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Related documentation
1 Definition of abbreviations

ADD  AMiT Device Detection
ADS  AMiT Domain Services
CRC  Cyclic redundancy check
GUI  Graphic user interface
NSDB Node supervisory database
TCN  Train Communication Network
UDP  User datagram protocol
WTB  Wire Train Bus
2 Definition of used terms

Auxiliary Channel
Channel on WTB node used for detecting additional nodes. Used at bus end nodes – nodes at end setting. This term is defined in IEC 61375-2-1:2012.

Domain
This term describes a logical slot in the device with specific purpose. This slot contains a file of certain type, e.g. a file with device configuration or firmware update. The file can be downloaded or uploaded from/to the domain according to the granted rights. The list of domains present in the particular device is described in the chapter 6 of this programmer’s manual.

End Setting
This term describes an operational status of WTB nodes. These nodes terminate the WTB bus. The term is defined in IEC 61375-2-1:2012.

HDLC
High-level Data Link Control, a set of standardized protocols, including ISO/IEC 13239 for data transmission.

Intermediate Setting
This term describes an operational status of WTB nodes. These nodes are connected the WTB bus and does not terminate the bus. The term is defined in IEC 61375-2-1:2012.

Unstuffed HDLC frame data
Data transmitted in an HDLC frame and received and processed by link layer.

Download/Upload
Term download is used when the data are transported from the PC/ADSManager to the device. It is due to historic reasons though in the internet world this process is uploading. So download in the following text is used when data goes from PC to the target device by means of ADSManager.

---

**Fig. 1** – Domain data flow scheme

```
dataflow diagram
```

Target Device       READ       DOWNLOAD
                  <-------->         <-------->
                        PC
3 ADSManager

3.1 Program description

Program provides loading and retrieval of domain files from/to device and for domain management. Domain is considered as part of memory, which is defined by offset and size.

Program itself consists of several parts:

1. Menu
2. List of devices
3. Device search
4. Status bar

Legend

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Menu</td>
</tr>
<tr>
<td>2</td>
<td>List of devices</td>
</tr>
<tr>
<td>3</td>
<td>Device search</td>
</tr>
<tr>
<td>4</td>
<td>Status bar</td>
</tr>
</tbody>
</table>

Fig. 2 – Main window
3.2 Menu

3.2.1 File

*Exit*  Program termination

*Search*  Searching for device on selected communication channel

*Search cancel*  Cancel device searching

3.2.2 Options

**Preferences**

- **Communication channel** – communication channel type: Ethernet, Serial, ACP (AMiT Communication Protocol)
- **UDP Port** – Ethernet port number
- **Timeout** – period of time to wait before connection times out
- **COM** – serial port number
- **View Stamp Data** – when the box is checked, the domain CRC will be displayed in domain list
- **Domain File Source Dir** – folder from where the .dom files will be read
- **Domain File Destination Dir** – folder where the .dom files will be saved

![Fig. 3 – Preferences](image-url)
3.3 List of devices

All found devices are displayed in the list on selected communication line.

Basic operations can accessed from a context menu which can be invoked by a right mouse click on a found device. Context menu consists following items.

- **Domain services** – reading the list of domains from the device (see below)
- **Switch to service mode** – switching the device in to the service mode; Safe application starts
- **Reset device** – resetting device
- **Load XML** – displaying window for reading XML script. XML scripts serve, for example, for multiple domain update
- **Ethernet settings** – change of IP address, mask or default IP gateway

![Fig. 4 – Main window with a context menu](image)
3.4 List of domains

Fig. 5 – List of domains

Legend

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Main table</td>
</tr>
<tr>
<td>2</td>
<td>Sub-table</td>
</tr>
<tr>
<td>3</td>
<td>Quick control</td>
</tr>
</tbody>
</table>

Main table

The main table shows current list of domains.

If the domain is active, the line is blue, when damaged or free, the line is red. Otherwise the line is black.

- **ID** – the domain ID
- **Memory** – type of used memory (ROM, Flash, …)
- **User rights** – RE = reading, WR = writing, DW = download, SR = sequential reading, RU = rights to run, DI = dictionary with parameters

- **Version** – domain version

- **Description** – domain description

**Sub-table**

The sub-table shows detail parameters of particular domain. Sub-table content varies according to line selected in main table.

- **File** – file name specified by AMiT company

- **DB name** – database name specified by user in configurator tool (N/A)

- **MAC** – network interface MAC address.

- **Offset** – retrieved domain offset (0 to DMNS – 1)

- **DMNS** – overall number of domains included in device

- **Max Size** – domain total size

- **Current Size** – occupied domain size

- **Free Size** – domain free size in %

- **Time** – time of domain creation/change

- **Usage** – domain occupation type (empty, debug, internal, release)

- **State** – domain data status

- **Appl ID** – bottom Word = HWID, Upper Word = PID

- **Hwid ID** – station identifier

- **PID** – process/application identifier.

- **Cfg ID** – station modification identifier

- **Cfg Mask** – Cfg ID mask for given domain

- **Sig** – domain signature (specifies meaning of domain content)

**Quick control**

- Refresh domains list – 🔄

- Download domain – 🔄

- Read domain – 🔄

### 3.4.1 Operations over domains

Several operations over domains can be accessed from a context menu. The context menu for a particular domain can be invoked by first selecting the domain with a left mouse click on a domain line and the pressing the right mouse button. When invoking the context menu it is important to have right domain selected since the context menu is always opened for the selected domain.

- **Read Domain** – domain contents retrieval. Provides retrieval of domain content from the device and it's storing to *.dom type file. For Journal type domain – the text form *.log can be displayed.

- **Download Domain** – loading the domain into device. Provides loading of selected domain into the device. After successful downloading, the user is
prompted to activate data. When refused, the domain will be inactive up to next device restart.

- **Compute CRC** – retrieving/calculating CRC. When user activates the item, program first tries to read CRC from the device, if available. If unavailable, calculation is made. User can also force the calculation by pressing the Compute button in window for calculation.

- **Compute SHA1** – retrieving/calculating SHA1. The process is similar to the CRC calculation.

### 3.5 Ethernet settings

Device IP, mask or default gateway can be changed by this dialogue.

![Ethernet Settings](image)

**Fig. 6 – Ethernet settings**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PC network info</td>
</tr>
<tr>
<td>2</td>
<td>Device network info</td>
</tr>
</tbody>
</table>

**Legend**

- **PC network info** Pc network info shows network parameters of currently used network PC network adapter.
  - **IP** – IP address of currently used network adapter
  - **Mask** – Network mask of currently used network adapter
  - **Adapter** – Name of currently used network adapter
Device network info

- IP – Current IP address of selected device
- Mask – Network mask of selected device
- Gateway – Gateway of selected device

To change device network parameters please follow the following procedure.

Procedure
- Right click on device selected in Detected stations list.
- Select Ethernet Settings Item.
- On the Ethernet Settings form mark network parameters, which you want to change by checking Set checkbox (IP and/or Mask and/or Gateway).
- Change parameters (IP and/or Mask and/or Gateway).
- Perform changes by clicking on Set button.

Ethernet settings are performed by ADD protocol.

3.6 Status bar

Status The text aligned to the left on the status bar indicates the result of the most recent operation.

Ethernet The text aligned to the right on the status bar indicates currently used port of the UDP communication. Unless changed the value should stay on a value of 75.

3.7 XML script

XML script contains list of domains for update. Scripts are provided by AMiT company.

XML scripts can be loaded either from GUI or it is possible to run ADSManager in command line mode.

3.7.1 GUI mode

Window for working with XML scripts can be invoked from context menu “Load XML” after the device is found.

- Browse script 📝 – browse script
- Clear 🗑 – clear the command line window
- Run script ⏯ – run script
- Context menu – switch IP address
3.7.2 Command line mode

In the command line mode it is also possible to run XML script in order to download multiple domains but it still is possible to download only one domain. In such case the parameter Domain ID must be supplied and the device itself checks the validity of the ID.

**ADS CMD** Format:

```
ADSManager -c<port> -x <xml>
ADSManager -c<port> -d<id> <dom>
```

Parameters:

- `-h` 
  - `help`
- `-c<number>` 
  - `serial port number (-c1)`
- `-c<number>:acp` 
  - `ACP serial port number (-c1:acp)`
- `-i<IP>` 
  - `ethernet IP address` 
  
  `(-i192.168.1.1, -i192.168.1.1:75)`
- `-x <*.xml>` 
  - `XML file, script for operation with domain(s)` 
  
  `(domains.xml)`
- `-d<number> <*.dom>` 
  - `ID domain and DOM file for update (-d8 nsdb.dom)`
- `-j<number> <name>` 
  - `ID domain and journal target file name*.log or *.rtf (-j5 journal.log)`

Fig. 7 – GUI XML script – domain update
-t<number>  -communication Ethernet timeout (-t3000)
-n<IP,GW,MK> -set new IP address, GW gateway, MK mask (not set empty, for set mask -n,,255.255.255.0)
-r  -reset device
-p  -information about device

Fig. 8 – Command line XML script – domain update