# Easylon IP Interface

## Setup Instructions

# Contents

# 1      Scope

This document describes the setup of the Easylon IP Interface. Additionally it describes the configuration parameters of the driver and the software structure.

# 2      Software Structure

The Easylon IP Interface uses Gesytec's Remote Network Interface driver technology. The CEA-852 protocol stack acts as a RNI server which is connected locally via TCP/IP to a RNI client. The Windows drivers, using the RNI client implement MIP as well as VNI functionality. Thus the software works, depending on the parameters set, like any usual LonWorks interface.

The connection between the CEA-852 application and the RNI client is established by a local TCP/IP connection.
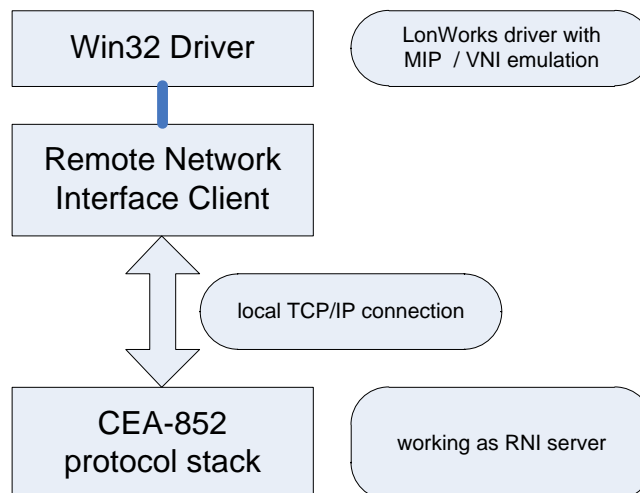


Both applications, the CEA-852 protocol stack and the remote network interface client will run as a service, to ensure that any software, which is running as a service as well, can use Lon over IP without user log in.

# 3        Installation

## 3.1      General Issues

This section gives an overview on what will be installed on the machine.

At first the setup installs the CEA-852 protocol stack. This application is named "Easy852.exe". The setup will ask for a folder, where the application shall be installed. Together with the application it will install an ActiveX control and an HTA application for its configuration. The Neuron ID or more correctly "Node-ID" is stored in a hardware dongle. With the installation of the IP Interface software, the drivers for the dongle will as well be copied to the computer. Additionally the RNI client needs to be installed.

It is recommended to use the latest drivers available from Gesytec's ftp server at ftp://ftp.gesytec.de/pub/easylon. The file name is Easylon-WDM_Vxxx.xxx.xxx.exe. Please use the file with the highest version number. It is a self-extracting .exe file which will unzip the single setups into folders to be specified.
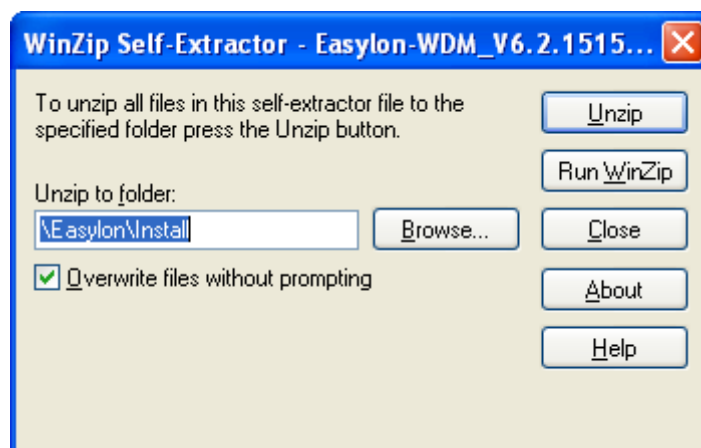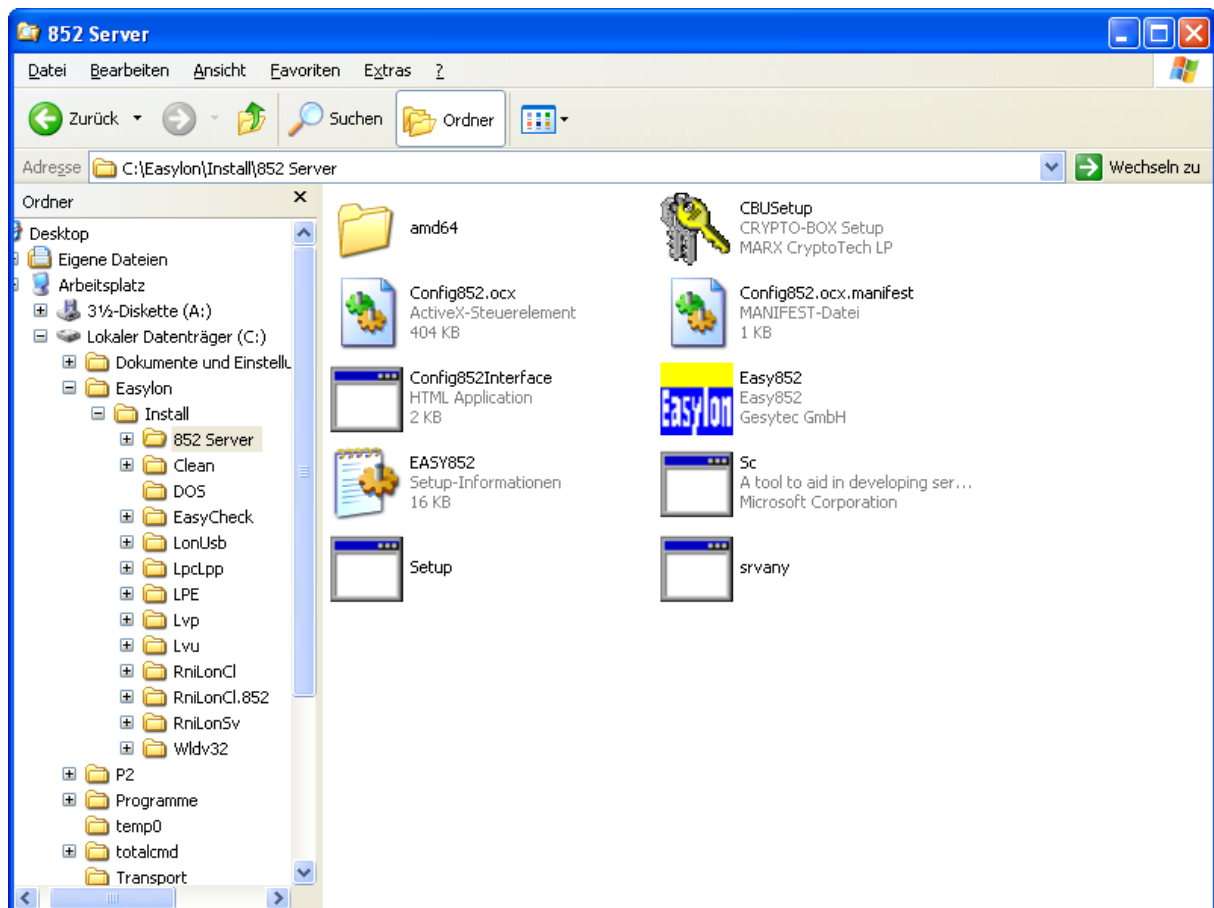


Possibly you will have to specify a character for the desired device along with the path. Then press "Unzip" to start copying.
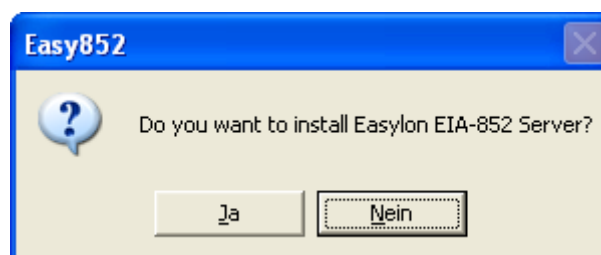
## 3.2        Running the Setup

**NOTE:**        You must not connect the dongle containing the Node-ID to the computer before the software installation is finished!

Please start SETUP.EXE from the "852 Server" folder:
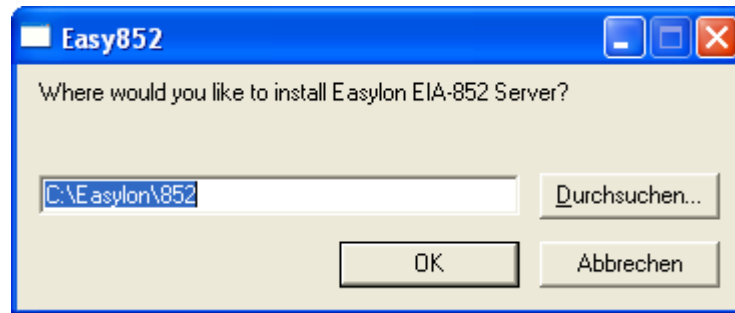


Now you are requested to allow the setup:



In the next dialog box you define the folder the software shall be installed in:

Now the setup installs the whole software. The setup finishes with the prompt for the parameters of the CEA-852 protocol stack. All settings can later be modified via the Windows Start menu: "**Programs->Easylon->852->Config 852 Interface".**

First you have to define the IP addresses of the Easylon IP Interface and of the Configuration Server. If the address of the Configuration Server is not known yet, it can later be entered using the access stated above. For selection of the IP Interfaces IP address a combo box is offered. As there may be more than one Ethernet Interface installed on the PC, the correct IP address has to be chosen. All available IP addresses of the machine are shown.

Other settings in this dialog box will be explained later. An overview on the parameters is given in chapter 4. In "normal" operation these parameters usually don't need modification.

After setting the parameters, CEA-852 protocol stack can be started. Press "Apply" for this purpose. If the checkbox "as Service" is selected, which is the default, the Windows application will run as a service. Its name is "Gesytec 852 Interface".

The setup terminates with a last prompt:
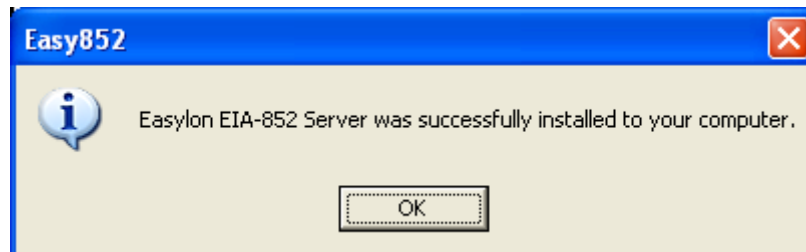


Now the CEA-852 protocol stack is running. I the next step you need to install the RNI client to have a driver interface to the protocol stack.

Please run the **FastInst.exe** from the RniLonCl.852 folder: In case you have a previous version of the RNI software installed, please uninstall that first.
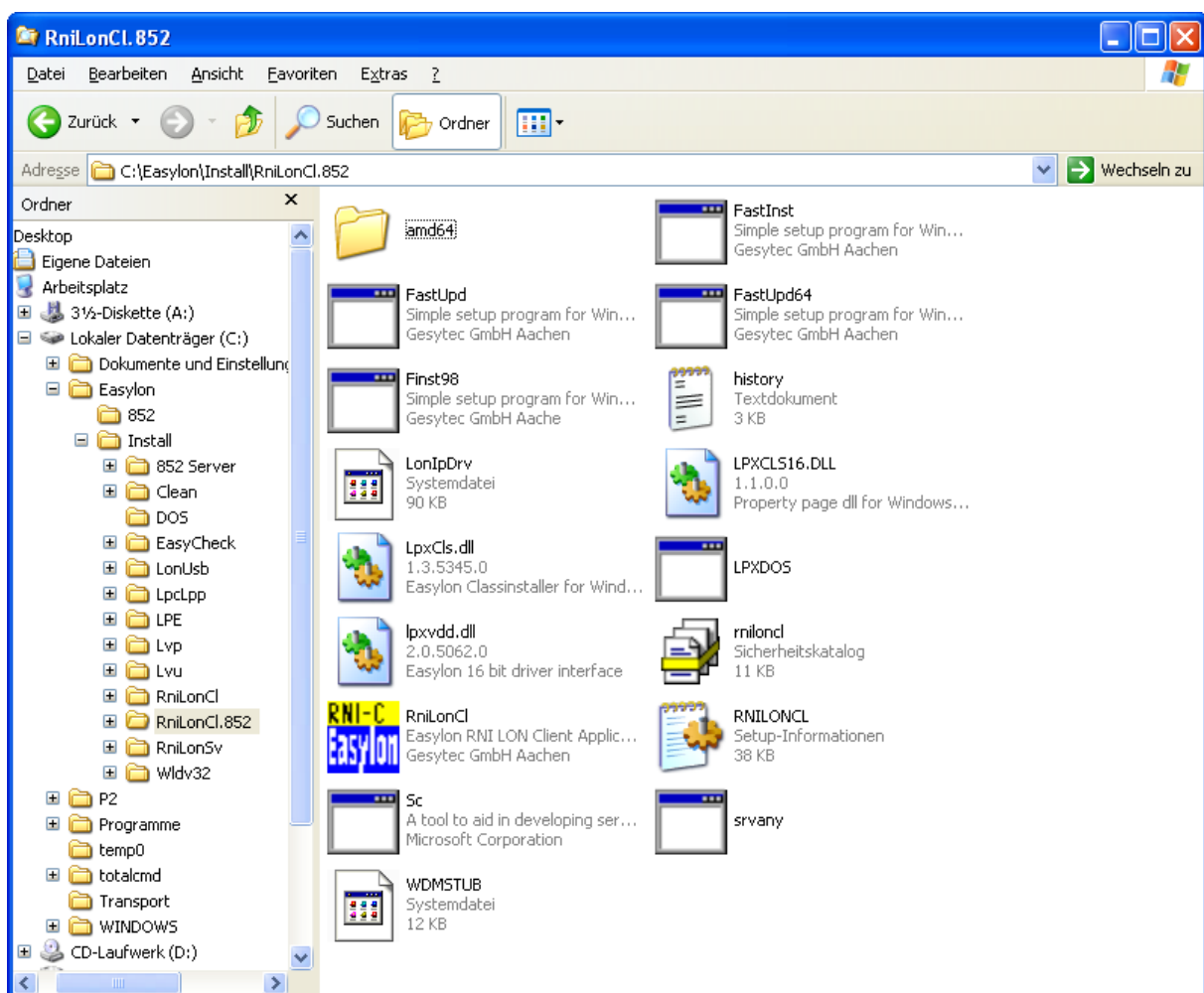


The setup now installs the RNI client software:
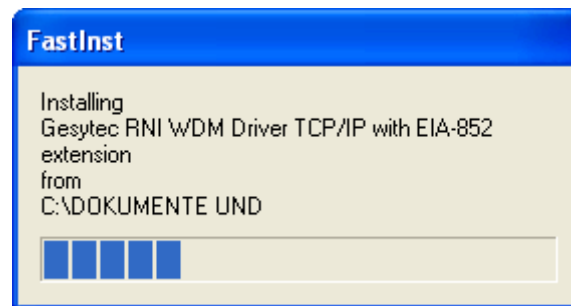
It only installs one basic driver and one MIP driver. So in the device manager you should have these drivers visible: The software behaves like any other Easylon Interface$^+$ (VNI).
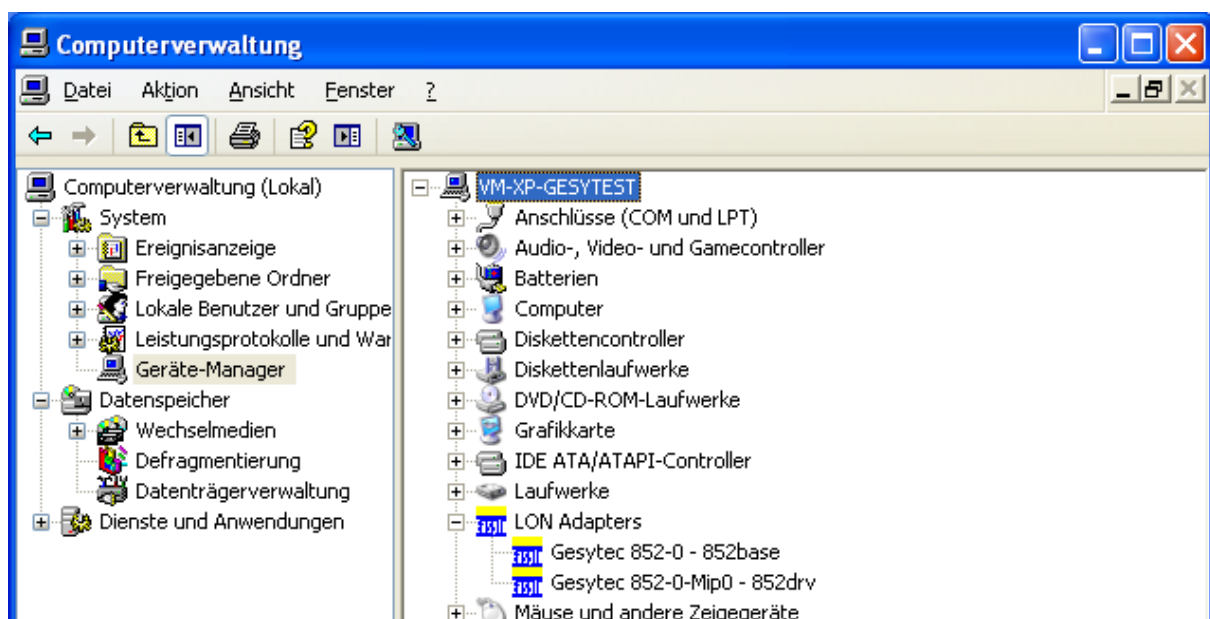


Accessing the properties of the 852base in the device manager allows to individually configuring its settings. We recommend installing 2 MIP and 1 further VNI instances. For this purpose double-click the "Gesytec 852-0 852base" entry, go to the extended properties and enter "2" for the "Number of MIP-Interface" and "1" for the "Number of VNI-Interfaces". "OK" will set these values and drivers will be installed accordingly.
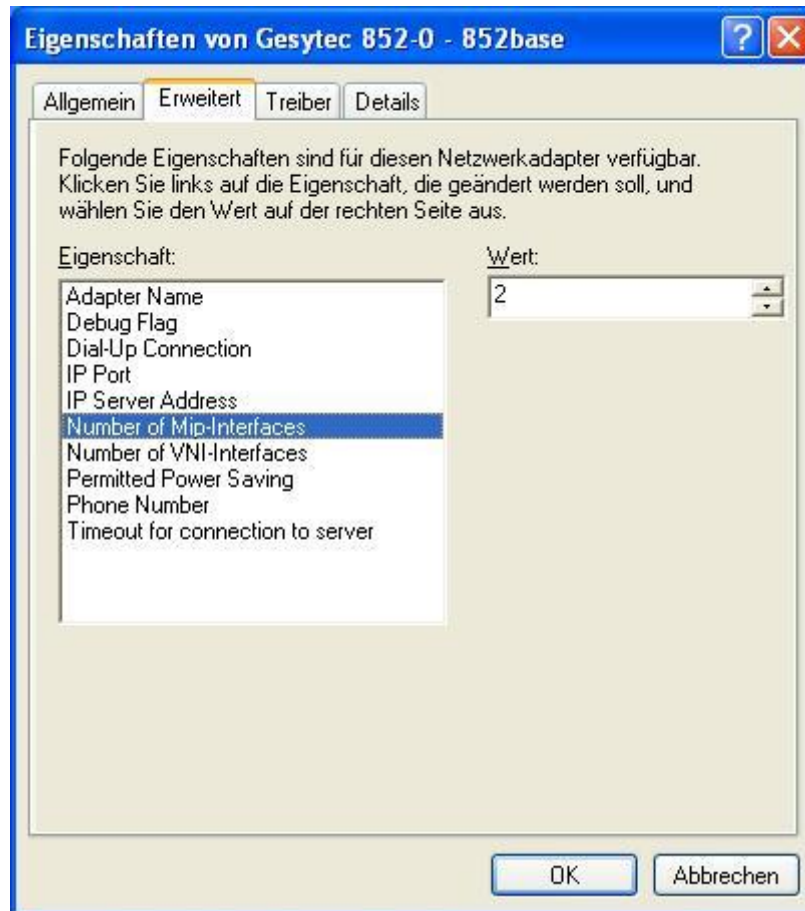
This is shown in the Device Manager.
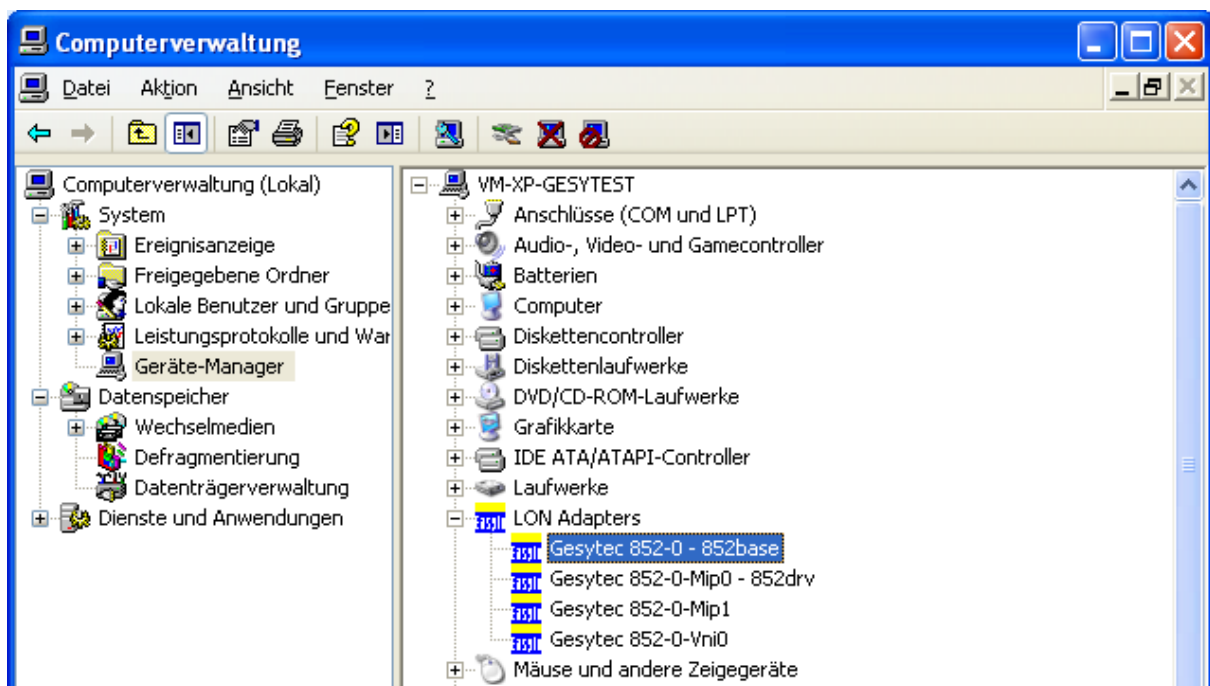


Editing the driver properties allows modifying the driver names. MIP drivers can be used by applications which are not LNS based, e.g. the Easylon OPC Server M, or Echelon's nodeutil or NLUTIL. Honeywell's Excelon is as well running

with these drivers. The VNI driver can be used by LNS as a LonWorks network interface. The Easylon Analyzer or Honeywell's Excelon can use it as well. All drivers installed can be used in parallel.

**NOTE:**         The base driver must not be used.

The settings for the RNI client are made to connect automatically and must not be modified.



The RNI Client is running as a service as well under the name of "Gesytec RNI Client".

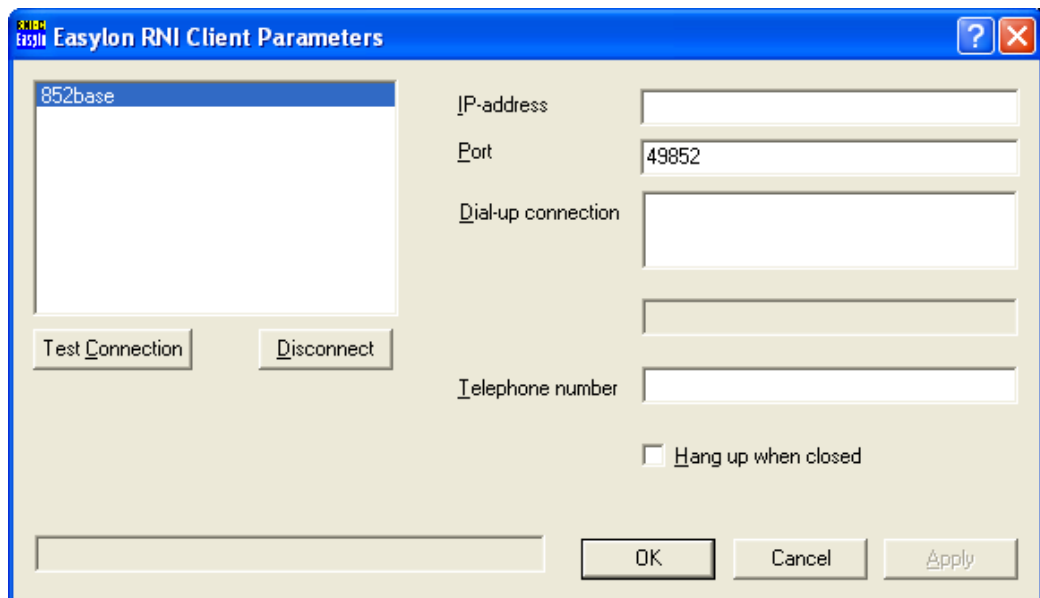Now the Dongle with the node-ID can be connected to the computer. As all drivers for it have been installed during the setup no request from the operating system should occur.

## 3.3       Remarks

- Please be aware, that the Easylon IP Interface only works if when it is registered to a CEA-852 Configuration Server. So pressing the "Test Connection" button will raise an error until there is a connection to a Configuration Server.

- The software will work without the Dongle, however, discarding all messages.

## 3.4       Testing the Installation

The setup can now be tested by using EasyCheck. This tool allows some diagnosis of interfaces and nodes such as is monitoring service pin messages or running

a network scan[1]. It is not installed during the setup to keep requirements low. To install it, run "Setup.exe" from the "EasyCheck" folder.
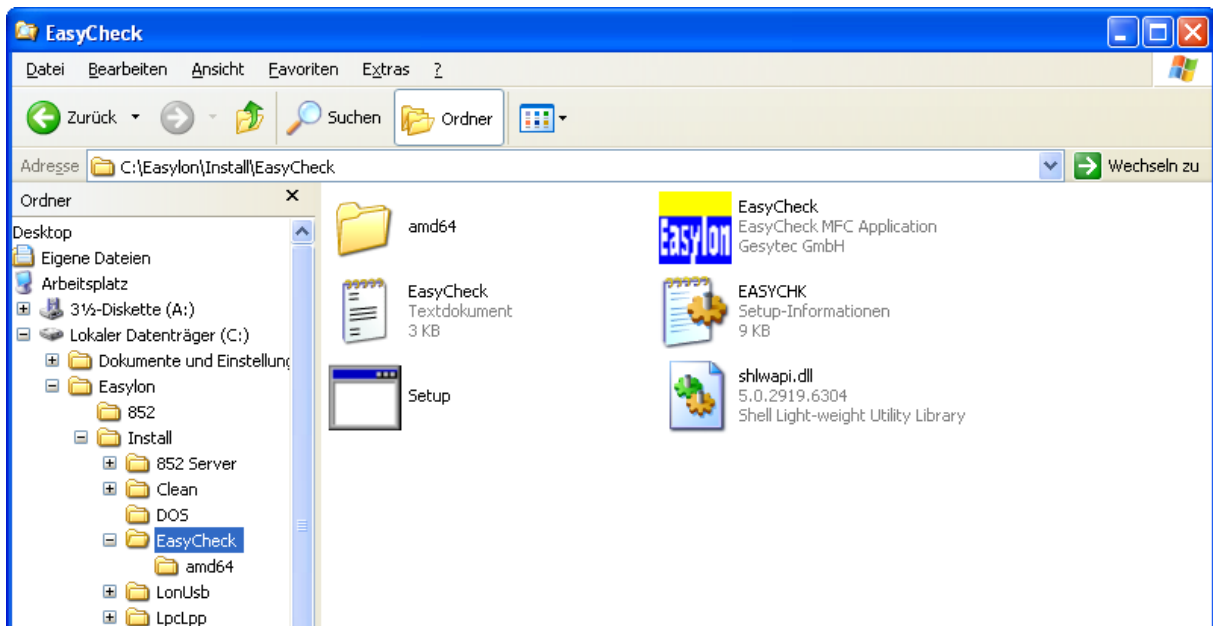


Then the installation can be tested. Start EasyCheck via the Windows Start menu. The "Network Interfaces" tab will display all drivers installed.



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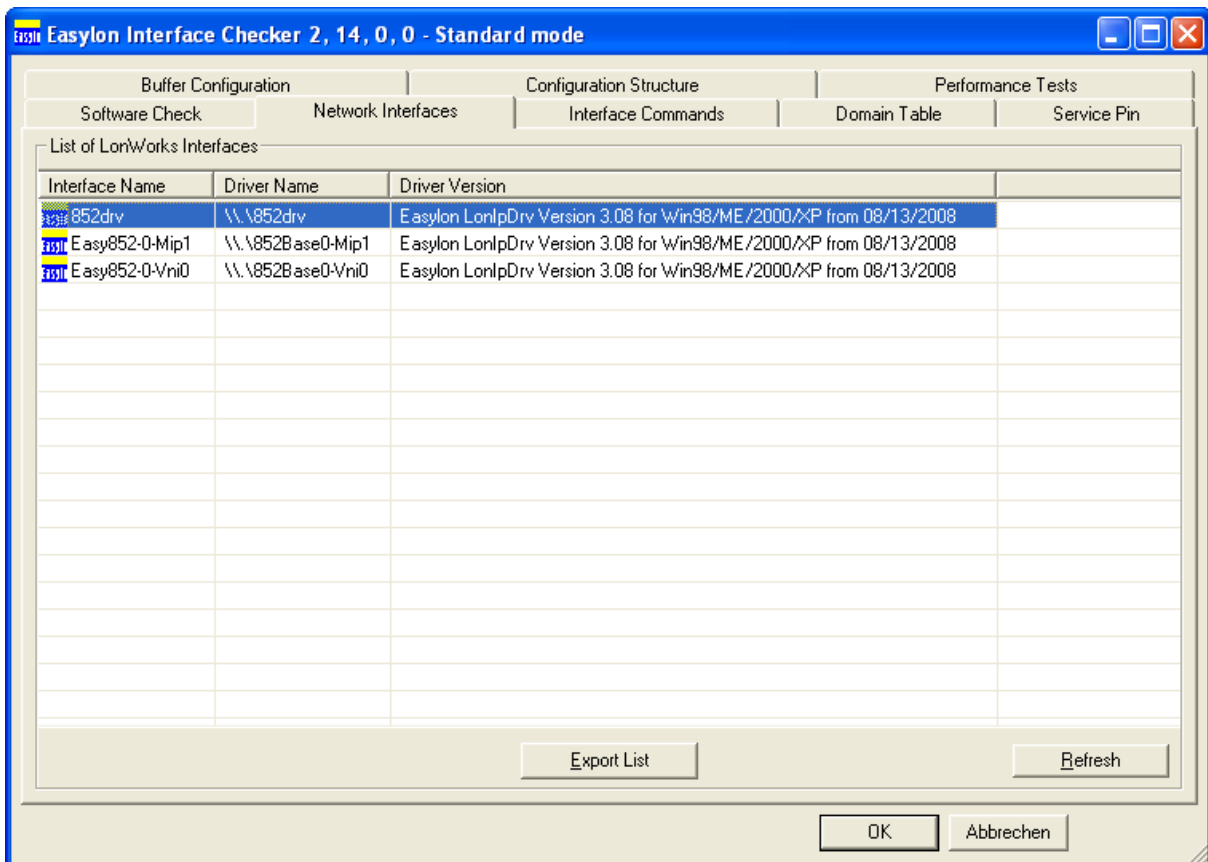
[1] More information about its usage is given in the EIMC manual.

Click the "Query Status" button in the "Interface Commands" tab and you'll get a similar display, of course with a different Neuron ID, which is read from the Dongle.

# 4        Parameters of the CEA-852 Protocol Stack

The following table describes the parameters of the CEA-852 protocol stack.

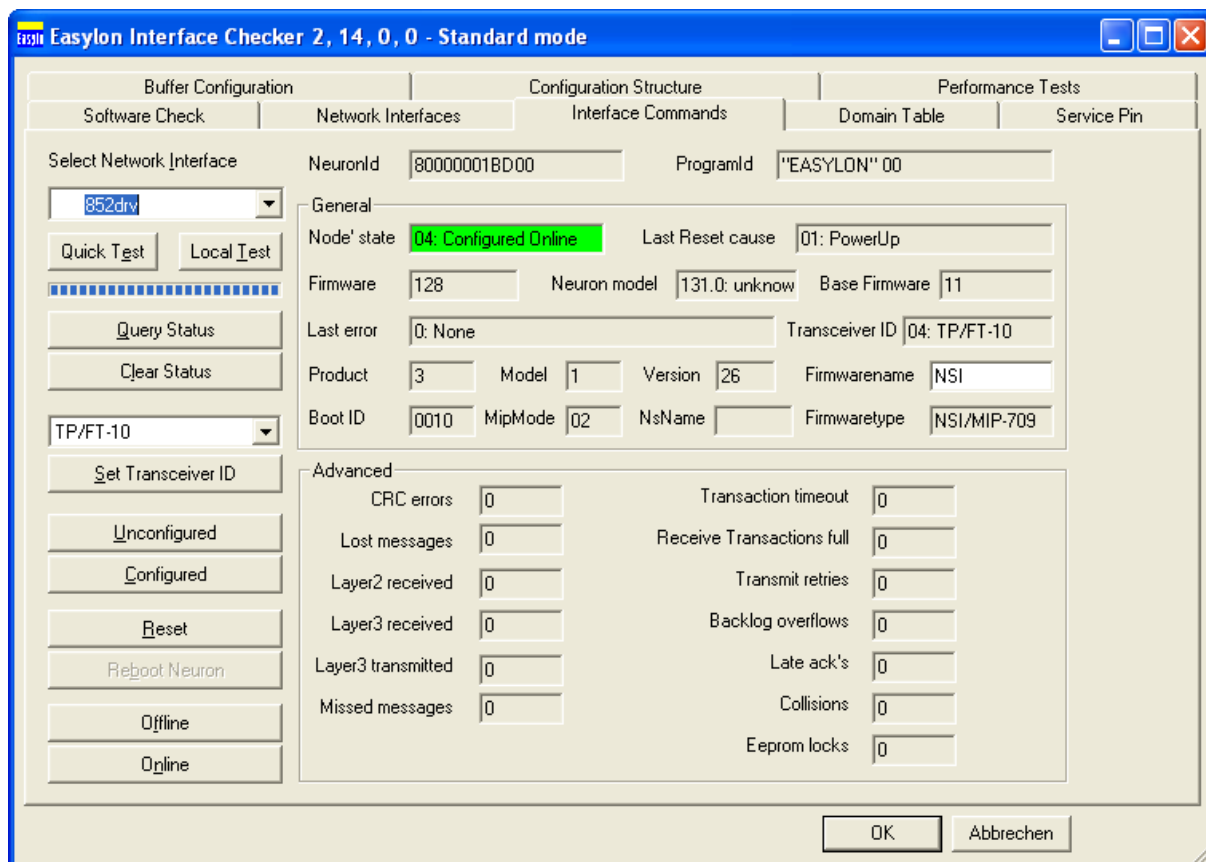| Name | Comment |
|---|---|
| Config Server Address | Unicast IP address of the CEA-852 Configuration Server |
| Config Server Port | Unicast IP port number of the Configuration Server. Default is 1629. Any modification of the port number requires intimate knowledge of the CEA-852 protocol. |
| 852 Interface Address | IP address of the CEA-852 protocol stack itself. This IP address is selected via a combo box. This selection is necessary, if there is more than one Ethernet adapter mounted to the PC. |
| 852 Interface Port | Port number for the CEA-852 data transfer. Default is 1628. Any modification of the port number requires intimate knowledge of the CEA-852 protocol. |
| RNI Interface Port | Port number for the connection with the RNI client. Default is 49852. If this parameter is changed, it must be changed in the RNI client too. |
| Multicast | IP address for Multicast addressing, LON packets can be sent in parallel to multiple recipients of the CEA-852 channel. This considerably contributes to the reduction of the network load. |
| Multicast Port | IP port number for Multicast addressing |
| Debug Output | With this check box output can be generated. |
| Debug Mask | Defines the debug output, which is generated. Default is 65503. |
| Enable Soft License | This checkbox must not be activated. It is used for testing purposes solely. |
| Aggregation | In the CEA-852 protocol Aggregation designates a process of optimization of the network load. All requests to the interface via the driver arriving during the time set by Aggregation are collected into the same Ethernet package. This causes a delay corresponding to that time, reducing the throughput. Used with routers this can make sense. With interfaces the value should be set to 0. |
| Multicast TTL | The Multicast TTL (Time To Live) entered here is the number of router hops a CEA-852 packet is allowed in the network before being discarded. This can be used to limit the propagation of messages, which reduces the overall bus load.. |
| Config. Server Pollinterval | The Configuration Server is queried in the interval set here to ascertain the connection status. |

| | |
|---|---|
| Ensable Channelrouting | Under Channelrouting the CEA-852 standard describes an algorithm which, using the LonWorks routing information from the LON/IP routers, optimizes the IP data transport. Channelrouting reduces the IP network load. The checkbox allows to control Channelrouting for test purposes. |
| Wants all packets | A device on the LON/IP channel can tell other devices that it wants all messages, regardless of any addressing or routing. This can be important, e.g. in case of an Analyzer device. Check the *Wants all Packets* option to enable this mode. |
| Load saved channel config | Usually the CEA-852 protocol stack takes all information for the CEA-852 data transfer from the communication with the Configuration Server and the CEA-852 devices. This ensure permanent consistency of the configuration.<br><br>Additionally the software stores the current configuration in a file. Activating this checkbox will cause the CEA-852 protocol stack to start with this filed configuration. However, be aware that this is not necessarily consistent with the actual status of the IP network, e.g. if DHCP is used. As the current configuration is automatically assessed at start up this option should not be activated. |
| MD5 Authentication and Secret | If MD5 authentication[2] is used the key is provided in this field. Using authentication requires all devices to support this. |
| Hide Console | De-activating this checkbox will send debug output to a console. If active, output will show in the "Log" combobox below the configuration dialog. |
| Automatic Start | Setting this option will cause the software to start automatically. If it runs as a service, the start parameter for the service will be set to "automatically" |
| As Service | Enabling this checkbox will run the CEA-852 protocol stack as a service. |

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[2] A hexadecimal value of 16 bytes (32 characters) is required

# 5    Remarks

## 5.1    DHCP

DHCP should not be used. At termination of a DHCP lease for a CEA-852 device a new IP address will be assigned to it. A re-configuration of the CEA-852 channel will follow. Especially with active Channelrouting, the usual operation mode, all devices have to undergo a re-configuration. This can cause temporary communication interruptions.