

# Handling User Session During CCR-RAR Collision

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### **Feature Summary and Revision History**

#### **Summary Data**

Applicable Product(s) or Functional Area	• MME
Applicable Platform(s)	• ASR 5500
Feature Default	Enabled - Always-on Disabled - Configuration Required
Related Changes in This Release	Not Applicable
Related Documentation	Not Applicable

#### **Revision History**

Revision Details	Release
Documentation update: Detailed information is provided for the change in behaviour.	21.19
First introduced.	

### **Feature Changes**

**Previous Behavior**: In case of Credit Control Request - Re-Auth Request (CCR-RAR) collision for a user session supporting multiple services, ASR 5500 did not initiate a new CCR message to perform re-authorization for the remaining services/rating-groups (RG).

**New Behavior**: In 17.1 and later releases, generic support is provided to re-authorize the remaining services/rating-groups, post CCR-RAR collision, for a user session supporting multiple services to complete the credit re-authorization process.

For user sessions supporting multiple services (RG1, RG2, and RG3), the following call flows show different methods to complete the credit re-authorization process during a CCR-RAR collision.

#### ASR 5500 Gateway Receives Pending Response from OCS Before Time-Out

This section describes how the ASR 5500 gateway (P-GW/GGSN) receives pending response from the Online Charging System (OCS) server before time-out. In this case, the ASR 5500 gateway receives RAR when Credit Control Answer Update (CCA-U) is pending from the OCS server.



Step	Description
1	Upon exhausting quota for RG-1, the ASR 5500 gateway sends a CCR-U message with CC-Request-Number (n) to the OCS server with Reporting Reason as Quota Exhausted. The ASR 5500 gateway waits for response from the OCS server for RG-1.
2	The ASR 5500 gateway receives an RAR message without any RG from OCS when CCA-U for RG1 is pending.
3	The ASR 5500 gateway immediately sends a Re-Auth Answer (RAA) message with the Result-Code as 2002 to OCS.
4	OCS sends a CCA-U message with Granted Service Unit (GSU) for RG1 to the ASR 5500 gateway.
5	Once the ASR 5500 gateway receives the CCA-U message, it sends the CCR-U message with CC-Request-Number (n+1) and Reporting-Reason as Forced-Reauthorization for all the active RGs, they are, RG-1, RG-2, and RG-3.
6	OCS acknowledges the CCR-U message and sends a CCA-U message with GSU for RG-1, RG-2, and RG-3 to the ASR 5500 gateway.

Table 1: ASR 5500 Gateway Receives Pending Response from OCS Before Time-Out Call Flow

### ASR 5500 Gateway Receives Pending Response from the Secondary OCS Server After Time-Out at the Primary OCS Server

This section describes how the ASR 5500 gateway receives the CCA-U message from the secondary OCS server after CCR-U time-out at the primary OCS server with Credit Control Failure Handling (CCFH) retry and terminate. In this case, the ASR 5500 gateway receives RAR when the CCA-U message is pending from the primary OCS server.



Table 2: ASR 5500 Gateway Receives Pending Response from the Secondary OCS Server After Time-Out at the Primary OCS Server

Step	Description
1	Upon exhausting quota for RG-1, the ASR 5500 gateway sends a CCR-U message with CC-Request-Number (n) to the primary OCS server with Reporting Reason as Quota Exhausted. The ASR 5500 gateway waits for response from the primary OCS server for RG-1.
2	The ASR 5500 gateway receives an RAR message without any RG from the primary OCS server when CCA-U for RG1 is pending.
3	The ASR 5500 gateway immediately sends an RAR message with the Result-Code as 2002 to the primary OCS server.
4	The ASR 5500 gateway retries to send the CCR-U message with CC-Request-Number (n) to the secondary OCS server with all the active RGs after there is a CCR-U time-out at the primary OCS server. The CCR-U message contains RG-2 and RG-3 with Reporting-Reason as Forced-Reauthorization and RG-1 with Reporting-Reason as Forced-Reauthorization and Quota-Exhausted.

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Step	Description
5	The secondary OCS server acknowledges the CCR-U message and sends a CCA-U message with GSU for RG-1, RG-2, and RG-3 to the ASR 5500 gateway.

### ASR 5500 Gateway Receives No Response After Time-Out at Both the Secondary OCS Server and the Primary OCS Server

This section describes how the ASR 5500 gateway receives no response after CCR-U time-out at both the primary and secondary OCS servers with CCFH retry and terminate. In this case, the ASR 5500 gateway receives RAR when the CCA-U message is pending from the primary OCS server.



Table 3: ASR 5500 Gateway Receives No Response After Time-Out at Both the Secondary OCS Server and the Primary OCS Server

Step	Description
1	Upon exhausting quota for RG-1, the ASR 5500 gateway sends a CCR-U message with CC-Request-Number (n) to the primary OCS server with Reporting Reason as Quota Exhausted. The ASR 5500 gateway waits for response from the primary OCS server for RG-1.
2	The ASR 5500 gateway receives an RAR message without any RG from the primary OCS server when CCA-U for RG1 is pending.

Step	Description
3	The ASR 5500 gateway immediately sends an RAR message with the Result-Code as 2002 to the primary OCS server.
4	The ASR 5500 gateway retries to send the CCR-U message with CC-Request-Number (n) to the secondary OCS server with all the active RGs after there is a CCR-U time-out at the primary OCS server. The CCR-U message contains RG-2 and RG-3 with Reporting-Reason as Forced-Reauthorization and RG-1 with Reporting-Reason as Forced-Reauthorization and Quota-Exhausted.
5	The ASR 5500 gateway sends a Credit Control Request Terminate (CCR-T) message with CC-Request-Number (n+1), which contains RG-1, RG-2, and RG-3 with Reporting-Reason as Final to the secondary OCS server to terminate the session.

## ASR 5500 Gateway Session Enters the Server Unreachable State After Time-Out at the Primary OCS Server

This section describes how the ASR 5500 gateway enters a server unreachable state after CCR-U time-out at the primary OCS server. In this case, the ASR 5500 gateway receives RAR when the CCA-U message is pending from the primary OCS server.



Table 4: ASR 5500 Gateway Session Enters the Server Unreachable State After Time-Out at the Primary OCS Server

Step	Description
1	Upon exhausting quota for RG-1, the ASR 5500 gateway sends a CCR-U message with CC-Request-Number (n) to the primary OCS server with Reporting Reason as Quota Exhausted. The ASR 5500 gateway waits for response from the primary OCS server for RG-1.

Step	Description
2	The ASR 5500 gateway receives an RAR message without any RG from the primary OCS server when CCA-U for RG1 is pending.
3	The ASR 5500 gateway immediately sends an RAR message with the Result-Code as 2002 to the primary OCS server.
4	The ASR 5500 gateway session enters the server unreachable state after there is a CCR-U time-out at the OCS server. The ASR 5500 gateway retries CCR-U with CC-Request-Number (n). The CCR-U contains all the active RGs; RG-1 and RG-2 with Reporting-Reason as Forced-Reauthorization and RG-3 with Reporting-Reason as Forced-Reauthorization and Quota-Exhausted.
5	OCS acknowledges the CCR-U message and sends a CCA-U message with GSU for RG-1, RG-2, and RG-3 to the ASR 5500 gateway.

#### ASR 5500 Gateway Receives RAR from Secondary Server Before Time-Out

This section describes how the ASR 5500 gateway receives the RAR message from the secondary OCS server before a CCR-U time-out. In this case, the ASR 5500 gateway receives RAR when the CCA-U message is pending from the primary OCS server.



Step	Description
1	Upon exhausting quota for RG-1, the ASR 5500 gateway sends a CCR-U message with CC-Request-Number (n) to the primary OCS server with Reporting Reason as Quota Exhausted. The ASR 5500 gateway waits for response from the primary OCS server for RG-1.
2	The ASR 5500 gateway receives an RAR message without any RG from the primary OCS server when CCA-U for RG1 is pending.
3	The ASR 5500 gateway immediately sends an RAR message with the Result-Code as 2002 to the primary OCS server.
4	The ASR 5500 gateway sends the CCR-U message with CC-Request-Number (n) to the secondary OCS server with all the active RGs. The CCR-U message contains RG-2 and RG-3 with Reporting-Reason as Forced-Reauthorization and RG-1 with Reporting-Reason as Forced-Reauthorization and Quota-Exhausted.
5	The secondary OCS acknowledges the CCR-U message and sends a CCA-U message with GSU for RG-1, RG-2, and RG-3 to the ASR 5500 gateway.

Table 5: ASR 5500 Gateway Receives RAR from Secondary Server Before Time-Out

Customer Impact: Not applicable