

Diameter Group Signaling

Tuesday, November 11th, 2014

draft-ietf-diameter-group-signaling-04

Mark Jones, Marco Liebsch, Lionel Morand

IETF 91
Honolulu



Summary of 4th revision



- Clear permission considerations for group management and group operations
- Simplified and consistent protocol operation according to default permissions in this specification
- Option for more constrained permission models and protocol operation left to applications
- Minor changes on Attribute names
- Optional AVP added for implicit capability discovery
- Editorial revision (consistency, clarification)

- Received comments from Benoit and Steve

Use of Term: Diameter peer



- Comment
 - Diameter peer is defined to be a node with a direct connection. Group signaling does not depend on communicating with a true Diameter peer
- Proposal to address comment
 - Replace Diameter Peer with **Diameter Node** when specification describes behavior of a single node (server, client, agent)
 - This should clarify many issues associated with the description of protocol operation and permission considerations

Clarification on Permission Considerations



Operation	Server	Client
Create a new Session Group (peer becomes the group owner)	X	X
Assign a Session to an owned Session Group	X	X
Assign a Session to a non-owned Session Group	X	X
Remove a Session from an owned Session Group	X	X
Remove a Session from a non-owned Session Group	X	X
Remove a Session from a Session Group where the peer created the assignment	X	X
Remove a Session from a Session Group where the peer did not create the assignment		
Overrule a peer's group assignment *)		
Delete a Session Group owned by the peer	X	X
Delete a Session Group not owned by the peer		

“Why is the peer the group owner and not the creator?”

Terms issue:

Here “Diameter peer” means the single node that created the group.

Change term:

Diameter peer →
Diameter node

Clarification on Permission Considerations



Operation	Server	Client
Create a new Session Group (peer becomes the group owner)	X	X
Assign a Session to an owned Session Group	X	X
Assign a Session to a non-owned Session Group	X	X
Remove a Session from an owned Session Group	X	X
Remove a Session from a non-owned Session Group	X	X
Remove a Session from a Session Group where the peer created the assignment	X	X
Remove a Session from a Session Group where the peer did not create the assignment		
Overrule a peer's group assignment *)		
Delete a Session Group owned by the peer	X	X
Delete a Session Group not owned by the peer		

“What’s the difference to previous operation?”

Diameter node, which did not assign the session to the group, must not remove the session.

Clarification on Permission Considerations



Operation	Server	Client
Create a new Session Group (peer becomes the group owner)	X	X
Assign a Session to an owned Session Group	X	X
Assign a Session to a non-owned Session Group	X	X
Remove a Session from an owned Session Group	X	X
Remove a Session from a non-owned Session Group	X	X
Remove a Session from a Session Group where the peer created the assignment	X	X
Remove a Session from a Session Group where the peer did not create the assignment		
Overrule a peer's group assignment *)		
Delete a Session Group owned by the peer	X	X
Delete a Session Group not owned by the peer		

“Similar question as previous one.”

Example: Diameter server may be allowed to revise/overrule an assignment by the client.

Clarification on Permission Considerations



Remove a Session from an owned Session Group	X	X
Remove a Session from a non-owned Session Group	X	X
Remove a Session from a Session Group where the peer created the assignment	X	X
Remove a Session from a Session Group where the peer did not create the assignment		
Overrule a peer's group assignment *)		
Delete a Session Group owned by the peer	X	X
Delete a Session Group not owned by the peer		

“If I can delete all sessions in a group owned by my peer, why can't I just delete the session group as a whole?”

Only Diameter node, which created the group, can delete the group. Need to remove the peer-terms and use Diameter node to clarify.

Note: Differentiation between *removing a session* and *deleting a session group*

Server to reject new group assignments



- Comment
 - It seems dangerous to not allow a server to reject new group assignments. What happens if the server is out of resources for managing groups?
- Proposal to address the comment
 - Implicitly supported by single session fallback. Server's response to the client does not include any Session-Group-Info AVP, indicating no approval from the server
 - But: So far used as indication to not support group operations
 - Sect. 4.1.1: A Diameter client, which sent a request for session initiation to a Diameter server and appended a single or multiple Session-Group-Id AVPs but cannot find any Session-Group-Info AVP in the associated response from the Diameter server proceeds with processing the command for a single session. Furthermore, the client keeps a log to remember that the server is not able to perform group operations.
 - Clarifying text needed to differentiate grouping capability from a single rejection of a client's session grouping
 - Add rejection of group assignment to permission considerations?

Client to reject new group assignments



- Comment:
 - Client should be able to reject a server's group assignment
- Proposal to address this comment
 - Client's rejection needs to be indicated to the server
 - Adopt procedure of Mid-Session Group Assignment Modification
 - Client sends service-specific re-authorization request to Server
 - Include the one or multiple Session-Group-Info AVPs as per the Server's assignment
 - Indicate removal/rejection of the session group assignment in the Session-Group-Control-Vector AVP of each Session-Group-Info AVP
 - Two options to indicate removal/rejection
 - SESSION_GROUP_ALLOCATION_ACTION flag cleared (removal)
 - New flag specific to rejection
 - Add rejection of group assignment to permission considerations?

Transaction time-out when performing Group Operations



- Comment
 - The processing implies that the requested operation is applied to all sessions in all specified groups before an answer is sent. How likely is this to cause transactions to time-out and be retried?
- Proposal to address the comment
 - In some cases processing the group command is not measured against time (ASR/ASA – STR/STA)
 - In case group response to group command is dependent on completed processing of requested group command → timeout may happen
 - Does the spec need to treat this case more than providing a hint that this may happen?
 - Same may happen in case a Diameter node is overloaded – How is this treated?

Proxy to maintain consistency



- Comment
 - Why MUST the proxy maintain consistency of session groups between clients and servers? What if the session groups are only meaningful between the client and the proxy?
- Proposal to address the comment
 - Only in case client and server are both are aware of session groups. No need for maintenance of consistency when session groups are used only between Proxy and Server.
 - Paragraph so far mixes cases!
 - Text need to clearly differentiate and clarify these cases in separate paragraphs

Session assigned to multiple groups



- Comment
 - Session in multiple groups; difficult to manage if all sessions in a group are to be in the same application session state
- Proposal to address comment
 - Specification allows most flexible deployment, hence does not constrain assignment of a session to a single session group
 - Clear description to be added about maintenance of same application session state
 - When a group command applies to one group but not to other groups where a session has been assigned to, the session must be removed from the other session groups to maintain the same application session state of the session beyond session groups

Editorial Comments



- Discuss capability discovery before session grouping logic
- Remove text on operation in case grouping AVPs are not supported/understood (standard behavior as per RFC6733)
- Add text to Sec. 4.1.1 Group Assignment at Session Initiation to clarify that Diameter Server can assign a session to a group even if the Client did not add a Session-Group-Info AVP

Next Steps



- Converge on text / revision to address Benoit's and Steve's comments
 - Publish v05 by early December 2014
- Issue WG Last Call on revision v05+ when all received comments have been addressed