DVB-BILLING PRO Software and Statistics Server

The DVB-BILLING PRO software is designed to manage the subscriber's base and manage the decoders in large commercial DVB broadcasting networks using the TROPHY-ACCESS 3.0 Conditional Access System.
The DVB-BILLING PRO software is supplied with the Billing Server. Depending on the order, the Billing Server can be either the simplest (demo version) or the most complex, up to a group of servers assembled using cluster technology.

The main functions of the Statistics Server are:

- management of the decoders;
- keeping records of subscriber's payments;
- creating various reports on payments;
- integration of the Billing Server with the system of bank payment terminals and bank acquiring;
- sending of addressed messages and broadcast messages (watermarks etc.) to the subscriber's decoders.

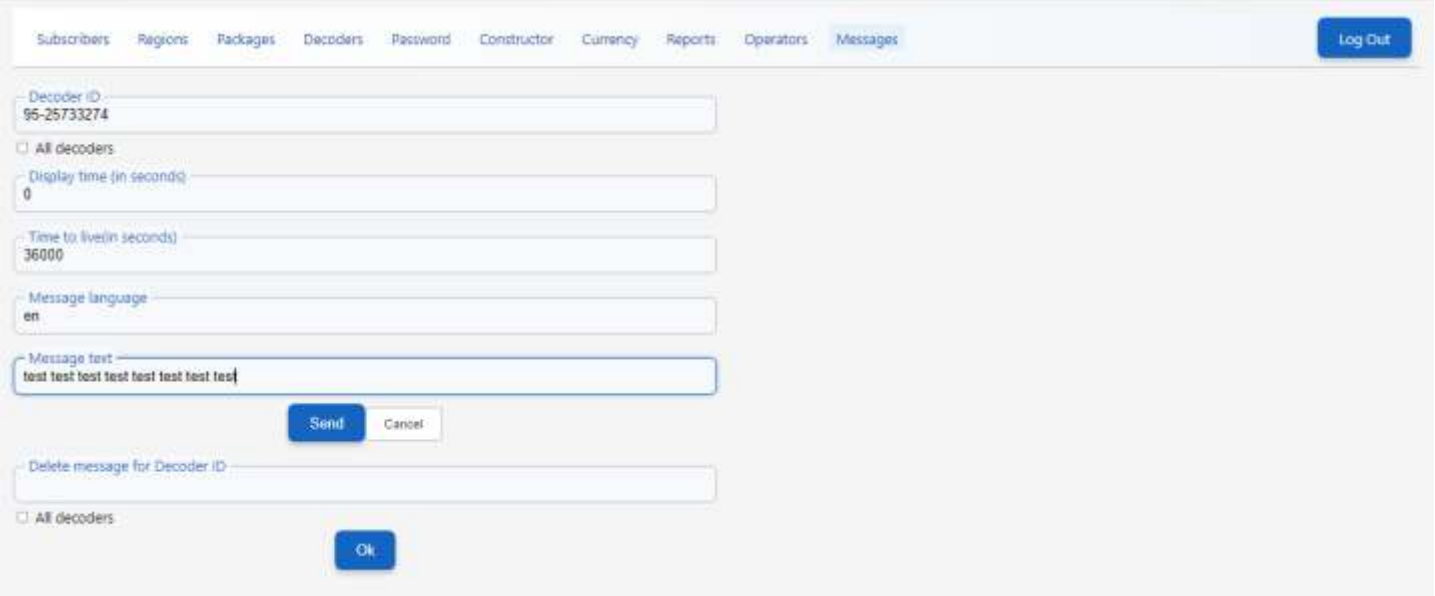
Operators can to send the command to activate the watermarks of the Decoders and the Decoder ID will be displayed on the subscriber's TV screens. This can become a serious protection against unauthorized retransmission of the channels.

You should visit our website for additional information:
https://dvb4all.com/?product=dvb_billing_pro_software

MESSAGES menu of the DVB-BILLING PRO software

The Administrator and Operators has the right to:

- send addressed message to the decoder by number;
- send the broadcasting message to all decoders (activate watermarks, for example).



Decoder ID - you can use **All Decoders** (broadcast method) or insert the Decoder ID. Please note that this Decoder ID must be present in the database.

Display time - the time of showing the message on TV screen. If display time equal 0, the message should be displayed until the user presses a button on the remote control.

Time to live - the time of sending the message from the multiplexer output.

Message language - two-letter language abbreviation.

Message text - the text of the addressed message, up to 170 bytes. The text may be missing. Only the Decoder ID will be displayed on the subscriber's TV screen.

Delete message for Decoder ID - you can delete the message before **Time to live** done. Please note that this Decoder ID must be present in the database.

Addressed messages supplied by the DVB-Billing PRO server.

TROPHY-ACCESS Set-Top-Boxes able to receive and show on the TV screen the addressed messages for Pay-TV subscribers. In additional, STB able to show ID number of embedded decoder (i.e. “ watermarks”) by “broadcast” message from Billing server.
Text information is coded using the character sets and methods described in Specification for Service Information (SI) in DVB systems (ETSI EN 300 468), annex A.
SMS table shall be mapped directly into TS packets. Sections may start at the beginning of the payload of a TS packet.
TS packet PID value must be set to 0x31.

SMS Table definition

```
--------------------
sms_section(){
        table_id                    :8
        section_syntax_indicator    :1
        reserved                    :3

        section_length              :12
        decoder_id                  :40
        message_id                  :32
        display_time                :8
        for (i=0;i<N;i++){
                message_byte        :8
        }
}
```

- **table_id:** This is a 32-bit field and must be equal to 0x81.
- **section_syntax_indicator:** This is a one-bit indicator which shall be set to "0".
- **section_length:** It specifies the number of bytes of the section, starting immediately following the section_length field and up to the end of the section.
- **decoder_id:** This is a 40-bit field that contains the identifier of the destination decoder of the message. If decoder_id is 0xffffffffff, it means the “broadcast” message which must be shown to everyone.
- **message_id:** This is a 32-bit field that contains the unique message number.
- **display_time:** This is a 8-bit field contains message display time in seconds. If display_time equal 0, the message should be displayed until the user presses a key on the remote control.
- **message_byte:** This is an 8-bit field. A string of "char" fields specify the text of message.

dvb packet example:

```
char p[188];
        uint8_t packet_cnt = 0;

    p[0] = 0x47;   //sync byte
    p[1] = 0x40;   //pid MSB (most-significant bit)
    p[2] = 0x31;   //pid LSB (least significant bit)
    p[3] = 0x10;   //(0x10 | packet_cnt) - continuity counter
    p[4] = 0;

    p[5] = 0x81;   //table_id
    p[6] = 0;
    p[7] = 16;     //section length

    p[8] =  0x00;    //msb decoder_id
    p[9] =  0x00;
    p[10] = 0x00;
    p[11] = 0x05;
    p[12] = 0x05;    //lsb decoder_id, decoder_id = 0x555

    p[13] = 0x00;   //msb message_id
    p[14] = 0x00;
    p[15] = 0x00;
    p[16] = 0x03;   //lsb message_id, message_id = 3

    p[17] = 5;      //display_time (5 seconds)

    // message_byte
    p[18] =  0x15; // UTF-8 encoding of ISO/IEC 10646
    p[19] = 'H';   // Hello
    p[20] = 'e';
    p[21] = 'l';
    p[22] = 'l';
    p[23] = 'o';
```

section_length:

It specifies the number of bytes of the section, starting immediately following the section_length field and up to the end of the section.

In this example, the section_length is **16** bytes where we are sending 5 characters "**Hello**" to decoder ID = **0x555**

dvb packet example:

```
char p[188];
        uint8_t packet_cnt = 0;

    p[0] = 0x47;   //sync byte
    p[1] = 0x40;   //pid MSB
    p[2] = 0x31;   //pid LSB
    p[3] = 0x10;   //(0x10 | packet_cnt) - continuity counter
    p[4] = 0;

    p[5] = 0x81;   //table_id
    p[6] = 0;
    p[7] = 16;     //section length

    p[8] =  0x00;    //msb decoder_id
    p[9] =  0x00;
    p[10] = 0x00;
    p[11] = 0x05;
    p[12] = 0x05;    //lsb decoder_id, decoder_id = 0x555

    p[13] = 0x00;   //msb message_id
    p[14] = 0x00;
    p[15] = 0x00;
    p[16] = 0x03;   //lsb message_id, message_id = 3

    p[17] = 5;      //display_time (5 seconds)

    // message_byte
    p[18] =  0x15; // UTF-8 encoding of ISO/IEC 10646
    p[19] = 'H';   // Hello
    p[20] = 'e';
    p[21] = 'l';
    p[22] = 'l';
    p[23] = 'o';
```

Maximum message has **170** bytes and maximum section_length is **181** bytes.

dvb packet example:

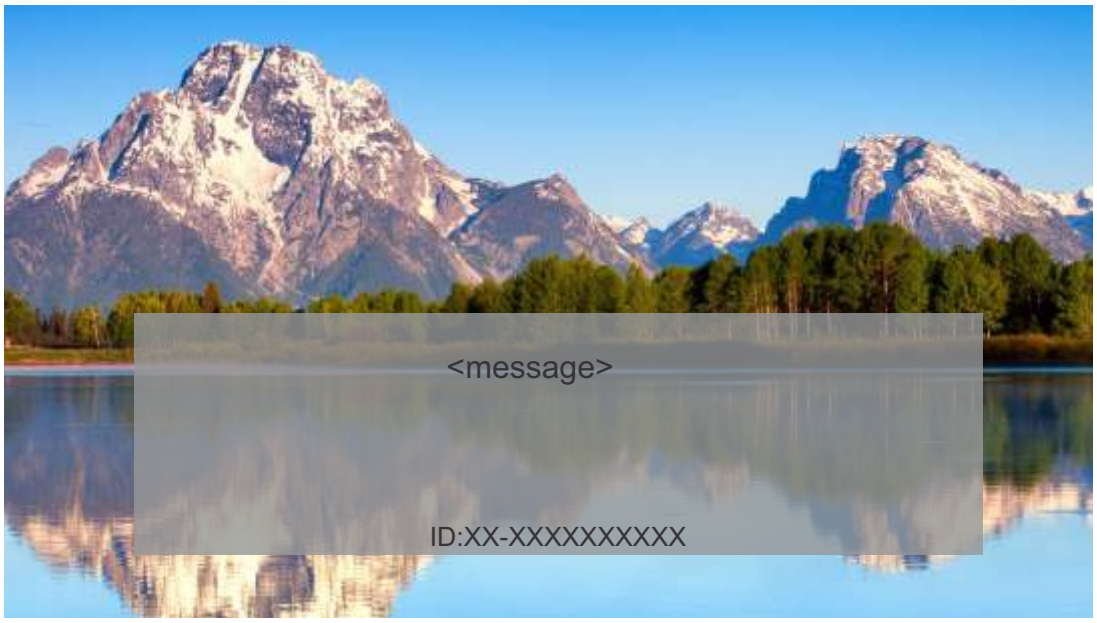
```
char p[188];
        uint8_t packet_cnt = 0;

    p[0] = 0x47;   //sync byte
    p[1] = 0x40;   //pid MSB
    p[2] = 0x31;   //pid LSB
    p[3] = 0x10;   //(0x10 | packet_cnt) - continuity counter
    p[4] = 0;

    p[5] = 0x81;   //table_id
    p[6] = 0;
    p[7] = 181;    //section length

    p[8] =  0x00;    //msb decoder_id
    p[9] =  0x00;
    p[10] = 0x00;
    p[11] = 0x05;
    p[12] = 0x05;    //lsb decoder_id, decoder_id = 0x555

    p[13] = 0x00;   //msb message_id
    p[14] = 0x00;
    p[15] = 0x00;
    p[16] = 0x03;   //lsb message_id, message_id = 3

    p[17] = 5;      //display_time (5 seconds)

    // message_byte
    p[18] =  0x15; // UTF-8 encoding of ISO/IEC 10646
    p[19] = 'byte1';   // <170 bytes max>
    p[20] = 'byte2';
    p[21] = 'byte3';
    p[22] = 'byte4';
    p[23] = 'byte5';
    —
    —
    ---
    p[188] = 'byte170'
```

decoder_id

This is a 40-bit field that contains the identifier of the destination decoder of the message.

Set-Top-Box analyzes the decoder number and, if it matches its own number, displays a message on the screen. The decoder number is displayed at the footer of the window with a message. The decoder number consists 2 symbols of zone and 10 symbols of decimal number.

The subscriber can press any button on the remote control to remove this message.



If decoder_id is 0xffffffffff, it means the “broadcast” message must be shown to everyone.

Set-Top-Box analyzes the decoder number and, if it number is 0xffffffffff, displays the “broadcast” message on the screen. It case of “watermarks” it can be empty screen too. The decoder number is displayed at the footer of the window in any case.

The subscriber can not remove this message manually. See **display_time** option.

message_id:

This is a 32-bit field that contains the unique message number.

The Billing server stores the ID of the last message for each subscriber. In case of a new message being sent to the subscriber, the message ID is automatically incremented. The Set-Top-Box must remember the ID of the last received addressed message. When receiving a new message, the Set-Top-Box must compare this ID with the one stored in the memory. If the new message has a higher ID, then this message is displayed on the screen. Otherwise, the message is ignored.

When receiving a “broadcast” message, the Set-Top-Box must indicate it on the screen in any case without comparing of ID numbers .

display_time:

This is a 8-bit field contains the message display time in seconds.

If display_time equal 0, the message should be displayed until the user presses a key on the remote control.