



ISDN Cause Codes

When the ISDN network or remote user disconnects a call for any reason, the cause (IE) might be reported by any ISDN-aware application.

The cause IE consists of three significant octets:

- **Location Octet**
A single general location octet that indicates where the disconnection message was generated.
- **Cause Value Octet**
The actual cause value octet that provides a detailed description.
- **Diagnostic Octet**
A diagnostic octet that might be added to provide further information.

Cause codes are not specific. They are guidelines and are implementation-dependent. Certain PTTs and PABX manufacturers use a smaller subset of cause codes, covering a wide range of possible problems.

Example 5 Disconnect Cause IE: 80 90

Disconnect cause IE: 80 90

Decode the message using the following table:

The general location is	0x80	Remote user
The cause value is	0x90	Normal clearing
No diagnostic octet		

The message shows the remote user disconnecting (hanging up) normally.

Location Octet

The following table lists the possible locations of the disconnect.

General Location Octet

Hex	Value	Description
80	0	Remote user
81	1	Private network serving local user

82	2	Public network serving local user
83	3	Transit network
84	4	Public network serving remote user
85	5	Remote private network
87	7	International network
8A	10	Network beyond interworking point

Cause Value Octet

The Cause Codes are grouped by class number.

- Class 000 — Normal Events, see Table page61 on page 2
- Class 010 — Network Congestion, see Table page63 on page 4
- Class 011 — Service or Option Not Available, see Table page64 on page 4
- Class 100 — Service or Option Not Implemented, see Table page64 on page 5
- Class 101 — Invalid Message, see Table page65 on page 6
- Class 110 — Protocol Error, see Table page66 on page 7
- Class 111 — Interworking, see Table page67 on page 8

Table 10 Class 000 — Normal Events (Continued)

Hex	Value	Description	Meaning
81	1	Unallocated number	Indicates that the requested destination, although valid, cannot be reached.
82	2	No route to specified network	Sending equipment (sending the cause) is requested to route call through an unrecognized transit network.
83	3	No route to destination	Called user cannot be reached because the network does not serve the destination.
86	6	Channel unacceptable	The last identified channel is not acceptable to the sending entity.
87	7	Call awarded	Incoming call is connected to a channel already

			established fro similar calls (for example: packet-mode X.25 virtual calls).
90	16	Normal clearing	Call is cleared by one of the users involved.
91	17	User busy	Called user cannot accept another call although compatibility is established.
92	18	No user responding	When a user does not respond to call establishment messages with either an alerting or connect indication within the allowed time.
93	19	User altering, no answer	User provided an alerting indication but has not provided a connect indication within the allowed time.
95	21	Call rejected	Equipment sending the cause does not want to accept this call although the equipment is busy or incompatible.
96	22	Number changed	Indicates called party number is not assigned.
9A	26	Nonselected user clearing	User not awarded the incoming call.
9B	27	Destination out of order	<p>Destination interface is not functioning correctly. The cause has special significance with the TR114 ISDN board. This message usually indicates a failure to establish layer 2. Other symptoms include a failure to fax to any number and a failure to answer any calls.</p> <p>Typically caused by either physical cable problems or an incorrect datalink protocol. Change the datalink protocol, using <i>briconf</i>. If the error message still persists, check the cable connection. Use the onboard protocol analyzer to determine the exact nature of the problem.</p>
9C	28	Invalid number format	Called party number is invalid or incomplete.
9D	29	Facility rejected	Network cannot provide the facility requested.
9E	30	Response to STATus ENQuiry	The reason for generating the STATUS message was the prior receipt of a STATUS ENQUIRY message.
9F	31	Normal unspecified	Used to report normal events only when no other cause in the normal class applies.

Class 010 — Network Congestion (Continued)

Hex	Value	Description	Meaning
A2	34	No channel available	An appropriate channel is not currently available to handle the call.
A3	35	Call queued (AT&T)	Network is not functioning. Immediate redial is unlikely to succeed.
A6	38	Network out of order	Network is not functioning. Immediate redial is unlikely to succeed.
A9	41	Temporary failure	Network is not functioning. Immediate redial is unlikely to succeed.
AA	42	Switching equipment congestion	Switching equipment generating this cause is experiencing a period of high traffic. AB 42 user information is discarded. The network can not deliver access information to the remote user as requested. For example: <ul style="list-style-type: none"><input type="checkbox"/> a user-to-user information<input type="checkbox"/> low-layer compatibility<input type="checkbox"/> subaddress as indicated in the diagnostic The particular type of discarded access information is optionally included in the diagnostic.
AC	44	Requested channel not available	The channel indicated by the requesting entity cannot be provided by the other side of the interface.
AF	47	Resources unavailable or unspecified	A resource unavailable event only when no other cause in the resource unavailable class applies.

Class 011 — Service or Option Not Available (Continued)

Hex	Value	Description	Meaning
B1	49	Quality of service unavailable	Throughput or transit delay cannot be supported. The Quality of Service (as defined in Recommendation X.213) cannot be provided.

B2	50	Requested facility not subscribed	Requested supplementary service not provided by the network because the user has not completed the necessary administrative arrangements with its supporting networks.
B4	52	Outgoing calls barred (AT&T)	
B6	54	Incoming calls barred	
B9	57	Bearer capability not authorized	User is trying to make unauthorized use of equipment providing a bearer capability.
BA	58	Bearer capability not presently available	User has requested a bearer capability that is implemented by the equipment generating the cause, but is not available at this time.
BF	63	Service or option not available or unspecified	A service or option not available event only when no other cause in the service or option not available class applies.

Class 100 — Service or Option Not Implemented

Hex	Value	Description	Meaning
C1	65	Bearer capability not implemented	Equipment sending this cause does not support the requested bearer capability.
C2	66	Channel type not implemented	Equipment sending this cause does not support the requested channel type.
C5	69	Requested facility not implemented	Equipment sending this cause does not support the requested supplementary service.
C6	70	Only restricted digital available	Request for an unrestricted bearer service, but the equipment sending this cause only supports the restricted version.
CF	79	Service not implemented or unspecified	The service or option not implemented event only when no other cause in the service or option not implemented class applies.

Class 101 — Invalid Message

Hex	Value	Description	Meaning
D1	81	Invalid call reference value	A message with a call reference that is not currently in use on the user network interface received by the equipment sending the cause.
D2	82	Channel does not exist	Equipment sending this cause received a request to use a channel not activated on the interface for a call.
D3	83	Suspended call exists, call identity does not	A call resume attempted with a call identity that differs from that in use for any currently suspended call.
D4	84	Call identity in use	Network received a call suspended request. The request contained a call identity (including the null call identity) that is already in use for a suspended call within the domain of interfaces over which this call can be resumed.
D5	85	Invalid digit value for number	Network received a call resume request. The request contained a call identity information element that does not indicate any suspended call within the domain of interfaces over which the call can be resumed.
D6	86	Call having the requested call identity is cleared	The network has received a call resume request. This request contained a call identity information element that once indicated a suspended call; the suspended call was cleared while suspended (either by network timeout, or by a remote user).
D8	88	Incompatible destination	Equipment sending this cause received a request to establish a call that has low layer compatibility, high layer compatibility attributes (for example, data rate) that cannot be handled.
DB	91	Transit network does not exist	
DF	95	Invalid message unspecified	Invalid message event only when no other cause in the invalid message call applies.

Class 110 — Protocol Error (Continued)

Hex	Value	Description	Meaning
E0	96	Mandatory information element is missing	<p>Equipment sending this cause received a message that is missing an information element that must be present in the message before that message can be processed.</p> <p>The particular information element is identified in the diagnostic octet. For example, 81 E0 04 means that the bearer capability is not included by the PABX (Private Network) in the SETUP message. 0x04 is the bearer capability information element identifier as specified in the standards.</p>
E1	97	Message type nonexistent or not implemented	<p>Equipment sending this cause received a message with a message type it does not recognize:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Undefined message <input type="checkbox"/> Defined but not implemented by the equipment sending the cause
E2	98	Message not compatible with call state or message type nonexistent or not implemented	<p>Equipment sending this cause received a message that it considers non-permissible while in the call state or a STATUS message indicating an incompatible call state.</p>
E3	99	Information element nonexistent or not implemented	<p>Equipment sending this cause received a message that includes information elements not recognized because the information element identifier is not defined, or is defined but not implemented by the equipment sending the cause. However, the information element is not required to be present in the message to enable the equipment sending the cause to process the messages.</p> <p>When this cause is presented by the board, the particular information element is identified in the diagnostic octet. For example 81 E3 04, would mean that the bearer capability had not been included by the PABX (Private Network) in the SETUP message. 0x04 is the bearer capability information element identifier as specified in the standards.</p>

E4	100	Invalid information element contents	Equipment sending this cause received an information element that it has implemented. However, the sending equipment was not able to implement the code because one or more of the fields were incorrectly coded.
E5	101	Message not compatible with call state	The received message is incompatible with the call state.
E6	102	Recovery on timer expiry	A timer expired and an associated Q.931 error handling procedure is initiated.
EF	111	Protocol error, unspecified	An error event only when no cause in the protocol error class applies

Class 111 — Internetworking

Hex	Value	Description	Meaning
FF	127	Interworking unspecified	Interworking with the network that does not provide cause codes for its actions. Therefore, the precise cause for a message being sent is unknown.

Diagnostic Octet

For protocol errors where the cause octet indicates a class of 110 — protocol error, the diagnostic octet might indicate the particular message or information element identifier. For example, 81 E0 04 means that the bearer capability is not included by the PABX (Private Network) in the SETUP message. 0x04 is the bearer capability information element identifier as specified in the standards.

Diagnostic Byte (Continued)

Hex	Value	Description
02	2	Transit network identity or network specific facility information element identifier
16	22	New destination number
1D	29	Facility identification
2B	43	Discarded information element identifier
2F	47	Information element identifier
39	57	Attributes of bearer capability
3A	58	Attributes of bearer capability
41	65	Attributes of bearer capability
42	66	Channel type
58	88	Incompatible parameter
5F	95	Message type
60	96	Information element identifier
61	97	Message type
62	98	Message type
63	99	Information element identifier
64	100	Information element identifier
65	101	Message type

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