



ISDN Cause Codes

Including current information from:

- North American ISDN Users' Forum
 - ITU Standards activity
 - ANSI
-



ISDN Cause Codes

Fourth edition, published February, 22, 2003 by:

AHK & Associates, Inc.

www.ahk.com



Unlimited right to copy this document is granted to anyone as long as the document is copied in its entirety; including all cover pages, and this title page.

***Copyright* © 1995, 1996, 1997 & 2003 by AHK & Associates, Inc.**

www.ahk.com

Disclaimer

This information has been compiled from many sources by **AHK & Associates**. Care has been taken to ensure the accuracy of this information, but no guarantee or warranty is implied or offered as to accuracy or usefulness. User assumes any and all risk or liability in using this information.

Introduction

Several things can go wrong during the ISDN call setup. When they do the network will signal the nature of the fault via a code. When de-coded, the reason it occurred can be determined. Here are several examples of faults that can be reported.

- A setup request for a specific B-Channel when that channel is in use will cause the network to send a set release complete message with cause code # 44 “Requested circuit/channel unavailable”.
- A setup request for a B channel when all B-Channels are in use will receive a release complete message from the network with cause code # 34 “No circuit/channel available”.
- The network might ignore a setup message with elements out of sequence. Procedures for this event are undecided. If the element is a vital one (e.g., called party number) the network could respond with setup acknowledge in place of call proceeding, and wait for additional information.
- A setup message with duplicated elements (ones that are not allowed to be duplicated) would get no indication from the network as it would simply act upon the first of the duplicated elements and ignore the rest.
- A setup message with missing mandatory elements will receive a status message from the network with cause code # 96 “*Mandatory information element is missing*”.
- A setup message with invalid content in any element will receive a release complete from the network with cause code # 100 “*Invalid information element contents*”.
- A setup message with unrecognized elements might receive nothing from the network as this area is still undecided. There is a trend for the network to send a status message with cause code # 99 “*Information element non-existent or not implemented*”.

Cause No. 1 - Unallocated (unassigned) number [Q.850] This cause indicates that the called party cannot be reached because, although the called party number is in a valid format, it is not currently allocated (assigned).

Cause No. 2 - No route to specified transit network (national use) [Q.850]

This cause indicates that the equipment sending this cause has received a request to route the call through a particular transit network, which it does not recognize. The equipment sending this cause does not recognize the transit network either because the transit network does not exist or because that particular transit network, while it does exist, does not serve the equipment which is sending this cause.

Cause No. 3 - No route to destination [Q.850]

This cause indicates that the called party cannot be reached because the network through which the call has been routed does not serve the destination desired. This cause is supported on a network dependent basis.

Cause No. 4 - send special information tone [Q.850]

This cause indicates that the called party cannot be reached for reasons that are of a long term nature and that the special information tone should be returned to the calling party.

Cause No. 5 - misdialled trunk prefix (national use) [Q.850]

This cause indicates the erroneous inclusion of a trunk prefix in the called party number. This number is to be stripped from the dialed number being sent to the network by the customer premises equipment.

Cause No. 6 - channel unacceptable [Q.850]

This cause indicates that the channel most recently identified is not acceptable to the sending entity for use in this call.

Cause No. 7 - call awarded, being delivered in an established channel [Q.850]

This cause indicates that the user has been awarded the incoming call, and that the incoming call is being connected to a channel already established to that user for similar calls (e.g. packet-mode x.25 virtual calls).

Cause No. 8 - preemption [Q.850]

This cause indicates the call is being preempted.

Cause No. 9 - preemption - circuit reserved for reuse [Q.850]

This cause indicates that the call is being preempted and the circuit is reserved for reuse by the preempting exchange.

Cause No. 16 - normal call clearing [Q.850]

This cause indicates that the call is being cleared because one of the users involved in the call has requested that the call be cleared. Under normal situations, the source of this cause is not the network.

Cause No. 17 - user busy [Q.850]

This cause is used to indicate that the called party is unable to accept another call because the user busy condition has been encountered. This cause value may be generated by the called user or by the network. In the case of user determined user busy it is noted that the user equipment is compatible with the call.

Cause No. 18 - no user responding [Q.850]

This cause is used when a called party does not respond to a call establishment message with either an alerting or connect indication within the prescribed period of time allocated.

Cause No. 19 - no answer from user (user alerted) [Q.850]

This cause is used when the called party has been alerted but does not respond with a connect indication within a prescribed period of time. Note - This cause is not necessarily generated by Q.931 procedures but may be generated by internal network timers.

Cause No. 20 - subscriber absent [Q.850]

This cause value is used when a mobile station has logged off, radio contact is not obtained with a mobile station or if a personal telecommunication user is temporarily not addressable at any user-network interface.

Cause No. 21 - call rejected [Q.850]

This cause indicates that the equipment sending this cause does not wish to accept this call, although it could have accepted the call because the equipment sending this cause is neither busy nor incompatible. The network may also generate this cause, indicating that the call was cleared due to a supplementary service constraint. The diagnostic field may contain additional information about the supplementary service and reason for rejection.

Cause No. 22 - number changed [Q.850]

This cause is returned to a calling party when the called party number indicated by the calling party is no longer assigned. The new called party number may optionally be included in the diagnostic field. If a network does not support this cause, cause no: 1, unallocated (unassigned) number shall be used.

Cause No. 26 - non-selected user clearing [Q.850]

This cause indicates that the user has not been awarded the incoming call.

Cause No. 27 - destination out of order [Q.850]

This cause indicates that the destination indicated by the user cannot be reached because the interface to the destination is not functioning correctly. The term "not functioning correctly" indicates that a signal message was unable to be delivered to the remote party; e.g. a physical layer or data link layer failure at the remote party, or user equipment off-line.

Cause No. 28 - invalid number format (address incomplete) [Q.850]

This cause indicates that the called party cannot be reached because the called party number is not in a valid format or is not complete.

Cause No. 29 - facilities rejected [Q.850]

This cause is returned when a supplementary service requested by the user cannot be provided by the network.

Cause No. 30 - response to STATUS INQUIRY [Q.850]

This cause is included in the STATUS message when the reason for generating the STATUS message was the prior receipt of a STATUS INQUIRY.

Cause No. 31 - normal, unspecified [Q.850]

This cause is used to report a normal event only when no other cause in the normal class applies.

Cause No. 34 - no circuit/channel available [Q.850]

This cause indicates that there is no appropriate circuit/channel presently available to handle the call.

Cause No. 35 - Call Queued [Q.850]

Cause No. 38 - network out of order [Q.850]

This cause indicates that the network is not functioning correctly and that the condition is likely to last a relatively long period of time e.g. immediately re-attempting the call is not likely to be successful.

Cause No. 39 - permanent frame mode connection out-of-service [Q.850]

This cause is included in a STATUS message to indicate that a permanently established frame mode connection is out-of-service (e.g. due to equipment or section failure) [see Annex A/Q.933]

Cause No. 40 - permanent frame mode connection operational [Q.850]

This cause is included in a STATUS message to indicate that a permanently established frame mode connection is operational and capable of carrying user information. [see Annex A/Q.933]

Cause No. 41 - temporary failure [Q.850]

This cause indicates that the network is not functioning correctly and that the condition is no likely to last a long period of time; e.g. the user may wish to try another call attempt almost immediately.

Cause No. 42 - switching equipment congestion [Q.850]

This cause indicates that the switching equipment generating this cause is experiencing a period of high traffic.

Cause No. 43 - access information discarded [Q.850]

This cause indicates that the network could not deliver access information to the remote user as requested, i.e. user-to-user information, low layer compatibility, high layer compatibility or sub-address as indicated in the diagnostic. It is noted that the particular type of access information discarded is optionally included in the diagnostic.

Cause No. 44 - requested circuit/channel not available [Q.850]

This cause is returned when the other side of the interface cannot provide the circuit or channel indicated by the requesting entity.

Cause No. 46 - precedence call blocked [Q.850]

This cause indicates that there are no pre-emptable circuits or that the called user is busy with a call of equal or higher pre-emptable level.

Cause No. 47 - resource unavailable, unspecified [Q.850]

This cause is used to report a resource unavailable event only when no other cause in the resource unavailable class applies.

Cause No. 49 - Quality of Service not available [Q.850]

This cause is used to report that the requested Quality of Service, as defined in Recommendation X.213, cannot be provided (e.g. throughput of transit delay cannot be supported).

Cause No. 50 - requested facility not subscribed [Q.850]

This cause indicates that the user has requested a supplementary service, which is available, but the user is not authorized to use.

Cause No. 52 - outgoing calls barred

Cause No. 53 - outgoing calls barred within CUG [Q.850]

This cause indicates that although the calling party is a member of the CUG for the outgoing CUG call, outgoing calls are not allowed for this member of the CUG.

Cause No. 54 - incoming calls barred

Cause No. 55 - incoming calls barred within CUG [Q.850]

This cause indicates that although the calling party is a member of the CUG for the incoming CUG call, incoming calls are not allowed for this member of the CUG.

Cause No. 57 - bearer capability not authorized [Q.850]

This cause indicates that the user has requested a bearer capability that is implemented by the equipment which generated this cause but the user is not authorized to use.

Cause No. 58 - bearer capability not presently available [Q.850]

This cause indicates that the user has requested a bearer capability which is implemented by the equipment which generated this cause but which is not available at this time.

Cause No. 62 - inconsistency in outgoing information element. [Q.850]

This cause indicates an inconsistency in the designated outgoing access information and subscriber class

Cause No. 63 - service or option not available, unspecified [Q.850]

This cause is used to report a service or option not available event only when no other cause in the service or option not available class applies.

Cause No. 65 - bearer capability not implemented [Q.850]

This cause indicates that the equipment sending this cause does not support the bearer capability requested.

Cause No. 66 - channel type not implemented [Q.850]

This cause indicates that the equipment sending this cause does not support the channel type requested

Cause No. 69 - requested facility not implemented [Q.850]

This cause indicates that the equipment sending this cause does not support the requested supplementary services.

Cause No. 70 - only restricted digital information bearer capability is available (national use) [Q.850]

This cause indicates that the calling party has requested an unrestricted bearer service but the equipment sending this cause only supports the restricted version of the requested bearer capability.

Cause No. 79 - service or option not implemented, unspecified [Q.850]

This cause is used to report a service or option not implemented event only when no other cause in the service or option not implemented class applies.

Cause No. 81 - invalid call reference value [Q.850]

This cause indicates that the equipment sending this cause has received a message with a call reference which is not currently in use on the user-network interface.

Cause No. 82 - identified channel does not exist [Q.850]

This cause indicates that the equipment sending this cause has received a request to use a channel not activated on the interface for a call. For example, if a user has subscribed to those channels on a primary rate interface numbered from 1 to 12 and the user equipment or the network attempts to use channels 13 through 23, this cause is generated.

Cause No. 83 - a suspended call exists, but this call identify does not [Q.850]

This cause indicates that a call resume has been attempted with a call identity which differs from that in use for any presently suspended call(s).

Cause No. 84 - call identity in use [Q.850]

This cause indicates that the network has received a call suspended request containing a call identity (including the null call identity) which is already in use for a suspended call within the domain of interfaces over which the call might be resumed.

Cause No. 85 - no call suspended [Q.850]

This cause indicates that the network has received a call resume request containing a Call identity information element which presently does not indicate any suspended call within the domain of interfaces over which calls may be resumed.

Cause No. 86 - call having the requested call identity has been cleared [Q.850]

This cause indicates that the network has received a call resume request containing a Call identity information element indicating a suspended call that has in the meantime been cleared while suspended (either by network time-out or by the remote user).

Cause No. 87 - user not a member of CUG [Q.850]

This cause indicates that the called user for the incoming CUG call is not a member of the specified CUG or that the calling user is an ordinary subscriber calling a CUG subscriber.

Cause No. 88 - incompatible destination [Q.850]

This cause indicates that the equipment sending this cause has received a request to establish a call which has low layer compatibility, high layer compatibility or other compatibility attributes (e.g. data rate) which cannot be accommodated.

Cause No. 90 - non-existent CUG [Q.850]

This cause indicates that the specified CUG does not exist.

Cause No. 91 - invalid transit network selection (national use) [Q.850]

This cause indicates that a transit network identification was received which is of an incorrect format as defined in Annex C/Q.931

Cause No. 95 - invalid message, unspecified [Q.850]

This cause is used to report an invalid message event only when no other cause in the invalid message class applies.

Cause No. 96 - mandatory information element is missing [Q.850]

This cause indicates that the equipment sending this cause has received a message which is missing an information element which must be present in the message before that message can be processed.

Cause No. 97 - message type non-existent or not implemented [Q.850]

This cause indicates that the equipment sending this cause has received a message with a message type it does not recognize either because this is a message not defined or defined but not implemented by the equipment sending this cause.

Cause No. 98 - message not compatible with call state or message type non-existent or not implemented. [Q.850]

This cause indicates that the equipment sending this cause has received a message such that the procedures do not indicate that this is a permissible message to receive while in the call state, or a STATUS message was received indicating an incompatible call state.

Cause No. 99 - Information element / parameter non-existent or not implemented [Q.850]

This cause indicates that the equipment sending this cause has received a message which includes information element(s)/parameter(s) not recognized because the information element(s)/parameter name(s) are not defined or are defined but not implemented by the equipment sending the cause. This cause indicates that the information element(s)/parameter(s) were discarded. However, the information element is not required to be present in the message in order for the equipment sending the cause to process the message.

Cause No. 100 - Invalid information element contents [Q.850]

This cause indicates that the equipment sending this cause has received an information element which it has implemented; however, one or more fields in the I.E. are coded in such a way which has not been implemented by the equipment sending this cause.

Cause No. 101 - message not compatible with call state [Q.850]

This cause indicates that a message has been received which is incompatible with the call state.

Cause No. 102 - recovery on timer expiry [Q.850]

This cause indicates that a procedure has been initiated by the expiration of a timer in association with error handling procedures.

Cause No. 103 - parameter non-existent or not implemented - passed on (national use) [Q.850]

This cause indicates that the equipment sending this cause has received a message which includes parameters not recognized because the parameters are not defined or are defined but not implemented by the equipment sending this cause. The cause indicates that the parameter(s) were ignored. In addition, if the equipment sending this cause is an intermediate point, then this cause indicates that the parameter(s) were passed unchanged.

Cause No. 110 - message with unrecognized parameter discarded [Q.850]

This cause indicates that the equipment sending this cause has discarded a received message which includes a parameter that is not recognized.

Cause No. 111 - protocol error, unspecified [Q.850]

This cause is used to report a protocol error event only when no other cause in the protocol error class applies.

Cause No. 127 - Interworking, unspecified [Q.850]

This cause indicates that an interworking call (usually a call to SW56 service) has ended.

Notes about Cause Codes over 128

Cause code values of 128 and higher aren't sent over the network, and aren't defined in Recommendation Q.850. A terminal displaying a value 128 or higher and claiming it is a cause code arguably has a bug or is implementing some proprietary diagnostic code (not necessarily bad). Some documentation has cause codes listed with numbers higher than 128, but at this time they are proprietary in nature. The PRI equipment vendors are the most likely to use these codes as they have been using proprietary messages in the facilities data link for some time now. Though not supported by standards, there is an area in the FDL of the ESF frame, which is big enough to carry small data grams or messages. It is typically used to pass proprietary control or maintenance messages between multiplexers.

AHK & Associates Inc. provides sophisticated network access consulting, wide area network design, and project implementation services throughout the United States.

AHK & Associates Inc. develops customized technical training courses delivered on-site at your facility, or in our partner training facilities located throughout the United States. We offer one to five day in-depth training on ISDN, DSL, T1/ T3, SONET, DWDM, and other digital technologies. We provide training for technical, sales, and sales engineering personnel.

AHK & Associates Inc. is recognized as a leader in technology assessment, implementation, and utilization. Allow us to help your firm with the complex issues of using digital voice, data, and video technologies.

AHK & Associates, Inc.
Telecommunications Consulting
Specializing in Digital Communications Technologies

ISDN, DSL, T1/ T3, SONET/SDH
Frame Relay, ATM, Passive Optical Networks, DWDM

415-577-4736
www.ahk.com