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Title	Relay Path Management during Service Flow Addition
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Re:	IEEE 802.16j-06/034: "Call for Technical Proposals regarding IEEE Project P802.16j"
Abstract	This contribution proposes Path Management during Connection Establish
Purpose	Text proposal for 802.16j Baseline Document
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Relay Path Management during Service Flow Addition

Introduction

This contribution describes relay path management during service flow addition. Two examples are given to illustrate the proposed relay path management scheme which enhances IEEE contribution C80216j-07/093r1. In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the baseline working document IEEE 802.16j-06/026r2 are listed below.

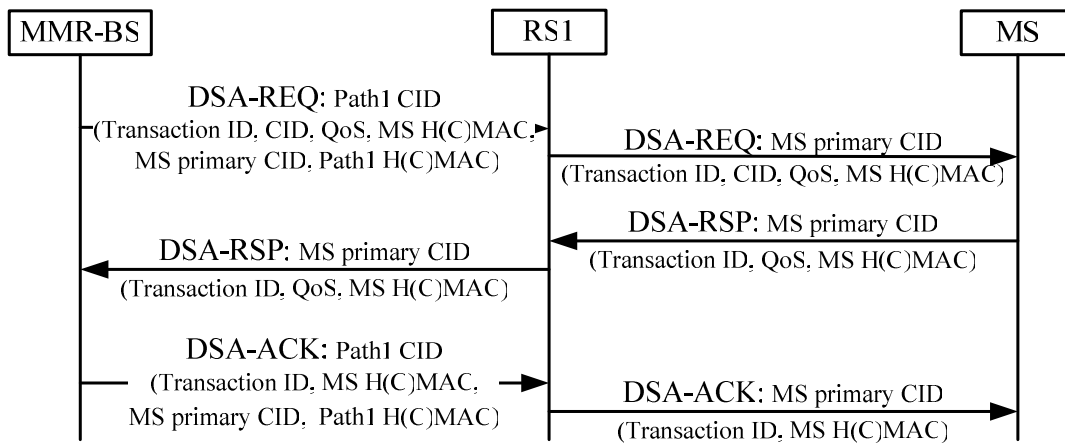Example 1: Relay path management for MR-BS-initiated DSA

Table 2-a Mapping table in RS1 after receiving DSA-REQ

CID in message header	Basic CID of Terminal	Station for forwarding	status
MS Basic CID	MS Basic CID	MS Basic CID	CMP
MS Primary CID	MS Basic CID	MS Basic CID	CMP
MS Transport CID	MS Basic CID	MS Basic CID	DSA-REQ

Table 2-b Mapping table in RS1 after receiving DSA-ACK

CID in message header	Basic CID of Terminal	Station for forwarding	status
MS Basic CID	MS Basic CID	MS Basic CID	CMP
MS Primary CID	MS Basic CID	MS Basic CID	CMP
MS Transport CID	MS Basic CID	MS Basic CID	CMP

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Example 2: Relay path management for MS-initiated DSA

| MMR-BS | RS1 | MS |

DSA-REQ: MS primary CID
(Transaction ID, QoS, MS H(C)MAC)

DSA-REQ: MS primary CID
(Transaction ID, QoS, MS H(C)MAC)

DSA-RSP: Path1 CID
(Transaction ID, CID, QoS, MS H(C)MAC,
MS primary CID, Path1 H(C)MAC)

DSA-RSP: MS primary CID
(Transaction ID, CID, QoS, MS H(C)MAC)

DSA-ACK: MS primary CID
(Transaction ID, MS H(C)MAC)

DSA-ACK: MS primary CID
(Transaction ID, MS H(C)MAC)
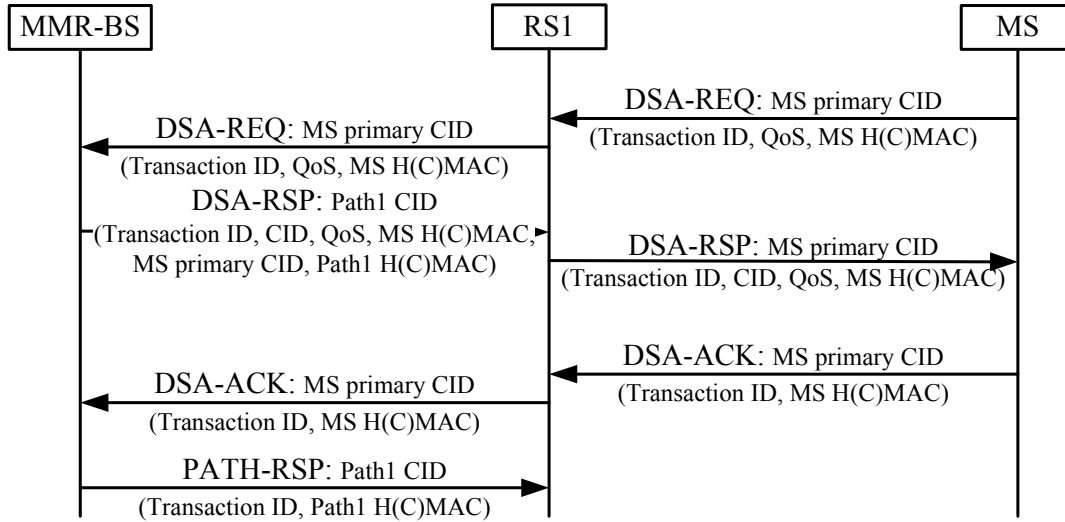
PATH-RSP: Path1 CID
(Transaction ID, Path1 H(C)MAC)

Table 4-a Mapping table in RS1 after receiving DSA-RSP

CID in message header	Basic CID of Terminal	Station for forwarding	status
MS Basic CID	MS Basic CID	MS Basic CID	CMP
MS Primary CID	MS Basic CID	MS Basic CID	CMP
MS Transport CID	MS Basic CID	MS Basic CID	DSA-RSP

Table 4-b Mapping table in RS1 after receiving PATH-RSP

CID in message header	Basic CID of Terminal	Station for forwarding	status
MS Basic CID	MS Basic CID	MS Basic CID	CMP
MS Primary CID	MS Basic CID	MS Basic CID	CMP
MS Transport CID	MS Basic CID	MS Basic CID	CMP

Text Proposal

[Add new sections 6.3.25.2]

6.3.25.2 Relay path management during service flow addition

Path CID is defined as a multicast CID of a path ID. Relay path management during service flow addition can be conducted as defined below.

- After receiving a DSA-REQ, DSA-RSP or DSA-ACK message with path CID from the MR-BS, the RS first verifies the message using the HMAC/CMAC tuple with Security Zone Key (SZK). If the DSA-REQ or DSA-RSP message is valid, the RS should bind with transport CID containing in the message with the basic CID and path ID, and then start a timer Txx. If the RS is the endpoint of the path, it should remove the HMAC/CMAC tuple from the valid message; replace the path CID with the associated MS primary CID, and forward to the MS. Otherwise, the RS forwards the valid message to the subordinate RS.

- After receiving a DSA-REQ or DSA-ACK message with MS primary CID from the MS, the RS forwards the message to the superordinate RS or MR-BS.

- After receiving the DSA-REQ with MS primary CID from the RS, the MR-BS responds with DSA-RSP with path CID to the RS.
- After receiving a DSA-ACK message with MS primary CID from the RS, the MR-BS sends PATH-RSP with path CID to the RS.
- After receiving a DSA-ACK message with path CID or PATH-RSP, the RS shall stop Txx.
- If Txx expires before receiving a vaild DSA-ACK with path CID or PATH-REQ, the RS shall remove the binding relationship between the trasnport CID and associated path ID and basic CID.