WindowMaster A/S

WMa WBA Configuration Tool

User Manual

V1.7

File: WMaWBAConfig.pdf

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1 Index

2 Scope

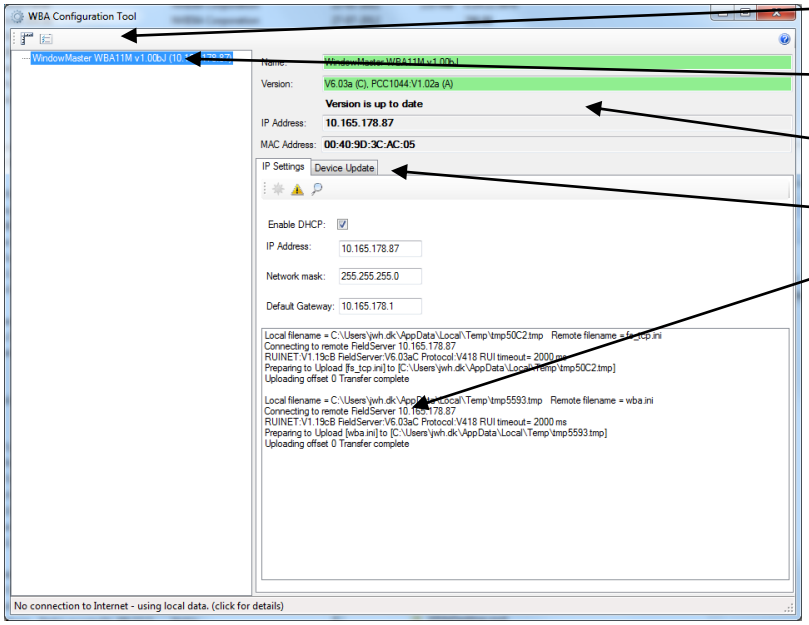
This document is the user manual for the WMaWBAConfig.exe software.

3 Description

The WBA Configuration Tool has the following features:

- Scans network for WBA controllers
- Shows WBA controller information
- Configure WBA controller network settings
- Reset WBA controller
- Download new configuration to WBA controller
- Automatically retrieves WBA configurations from internet

4 User interface



The user interface is divided into 5 parts each showing different information.

5 Example of use

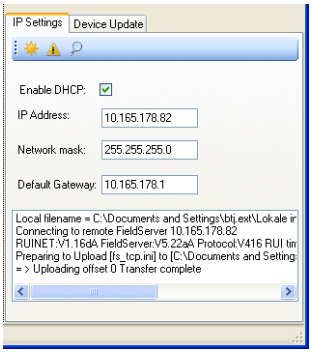
The example demonstrates how to use the program.
When the program is started it will check for new WBA configurations on the Internet.

5.1 Discover WBA controllers

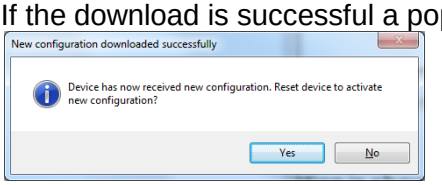
The program scans continously the network for WBA controllers. A list of WBA controllers is shown in the left panel.
If a WBA controller stops answering discovering requests it is removed from the list.
If a new WBA controller is found it is added to the list.
Select a WBA controller by clicking it and the right panel will show detailed information.
The colour of the Name and Version shows if the WBA controller has the latest firmware.

5.2 Changing IP settings

Select the IP Settings tab:



Change the IP Settings and press to download the new settings.
The communication is shown in the lower window.
If the download is successful a popup message is shown:



If “Yes” is pressed the WBA controller is reset. It will disappear from the device list until it is discovered again.
The WBA controller must be reset or power cycled for the new settings to take effect.

5.2.1 DHCP

All controllers on an IP network must have unique IP addresses. A device may be configured to have a static IP address or to get its IP Address from a DHCP Server. The WBA controllers are by default configured to use a DHCP Server.

5.2.1.1 WBA controllers on a DHCP network

Connect the WBA controller to the network. During power on it will receive an IP address from the DHCP server.
The DHCP server may be configured to bind MAC addresses to IP addresses (static allocation). In this case a WBA controller will always have the same IP address.

If the WBA controller previously has been configured not to use DHCP:

- Connect the WBA controller to the WBA Configuration Tool PC's network card either using a switch or a cross over patch cable.
- Change the network cards IP Settings on the PC to use static IP address.
- Assign an IP address to the PC different from the WBA device but with the same subnet.
  Example:
  - WBA controller:
    - IP address: 192.168.1.50
    - Gateway: 192.168.1.1
    - Mask: 255.255.255.0
  - Change the PC's IP Settings to:
    - IP address to: 192.168.1.2
    - Gateway: 192.168.1.1
    - Mask: 255.255.255.0
- Run the WBA Configuration Tool and discover the WBA controller.
- Change the IP Settings.
- Download the new settings.
- Power off the WBA controller and connect it to the target network.

5.2.1.2 WBA controllers on a network without DHCP

Both the WBA device and the PC running the WBA Configuration Tool must first be connected to a DHCP network:

- Run the WBA Configuration Tool and discover the WBA controller.
- Change the IP Settings (be careful and write the new settings down. It may be difficult later on to make changes).
- Download the new settings.
- Power off the WBA controller and connect it to the target network.

5.3 Reset WBA controller

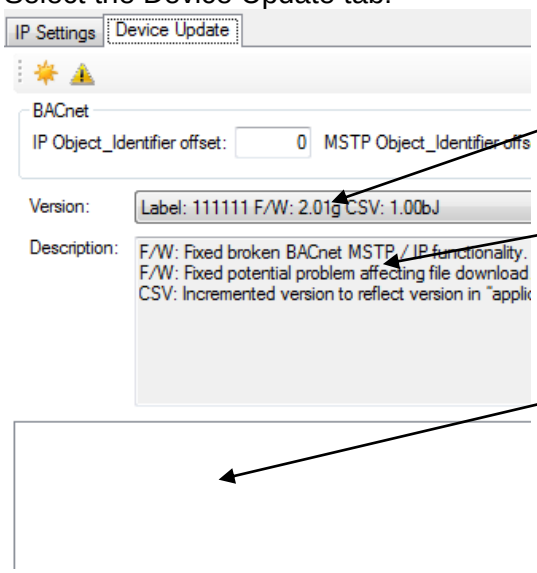
Press to reset WBA controller.
Note that the controller will disappear from the controller list until it is discovered again after a while.

5.4 Read IP Settings

Press to read the IP Settings.
Note that the IP settings are automatically read when a controller is selected in the left panel.

5.5 Update Device with new configuration and firmware

Select the Device Update tab:

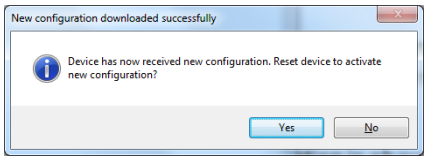


Select the new version in the Version combo box.

The description for the version is shown in the Description window.

Press to download.

The WBA communication is shown in the lower window.
During the update a wait cursor is show.
If the download is successful a popup message is shown:



If “Yes” is pressed the WBA device is reset. It will disappear from the device list until it is discovered again.
The WBA device must be reset or power cycled for the new settings to take effect.

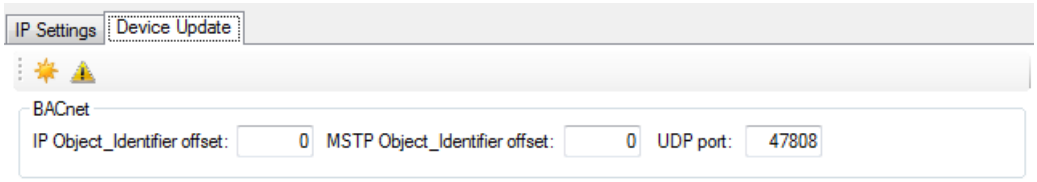
NOTE: If the update fails, it could help to reset or power cycle the WBA controller and repeat the update.

5.6 BACnet settings

Normally the BACnet device object’s Object_Identifier property value is set directly by the DIP-switch on the WBA board (1 - 254).

If needed the device object’s Object_Identifier property can be offset. The offset on IP and MSTP is set independently.

Actual Object_Identifier = DIPswitch setting + Offset



The BACnet IP UDP port number can also be set. The BACnet community has registered a range of 16 UDP port numbers as 47808 through 47823. The default port number is 47808.

To download the settings press in the “Device Update” tab.

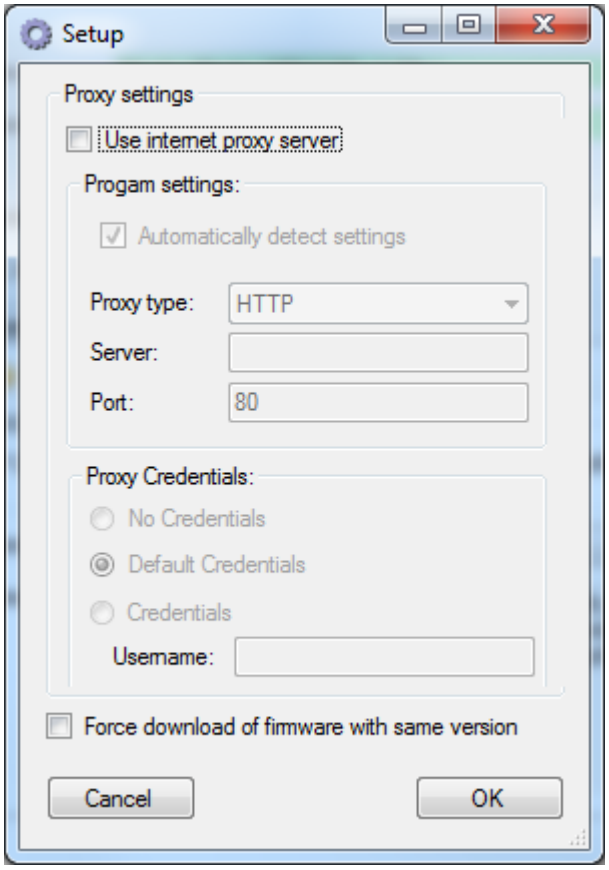
The Object_Identifier ranges from 1 – 4194303.

In BACnet IP, the MAC address is the four-byte IP address followed by the two-byte UDP port number.

In BACnet MSTP, the MAC address is set by the DIP-switch and ranges from 1 - 254. Devices with MAC addresses from 1 - 127 are master devices, and one from 128 - 254 are slave devices. Only master devices can be auto-discovered and are allowed to pass the token. Slave devices need to be polled specifically.

5.7 Program settings

Press  to change the program settings:



“Proxy settings”
Enables and configures internet proxy.
“Automatically detect settings” will try to use the system settings.
Else the type, ip address, port number of the internet proxy can be specified.

Also the proxy credentials can be specified.

the internet proxy

“Force download of firmware with same version”
Enables downloading of firmware even if the version information seems to be up to date.

5.8 Calculate MD5

Press  to calculate the MD5 value for a file. This feature is used by system administrators to maintain WBA controller firmware versions.

5.9 Copyrights and software version

Use the button to show “About information”:

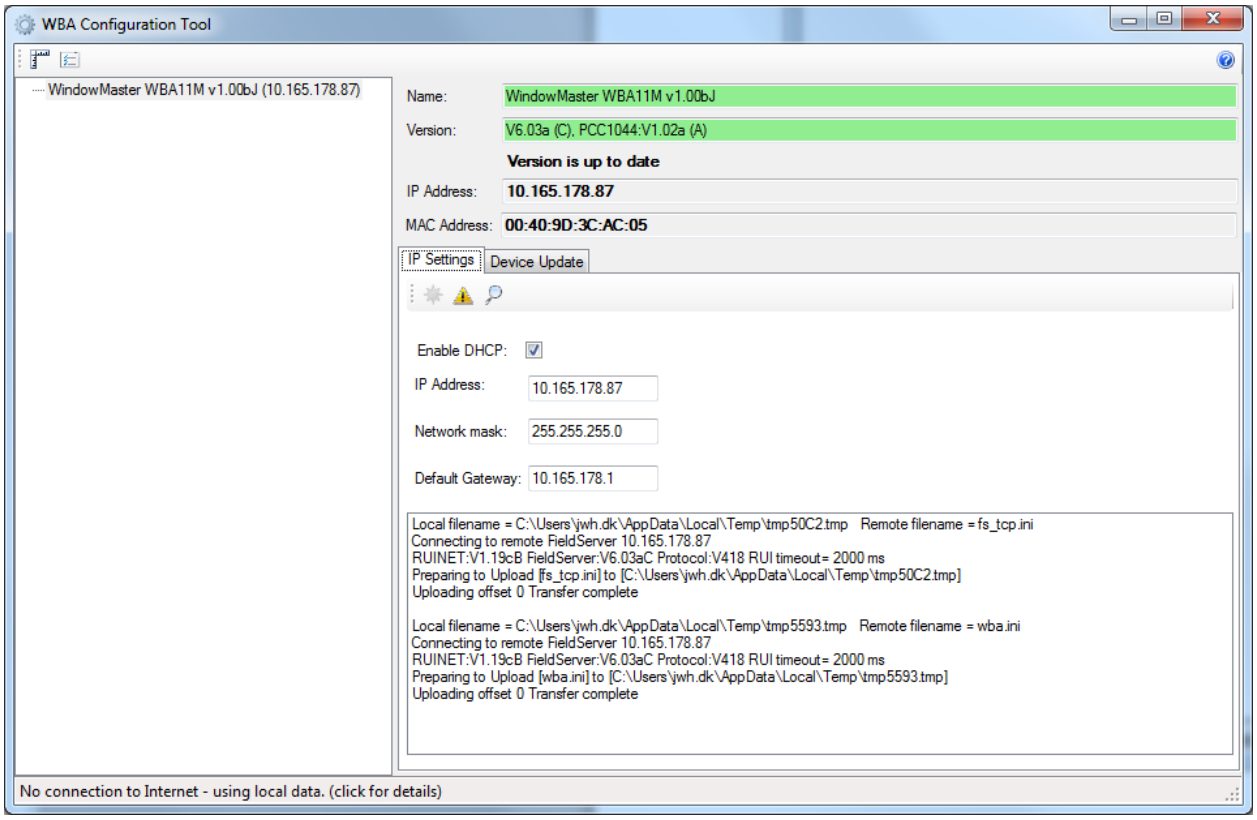
6 Commissioning WBA controllers with DHCP enabled without a DHCP server

From factory the DHCP is enabled in the WBA controller. If no DHCP server is present on the network the WBA controller will revert to the IP address 192.168.1.24 that is factory configured. Additionally the WBA controller will have an IP address of the following format: 169.254.X.X (LINKLOCAL IP address space).

To commission a network with WBA devices connect a PC with a network card configured to use a DHCP server. After about 30 seconds the network card will take an address in the LINKLOCAL IP address space. This enables the PC to communicate with the WBA controllers.

The WBA controller will then appear in the WBA Configuration Tool and can be identified by the MAC address.

The IP addresses can then be read and configured in the tool.

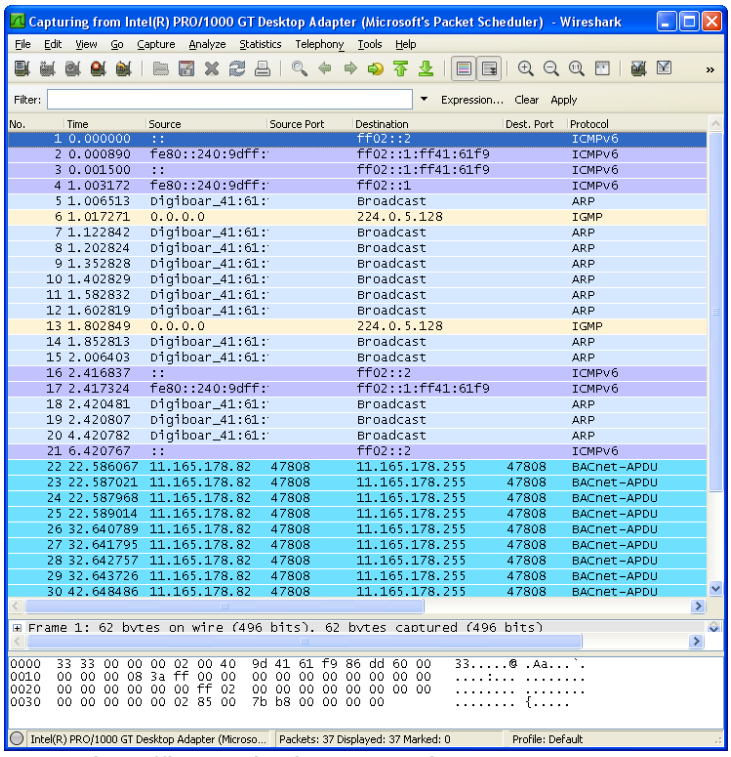


7 WBA controller with unknown IP address

If the IP address of the WBA controller is unknown the connection to the controller could be recovered by connection then controller directly with a cross over patch cable to a network card using the automatic IP addressing feature in Windows. This feature enabled by configuring the network card to use a DHCP server. After about 30 seconds the network card will take an address of the following format: 169.254.X.X (LINKLOCAL IP address space). It is then possible to connect to the WBA controller, which will have an address of a similar format.
The IP address can then be read and configured in the tool.

Alternative method
If the WBA controllers IP address is unknown it is necessary to use a network analysis program like Wireshark to discover the devices IP address:

- Connect the WBA controller to the WBA Configuration Tool PC's network card either using a switch or a cross over patch cable
- Change the network cards IP Settings on the PC to use static IP address
- Assign an IP address to the PC
    - Example:
    - Change the PC's IP settings to:
        - IP address to: 192.168.1.2
        - Gateway: 192.168.1.1
        - Mask: 255.255.255.0
- Run Wireshark and connect it to the network card
- Power cycle the WBA controller
- When Wireshark has recorded network packages with protocol = BACnet-APDU the WBA controllers IP address is found as the source address
- Change the network cards IP Settings to the WBA controllers network address. In the example below: 11.165.178.1
- Run the WBA Configuration Tool and change the WBA controllers IP address and DHCP settings



Network traffic monitoring example.