

LFR-FSW - Bug #105

Traitement de TC avec PACKET_LENGTH erroné

28/03/2014 03:25 PM - Gerald Saule

Status:	Closed	Start date:	28/03/2014
Priority:	Normal	Due date:	
Assignee:	Veronique bouzid	% Done:	0%
Category:		Estimated time:	0.00 hour
Target version:		Spent time:	0.00 hour
revision:	r110		

Description

Pour déterminer la longueur de la TC, le LFR FSW utilise le contenu du champ PACKET_LENGTH. C'est une implémentation justifiable, mais cela induit des informations fausses. Prenons l'exemple d'un TC nominale (cf 14:20:43.892998).

```
14:20:43.892998, 254, 2, 0, 0, 28, 204, 196, 172, 0, 5, 16, 181, 63, 110, 225, 206
14:20:43.892998, TC_LFR_DISABLE_CALIBRATION, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TC_PACKET = 1,
DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY:
PRIVATE_SCIENCE_OR_TELECOMMAND = 12, SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3,
SEQUENCE_CNT=1196, PACKET_LENGTH=5, CCSDS_SECONDARY_HEADER_FLAG=0, PUS_VERSION = 1,
ACK_EXECUTION_COMPLETION=0, ACK_EXECUTION_PROGRESS=0, ACK_EXECUTION_START=0,
ACK_ACCEPTANCE=0, SERVICE_TYPE: EQ_CONFIGURATION = 181, SERVICE_SUBTYPE: DISABLE_CALIBRATION =
63, SOURCE_ID: MISSION_TIMELINE = 110, CRC = 0xe1ce
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Un PACKET_LENGTH faux (trop petit) revient à faire un tronçage dans la TC; notamment, le crc pris en compte est $110*256+243=0x6ef3$.

LEe FSW détecte bien une incohérence sur PA_RPW_PKT_LEN_RCV_VALUE/PA_RPW_PKT_DATFIELDSIZE_CNT, mais oriente sans raison sur un pb de CRC.

```
14:20:45.588517, 254, 2, 0, 0, 28, 204, 248, 191, 0, 4, 16, 181, 63, 110, 243, 13
14:20:45.588517, TC_LFR_DISABLE_CALIBRATION, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TC_PACKET = 1,
DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY:
PRIVATE_SCIENCE_OR_TELECOMMAND = 12, SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3,
SEQUENCE_CNT=14527, /!\PACKET_LENGTH=4((Number of bytes in Packet Data Field)-1=5),
CCSDS_SECONDARY_HEADER_FLAG=0, PUS_VERSION = 1, ACK_EXECUTION_COMPLETION=0,
ACK_EXECUTION_PROGRESS=0, ACK_EXECUTION_START=0, ACK_ACCEPTANCE=0, SERVICE_TYPE:
EQ_CONFIGURATION = 181, SERVICE_SUBTYPE: DISABLE_CALIBRATION = 63, SOURCE_ID: MISSION_TIMELINE =
110, CRC = 0xf30d
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14:20:45.600662, TM_LFR_TC_EXE_CORRUPTED, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TM_PACKET = 0,
DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY:
ACKNOWLEDGE = 1, SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=7,
PACKET_LENGTH=25, SPARE_1=0, PUS_VERSION = 1, SPARE_2=0, SERVICE_TYPE: TELECOMMAND_VERIFICATION
= 1, SERVICE_SUBTYPE: TC_EXECUTION_COMPLETION_FAILURE = 8, DESTINATION_ID: MISSION_TIMELINE = 110,
TIME=0x80001bd7df59, PA_RPW_TC_FAILURE_CODE: CORRUPTED = 42005,
PA_RPW_TELECOMMAND_PKT_ID=0x1ccc, PA_RPW_PKT_SEQ_CONTROL=0xf8bf, PA_RPW_TC_SERVICE=181,
PA_RPW_TC_SUBTYPE=63, PA_RPW_PKT_LEN_RCV_VALUE=4, PA_RPW_PKT_DATFIELDSIZE_CNT=5,
PA_RPW_RCV_CRC=0x6ef3, PA_RPW_COMPUTED_CRC=0xc936
```

Je propose que le traitement soit indépendant du contenu de PACKET_LENGTH. Si PACKET_LENGTH est trop petit, le comportement permet néanmoins de remonter au pb. En revanche, si PACKET_LENGTH est trop grand, il y a un risque de comportement imprévisible.

Contexte:

LPPMON Version=0.2.2 Branch=default Changeset=835955994d5f
Carte mini-LFR:LFR-172200 dev V1.0; No série III (sans connecteurs sub-click)
Vhdl: mini-lfr_0.1.7 r110
Soft: 1.0.0.4 (variante sur carte finale)
Brique Star-Dundee S/N <blank>.

TEST CASE = SVS-0007/loop_tm_lfr_tc_exe_no_ack.py

RPW-SYS-IDB-00067-LES_Issue2_Rev2

RPW-SYS-MEB-LFR-ICD-00097_Issue2_Rev2

RPW-SYS-SSS-00013-LES + Annex_Release_Definition_Issue2_rev2

History

#1 - 31/03/2014 12:49 PM - paul leroy

- Status changed from New to Resolved

fsw >= 1.0.0.5

Le traitement est maintenant indépendant du champ PACKET_LENGTH lu dans le paquet.

Le CRC est calculé directement sur le paquet reçu en utilisant la taille réelle du paquet reçu.

#2 - 15/05/2014 12:05 PM - paul leroy

- Assignee changed from paul leroy to bruno katra

#3 - 19/06/2014 12:33 PM - Veronique bouzid

- Status changed from Resolved to Feedback

- Assignee changed from bruno katra to paul leroy

test SVS-0007 rejoué (scriptloop_tm_lfr_tc_exe_no_ack.py)

en 1.0.0.11

VHDI = 0.1.23

Mauvais PACKET_LENGTH (65535) sur une TC_LFR_*

--> Pour moi ce n'est pas bon, il y a une inversion entre the champ PA_RPW_RCV_CRC et PA_RPW_COMPUTED_CRC

Par contre, le calcul du CRC est bien indépendant du champ PACKET_LENGTH

08:52:59.819767, 254, 2, 0, 0, 28, 204, 200, 47, **255, 255**, 16, 181, 63, 110, 174, 69

08:52:59.819767, **TC_LFR_DISABLE_CALIBRATION**, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TC_PACKET = 1, DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY: PRIVATE_SCIENCE_OR_TELECOMMAND = 12, (PACKET_ID=0x1ccc), SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=2095, (PACKET_SEQUENCE_CONTROL=0xc82f), /\!*PACKET_LENGTH=65535((Number of bytes in Packet Data Field)-1=5)*, CCSDS_SECONDARY_HEADER_FLAG=0, PUS_VERSION = 1, ACK_EXECUTION_COMPLETION=0, ACK_EXECUTION_PROGRESS=0, ACK_EXECUTION_START=0, ACK_ACCEPTANCE=0, SERVICE_TYPE: EQ_CONFIGURATION = 181, SERVICE_SUBTYPE: DISABLE_CALIBRATION = 63, SOURCE_ID: MISSION_TIMELINE = 110, **CRC = 0xae45**

08:52:59.832492, TM_LFR_TC_EXE_CORRUPTED, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TM_PACKET = 0, DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY: ACKNOWLEDGE = 1, (PACKET_ID=0xcc1), SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=6, (PACKET_SEQUENCE_CONTROL=0xc006), PACKET_LENGTH=25, SPARE_1=0, PUS_VERSION = 1, SPARE_2=0, SERVICE_TYPE: TELECOMMAND_VERIFICATION = 1, SERVICE_SUBTYPE: TC_EXECUTION_COMPLETION_FAILURE = 8, DESTINATION_ID: MISSION_TIMELINE = 110, TIME=0x800000027830, PA_RPW_TC_FAILURE_CODE: CORRUPTED = 42005, PA_RPW_TELECOMMAND_PKT_ID=0x1ccc, PA_RPW_PKT_SEQ_CONTROL=0xc82f, PA_RPW_TC_SERVICE=181, PA_RPW_TC_SUBTYPE=63, **PA_RPW_PKT_LEN_RCV_VALUE=65535, PA_RPW_PKT_DATFIELDSIZE_CNT=5, PA_RPW_RCV_CRC=0x5dc3, PA_RPW_COMPUTED_CRC=0xae45**

#4 - 05/02/2015 08:58 AM - paul leroy

- Status changed from Feedback to In Progress

- Assignee changed from paul leroy to Veronique bouzid

rejouer sur FSW >= 2.0.2.1

#5 - 02/06/2015 03:02 PM - Veronique bouzid

- Assignee changed from Veronique bouzid to paul leroy

Le script /opt/VALIDATION_R2/lfrverif/LFR_SVS/SVS-0007/loop_tm_lfr_tc_exe_no_ack.py a été rejoué dans le contexte décrit à la fin. Le résultat ne me paraît satisfaisant.

La TC envoyée avec une mauvaise longueur

10:33:22.849021, TC_LFR_DISABLE_CALIBRATION, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TC_PACKET = 1,

DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY: PRIVATE_SCIENCE_OR_TELECOMMAND = 12, (PACKET_ID=0x1ccc), SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=11725, (PACKET_SEQUENCE_CONTROL=0xedcd), **!\\PACKET_LENGTH=65535((Number of bytes in Packet Data Field)-1=5)**, CCSDS_SECONDARY_HEADER_FLAG=0, PUS_VERSION = 1, ACK_EXECUTION_COMPLETION=0, ACK_EXECUTION_PROGRESS=0, ACK_EXECUTION_START=0, ACK_ACCEPTANCE=0, SERVICE_TYPE: EQ_CONFIGURATION = 181, SERVICE_SUBTYPE: DISABLE_CALIBRATION = 63, SOURCE_ID: MISSION_TIMELINE = 110, CRC = 0xe593

genere la réponse suivante

10:33:22.864046, **TM_LFR_TC_EXE_CORRUPTED**, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TM_PACKET = 0, DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY: ACKNOWLEDGE = 1, (PACKET_ID=0xcc1), SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=6, (PACKET_SEQUENCE_CONTROL=0xc006), PACKET_LENGTH=25, SPARE_1=0, PUS_VERSION = 1, SPARE_2=0, SERVICE_TYPE: TELECOMMAND_VERIFICATION = 1, SERVICE_SUBTYPE: TC_EXECUTION_COMPLETION_FAILURE = 8, DESTINATION_ID: MISSION_TIMELINE = 110, TIME=0x8000000cdd16, PA_RPW_TC_FAILURE_CODE: CORRUPTED = 42005, PA_RPW_TELECOMMAND_PKT_ID=0x1ccc, PA_RPW_PKT_SEQ_CONTROL=0xedcd, PA_RPW_TC_SERVICE=181, PA_RPW_TC_SUBTYPE=63, **PA_RPW_PKT_LEN_RCV_VALUE=65535, PA_RPW_PKT_DATFIELDSIZE_CNT=5, PA_RPW_RCV_CRC=0x0, PA_RPW_COMPUTED_CRC=0xe593**

--> on devra avoir la meme valeur dans PA_RPW_RCV_CRC et PA_RPW_COMPUTED_CRC pour montrer que l'erreur ne vient pas du CRC mais de la longueur.

Contexte de test

FSW 2.0.2.3
VHDL 0..1.83
EQM sans Timegen
SocExplorer 0.6.0 Version = 0.6.0, Branch = default, Changeset = 8cf23d8c0b68
StarDundee spacewire

le fichier de logs etant /home/bouzid/LFR/EQM/data/R2-EQM/2.0.2.3/SVS-0007/2015_05_25-10_33_54-Nb.txt

#6 - 09/06/2015 08:51 AM - paul leroy

- Status changed from In Progress to Resolved
- Assignee changed from paul leroy to Veronique bouzid

fsw >= 3.0.0.4

Le champ pa_rpw_rcv_crc est maintenant égal aux deux derniers octets reçu dans la télécommande, considérés a priori comme les bits de CRC.

#7 - 10/06/2015 02:41 PM - Veronique bouzid

- Status changed from Resolved to Closed

Le bug est corrigé.

Le script rejoué est /opt/VALIDATION_R3/lfrverif/LFR_SVS/SVS-0007/loop_tm_lfr_tc_exe_no_ack.py
Ici la télécommande avec une mauvaise longueur

13:05:51.028429, **TC_LFR_DISABLE_CALIBRATION**, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TC_PACKET = 1, DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY: PRIVATE_SCIENCE_OR_TELECOMMAND = 12, (PACKET_ID=0x1ccc), SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=14715, (PACKET_SEQUENCE_CONTROL=0xf97b), **!\\PACKET_LENGTH=65535((Number of bytes in Packet Data Field)-1=5)**, CCSDS_SECONDARY_HEADER_FLAG=0, PUS_VERSION = 1, ACK_EXECUTION_COMPLETION=0, ACK_EXECUTION_PROGRESS=0, ACK_EXECUTION_START=0, ACK_ACCEPTANCE=0, SERVICE_TYPE: EQ_CONFIGURATION = 181, SERVICE_SUBTYPE: DISABLE_CALIBRATION = 63, SOURCE_ID: MISSION_TIMELINE = 110, CRC = 0x841b

13:05:51.046012, **TM_LFR_TC_EXE_CORRUPTED**, CCSDS_VERSION_NUMBER = 0, PACKET_TYPE: TM_PACKET = 0, DATA_FIELD_HEADER_FLAG: WITH_HEADER = 1, PROCESS_ID: RPW_PID_2 = 76, PACKET_CATEGORY: ACKNOWLEDGE = 1, (PACKET_ID=0xcc1), SEGMENTATION_GROUPING_FLAG: STANDALONE_PACKET = 3, SEQUENCE_CNT=6, (PACKET_SEQUENCE_CONTROL=0xc006), PACKET_LENGTH=25, SPARE_1=0, PUS_VERSION = 1, SPARE_2=0, SERVICE_TYPE: TELECOMMAND_VERIFICATION = 1, SERVICE_SUBTYPE: TC_EXECUTION_COMPLETION_FAILURE = 8, DESTINATION_ID: MISSION_TIMELINE = 110, TIME=0x8000000b16ea, PA_RPW_TELECOMMAND_PKT_ID=0x1ccc, PA_RPW_PKT_SEQ_CONTROL=0xf97b, PA_RPW_TC_FAILURE_CODE: CORRUPTED = 42005, PA_RPW_TC_SERVICE=181, PA_RPW_TC_SUBTYPE=63, **PA_RPW_PKT_LEN_RCV_VALUE=65535, PA_RPW_PKT_DATFIELDSIZE_CNT=5, PA_RPW_RCV_CRC=0x841b, PA_RPW_COMPUTED_CRC=0x841b**

On voit que le champ en erreur est celui de la longueur et le CRC est bon.

les fichiers de log (2015_06_10-13_06_19-*) se trouvent dans /home/validation/data/R3/3.0.0.4/SVS-0007.

Contexte de test

FSW 3.0.0.4

VHDL 1.1.83

EM1 sans timegen

SocExplorerEngine.getSocExplorer: Version = 0.6.2, Branch = default, Changeset = 819d0376d481

StarDundee