Kofax Communication Server

TC/FoIP Tracing Technical Manual

Version: 10.2.0

KOFAX

© 2018 Kofax. All rights reserved.
Kofax is a trademark of Kofax, Inc., registered in the U.S. and/or other countries. All other trademarks are the property of their respective owners. No part of this publication may be reproduced, stored, or transmitted in any form without the prior written permission of Kofax.

TABLE OF CONTENTS

1 HOW TO FIND A CALL IN THE WIRESHARK TRACES 5

2 ANALYZING THE TRACE 12

2.1 Determine If a Call Manager or Gatekeeper Is Used 12

2.2 Determine the Mode 12

2.3 Determine If the Negotiation Was Successful 15
2.3.1 Look for the Training Sequence 15
2.3.2 Determine If Logical Channels Are Established Correctly 16

2.4 Determine If a Page Is Transmitted 17

2.5 Determine If the Page Is Confirmed 18

2.6 Determine EOP 19

2.7 Look for DCN 19

3 FLOW DIAGRAMS 20

3.1 Reception in NON_ECM 20

3.2 Transmission in Non-ECM 22

3.3 Reception in ECM 23

3.4 Transmission in ECM 25

4 RECEPTION ERROR REASON 28

4.1 Can Be Solved in XCAPI 28
4.1.1 XY.2 DCN from XCAPI after PPS-EOM 28

4.2 Bad Line Conditions 28
4.2.1 XO.1/XW.1 DCN While Receiving ECM Data 28
4.2.2 XO.2 XCAPI Sends DCN After Training 30
4.2.3 XY.3 Non-ECM Page Has Been Rejected with RTN 31
4.2.4 XY.4 DCN While Receiving Non-ECM Data 32

4.3 Stopped by User 34
4.3.1 XY.8 DCN from Sender After PPS and PPR 34
4.3.2 XY.9 DCN from Sender After ECM Data 35
4.3.3 XO.3/XW.3 DCN from Sender Instead of ECM Data 37
4.3.4 XW.4 CCM Closes Connection 39
4.3.5 XY.12 Sender Sends No-Signal 41
4.3.6 XY.13 Sender Sends No-Signal 43

4.4 Bug in Sender 45
4.4.1 XY.7 = XY.5 = XY.6 EOM Instead of PPS 45
4.4.2 XY.10 Sender Sends No-Signal 46
4.4.3 XY.11 Sender Sends No-Signal 48

5 TRANSMISSION ERROR REASONS 50

5.1 Can Be Solved in XCAPI 50
5.1.1 XT.1 XCAPI Starts Sending Too Early After CFR 50

5.2 Bug in Gateway or Receiving Fax Machine 51
5.2.1 XT.2 XCAPI Receives CLC During Transmission 51

5.3 Bug in Gateway **53**
5.3.1 XT.3 Receiver Responds with V.17 to CTC 53

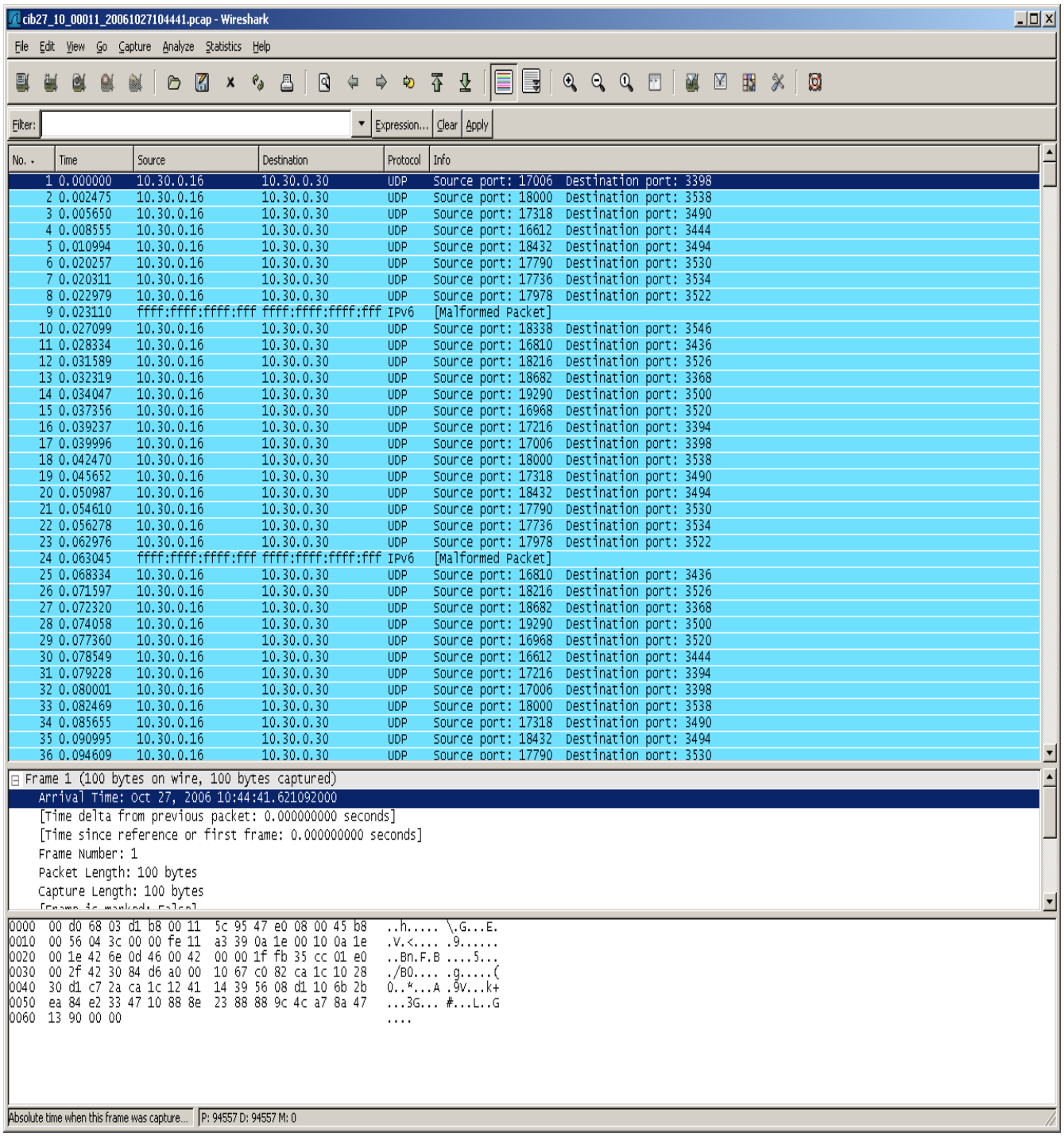
1 How to Find a Call in the Wireshark Traces

Determine the start time in the TCOSS journal:

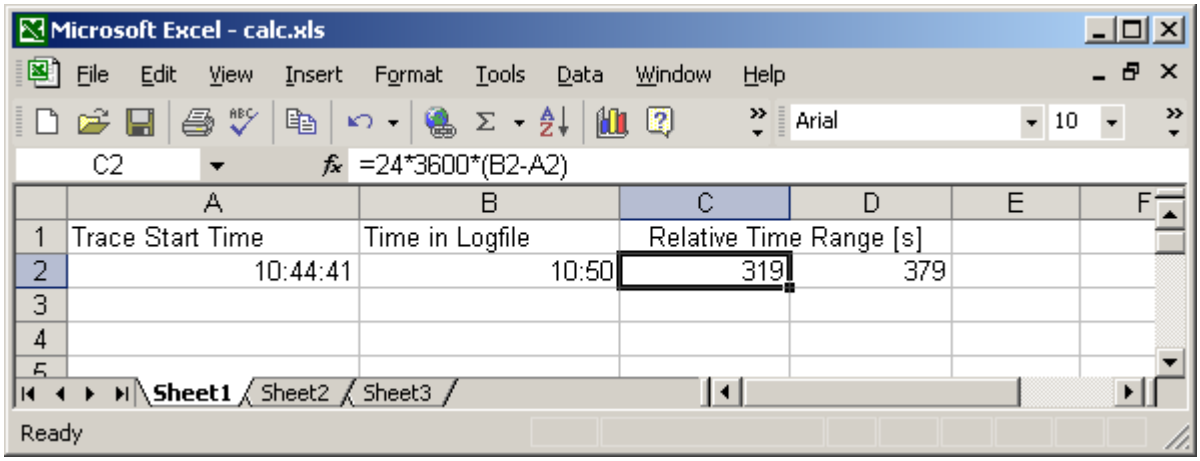
A:TF3630 +3613831591 -001 061027 **1050** 16XY +

Open the Wireshark trace file. If the network has more then one TC/FoIP server you need to determine which instance served the call to select the appropriate trace file.

Expand the sub tree of frame 1 to determine the start time of the trace:

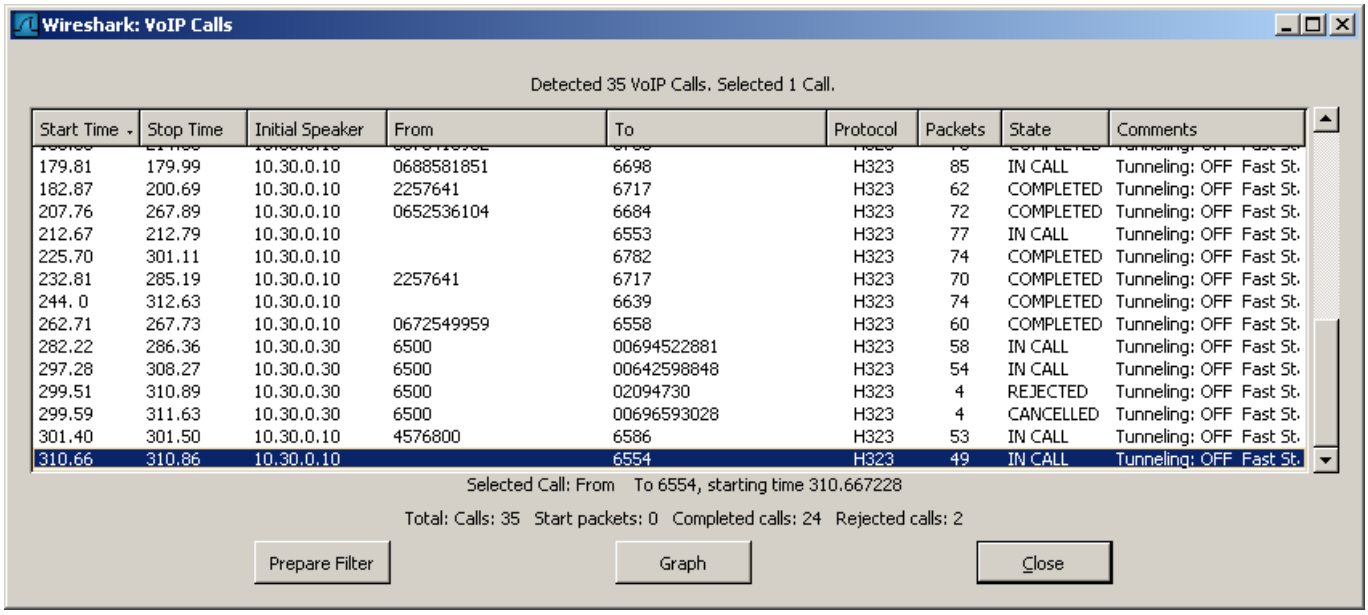


Calculate the relative time range to find the specific call in the trace file. You can use Excel for example:



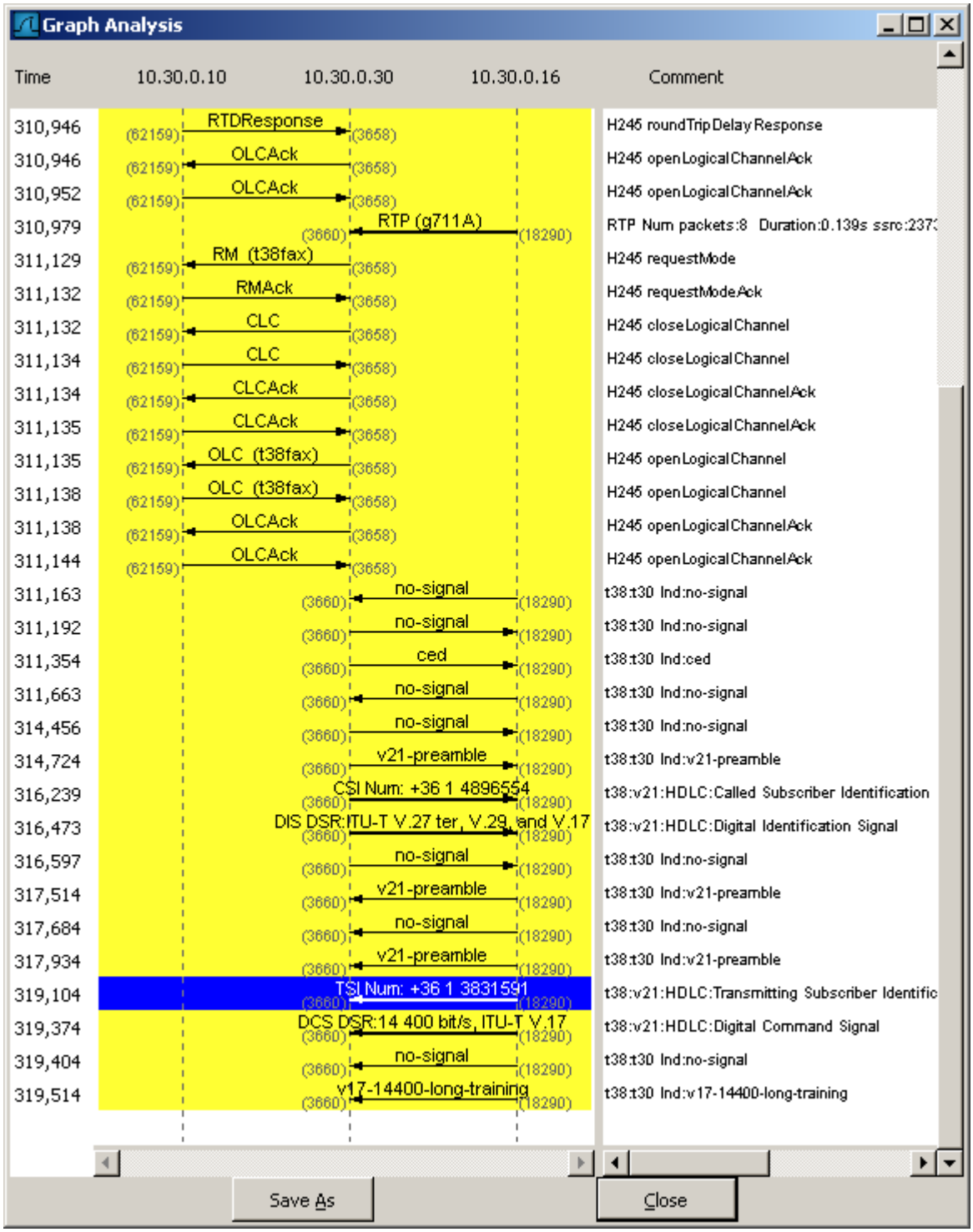
Enter the time of the first frame in on cell (A2), and the time of the journal in a different cell (B2). Then you can enter two equations 24*3600*(B2-A2) and 24*3600*(B2-A2)+60. Now you have the time rage where to look in the trace file. Since the clocks of the trace and the journal can differ the time range is only a clue. The call might not be exactly in this range.

In the Wireshark main window open Statistics->VoIP Calls:

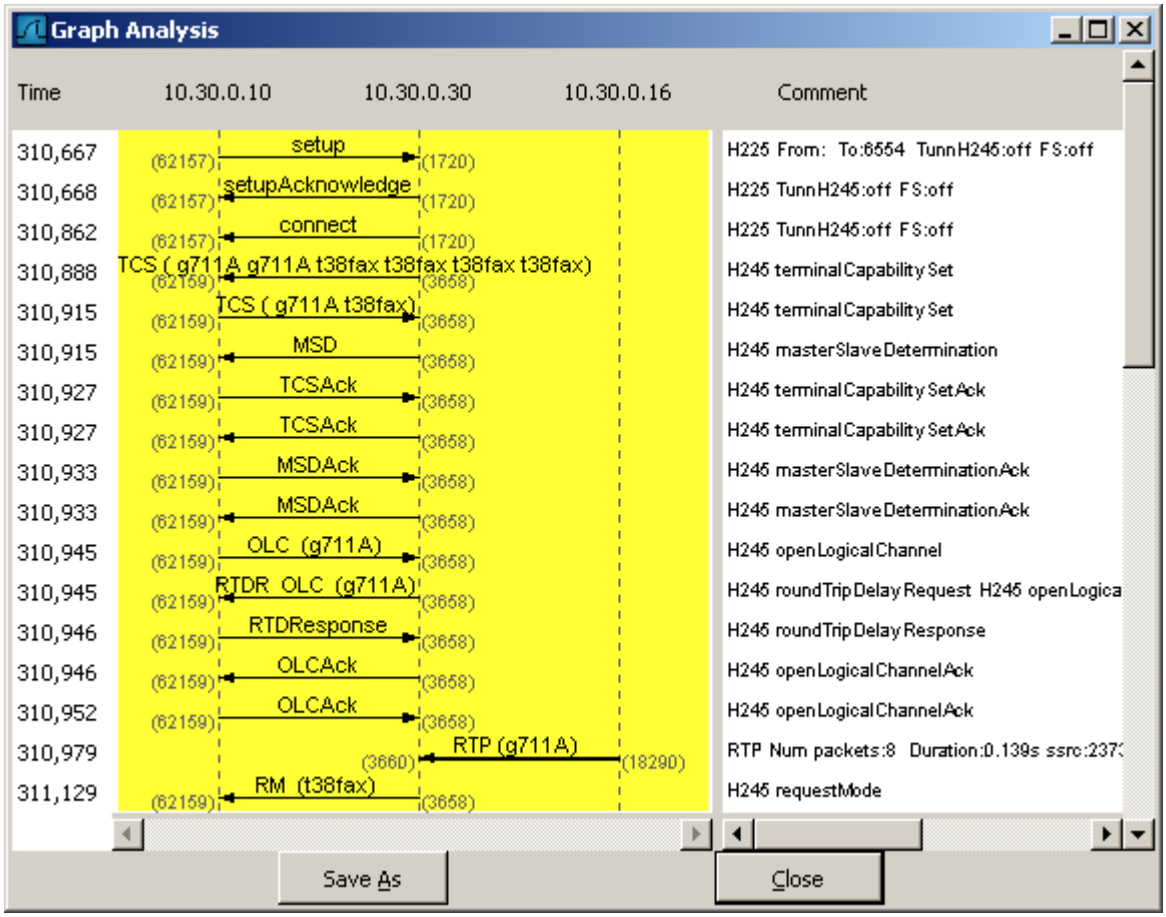


Look for the call in the list. First look at the time range that corresponds to that calculated. Use the IP address (Initial Speaker) to determine if it is an outgoing or incoming call. The numbers in the columns From and To can also be a hint but these numbers are the ones transmitted in the ISDN signaling, whereas the numbers in the journals are those sent in the TSI and CSI messages. In the column State you can see if the call is completed or not. If IN CALL is displayed we need to merge the call with the rest of the next trace file.

Click Graph:

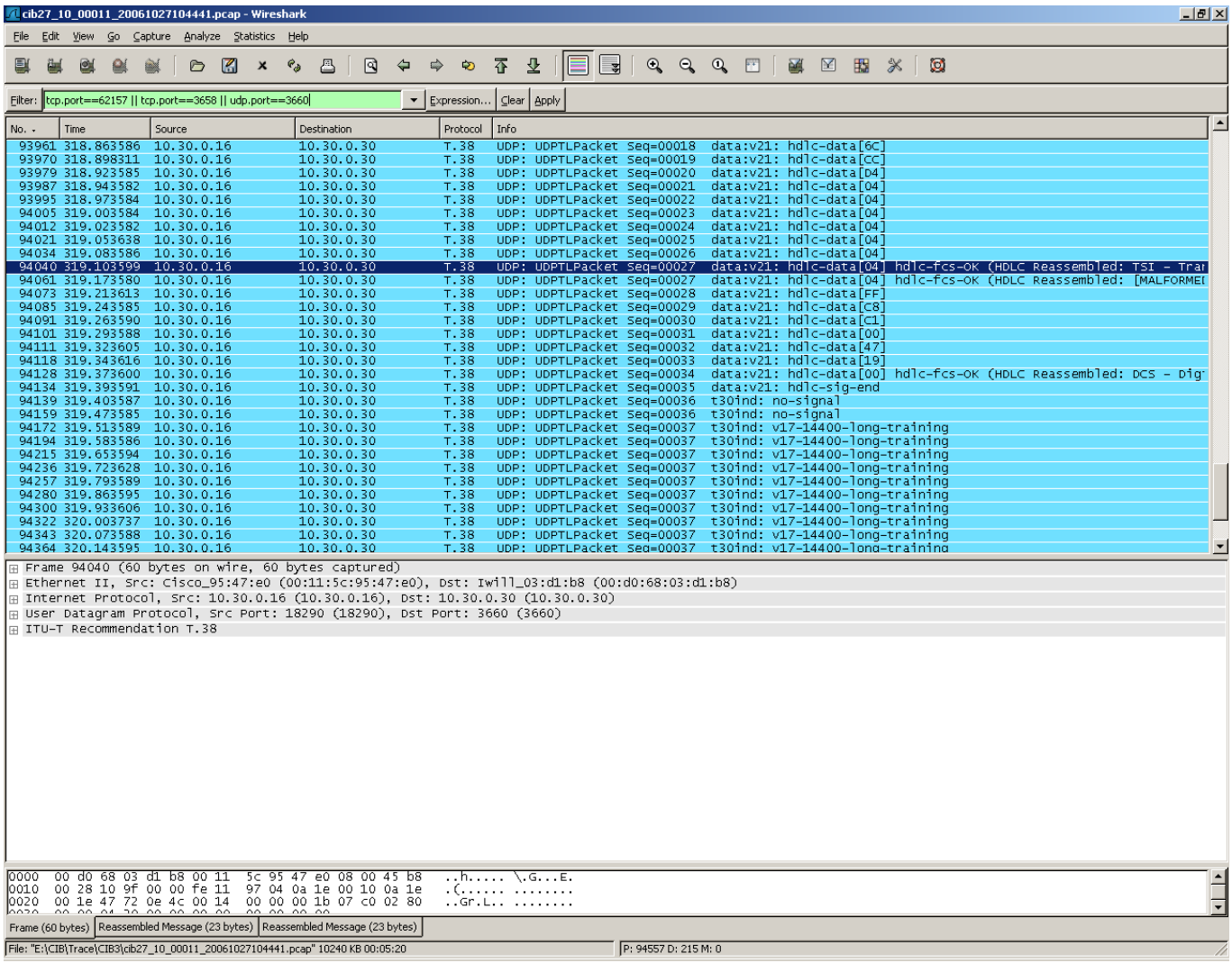


Compare the number next to TSI Num: with the number in the inbound journal, or the number after CSI Num: in the outbound journal for outgoing faxes. If these two numbers match it is likely to be the appropriate call. If the sender made a retry, e.g., 2 minutes later and the clock times differ it is still possible that is the wrong call. Therefore, you should look in the journals for retries.
Now you can extract the call from the trace file. To do so, determine the used port numbers. Go to the top of the graph and look for the setup message.

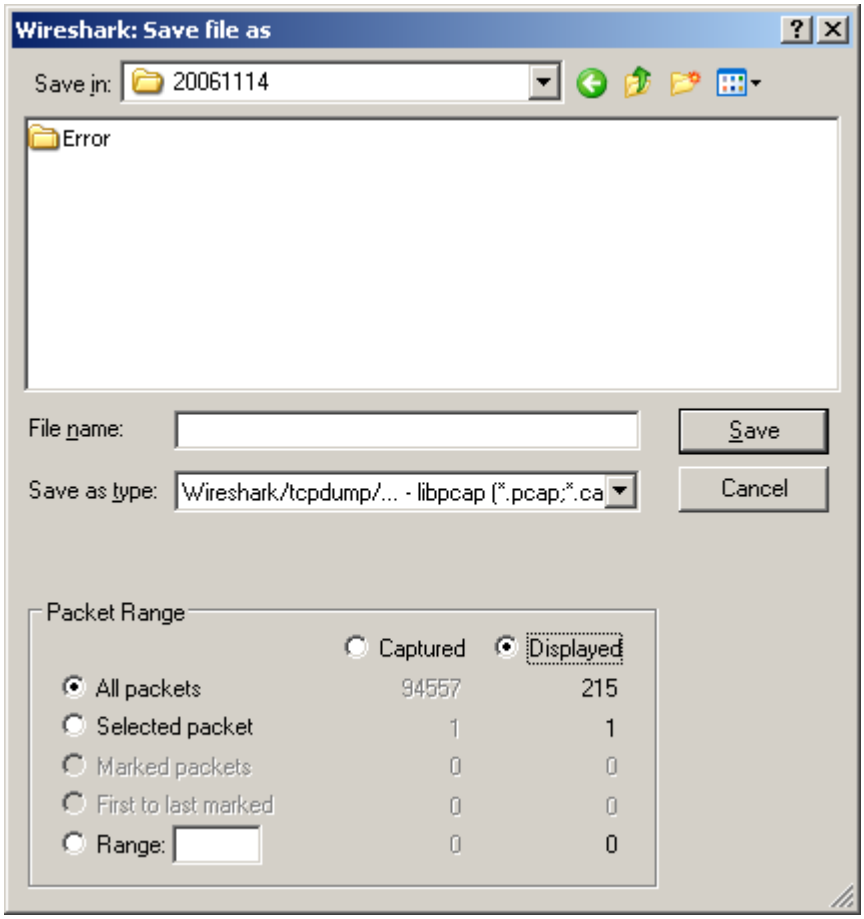


The setup message has two port numbers, one is the well known port of H.323 and the other one the port number of the first TCP connection (62157). Look for a message short after setup with a port number other than 1720. This is the port number of the second TCP connection (3658). To determine the number of the UDP port look for a T.30 message (e.g. TSI); in this case 3660.
Set a filter in the Wireshark main window:

tcp.port==62157 || tcp.port==3658 || udp.port==3660

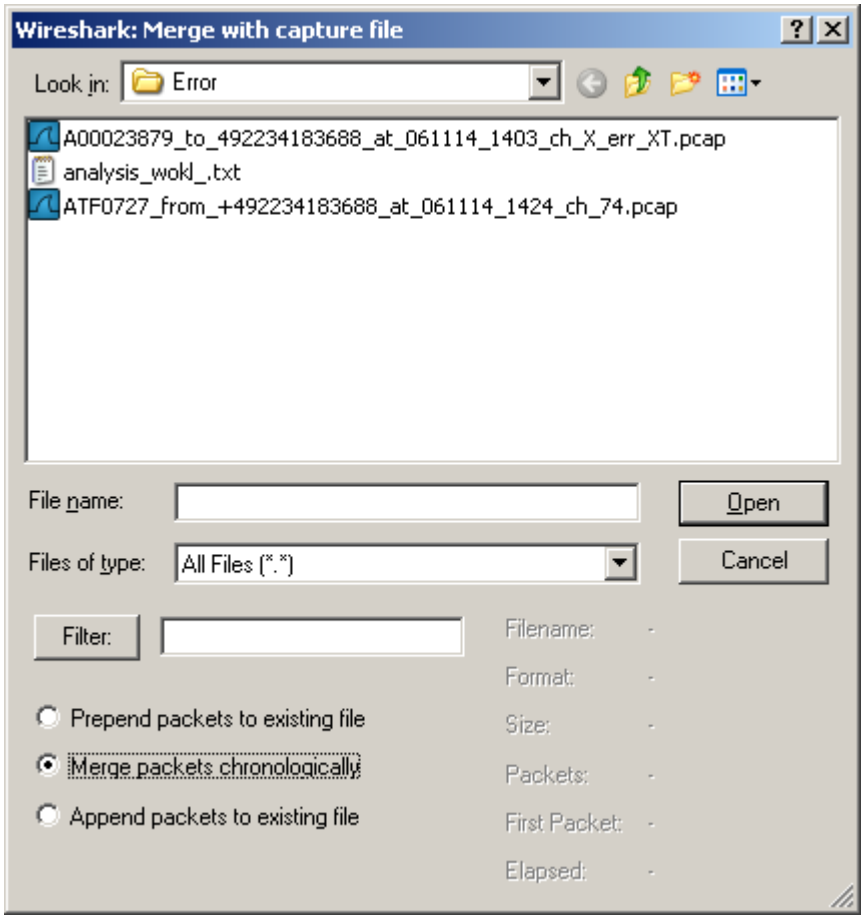


Save the call:



Click Displayed before Save so that only the filtered packets are saved.

If the call was IN CALL in the list of VoIP calls open the next trace file and apply the same filter. Then save the extracted packets (click Displayed). Open the file which contains the first part of the call and open File -> Merge …



Click Merge packets chronologically and select the file that contains the second part of the call. Save the file.
Go to Statistics VoIP Calls, you should see one call.

2 Analyzing the Trace

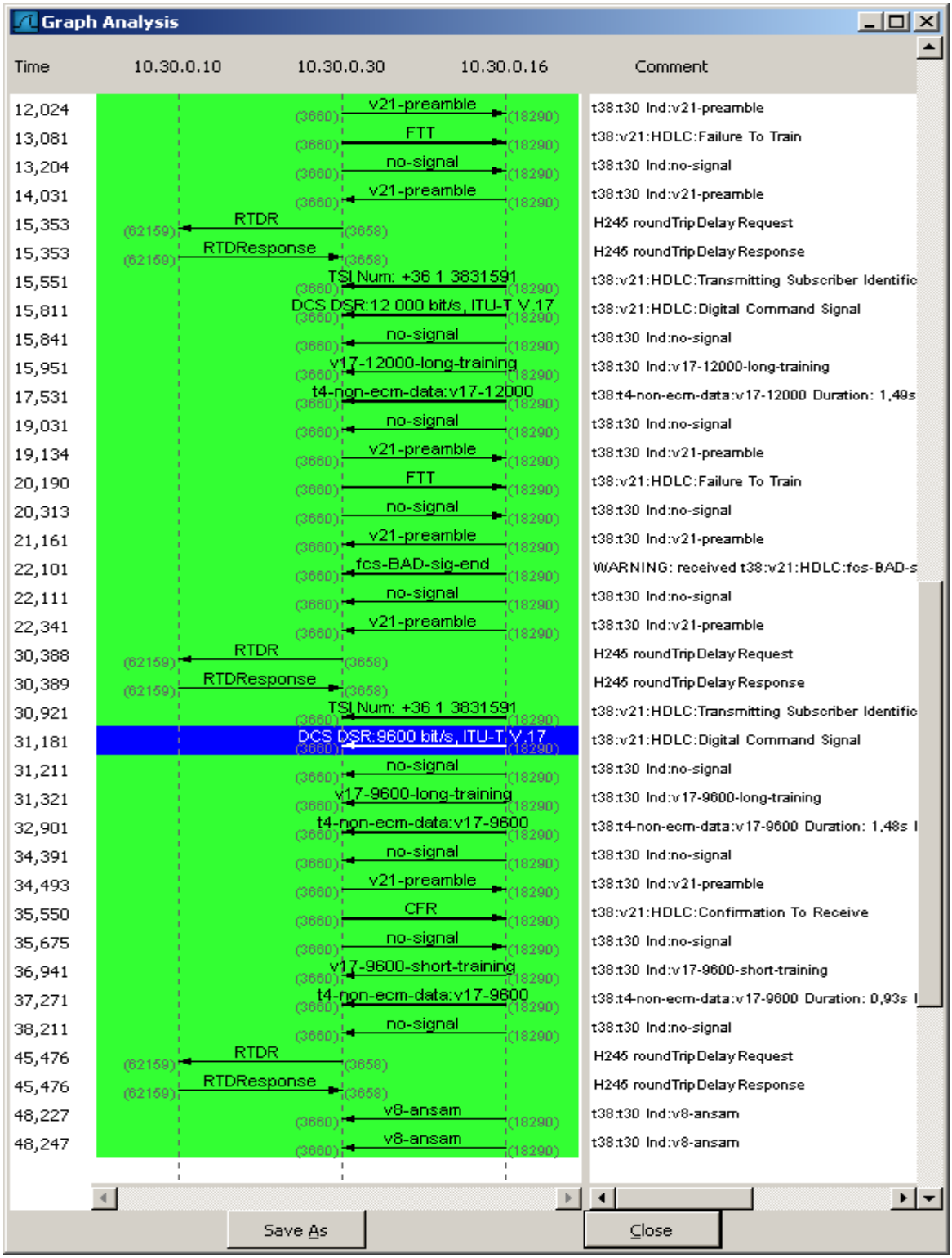
Open the extracted call with Wireshark. Go to Statistics->VoIP Calls, click on the call and then Graph.

2.1 Determine If a Call Manager or Gatekeeper Is Used

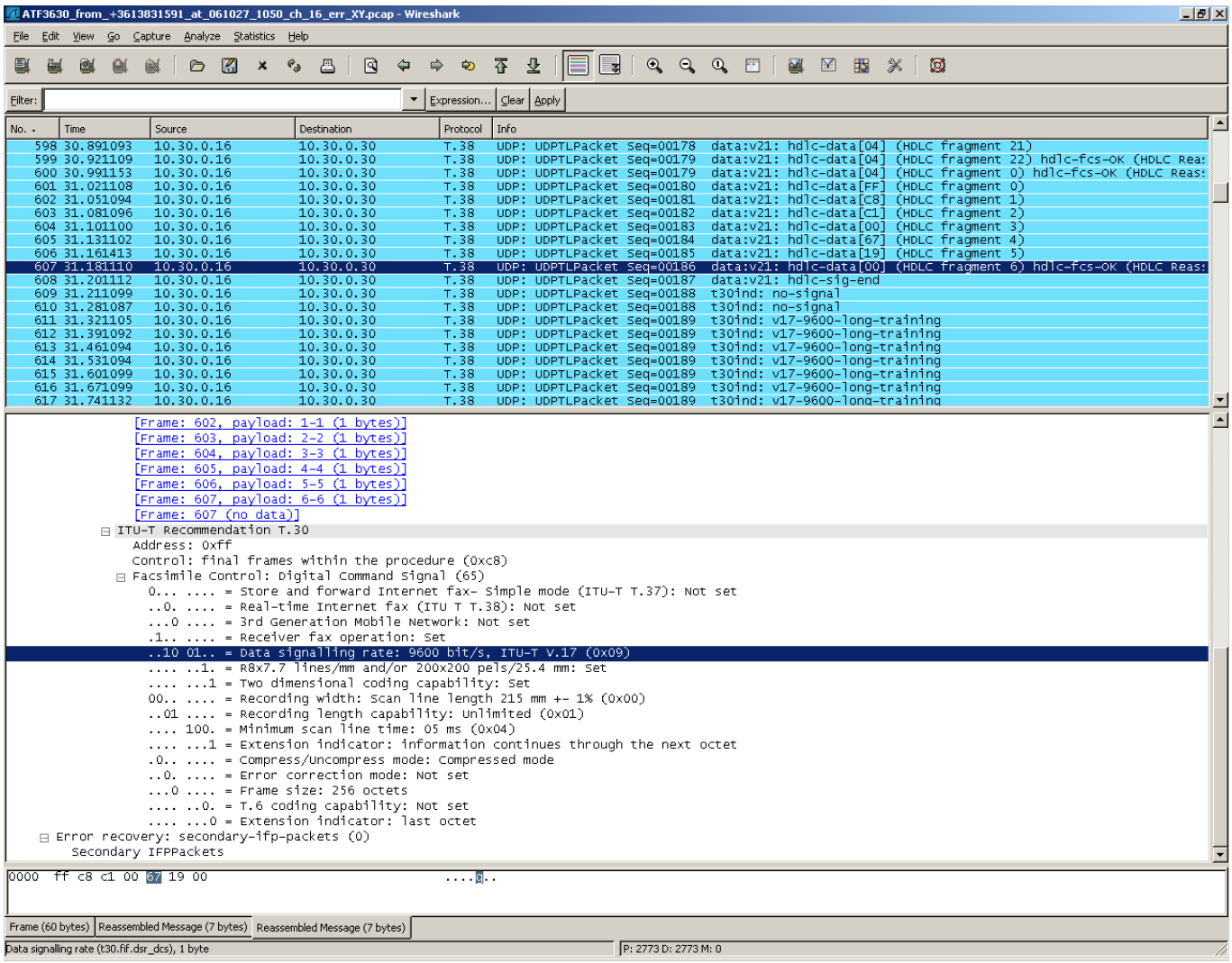
If you see three instances in the graph a Call Manager or Gatekeeper is used. Based on the IP address, determine which instance is the Call Manager, which is XCAPI, and which is the Gateway.

2.2 Determine the Mode

Look in the graph for a DCS message.



If there are more then one DCS messages go to last DCS before CFR. Click on the message and change to the main window. Extract the sub-trees and scroll down.



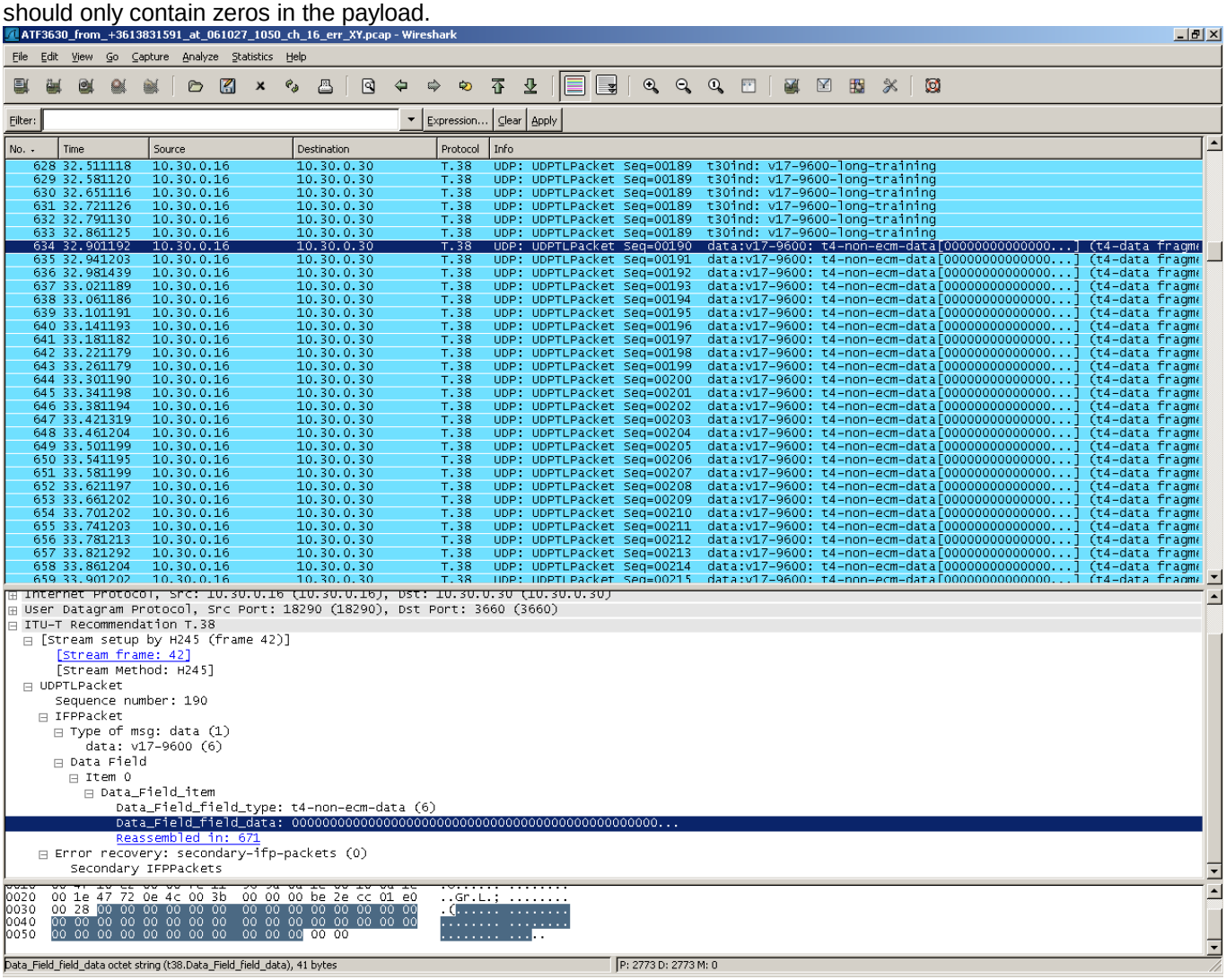
You can see in this message which bit rate, modulation and error correction mode (ECM) is used.

2.3 Determine If the Negotiation Was Successful

If the negotiation of the bit rate was successful you can see a CFR message sent to transmitting instance.
If there is no CFR message do the following:

2.3.1 Look for the Training Sequence

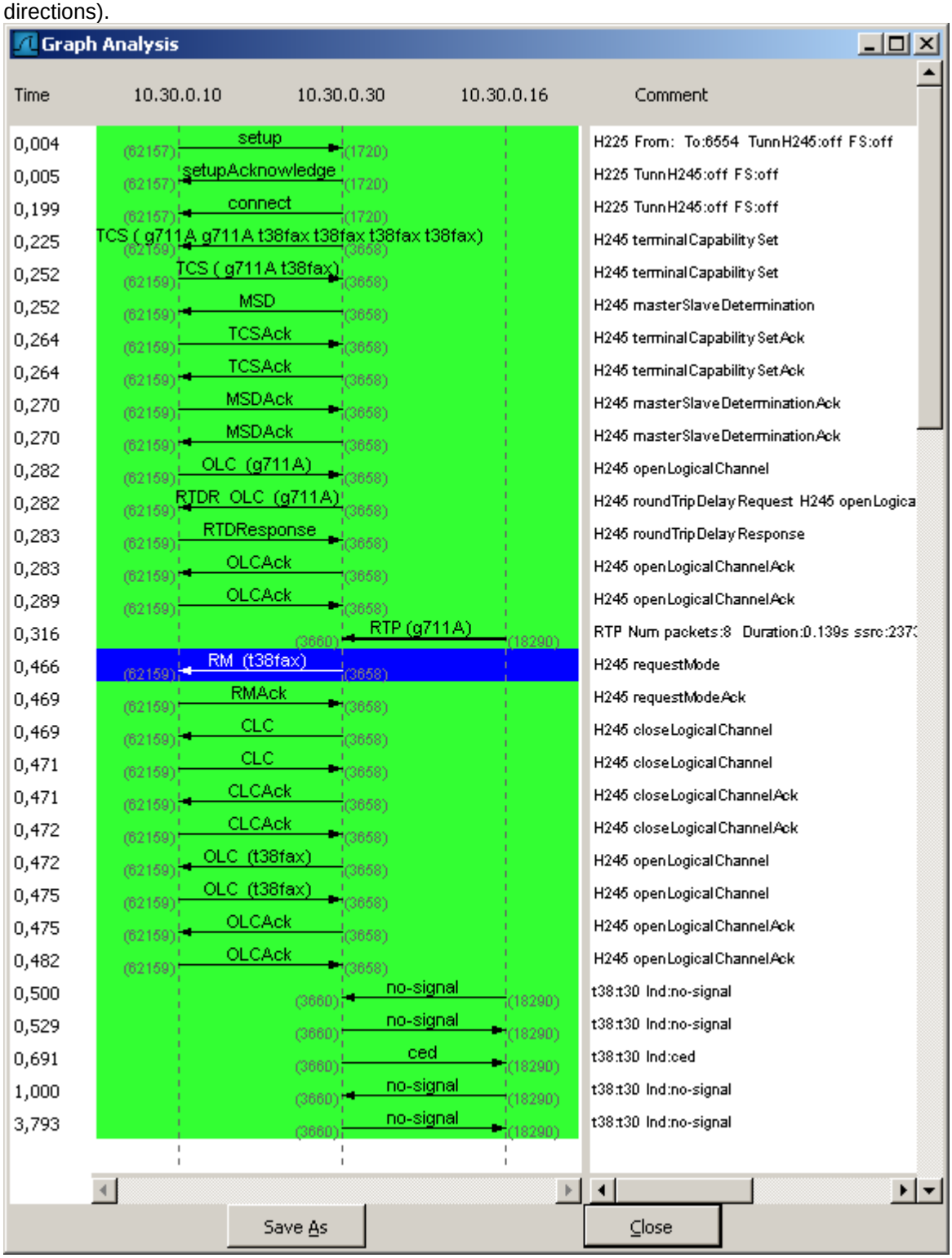
Look for a data transmission of 1.5 seconds in the mode negotiated with the DCS message. This data transmission should only contain zeros in the payload.



Look for an FTT message after the data transmission. If there are values in the training other than zero, it is a strong indication of bad line conditions (see XO.2). If the training is transmitted correctly and an FTT is sent by the receiver, the bit rate is too high. In this case look for DCS and a following training after FTT.

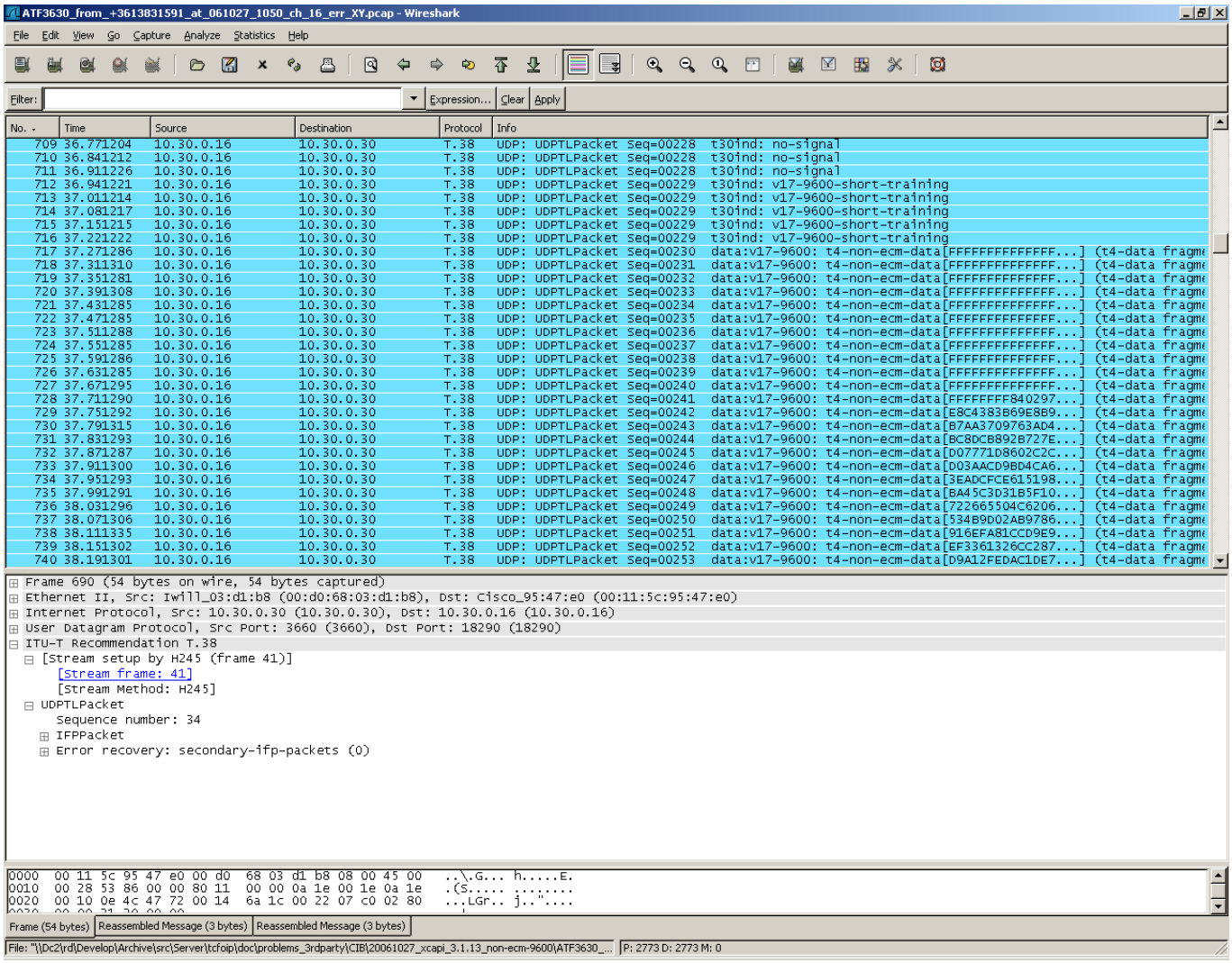
2.3.2 Determine If Logical Channels Are Established Correctly

If you cannot find any training in the call, check if the logical channels are set up. For a T.38 fax transmission you should see the following sequence: RM (t.38 fax) -> RM Ack -> OLC (t.38 fax) (in both directions) -> OLC Ack (in both directions).



2.4 Determine If a Page Is Transmitted

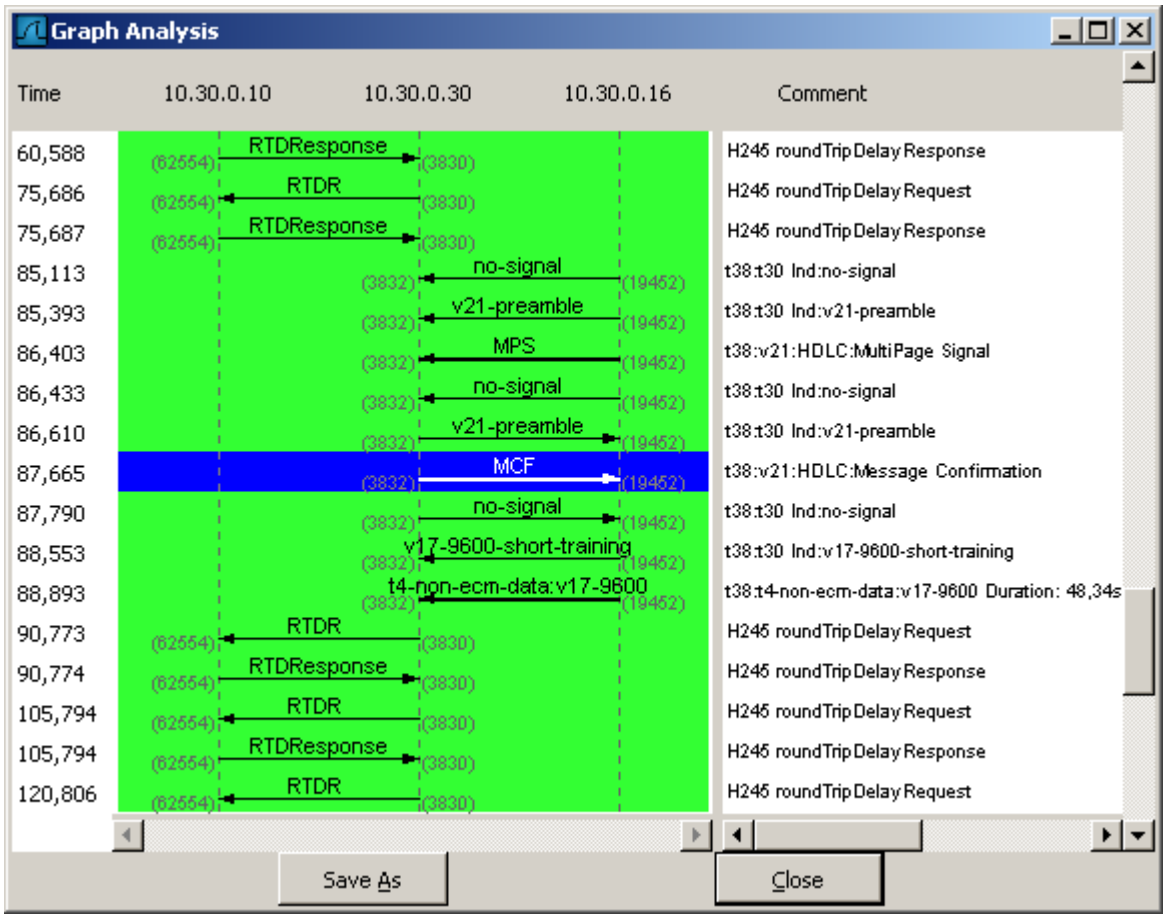
After reception of CFR the sender starts to transmit the page. Before the date a short training sequence is sent.



Use the timestamps in the Wireshark main window to determine the duration of the transmission of the page.
After the page, a T.30 message is sent by the transmitter depending on the mode used and if there are more pages to transmit (EOP, EOM. MPS, PPS).

2.5 Determine If the Page Is Confirmed

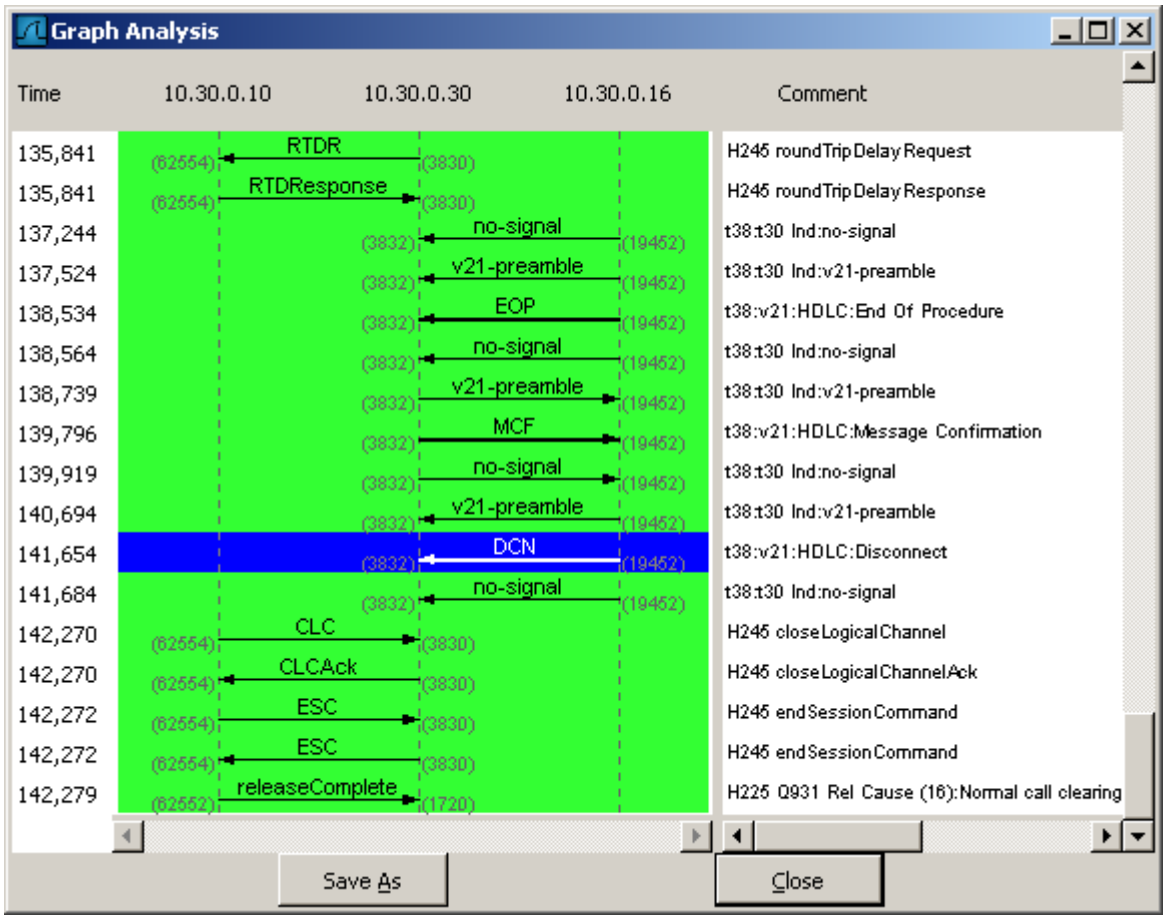
After the T.30 message the page is confirmed with MCF.



If the answer of the transmitter is RTN in ECM instead of MCF, consider error XY.3

2.6 Determine EOP

After the last page the transmitter sends the T.30 message EOP. After the confirmation with MCF the sender disconnects (DCN).



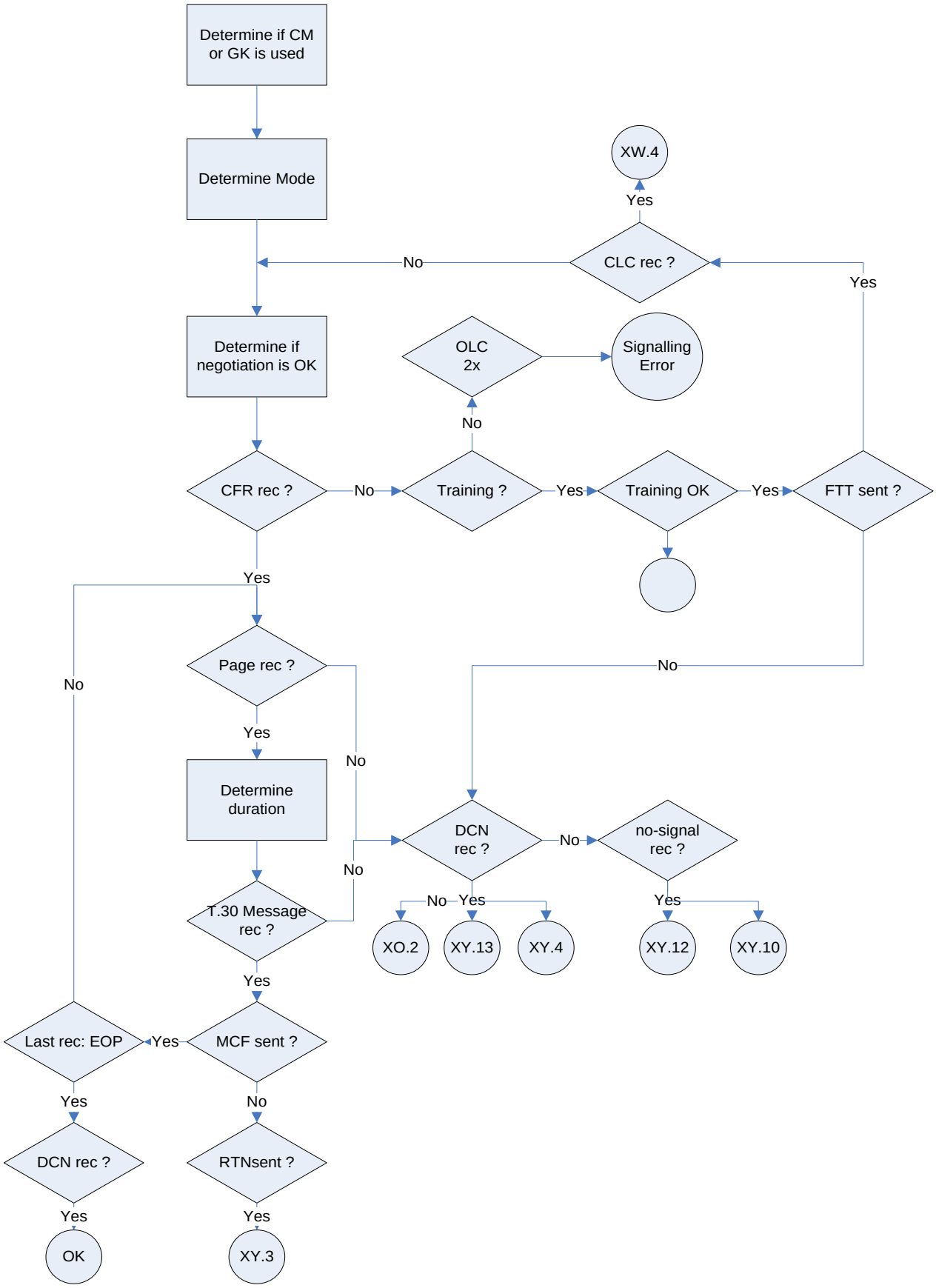
This is a normal call termination.

2.7 Look for DCN

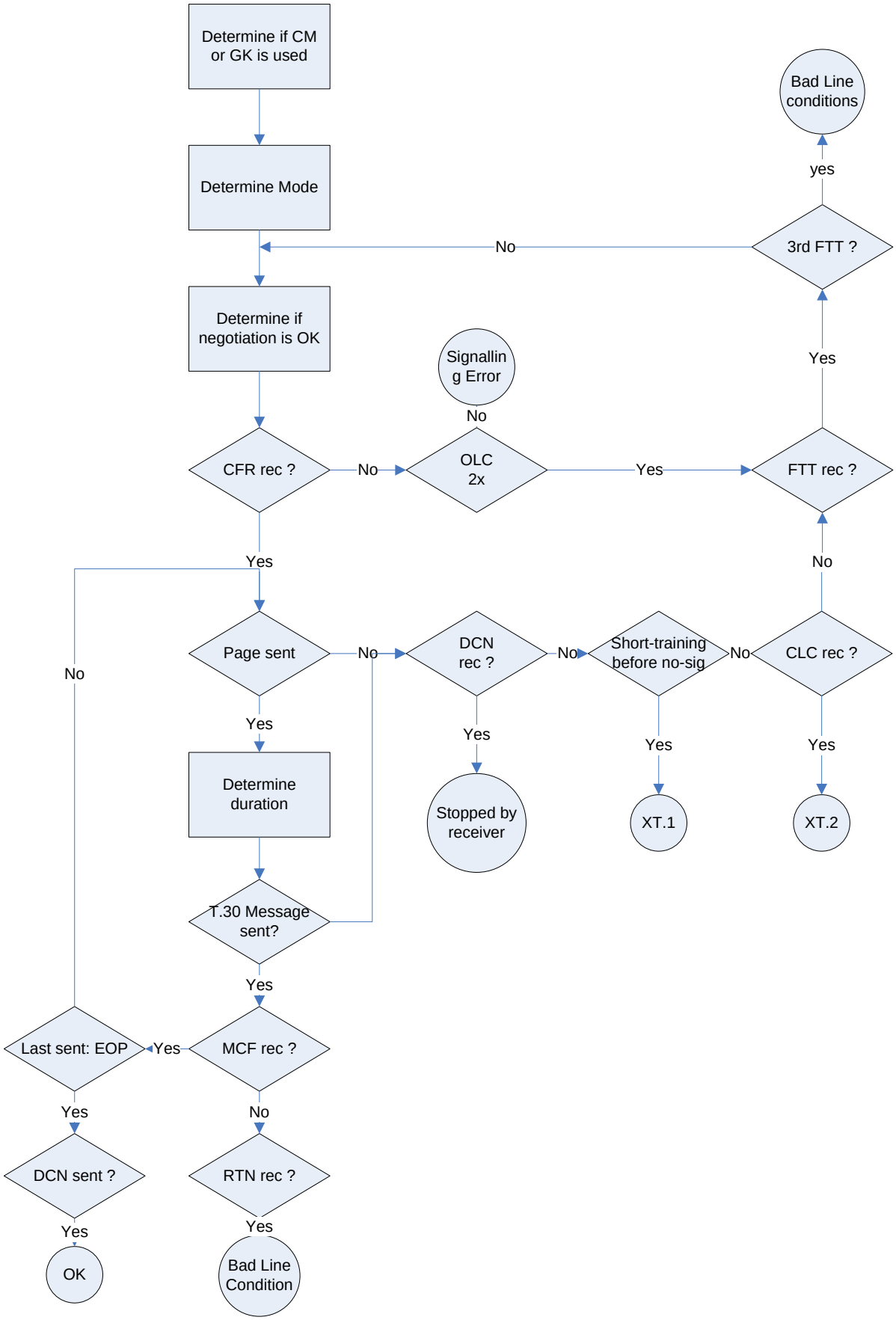
If the call is not terminated normally try to find a DCN message. If the sender sends the DCN message consider errors XY.8, XY.9, XO.3, XW.3.

3 Flow Diagrams

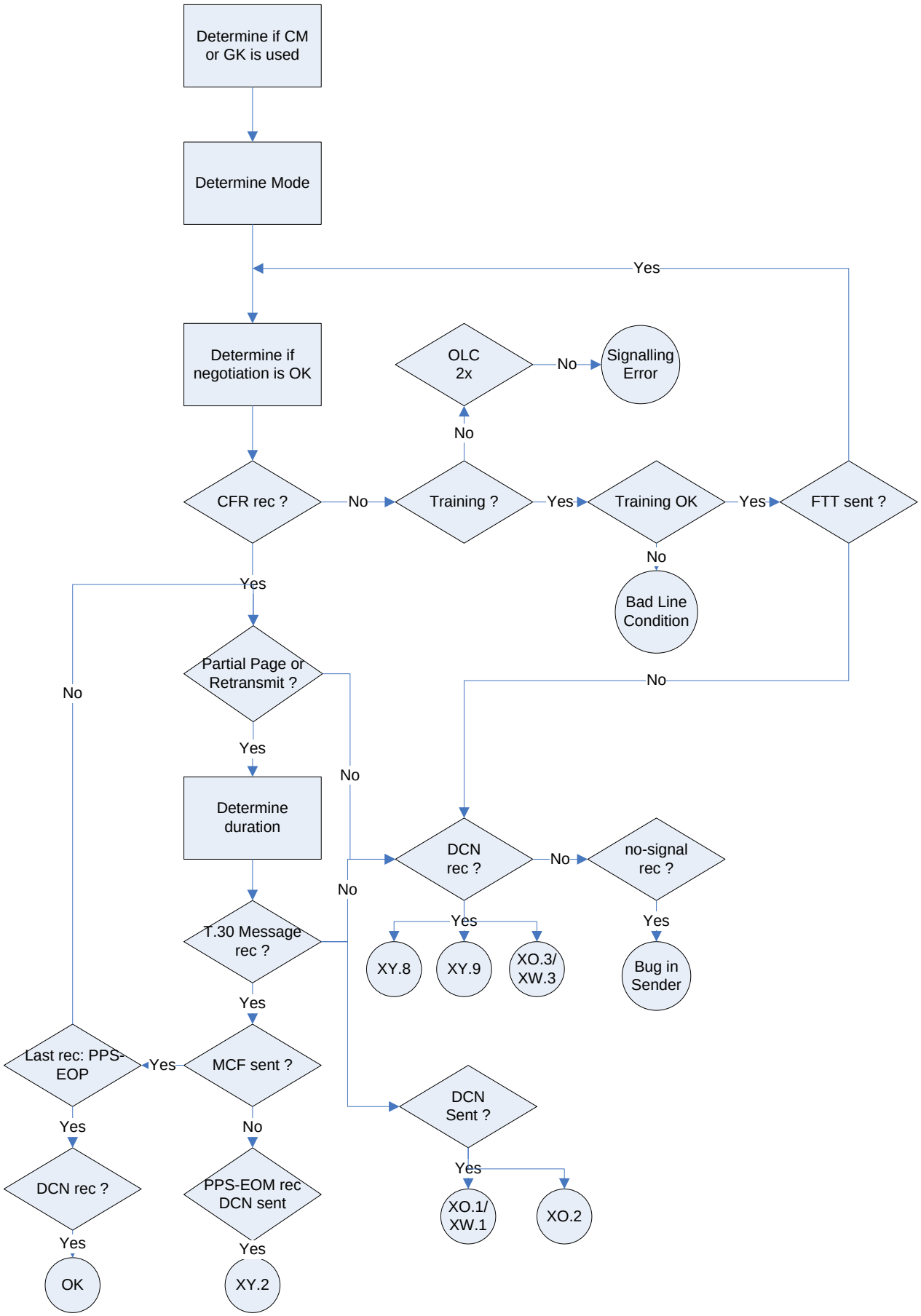
3.1 Reception in NON_ECM


Determine if CM or GK is used
Determine Mode
XW.4
Yes
CLC rec ?
No
Yes
Determine if negotiation is OK
OLC 2x
Signalling Error
No
CFR rec ?
No
Training ?
Yes
Training OK
Yes
FTT sent ?
Yes
No
Page rec ?
No
Yes
No
Determine duration
DCN rec ?
No
no-signal rec ?
No
T.30 Message rec ?
No
Yes
No
Yes
XO.2
XY.13
XY.4
Yes
XY.12
XY.10
Yes
Last rec: EOP
Yes
MCF sent ?
Yes
No
DCN rec ?
RTNsent ?
Yes
Yes
OK
XY.3

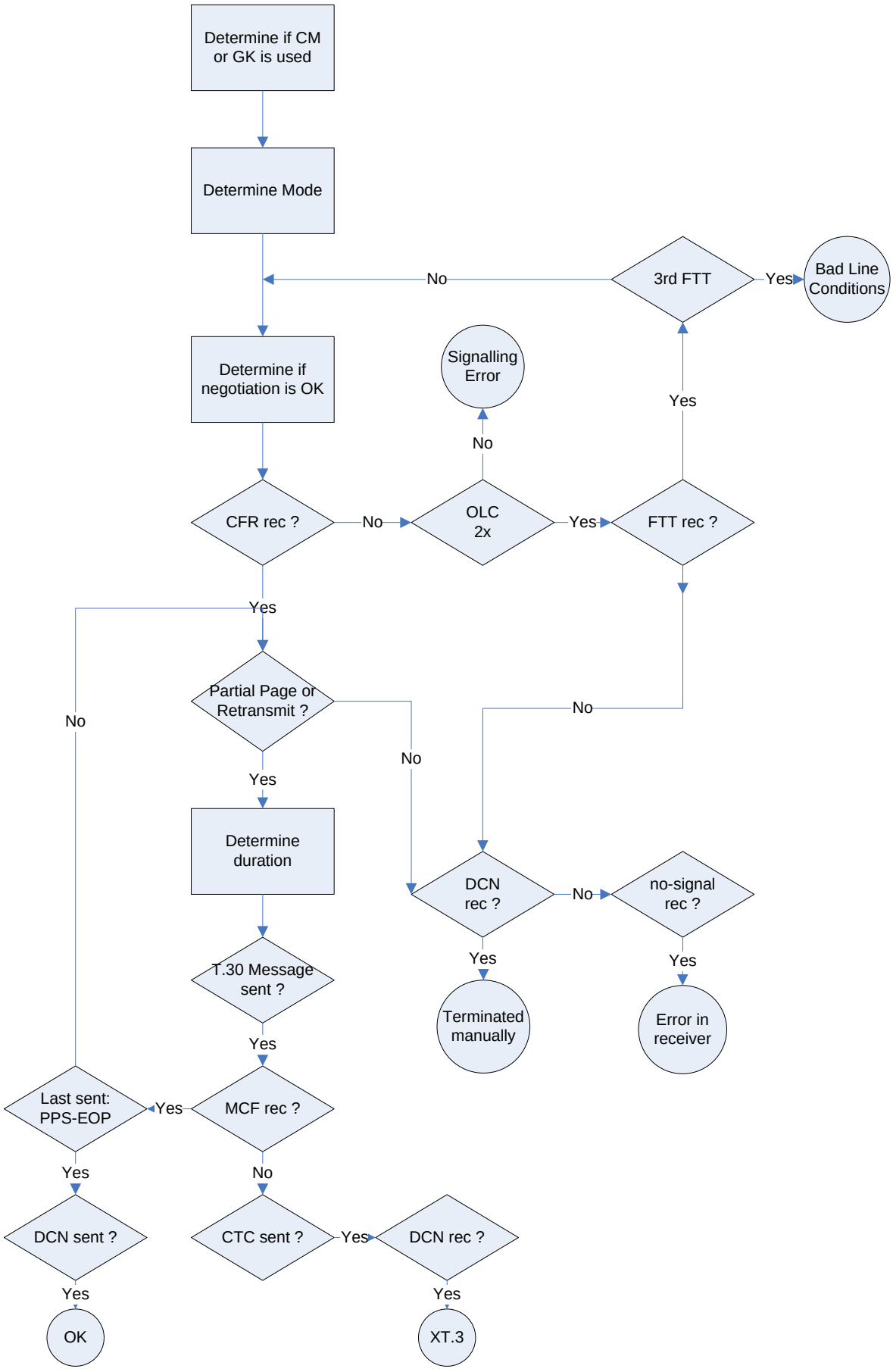
3.2 Transmission in Non-ECM



3.3 Reception in ECM


Determine if CM or GK is used
Determine Mode
Yes
Determine if negotiation is OK
OLC 2x
No
Signalling Error
No
CFR rec ?
No
Training ?
Yes
Training OK
Yes
FTT sent ?
No
Bad Line Condition
Yes
No
Partial Page or Retransmit ?
No
Yes
Determine duration
No
DCN rec ?
No
no-signal rec ?
No
T.30 Message rec ?
Yes
XY.8
XY.9
XO.3/ XW.3
Yes
Bug in Sender
Yes
Last rec: PPS-EOP
Yes
MCF sent ?
DCN Sent ?
Yes
No
Yes
DCN rec ?
PPS-EOM rec DCN sent
XO.1/ XW.1
XO.2
Yes
Yes
OK
XY.2

3.4 Transmission in ECM


Determine if CM or GK is used
Determine Mode
3rd FTT
Yes
Bad Line Conditions
No
Determine if negotiation is OK
Signalling Error
Yes
No
CFR rec ?
No
OLC 2x
Yes
FTT rec ?
Yes
Partial Page or Retransmit ?
No
No
Yes
Determine duration
DCN rec ?
No
no-signal rec ?
Yes
Yes
Terminated manually
Error in receiver
T.30 Message sent ?
Yes
Last sent: PPS-EOP
Yes
MCF rec ?
Yes
No
DCN sent ?
CTC sent ?
Yes
DCN rec ?
Yes
Yes
OK
XT.3

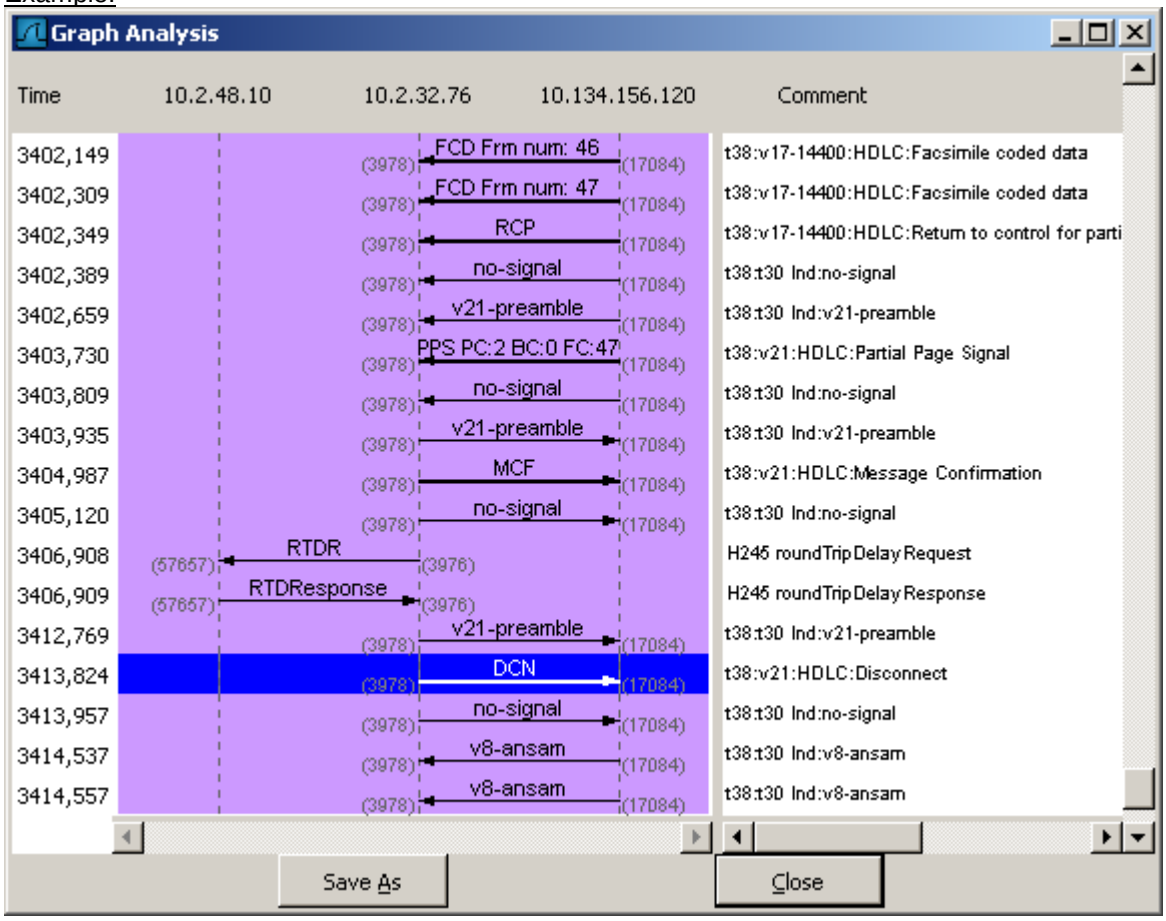
4 Reception Error Reason

4.1 Can Be Solved in XCAPI

4.1.1 XY.2 DCN from XCAPI after PPS-EOM

How to detect:
Check for Sequence: PPS-EOM – (n*RNR/RR) – MPS – 7.65s silence – DCN from XCAPI!

Example:



Important: PPS must be checked if it is a PPS/EOM other it is Reason XY.1

Reason for the problem:
XCAPI does not correctly handle PPS-EOM.

This problem is currently handled as FOIP Error #054 (Solved since CAPI 3.01.08)
XCAPI version with that bug has never been released.

4.2 Bad Line Conditions

4.2.1 XO.1/XW.1 DCN While Receiving ECM Data

How to detect:

XCAPI Fax Sender

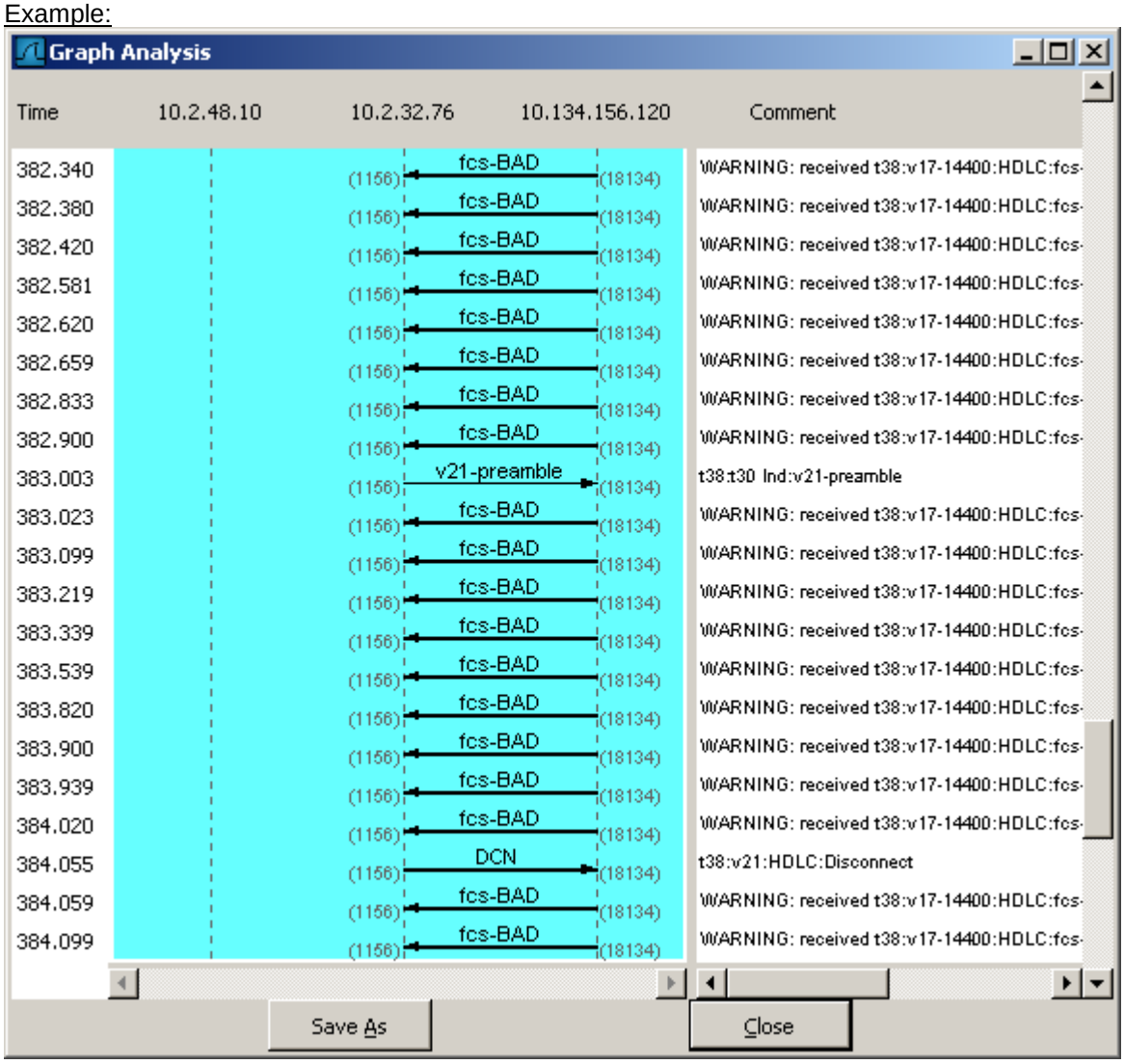
CFR

ECM Data with FCS errors

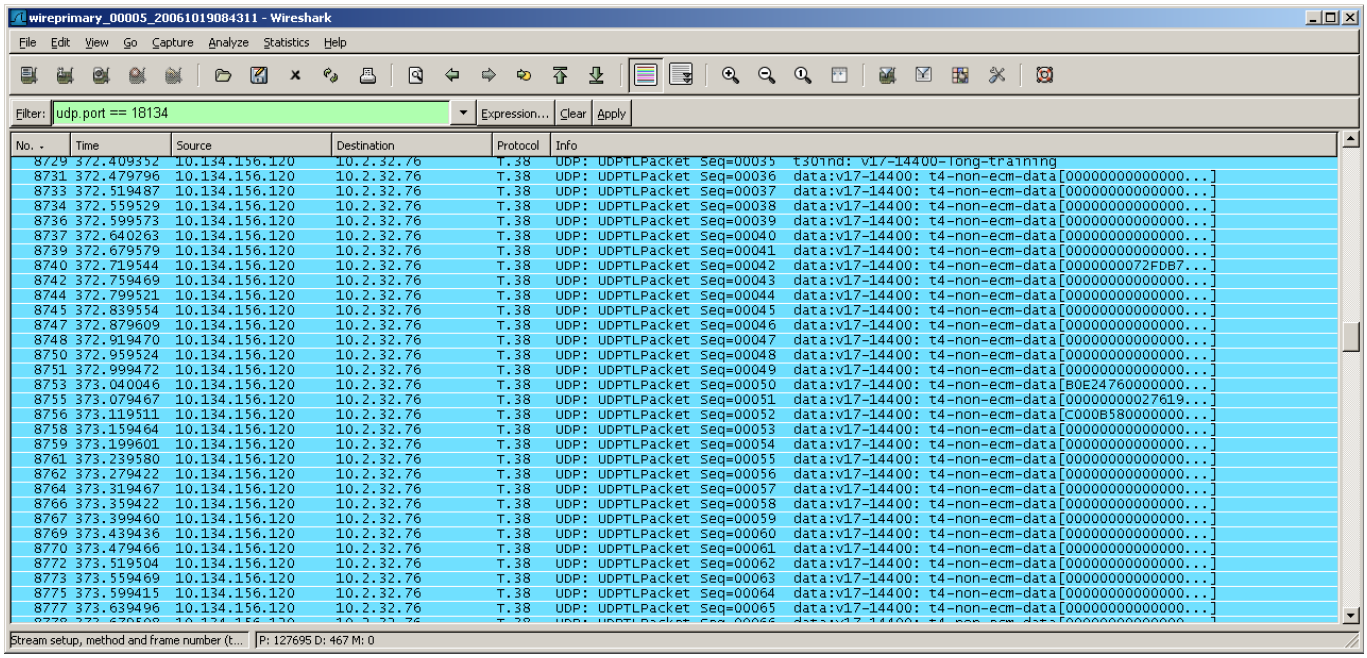
DCN

It is typically that XCAPI sends DCN during reception of ECM Data from the sender. The ECM Data has a lot of FCS Errors.

Example:



Bad TCF is received is shown below:



Reason for the problem:

1. XCAPI does not check the received TCF (good enough). It should respond with FTT if some none zero bytes are received (except begin and end of TCF)
2. XCAPI disconnects if it does not receive any valid FCD frame.

This problem is currently handled as FOIP Error #058

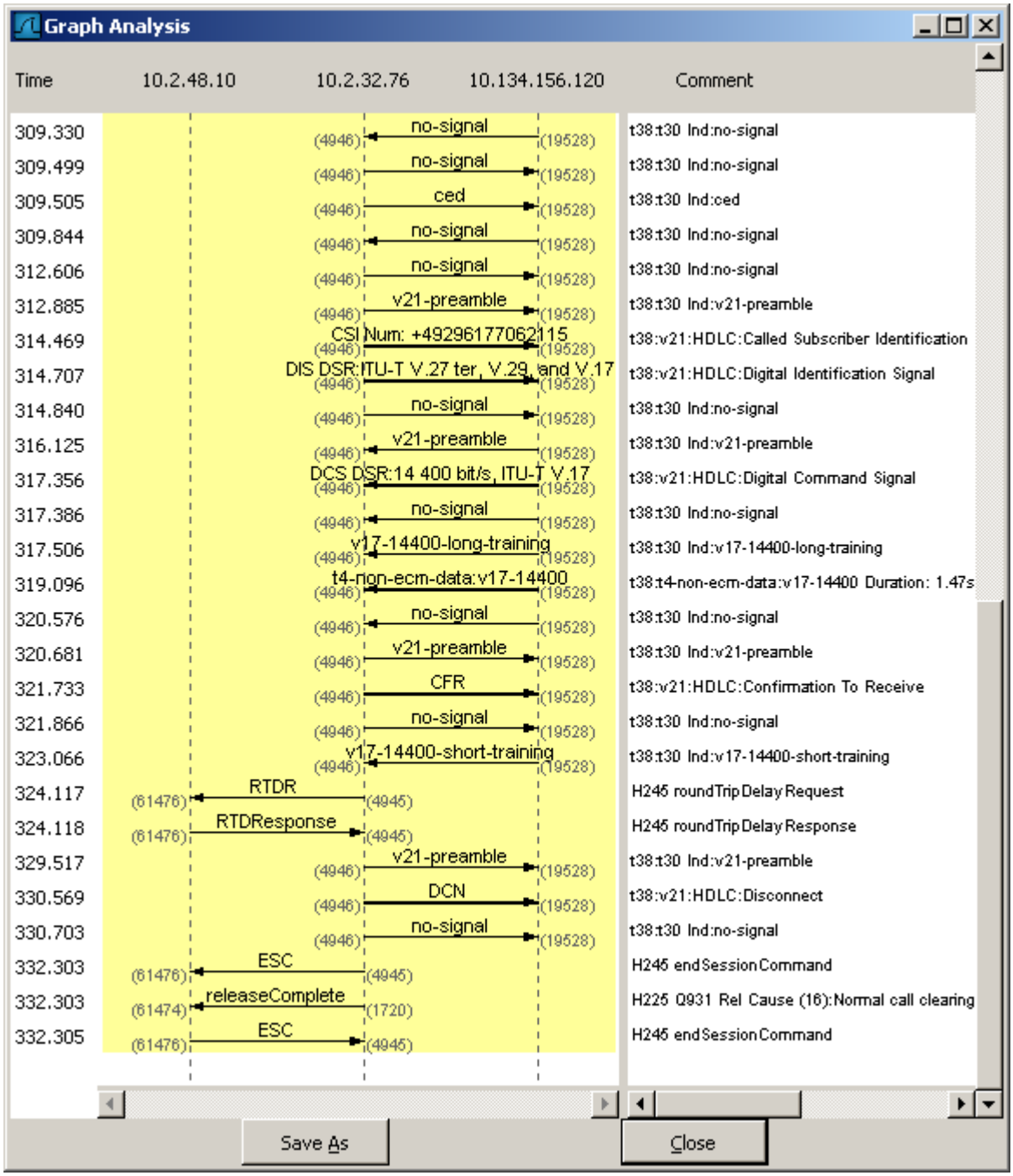
4.2.2 XO.2 XCAPI Sends DCN After Training

How to detect:

XCAPI	Fax Sender
	DCS/TFC
MCF	
	V.17/Short Train
6.5s delay	
DCN	

Gateway continuously sends V.17/Short Train.

Example:

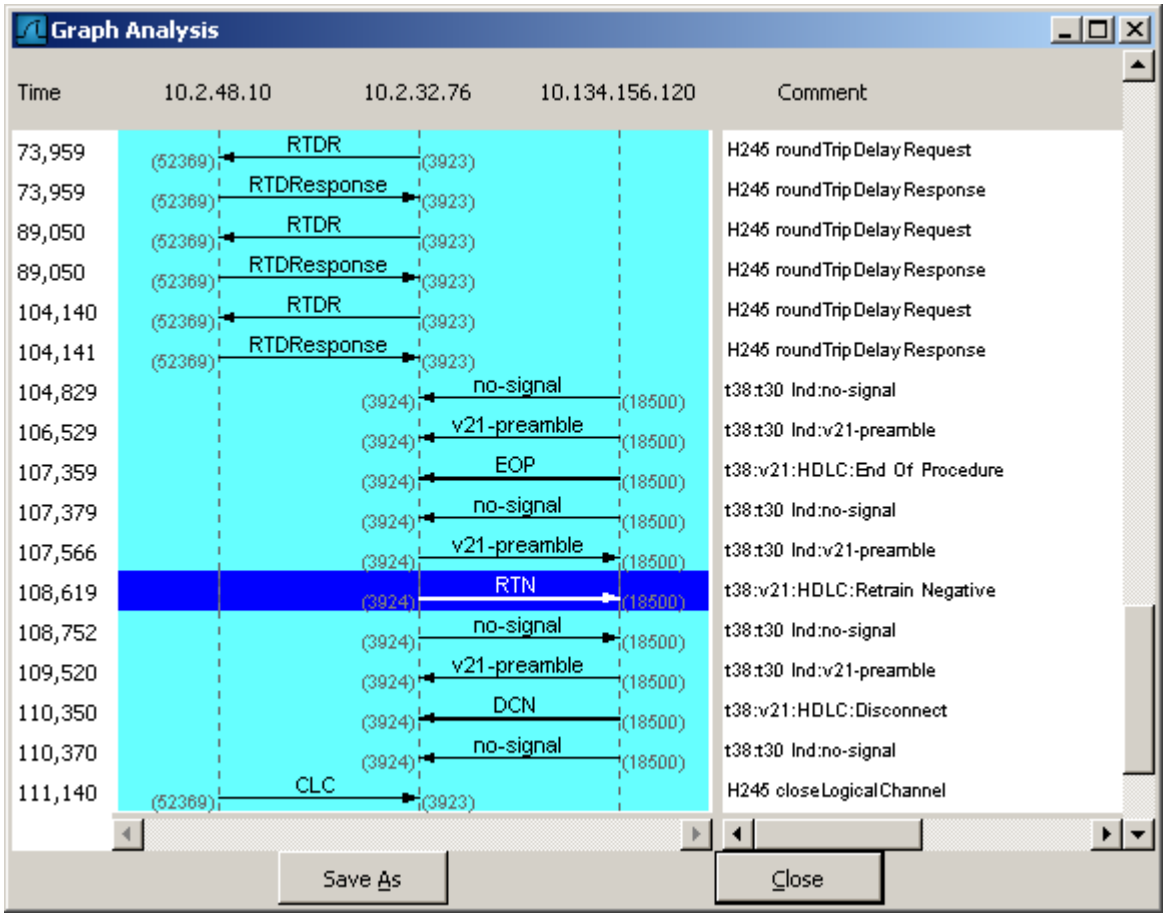


Reason for the problem:
Most likely the Data pump within the Gateway does not correctly receive the V.17 turn on sequence.

4.2.3 XY.3 Non-ECM Page Has Been Rejected with RTN

How to detect:
Check for Sequence: EOP/MPS – RTN – DCN

Example:



Reason for the problem:
Some rare occurrences of this error can be accepted because the data has been transmitted without error correction. If this error happens very often there can be one of the following reasons:

1. Bad quality in the ISDN line (e.g. no clock synchronization)
2. High packet loss on network connection
3. A general problem with decoding of the transmitted Huffman Data.

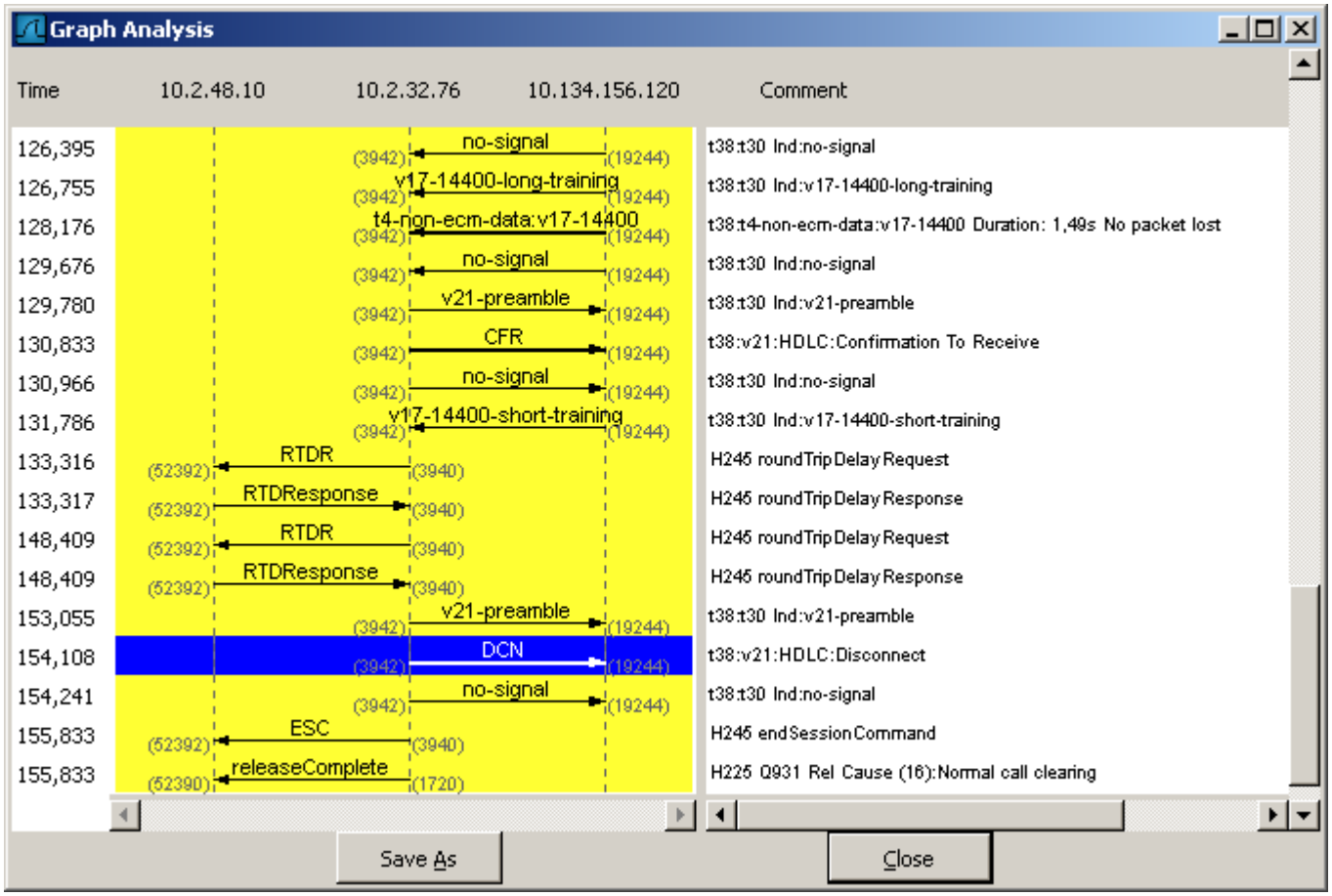
4.2.4 XY.4 DCN While Receiving Non-ECM Data

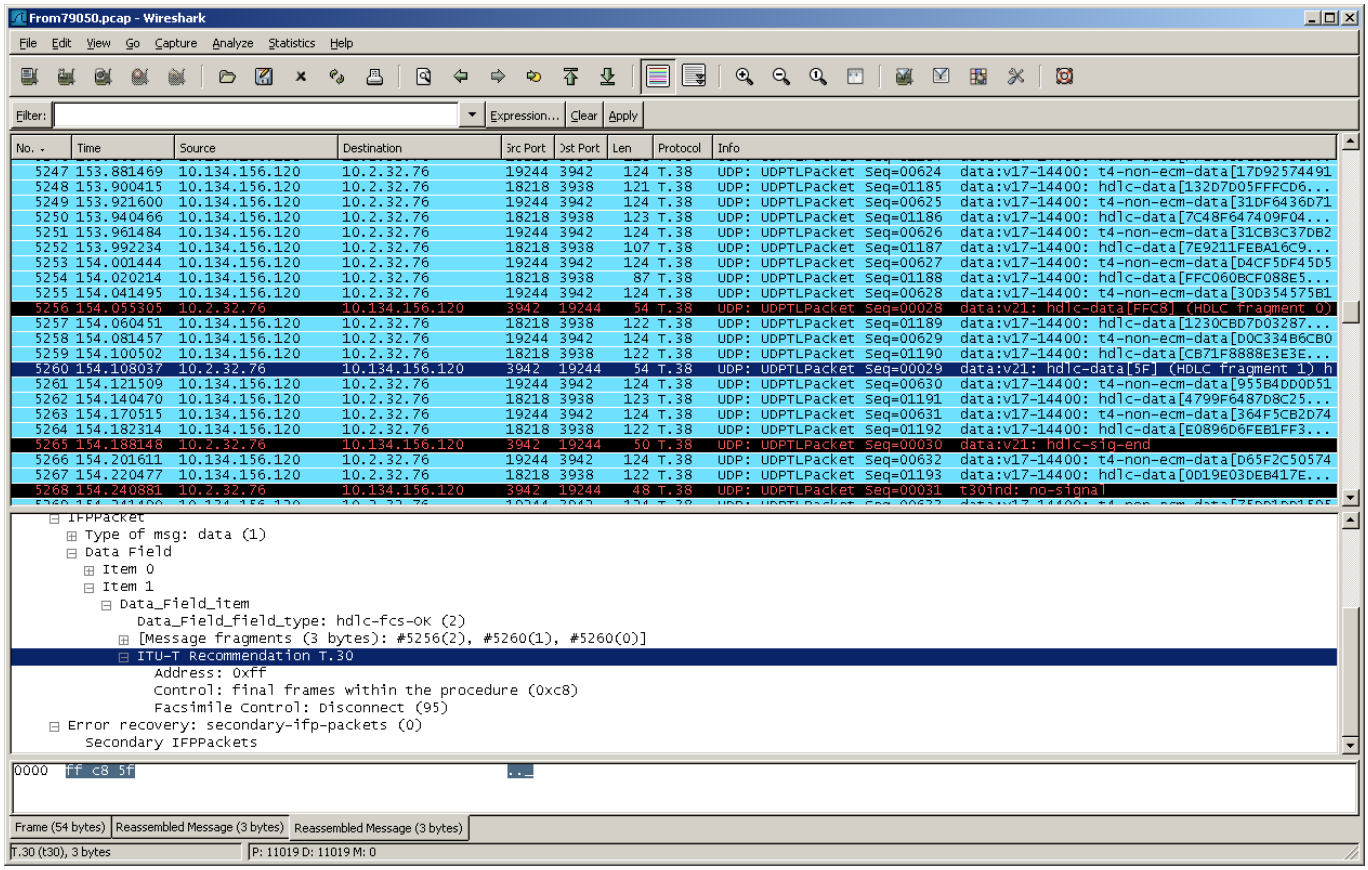
How to detect:

XCAPI	Fax Sender
CFR	
	Non-ECM Data
DCN	

It is typically when XCAPI sends DCN during reception of non-ECM data from the sender.

Example:


Graph Analysis
Time
10.2.48.10
10.2.32.76
10.134.156.120
Comment
126,395 no-signal (3942) (19244) t38:t30 Ind:no-signal
126,755 v17-14400-long-training (3942) (19244) t38:t30 Ind:v17-14400-long-training
128,176 t4-non-ecm-data:v17-14400 (3942) (19244) t38:t4-non-ecm-data:v17-14400 Duration: 1,49s No packet lost
129,676 no-signal (3942) (19244) t38:t30 Ind:no-signal
129,780 v21-preamble (3942) (19244) t38:t30 Ind:v21-preamble
130,833 CFR (3942) (19244) t38:v21:HDLC:Confirmation To Receive
130,966 no-signal (3942) (19244) t38:t30 Ind:no-signal
131,786 v17-14400-short-training (3942) (19244) t38:t30 Ind:v17-14400-short-training
133,316 RTDR (52392) (3940) H245 roundTripDelay Request
133,317 RTDResponse (52392) (3940) H245 roundTripDelay Response
148,409 RTDR (52392) (3940) H245 roundTripDelay Request
148,409 RTDResponse (52392) (3940) H245 roundTripDelay Response
153,055 v21-preamble (3942) (19244) t38:t30 Ind:v21-preamble
154,108 DCN (3942) (19244) t38:v21:HDLC:Disconnect
154,241 no-signal (3942) (19244) t38:t30 Ind:no-signal
155,833 ESC (52392) (3940) H245 endSessionCommand
155,833 releaseComplete (52390) (1720) H225 Q931 Rel Cause (16):Normal call clearing
Save As
Close


From79050.pcap - Wireshark
File Edit View Go Capture Analyze Statistics Help
Filter: Expression... Clear Apply
No. Time Source Destination Src Port Dst Port Len Protocol Info
5247 153.881469 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00624 data:v17-14400: t4-non-ecm-data[17D92574491
5248 153.900415 10.134.156.120 10.2.32.76 18218 3938 121 T.38 UDP: UDPTLPacket Seq=01185 data:v17-14400: hdlc-data[132D7D05FFFCD6...
5249 153.921600 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00625 data:v17-14400: t4-non-ecm-data[31DF6436D71
5250 153.940466 10.134.156.120 10.2.32.76 18218 3938 123 T.38 UDP: UDPTLPacket Seq=01186 data:v17-14400: hdlc-data[7C48F647409F04...
5251 153.961484 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00626 data:v17-14400: t4-non-ecm-data[31CB3C37DB2
5252 153.992234 10.134.156.120 10.2.32.76 18218 3938 107 T.38 UDP: UDPTLPacket Seq=01187 data:v17-14400: hdlc-data[7E9211FEBA16C9...
5253 154.001444 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00627 data:v17-14400: t4-non-ecm-data[D4CF5DF45D5
5254 154.020214 10.134.156.120 10.2.32.76 18218 3938 87 T.38 UDP: UDPTLPacket Seq=01188 data:v17-14400: hdlc-data[FFC060BCF088E5...
5255 154.041495 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00628 data:v17-14400: t4-non-ecm-data[30D354575B1
5256 154.055305 10.2.32.76 10.134.156.120 3942 19244 54 T.38 UDP: UDPTLPacket Seq=00028 data:v21: hdlc-data[FFC8] (HDLC fragment 0)
5257 154.060451 10.134.156.120 10.2.32.76 18218 3938 122 T.38 UDP: UDPTLPacket Seq=01189 data:v17-14400: hdlc-data[1230CBD7D03287...
5258 154.081457 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00629 data:v17-14400: t4-non-ecm-data[D0C334B6CB0
5259 154.100502 10.134.156.120 10.2.32.76 18218 3938 122 T.38 UDP: UDPTLPacket Seq=01190 data:v17-14400: hdlc-data[CB71F8888E3E3E...
5260 154.108037 10.2.32.76 10.134.156.120 3942 19244 54 T.38 UDP: UDPTLPacket Seq=00029 data:v21: hdlc-data[5F] (HDLC fragment 1) h
5261 154.121509 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00630 data:v17-14400: t4-non-ecm-data[955B4DD0D51
5262 154.140470 10.134.156.120 10.2.32.76 18218 3938 123 T.38 UDP: UDPTLPacket Seq=01191 data:v17-14400: hdlc-data[4799F6487D8C25...
5263 154.170515 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00631 data:v17-14400: t4-non-ecm-data[364F5CB2D74
5264 154.182314 10.134.156.120 10.2.32.76 18218 3938 122 T.38 UDP: UDPTLPacket Seq=01192 data:v17-14400: hdlc-data[E0896D6FEB1FF3...
5265 154.188148 10.2.32.76 10.134.156.120 3942 19244 50 T.38 UDP: UDPTLPacket Seq=00030 data:v21: hdlc-sig-end
5266 154.201611 10.134.156.120 10.2.32.76 19244 3942 124 T.38 UDP: UDPTLPacket Seq=00632 data:v17-14400: t4-non-ecm-data[D65F2C50574
5267 154.220477 10.134.156.120 10.2.32.76 18218 3938 122 T.38 UDP: UDPTLPacket Seq=01193 data:v17-14400: hdlc-data[0D19E03DEB417E...
5268 154.240881 10.2.32.76 10.134.156.120 3942 19244 48 T.38 UDP: UDPTLPacket Seq=00031 t30ind: no-signal
IFPPacket
Type of msg: data (1)
Data Field
Item 0
Item 1
Data_Field_item
Data_Field_field_type: hdlc-fcs-OK (2)
[Message fragments (3 bytes): #5256(2), #5260(1), #5260(0)]
ITU-T Recommendation T.30
Address: 0xff
Control: final frames within the procedure (0xc8)
Facsimile Control: Disconnect (95)
Error recovery: secondary-ifp-packets (0)
Secondary IFPPackets
0000 ff c8 5f ..._
Frame (54 bytes) Reassembled Message (3 bytes) Reassembled Message (3 bytes)
T.30 (t30), 3 bytes
P: 11019 D: 11019 M: 0

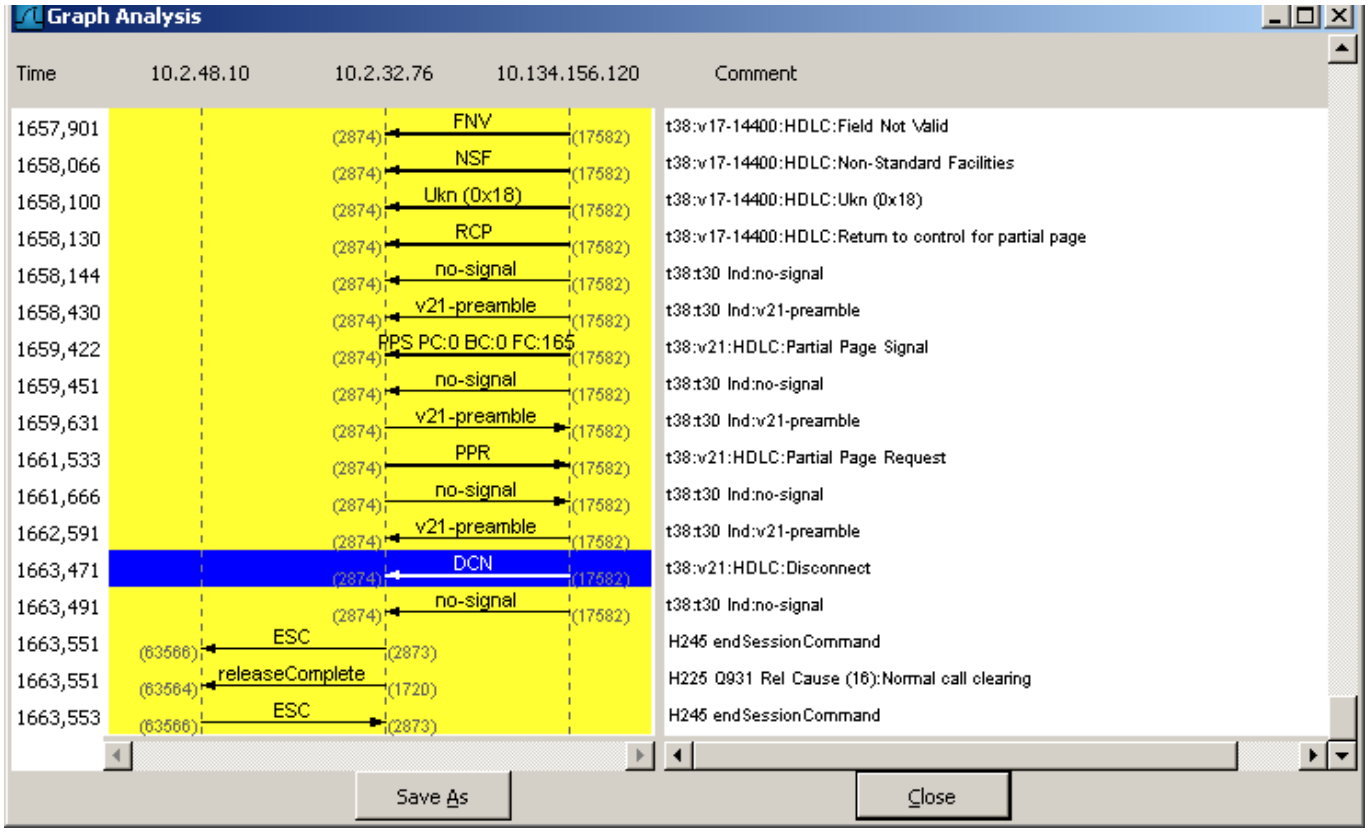
Reason for the problem:
It seams that the receiver does not receive any valid pixel line with the scan line time-out (min. 5s).

This problem is currently handled as FOIP Error #055

4.3 Stopped by User

4.3.1 XY.8 DCN from Sender After PPS and PPR

How to detect:

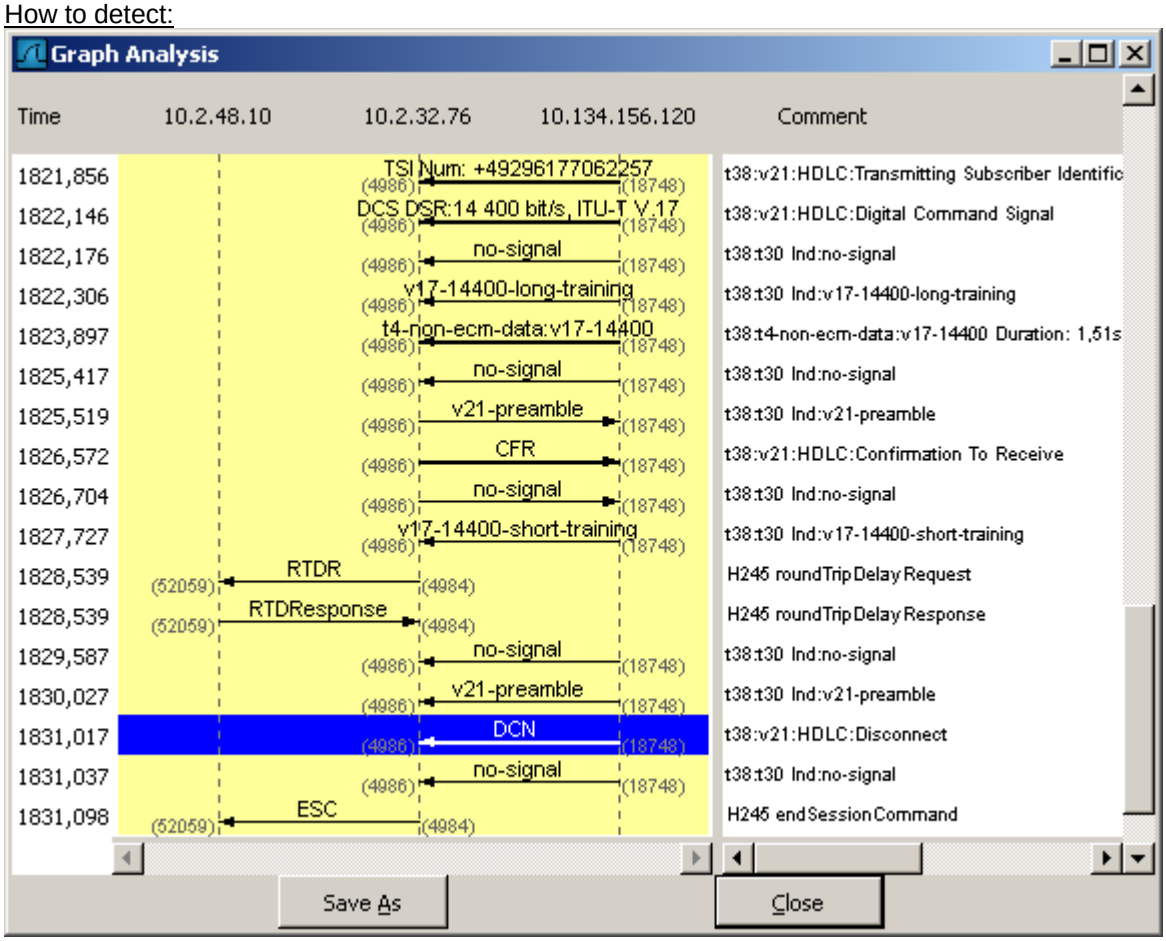


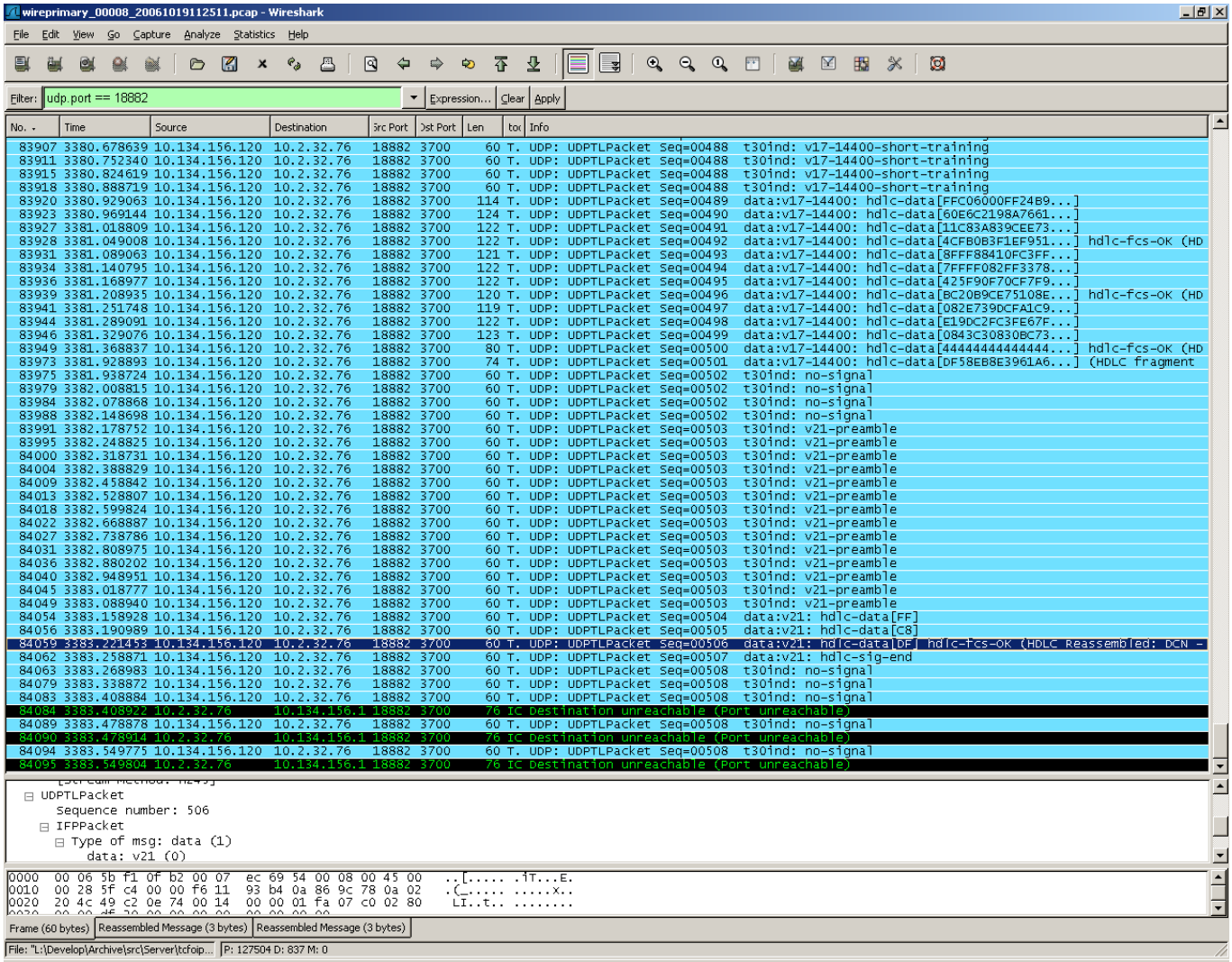
XCAPI receives a DCN after PPS/PPR during ECM reception.

Reason for the problem:
This is a T.30 violation from the sender. It happened several times with the fax machine with TSI 0615794810. It seems that this is a bug in the sending fax machine.

4.3.2 XY.9 DCN from Sender After ECM Data

How to detect:



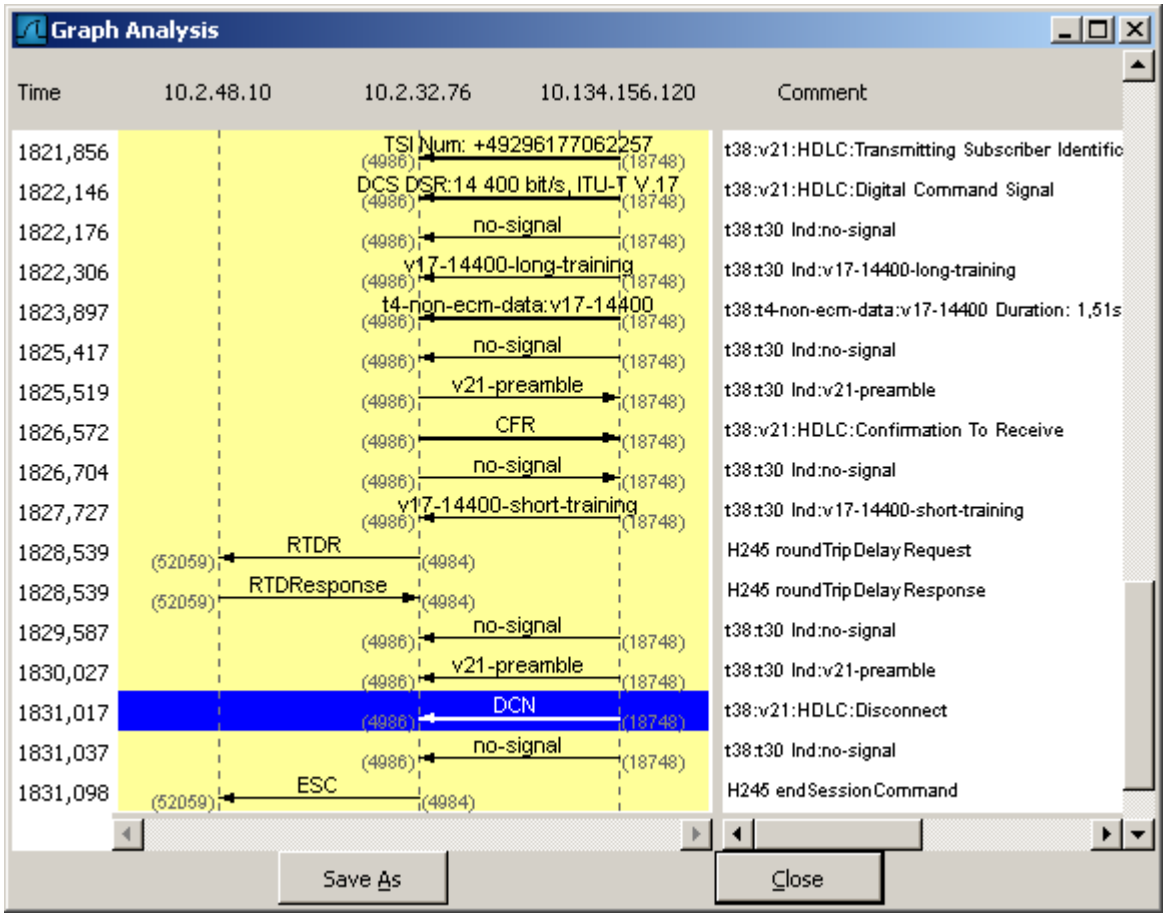


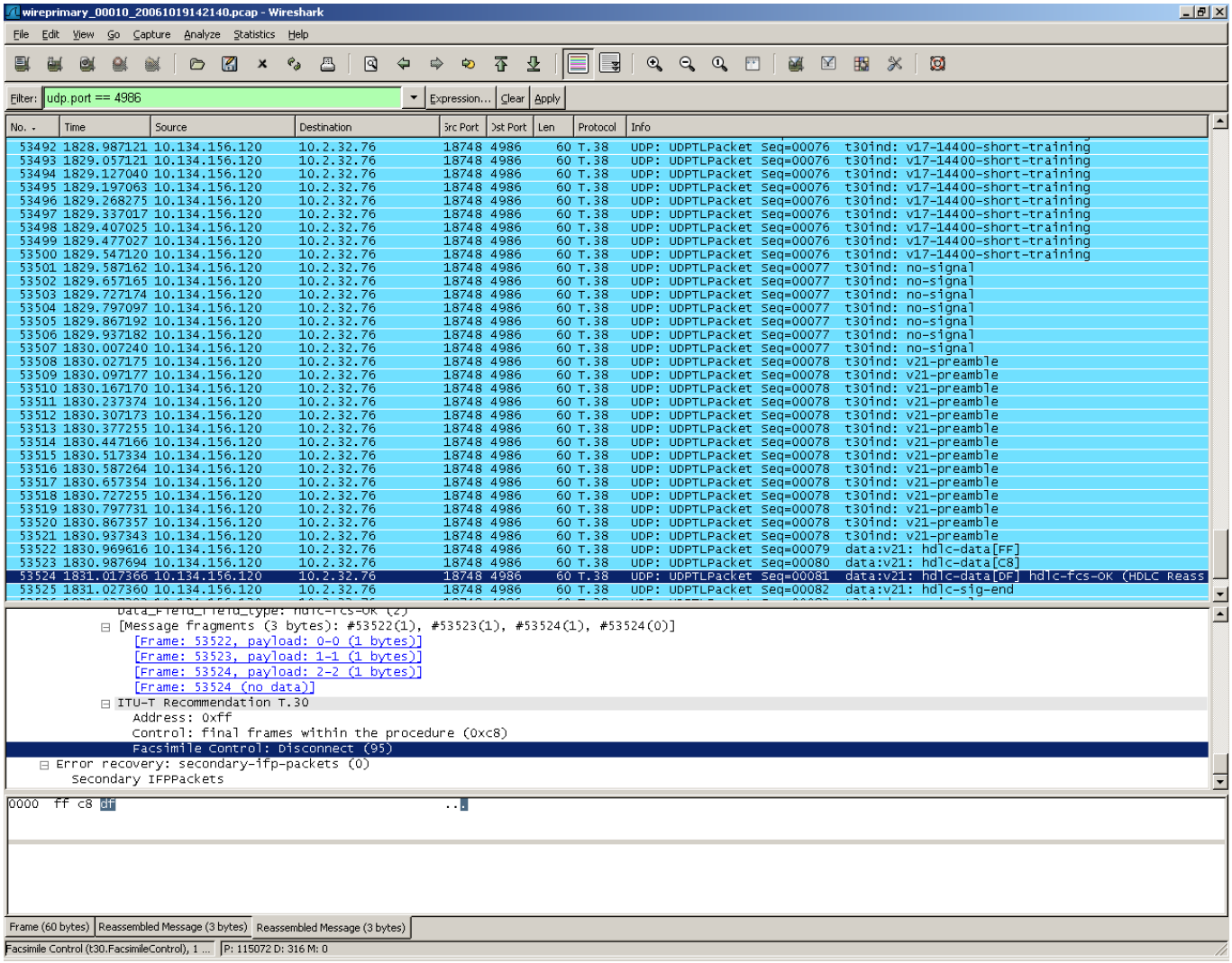
Sender sends DCN after Partial page without PPS command.

Reason for the problem:
Most likely the fax has been stopped by the user on the sender side.

4.3.3 XO.3/XW.3 DCN from Sender Instead of ECM Data

How to detect:
DCN from Sender after DCS/MCF and V.xx turn-on.

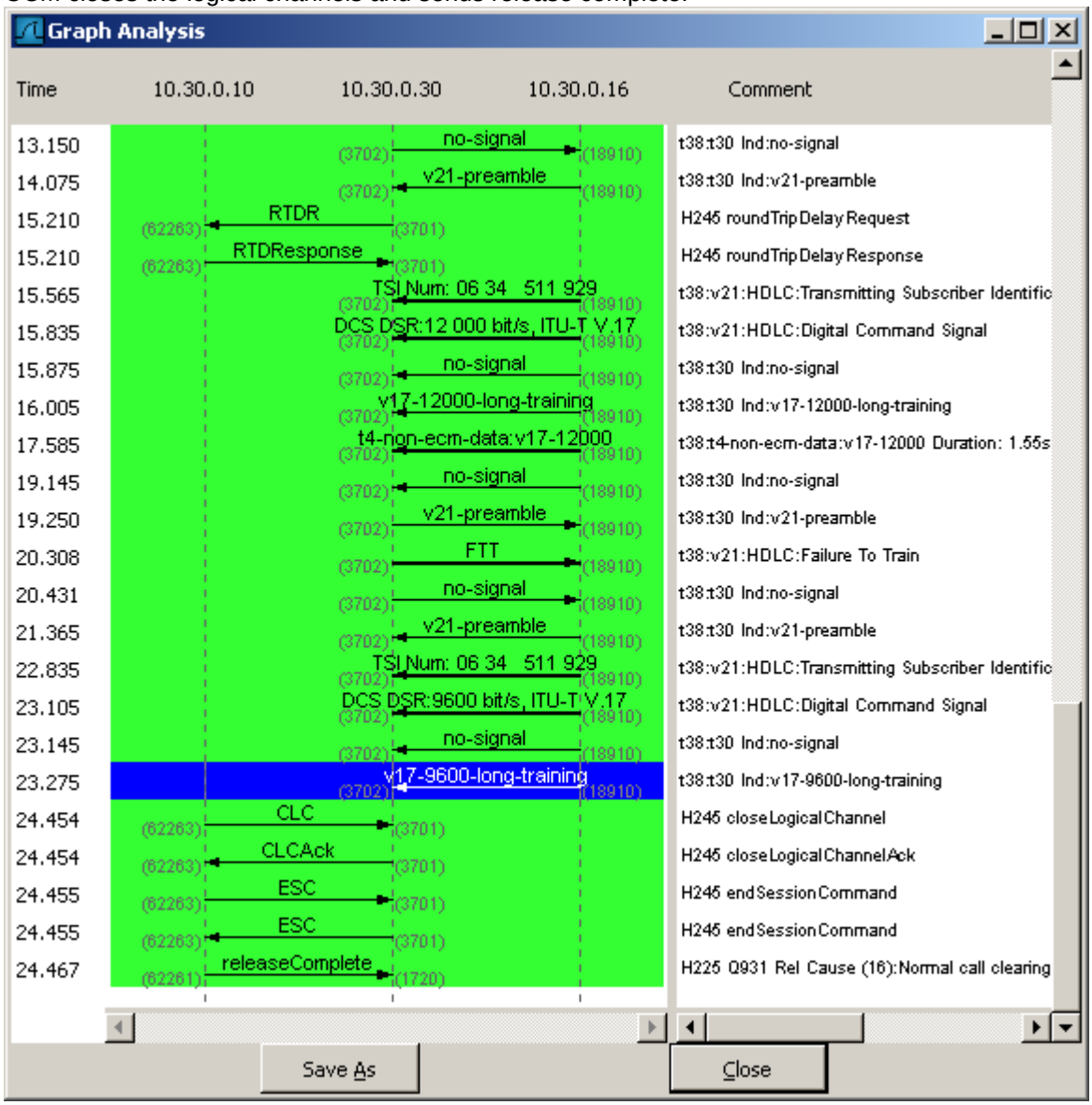


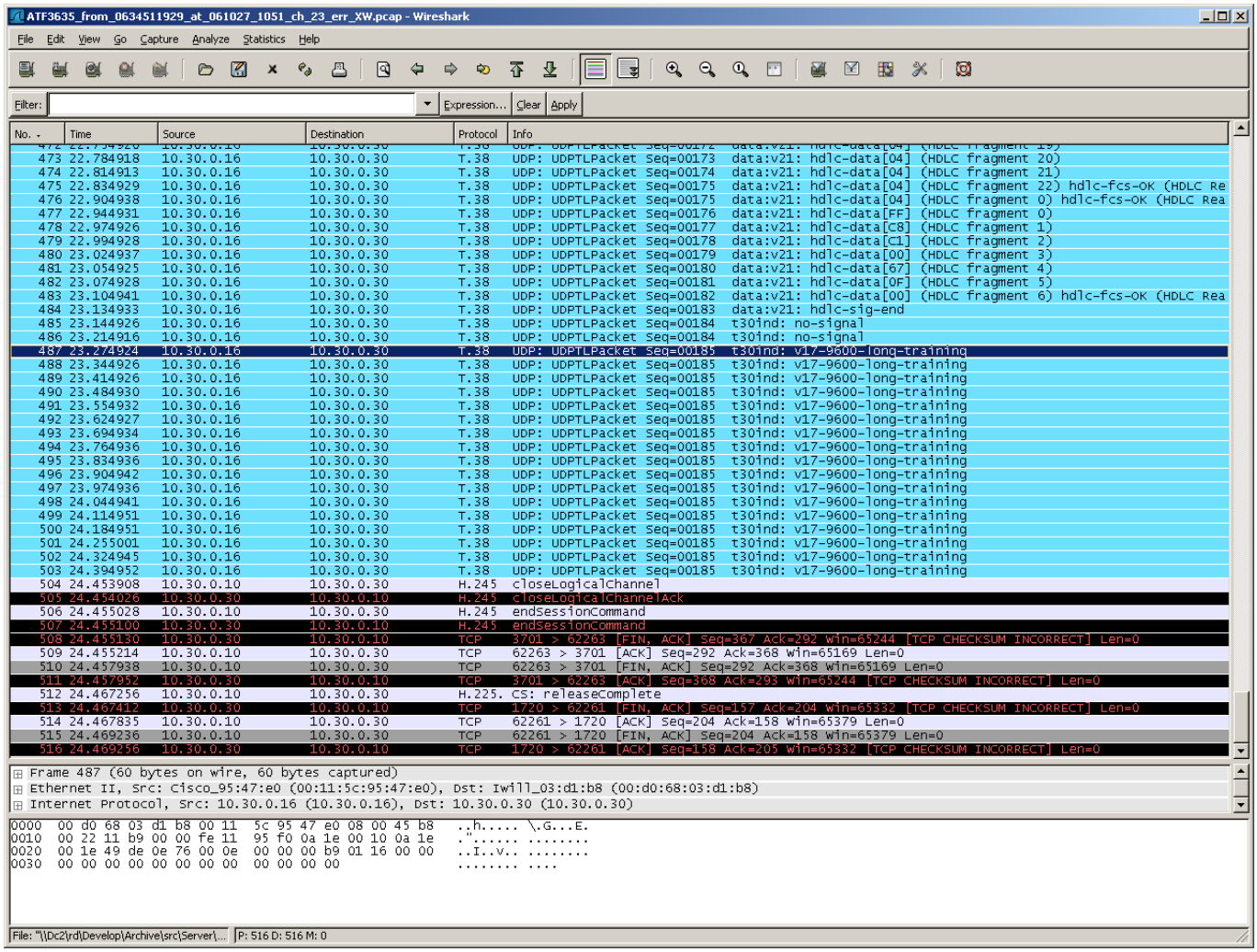


Reason for the problem:
Most likely the fax has been stopped by the user on the sender side.

4.3.4 XW.4 CCM Closes Connection

How to detect:
CCM closes the logical channels and sends release complete.

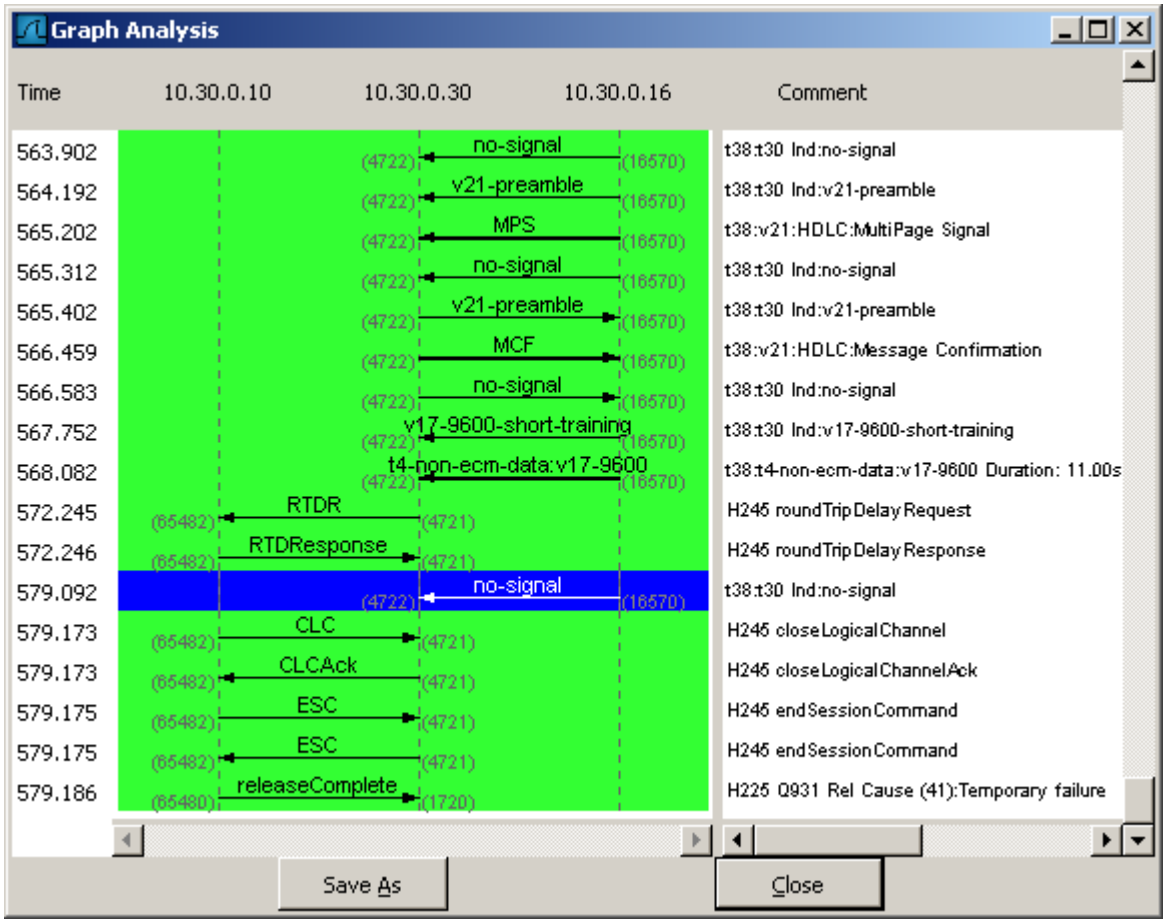


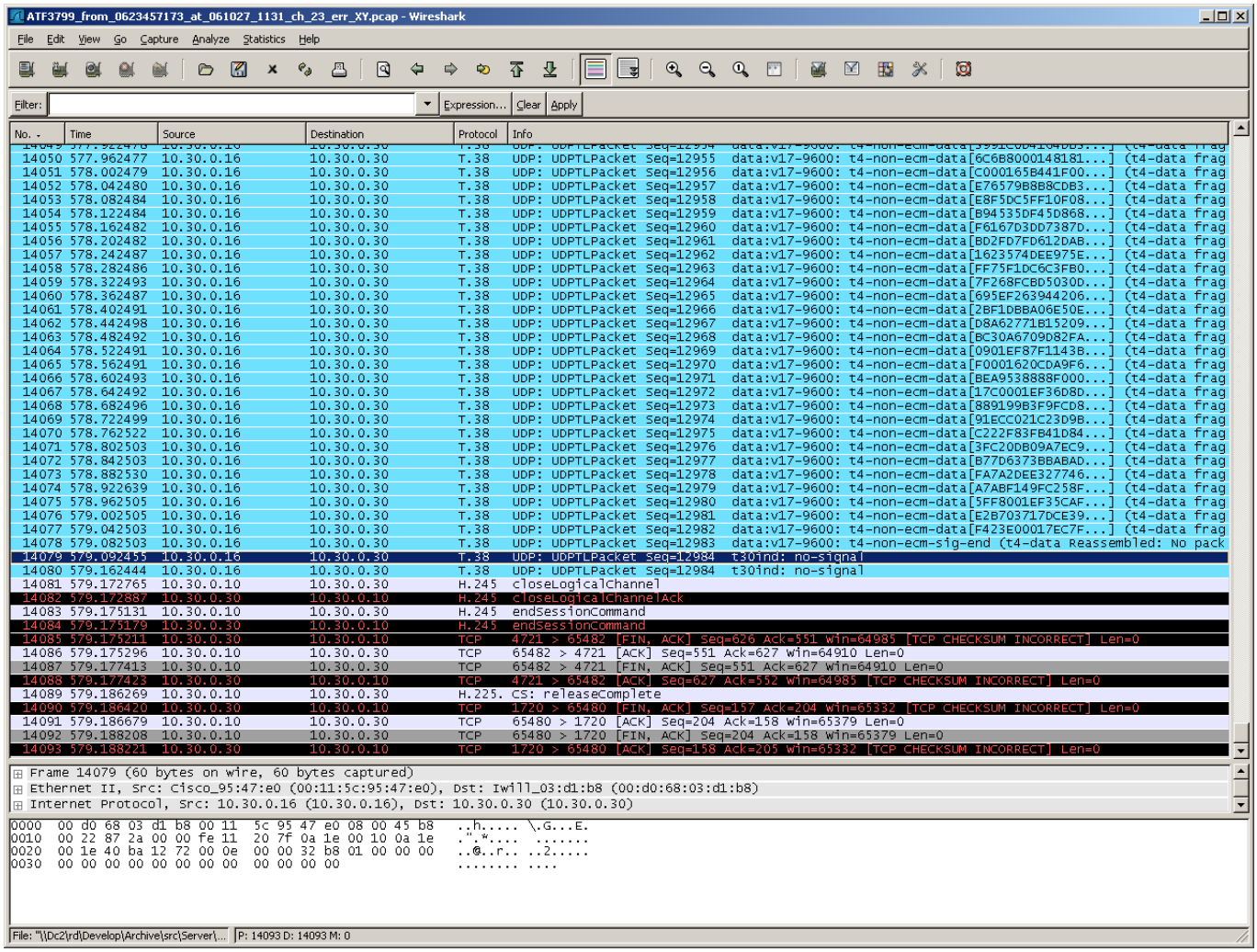


Reason for the problem:
Fax transmission aborted manually.

4.3.5 XY.12 Sender Sends No-Signal

How to detect:
During the transmission of a page the sender sends no-signal. Neither MPS nor EOP is sent. CCM disconnects.

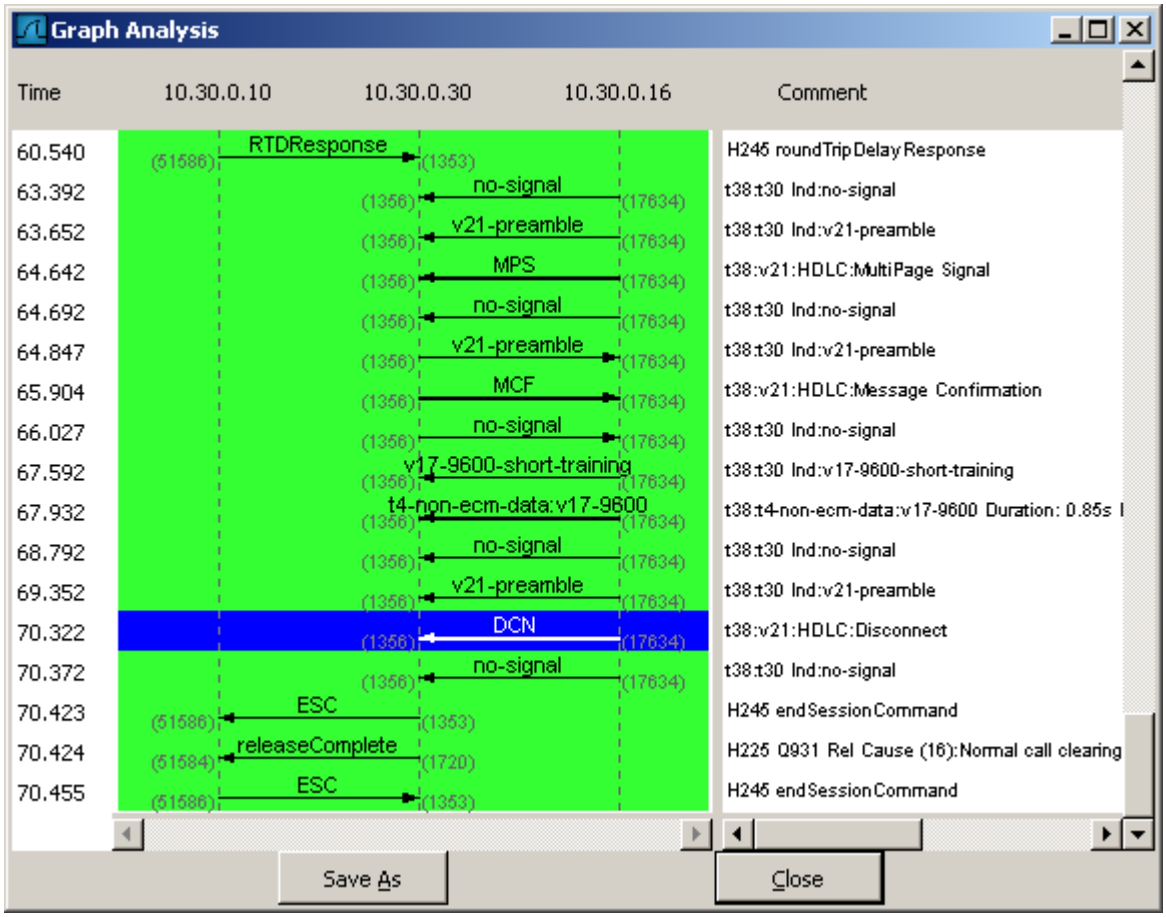


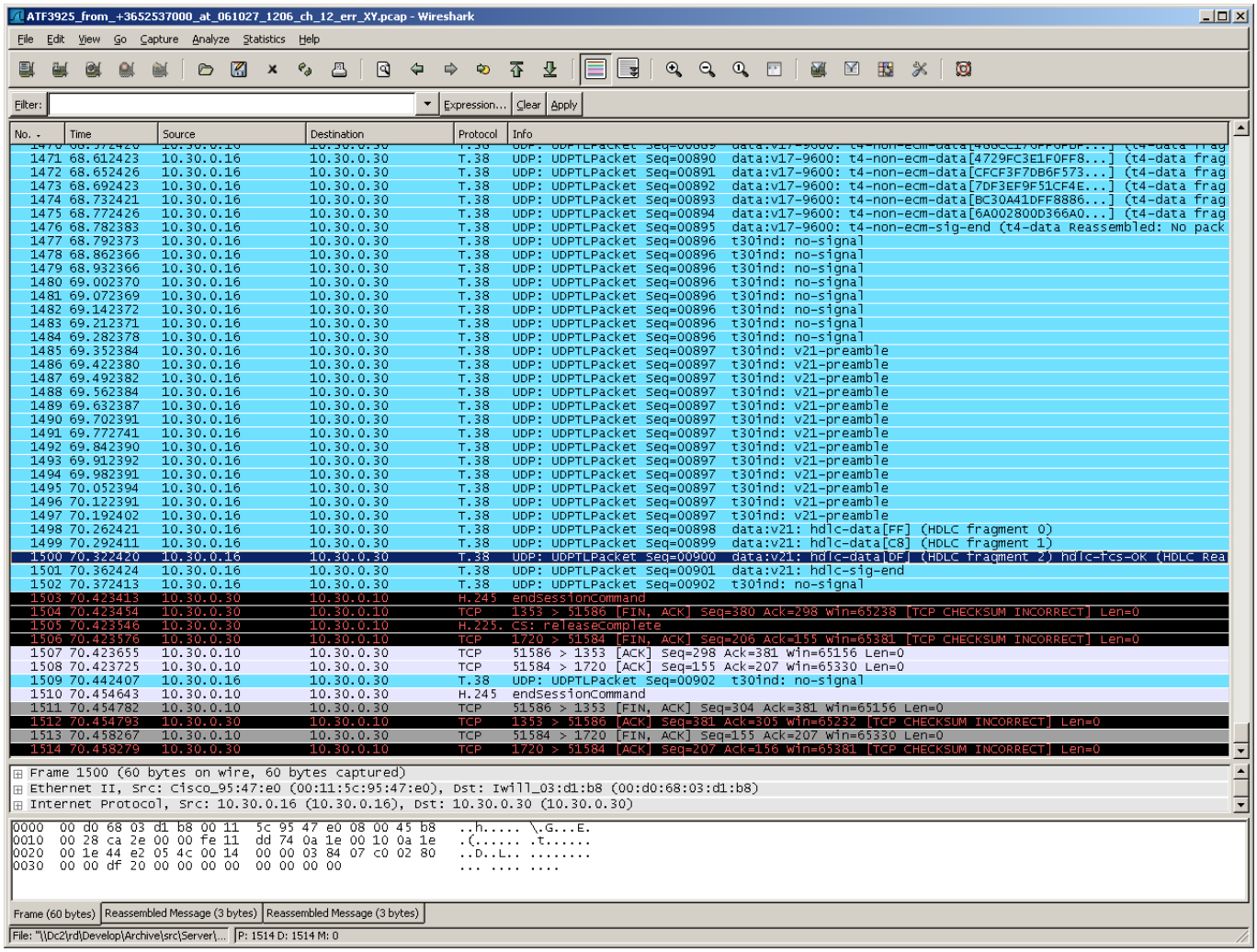


Reason for the problem:
Fax transmission aborted manually.

4.3.6 XY.13 Sender Sends No-Signal

How to detect:
During the transmission of a page the sender sends no-signal. Neither MPS nor EOP is sent. Sender sends disconnect.



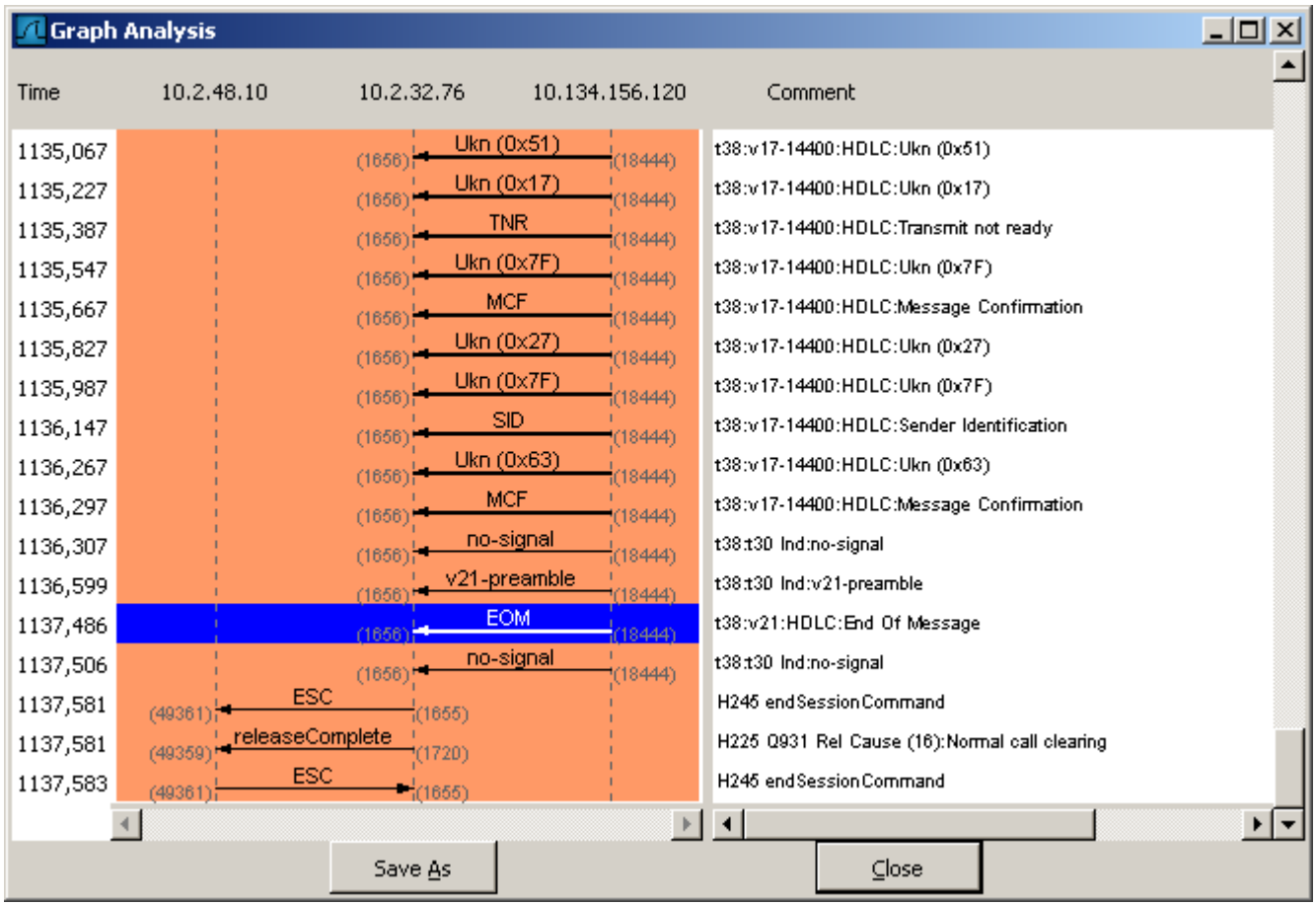


Reason for the problem:
Fax transmission aborted manually.

4.4 Bug in Sender

4.4.1 XY.7 = XY.5 = XY.6 EOM Instead of PPS

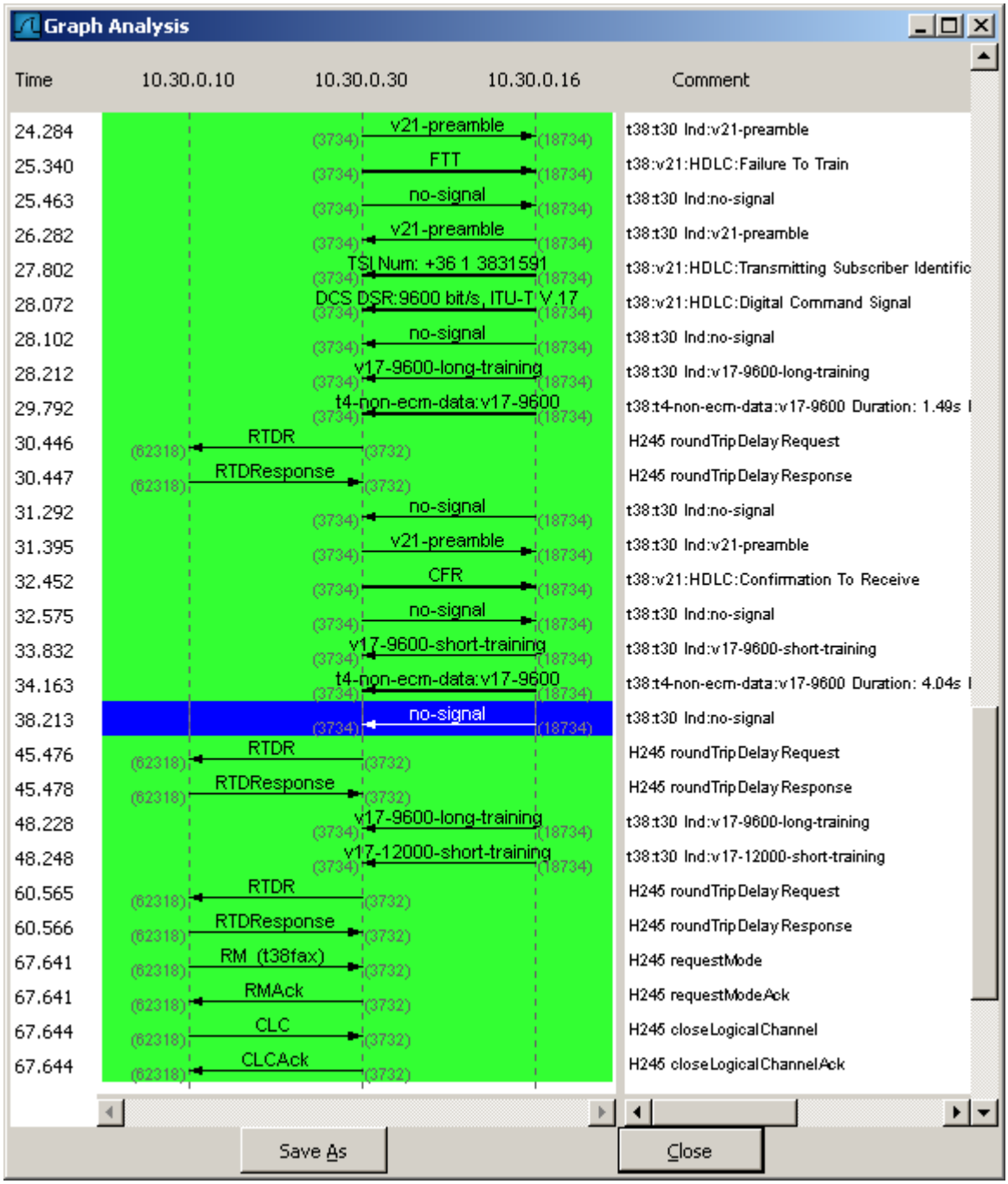
How to detect:
XCAPI receives a V.21 EOM command after high speed partial page. The correct command from the sender would be PPS.



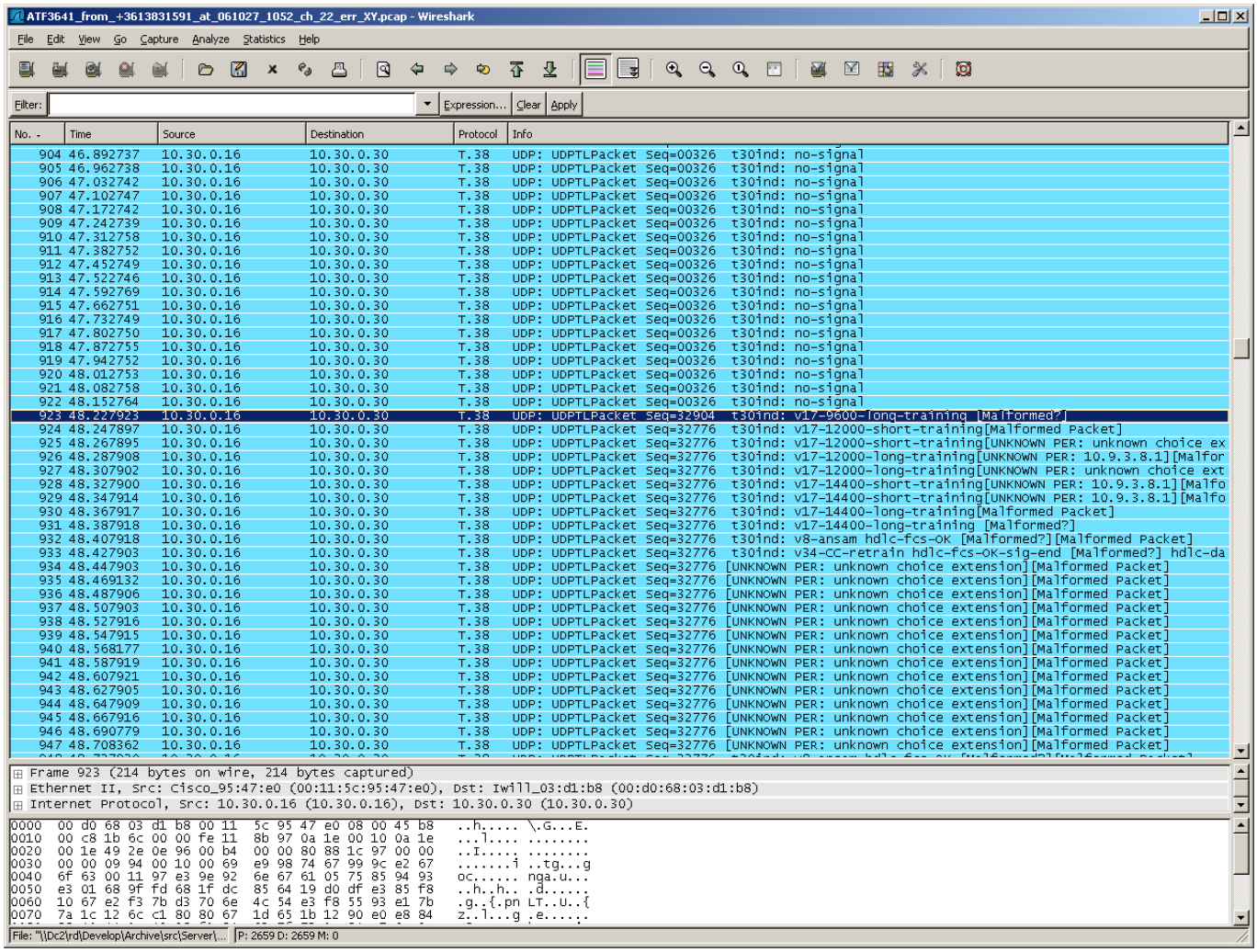
Reason for the problem:
It seems that this is a bug in the sending fax machine.

4.4.2 XY.10 Sender Sends No-Signal

How to detect:
During the transmission of a page the sender sends no-signal. Neither MPS nor EOP is sent.
After 10s packets that Wireshark cannot interpret are sent.
After 30s the CCM disconnects.

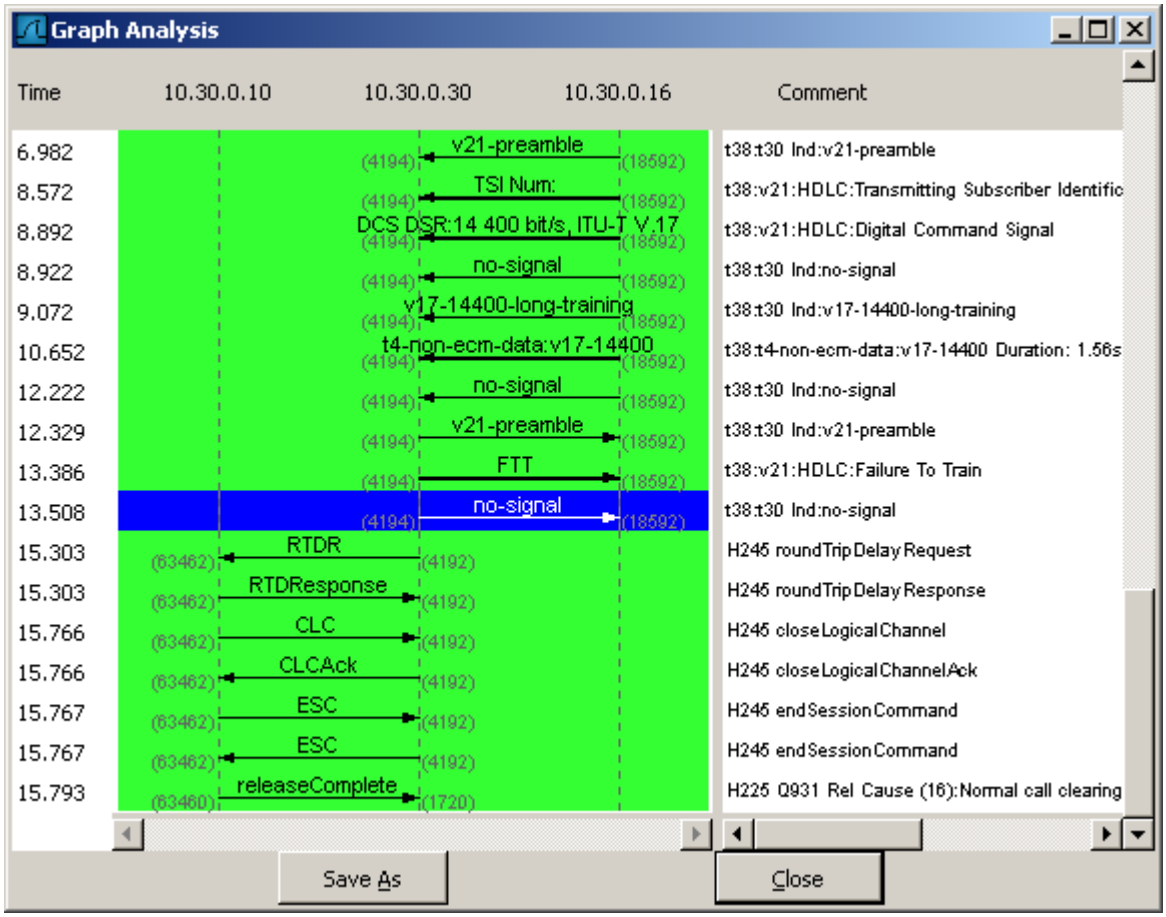


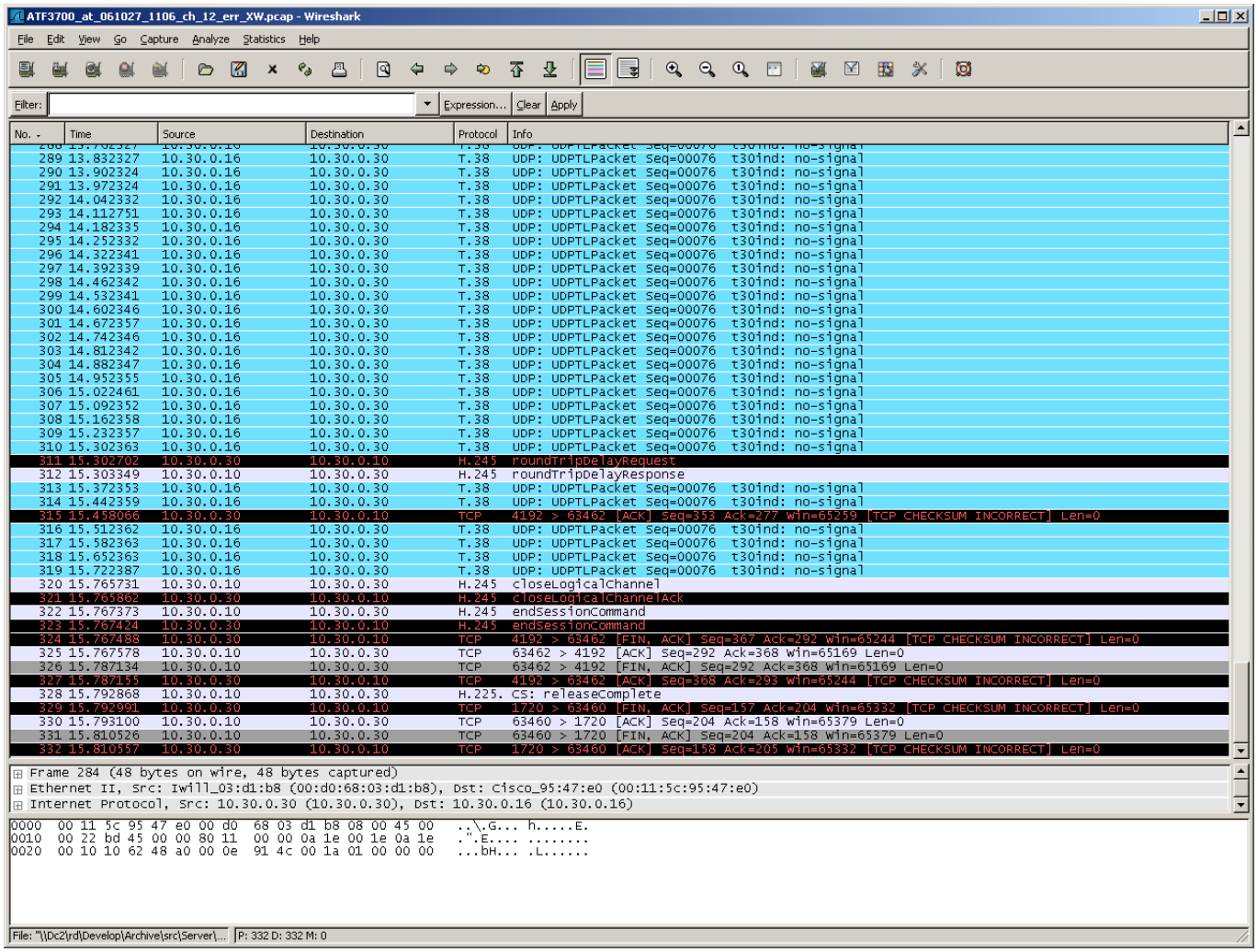
Reason for the problem:
It seams that this is a bug in the sending fax machine.


ATF3641_from_+3613831591_at_061027_1052_ch_22_err_XY.pcap - Wireshark
File Edit View Go Capture Analyze Statistics Help
Filter: Expression... Clear Apply
No. Time Source Destination Protocol Info
904 46.892737 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
905 46.962738 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
906 47.032742 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
907 47.102747 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
908 47.172742 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
909 47.242739 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
910 47.312758 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
911 47.382752 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
912 47.452749 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
913 47.522746 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
914 47.592769 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
915 47.662751 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
916 47.732749 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
917 47.802750 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
918 47.872755 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
919 47.942752 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
920 48.012753 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
921 48.082758 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
922 48.152764 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00326 t30ind: no-signal
923 48.227923 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32904 t30ind: v17-9600-long-training [Malformed?]
924 48.247897 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-12000-short-training[Malformed Packet]
925 48.267895 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-12000-short-training[UNKNOWN PER: unknown choice ex
926 48.287908 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-12000-long-training[UNKNOWN PER: 10.9.3.8.1][Malfor
927 48.307902 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-12000-long-training[UNKNOWN PER: unknown choice ext
928 48.327900 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-14400-short-training[UNKNOWN PER: 10.9.3.8.1][Malfo
929 48.347914 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-14400-short-training[UNKNOWN PER: 10.9.3.8.1][Malfo
930 48.367917 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-14400-long-training[Malformed Packet]
931 48.387918 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v17-14400-long-training [Malformed?]
932 48.407918 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v8-ansam hdlc-fcs-OK [Malformed?][Malformed Packet]
933 48.427903 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 t30ind: v34-CC-retrain hdlc-fcs-OK-sig-end [Malformed?] hdlc-da
934 48.447903 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
935 48.469132 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
936 48.487906 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
937 48.507903 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
938 48.527916 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
939 48.547915 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
940 48.568177 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
941 48.587919 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
942 48.607921 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
943 48.627905 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
944 48.647909 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
945 48.667916 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
946 48.690779 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
947 48.708362 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=32776 [UNKNOWN PER: unknown choice extension][Malformed Packet]
Frame 923 (214 bytes on wire, 214 bytes captured)
Ethernet II, Src: Cisco_95:47:e0 (00:11:5c:95:47:e0), Dst: Iwill_03:d1:b8 (00:d0:68:03:d1:b8)
Internet Protocol, Src: 10.30.0.16 (10.30.0.16), Dst: 10.30.0.30 (10.30.0.30)
0000 00 d0 68 03 d1 b8 00 11 5c 95 47 e0 08 00 45 b8 ..h..... \.G...E.
0010 00 c8 1b 6c 00 00 fe 11 8b 97 0a 1e 00 10 0a 1e ...l.... ....
0020 00 1e 49 2e 0e 96 00 b4 00 00 80 88 1c 97 00 00 ..I..... ....
0030 00 00 09 94 00 10 00 69 e9 98 74 67 99 9c e2 67 ....i ..tg...g
0040 6f 63 00 11 97 e3 9e 92 6e 67 61 05 75 85 94 93 oc...... nga.u...
0050 e3 01 68 9f fd 68 1f dc 85 64 19 d0 df e3 85 f8 ..h..h.. .d......
0060 10 67 e2 f3 7b d3 70 6e 4c 54 e3 f8 55 93 e1 7b .g..{.pn LT..U..{
0070 7a 1c 12 6c c1 80 80 67 1d 65 1b 12 90 e0 e8 84 z..l...g .e......
File: "\\Dc2\rd\Develop\Archive\src\Server\...
P: 2659 D: 2659 M: 0

4.4.3 XY.11 Sender Sends No-Signal

How to detect:
During the transmission of a page the sender sends no-signal. Neither MPS nor EOP is sent.
CCM disconnects.




ATF3700_at_061027_1106_ch_12_err_XW.pcap - Wireshark
File Edit View Go Capture Analyze Statistics Help
Filter: Expression... Clear Apply
No. Time Source Destination Protocol Info
289 13.832327 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
290 13.902324 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
291 13.972324 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
292 14.042332 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
293 14.112751 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
294 14.182335 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
295 14.252332 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
296 14.322341 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
297 14.392339 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
298 14.462342 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
299 14.532341 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
300 14.602346 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
301 14.672357 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
302 14.742346 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
303 14.812342 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
304 14.882347 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
305 14.952355 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
306 15.022461 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
307 15.092352 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
308 15.162358 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
309 15.232357 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
310 15.302363 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
311 15.302702 10.30.0.30 10.30.0.10 H.245 roundTripDelayRequest
312 15.303349 10.30.0.10 10.30.0.30 H.245 roundTripDelayResponse
313 15.372353 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
314 15.442359 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
315 15.458066 10.30.0.30 10.30.0.10 TCP 4192 > 63462 [ACK] Seq=353 Ack=277 Win=65259 [TCP CHECKSUM INCORRECT] Len=0
316 15.512362 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
317 15.582363 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
318 15.652363 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
319 15.722387 10.30.0.16 10.30.0.30 T.38 UDP: UDPTLPacket Seq=00076 t30ind: no-signal
320 15.765731 10.30.0.10 10.30.0.30 H.245 closeLogicalChannel
321 15.765862 10.30.0.30 10.30.0.10 H.245 closeLogicalChannelAck
322 15.767373 10.30.0.10 10.30.0.30 H.245 endSessionCommand
323 15.767424 10.30.0.30 10.30.0.10 H.245 endSessionCommand
324 15.767488 10.30.0.30 10.30.0.10 TCP 4192 > 63462 [FIN, ACK] Seq=367 Ack=292 Win=65244 [TCP CHECKSUM INCORRECT] Len=0
325 15.767578 10.30.0.10 10.30.0.30 TCP 63462 > 4192 [ACK] Seq=292 Ack=368 Win=65169 Len=0
326 15.787134 10.30.0.10 10.30.0.30 TCP 63462 > 4192 [FIN, ACK] Seq=292 Ack=368 Win=65169 Len=0
327 15.787155 10.30.0.30 10.30.0.10 TCP 4192 > 63462 [ACK] Seq=368 Ack=293 Win=65244 [TCP CHECKSUM INCORRECT] Len=0
328 15.792868 10.30.0.10 10.30.0.30 H.225. CS: releaseComplete
329 15.792991 10.30.0.30 10.30.0.10 TCP 1720 > 63460 [FIN, ACK] Seq=157 Ack=204 Win=65332 [TCP CHECKSUM INCORRECT] Len=0
330 15.793100 10.30.0.10 10.30.0.30 TCP 63460 > 1720 [ACK] Seq=204 Ack=158 Win=65379 Len=0
331 15.810526 10.30.0.10 10.30.0.30 TCP 63460 > 1720 [FIN, ACK] Seq=204 Ack=158 Win=65379 Len=0
332 15.810557 10.30.0.30 10.30.0.10 TCP 1720 > 63460 [ACK] Seq=158 Ack=205 Win=65332 [TCP CHECKSUM INCORRECT] Len=0
Frame 284 (48 bytes on wire, 48 bytes captured)
Ethernet II, Src: Iwill_03:d1:b8 (00:d0:68:03:d1:b8), Dst: Cisco_95:47:e0 (00:11:5c:95:47:e0)
Internet Protocol, Src: 10.30.0.30 (10.30.0.30), Dst: 10.30.0.16 (10.30.0.16)
0000 00 11 5c 95 47 e0 00 d0 68 03 d1 b8 08 00 45 00 ..\.G... h.....E.
0010 00 22 bd 45 00 00 80 11 00 00 0a 1e 00 1e 0a 1e ."E.... ....
0020 00 10 10 62 48 a0 00 0e 91 4c 00 1a 01 00 00 00 ...bH... .L......
File: "\\Dc2\rd\Develop\Archive\src\Server\... P: 332 D: 332 M: 0

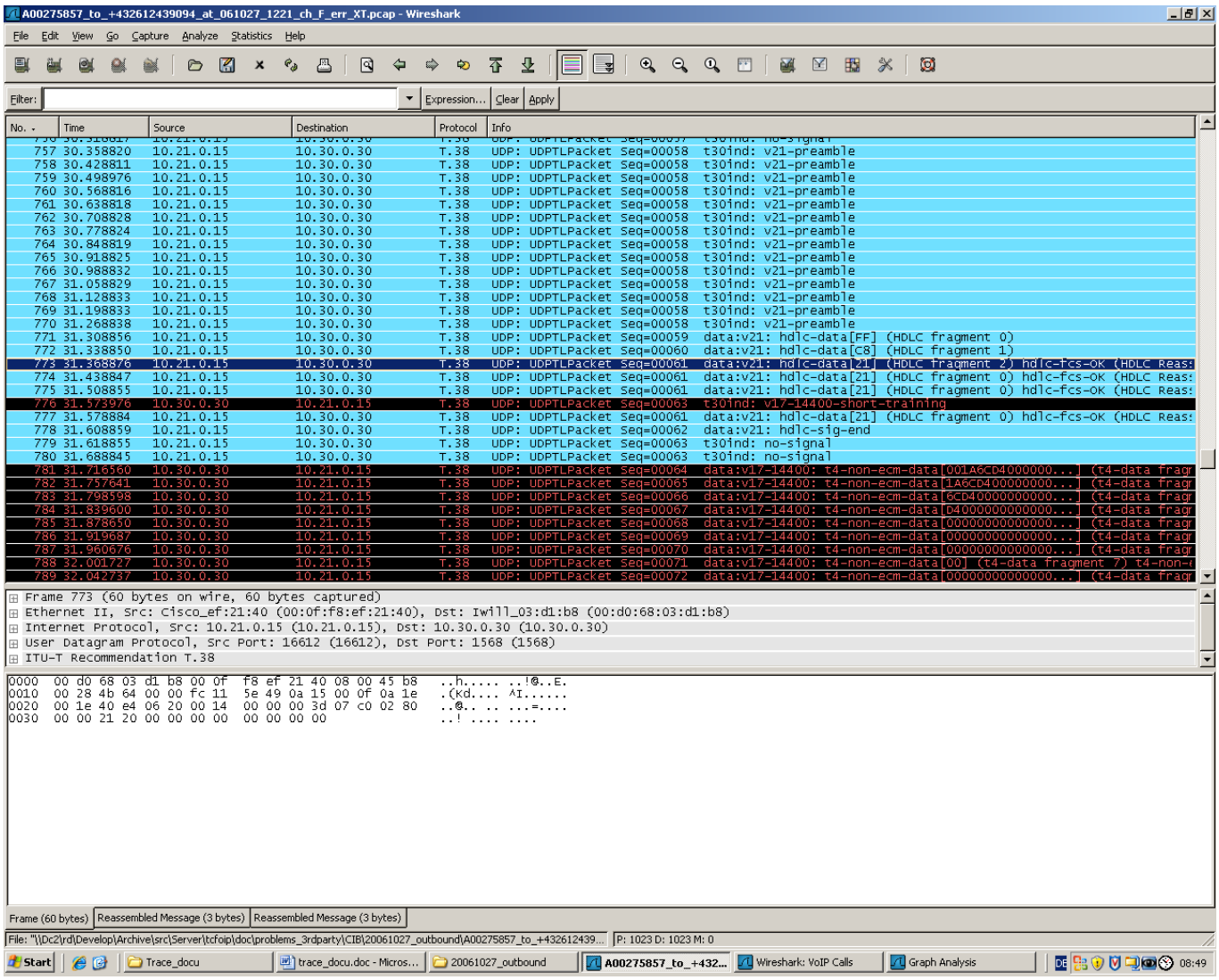
5 Transmission Error Reasons

5.1 Can Be Solved in XCAPI

5.1.1 XT.1 XCAPI Starts Sending Too Early After CFR

How to detect:
XCAPI starts to send the page before the last packet of the CFR message was received.

Example:

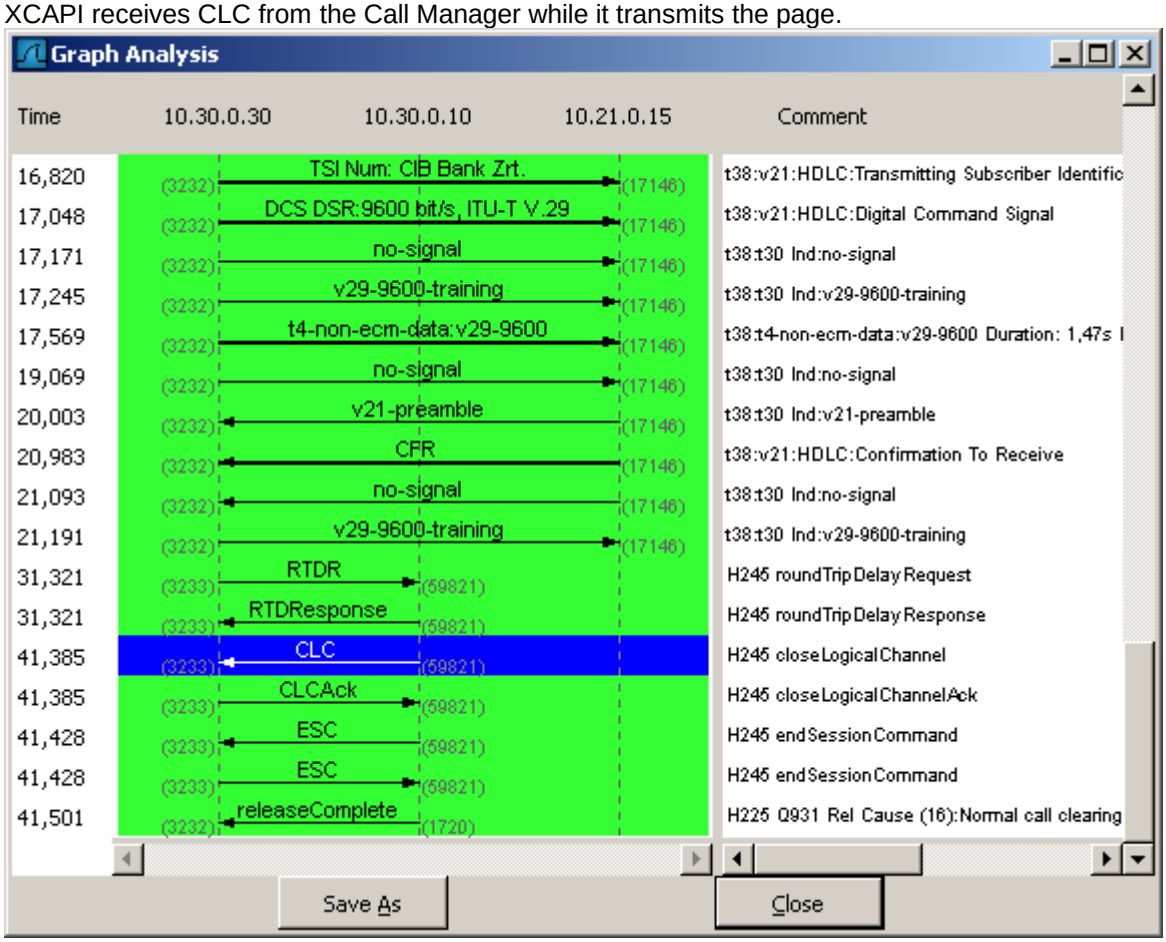


Reason for the problem:
See Error 13104

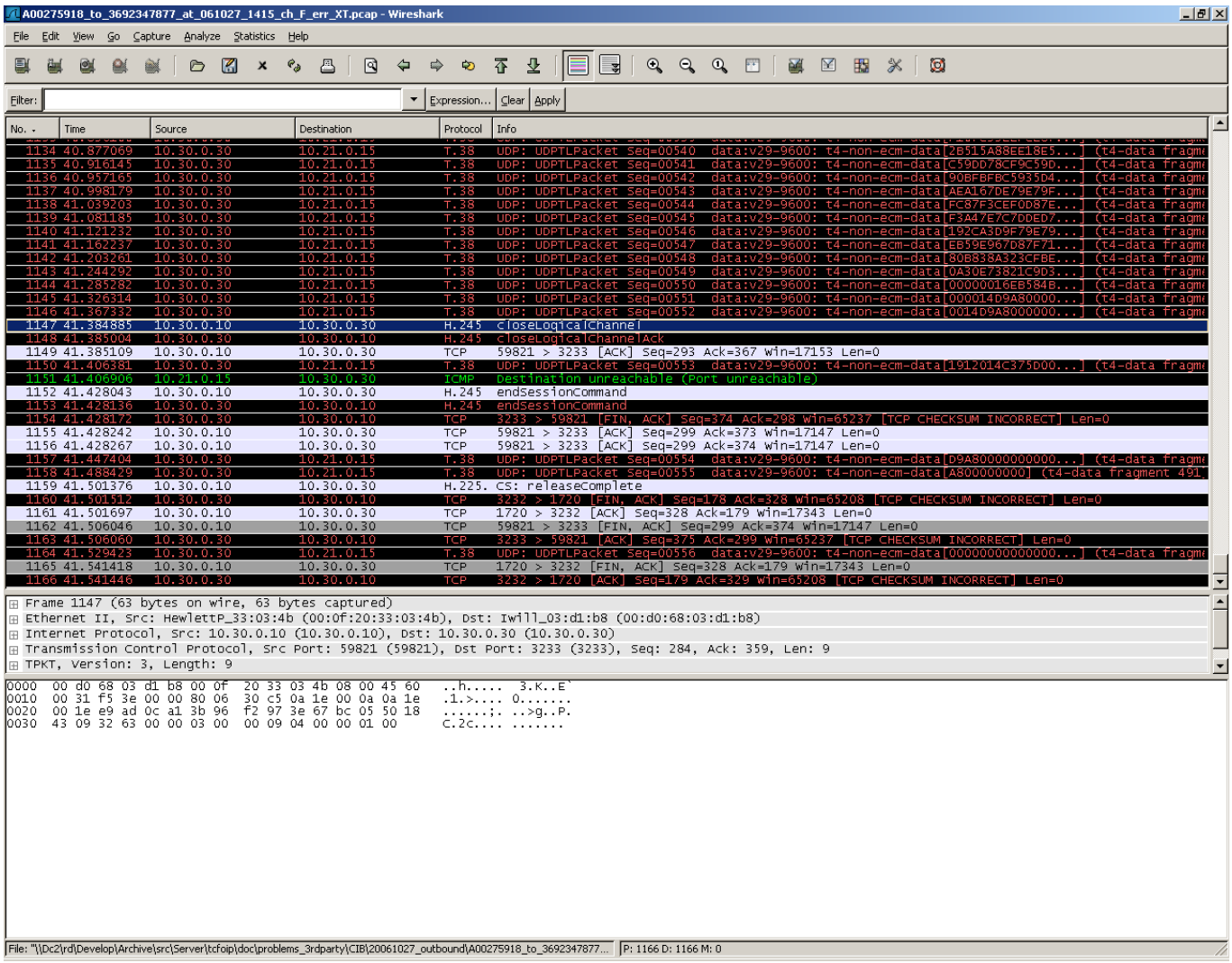
5.2 Bug in Gateway or Receiving Fax Machine

5.2.1 XT.2 XCAPI Receives CLC During Transmission

XCAPI receives CLC from the Call Manager while it transmits the page.



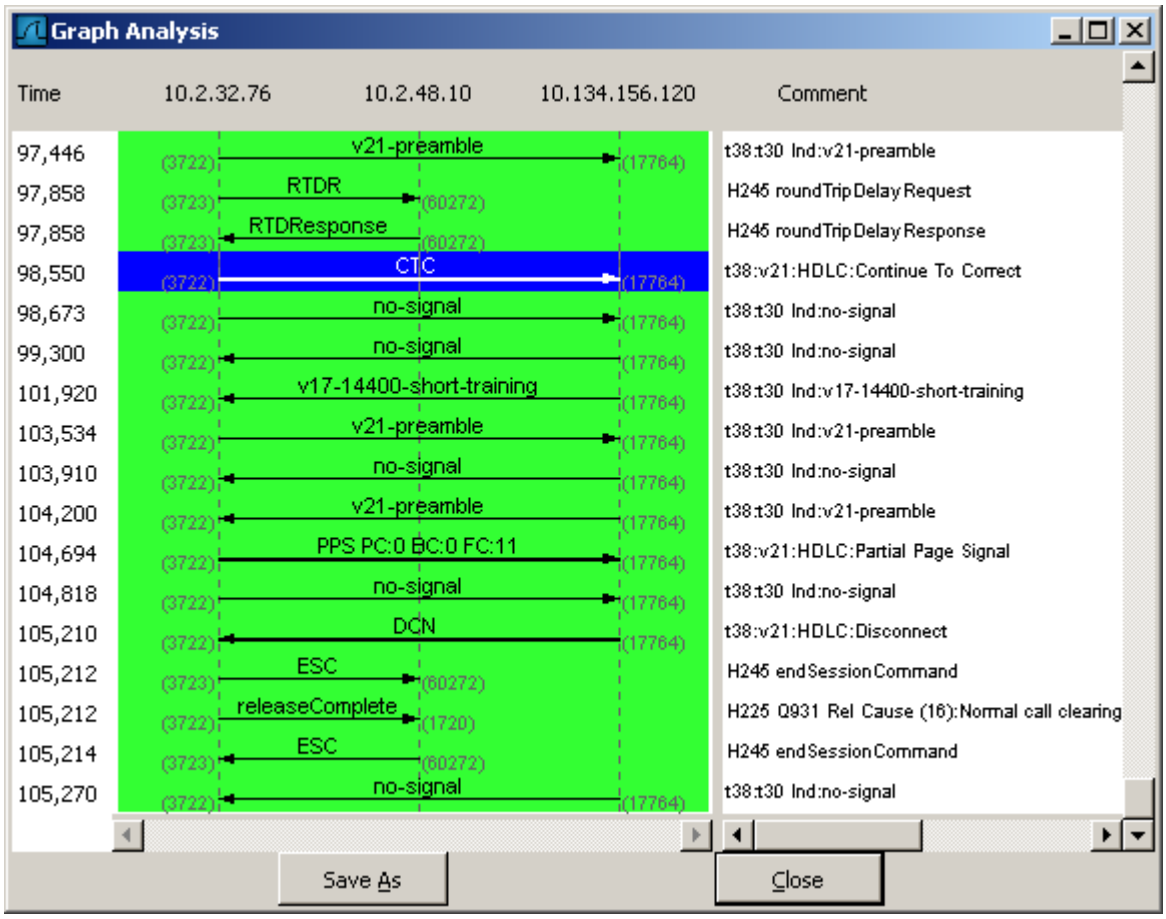
Receiver disconnects because of a problem with the Gateway or a bug in the receiving Fax machine.


A00275918_to_3692347877_at_061027_1415_ch_F_err_XT.pcap - Wireshark
File Edit View Go Capture Analyze Statistics Help
Filter: Expression... Clear Apply
No. Time Source Destination Protocol Info
1134 40.877069 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00540 data:v29-9600: t4-non-ecm-data[2B515A88EE18E5...] (t4-data fragm
1135 40.916145 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00541 data:v29-9600: t4-non-ecm-data[C59DD78CF9C59D...] (t4-data fragm
1136 40.957165 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00542 data:v29-9600: t4-non-ecm-data[90BFBFBC5935D4...] (t4-data fragm
1137 40.998179 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00543 data:v29-9600: t4-non-ecm-data[AEA167DE79E79F...] (t4-data fragm
1138 41.039203 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00544 data:v29-9600: t4-non-ecm-data[FC87F3CEF0D87E...] (t4-data fragm
1139 41.081185 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00545 data:v29-9600: t4-non-ecm-data[F3A47E7C7DDED7...] (t4-data fragm
1140 41.121232 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00546 data:v29-9600: t4-non-ecm-data[192CA3D9F79E79...] (t4-data fragm
1141 41.162237 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00547 data:v29-9600: t4-non-ecm-data[EB59E967D87F71...] (t4-data fragm
1142 41.203261 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00548 data:v29-9600: t4-non-ecm-data[80B838A323CFBE...] (t4-data fragm
1143 41.244292 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00549 data:v29-9600: t4-non-ecm-data[0A30E73821C9D3...] (t4-data fragm
1144 41.285282 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00550 data:v29-9600: t4-non-ecm-data[00000016EB584B...] (t4-data fragm
1145 41.326314 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00551 data:v29-9600: t4-non-ecm-data[000014D9A80000...] (t4-data fragm
1146 41.367332 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00552 data:v29-9600: t4-non-ecm-data[0014D9A8000000...] (t4-data fragm
1147 41.384885 10.30.0.10 10.30.0.30 H.245 closeLogicalChannel
1148 41.385004 10.30.0.30 10.30.0.10 H.245 closeLogicalChannelAck
1149 41.385109 10.30.0.10 10.30.0.30 TCP 59821 > 3233 [ACK] Seq=293 Ack=367 Win=17153 Len=0
1150 41.406381 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00553 data:v29-9600: t4-non-ecm-data[1912014C375D00...] (t4-data fragm
1151 41.406906 10.21.0.15 10.30.0.30 ICMP Destination unreachable (Port unreachable)
1152 41.428043 10.30.0.10 10.30.0.30 H.245 endSessionCommand
1153 41.428136 10.30.0.30 10.30.0.10 H.245 endSessionCommand
1154 41.428172 10.30.0.30 10.30.0.10 TCP 3233 > 59821 [FIN, ACK] Seq=374 Ack=298 Win=65237 [TCP CHECKSUM INCORRECT] Len=0
1155 41.428242 10.30.0.10 10.30.0.30 TCP 59821 > 3233 [ACK] Seq=299 Ack=373 Win=17147 Len=0
1156 41.428267 10.30.0.10 10.30.0.30 TCP 59821 > 3233 [ACK] Seq=299 Ack=374 Win=17147 Len=0
1157 41.447404 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00554 data:v29-9600: t4-non-ecm-data[D9A80000000000...] (t4-data fragm
1158 41.488429 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00555 data:v29-9600: t4-non-ecm-data[A800000000] (t4-data fragment 491
1159 41.501376 10.30.0.10 10.30.0.30 H.225. CS: releaseComplete
1160 41.501512 10.30.0.30 10.30.0.10 TCP 3232 > 1720 [FIN, ACK] Seq=178 Ack=328 Win=65208 [TCP CHECKSUM INCORRECT] Len=0
1161 41.501697 10.30.0.10 10.30.0.30 TCP 1720 > 3232 [ACK] Seq=328 Ack=179 Win=17343 Len=0
1162 41.506046 10.30.0.10 10.30.0.30 TCP 59821 > 3233 [FIN, ACK] Seq=299 Ack=374 Win=17147 Len=0
1163 41.506060 10.30.0.30 10.30.0.10 TCP 3233 > 59821 [ACK] Seq=375 Ack=299 Win=65237 [TCP CHECKSUM INCORRECT] Len=0
1164 41.529423 10.30.0.30 10.21.0.15 T.38 UDP: UDPTLPacket Seq=00556 data:v29-9600: t4-non-ecm-data[0000000000000...] (t4-data fragm
1165 41.541418 10.30.0.10 10.30.0.30 TCP 1720 > 3232 [FIN, ACK] Seq=328 Ack=179 Win=17343 Len=0
1166 41.541446 10.30.0.30 10.30.0.10 TCP 3232 > 1720 [ACK] Seq=179 Ack=329 Win=65208 [TCP CHECKSUM INCORRECT] Len=0
Frame 1147 (63 bytes on wire, 63 bytes captured)
Ethernet II, Src: HewlettP_33:03:4b (00:0f:20:33:03:4b), Dst: Iwill_03:d1:b8 (00:d0:68:03:d1:b8)
Internet Protocol, Src: 10.30.0.10 (10.30.0.10), Dst: 10.30.0.30 (10.30.0.30)
Transmission Control Protocol, Src Port: 59821 (59821), Dst Port: 3233 (3233), Seq: 284, Ack: 359, Len: 9
TPKT, Version: 3, Length: 9
0000 00 d0 68 03 d1 b8 00 0f 20 33 03 4b 08 00 45 60 ..h..... 3.K..E`
0010 00 31 f5 3e 00 00 80 06 30 c5 0a 1e 00 0a 0a 1e .1.>.... 0.......
0020 00 1e e9 ad 0c a1 3b 96 f2 97 3e 67 bc 05 50 18 ......;. ..>g..P.
0030 43 09 32 63 00 00 03 00 00 09 04 00 00 01 00 C.2c.... ....
File: "\\Dc2\rd\Develop\Archive\src\Server\tcfoip\doc\problems_3rdparty\CIB\20061027_outbound\A00275918_to_3692347877...
P: 1166 D: 1166 M: 0

5.3 Bug in Gateway

5.3.1 XT.3 Receiver Responds with V.17 to CTC

The receiver responds with V.17-short-train to CTC (instead of V.21 CTR)



Reason for the problem:

1.) Most likely the Gateway detects the V.21 preamble (CTR) as V.17 data.
2.) XCAPI then sends a PPS instead of CTC retry.
3.) Receiver responds with DCN (this is ok – because XCAPI has sent a wrong command)