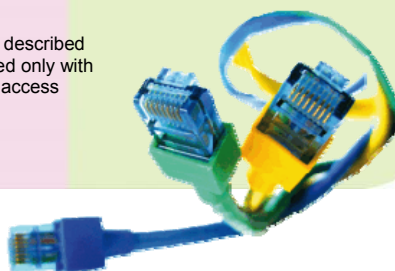




User guide for connection of
access control components
OPJ DS-01/ETH
OPJ BES-01/ETH
convertor ETH/RS-485
to Ethernet network

The functions and hardware described
in this user guide can be used only with
BBIQ software designed for access
control systems.



www.rys.sk
www.bezpecnebyvanie.sk





This manual describes only the connection of RYS® products to LAN network. It does not explain the operation of LAN network itself or the connection and identification of the devices within the network (setting and assigning IP addresses). But these information is necessary for installation of Ethernet devices. The detail description how to set up the LAN network is available in other commercial publications or at the internet. It is necessary to contact network administrator before connecting any device into existing LAN network.

More detail technical information about Network Enabler Administrator software update can be found at the www.moxa.com/product/ne-4000t-st.htm. User manual for software BBIQ as well as the technical parameters of the access control DEK SIET and BES components can be found at www.rys.sk, or you can contact our technical support by email.

Warning:

Before installing the BBIQ software make sure that your computer meets the minimum hardware requirements to run the application.

The devices and the software requires PC with network interface card, CD ROM drive and operating system Windows 98SE and higher. Hardware requirements for BBIQ software are described in the relevant manual.

The instructions and pictures in this manual are based on the device settings in Windows XP operating system. They might be slightly different if the settings are done on another version of Windows operating system.

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Network Enabler Administrator : version 2.7

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1. Ethernet device applications

The Ethernet devices can be used in those application where higher technical standard of building management is required. Their installation is suitable in premises with built Ethernet-based Local Area Network (LAN). It is possible to connect devices within such a network in 100m distance without necessity to connect a repeating device.

The building with an access control system with Ethernet connection can be connected to Remote management system. Remote management RYS is a system designed to manage buildings' access control from a distant point situated off the premises, the same way as it is done if the manager is located in the building. The existing server-client internet connection is used. The data processing and data back-up from single access-control units is centralized in BBIQ server operated by RYS IT. The client (building) connects to server. The VPN router is connected on both sides (server and client side), and enables the encrypted Virtual Private Network (VPN) connection. Using VPN it is possible to make virtual connection of two LAN networks as it was one. The complete building management can be done within this virtual network.

Example of Remote management use

Each apartment building and its residents use certain services (e.g. cleaning services, electricians, mail man, lift services, etc.). The people providing these services need to access the secured building, but their access must be controlled to avoid any unauthorised entries. So, the services providing companies also have the identifiers (tag, card, iButtons) in order to have monitored and registered access to the premises. If the building residents can not manage the access control by themselves, the management can be provided by a supplier of the access control system or by RYS IT.

These RYS products can be used for connection of access control system to Ethernet network: Operating-memory unit DS-01/ETH, BES-01/ETH and programmer-converter Ethernet-RS485. The converter Ethernet-RS485 is used for connection of standard operating-memory units of third generation with RS485 interface. The use of the converter is recommended.

2. List of accessories

Installation and use of Ethernet devices requires these accessories:

- **Ethernet cable with a RJ-45 connector (not included in the packing), direct or cross-over based on the connection to LAN.**
- **PC with network interface card, CD ROM drive and operating system Windows 98 SE or higher.**

3. Connection to LAN

Connect the Ethernet device to your PC (or to other active network component like hub, switch, router) via the Ethernet cable. Based on the type of Ethernet connection, use direct or cross Ethernet cable.



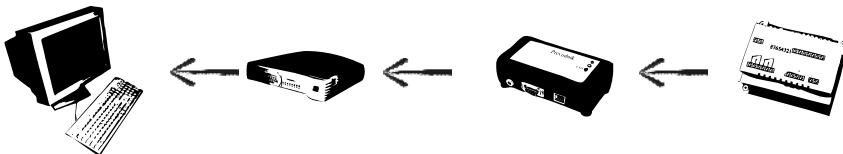
Direct connection of operating memory units DS-01/ETH, BES-01/ETH to PC. Use the Cross-over Ethernet Cable for this connection.



Connection of operating memory units DS-01/ETH, BES-01/ETH to PC via connecting device (hub, switch, router). Use the direct Ethernet cable for this connection.



Connection of a converter Ethernet-RS485 directly to PC. Use Cross-over Ethernet Cable for this connection. The converter has 9 PIN connector for connection to operating-memory unit.



Connection of a converter Ethernet-RS485 to PC via connecting device (switch, hub router). Use Direct Ethernet Cable for this connection. The operating-memory unit is connected to the converter with cable with a 9PIN connector. The converter has a 9 PIN connector CANNON.



Setting the network addresses using DIP switches on the operating-memory units DS-01/ETH and BES-01/ETH:

- *the network address must be set to value 0, do the setting according to the table placed on a side of the unit's cover (the number of units in the system is only limited by the range of IP addresses in the LAN).*

Setting the network addresses using DIP switches on the standard operating-memory units connected to converter Ethernet-RS485:

- *the network address is set according to the table placed on side of the unit's cover, no two devices within one network can have the same network address (the maximum number of network addresses and devices is 32).*

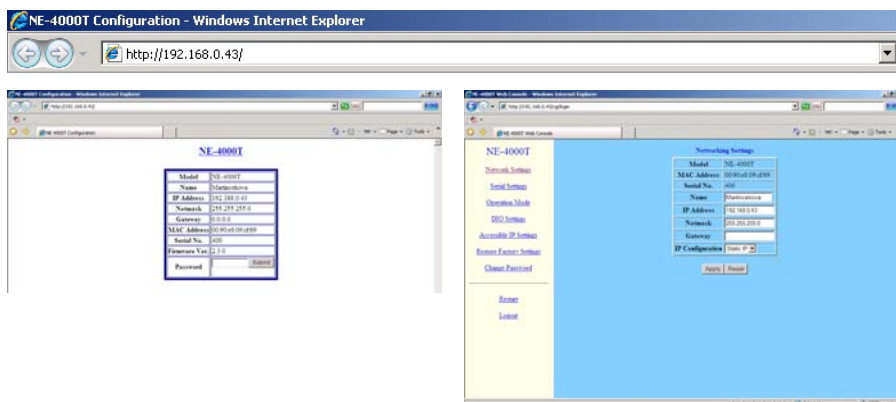
Other technical parameters and setting options are the same as for the devices with RS485 or RS232 interface and can be found in the manual relevant to these devices. The manuals for RYS products are available at www.rys.sk or contact our technical support by email.

4. Methods of Ethernet device settings

The settings of RYS Ethernet products can be easily done **using the internet browser** (for correct setting we recommend the Internet Explorer 6 or higher version of this browser) or the settings can be done **using the Network Enabler Administrator**. To install this application to your PC use the CD enclosed with the purchased Ethernet device.

5. Settings via web browser interface

- connect operating-memory unit to PC according to Chapter 5
- run internet browser on your PC
- enter IP address of the Ethernet device into the Address bar of the browser (the preset IP address is **192.168.1.100**). Click **Enter**
- a login window with current network settings of Ethernet devices will display
- the current settings can be change after the login password is entered (if you are setting the devices for the first time the password is not yet defined and so there is no need to enter the password), click **Submit**
- entering the page with settings, it is possible to configure the device the same way as in the application Network Enabler Administration.

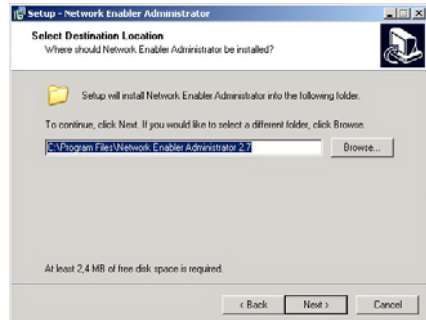


6. Installation of Network Enabler Administrator software

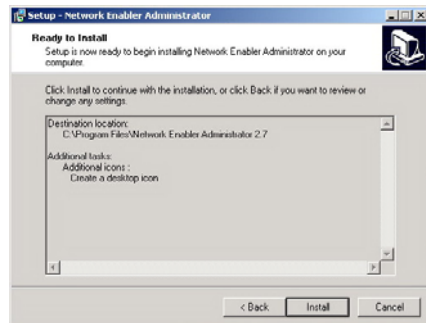
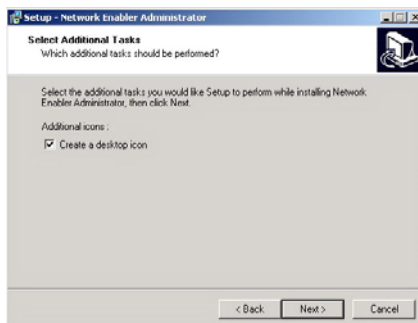


To install the Network Enabler Administrator software you must be logged in the Windows as the administrator (in Windows 2000 and higher). Before installing the application check if your PC meets the minimum hardware requirements mentioned on page 2.

- Insert distribution CD with installation files into CD drive of your PC.
- Run the installation file **NetworkEnablerAdministrator_setup.exe**, file under directory **NETWORK_ENABLER_ADMIN**.
- Click **Next** to confirm the start of installation.
- Select the destination location—where the application will be installed and confirm **Next**.



- Select if you wish to Create a desktop icon, confirm **Next**.
- In the last Setup window check your settings and click **Install** to proceed with the installation.



- There is an option to run the application after the installation is finished (**Launch Network Enabler Administrator**), click **Finish** to complete the installation.
- You can start the application by clicking the shortcut desktop icon . This is possible only if you set this option during the installation.
- The application can be also started from **Start > All programs > Network Enabler program 2.7 > Network Enabler Administrator 2.7**.

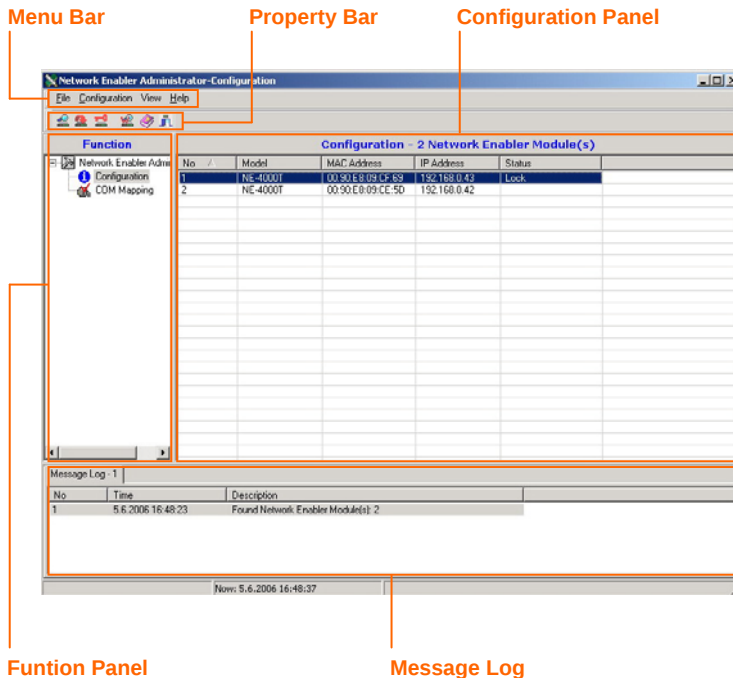


7. Control features in Network Enabler Administrator

The main application window is divided into five sections:

1. **Menu Bar**
2. **Property Bar**
3. **Function Panel**
4. **Configuration Panel**
5. **Message Log**

You can customize how the main application window will display. Click **View** in menu bar and select from the options.

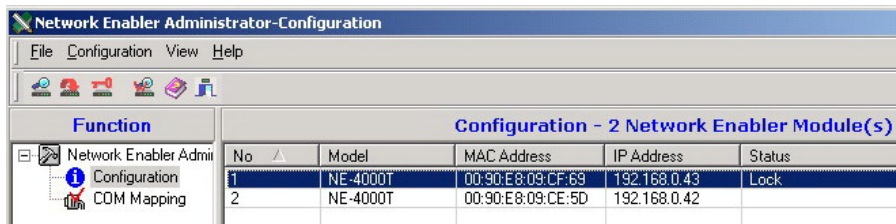


Property bar options:

1. **Broadcast** - searching available Ethernet devices in the network
2. **Specify by IP Address** - searching the device based on the specific IP address
3. **Unlock** - unblocking the device locked by a password
4. **Web Console** - running the web interface for device settings
5. **Help**
6. **Exit** - closing the application

Information in the configuration panel:

1. **No** - the number of a device in the list
2. **Model** - type of the Ethernet device (set NE4000T for RYS® Ethernet devices)
3. **MAC Address** - physical device address
4. **IP Address** - Internet protocol device address
5. **Status** - device status

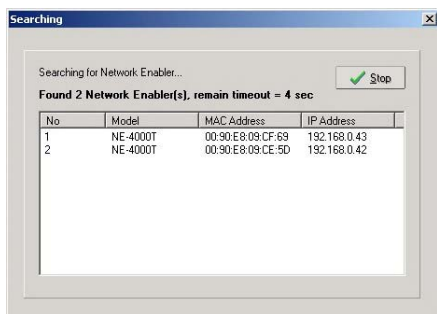


8. Searching devices

Ethernet devices available in your network can be searched in Network Enabler Administrator application using the **Broadcast** function or **Specify by IP address** function based on the particular IP address.

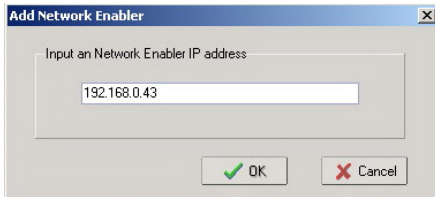
Searching all Ethernet devices in the network

- click **Configuration** from the menu bar, and then select **Broadcast Search** from the drop-down menu or select **Broadcast** in the property bar.
- the application will automatically search available Ethernet devices in your network
- the search can be stopped at any time by clicking **Stop**.
- available devices are displayed in the configuration panel.



Searching the Ethernet device based on the IP address

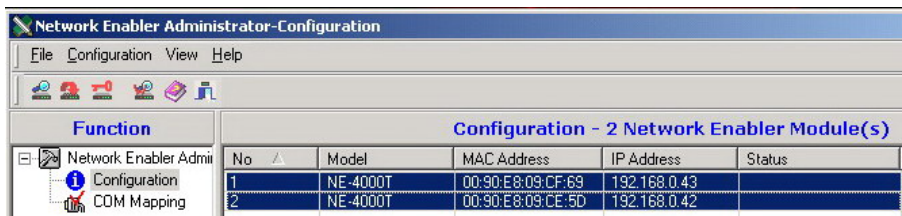
- click **Configuration** from menu bar (or in the property bar) and then select **Specify IP Address**
- enter IP address of the Ethernet device you want to find and confirm **OK**.
- the application will search the particular device and displays its characteristics in the configuration panel



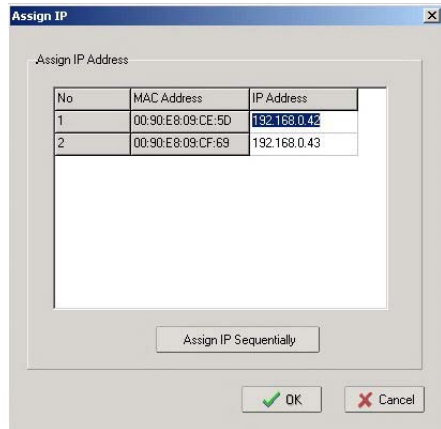
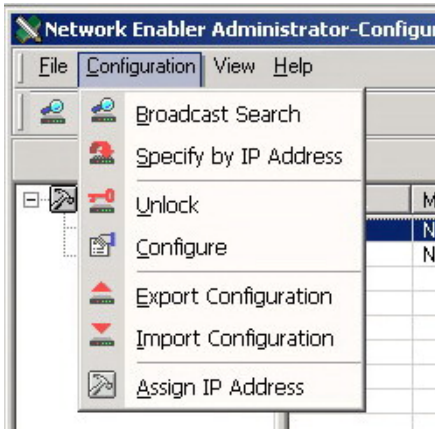
When you try to identify the Ethernet devices in your network for the first time and your PC has Windows XP installed, a warning message might display. This message will ask you to unblock or block TCP/IP port used for communication with the Ethernet devices. To run the Network Enabler Administrator correctly, this communication must be permanently enabled.

9. Changing the IP address

- to change the IP address, first select the device from the list in configuration panel (to select several devices at the same time, press and hold the **Ctrl** key or **Shift** and click the devices with left mouse button)



- click **Configuration** from the menu bar and then select the **Assign IP Address** function from the drop-down menu.
- click on the IP address in the displayed list and enter the new address
- click the **Assign IP Sequentially** button to assign subsequent values of the IP addresses to every other added device. The IP address of the added device will have the value increased by 1 compared to the previous device address.



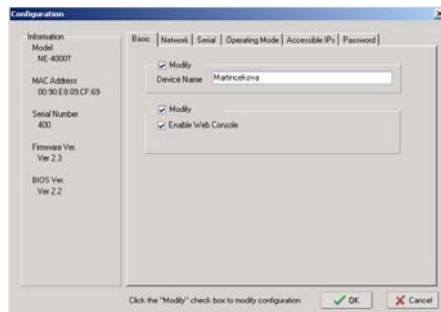
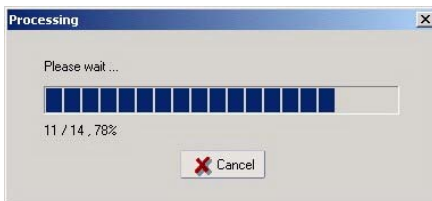
- confirm the changes by clicking **Ok** or cancel them by clicking **Cancel**.



The detail specification of the device settings can be done using the function **Configure**, see chapter 10.

10. Device configuration

- select the device in the configuration panel
- click **Configuration** from the menu bar and then select **Configure** from drop-down menu or double click the selected device with left mouse button. The current configuration of the device is uploaded and the *Configuration* window is displayed. The detail device settings can be done in this window.

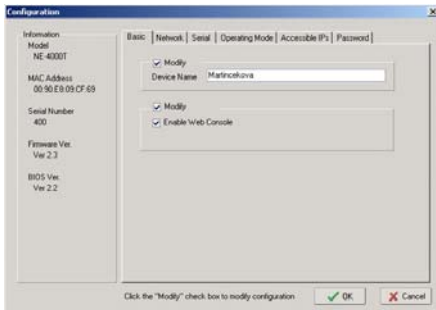




Before making any changes in any of the configuration window folders, the option **Modify** must be enabled (tick the check box). New settings are saved by clicking **OK** in configuration window.

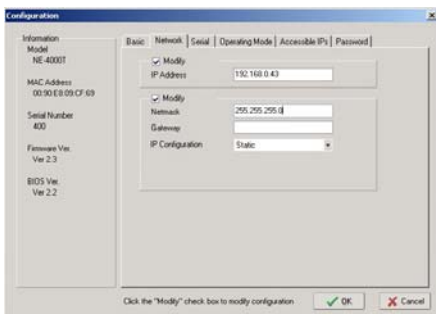
Basic

The definition of the name and enable/disable configuration via web interface can be done in Basic folder.



Network

The folder Network is used to set the IP address of the device, the network mask and the gate. The IP address can be assigned manually (**Static**) or automatically if the DHCP server is used in the network.



Serial

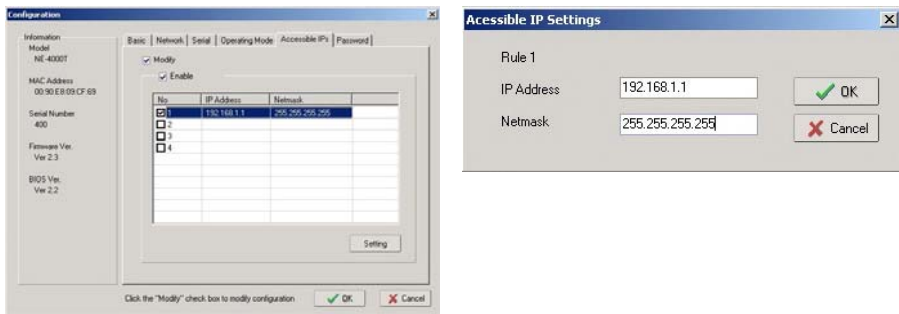
The settings of serial communication link with a device can be done in the Serial folder. When using RYS® Ethernet devices with BBIQ software, no change of settings is required in this section, keep the factory settings.

Operating mode

If the RYS® Ethernet devices with BBIQ software are used, no changes are required in this section.

Accessible IPs

If this function is enabled (the check box **Enable** is marked), the operating-memory unit or the converter unit will communicate only with devices (PC, server, router) which have the same IP address as one of the addresses listed in the table. The values of accessible IP can be defined by double clicking one of the four rows of the table. To activate the accessible IP addresses tick the check box in the particular row of the table.



The IP address can be defined as the specific IP address or in the range of IP addresses:

- **Only one IP address is accessible**

Enter the specific IP address (e.g. 192.168.1.1) and the Netmask **255.255.255.255**

- **All IP addresses are accessible from a selected subnet**

Input 0 value for subnet IP address (e.g. 192.168.1.0) and **255.255.255.0** as a netmask.

- **Only specific range of IP addresses is accessible in one subnet.**

Insert 0 value for subnet IP address (e.g. 192.168.1.0) and the range of accessible IP addresses in the subnet is defined by netmask **255.255.255.xxx**, where the xxx is the number from 1 to 254, representing the result of subnet calculation - subtracting the number of accessible IP addresses from the number 254.

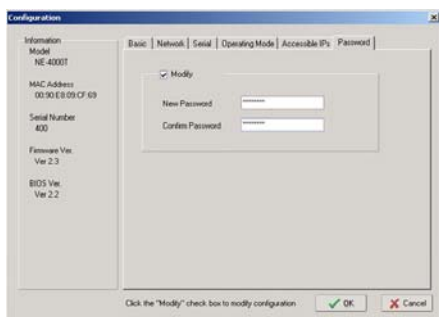
(Example: The network with zero (0) IP 192.168.1.0 has a range of accessible addresses that can communicate with Ethernet devices defined from 192.168.1.1 to 192.168.1.126. That means the number of accessible IP addresses is 126. The number xxx at the end of the netmask will be $254 - 126 = 128$. So the value of netmask is 255.255.255.128.)

Examples of assigning IP addresses:

The range of accessible IP addresses	IP Address	Netmask
Any IP address	not defined	not defined
192.168.1.120	192.168.1.120	255.255.255.255
192.168.1.1 to 192.168.1.254	192.168.1.0	255.255.255.0
192.168.0.1 to 192.168.255.254	192.168.0.0	255.255.0.0
192.168.1.1 to 192.168.1.126	192.168.1.0	255.255.255.128

Password

The password for changing the settings of Ethernet device connection can be defined in **Password** folder. Enter new set of characters into text box **New Password** and then confirm the password in **Confirm Password** text box. Once the password is set, the device configuration can be changed only after unlocking the device using the password.



When setting the password, make sure you use the expression (set of characters) that can not be easily figured out or cracked. The minimum recommended level of security can be achieved using the combination of letters and numbers.

Remember the password!!!

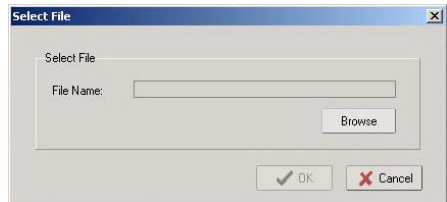
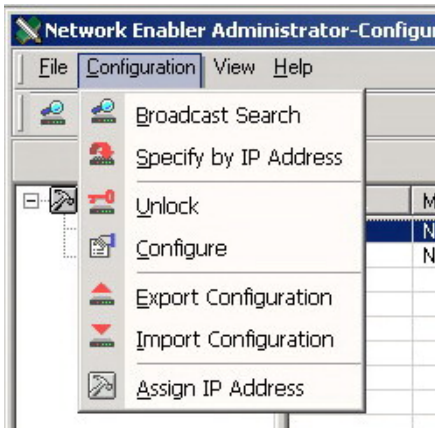
Once the password is set, the device setting can be changed only when the correct password is used. Security settings can not be changed without entering the old password first. In case you forgot the password and it is necessary to unlock the device, please contact our technical support at vyroba@rys.sk.

11. Import and export of settings

Export functions enables the system administrator to save the settings of Ethernet device into the text file in PC or onto some recordable medium (disk, USB, CD etc.) and then import these settings into another Ethernet device, or restore the configuration from the created backup.

Export of device settings

- select the device in the configuration panel
- click on **Configuration** in the menu panel and then select **Export Configuration** from drop-down menu.
- click the **Browse** option and select the name and location of the configuration file
- click **OK** to save the file



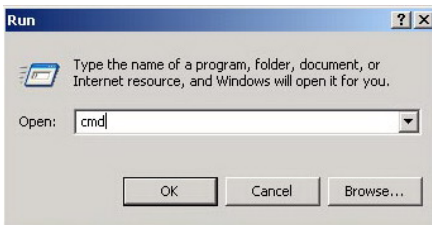
Import of device settings

- select the device in the configuration panel
- click on **Configuration** in the menu panel and then select **Export Configuration** from drop-down menu.
- click the **Browse** option and select the name and location of the configuration file
- click **OK** to import the settings into the device

12. Testing the network communication

To verify the communication between the Ethernet device and your PC use PING command, which can be run directly from the Windows system.

- hold down your [Windows key + R] to use the run command shortcut or go to your **Start** menu and click on **Run** (or *Start > Programs > Accessories > RUN*).
- write **CMD** (or **COMMAND** in OS Windows 98SE) and confirm **Enter**. the CMD.exe program will open
- in CMD. exe type **ping xxx.xxx.xxx.xxx** where xxx.xxx.xxx.xxx is the Ethernet device IP address , press **Enter**
- to view the HELP write **ping/?** and confirm **Enter**
- if the network setting of the device and PC are correct, the Ping statistic with time response of the tested device will display



```
C:\Documents and Settings\toni>ping 192.168.0.15
Pinging 192.168.0.15 with 32 bytes of data:
Reply from 192.168.0.15: bytes=32 time=2ms TTL=128
Reply from 192.168.0.15: bytes=32 time=1ms TTL=128
Reply from 192.168.0.15: bytes=32 time=1ms TTL=128
Reply from 192.168.0.15: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.0.15:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
C:\Documents and Settings\toni>
```

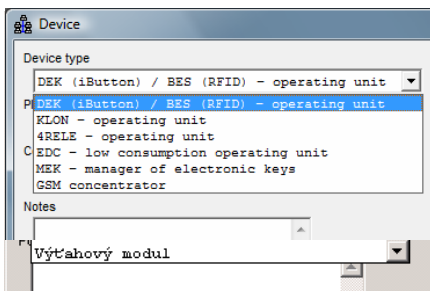
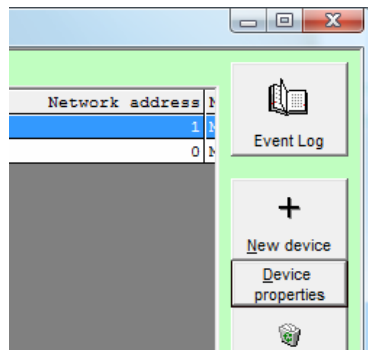
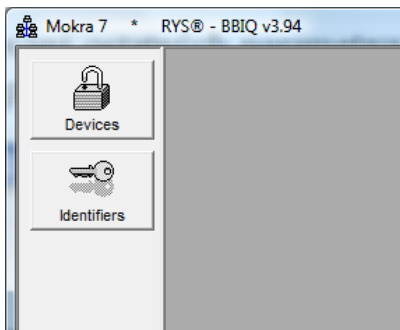
- if one of the error warnings **Request timed out.**, **Destination unreachable.**, or **Destination specified is invalid.**, appears 4 times in sequence, the communication between the PC and device was not successful. Check the communication setting of the device or check the correct hardware operation.

13. Adding Ethernet devices in BBIQ software

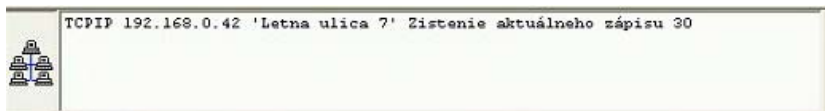
Adding an operating memory unit OPJ DS-01/ETH and OPJ BES-01/ETH

- in main application window click **Devices**
- a new window **List of devices** will display
- click New device
- the window Device will display
- select the type of device „DEK (iButton) / BES (RFID) - operating unit“ from drop-down menu
- set **TCPIP** in **Definition of communication link** text box
- enter the IP address of the operating-memory unit into the **Network address for communication link** text box (the network address on the unit itself must be set to position 0 using the DIP switches, according to the setting table placed on the unit's cover.)

- to set other device properties, follow the instructions in the BBIQ User manual.



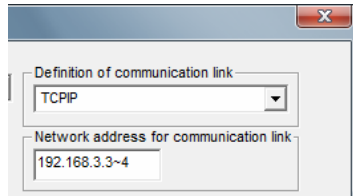
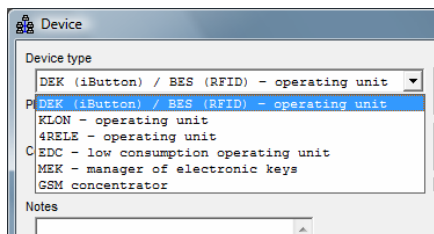
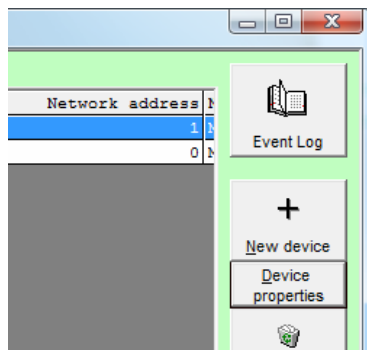
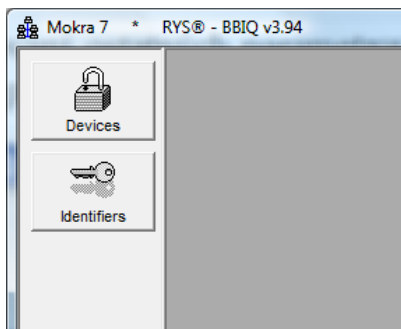
- the status of the communication link will display in the bottom status box of the main application window



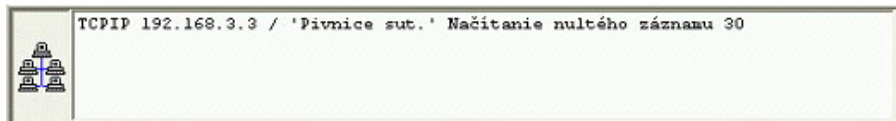
Adding operating-memory unit using the converter ETH/RS-485

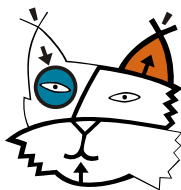
- click **Devices** in the main window of BBIQ application
- the **List of devices** will display
- click **New device**
- the window **Device** will display
- select the type of device „DEK (iButton) / BES (RFID) - operating unit“ from drop-down menu
- set **TCP/IP** in **Definition of communication link** text box

- enter **xxx.xxx.xxx.xxx~Y** the **Network address for communication link** text box, where xxx.xxx.xxx.xxx is the IP address of the operating-memory unit connected via converter and Y is network address of the device (the same network address must be set on the unit using the DIP switches, according to the setting table placed on the unit's cover.), e.g. 192.168.3.3~4 (IP address is 192.168.3.3 and the network address of the device is 4)
- to set other device properties follow instructions in the BBIQ User manual



- the status of the communication link will display in the bottom status box of the main application window





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