel_time parameter shall specify a value which corresponds to the amount of time to spend on each channel in the search process.

When Generated

This primitive is generated by the Local SMT when a STA wishes to determine if there are other BSS' which it might join.

Effect of Receipt

This request shall initiate the scan process when the current transmission/reception is completed.

6.3.2.2 MLME_SCAN.confirm

Function

This primitive returns the descriptions of the set of BSSs which it detected.

Semantics of the Service Primitive

The primitive parameters are as follows:

MLME_SCAN.confirm (
BSS_description_set
)

The BSS_description_set is returned to indicate the results of the scan request. It a set containing zero or more instances of the following elements:

BSS_ID
ESS_ID
BSS_type
Beacon Rate
Timestamp
PHY parm set
CF parm set
IBSS parm set

When Generated

This primitive is generated by the MLME as a result of a MLME_SCAN.request to ascertain the operating environment of the STA.

Effect of Receipt

The SMT's internal state is updated to reflect the results of the SCAN.

6.3.3 Synchronization

This mechanism supports the process of selection of a peer in the Authentication process.

6.3.3.1 MLME_JOIN.request

Function
This primitive requests synchronization with an entity.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ JOIN.request      (
                          BSS_description
                        )
```

The BSS_description is a member of the set of descriptions returned as a result of a scan request. It has the following elements:

BSS_ID
ESS_ID
BSS_type
Beacon Rate
Timestamp
PHY parm set
CF parm set
IBSS parm set

When Generated

This primitive is generated by the Local SMT when a STA wishes to establish synchronization with a BSS.

Effect of Receipt

When this primitive is received by the MLME it initiates a synchronization procedure. It then issues a MLME_JOIN.confirm primitive to reflect the results.

6.3.3.2 MLME_JOIN.confirm

Function
This primitive confirms syschronization with a BSS.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_JOIN.confirm      (
                         operation_successful
                       )
```

The operation_successful parameter is returned to indicate the results of the synchronization request.

When Generated

This primitive is generated by the Local MLME as a result of a MLME_JOIN.request to establish synchronization with a BSS.

Effect of Receipt

The SMT's internal state is updated to reflect the results of the JOIN.

6.3.4 Authenticate

6.3.4.1 MLME_AUTHENTICATE.request

Function
This primitive requests authentication from a SMT to a remote SMT.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_AUTHENTICATE.request(
                          source_address,
                          destination_address,
                          authentication_type,
                          authentication_state,
                          authentication_message
                          )
```

The source_address parameter (SA) shall specify an individual MAC address of a STA.

The destination_address parameter (DA) shall specify an individual MAC address of a STA which may be acting as an AP.

The authentication_type parameter is the value of the aAuthentication_Type MIB to be set for the originating STA.

The authentication_state parameter reflects the stage of the authentication procedure and is dependent on the value of the aAuthentication_Type MIB selected.

The authentication_message parameter is dependent on the value of the aAuthentication_Type MIB selected.

When Generated

This primitive is generated by the Local SMT for a Remote SMT when a STA wishes to establish an authentication state with another STA in order to allow Class 2 frames to be exchanged between the two.

Effect of Receipt

When this primitive is received by the Remote SMT it changes its internal state to reflect the result of its validation of the authentication request. It then issues a MLME_AUTHENTICATE.confirm primitive to the sending STA.

6.3.4.2 MLME_AUTHENTICATE.confirm

Function
This primitive reports the results of the authentication request from the Remote SMT to the Local SMT.

Semantics of the Service Primitive
The primitive parameters are as follows:

```
MLME_AUTHENTICATE.confirm     (
                              source_address,
                              destination_address
                              authentication_type,
                              authentication_state,
                              authentication_message
                              )
```

The source_address parameter (SA) shall specify an individual MAC address of a STA.

The destination_address parameter (DA) shall specify an individual MAC address of a STA which may be acting as an AP.

The authentication_type parameter shall specify the value of the aAuthentication_Type MIB to be set for the originating STA.

The authentication_state parameter shall reflect the stage of the authentication procedure and is dependent on the value of the aAuthentication_Type MIB selected.

The authentication_message parameter is dependent on the value of the aAuthentication_Type MIB selected.

When Generated

This primitive is generated by the Remote SMT as a result of a MLME_AUTHENTICATE.request to establish an authentication state with another STA.

Effect of Receipt

When this primitive is received by the Local STA it changes its internal state to reflect the result of its validation of the authentication request.

6.3.5 De-authenticate

6.3.5.1 MLME_DEAUTHENTICATE.request

Function
This primitive requests deauthentication from a Local SMT to a single peer Remote SMT.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ DEAUTHENTICATE.request    (
                                source_address,
                                destination_address
                                )
```

The source_address parameter (SA) shall specify an individual MAC address of a STA.

The destination_address parameter (DA) shall specify an individual MAC address of a STA which may be acting as an AP.

When Generated

This primitive is generated by the Local SMT whenever a STA wishes to terminate an authentication.

Effect of Receipt

The effect of the receipt of this primitive is to change the internal state of the Remote STA or AP to correspond to having no current authentication with the source_address and generate a MLME_DEAUTHENTICATE.confirm primitive.

6.3.5.2 MLME_DEAUTHENTICATE.confirm

Function
This primitive confirms deauthentication from a Remote SMT to a single peer SMT.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ DEAUTHENTICATE.confirm    (
                                source_address,
                                destination_address
                                )
```

The source_address parameter (SA) shall specify an individual MAC address of a STA.

The destination_address parameter (DA) shall specify an individual MAC address of a STA which may be acting as an AP.

When Generated

This primitive is generated by the Remote SMT as a result of a MLME_DEAUTHENTICATE.request to terminate authentication with another STA.

Effect of Receipt

When this primitive is received by the Local SMT it changes its internal state to reflect the result of the authentication request.

6.3.6 Associate

The following primitives describe how a STA becomes associated with an AP.

6.3.6.1 MLME_ASSOCIATE.request

Function
This primitive from a Local SMT residing in a STA requests an association to a single peer SMT which is acting as an Access Point.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ASSOCIATE.request      (
                              source_address,
                              destination_address
                              )
```

The source_address parameter shall specify an individual MAC address of a STA.

The destination_address parameter shall specify an individual MAC address which is acting as an AP for a BSS.

When Generated

This primitive is generated by the SMT whenever a STA wishes to establish an association with an AP in order to access the infrastructure.

Effect of Receipt

Causes the Remote SMT to check its list of authenticated stations and issue a response which results in the generation of a MLME_ASSOCIATE.confirm to indicate the results to the originator.

6.3.6.2 MLME_ASSOCIATE.confirm

Function
This primitive confirms an association with an Access Point.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_ASSOCIATE.confirm      (
                              operation_successful
                              )
```

The operation_successful parameter is returned to indicate the results of the association request. Since there may be only one outstanding association request for at STA, source_address and destination_address are not returned.

When Generated

This primitive is generated by the MAC when it has determined the results of the association request.

Effect of Receipt

Presents the results of the request for association. If successful, the STA then has access to the infrastructure.

6.3.7 Re-associate

The following primitives describe how a STA becomes associated with another AP.

6.3.7.1 MLME_REASSOCIATE.request

Function
This primitive requests a re-association to an Access Point.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_REASSOCIATE.request   (
                            source_address,
                            old_AP_address,
                            new_AP_address
                           )
```

The source_address parameter (SA) shall specify an individual MAC address of a STA.

The old_destination_address parameter shall specify an individual MAC address which is currently acting as an AP.

The new_destination_address parameter shall specify an individual MAC address which is requested to act as an AP to the STA without an interruption of services or connections.

When Generated

This primitive is generated by the Local SMT whenever a STA wishes to establish an association with a different AP in order to continue to access the infrastructure within a ESS without interruption.

Effect of Receipt

The Remote SMT at the new AP informs the infrastructure of the reassignment of the STA to a new AP.

6.3.7.2 MLME_REASSOCIATE.confirm

Function
This primitive reports the result from a Remote STM of the request for a re-association from that AP to another STA which is also acting as an Access Point.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_REASSOCIATE.confirm  (
                            operation_successful,
                           )
```

The operation_successful parameter is returned to indicate the results of the association request.

When Generated

This primitive is generated by the MLME in response to a request from a STA which wishes to establish an association with a different AP in order to continue to access the infrastructure within a ESS without interruption.

Effect of Receipt

The effect of the receipt of this primitive is to change the internal state of the MAC to correspond to the new AP, if change was successful.

6.3.8 Disassociate

6.3.8.1 MLME_DISASSOCIATE.request

Function

This primitive requests an disassociation from a Remote STA from the Local STA. Either the STA or AP may initiate the disassociation.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_DISASSOCIATE.request  (
                             STA_address,
                             disassociate_reason
                           )
```

The STA_address parameter (DA) shall specify an individual AP address which acted as an AP for a BSS currently associated with.

The disassociate_reason parameter shall specify the cause of the disassociation.

When Generated

This primitive is generated by the MAC entity whenever a STA wishes to terminate an association.

Effect of Receipt

The effect of the receipt of this primitive is to change the internal state of the Remote STA or AP to correspond to having no current association and generate a MLME_DISASSOCIATE.confirm primitive.

6.3.8.2 MLME_DISASSOCIATE.confirm

Function

This primitive reports the result of the request for a disassociation from a Remote STA which is acting as an Access Point.

Semantics of the Service Primitive

The primitive parameters are as follows:

```
MLME_DISASSOCIATE.confirm (
                            source_address,
                            AP_address,
                            disassociate_reason
                           )
```

The source_address parameter shall specify an individual address of a STA.

The AP_address parameter shall specify an individual STA which is acting as an AP.

The disassociate_reason specifies the reason for the disassociation.

When Generated

This primitive is generated by the Local MLME whenever a STA wishes to terminate an association with an AP.

Effect of Receipt

The effect of the receipt of this primitive is to change the internal state of the MAC to correspond to having no current association.