Westermo Configuration Guide

ESW-10-02

Applicability

ARTC Network Wide

SMS

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Amendment Record

Amendment Version #	Date Reviewed	Clause	Description of Amendment
1.0	29 Sep 20		First issue.

Table of Contents

1   Introduction

1.1   Purpose

The purpose of this document is to provide a configuration base with settings on the Westermo devices.

1.2   Scope

This Work Instruction is primarily covering the guideline to Westermo device configuration settings for Microlok. It does not restrict the use of Westermo with other types of interlocking.

This document should be used in conjunction with a detailed Network design.

This document also describes other relevant information or limitations.

1.3   Document Owner

The General Manager Technical Standards is the Document Owner. For any query, initial contact to be made at standards@artc.com.au.

A R T C

2   Communications over Ethernet via WeOS 4 devices

To facilitate the easy configuration of devices in the network it is recommended that the user first downloads and installs WeConfig. WeConfig is an NCM (Network Configuration Manager) tool written and supported by Westermo. There are no license fee or cost of ownership issue related to installation and use of WeConfig. The full capabilities of WeConfig are outside the scope of this document, tutorials videos and documentation are available via YouTube and the Westermo.com website.

Download WeConfig from the Westermo.com website and install.

https://www.westermo.com/products/software/weconfig

3   Discover WeOS devices using WeConfig

Connect the computer to a port on the WeOS device.

Click Start Scan to discover WeOS devices.
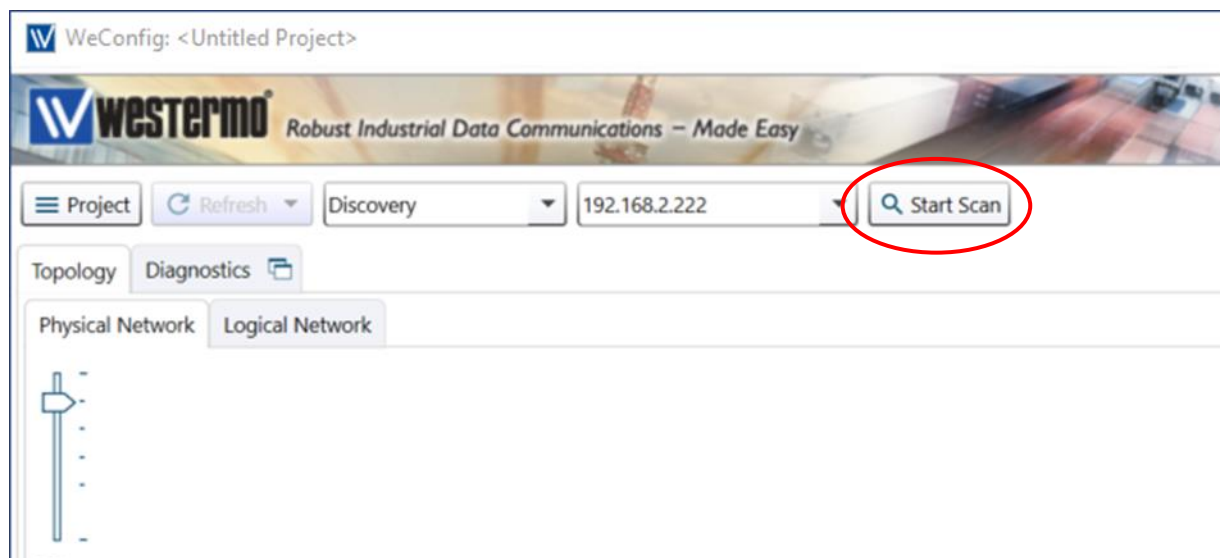
WeConfig will discover all Westermo WeOS 4 or 5 devices connected on the local L2 network

Note: Out of the box new devices will be shown in RED, due to the devices sharing the same default IP address of 192.168.2.200.

4 Assign New IP address to the WeOS device

Select the "**Basic**" tab on WeConfig and "**Add**" the devices to the list.

This can be done in a variety of ways.

Ctrl + ALT drag mouse to select devices

CTRL & click on each device

Click on the table list and **CTRL + A**

Click the "**Add**" button

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On the Basic Setup fill in the IP address range start address e.g. 192.168.2.100/24 (example address only).   The refers to the subnet mask of /24 = 255.255.255.0. Use the subnet tool found "**Project => Tools => Subnet Calculator**" to calculate the require subnet sizes for target installation.

The other fields can be filled in Hostname, Gateway (router address off the network) and location.

Select "Fill" and the screen should look like the above.

Note; Any of the fields can be overtyped in the table list.

Next press "Apply" and answer "YES" to the question displayed.

The device should now have a unique address.

WeConfig will now discover and draw the interconnections between the devices.

On larger systems the IP address will appear to have been randomly applied, this is normal and relates to the order they were discovered.

To reorganise the IP address in a more logical way, press "Clear".

Select each device in a logical order by pressing CTRL & Left mouse button.

Press the "Add" press "Fill" followed by "Apply".

5 Changing default PW

The default password can be changed via the GUI, CLI or using WeConfig. The simplest and less error prone way to change all passwords is via WeConfig. WeConfig support a global password change option for the application of a new password.
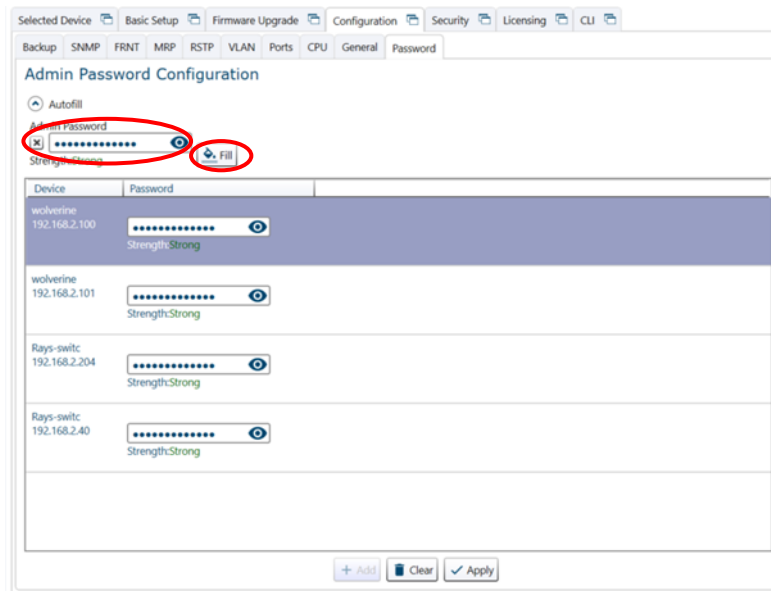
5.1 Changing the PW via WeConfig

Click the "**Configuration**" tab and select the "**Password"** tab

Select "**Autofill**"

Entre the new password

Select "**Fill**"

Select "**Apply**"

WeConfig will now change the password on all the selected devices.

6 Adding a VLAN for Microlok 2 communications.

Having a VLAN configured for Microlok communications is not required but is desirable. Have a separate VLAN for Microlok communication does afford the data stream a level of virtual separation in an L2 network. Having a separate VLAN does make it easier to apply a Priority to the Microlok traffic. The following instruction will show how a VLAN can be applied to an L2 network with the minimum of networking knowledge. Using WeConfig to create the VLAN simplifies the creation of a VLAN at a System level rather than device by device. WeOS supports configuration via the CLI and GUI if WeConfig is not available.

6.1 Adding a VLAN via WeConfig.

Select all the WeOS devices including all the devices in a redundant path between any device that will have the VLAN edge ports assigned. In the example below the system is configured in a redundant ring (outside the scope of this document).

Select the "**Configuration**" tab and select the "**VLAN**" Tab.

WeConfig will read in all the VLANs from all the selected WeOS devices.

Select "**New"**

Entre the desired VLAN for the Microlok communication and select "**OK**".

WeConfig will now configure all the WeOS device ruck ports with the new VLAN.

Creating a VLAN for Microlok is a little different to a normal VLAN as there are no edge Ethernet port assigned to the VLAN. Ethernet ports can be added if desired just click on the relevant port and add the port as "**Untagged**".
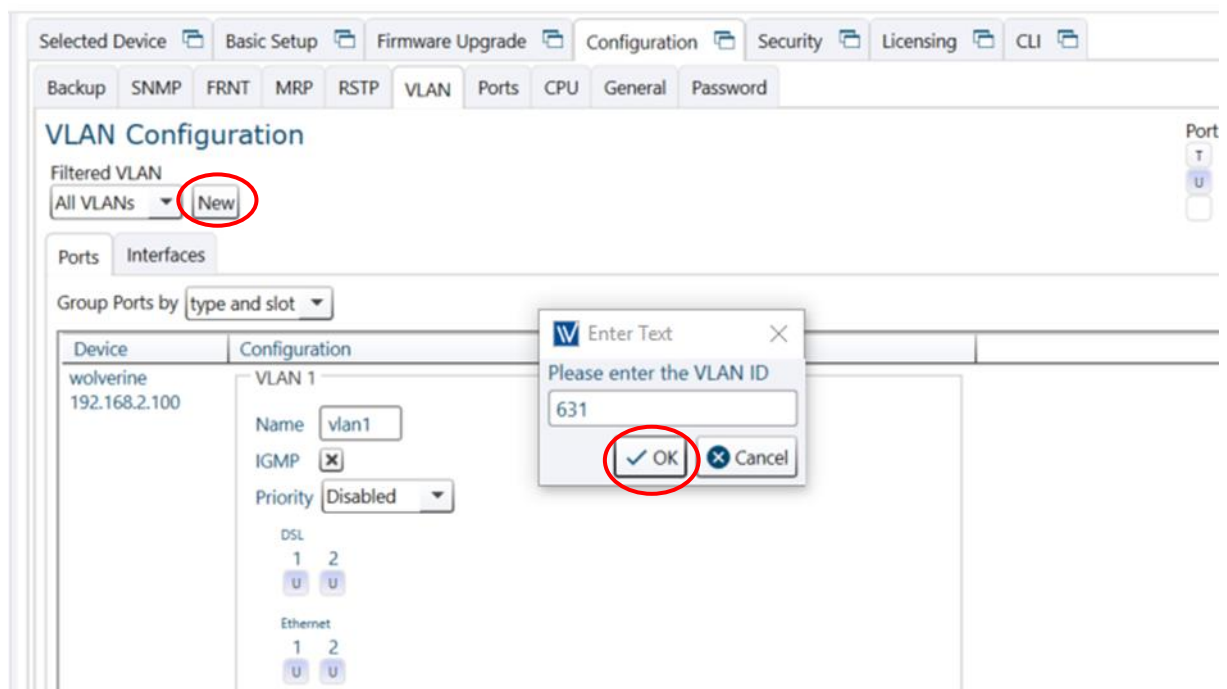
6.2 Adding an Interface to the VLAN Via WeConfig

Adding a VLAN has only added a virtual separation of the traffic but does not add any IP addressing to the interface. To add an interface (IP address) to the interface select the device that need an address to the Microlok to communicate.

To add an interface to the VLAN select the devices that require an IP address.

Select "**Auto Fill**" add the address and subnet i.e. 10.10.10.100/24 and the item circled in RED.

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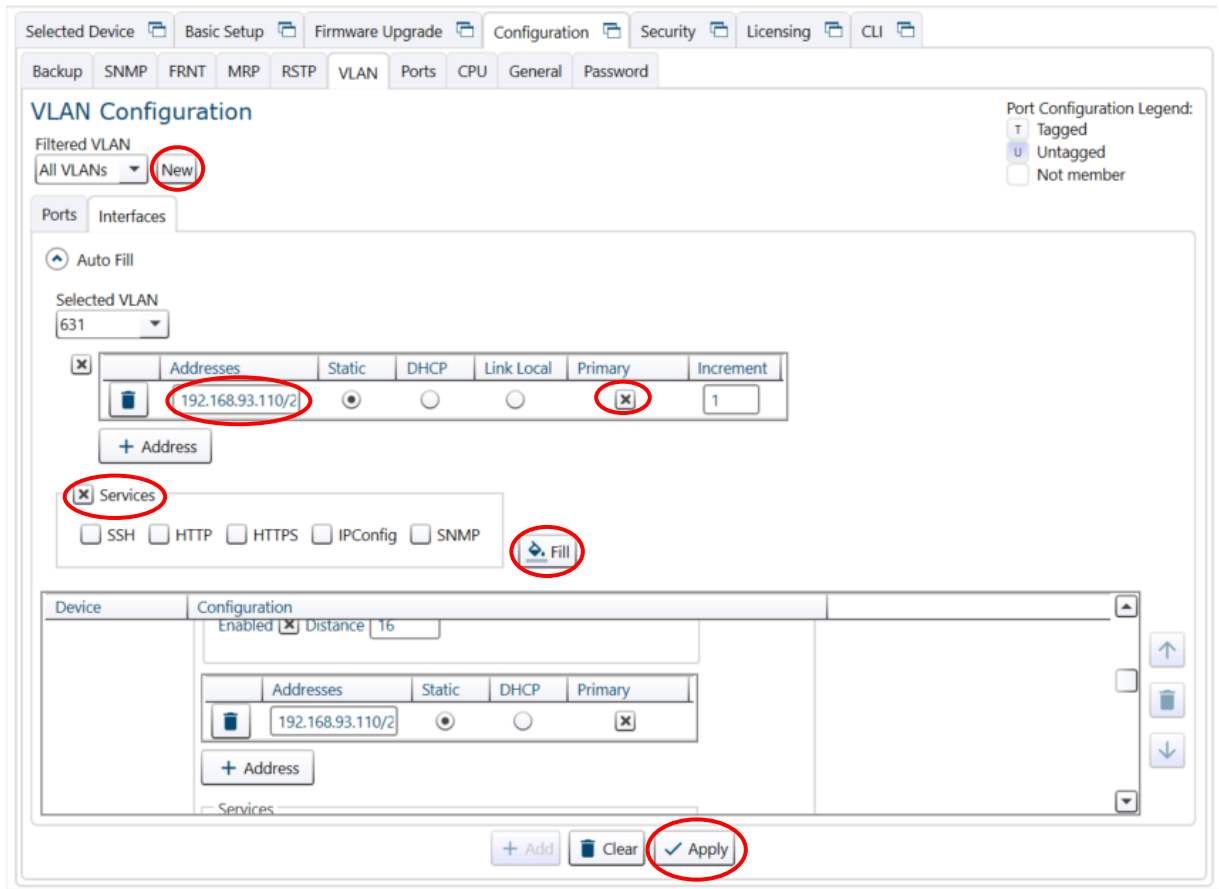
Select "**Apply"** the interface IP addresses will be applied the selected interfaces.

7 Configure Microlok settings

To configure the Microlok 2 setting the GUI Web interface or the CLI must be used.

From WeConfig right click on one of the WeOS device to be configured, select "**Access**", select "**HTTP**" or "**HTTPS"**.

The WeOS device web screen will now be shown in the browser.
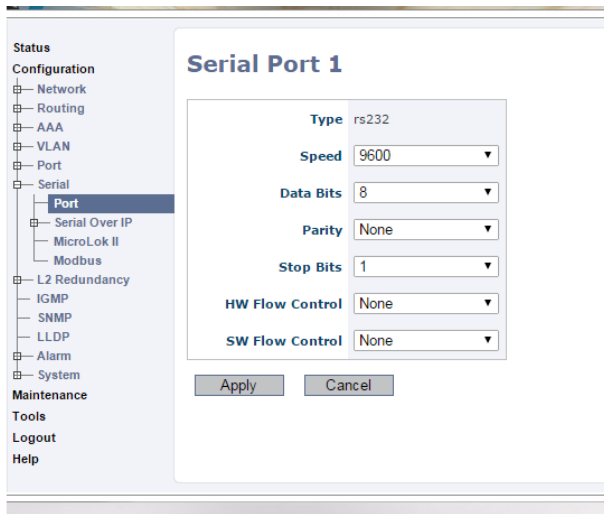
Default UN and PW;

User name   **admin**

Password   **Westermo**

Westermo would suggest that the UN and PW are changed as soon as possible.

Use the "Hardening" tab to run basic sanitization of the system including checking the PW for any defaults.

From the configuration list select "**Serial => port** from the menu.

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The port settings can now be configured. Select "**Enable** " and the RS-232 word format i.e. 9600 8,n,1 and "Apply"

Next select Microlok and setup the configuration as follows;

Note Node addresses are in Hex.

The list specifies where a Microlok (ML) node is connected.

In the example below Microlok node 01(hex) is connected directly to Serial port 1 and Microlok node 02(hex) can be found at 192.168.93.101.

The entries in the mapping table ensure that messages from node 01 are sent to node 02 and vice versa. The WeOS device connected to Microlok Node 2 would be the reverse i.e. Node 2 on serial and Node one would be 192.168.93.100

Session timer controls when a logical link between the Microlok controller is considered down 10000ms is ample time for the any lost messages not to cause a false link down.

In this case the a specific VLAN631 has been selected as the listening interface for Microlok traffic.

The key On Delay, Key Off Delay, Grant delay are for controlling legacy modem or radio interfaces. For normal operation the value should be left at default (0).
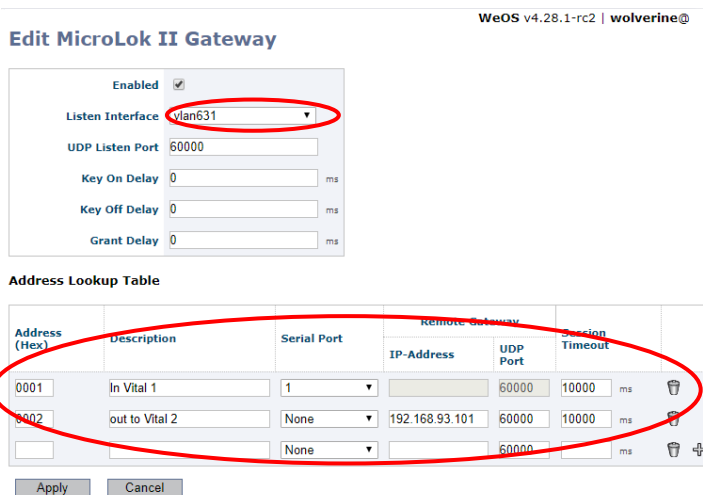
Select "**Apply**"

8 Setting Priority for Microlok VLAN

Under some circumstances it is desirable to assign a higher priority to the Microlok messaging. Typically, there is little benefit on a fibre-based system as the traffic represents a fraction of the available bandwidth. However, some links might need to traverse relatively low bandwidth links such as SHDSL (Westermo DDW) or an MPLS connection with only limited assigned bandwidth.

Care needs to be taken when assigning a high priority to the Microlok traffic. The QoS allows for a value of 0-7. This QoS value is in turn mapped to the 4 priority queues in the WeOS device switch core. The QoS priority level should never be set higher than 5, as 6-7 are reserved for the networking control protocols i.e. RSTP, FRNT or MRP.

Setting the Priority

As of WeConfig 1.11.2 there is no support to set the QoS at a system level. However, it is possible to use the scripting function should there be a need to repeat the operation on a large number of devices.

To set the Priority on a VLAN select the switch on the WeConfig topology view and left click. Select the option HTTP or HTTPS and enter the UN and PW, navigate to VLAN to the target VLAN in this example VLAN 631.
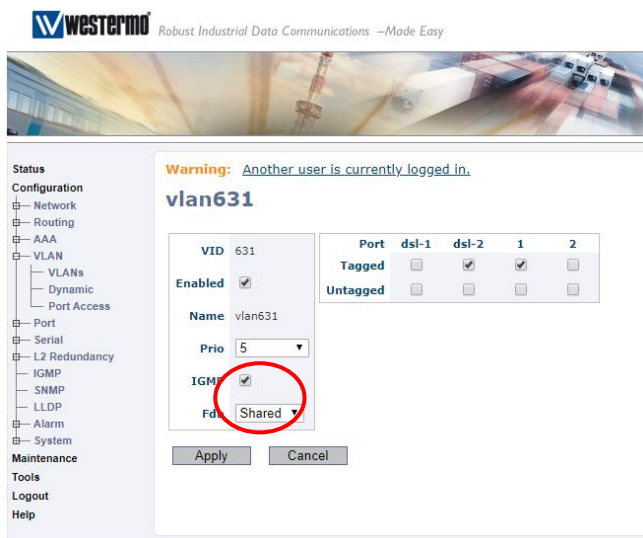

9 Creating WeConfig Project file

WeConfig supports the creation of a project file. The project file contains all the backup configurations files, any attached documentation and the graphical layout of the network.

Creating and maintaining project files are key to having backup configurations available and for future diagnostics.

To create a project file, select "**Project**" and "**Save**"

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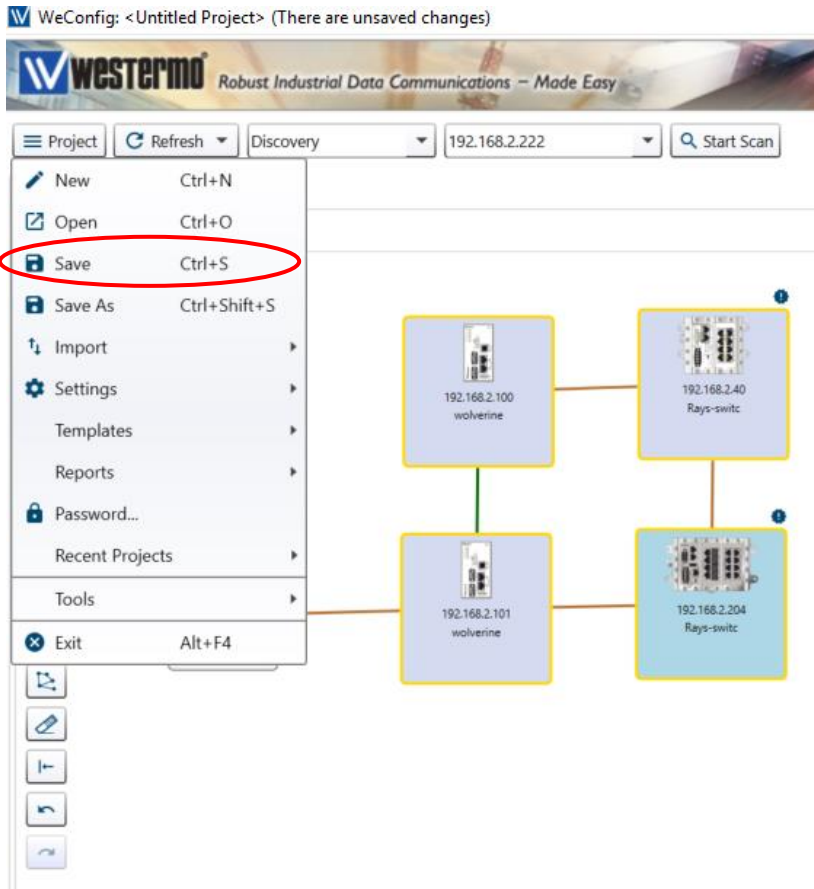
10   Microlok 2 Cable connections

MLK CPU Port 4	48 Pin	RJ-45 568A	Westermo RJ45	Westermo 9 Pin D-Sub
TXD	C20	4	6	3
RXD	C22	5	5	2
RTS	A14	2	8	7
DCD	C16	7	2	2
COM	C32	6	4	5

The above connections are for port 4 specifically.

The RJ-45 568A connection don't appear to be used in North America but are popular in Australia, so can be ignored.

In most cases only TX, RX and COM are required.