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| Mapping Accounting and monitoring to IEEE 802 Technologies  |
| Date: 2017-05-16 |
| **Authors:**  |
| Name  | Affiliation  | Phone  | Email  |
| Hao Wang | Fujitsu R&D Center | +86-10-59691000 | wangh@cn.fujitsu.com |
| Su Yi | Fujitsu R&D Center | +86-10-59691000 | yisu@cn.fujitsu.com |
| Xiaojing Fan | Fujitsu R&D Center | +86-10-59691000 | fanxiaojing@cn.fujitsu.com |
| Ryuichi Matsukura | Fujitsu/Fujitsu Laboratory | +81-44-754-2667 | r.matsukura@jp.fujitsu.com |
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Abstract

This document proposes updated texts for the mapping to IEEE 802 technologies for function of accounting and monitoring.

1.

### Mapping to IEEE 802 Technologies

#### Overview

The following table provides an overview about the functions of accounting and monitoring supported by the various IEEE 802 technologies with some of the references to the related sections of the specifications.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 802.3 | 802.11 | 802.16 | 802.22 |
| Monitoring | 30.1.2, 30.1.4management models30.2.2Managed object30.2.5Capabilities5.2.4.2transmit variables and procedures5.2.4.3receive variables and procedures5.2.4.4common procedures  | 11.11radio measurement procedures6.3.146.3.166.3.34measurement primitives | 13.1.3.3.113.1.3.4.413.1.3.4.6MIB modules | 13.1.2.3.113.1.2.4.413.1.2.4.6MIB description |
| Collection & mediation | Annex 30B(reference to to IEEE Std 802.3.1-2011 Clause C.1) | Annex C.3 MIB detail | 14.2.1Accounting management | Yes (MIB) |
| Accounting & policy configuration | 802.1X | 802.1X | 14.2.1Accounting management | Yes(MIB) |

The following table provides the mapping of accounting and monitoring specific attributes, in form of examples of MIB objects, in the various IEEE 802 technologies.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 802.3 | 802.11 | 802.16 | 802.22 |
| Transmit volume | 5.2.2.1 aFramesTransmittedOKaOctetsTransmittedOKaMulticastFramesXmittedOKaBroadcastFramesXmittedOK802.1X12.5.1sessionOctetsTxsessionFramesTx | 9.4.2.22.9 dot11TransmittedFragmentCountdot11GroupTransmittedFrameCountdot11TransmittedFrameCountdot11TransmittedAMSDUCount (Counter32),dot11TransmittedOctetsInAMSDUCount (Counter64),dot11TransmittedAMPDUCount (Counter32),dot11TransmittedMPDUsInAMPDUCount (Counter32),dot11Transmitte dOctetsInAMPDUCount (Counter64),802.1X12.5.1sessionOctetsTxsessionFramesTx | 13.1.3.3.1wman If2BsOtaUsageDataRecordTable(wmanIf2BsMacSduCount,wmanIf2BsOctetCount) | 13.1.2.3.1wranIfBsOtaUsageDataRecordTable |
| Receive volume | 5.2.2.1aFramesReceivedOKaOctetsReceivedOKaMulticastFramesReceivedOKaBroadcastFramesReceivedOK802.1X12.5.1sessionOctetsRxsessionFramesRx | 9.4.2.22.9 dot11ReceivedFragmentCountdot11GroupReceivedFrameCountdot11ReceivedAMSDUCount (Counter32),dot11ReceivedOctetsInAMSDUCount (Counter64)dot11AMPDUReceivedCount (Counter32),dot11MPDUInReceivedAMPDUCount (Counter32),dot11ReceivedOctetsInAMPDUCount (Counter64),802.1X12.5.1sessionOctetsRxsessionFramesRx | 13.1.3.3.1wman If2BsOtaUsageDataRecordTable(wmanIf2BsMacSduCount,wmanIf2BsOctetCount) | 13.1.2.3.1wranIfBsOtaUsageDataRecordTable |
| Throughput |  |  | 13.1.3.4.4wmanIf2BsThroughputMetricsTable:(wmanIf2BsAvgDlUserThroughput,wmanIf2BsAvgUlUserThroughput,wmanIf2BsAvgDlMacThroughput,wmanIf2BsAvgUlMacThroughput,wmanIf2BsAvgDlPhyThroughput,wmanIf2BsAvgUlPhyThroughput,wmanIf2BsPeakDlUserThroughput,wmanIf2BsPeakUlUserThroughput,wmanIf2BsPeakDlMacThroughput,wmanIf2BsPeakUlMacThroughput,wmanIf2BsPeakDlPhyThroughput,wmanIf2BsPeakUlPhyThroughput,wmanIf2BsAvgDlCellEdgeThroughput,wmanIf2BsAvgUlCellEdgeThroughput,wmanIf2BsThroughputMeasurements) | 13.1.2.4.4wranIfBsThroughputMetricsTable:(wranIfBsAvgDsUserThroughput,wranIfBsAvgUsUserThroughput,wranIfBsAvgDsMacThroughput,wranIfBsAvgUsMacThroughput,wranIfBsAvgDsPhyThroughput,wranIfBsAvgUsPhyThroughput,wranIfBsPeakDsUserThroughput,wranIfBsPeakUsUserThroughput,wranIfBsPeakDsMacThroughput,wranIfBsPeakUsMacThroughput,wranIfBsPeakDsPhyThroughput,wranIfBsAvgUsPhyThroughput,wranIfBsAvgDsCellEdgeThroughput,wranIfBsAvgUsCellEdgeThroughput,wranIfBsNumThroughputMeasurements) |
|  |  |  |  |  |
| QoS monitoring | IEEE 802.1QClause 6.5 | 9.4.2.22.9dot11QosCounters Group for UP0 for the Interface on which th e STA Statistics request was received (same counters for UP 1-7): dot11QosTransmittedFragmentCount (Counter32), dot11QosFailedCount (Counter32), dot11QosRetryCount (Counter32), dot11QosMultipleRetryCount (Counter32), dot11QosFrameDuplicateCount (Counter32), dot11QosRTSSuccessCount (Counter32), dot11QosRTSFailureCount (Counter32), dot11QosAckFailureCount (Counter32), dot11QosReceivedFragmentCount (Counter32), dot11QosTransmittedFrameCount (Counter32), dot11QosDiscardedFrameCount (Counter32), dot11QosMPDUsReceivedCount (Counter32), dot11QosRetriesReceivedCount (Counter32)dot11BSSAverageAccessDelay Group (only available at an AP): dot11STAStatisticsAPAverageAccessDelay (INTEGER),dot11STAStatisticsAverageAccessDelayBestEffort (INTEGER), dot11STAStatisticsAverageAccessDelayBackGround (INTEGER), dot11STAStatisticsAverageAccessDelayVideo (INTEGER), dot11STAStatisticsAverageAccessDelayVoice (INTEGER),dot11STAStatisticsStationCount (INTEGER),dot11STAStatisticsChannelUtilization (INTEGER) |  |  |
| Performance statistics | 5.2.2.1aSingleCollisionFramesaMultipleCollisionFramesaFrameCheckSequenceErrorsaAlignmentErrorsaFramesWithDeferredXmissionsaLateCollisionsaFramesAbortedDueToXSCollsaFramesLostDueToIntMACXmitErroraFramesLostDueToIntMACRcvErroraFramesWithExcessiveDeferralaInRangeLengthErrorsaOutOfRangeLengthFieldaFrameTooLongErrors | 9.4.2.22.9dot11Counters Group for the Interface on which the STA Statistics request was received: dot11FailedCount (Counter32),dot11FCSErrorCount (Counter32),dot11MACStatistics Group for the Interface on which the STA Statistics request was received:dot11RetryCount (Counter32),dot11MultipleRetryCount (Counter32),dot11FrameDuplicateCount (Counter32),dot11RTSSuccessCount (Counter32),dot11RTSFailureCount (Counter32),dot11AckFailureCount (Counter32)STA Counters from dot11 CountersGroup3 (A-MSDU):dot11FailedAMSDUCount (Counter32),dot11RetryAMSDUCount (Counter32),dot11MultipleRetryAMSDUCount (Counter32),dot11AMSDUAckFailureCount (Counter32),STA Counters from dot11 CountersGroup3 (A-MPDU):dot11AMPDUDelimiterCRCErrorCount (Counter32) | 13.1.3.4.6wmanIf2BsPacketErrorRateTable:(wmanIf2BsDlPacketsSent,wmanIf2BsDlPacketsErrored,wmanIf2BsDlPacketErrorRate,wmanIf2BsUlPacketsReceived,wmanIf2BsUlPacketsErrored,wmanIf2BsUlPacketErrorRate) | 13.1.2.4.6wranIfBsPacketErrorRateTable:(wranIfBsDsPacketsErrored,wranIfBsDsPacketErrorRate,wranIfBsUsPacketsReceived,wranIfBsUsPacketsErrored,wranIfBsUsPacketErrorRate) |
| Accounting status | 802.1X-2010 13.3.3ieee8021XPaePortLogonConnectStatusieee8021XPaePortPortValid | 802.1X-2010 13.3.3ieee8021XPaePortLogonConnectStatusieee8021XPaePortPortValid | 13.2.4wmanIf2mBsServiceFlowState13.2.5wmanIf2fBsSfState | 13.1.3.3.1.4 wranIfBsSfState |

#### IEEE 802.3 specifics

#### IEEE 802.11 specifics

#### IEEE 802.16 specifics

#### IEEE 802.22 specifics