REDSCAN Event Code (R.E.C.) specifications

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Scope: REDSCAN mini series (RLS-2020I, RLS-2020S)
REDSCAN series (RLS-3060, RLS-3060L, RLS-3060SH)

1. Purpose of REDSCAN Event Code

When some object or error is detected, REDSCAN sends Event Code (R.E.C.) to VMS (Video Management Software). If the VMS supports generic events and the R.E.C. meets preset strings of the generic events, the VMS triggers preset action, PTZ control of cameras for example.

2. Data Structure of R.E.C.

R.E.C. is 26 bytes ASCII code and a null byte. It includes fixed sized 11 sections. Each section is stored in fixed position. When the section has nothing to do with current alarm, space (0x20) is stored.

Example:

R.E.C. when an object is detected in A1 area and master alarm is issued:

R.E.C. when preset time (default: 10 seconds) past after the object disappeared:

Table of R.E.C. Sections

Section	Size (byte)	Codes	Descriptions
ID Number	6	RLS126	"RLS" and 3 bytes ID number of the REDSCAN. The ID number can be changed. Default 3 digits are representing the last group of the host IP address.
Master Alarm	2	MO CL	"MO" is master alarm which means some object is detected. "MO" is sent again if detected area is different from previous detected area. "CL" means that preset time (default: 10 seconds) past after master alarm was cleared.
The Latest Area	2	A1/A2/B1/B2 Or A11/A12/A21/A22/ B11/B12/B21/B22	The latest area where the object is detected. Possible Code of RLS-2020 series: A1/A2/B1/B2 Possible Code of RLS-3060 series: A1/A2/B1/B2 or A11/A12/A21/A22/B11/B12/B21/B22
Combination of Areas	2	AA/BB/BA/Ba/bA/ba/ EA/Ea/Eb/EB/AL	The code shows multiple areas where objects are detected. See the table below. (*1)

Multiple Areas	2	CC	"CC" means that objects are detected in multiple areas.
Disqualification	2	DQ dq	"DQ" means disqualification status. "dq" means that disqualification status is cleared.
Anti-rotation	2	AR ar	"AR" means that the unit is rotated. "ar" means that the rotation is recovered.
Anti-masking	2	AM am	"AM" means that the unit is masked. "am" means that the mask is recovered.
Internal Error	2	TR tr	"TR" means that internal error occurred. "tr" means that the error is recovered.
Soiling	2	SO so	"SO" means that laser window has dirt. "so" means that the dirt is removed.
Tamper or Device Monitoring	2	TA ta DM	"TA" means that the cover is opened, or the unit is removed from the wall. "ta" means that the trouble is recovered. If device monitoring is enabled, "DM" is stored in this section and sent repeatedly. "DM" is supported by RLS-2020 and RLS-3060 ver. 7.3.0 or later. (*2)

(*1) Possible Code of Multiple Areas:

RLS-3060 series and RLS-2020 series

Code	B2	B1	A1	A2
AA			detected	detected
BB	detected	detected		
BA	detected			detected
Ba	detected		detected	
bA		detected		detected
ba		detected	detected	

"a" means A1. "A" means A2. "b" means B1. "B" means B2.

RLS-2020 series Only

Code	B2	B1	A1	A2
EA	detected	detected	detected	
Ea	detected	detected		detected
Eb	detected		detected	detected
EB		detected	detected	detected
AL	detected	detected	detected	detected

"E" means "except".

Transmission interval for trouble event codes

"DQ", "AR", "AM", "TR", "SO","TA" and "DM" are sent repeatedly during the trouble. The interval of sending them can be changed by "Transmission interval for Trouble code" in Fig.1.

(*2) Conditions of transmission for Device Monitoring code (DM)

"DM" code can be transmitted under the following conditions:

1. When in a state in which neither detected Object detection (alarm code, e,g, "MO" "A1"), Disqualification "DQ"、Anti-rotation "AR"、Anti-masking "AM"、Internal Error "TR"、Soiling "SO"、Tamper "TA"
2. When in a state in detected Object detection and not detected Tamper. In this case, DM code is transmitted with Object detection (alarm codes, e.g. "MO" "A1"). Alarm code is transmitted immediately when the object is detected.

3. Protocol

Both of TCP and UDP are available simultaneously.

(1) TCP, UDP or TCP UDP and TCP

Destination IP address and port number can be changed.

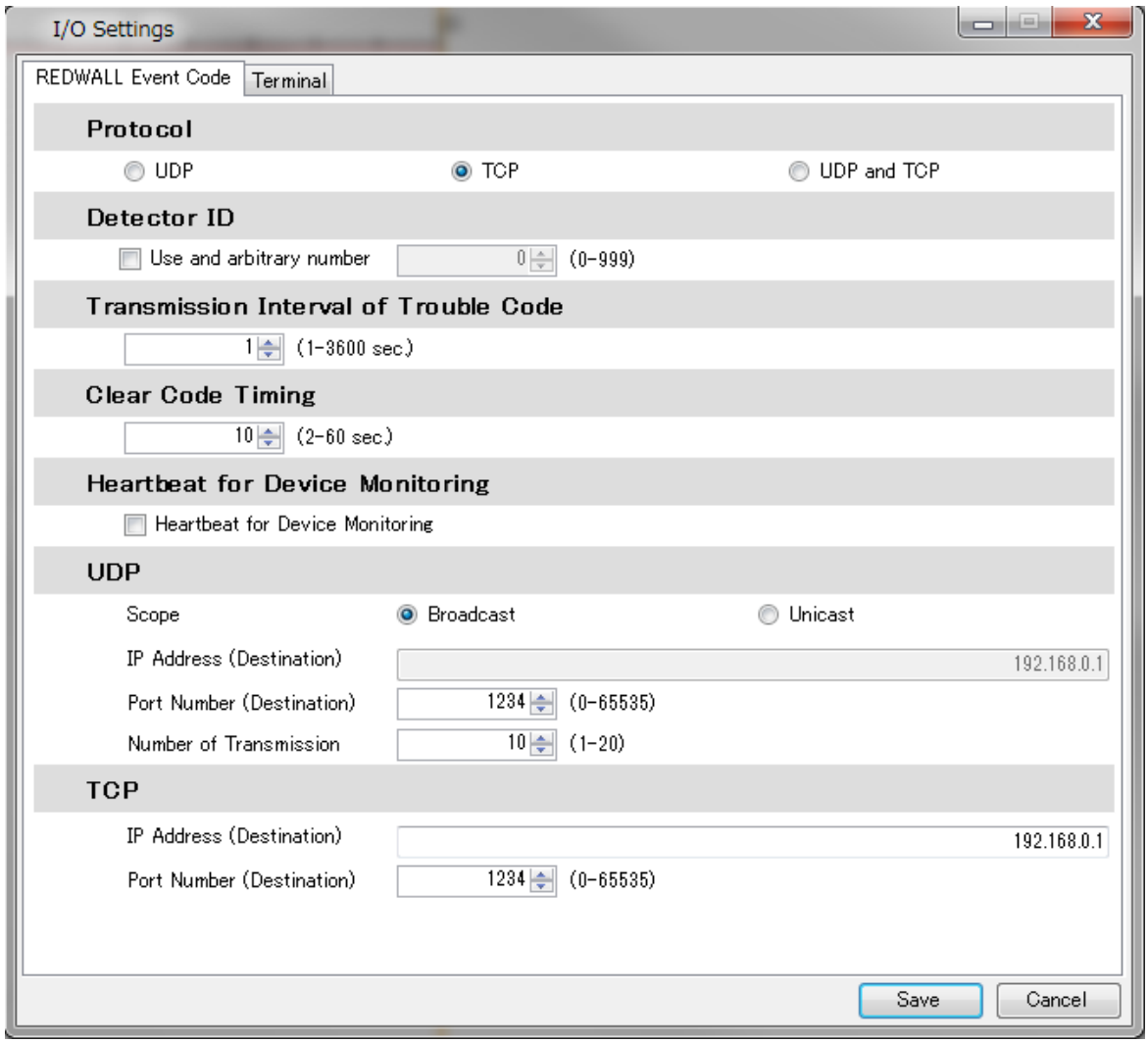

Fig.1 GUI of REDSCAN Manager Advanced

4. Sequence

(1) TCP

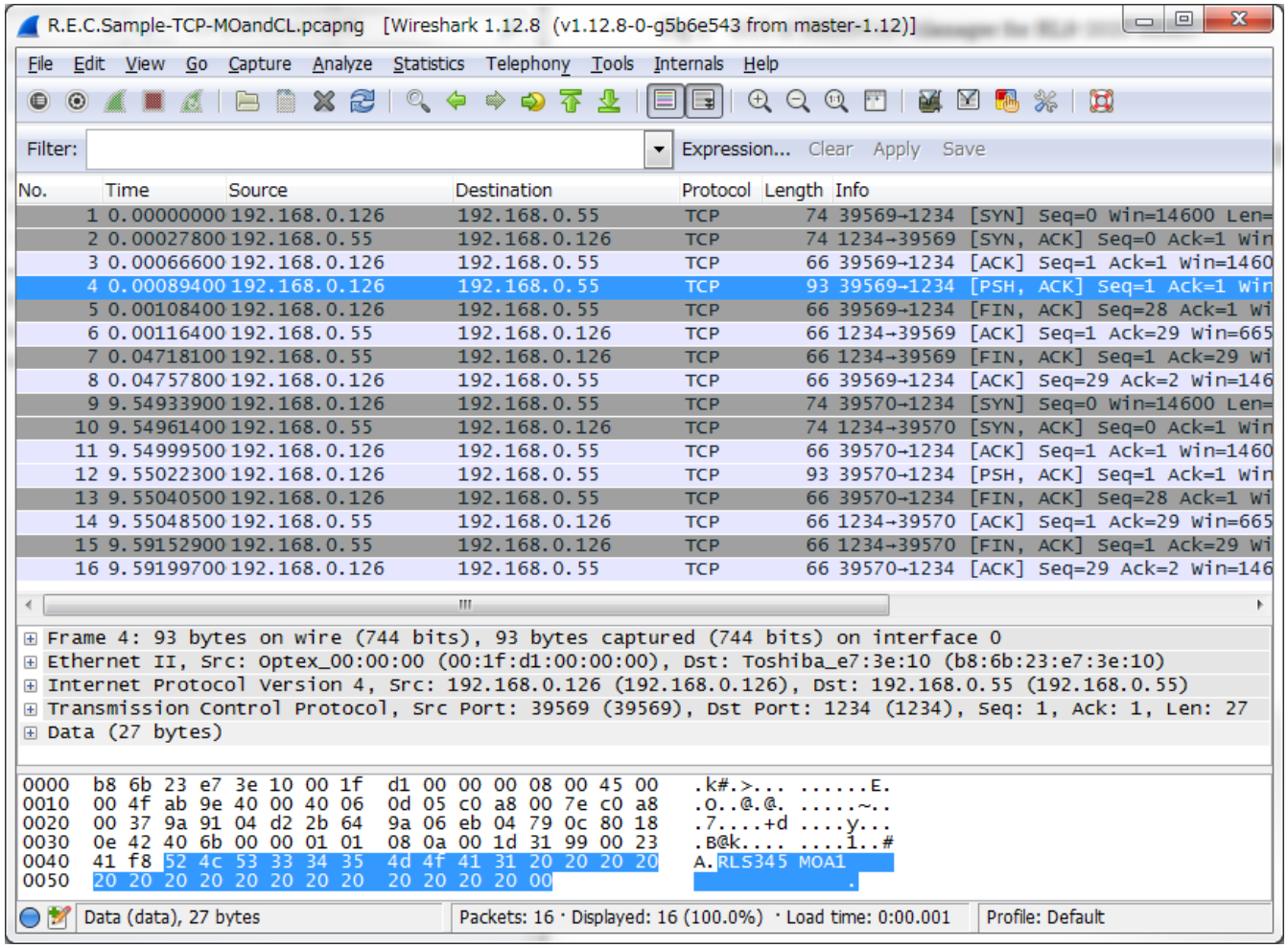

Fig.3 Sample of TCP Sequence (R.E.C.Sample-TCP-MOandCL.pcapng)

When some alarm detected, REDSCAN connects to the destination (No.1-3), sends R.E.C. (No.4), and disconnects the TCP (No.5-8).

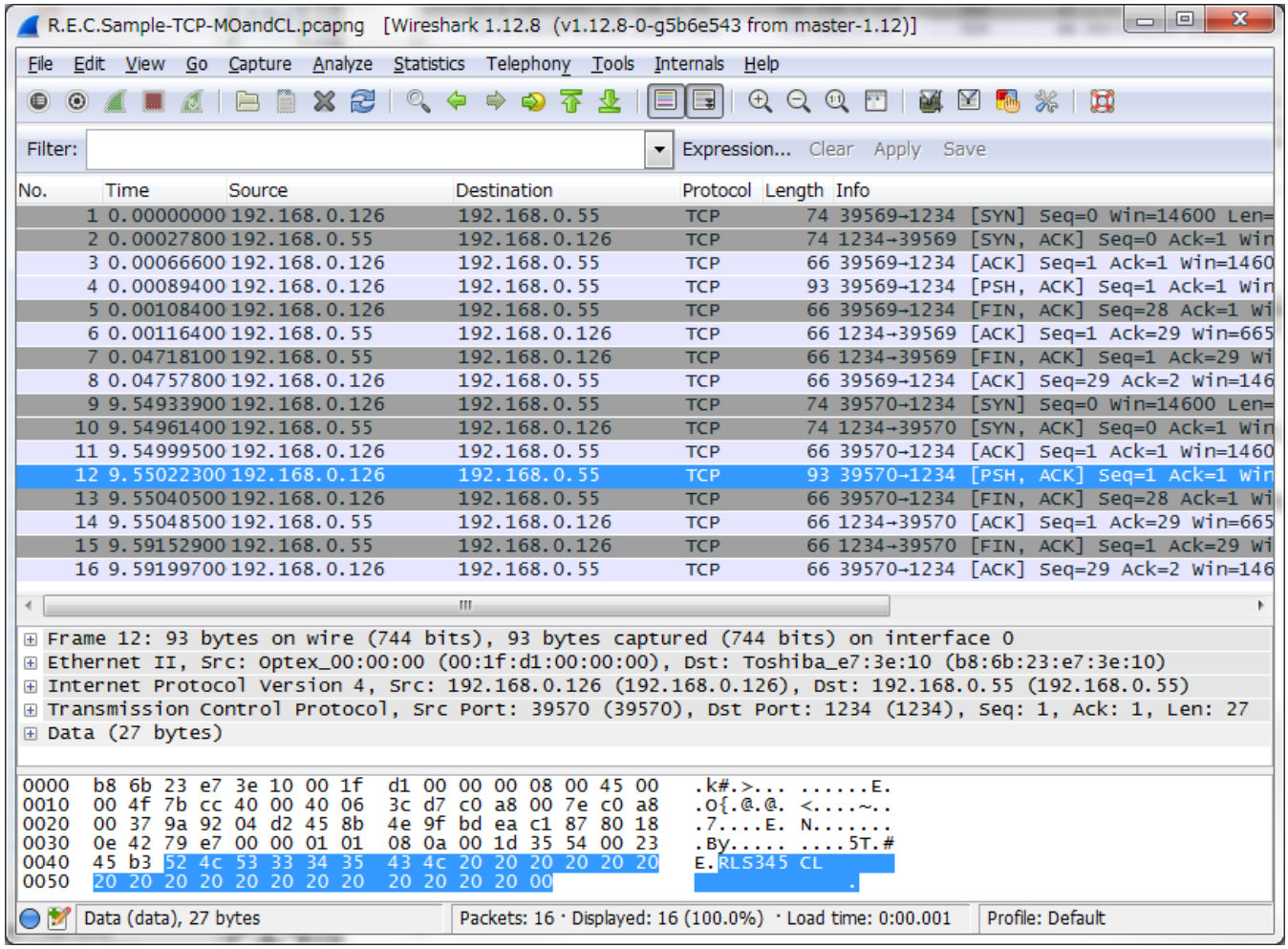

Fig.4　Sample of TCP Sequence (continue)

When the alarm is cleared, REDSCAN waits for "Transmission Interval for Clear code" (Fig.1), connects to the destination (No.9-11), sends R.E.C. (No.12), and disconnects the TCP (No.13-16).

(2) UDP

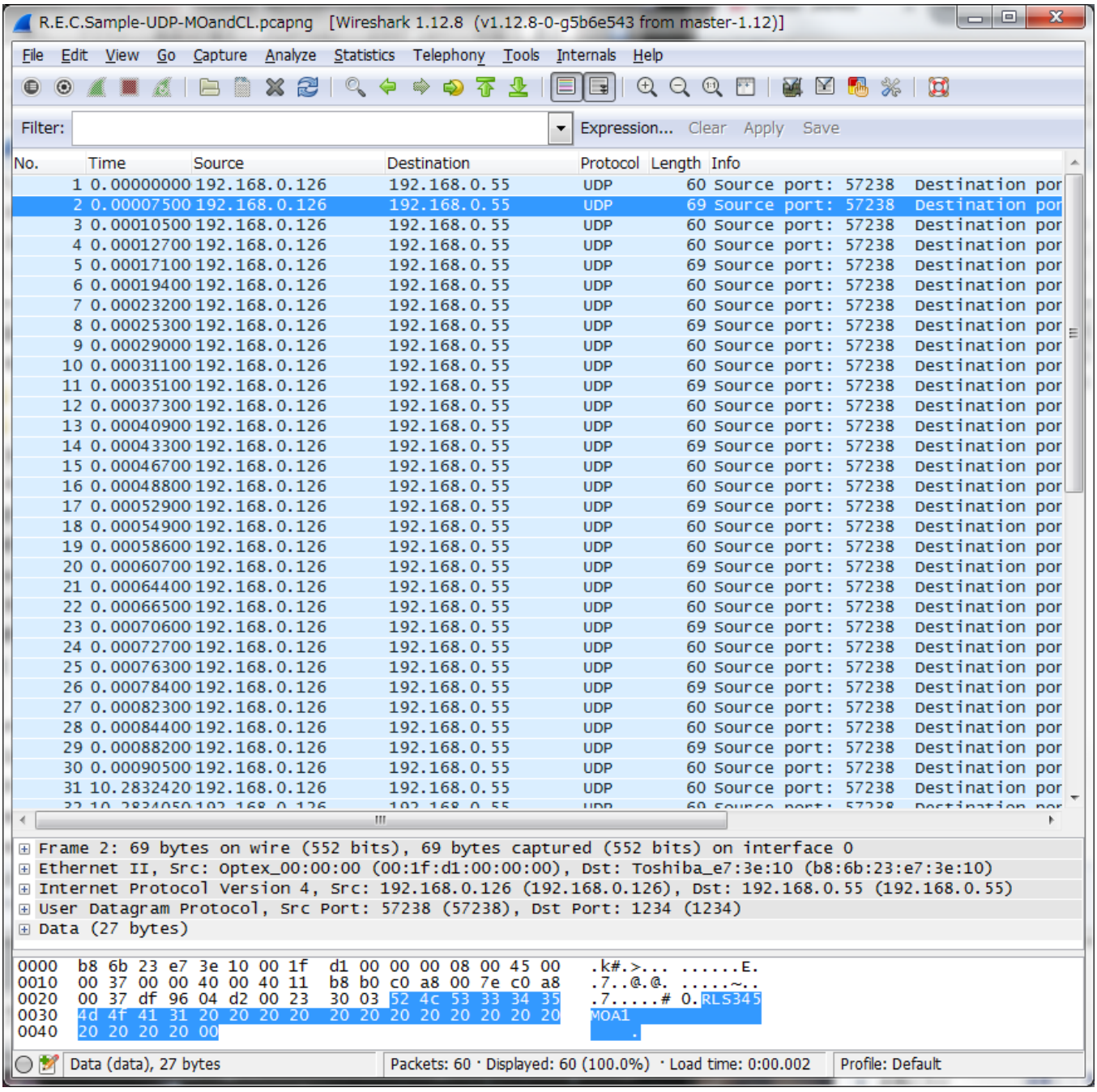

Fig.5 Sample of UDP Sequence (R.E.C.Sample-UDP-MOandCL.pcapng)

When some alarm detected, REDSCAN sends a series of 3 UDP packets to the destination (No.1-3). Second packet contains R.E.C. (No.2). According to "Number of Transmission" (Fig.2), REDSCAN repeats sending the series of 3 packets. (No.1 - No.30)

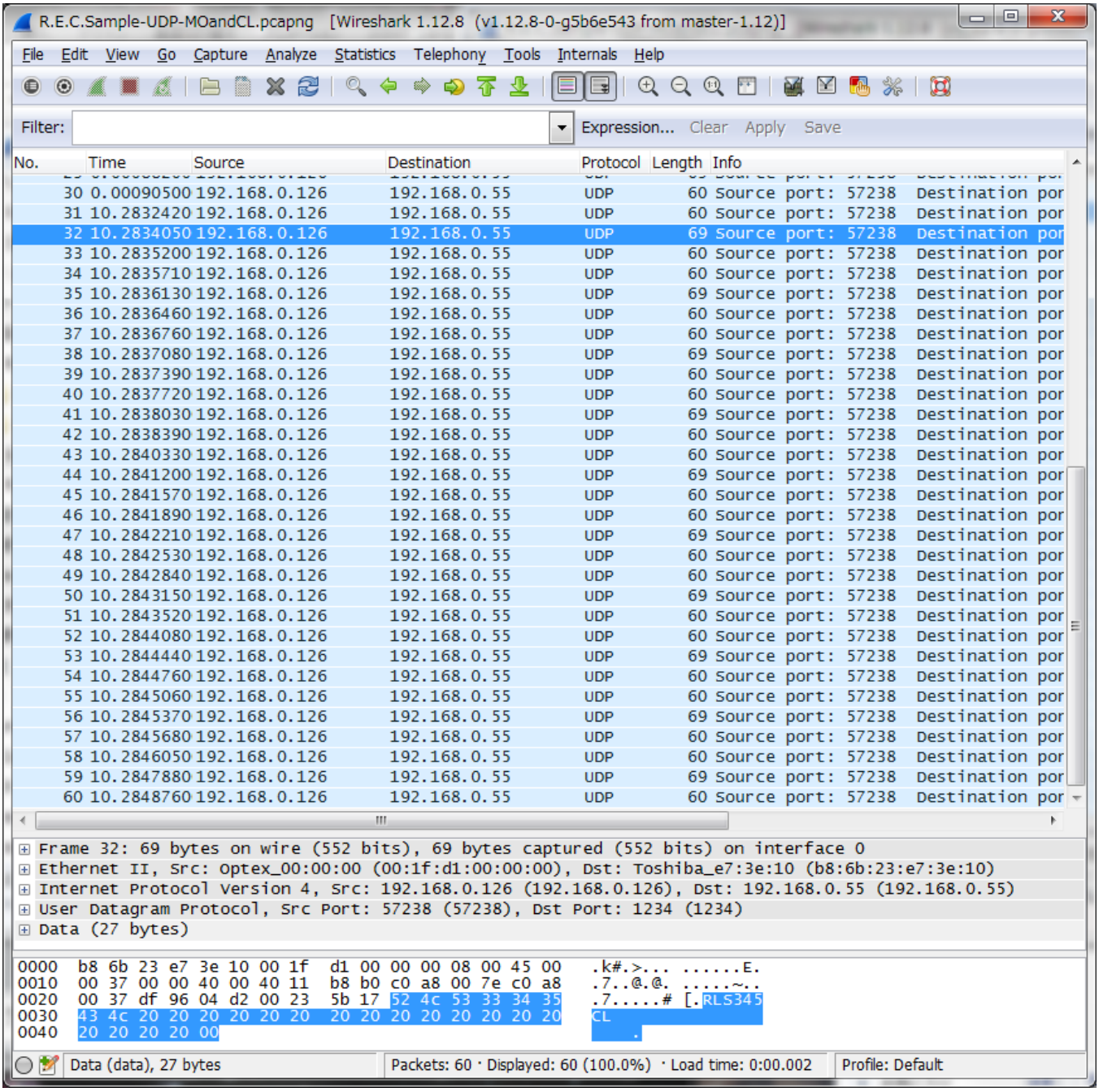

Fig.6 Sample of UDP Sequence (continue)

When the alarm is cleared, REDSCAN waits for "Transmission Interval for Clear code" (Fig.2). Then, REDSCAN sends a series of 3 UDP packets to the destination (No.31-33). Second packet contains R.E.C. (No.32). According to "Number of Transmission" (Fig.2), REDSCAN repeats sending the series of 3 packets. (No.31-No.60)

5. Packet Structure

(1) When R.E.C. is sent via TCP:

27 bytes R.E.C. code is stored in TCP payload.

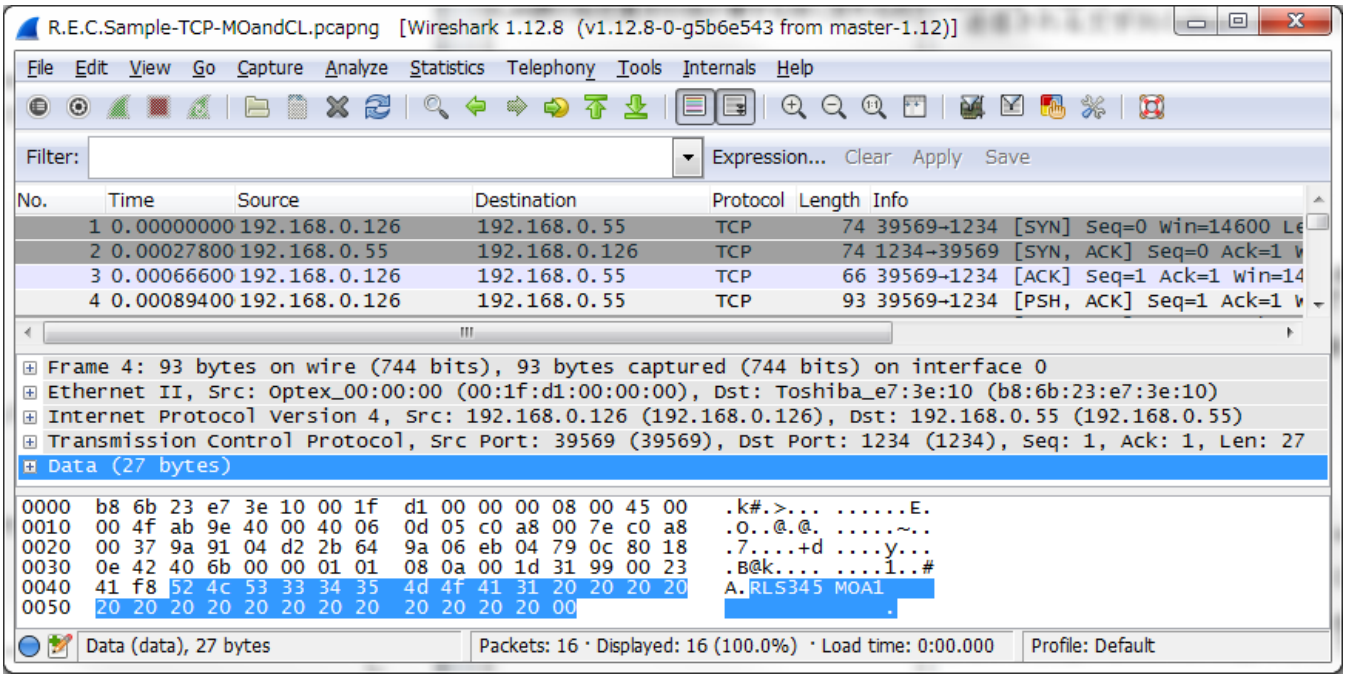

Fig.7 R.E.C. in TCP Payload

(2) When R.E.C. is sent via UDP:

REDSCAN sends a series of 3 UDP packets to the destination. The first packet contains 8 bytes header which starts from "URG.GC". The second packet contains R.E.C. The third packet contains 2 bytes checksum.

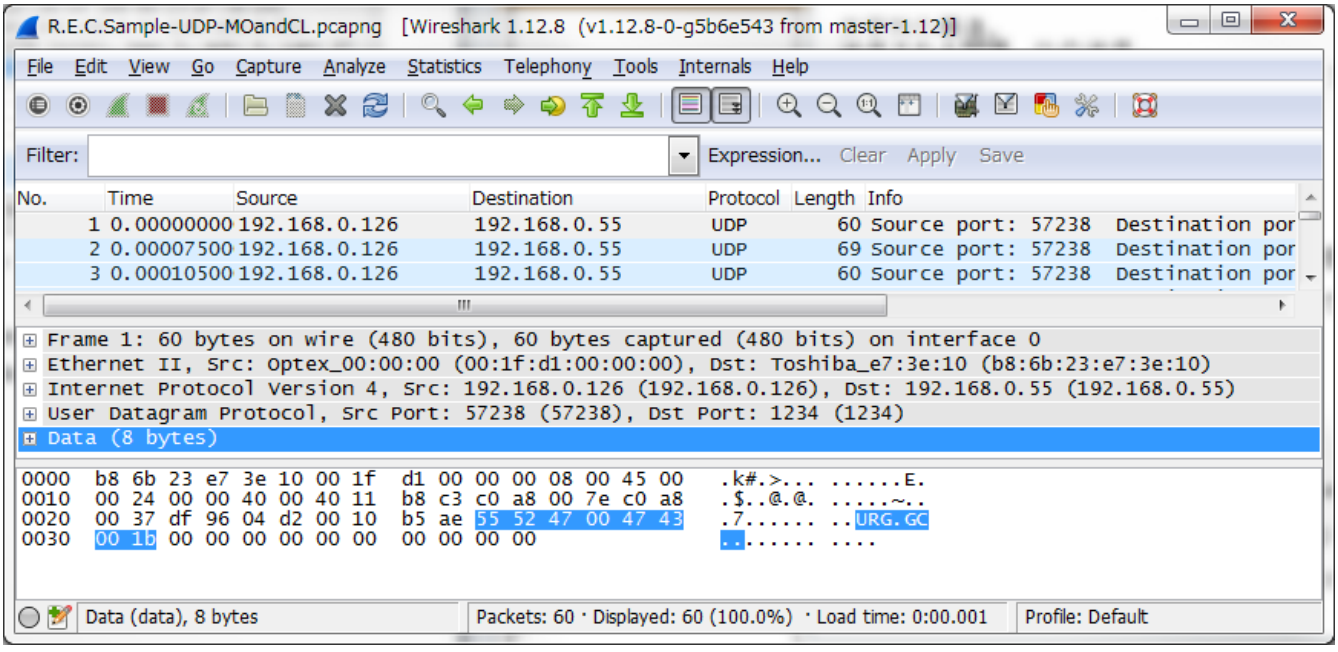

Fig.8 Header in the first UDP Packet

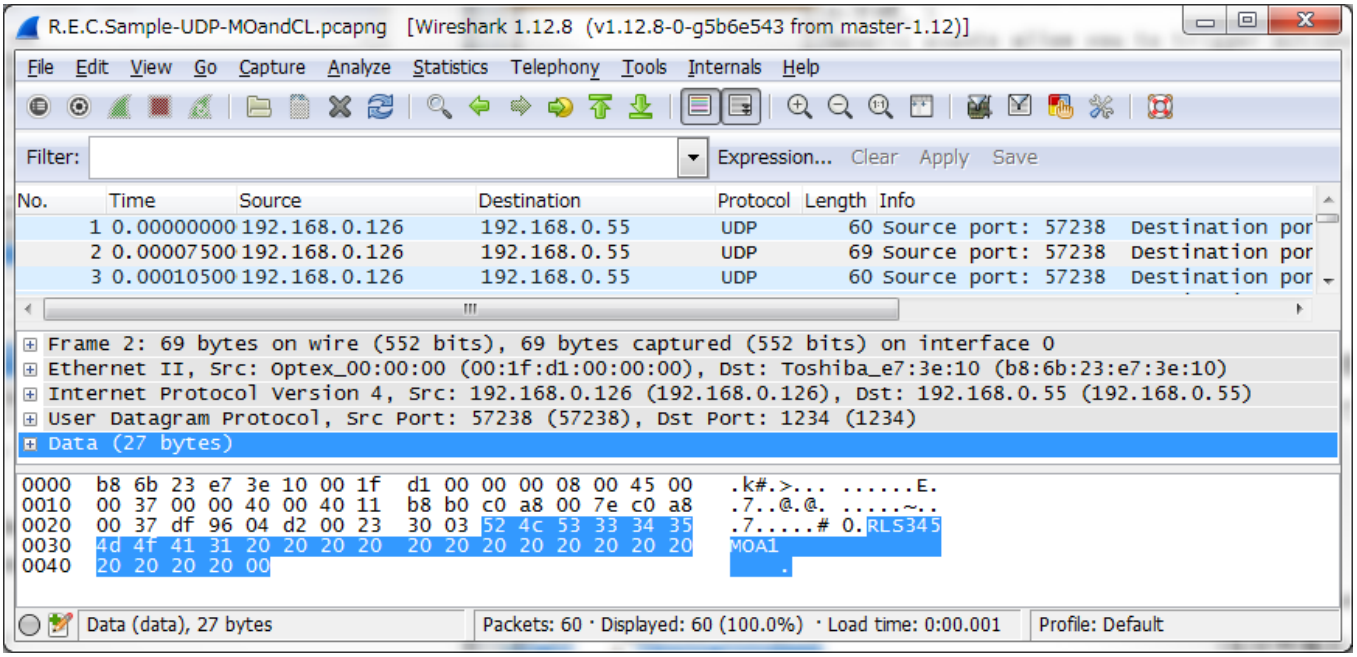

Fig9　R.E.C. in the second UDP Packet

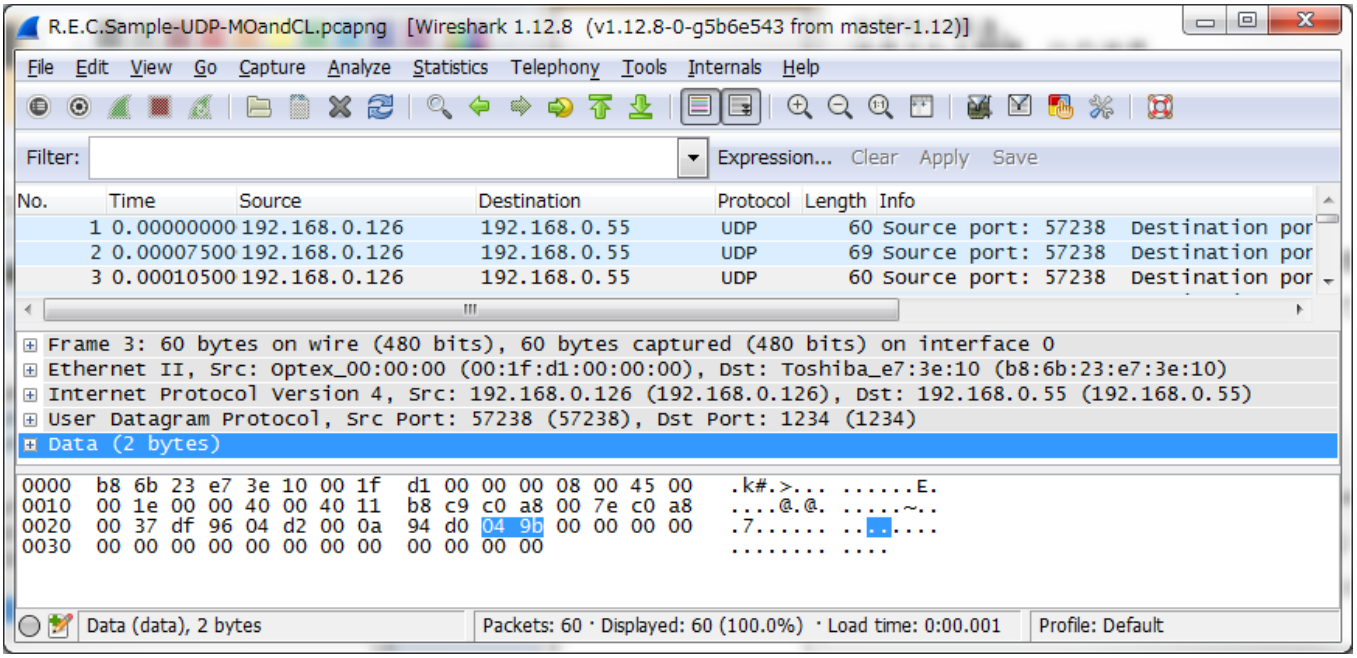

Fig.10　Checksum in the third UDP Packet

6. Sample Packets

Sample Files captured by WireShark are provided.

R.E.C.Sample-TCP-MOandCL.pcapng

R.E.C.Sample-TCP-Multiple.pcapng

R.E.C.Sample-TCP-TAandta.pcapng

R.E.C.Sample-UDP-MOandCL.pcapng

R.E.C.Sample-UDP-Multiple.pcapng

R.E.C.Sample-UDP-TAandta.pcapng