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USER MANUAL

MDB-E

ETHERNET SERIAL BRIDGE



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1. General description

MDB-E is a bidirectional converter between the Ethernet communication channel and the RS485 serial channel.

It therefore allows all devices equipped with a serial port to communicate with software or cards on Ethernet communication.

Thanks to the NFC (Near Field Communication) interface, the configuration is very simple and practical. A dedicated APP allows you to read, modify and set all device parameters.

The galvanic isolation of the serial port guarantees protection for all connected devices and it guarantees isolation from the rest of the system.

MDB-E works independently from the protocol by connecting all the protocols based on TCP / IP with the serial one in a completely transparent way. This simplifies the configuration and installation of the bridge.

This Ethernet - Serial converter has been specially designed for industrial environments, equipped with 10-32 v DC extended range power supply.

It does not need any additional software for configuration.

Content of the package

MDB-E can be purchased in the following versions.

Single product:

P/N: MDB-E

- n. 1 MDB-E
- n. 1 Quick Start

2. Technical features

GENERAL	SOFTWARE
Ethernet 10/100 MB/s	ModBus TCP/ModBus RTU on RS485 conversion
RS485 optoisolated	Bidirectional protocol conversions on all channels
Serial communication speed up to 115.200 bit/s	Easy and quick configuration through APP
	Default parameters: IP: 192.168.1.101 DHCP disabled 9600 bps
MECHANICAL	ENVIRONMENTAL
IP41 plastic case for DIN guide	Operating temperature: -20°C ÷ 60°C
Size: 90 x 17 x 60 mm, 1 DIN module	Relative humidity: from 0 to 80% without condensation
	Storage temperature: -40°C ÷ 60°C
ALIMENTAZIONE E CONSUMI	
Power supply: 10-32 v DC	
Average consumption: 30mA	

SAFETY INFORMATION

- The use of radio devices may be inappropriate near electronic equipment.
- Do not install the MDB-E near medical devices such as pacemakers or hearing aids. MDB-E can interfere with the proper functioning of these devices.
- MDB-E must not be used on board aircraft.
- Do not install MDB-E near oil stations, fuel depots, chemical plants, explosion sites as MDB-E can disturb the operation of technical equipment.
- MDB-E can generate interference if used near television, radio or personal computers.
- In order to avoid possible damage, we recommend the use of accessories tested and specified as compatible with MDB-E.

3. Quick Start

3.1 Power supply

Connect MDB-E to a 10-32 v DC power supply (Fig.1).

N.B. MDB-E is protected with polarity inversion but for correct operation the polarity must be respected.



Fig.1 Power supply connection

3.2 RS485 serial

MDB-E allows you to bridge the RS485 serial. The terminals for the connections of the serial port are as in Fig. 2.



Fig.2 RS485 serial connection

3.3 Ethernet

For connection to the Ethernet network, the MDB-E is equipped with the RJ45 connector on the front panel (Fig. 3). When connected to an Ethernet network, the status LED turns green. When there is communication, the green LED flashes.



Fig.3 Ethernet connector

3.4 Access and configuration

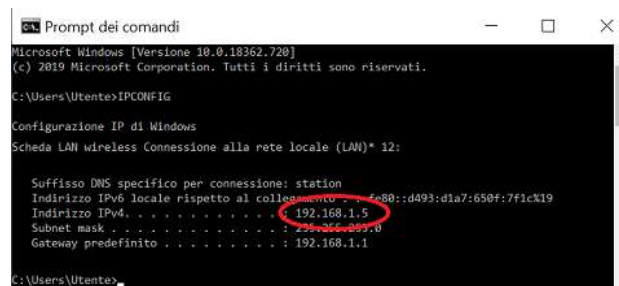
MDB-E is equipped with an integrated WEB server, therefore it can be configured using a standard browser. To access the configuration pages, type the IP address of MDB-E from the browser of your PC, tablet or smart phone.

The device from which you connect must be within the same network as MDB-E (Par. 2.1).

3.5 Network IP address

The default IP address of MDB-E is **192.168.1.101**. If your network is of the same IP class: 192.168.1 ..., go to paragraph 2.3, otherwise follow the instructions from point 2.2 to set the correct IP address.

To identify the IP class of your network, run the IPCONFIG command from the command prompt.



```
Prompt dei comandi
Microsoft Windows [Versione 10.0.18362.720]
(c) 2019 Microsoft Corporation. Tutti i diritti sono riservati.

C:\Users\Utente>IPCONFIG

Configurazione IP di Windows
Scheda LAN wireless Connessione alla rete locale (LAN)* 12:

Suffisso DNS specifico per connessione: station
Indirizzo IPv6 locale rispetto al collegamento . . . : fe80::d493:d1a7:650f:7f1c%19
Indirizzo IPv4 . . . . . : 192.168.1.5
Subnet mask . . . . . : 255.255.255.0
Gateway predefinito . . . . . : 192.168.1.1

C:\Users\Utente>
```

Fig. 4 Checking the IP address of your PC

In Fig.4 on the side, the IP address of the PC is 192.168.1.5. It belongs to the same class / network as MDB-E, as the first 3 numbers (192, 168 and 1) are the same.

It is therefore possible to reach MDB-E from the PC browser.

If the network is NOT of the 192.168.1 class, you can proceed in 2 ways:

1. Set MDB-E to work in DHCP (see paragraph 2.2);
2. Set a valid IP on the MDB-E

3.6 Configuration and settings

MDB-E is equipped with an NFC interface that allows the configuration of all system parameters via the iBridge APP.

3.7 Login and authentication

Once the IP address has been defined, type it on the browser. It will then be possible to access the MDB-E configuration and consultation pages.

The first screen (Fig. 5) is the username and password authentication page.

The default values are:

Username: **admin**

Password: **admin**

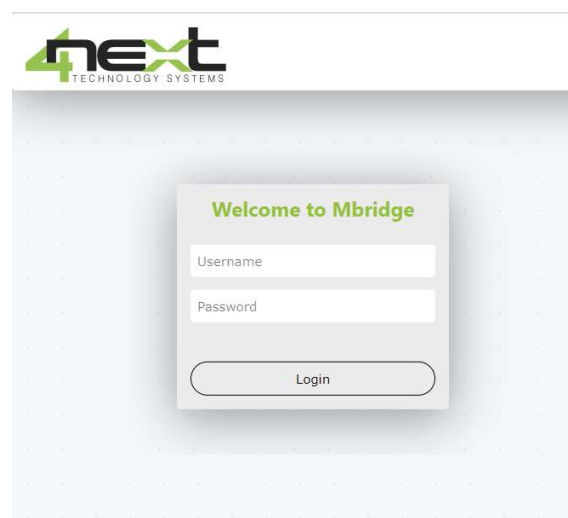
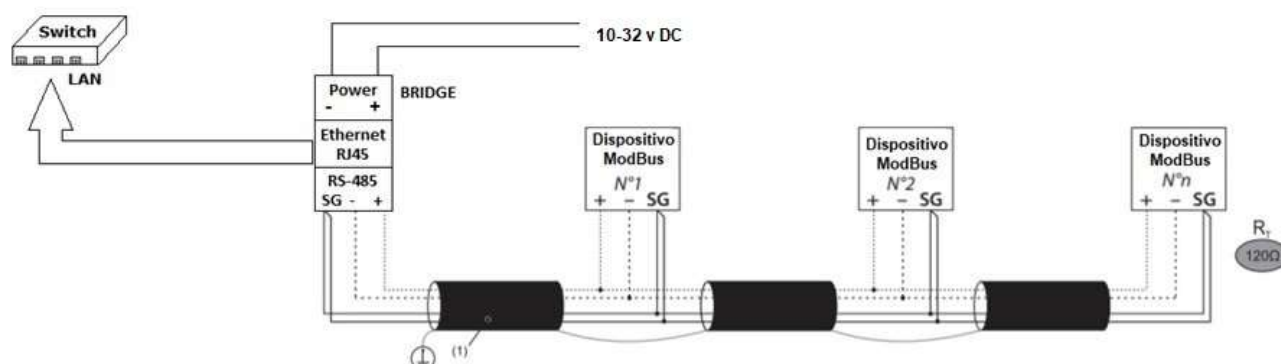


Fig. 5 Login browser screen

Connection scheme



Reading the QR code below you can access the WEB page of MDB-E:



MDB-E WEB page

4. IP settings

Associate a defined IP address to MDB-E.

1. Connect MDB-E to PC directly.
2. From the Windows menu select Settings (Fig.1).
3. Choose Network and Internet (Fig.2).
4. Choose Ethernet (Fig. 3) and the menu will open (Fig. 4).

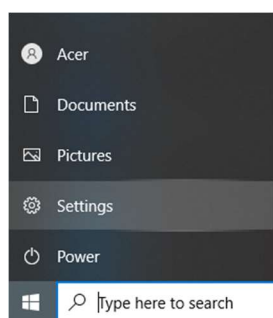


Fig. 1

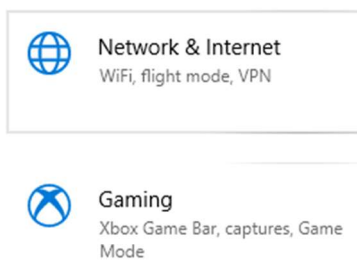


Fig. 2

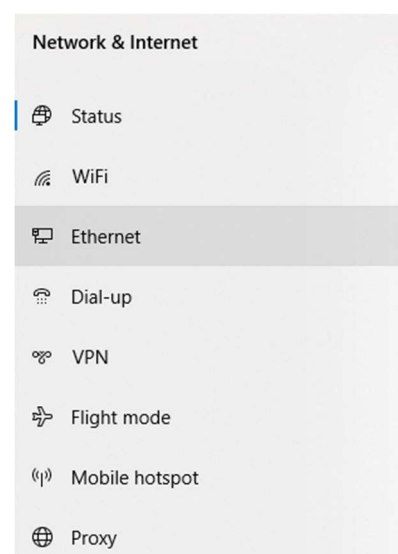


Fig. 3

- Click on "Change adapter options". A tab with all the network resources will appear (Fig.5).

Ethernet

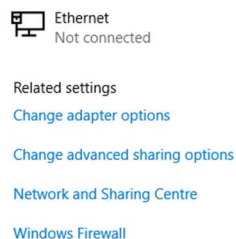


Fig. 4

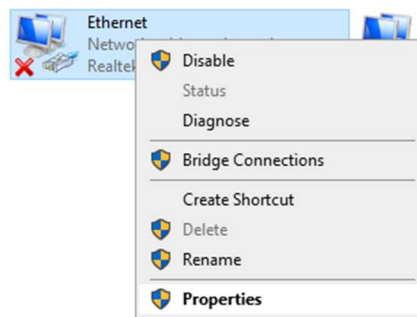


Fig. 5

- Position the mouse on Ethernet, press the right button and select "Properties".
- From the Ethernet properties menu (Fig.6), select "Internet Protocol version 4 (TCP / IPv4)" and press the "Properties" button which will be enabled in the meantime. The screen in Fig. 7 will open.
- Make a note of all the settings present that you will need later for the reset.
- Set the IP address on 192.168.1.101
- Set Subnet mask to 255.255.255.0 and confirm with OK.
- At this point you can open the WEB browser and type 192.18.1.101 to configure MDB-E.

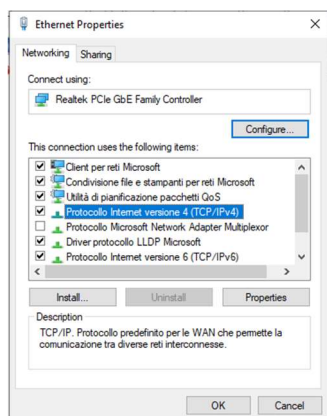


Fig. 6

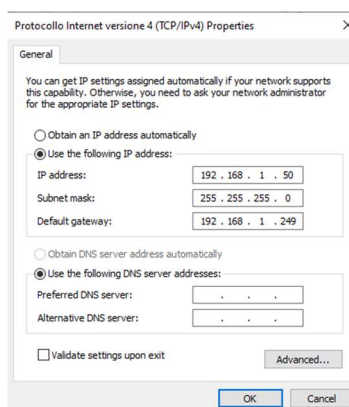


Fig. 7

12. Log in with username and password.

Default values are:

Username: **admin**

Password: **admin**

13. Select “Network” from the Configurations menu to set the MDB-E network parameters in accordance with those of your Ethernet network. For example, if in the original screen of Fig.7 the IP address was 192.168.10.1, set MDB-E to 192.168.10.101 (Fig.9).

14. Save the new MDB-E configuration.

15. Restore the values on the PC.

16. MDB-E is ready to be used in the same network as your PC.

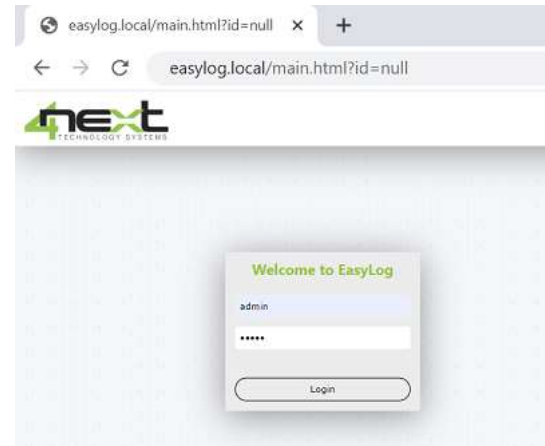


Fig. 8 *Login browser screen*

Network.

DHCP
Disabled

IP address
192.168.10.100

IP network mask
255.255.255.0

IP gateway
192.168.1.1

HTTP server port
80

Fig. 9

5. Programming

Main menu

5.1 Bridge

After logging in, you access the configuration menu. The first screen, the one shown in the figure below, allows you to choose the working mode of the Bridge.

The options are:

- **Ethernet – serial:** MDB-E acts as a converter between the Ethernet channel and the RS485 serial channel. This means that devices on RS485 can be connected indiscriminately. Not at the same time.
- **Radio – Ethernet, serial:** In this configuration, the radio communication module is activated if present. It is necessary to have a pair of devices to ensure that they transmit the received packets to each other. The device equipped with the radio module is identified as NetLink.

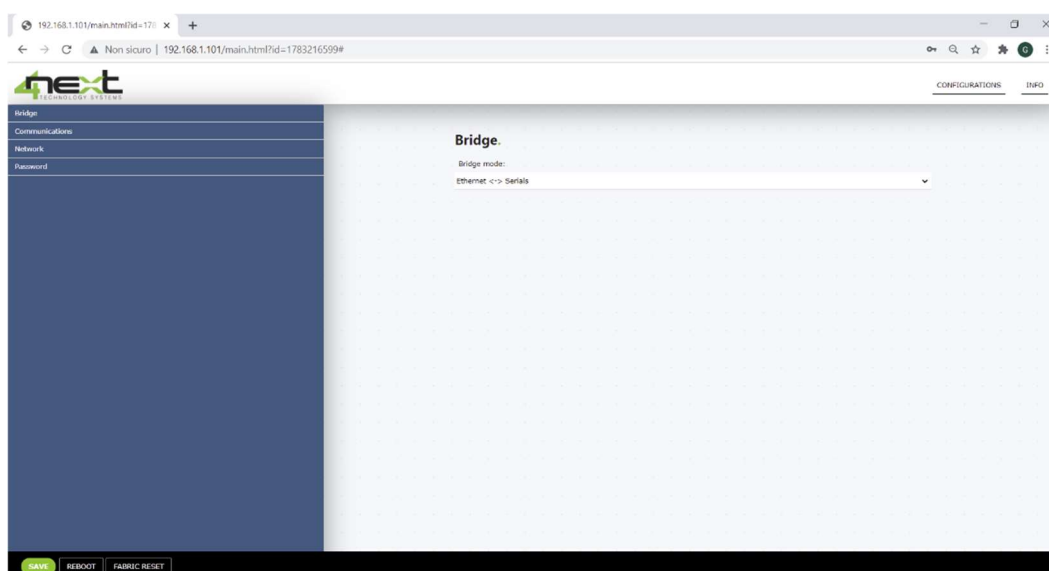


Fig. 5.1 Bridge mode selection screen

5.2 Communications

The communications menu allows you to set all the communication parameters for the various channels. In detail there are the following sections:

- **RS485:** for the parameters of the RS485 serial channel (communication speed, number of bits, stop bits and parity).
- **ModBus Server:** the port used by the ModBus server (MDB-E) which, combined with the IP address, forms the socket on which MDB-E listens to receive ModBus TCP packets.
- **ModBus Client:** an additional ModBus TCP client that can be updated with the transferred data.
- **Radio:** this section allows you to set the parameters of the two NetLinks that exchange information via radio.
 - o The transmission frequency must be the same.
 - o Local address: it is the address of the NetLink that is being configured.
 - o Remote address: it is the address of the NetLink that will receive commands via radio.

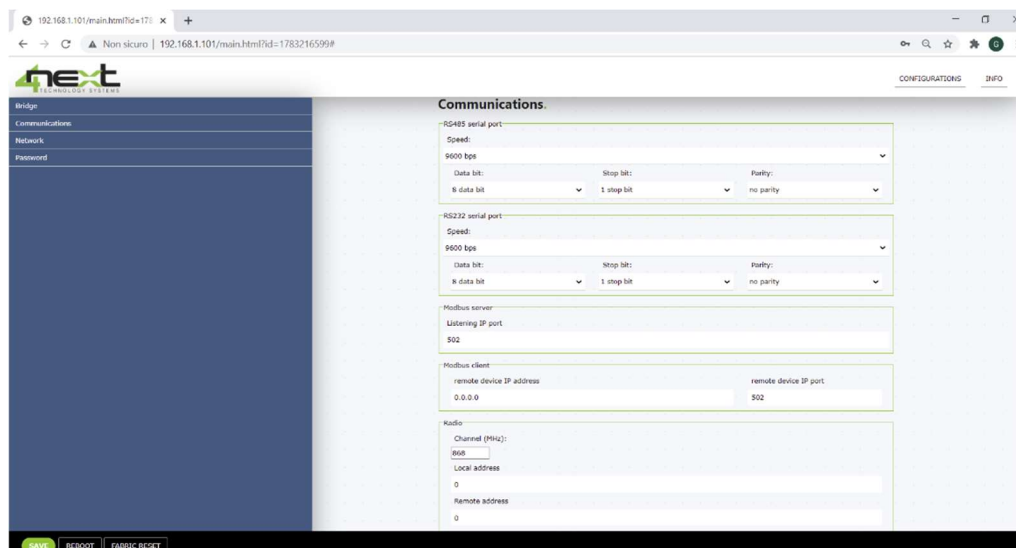


Fig. 5.2 Communications parameter settings

5.3 Network

It allows you to enter the parameters of the Ethernet network to which MDB-E is connected in order to communicate with the servers for sending data. These are in detail the parameters to be configured:

- **DHCP:** it allows you to determine whether you should use the network DHCP server to assign the IP address or not;
- **IP address:** the static IP address assigned to MDB-E. If DHCP is enabled or Dip-Switch 2 is set to ON, the IP is not the one displayed;
- **IP network mask:** the subnet mask or netmask allows you to determine the range of IP addresses within a subnet;
- **IP gateway:** IP address of the reference gateway;
- **HTTP server port:** http server port when different from standard 80 or 8080.

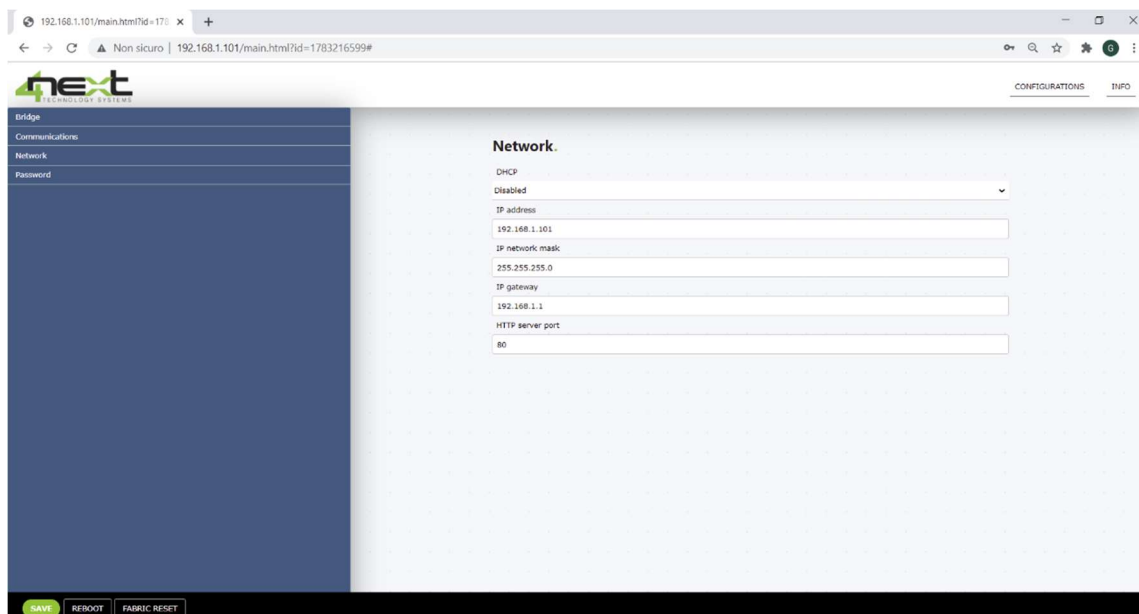


Fig. 5.3 Network settings

5.4 Password

Set the passwords for access to the MDB-E configuration page.

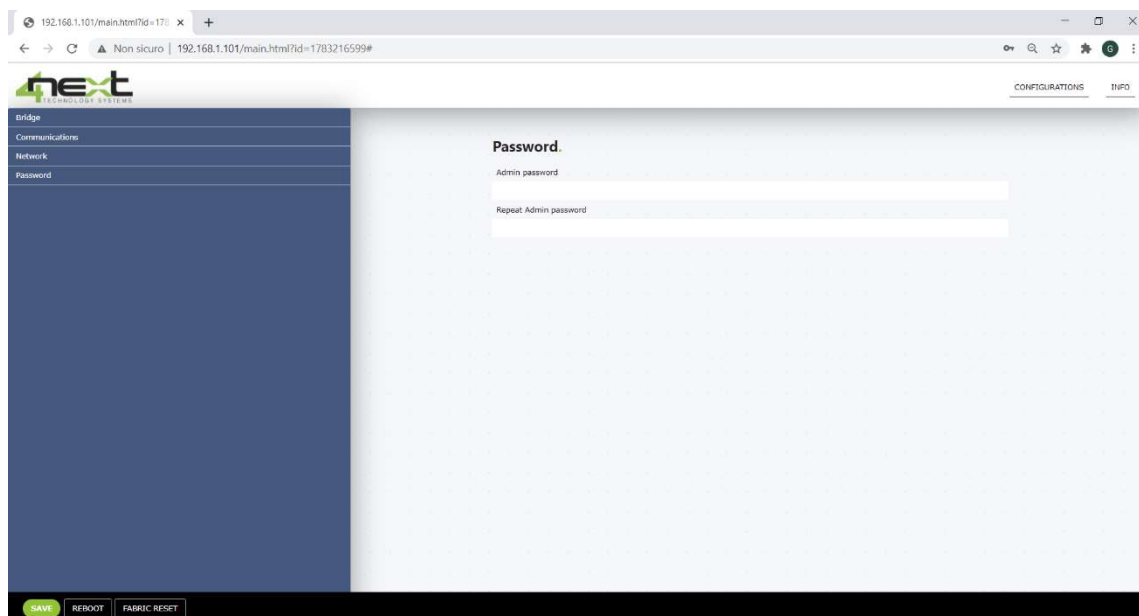


Fig. 5.4 Access password change screen

5.5 Info

The info menu displays the hardware and software information relating to the device.



Fig. 5.5 General information screen

The Update firmware button allows you to update the device's firmware. We recommend to check on the website at <https://www.4next.eu/en/prodotto/ethernet-serial-converter/> if the firmware is updated to the latest version.

6. Return and repair

The return for repair or replacement must be authorized in advance by requesting the RMA number.

Then send by e-mail to 4neXt at support@4next.eu or to your dealer / reseller the following information:

- Company name and customer data (address, tel, fax, email)
- Contact person
- Point of purchase
- Product data, P / N and S / N placed on the back of each product or on the original box
- Detailed description of the fault or anomaly detected

4neXt will send the RMA number with which the customer can send the material for repair. The products must be shipped carriage paid.

If the material arrives without the factory seals it will automatically be considered "out of warranty".

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