

# Cause Code and Events

Ericsson Service-Aware Policy Controller

LIST

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# 1 Event-Based Monitoring Cause Codes and Events Overview

This document describes scenarios where Event-Based Monitoring (EBM) events are sent with cause codes, and proposes actions to take when cause codes indicate an error.

## 1.1 Scope

This document is intended to help interpret cause codes regarding the EBM events.

## 1.2 Typographic Conventions

Typographic conventions can be found in the following document:

— [Typographic Conventions](#)





## 2 Cause Codes

The following sections list cause codes logged by the EBM feature.

These cause codes are valid for **GSM**, **WCDMA**, and **LTE** scenarios.

### 2.1 Success Gx Protocol Cause Codes

Table 1 shows all success events related to Gx transactions.

**Note:** The name of the cause codes is NoCauseCode in all cases.

Table 1 Success Gx Protocol Cause Codes

EBM Event Name	Cause Code ID	Description	Proposed Action
GX_CCR_CCA_TRANSACTION	2001	This result code is returned at success events, and indicates that no cause codes are sent externally from the Service Aware Policy Controller (SAPC)	No action to take
GX_RAR_RAA_TRANSACTION	2001	This result code is returned at success events, and indicates that no cause codes are sent externally from the SAPC	No action to take
QUOTA_GRANTED	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR or RAR	No action to take
ACCUMULATED_USAGE_LIMIT_SURPASSED	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR	No action to take
ACCUMULATED_USAGE_RESET	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR	No action to take
QOS_ASSIGNED_TO_DEFAULT_BEARER	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR or RAR	No action to take
RULE_INSTALLED	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR or RAR	No action to take
RULE_INSTALLATION_FAILURE	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR	No action to take
RULE_REMOVED	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR or RAR	No action to take
PRESENCE_REPORTING_ARENA_INFO	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR	No action to take
REPORTED_USAGE	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR	No action to take
FAIR_USAGE_INFO_SUBSCRIPTION_DATA	2001	This result code is returned when the SAPC completes the request successfully. The affected IP-CAN bearer is the one that triggered the corresponding CCR or RAR	No action to take



## 2.2 Reject Gx Protocol Cause Codes

Table 2 shows all reject events related to Gx transactions.

Table 2 Reject Gx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Proposed Action
GX_CCR_CCA_TRANSACTION	4002	DiameterOutOfSpace	This result code is returned when the SAPC receives a request and is unable to commit it to stable storage because of a temporary lack of space	-
GX_CCR_CCA_TRANSACTION	4003	ElectionLost	This result code is returned when the SAPC determined that it has lost the election process and disconnected the transport connection	-
GX_CCR_CCA_TRANSACTION	5001	DiameterAvpUnsupported	This result code is returned when the SAPC receives a request with an Attribute-Value Pair (AVP) that is unrecognized or unsupported, that is, it was not included in the SAPC Diameter dictionary, and was marked with the Mandatory bit	Capture the Gx traffic towards the SAPC and analyze the protocol content
GX_CCR_CCA_TRANSACTION	5002	DiameterUnknownSessionId	This result code is returned when a Gx session does not exist yet for the same Session ID of the User Equipment (UE) IP address at bearer modification or termination	-
GX_CCR_CCA_TRANSACTION	5003	DiameterAuthorizationRejected	This result code is returned when the SAPC cannot authorize the subscriber owing to IP-CAN Session Access Control	<ul style="list-style-type: none"> <li>• Check the Policy and Charging Enforcement Function (PCEF)</li> <li>• Capture the Gx traffic towards the SAPC and analyze the protocol content</li> <li>• Check the policies configured in the SAPC</li> </ul>
GX_CCR_CCA_TRANSACTION	5004	DiameterInvalidAvpValue	This result code is returned when the SAPC receives a request with an AVP containing an invalid value in its data portion	Capture the Gx traffic towards the SAPC and analyze the protocol content
GX_CCR_CCA_TRANSACTION	5005	DiameterMissingAvp	This result code is returned when the SAPC receives a request with a required AVP missing	Capture the Gx traffic towards the SAPC and analyze the protocol content
GX_CCR_CCA_TRANSACTION	5007	DiameterContradictingAvp	This result code is returned when the SAPC receives a request with contradicting AVPs	Capture the Gx traffic towards the SAPC and analyze the protocol content
GX_CCR_CCA_TRANSACTION	5008	DiameterAvpNotAllowed	This result code is returned when the SAPC receives a request with an AVP that is not allowed to be present	<ul style="list-style-type: none"> <li>• Capture the Gx traffic towards the SAPC and analyze the protocol content</li> <li>• Check DIAMETER Gx dictionary</li> </ul>
GX_CCR_CCA_TRANSACTION	5009	DiameterAvpOccursTooManyTimes	This result code is returned when the SAPC receives a request with an AVP surpassing the number of occurrences permitted in the message definition	Capture the Gx traffic towards the SAPC and analyze the protocol content





Table 2 Reject Gx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Proposed Action
GX_CCR_CCA_TRANSACTION	5012	DiameterUnableToComply	This result code is returned when the SAPC receives a request and detects an internal error which does not allow to continue processing the request	Check logs and traces
GX_CCR_CCA_TRANSACTION	5030	DiameterUserUnknown	This result code is returned when the subscriber specified in Subscription-Id AVP is not known in the SAPC at IP-CAN session activation or modification	Check the subscription data in the SAPC database
GX_CCR_CCA_TRANSACTION	5140	DiameterErrorInitialParameters	This result code is returned when the SAPC receives a request for an emergency IP-CAN session establishment in cases when the Subscription-Id AVP is missing and unauthenticated emergency services are not allowed or unauthenticated emergency services are allowed, but both Subscription-Id and User-Equipment-Info AVPs are missing	Capture the Gx traffic towards the SAPC and analyze the protocol content
GX_RAR_RAA_TRANSACTION	4002	DiameterOutOfSpace	This result code is returned when the Policy and Charging Enforcement Function (PCEF) receives a request and is unable to commit it to stable storage because of a temporary lack of space	-
GX_RAR_RAA_TRANSACTION	4003	ElectionLost	This result code is returned when the PCEF determined that it has lost the election process and disconnected the transport connection	-
GX_RAR_RAA_TRANSACTION	4144	DiameterPendingTransaction	This result code is returned when the PCEF cannot determine that the Gx RAR message can be handled safely without creating a state mismatch	-
GX_RAR_RAA_TRANSACTION	5001	DiameterAvpUnsupported	This result code is returned when the SAPC sends a request with an AVP that is unrecognized or unsupported by the PCEF and is marked with the Mandatory bit in the request	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANSACTION	5002	DiameterUnknownSessionId	This result code is returned when there is no session in the PCEF with the same Session ID as the one sent in the reauthorization request	-
GX_RAR_RAA_TRANSACTION	5003	DiameterAuthorizationRejected	This result code is returned when the PCEF receives a request where the user cannot be authorized	<ul style="list-style-type: none"> <li>• Check the PCEF</li> <li>• Capture the Gx traffic towards the PCEF and analyze the protocol content</li> <li>• Check the policies configured in the SAPC</li> </ul>
GX_RAR_RAA_TRANSACTION	5004	DiameterInvalidAvpValue	This result code is returned when the PCEF receives a request with an AVP containing an invalid value in its data portion	Capture the Gx traffic towards the PCEF and analyze the protocol content



Table 2 Reject Gx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Proposed Action
GX_RAR_RAA_TRANS ACTION	5005	DiameterMissing Avp	This result code is returned when the PCEF receives a request with a required AVP missing	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANS ACTION	5007	DiameterContradictingAvp	This result code is returned when the PCEF receives a reauthorization request with contradicting AVPs	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANS ACTION	5008	DiameterAvpNotAllowed	This result code is returned when the PCEF receives a reauthorization request with an AVP that cannot be present	<ul style="list-style-type: none"> <li>• Capture the Gx traffic towards the PCEF and analyze the protocol content</li> <li>• Check DIAMETER Gx Dictionary</li> </ul>
GX_RAR_RAA_TRANS ACTION	5009	DiameterAvpOccursTooManyTimes	This result code is returned when the PCEF receives a reauthorization request with an AVP surpassing the number of occurrences permitted in the message definition	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANS ACTION	5012	DiameterUnableToComply	This result code is returned when the PCEF receives a request and detects an internal error which does not allow to continue processing the reauthorization request	Check logs and traces
GX_RAR_RAA_TRANS ACTION	5013	DiameterInvalidBitInHeader	This result code is returned when the PCEF receives a reauthorization request with an unrecognized bit in the Diameter header set to 1	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANS ACTION	5014	DiameterInvalidAvpLength	This result code is returned when the PCEF receives a reauthorization request containing an AVP with an invalid length	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANS ACTION	5015	DiameterInvalidMessageLength	This result code is returned when the PCEF receives a reauthorization request with an invalid message length	Capture the Gx traffic towards the PCEF and analyze the protocol content
GX_RAR_RAA_TRANS ACTION	5016	DiameterInvalidAvpBitCombo	This result code is returned when the PCEF receives a reauthorization request with an AVP that is not allowed to have the given value received in the AVP Flags field	Capture the Gx traffic towards the PCEF and analyze the protocol content

## 2.3 Success Rx Protocol Cause Codes

Table 3 shows all success events related to Rx transactions.

**Note:** The name of the cause codes is NoCauseCode in all cases.

Table 3 Success Rx Protocol Cause Codes

EBM Event Name	Cause Code ID	Description	Proposed Action
RX_AAR_AAA_TRANSACTION	2001	This result code is returned at success events, and indicates that no cause codes are sent externally from the SAPC	No action to take



Table 3 Success Rx Protocol Cause Codes

EBM Event Name	Cause Code ID	Description	Proposed Action
RX_RAR_RAA_TRANSACTION	2001	This result code is returned at success events, and indicates that no cause codes are received externally by the SAPC	No action to take
RX_ASR_ASA_TRANSACTION	2001	This result code is returned at success events, and indicates that no cause codes are received externally by the SAPC	No action to take
RX_STR_STA_TRANSACTION	2001	This result code is returned at success events, and indicates that no cause codes are sent externally from the SAPC	No action to take

## 2.4 Reject Rx Protocol Cause Codes

Table 4 shows all reject events related to Gx transactions.

Table 4 Reject Rx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Suggested Action
RX_AAR_AAA_TRANSACTION	4003	ElectionLost	This result code is returned when the SAPC determined that it has lost the election process and disconnected the transport connection	-
RX_AAR_AAA_TRANSACTION	5001	DiameterAvpUnsupported	This result code is returned when a request is received with an AVP that is unrecognized or unsupported, that is not included in the SAPC Diameter dictionary, and is marked with the Mandatory bit	Capture the Rx traffic towards the SAPC and analyze the protocol content
RX_AAR_AAA_TRANSACTION	5002	DiameterUnknownSessionId	This result code is returned when there is no Rx Session with the same Session ID belonging to the UE IP address at bearer modification or termination	-
RX_AAR_AAA_TRANSACTION	5004	DiameterInvalidAvpValue	This result code is returned when the SAPC receives a request with an AVP containing an invalid value in its data portion	Capture the Rx traffic towards the SAPC and analyze the protocol content
RX_AAR_AAA_TRANSACTION	5005	DiameterMissingAvp	This result code is returned when the SAPC receives a request with a required AVP missing	Capture the Rx traffic towards the SAPC and analyze the protocol content
RX_AAR_AAA_TRANSACTION	5007	DiameterContradictingAvp	This result code is returned when the SAPC receives a request with contradicting AVPs	Capture the Rx traffic towards the SAPC and analyze the protocol content
RX_AAR_AAA_TRANSACTION	5008	DiameterAvpNotAllowed	This result code is returned when the SAPC receives a request with an AVP that is not allowed to be present	<ul style="list-style-type: none"> <li>• Capture the Rx traffic towards the SAPC and analyze the protocol content</li> <li>• Check the DIAMETER Rx dictionary</li> </ul>
RX_AAR_AAA_TRANSACTION	5009	DiameterAvpOccursTooManyTimes	This result code is returned when the SAPC receives a request with an AVP surpassing the number of occurrences permitted in the message definition	Capture the Rx traffic towards the SAPC and analyze the protocol content



Table 4 Reject Rx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Suggested Action
RX_AAR_AAA_TRANS ACTION	5012	DiameterUnableToComply	This result code is returned when the SAPC receives a request and detects an internal error which does not allow to continue processing the request	Check logs and traces
RX_AAR_AAA_TRANS ACTION	5030	DiameterUserUnknown	This result code is returned when the subscriber specified in Subscription-Id AVP is not known in the SAPC at IP-CAN session activation or modification	Check the subscription data in the SAPC database
RX_AAR_AAA_TRANS ACTION	5063	RequestedServiceNotAuthorized	This result code is returned by the SAPC when the requested service is conflicting with the related subscription information or the operator defined policy rules	Check the policies configured applicable to the subscription to identify the configuration that prevents the SAPC from creating or modifying the IP-CAN bearer
RX_AAR_AAA_TRANS ACTION	5065	IPCANSessionNotAvailable	This result code is returned when the SAPC fails to perform session binding within the session information received from the Application Function (AF) to a unique existing IP-CAN session	Check the policies configured applicable to the subscription to identify the configuration that prevents the SAPC from creating or modifying the IP-CAN bearer
RX_AAR_AAA_TRANS ACTION	5066	UnauthorizedNonEmergencySession	This result code is returned when the SAPC rejects a new Rx session setup that binds to an emergency IP-CAN session, and the Service-URN AVP is missing or does not contain a top-level service type of sos	Check the policies configured applicable to the subscription to identify the configuration that prevents the SAPC from creating or modifying the IP-CAN bearer
RX_RAR_RAA_TRANS ACTION	5001	DiameterAvpUnsupported	This result code is returned when the SAPC sends a request with an AVP that is unrecognized or unsupported by the AF and is marked with the Mandatory bit in the request	Capture the Rx traffic towards the AF and analyze the protocol content
RX_RAR_RAA_TRANS ACTION	5002	DiameterUnknownSessionId	This result code is returned by the AF when there is no session with the same Session ID as the one sent in the reauthorization request	-
RX_RAR_RAA_TRANS ACTION	5003	DiameterAuthorizationRejected	This result code is returned when the AF receives a request where the user cannot be authorized	<ul style="list-style-type: none"> <li>• Check the AF</li> <li>• Capture the Rx traffic towards the AF and analyze the protocol content</li> <li>• Check the policies configured in the SAPC</li> </ul>
RX_RAR_RAA_TRANS ACTION	5004	DiameterInvalidAvpValue	This result code is returned when the AF receives a request with an AVP containing an invalid value in its data portion	Capture the Rx traffic towards the AF and analyze the protocol content
RX_RAR_RAA_TRANS ACTION	5005	DiameterMissingAvp	This result code is returned when the AF receives a reauthorization request with a required AVP missing	Capture the Rx traffic towards the AF and analyze the protocol content
RX_RAR_RAA_TRANS ACTION	5007	DiameterContradictingAvp	This result code is returned when the AF receives a reauthorization request with contradicting AVPs	Capture the Rx traffic towards the AF and analyze the protocol content



Table 4 Reject Rx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Suggested Action
RX_RAR_RAA_TRANSACTION	5008	DiameterAvpNotAllowed	This result code is returned when the AF receives a reauthorization request with an AVP that cannot be present	<ul style="list-style-type: none"> <li>• Capture the Rx traffic towards the AF and analyze the protocol content</li> <li>• Check DIAMETER Rx Dictionary</li> </ul>
RX_RAR_RAA_TRANSACTION	5009	DiameterAvpOccursTooManyTimes	This result code is returned when the AF receives a reauthorization request with an AVP surpassing the number of occurrences permitted in the message definition	Capture the Rx traffic towards the AF and analyze the protocol content
RX_RAR_RAA_TRANSACTION	5012	DiameterUnableToComply	This result code is returned when the AF receives a request and detects an internal error which does not allow to continue processing the reauthorization request	Check logs and traces
RX_RAR_RAA_TRANSACTION	5013	DiameterInvalidBitInHeader	This result code is returned when the AF receives a reauthorization request with an unrecognized bit in the Diameter header set to 1	Capture the Rx traffic towards the AF and analyze the protocol content
RX_ASR_ASA_TRANSACTION	5001	DiameterAvpUnsupported	This result code is returned when the SAPC sends a request with an AVP that is unrecognized or unsupported by the AF and is marked with the Mandatory bit in the request	Capture the Rx traffic towards the AF and analyze the protocol content
RX_ASR_ASA_TRANSACTION	5002	DiameterUnknownSessionId	This result code is returned by the AF when there is no session with the same Session ID as the one sent in the reauthorization request	-
RX_ASR_ASA_TRANSACTION	5003	DiameterAuthorizationRejected	This result code is returned when the AF receives a request where the user cannot be authorized	<ul style="list-style-type: none"> <li>• Check the AF</li> <li>• Capture the Rx traffic towards the AF and analyze the protocol content</li> <li>• Check the policies configured in the SAPC</li> </ul>
RX_ASR_ASA_TRANSACTION	5004	DiameterInvalidAvpValue	This result code is returned when the AF receives an abort session request with an AVP containing an invalid value in its data portion	Capture the Rx traffic towards the AF and analyze the protocol content
RX_ASR_ASA_TRANSACTION	5005	DiameterMissingAvp	This result code is returned when the AF receives an abort session with a required AVP missing	Capture the Rx traffic towards the AF and analyze the protocol content
RX_ASR_ASA_TRANSACTION	5007	DiameterContradictingAvp	This result code is returned when the AF receives an abort session with contradicting AVPs	Capture the Rx traffic towards the AF and analyze the protocol content
RX_ASR_ASA_TRANSACTION	5008	DiameterAvpNotAllowed	This result code is returned when the AF receives an abort session with an AVP that cannot be present	<ul style="list-style-type: none"> <li>• Capture the Rx traffic towards the AF and analyze the protocol content</li> <li>• Check DIAMETER Rx Dictionary</li> </ul>
RX_ASR_ASA_TRANSACTION	5009	DiameterAvpOccursTooManyTimes	This result code is returned when the AF receives an abort session with an AVP surpassing the number of occurrences permitted in the message definition	Capture the Rx traffic towards the AF and analyze the protocol content



Table 4 Reject Rx Protocol Cause Codes

EBM Event Name	Cause Code ID	Cause Code Name	Description	Suggested Action
RX_ASR_ASA_TRANSACTION	5012	DiameterUnableToComply	This result code is returned when the AF receives a request and detects an internal error which does not allow to continue processing the reauthorization request	Check logs and traces
RX_ASR_ASA_TRANSACTION	5013	DiameterInvalidBitInHeader	This result code is returned when the AF receives an abort session with an AVP that is unrecognized and is marked with the Mandatory bit in the Diameter header	Capture the Rx traffic towards the AF and analyze the protocol content
RX_STR_STA_TRANSACTION	5002	DiameterUnknownSessionId	This result code is returned when no Rx Session exists for the same Session ID belonging to the UE IP address at bearer modification or termination	-
RX_STR_STA_TRANSACTION	5005	DiameterMissingAvp	This result code is returned when the SAPC receives a request with a required AVP missing	Capture the Rx traffic towards the SAPC and analyze the protocol content