HartTools 7.5

Advanced Details of FrameAlyst
Software Documentation

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**Introduction**

The manual of Hart Tools 7.5 is only providing the most important information about FrameAlyst. There are some more features which are described in this document.

**Advanced Details**

**File Menu**

The frames are still stored in the format which was used in the past. However when saving the frame data you may also select an xml format or html format.
Store in Xml and Html Format

If you select the file extension .frax, the frames will be stored in xml format. Alternatively you may also choose an html format as a documentation of the debug session.

An example of an xml output is shown on the following page.

XML Format Example

```xml
<FrameAlystRecords>
  <SessionInfo FrameAlyst 7.1 for Hart [Data: Test-4.frax]>
  <SessionInfo>
    <NumberOfframes>1</NumberOfframes>
    <NumberOfPages>1</NumberOfPages>
    <TimeLineStart>2016.02.23 09:30:45</TimeLineStart>
    <TimeLineEnd>2016.02.23 09:30:45</TimeLineEnd>
  </SessionInfo>
  <Frame Number=""0000"">
    <DataName>
      <Properties StartTime="4608941" EndTime="4608950" NumberOfBytes="15" HasStopTime="false" ClientTag="true" IsValidFrame="true" />
      <FrameBytes>255,255,255,255,255,150,189,255,12,2,3,0,0,104,255</FrameBytes>
    </DataName>
    <AddInfo>
      <HeadingComments> Script: CHY(9) / NO DATA</HeadingComments>
    </AddInfo>
  </Frame>
  <Frame Number="00001"
  <DataName>
    <Properties StartTime="4608950" EndTime="4608960" NumberOfBytes="29" HasStopTime="false" ClientTag="false" IsValidFrame="true" />
    <FrameBytes>255,255,255,255,255,150,189,255,12,2,3,0,0,104,255</FrameBytes>
  </DataName>
  <AddInfo>
    <HeadingComments> Script: CHY(9) / NO DATA</HeadingComments>
  </AddInfo>
  </Frame>
  <Frame Number="00002"
  <DataName>
    <Properties StartTime="4608960" EndTime="4608970" NumberOfBytes="15" HasStopTime="false" ClientTag="true" IsValidFrame="true" />
    <FrameBytes>255,255,255,255,255,150,189,255,12,2,3,0,0,104,255</FrameBytes>
  </DataName>
  <AddInfo>
    <HeadingComments> Script: CHY(9) / NO DATA</HeadingComments>
  </AddInfo>
  </Frame>
  </FrameAlystRecords>
```

Regarding Html format you may either store the records in an Html file or click ‘html’ in the print functions. The print function for ‘html’ is opening your standard browser directly to display the frames.
Service Menu

Services are some more complex functions as only sending a command.

The services are only working if the FrameAlyst is using the master emulation.
Toggle Burst Mode

This service is handling command 109.

Set Poll Address

Set slave poll address is handling command 6. Note: Hart5 is only supporting addresses 0..15 while Hart 7 has a range of 0..63.

Search Device

This service searches for slaves in a range of poll addresses from 0 to 63.

Edit/Set Long Tag

The long tag is an iso latin-1 string of a length of a maximum of 32 characters. If it contains less than 32 characters it is terminated by 0x00.
**Activate Hart 6/7**

There is no form provided which is used to realize this mean. The service is using commands 7 and 6 to signal the slave device that a Hart 6/7 host is connected.

**Read Device Data**

This service is reading the main information from a device.

**Set Tag/Dsc/Date**

This application is setting the short tag, the descriptor and the date.
Set Range

The service is trying to write the upper and the lower range value of the primary variable of a device.

Edit/Run Scripts

Running scripts is simply sending a series of commands with or without request data.

The example above is sending the commands 0, 18, 3 and 35.
The script may be stored in a file and be loaded from a file. The active script is always stored in the settings of the software and automatically reloaded after the start of FrameAlyst.

If command 255 is specified in the script, the data will be sent as is not formatted as a Hart frame.

## General

### Decoding Data in a Frame

For decoding data in a frame the data to be decoded has to be marked.
By using the right mouse button a context menu will be displayed.

- **Integer**
- **Float**
- **HartUnit**
- **PackedASCII**
- **Text**
- **Binary**

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**Copy to AnyFrame**

Select the decoding of your choice and the value will be displayed in a tool tip.

**Copy to SendAnyFrame**

Sometimes it could be helpful to copy a frame to the send any frame function to modify and send it.

Select the whole frame, click the right mouse button and click 'Copy to AnyFrame' in the context menu.

The data will be copied to this function and the edit any frame window will open.

It is also possible to copy only a part of the data.
It will appear as is in the any frame editing function.

Copy Bytes to the Clipboard

The same functionality as shown allows also to copy data bytes to the Windows clipboard by selecting 'Bytes to ClipBoard' in the context menu.

Editing Data Syntax

Data syntax allows to easily specify a stream of bytes to be send.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Type</th>
<th>Example</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Decimal or Hexadecimal</td>
<td>24; 0x18</td>
<td>The software will determine the required length</td>
</tr>
<tr>
<td>dec8, dec16, dec24, dec32</td>
<td>Decimal number</td>
<td>dec16; 1011</td>
<td></td>
</tr>
<tr>
<td>bin8, bin16, bin24, bin32</td>
<td>Binary number</td>
<td>bin8; 10001101</td>
<td></td>
</tr>
<tr>
<td>hex8, hex 16, hex24, hex32</td>
<td>Hexadecimal number</td>
<td>hex16; fa13</td>
<td></td>
</tr>
<tr>
<td>float32</td>
<td>Single precision</td>
<td>float32; 1.34</td>
<td></td>
</tr>
<tr>
<td>float64</td>
<td>Double precision</td>
<td>float64; 1.11e+48</td>
<td></td>
</tr>
<tr>
<td>pca6, pca12, pca24</td>
<td>Packed ascii</td>
<td>pca6; LITT1400</td>
<td>pca6 = 8 characters pca12 = 16 characters pca24 = 32 characters</td>
</tr>
<tr>
<td>str8, str16, str32</td>
<td>Fixed length string</td>
<td>str32; my-device</td>
<td>Resulting byte array will be filled by 0s</td>
</tr>
</tbody>
</table>

All items the prefix and the data element are separated by a colon ';'.

A few examples are shown above.
However, it could be much easier to do this by the data syntax editor.

When editing a command that requires data to be specified the data syntax editor will open on a click of the edit button.
Displaying the Slave Emulation

If the slave emulation is active, FrameAlyst provides a callback to the slave simulation which is used by this software for printing text with the printf function in the C libraries.

Handling of Erroneous Frames

FrameAlyst is displaying the results while trying to read frames.
Setting Custom Colors

The tab Options is providing User Colors.
The user colors can be edited by clicking the button 'Edit Colors'.
The color editing form is shown in the following.

Frame Display Examples

FrameAlyst is decoding data of some commands.