Operating Instruction Manual

Generic, Modular Generic DTM from EDS File for non-modular and modular EtherNet/IP Adapter Devices

Configuration of EtherNet/IP Adapter Devices

Hilscher Gesellschaft für Systemautomation mbH

www.hilscher.com

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1 Introduction

1.1 About this Manual

Read in this manual, how to use the EtherNet/IP generic - modular generic EDS Adapter DTM to configure within a FDT Framework the device parameters of a non-modular EtherNet/IP Adapter device or of a modular EtherNet/IP Adapter device, which are described with EDS files. To perform the configuration procedure the EtherNet/IP generic - modular generic EDS Adapter DTM is inserted in a network project to the Master busline of an EtherNet/IP Scanner DTM. The User Interface of the DTM looks for the

- non-modular EtherNet/IP Adapter devices from an EDS file like an EtherNet/IP generic EDS Adapter DTM

and for the

- modular EtherNet/IP Adapter devices from an EDS file like an EtherNet/IP modular generic EDS Adapter DTM.

1.1.1 Descriptions of the Dialog Panes

The table below gives an overview for the individual dialog panes descriptions:

<table>
<thead>
<tr>
<th>Section</th>
<th>Subsection</th>
<th>Manual Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration</td>
<td>Overview Configuration</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>General</td>
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<td></td>
<td>Modules (modular DTM)</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>(for modular DTM only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electronic Keying</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Connection</td>
<td>26</td>
</tr>
<tr>
<td>Description</td>
<td>EDS Viewer</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 1: Descriptions Dialog Panes

1.1.2 Online Help

The EtherNet/IP generic - modular generic EDS Adapter DTM contains an integrated online help facility.

➢ To open the online help, click on Help or press F1.

1.1.3 List of Revisions

<table>
<thead>
<tr>
<th>Index</th>
<th>Date</th>
<th>Version</th>
<th>Component</th>
<th>Chapter</th>
<th>Revisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>06.08.13</td>
<td>1.200.x.x, 1.200.x.x</td>
<td>ENIPGenEDSAdapterDTM.dll, ENIPGenEDSAdapterGUI.ocx</td>
<td>All 1.3.1</td>
<td>Revised and updated. Section Requirements updated (Windows 8 added).</td>
</tr>
</tbody>
</table>

Table 2: List of Revisions
1.1.4 Conventions in this Manual

Notes, operation instructions and results of operation steps are marked as follows:

Notes

Important: <important note>

Note: <note>

<note, where to find further information>

Operation Instructions

1. <instruction>
2. <instruction>

or

➢ <instruction>

Results

➢ <result>

Langage Convention for EtherNet/IP

The EtherNet/IP specification defines the term "Scanner" instead of "Master" and "Adapters" instead of "Slave".

The short term “EtherNet/IP generic EDS Adapter DTM” is used in the textual descriptions of these manual instead of the full term “EtherNet/IP generic - modular generic EDS Adapter DTM”.

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- in life support systems;
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EtherNet/IP™ is a trademark of ODVA (Open DeviceNet Vendor Association, Inc).

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1.3 About EtherNet/IP Generic Adapter DTM from EDS File

You can use the **EtherNet/IP generic - modular generic EDS Adapter DTM** to configure within a FDT Framework the device parameters of a non-modular EtherNet/IP Adapter device or of a modular EtherNet/IP Adapter device, which are described with EDS files.

To perform the configuration insert the **EtherNet/IP generic - modular generic EDS Adapter DTM** in the network project to the Master busline of the EtherNet/IP Scanner DTM.

### 1.3.1 Requirements

#### System Requirements

- PC with 1 GHz processor or higher
- Windows® XP SP3, Windows® Vista (32 bit) SP2, Windows® 7 (32 bit) SP1, Windows® 7 (64 bit) SP1, Windows® 8 (32 bit) or Windows® 8 (64 bit)
- Administrator privilege required for installation
- Internet Explorer 5.5 or higher
- RAM: min. 512 MByte, recommended 1024 MByte
- Graphic resolution: min. 1024 x 768 pixel
- Keyboard and Mouse

**Note:** If the project file is saved and opened again or if it is used on another PC, the system requirements must match. Particularly the DTM must be installed on the used PC.

#### Restriction

Touch screen is not supported.

#### Requirements EtherNet/IP Generic EDS Adapter DTM

To configure an EtherNet/IP Adapter device or a modular EtherNet/IP Adapter device with the EtherNet/IP generic EDS Adapter DTM the following requirements must be accomplished:

- Installed FDT/DTM V 1.2 compliant frame application,
- Installed EtherNet/IP Scanner DTM,
- EDS file of the devices to configure,
- The DTM must be loaded to the device catalog.

#### Loading EDS files

To add devices to the **netDevice** device catalog, the EDS file of the used device must be imported via **netDevice** menu **Network > Import Device Descriptions** .... into the EDS folder of the DTM. Then the Device Catalogue must be reloaded.
The folder EDS inclusively Windows\textsuperscript{®} XP is located in the application data directory (All Users) of the configuration software (or from with Windows\textsuperscript{®} 7 on in the C:\ProgramData\SYCONnet directory).

For further information refer to section Configuration Steps for non-modular Adapter Devices on page 14, under step 1 and 2.

1.4 Dialog Structure of the EtherNet/IP generic EDS Adapter DTM

The graphical user interface of the DTM is composed of different areas and elements listed hereafter:

1. A header area containing the General Device Information,
2. The Navigation Area (area on the left side),
3. The Dialog Pane (main area on the right side),
4. OK, Cancel, Apply, Help,
5. The Status Line containing information e. g. the online-state of the DTM.

Figure 1: Dialog Structure of EtherNet/IP generic EDS Adapter DTM
1.4.1 General Device Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>IO Device</td>
<td>Name of the device</td>
</tr>
<tr>
<td>Vendor</td>
<td>Vendor name of the device</td>
</tr>
<tr>
<td>Device ID</td>
<td>Identification number of the device</td>
</tr>
<tr>
<td>Vendor ID</td>
<td>Identification number of the vendor</td>
</tr>
</tbody>
</table>

Table 3: General Device Information

1.4.2 Navigation Area

The Navigation Area contains folders and subfolders to open the dialog panes of the DTM.

Select the required folder and subfolder.
- The corresponding Dialog pane is displayed.

Hide / display Navigation

- Hiding the navigation area (above right side).
- Opening the navigation area (below left side).
1.4.3 Dialog Panes

At the dialog pane the **Configuration** or **Description** panes are opened via the corresponding folder in the navigation area.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td>On the pane <strong>General</strong> EtherNet/IP Adapter information is displayed. For further information, refer to section <strong>General</strong> on page 21.</td>
</tr>
<tr>
<td><strong>Modules</strong></td>
<td>At the <strong>Modules</strong> page the modules can be configured. For further information, refer to section <strong>Modules (modular DTM)</strong> on page 22.</td>
</tr>
<tr>
<td><strong>Electronic Keying</strong></td>
<td>At the <strong>Electronic Keying</strong> pane for online validation of adapters an electronic keying method can be selected and the keying can be configured. For further information, refer to section <strong>Electronic Keying</strong> on page 24.</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td>At the <strong>Connection</strong> pane the connection can be parameterized. For further information, refer to section <strong>Connection</strong> on page 26.</td>
</tr>
<tr>
<td><strong>EDS Viewer</strong></td>
<td>By use of the <strong>EDS-Viewer</strong> an EDS file can be searched through. Further information to this you find in section <strong>EDS Viewer</strong> on page 33.</td>
</tr>
</tbody>
</table>

**Table 4: Overview Dialog Panes**

1.4.4 OK, Cancel, Apply and Help

OK, Cancel, Apply and Help you can use as described hereafter.

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OK</strong></td>
<td>To confirm your latest settings, click <strong>OK</strong>. All changed values will be applied on the frame application database. <strong>The dialog then closes.</strong></td>
</tr>
<tr>
<td><strong>Cancel</strong></td>
<td>To cancel your latest changes, click <strong>Cancel</strong>. Answer to the safety query <strong>Configuration data has been changed. Do you want to save the data?</strong> by <strong>Yes</strong>, <strong>No</strong> or <strong>Cancel</strong>. <strong>Yes</strong>: The changes are saved or the changed values are applied on the frame application database. <strong>The dialog then closes.</strong> <strong>No</strong>: The changes are not saved or the changed values are not applied on the frame application database. <strong>The dialog then closes.</strong> <strong>Cancel</strong>: Back to the DTM.</td>
</tr>
<tr>
<td><strong>Apply</strong></td>
<td>To confirm your latest settings, click <strong>Apply</strong>. All changed values will be applied on the frame application database. <strong>The dialog remains opened.</strong></td>
</tr>
<tr>
<td><strong>Help</strong></td>
<td>To open the DTM online help, click <strong>Help</strong>.</td>
</tr>
</tbody>
</table>

**Table 5: OK, Cancel, Apply and Help**
1.4.5 Status Bar

The **Status Bar** displays information about the current state of the DTM. The current activity, e.g. the DTM connection state, is signaled graphically via icons in the status bar.

![Status Bar](image)

*Figure 4: Status Bar – Status Fields 1 to 6*

<table>
<thead>
<tr>
<th>Status Field</th>
<th>Icon / Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DTM Connection States</td>
</tr>
<tr>
<td></td>
<td><strong>Connected</strong>: Icon closed = Device is online</td>
</tr>
<tr>
<td></td>
<td><strong>Disconnected</strong>: Icon opened = Device is offline</td>
</tr>
<tr>
<td>2</td>
<td>Data Source States</td>
</tr>
<tr>
<td></td>
<td><strong>Data set</strong>: The displayed data are read out from the instance data set (database).</td>
</tr>
<tr>
<td></td>
<td><strong>Device</strong>: The displayed data are read out from the device.</td>
</tr>
<tr>
<td>3</td>
<td>States of the instance Date Set</td>
</tr>
<tr>
<td></td>
<td><strong>Valid Modified</strong>: Parameter is changed (not equal to data source).</td>
</tr>
</tbody>
</table>

*Table 6: Status Bar Icons [1]*

![Offline State](image)

*Figure 5: Status Bar Display Example*
## Getting Started

### Configuration Steps for non-modular Adapter Devices

The following table describes the steps to configure a non-modular EtherNet/IP Adapter device with the EtherNet/IP generic EDS Adapter DTM as it is typical for many cases. At this time it is presupposed that the EtherNet/IP Scanner DTM installation was already done.

The overview lists all the steps in a compressed form. For detailed descriptions of each step refer to the sections noted in the column For detailed information see section.

<table>
<thead>
<tr>
<th>#</th>
<th>Step</th>
<th>Short Description</th>
<th>For detailed information see section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Add EtherNet/IP generic EDS Adapter DTM in the Device Catalog</td>
<td>Add the adapter DTM in the Device Catalog by importing the device description file to the Device Catalog. Depending of the FDT Container. For netDevice: - Network &gt; Import Device Descriptions.</td>
<td>(See Operating Instruction Manual netDevice and netProject)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Load Device Catalog</td>
<td>Depending of the FDT Container: For netDevice: - select Network &gt; Device Catalog, - select Reload Catalog.</td>
<td>(See Operating Instruction Manual netDevice and netProject)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Create new project /Open existing project</td>
<td>Depending of the frame application. For the configuration software: - select File &gt; New or File &gt; Open.</td>
<td>(See Operating Instruction Manual of the Frame Application)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Insert Scanner or Adapter device icon into configuration</td>
<td>Depending of the FDT Container. For netDevice: - in the Device Catalog click to the Scanner icon, and insert the device icon via drag and drop to the Root line in the network view, - in the Device Catalog click to the Adapter device icon, - and insert the device icon via drag and drop to the Master bus line in the network view.</td>
<td>(See Operating Instruction Manual netDevice and netProject)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Configure EtherNet/IP Adapter device</td>
<td>Configure the Adapter device: - Double click to the device icon of the Adapter. - The EtherNet/IP generic EDS Adapter DTM configuration dialog is displayed. In the Adapter DTM configuration dialog: 1.) Select Configuration &gt; Electronic Keying, - select the keying method* and if necessary - configure the keying parameters, 2.) Select Configuration &gt; Connection, - select the connection, - make the Connection Settings* and - configure the Connection Parameters, Therefore - depending by the EDS file adapt the parameter value for the Instance ID, - adapt the parameter value for the Format, - adapt the parameter value for the Length.</td>
<td>Configuration Steps for non-modular Adapter Devices</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Electronic Keying</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Connection</td>
<td>26</td>
</tr>
</tbody>
</table>

**Note!** When making the configuration of the Connection Parameters check each entry whether it must be changed.

*In general the default values can be used.
### 2.2 Configuration Steps for modular Adapter Devices

The following table describes the steps to configure a modular EtherNet/IP Adapter device with the EtherNet/IP generic EDS Adapter DTM as it is typical for many cases. At this time it is presupposed that the EtherNet/IP Scanner DTM installation was already done.

The overview lists all the steps in a compressed form. For detailed descriptions of each step refer to the sections noted in the column For detailed information see section.

<table>
<thead>
<tr>
<th>#</th>
<th>Step</th>
<th>Short Description</th>
<th>For detailed information see section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Add EtherNet/IP generic EDS Adapter DTM in the Device Catalog</td>
<td>Add the adapter DTM in the Device Catalog by importing the device description file to the Device Catalog. Depending of the FDT Container. For netDevice: - Network &gt; Import Device Descriptions.</td>
<td>(See Operating Instruction Manual netDevice and netProject)</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Load Device Catalog</td>
<td>Depending of the FDT Container: For netDevice: - select Network &gt; Device Catalog, - select button Reload Catalog.</td>
<td>(See Operating Instruction Manual netDevice and netProject)</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>Create new project / Open existing project</td>
<td>Depending of the frame application. For the configuration software: - select File &gt; New or File &gt; Open.</td>
<td>(See Operating Instruction Manual of the Frame Application)</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Insert Scanner or Adapter device icon into configuration</td>
<td>For netDevice: - in the Device Catalog click to the Scanner icon, - and insert the device icon via drag and drop to the line in the network view, - in the Device Catalog click to the Adapter device icon, - and insert the device icon via drag and drop to the Scanner bus line in the network view.</td>
<td>(See Operating Instruction Manual netDevice and netProject)</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Configure modular EtherNet/IP Adapter device</td>
<td>Configure the modular Adapter device: - Double click to the device icon of the Adapter, - The EtherNet/IP generic EDS Adapter DTM configuration dialog is displayed. In the Adapter DTM configuration dialog: 1.) Select Configuration &gt; Modules, - select the chassis, - add a modul, - set the Slot Number and the Module Name, - add and configure all required Modules.</td>
<td>Configuration Steps for modular Adapter Devices Modules (modular DTM) (for modular DTM only)</td>
<td>15 22</td>
</tr>
</tbody>
</table>
### Getting Started - Configuration Steps

<table>
<thead>
<tr>
<th>#</th>
<th>Step</th>
<th>Short Description</th>
<th>For detailed information see section</th>
<th>Page</th>
</tr>
</thead>
</table>
| 5  | Configure modular EtherNet/IP Adapter device (continued)             | **Note!** For identic adapter modules create the module configuration for keying and connection first once and then copy and paste it via Copy Module / Paste Module. For each Module:  
2.) Select Configuration > Electronic Keying,  
- select the module,  
- select the keying method*  
and if necessary  
- configure the keying parameters,  
3.) Select Configuration > Connection,  
- select the module,  
- select the connection,  
- make the Connection Settings* and  
- configure the Connection Parameters,  
Therefore  
- depending by the EDS file adapt the parameter value for the Instance ID,  
- adapt the parameter value for the Format,  
- adapt the parameter value for the Length.  
**Note!** When making the configuration of the Connection Parameters check each entry wether it must be changed.  
- Close the Adapter DTM configuration dialog via OK.  
*In general the default values can be used. |
|    |                                                                     | **Electronic Keying** 24                                                                                                                                                                                                |                                       |      |
|    |                                                                     | **Connection** 26                                                                                                                                                                                                      |                                       |      |
| 6  | Configuration Steps Scanner device                                   | Configure device via EtherNet/IP Scanner DTM. Important: Enter the IP settings of the EtherNet/IP Adapter device. (See Operating Instruction Manual DTM for EtherNet/IP Scanner devices) |                                       | -    |
| 7  | Save project                                                         | Depending of the frame application. For the configuration software:  
- select File > Save.  
(See Operating Instruction Manual of the Frame Application) |                                       | -    |

Table 8: Getting Started - Configuration Steps
### 3 Configuration

#### 3.1 Overview Configuration

**Configuration Dialog Panes**

The table below gives an overview for the *Configuration* dialog panes descriptions:

<table>
<thead>
<tr>
<th>EtherNetIP Adapter DTM</th>
<th>Folder Name / Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Modules (modular DTM)</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Electronic Keying</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Connection</td>
<td>26</td>
</tr>
</tbody>
</table>

Notice the descriptions in the section *Configuration Steps for non-modular Adapter Devices* on page 14 and in the section *Configuration Steps for modular Adapter Devices* on page 15.
3.2 Configuring Parameters of the non-modular Adapter Device

The following steps are required to configure the parameters of the non-modular EtherNet/IP Adapter device using the EtherNet/IP generic EDS Adapter DTM:

**Electronic Keying**
1. Select the Keying Method and configure the keying parameters if necessary.
   - Open the EtherNet/IP generic EDS Adapter DTM configuration dialog via a double click to the device icon of the Adapter.
   - Select Configuration > Electronic Keying in the navigation area.
   - Select the Keying Method and configure the keying parameters if necessary.
   - In general the default value „No Keying“ can be used.

**Connection**
2. Configure the Connection.
   - Select Configuration > Connection in the navigation area.
   - Make the Connection Settings.
   - Configure the Connection Parameters.
     - Depending by the EDS file adapt the parameter value for the Instance ID,
     - Adapt the parameter value for the Format,
     - Adapt the parameter value for the Length.

*Note!* When making the configuration of the Connection Parameters check each entry wether it must be changed.

**Close Adapter DTM Configuration Dialog**
3. Click OK in order to close the EtherNet/IP generic EDS Adapter DTM configuration dialog and to store your configuration.

**Further Information**
For more information refer to section Electronic Keying on page 24 and to section Connection on page 26.
### 3.3 Configuring Parameters of the modular Adapter Device

The following steps are required to configure the parameters of the modular EtherNet/IP Adapter device using the EtherNet/IP generic EDS Adapter DTM:

**Modules**

1. Configure the modules of the modular EtherNet/IP Adapter.

   For a modular EtherNet/IP Adapter device, you must create the module configuration for keying and connection for each module. For identical adapter modules you can create the module configuration for keying and for the connection once, and then copy and paste it multiple times.

   - Open the EtherNet/IP generic EDS Adapter DTM configuration dialog via a double click to the device icon of the Adapter.
   - Select **Configuration > Modules** in the navigation area.
   - Select the chassis.
   - Add a module.
   - Set the **Slot Number** and the **Module Name**.

   **Note!** For identical adapter modules create the module configuration for keying and connection first **once** and then copy and paste it via **Copy Module / Paste Module**.

**For each Module**

For modular EtherNet/IP Adapter devices you must perform the configuration for keying and connection for each module.

**Electronic Keying**

2. Select the **Keying Method** and configure the keying parameters if necessary.

   - Select **Configuration > Electronic Keying** in the navigation area.
   - Select the module via **Select Module**.
   - Select the **Keying Method**
   - configure the keying parameters if necessary.

   In general the default value „No Keying“ can be used.

**Connection**

3. Configure the **Connection**.

   - Select **Configuration > Connection** in the navigation area.
   - Select the module via **Select Module**.
   - Make the **Connection Settings**.

   In general the default values can be used.

   - Configure the **Connection Parameters**.
- Depending by the EDS file adapt the parameter value for the **Instance ID**.
- Adapt the parameter value for the **Format**.
- Adapt the parameter value for the **Length**.

**Note!** When making the configuration of the Connection Parameters check each entry whether it must be changed.

---

**Close the Adapter DTM Configuration Dialog**

- Close the EtherNet/IP generic EDS Adapter DTM configuration dialog via **OK**.

**Further Information**

For more information refer to section *Modules (modular DTM)* on page 22, to section *Electronic Keying* on page 24 and to section *Connection* on page 26.
3.4 General

The General dialog pane shows the Description of the EtherNet/IP Adapter device. The IP Address is set by the EtherNet/IP Scanner DTM.

To show the current device settings:

- Select Configuration > General in the navigation area.

![Figure 6: Configuration > General](image)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Symbolic Name of the EtherNet/IP Adapter device.</td>
</tr>
<tr>
<td>IP Setting</td>
<td>IP Address: 192.168.1.2</td>
</tr>
<tr>
<td>Note</td>
<td>IP Addresses for all Adapters are set in Master DTM.</td>
</tr>
</tbody>
</table>

Table 10: General Pane Parameters
3.5 Modules (modular DTM)

In the EtherNet/IP modular generic EDS Adapter DTM at the Modules pane the modules of the modular EtherNet/IP Adapter can be configured.

➢ Select Configuration > Modules in the navigation area.

The top window Modules displays for the chassis selected the maximum possible number of inserted modules. The Module Name can be chosen from a list. In the bottom window some modules are deleted. Under Slot the non-configured slots can be selected.

Figure 7: Configuration > Modules Pane (modular DTM)
### Table 11: Modules Pane Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Chassis</td>
<td>Displays the chassis which can be selected.</td>
</tr>
<tr>
<td>Slots in Rack</td>
<td>The total number of slots in rack depends by the selected chassis. By the number of slots in rack the number of modules which can be added to a device configuration is fixed.</td>
</tr>
<tr>
<td><strong>Configure Modules</strong></td>
<td></td>
</tr>
<tr>
<td>Slot (editable)</td>
<td>Shows the current <strong>Slot</strong> number assigned to a module. When clicking the slot field, the drop-down-list of the <strong>Slot</strong> numbers is displayed. Slot numbers marked by the key symbol can not be edited.</td>
</tr>
<tr>
<td>Width</td>
<td>Width of the module</td>
</tr>
<tr>
<td>Module name (editable)</td>
<td>Textual module name</td>
</tr>
<tr>
<td></td>
<td>Module names marked by the key symbol can not be edited.</td>
</tr>
<tr>
<td>Revision</td>
<td>Revision of the EDS file for the module</td>
</tr>
<tr>
<td>Vendor</td>
<td>Vendor name of the EDS file for the module</td>
</tr>
<tr>
<td>‘Add module’</td>
<td>Use <strong>Add Module</strong> to add a module to the device configuration.</td>
</tr>
<tr>
<td>‘Remove module’</td>
<td>Use <strong>Remove Module</strong> to remove the selected module from the configuration.</td>
</tr>
<tr>
<td>‘Copy module’</td>
<td>Use <strong>Copy module</strong> to copy the selected module.</td>
</tr>
<tr>
<td>‘Paste module’</td>
<td>Use <strong>Paste module</strong> to add the copied module once more to the device configuration.</td>
</tr>
</tbody>
</table>

Further configuration steps:
- Select the chassis.
- Add a module.
- Set the **Slot Number** and the **Module Name**.

**Note!** For identical adapter modules create the module configuration for keying and connection first **once** and then copy and paste it via **Copy Module / Paste Module**.
3.6 Electronic Keying

The concept of **Electronic Keying** was introduced by Allen-Bradley, RA. EtherNet/IP scanner implements compatible concept.

A set of attributes of an EtherNet/IP Adapter can be regarded as its electronic identity which can be used to differentiate adapters based on these attributes. EtherNet/IP scanner employs this electronic identity to build an **Electronic Key** and uses it to verify that an adapter connected to the network is the expected one. **Electronic keying** allows flexible online validation of adapters, provides a method for reliable network configuration.

Attributes of the electronic identity that can be used in keying are as follows: Minor Revision, Major Revision, Product Code, Product Type and Vendor ID.

- Select **Configuration > Electronic Keying** in the navigation area.

![Figure 8: Configuration > Electronic Keying (Example)](image)

**EtherNet/IP Modular Generic Adapter DTM:**

![Figure 9: Configuration > Electronic Keying (Example modular DTM)](image)
➢ Select a Module (only for modular Adapter devices).

<table>
<thead>
<tr>
<th>Action</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select module (modular DTM only)</td>
<td>For modular EtherNet/IP Adapter first in the modular generic Adapter DTM a module must be selected to allow to parameterize the electronic keying parameters.</td>
</tr>
</tbody>
</table>

*Table 12: Electronic Keying > Select module (only for modular Adapter devices)*

➢ Select a **Keying method**.

For modular EtherNet/IP Adapter devices you must set the keying method for each module.

<table>
<thead>
<tr>
<th>Method</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exact match</td>
<td>To validate an EtherNet/IP adapter connected to the network all attributes for the electronic identity must correspond to the attributes of an expected device.</td>
</tr>
<tr>
<td>Custom keying</td>
<td>To validate an EtherNet/IP adapter connected to the network all attributes must correspond to the configured keying.</td>
</tr>
<tr>
<td>No keying</td>
<td>No validation of the device identity.</td>
</tr>
</tbody>
</table>

*Table 13: Electronic Keying > Keying Method*

In general the default value „No Keying“ can be used.

For Custom Keying:

➢ Select **Custom Keying** and configure the keying attributes.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relaxed Match</td>
<td>If checked: Restricted validation of the electronic identity for devices. To indicate relaxed match to an adapter, the scanner sets bit 7 in major revision.</td>
</tr>
<tr>
<td>Minor Revision</td>
<td>If checked: For electronic keying consistency to minor revision is relevant and gets verified.</td>
</tr>
<tr>
<td>Major Revision</td>
<td>If checked: For electronic keying consistency to major revision is relevant and gets verified.</td>
</tr>
<tr>
<td>Product Code</td>
<td>If checked: For electronic keying consistency to product code is relevant and gets verified.</td>
</tr>
<tr>
<td>Product Type</td>
<td>If checked: For electronic keying consistency to product type is relevant and gets verified.</td>
</tr>
<tr>
<td>Vendor</td>
<td>If checked: For electronic keying consistency to vendor ID is relevant and gets verified.</td>
</tr>
</tbody>
</table>

*Table 14: Electronic Keying > Custom Keying*
3.7 Connection

At the Connection pane the connection can be parameterized. For modular EtherNet/IP Adapter devices you must parameterize the connection for each module.

3.7.1 Select Connection

- Open Configuration > Connection.
- Under Select Connection select a connection.

<table>
<thead>
<tr>
<th>Selection</th>
<th>Meaning</th>
<th>Range of Value / Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select</td>
<td>Connection contains the connections with the name from the EDS file.</td>
<td>[Connection1] + name from EDS, [ConnectionN] + name from EDS, (N = 1, 2, ..., 65535), Default: [Connection1] + name from EDS</td>
</tr>
</tbody>
</table>

Table 15: Select Connection

3.7.2 Connection settings

- Select the Connection settings tab.

![Connection Settings (Example)](image)

Figure 10: Connection Settings (Example)
### Connection Settings (Example Modular DTM)

#### Parameter | Meaning | Range of Value / Value  
--- | --- | ---  
Help string | Help String is a textual information note from the EDS file, which can be added for „help string”. |  
Trigger and Transport |  
Transport Type | Under **Transport Type** only one transport type can be set. | Listen-Only, Input-Only, Exclusive-Owner, Redundant-Owner  
Trigger Mode | For **Trigger Mode** only “Cyclic” trigger mode is supported. Not supported are the trigger-mode “event” and the trigger-mode “application”. | Cyclic  
Originator to Target | Connection settings for the connection from the Originator to the Target: O->T |  
Connection Type | The **Connection Type** is the connection type used to transfer the output data from the originator to the target, i. e. from the Scanner to the Adapter. | POINT2POINT, MULTICAST, NULL  
Priority | For **Priority** only the priority “Scheduled” is supported. The values “High” and “Low” are not supported. | Scheduled
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Range of Value / Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RT transfer format</td>
<td>RT transfer format is the real time transfer format for the output data.</td>
<td>Connection is pure data and is modelless. Use zero data length to indicate idle mode, Heartbeat, 32-bit run/idle header, Safety</td>
</tr>
<tr>
<td>Size</td>
<td>Size is the size of the output data sent from the Scanner to the Adapter in Bytes. The size may be a fixed value or be defined by a parameter under Connection parameters &gt; O-&gt;T &gt; Size &gt; Parameter value.</td>
<td>For “fixed size” no range is defined or the range is defined by the min. value and the max. value of a parameter.</td>
</tr>
</tbody>
</table>

Table 16: Parameters Connection Settings

Run/Idle Mode for Realtime Transfer Format: The Run/Idle header is a 32-bit field, added to packets flowing in the O->T or T->O direction. In O->T direction the run/idle field contains several bits of status information. Of primary interest is the “least significant bit”, which reflects the mode of the connection originator. If the “least significant bit” is set, the originator is in Run mode, actively monitoring the inputs and the outputs. If the “least significant bit” is cleared the originator is in Idle mode, without monitoring the inputs and the outputs. The run/idle field is not counted as part of the configured data size in the EDS Connection Manager section. The run/idle field is counted in the FwdOpen Message O->T and in the FwdOpen Message T->O sizes however.
3.7.3 Connection Parameters

- Select the **Connection parameters** tab.

![Figure 12: Connection Parameters (Example)](image-url)
Select in the tree structure (left side) the director for the connection parameters; for example:

- For O->T or T->O: each Instance ID, Size or Format

Or depending by EDS also:

- For Configuration: Instance ID or #1 Data Segment or #2 Data Segment each with Size or Format

Configure the Connection Parameters.

- Depending by the EDS file adapt the parameter value for the Instance ID,
- Adapt the parameter value for the Format,
- Adapt the parameter value for the Length,

Note! When making the configuration of the Connection Parameters check each entry whether it must be changed.

In general the default values can be used.

Detailed descriptions on the parameters you find in the subsequent given table.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Range of Value / Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tree Structure</strong> (left side)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connection[No]</strong></td>
<td><strong>Connection</strong> is the selected connection.</td>
<td><strong>Connection1 to Connection N, (N = 1, 2, ... 65535),</strong></td>
</tr>
<tr>
<td><strong>O-&gt;T</strong></td>
<td>For the connection from the Originator to the Target: <em>O-&gt;T</em> [=Originator to Target]</td>
<td></td>
</tr>
<tr>
<td><strong>Instance ID</strong></td>
<td><strong>Instance ID</strong> is the assembly instance ID of the consumer connection point.</td>
<td><strong>1-255</strong></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td><strong>Size</strong> is the size of the output data sent from the Scanner to the Adapter in Bytes. The size may be a fixed value or can be defined by a parameter in the configuration dialog.</td>
<td>For “fixed size” no range is defined or the range is defined by the min. value and the max. value of a parameter.</td>
</tr>
<tr>
<td><strong>Format</strong></td>
<td><strong>Format</strong> defines the structure of the consumer buffer for this connection.</td>
<td></td>
</tr>
<tr>
<td><strong>T-&gt;O</strong></td>
<td>For the connection from the Target to the Originator: <em>T-&gt;O</em> [=Target to Originator]</td>
<td></td>
</tr>
<tr>
<td><strong>Instance ID</strong></td>
<td><strong>Instance ID</strong> is the assembly instance ID of the producer connection point.</td>
<td><strong>1-255</strong></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td><strong>Size</strong> is the size of the input data sent from the Adapter to the Scanner in Bytes. The size may be a fixed value or can be defined by a parameter in the configuration dialog.</td>
<td>For “fixed size” no range is defined or the range is defined by the min. value and the max. value of a parameter.</td>
</tr>
<tr>
<td><strong>Format</strong></td>
<td><strong>Format</strong> defines the structure of the producer buffer for this connection.</td>
<td></td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td>For the optional configuration data segment</td>
<td></td>
</tr>
<tr>
<td><strong>Instance ID</strong></td>
<td><strong>Instance ID</strong> is the assembly instance ID of the configuration.</td>
<td><strong>1-255</strong></td>
</tr>
<tr>
<td><strong>#1 Data Segment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td><strong>Size</strong> is the size of the <strong>configuration</strong> data segment #1 in Bytes. The size may be a fixed value or can be defined by a parameter in the configuration dialog.</td>
<td>For “fixed size” no range is defined or the range is defined by the min. value and the max. value of a parameter.</td>
</tr>
<tr>
<td><strong>Format</strong></td>
<td><strong>Format</strong> is the format of the data segment #1. <strong>Format</strong> defines the structure and the value of the configuration data segment #1 buffer. The format may contain a list of parameters. The user can set the values in the configuration dialog to get different settings. For example he can define the types and ranges of signals, specify the output state during a communication fault etc.</td>
<td></td>
</tr>
<tr>
<td><strong>#2 Data Segment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Size</strong></td>
<td><strong>Size</strong> is the size of the <strong>configuration</strong> data segment #2 in Bytes. The size may be a fixed value or can be defined by a parameter in the configuration dialog.</td>
<td>For “fixed size” no range is defined or the range is defined by the min. value and the max. value of a parameter.</td>
</tr>
</tbody>
</table>
Configuration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
<th>Range of Value / Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>Format is the format of the data segment #2. Format defines the structure and the value of the configuration data segment #2 buffer. The format may contain a list of parameters. The user can set the values in the configuration dialog to get different settings. For example he can define the types and ranges of signals, specify the output state during a communication fault etc.</td>
<td></td>
</tr>
</tbody>
</table>

Dialog window (right side)

<table>
<thead>
<tr>
<th>Value</th>
<th>Value is the value for the selected Instance ID, Size or Format in the tree structure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Param#</td>
<td>Param# is the number of the parameter from the EDS file. N = 1, 2, ... 65535</td>
</tr>
<tr>
<td>Parameter name</td>
<td>Parameter name is the textual parameter name from the EDS file.</td>
</tr>
<tr>
<td>Bit Size</td>
<td>Bit Size is the used parameter length in the data buffer in Bit.</td>
</tr>
<tr>
<td>Parameter value (editable)</td>
<td>Parameter value is the value of the parameter. The parameter value can be entered as a numerical value or can be picked from a selection list. Parameter values marked by the key symbol can not be edited.</td>
</tr>
<tr>
<td>Min. value</td>
<td>Min. value is the minimum parameter value.</td>
</tr>
<tr>
<td>Max. value</td>
<td>Max. value is the maximum parameter value.</td>
</tr>
<tr>
<td>Unit</td>
<td>Unit is the textual displayed unit from the EDS file.</td>
</tr>
<tr>
<td>Description</td>
<td>Description is the textual help string from the EDS file.</td>
</tr>
</tbody>
</table>

Table 17: Parameters Connection parameters (Example)

Note for O->T, T->O and for Configuration: If the Format field and the Size field are not empty and if the Size field is smaller than the Format field, the least significant bytes of the Format field shall be used. If the Format field and the Size field are not empty and if the Size field is larger than the Format field, the entire Format field shall be followed by zero pads to extend the Format field to the size of the Size field.
4 Device Description

4.1 Overview Description

Description Dialog Panes

The table below gives an overview for the individual Description dialog panes descriptions:

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Manual Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDS Viewer</td>
<td>33</td>
</tr>
</tbody>
</table>

Table 18: Descriptions of the Description Panes

4.2 EDS Viewer

The EDS Viewer shows the content of the EDS file in a text view.

Under Filename the file directory path and the file name of the displayed EDS file are shown. Find what offers a search feature to search for text contents within the text of the EDS file.

In the EDS Viewer window on the left side, the line number is displayed for simple overview, the further entries show the EDS file in text format.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filename</td>
<td>File directory path and the file name of the displayed EDS file.</td>
</tr>
<tr>
<td>Find what</td>
<td>Place to enter text to search for text contents within the text of the EDS file.</td>
</tr>
<tr>
<td>Find Next</td>
<td>Continue search.</td>
</tr>
<tr>
<td>Match case</td>
<td>Search option</td>
</tr>
<tr>
<td>Match whole word</td>
<td>Search option</td>
</tr>
</tbody>
</table>

Table 19: Device Description – EDS Viewer
5 Appendix

5.1 User Rights

User-rights are set within the FDT-container. Depending on the level the configuration is accessible by the user or read-only.

To access the Configuration and Description panes of the generic EtherNet/IP EDS Adapter DTM you do not need special user rights.

**Note:** To edit, set or configure the parameters of the Configuration and Description panes, you need user rights for Maintenance, for Planning Engineer or for Administrator.

The following tables give an overview of the user right groups and which user rights you need to configure the single parameters.

### 5.1.1 Configuration, Description

<table>
<thead>
<tr>
<th></th>
<th>Observer</th>
<th>Operator</th>
<th>Maintenance</th>
<th>Planning Engineer</th>
<th>Administrator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>D</td>
<td>D</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Connection</td>
<td>D</td>
<td>D</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Electronic Keying</td>
<td>D</td>
<td>D</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDS Viewer</td>
<td>D</td>
<td>D</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Table 20: Configuration Description (D = Displaying, X = Editing, Configuring)*

5.2 References

[1] Device Type Manager (DTM) Style Guide, Version 1.0 ; FDT-JIG - Order No. <0001-0008-000>


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5.5 Glossary

CIP

Common Industrial Protocol (Control and Information Protocol)

DHCP

Dynamic Host Configuration Protocol

DNS

Domain Name Service.

DTM

Device Type Manager.

The Device Type Manager (DTM) is a software module with graphical user interface for the configuration or for diagnosis of device.

EDS

An Electronic Data Sheet (EDS) provides information necessary to access and alter the configurable parameters of a device. An Electronic Data Sheet (EDS) is an external file that contains information for the device.

EtherNet/IP

EtherNet/Industrial Protocol (CIP on Ethernet)

EtherNet/IP Scanner

A Scanner exchanges real-time I/O data with Adapters and Scanners. This type of node can respond to connection requests and can also initiate connections on its own.

EtherNet/IP-Adapter

An Adapter emulates functions provided by traditional rack-adapter products. This type of node exchanges real-time I/O data with a Scanner Class product. It does not initiate connections on its own.

FDT

Field Device Tool

FDT specifies an interface, in order to be able to use DTM (Device Type Manager) in different applications of different manufacturers.

TCP/IP

Transmission Control Protocol / Internet Protocol

UDP

User Datagram Protocol
5.6  Contacts

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Rheinstrasse 15
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