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| Project | **IEEE 802.21.1 Media Independent Services**  **<**[**http://www.ieee802.org/21/**](http://www.ieee802.org/21/)**>** |
| Title | **Suggested remedy for Cmt #160, #161, #162, and #163 of LB#8** |
| DCN | **21-15-00-0024-00-REVP** |
| Date Submitted | **January 29, 2016** |
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| Re: | IEEE 802.21m and IEEE 802.21.1 joint teleconference |
| Abstract | The flow diagrams of MIS User to generate MIS\_Net\_Group\_Manipulate.request primitive does not include several steps. This contribution proposes following modification.  Add Step c) to Figure 68.  Add Step e) – 3) to Figure 69.  Add a step to set “ResponseFlag = 0” and “GroupKeyUpdateFlag = 0” to Figure 69.  Add a step to set Response Flag as Step h)  Change MIH to MIS in Figure 69 |
| Purpose | Suggested remedy for Cmt #160, #161, #162, and #163 of LB#8 |
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Comment:

#160: Figure 68 does not contain Step c).

#161: Figure 68 does not contain Step e)-3).

#162, #163: MIH is still remained.

Another problem

A step for setting ResponseFlag is incomplete.

A step for setting GroupKeyUpdateFlag is incomplete.

Suggested remedy:

Add Step c) to Figure 68. (Highlighted by a red box)

Add Step e) – 3) to Figure 69. (Highlighted by a red box)

Add a step to set “ResponseFlag = 0” and “GroupKeyUpdateFlag = 0” to Figure 69. (Highlighted by a red box)

Add a step to set Response Flag as Step h)

Change MIH to MIS in Figure 69.

9.5.3.1.1

Group Manager

A group manager is an MIS user of a PoS. In the PoS, the MISF needs the MGK to encrypt service specific TLVs in group manipulation and group addressed commands. MISF obtains the MGK via MIS\_Net\_Group\_Manipulate.request primitive. Required components in a group manager relevant to group manipulation and group addressed commands are listed as follows:

* GKB Generator. This component is comprised of CreateCompleteSubtree procedure (see 9.5.1.2) or CreateCompleteSubtreeFragments procedure (see 9.5.2.3), and MasterGroupKeyWrapping procedure (see 9.5.2.1). If GKB is always not fragmented, CreateCompleteSubtree procedure should be used. Otherwise, CreateCompleteSubtreeFragments procedure should be used.
* *Tree Information Base* (of type GRP\_MGT\_TREE\_INFO\_BASE as defined in Table E.25). This information base contains all the pairs of an MISF ID and a corresponding leaf number, and all the pairs of a Node Index and a corresponding node key.
* *Group Information Base* (of type MANAGED\_GROUP\_INFO\_BASE as defined in Table E.25). This information base stores the information about groups which are managed by the PoS with group manager. It stores tuples of an MISF Group ID, the MISF IDs of the group members and, optionally, the MGK and the multicast transport addresses assigned to a group.

A Flow diagram of the generation process of the GKB parameters is given in Figure 68. The group manager (MIS User) generates MIS\_Net\_Group\_Manipulate.request described in 7.4.21.1 as follows:

1. Choose an MISF Group ID and group members to manipulate. If the group does not exist already, choose an MISF Group ID by consulting with the *Group Information Base*.
2. If necessary, update the membership information, the MGK and the transport address in the *Group Information Base.*
3. Define TargetGroupIdentifier:

Set the MISF Group ID chosen in step a) as TargetGroupIdentifier.

1. Define CompleteSubtree and SubgroupRange:
   1. Determine ComplementSubtreeFlag value.
   2. If ComplementSubtreeFlag = 0 or CompleteSubtree is not present.
      1. If CreateCompleteSubtree procedure is used, the MIS User sends leaf numbers that correspond with MISF IDs of the group members and all Node Indices which represent the group management tree to the CreateCompleteSubtree procedure and receives CompleteSubtree for the GKB.
      2. If CreateCompleteSubtreeFragments procedure is used, the MIS User sends leaf numbers that correspond with MISF IDs of the group members, all Node Indices which represent the group management tree and a threshold for fragmentation to the CreateCompleteSubtreeFragments procedure and receives CompleteSubtree and SubGroupRange for each GKB fragment. If there is only one GKB fragment created, SubgroupRange is removed.
   3. If ComplementSubtreeFlag = 1,
      1. If CreateCompleteSubtree procedure is used, the MIS User sends leaf numbers that do not correspond with MISF IDs of the group members and all Node Indices which represent the group management tree to the CreateCompleteSubtree procedure and receives CompleteSubtree for the GKB.
      2. If CreateCompleteSubtreeFragments procedure is used, the MIS User sends leaf numbers that do not correspond with the MISF IDs of the group members and all Node Indices which represent the group management tree, and a threshold for fragmentation to CreateCompleteSubtreeFragments procedure, and receives CompleteSubtree and SubGroupRange for each GKB fragment. If there is only one GKB fragment created, SubgroupRange is removed.
2. (Optional) Generate GroupKeyData, MasterGroupKey, VerifyGroupCode and set CompleteSubtree:
   1. When MGK is not distributed, this process is skipped.
   2. Send the MGK and the CompleteSubtree to the MasterGroupKeyWrapping procedure, and receive GroupKeyData. The procedure accesses the *Tree Information Base* to refer all the pairs of a Node Index and a corresponding node key.
   3. (Optional) Set MGK to MasterGroupKey.
   4. (Optional) Send the MGK to the verify group code generating procedure, and receive VerifyGroupCode.
   5. (Optional) Set CompleteSubree to Bloom Filter of a list of NodeIndices in the CompleteSubtree.
   6. (Optional) Delete CompleteSubtree.
3. (Optional) Construct the UserSpecificData field.
4. Choose a DestinationIdentifier. A DestinationIdentifier is an MISF Group ID, which represents an existing group. The group indicated by the DestinationIdentifier shall include all recipients who are manipulated by this command.
5. If a response message is not required, ResponseFlag is set to 0. If a response message is required, ResponseFlag may be set to 1.
6. Generate an MIS\_Net\_Group\_Manipulate.request from the DestinationIdentifier, the TargetGroupIdentifier, the SubgroupRange (optional), the UserSpecificData (optional), the CompleteSubtree, ComplementSubtreeFlag (optional), ResponseFlag (optional), GroupKeyUpdateFlag, MasterGroupKey (optional) and the GroupKeyData (optional). Set the GroupKeyUpdateFlag if the MGK of the group designated by the TargetGroupIdentifier should be updated. Send it to the local MISF.
7. Optionally, in case the MIS User of PoS with group manager obtains a Transport Address to be used by the group (through any means outside of this specification), it can choose to ask the MISF to use it by including it in the MIS\_Net\_Group\_Manipulate.request.

NOTE—Steps e) through j)are performed for each GKB fragment.

Figure 68 and Figure 69 show a flow diagram summarizing the steps performed by the MIS User on a PoS, described in this Clause. Figure 70 shows a flow diagram summarizing the steps to define CompleteSubtree and SubgroupRange which are corresponding with CreateCompleteSubtreeFragments procedure in Figure 68 and Figure 69.



**Figure 68—Summary of steps performed by MIS User of PoS with group manager**



**Figure 69—Summary of steps performed by MIS User of PoS with group manager (continued)**