Remote Connection via the Internet to Yaskawa Controllers

The following controllers have Ethernet capabilities:

Controller	Programming Software
MP2600iec	MotionWorks IEC
MP2300Siec	
MP2310iec	
MP3000iec	
MP2200	MotionWorks
MP2300	
SMC3010	YTerm
SMC4000	

There are several communication options that will allow remote programming and monitoring of Yaskawa controllers via the Internet:

1) VPN

2) Windows Net-Meeting

3) Set Firewall on controller network and port internet traffic to external hosts

This document will focus on method #3, which involves configuring a public (internet) address to reroute traffic to an internal (intranet) address.

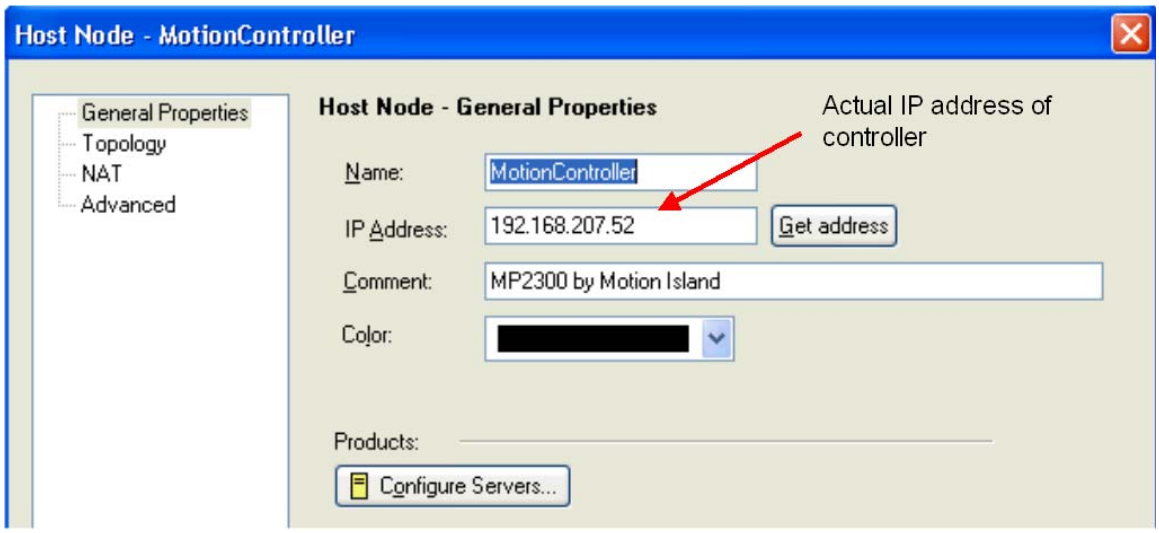
Set Firewall on Factory Network

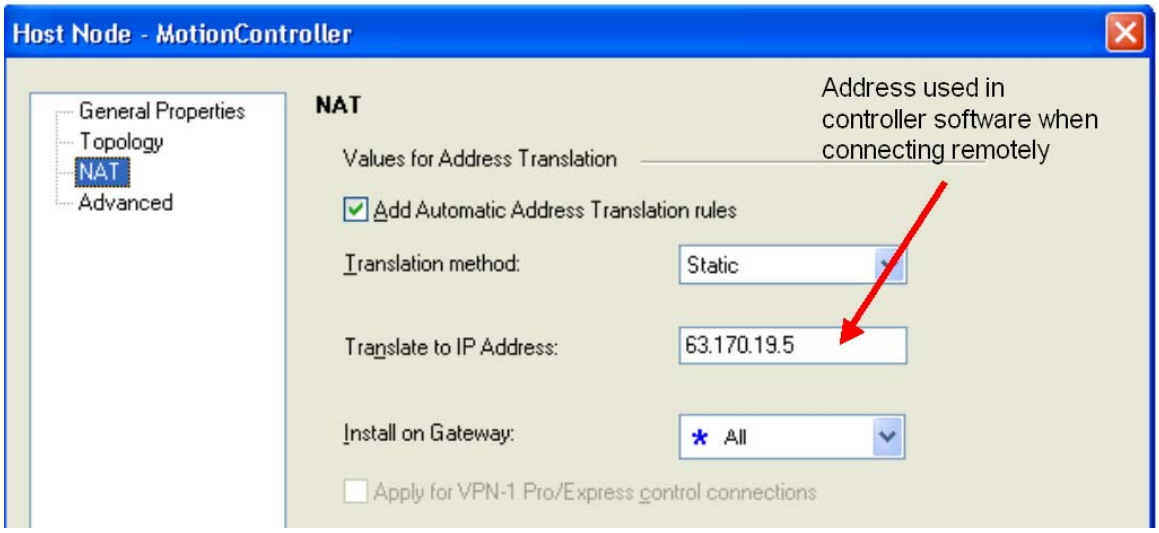
A firewall protects a network from unwanted or unexpected types of communication from unknown origin.

Generally, a company or organization is allocated a group of IP address for its use on the Internet, such as website, email, ftp, etc. There must either be a free IP address for the controller, or IP traffic routing can be done exclusively by port number.

This solution consists of making an exception in the firewall routing table to reroute traffic from an external (internet) address to a private (intranet) address. This is called NAT (Network Address Translation.) You can typically choose among many options, including filtering for a specific MAC address, meaning only specific equipment is allowed to communicate with the controllers inside the protected network.

Example configuration of a firewall routing table.

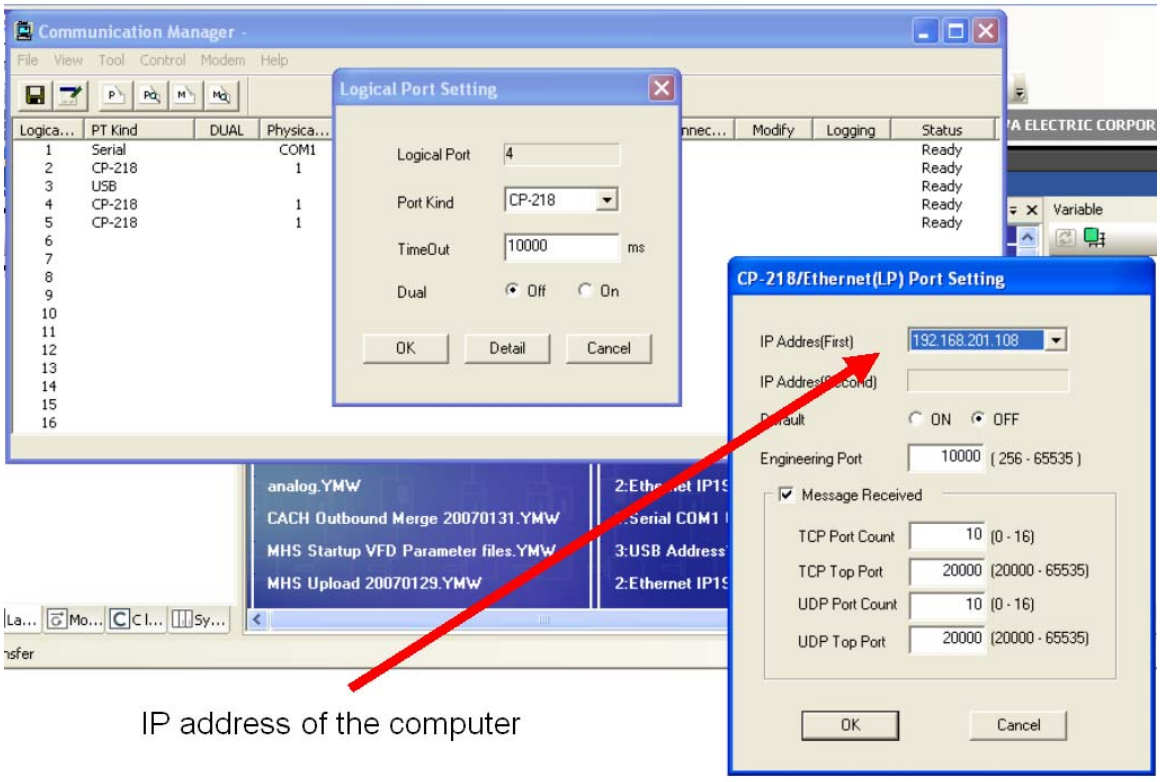




Firewall configuration blocks all traffic to the IP address except the types of services selected. In this case, TELNET (port 23) and port 10000 for both UDP and TCP are allowed. The Communication Process of MotionWorks uses UDP and TCP port 10000 when communicating to the MP controller.

SOURCE	DESTINATION	VPN	SERVICE	ACTION	TRACK
* Any	MotionController	Any Traffic	UDP UDP-10000 TCP TCP-10000 TCP telnet	accept	Log

Below are some images of the MotionWorks v6.x configuration.



Additional notes about MotionWorks Configuration added September 19, 2011

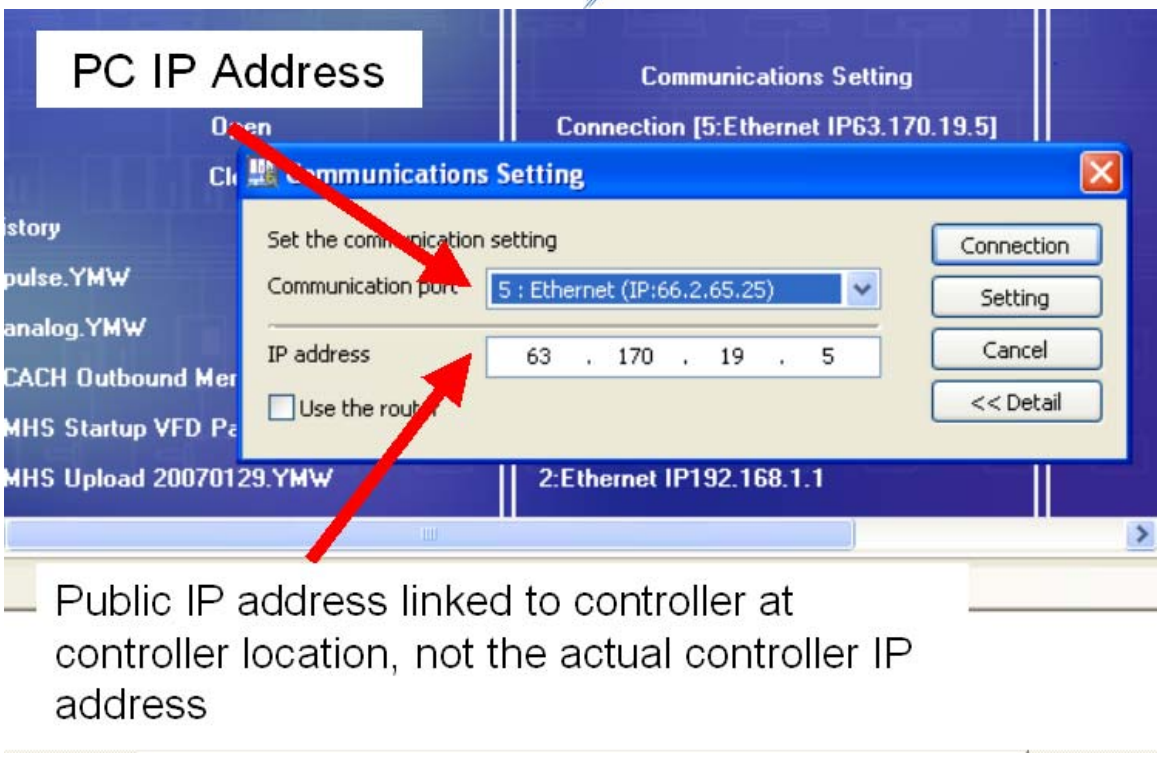
When selecting 218IF in the communication manager, there is one option with (LP). (LP) is for 100Mbyte communication, i.e. for 218IF-02 or embedded Ethernet port.

So, in case of 218IF-01 (10Mbyte), please chose the one without (LP).

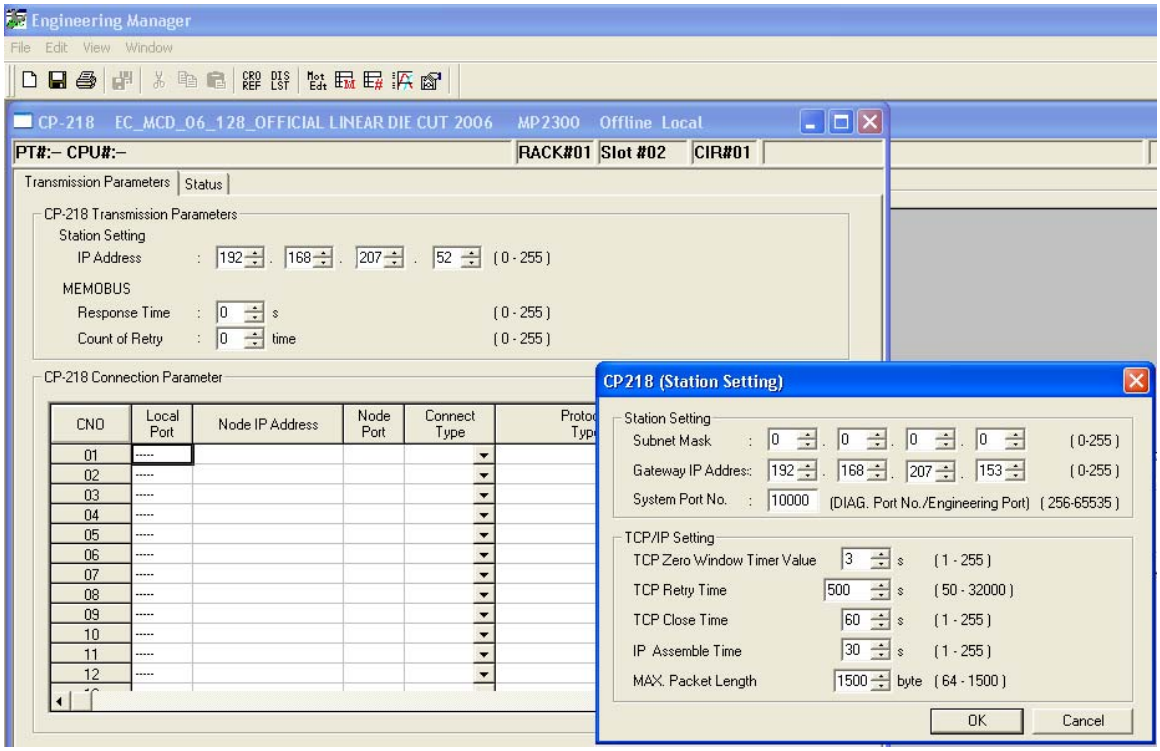
218IF(LP) [LP: Long Protocol] expands the maximum packet size up to 4096 bytes, while the regular 218IF is limited to 2048 bytes.

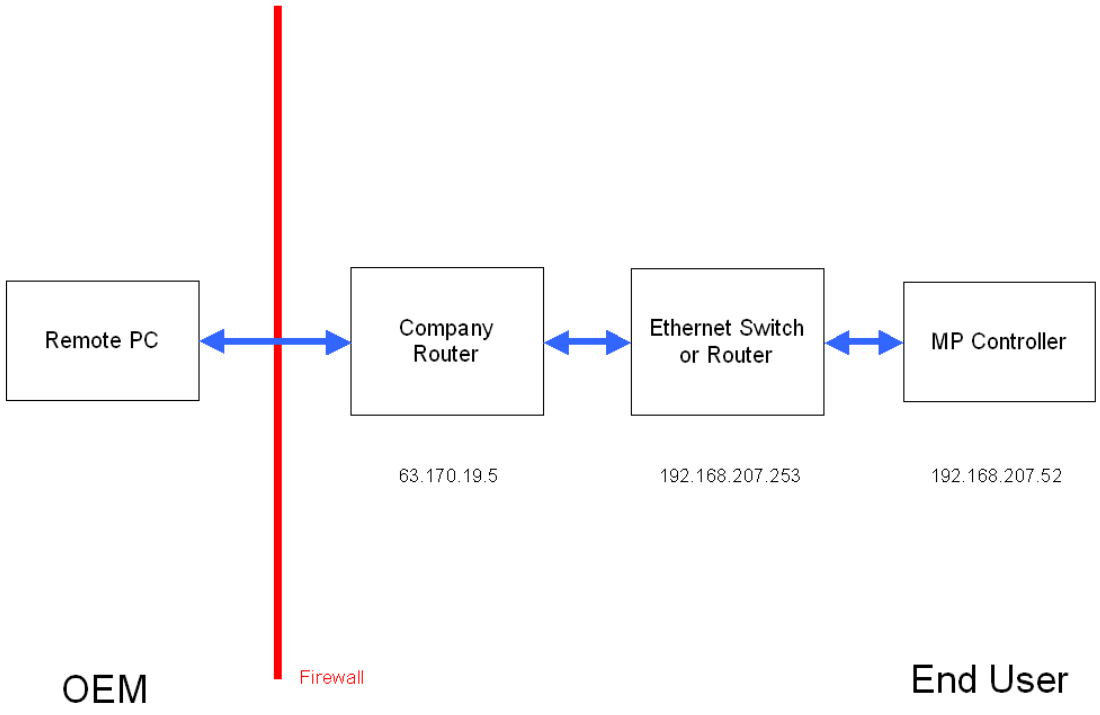
For some remote access via VPN, (LP) does not work if the VPN does not support longer packet sizes.

MotionWorks v7 will support a packet size selection function to help with remote connection issues.



The controller may need to be configured to use a default gateway for other internal switches in the factory.




Remote PC
Company Router
Ethernet Switch or Router
MP Controller
63.170.19.5
192.168.207.253
192.168.207.52
OEM
Firewall
End User