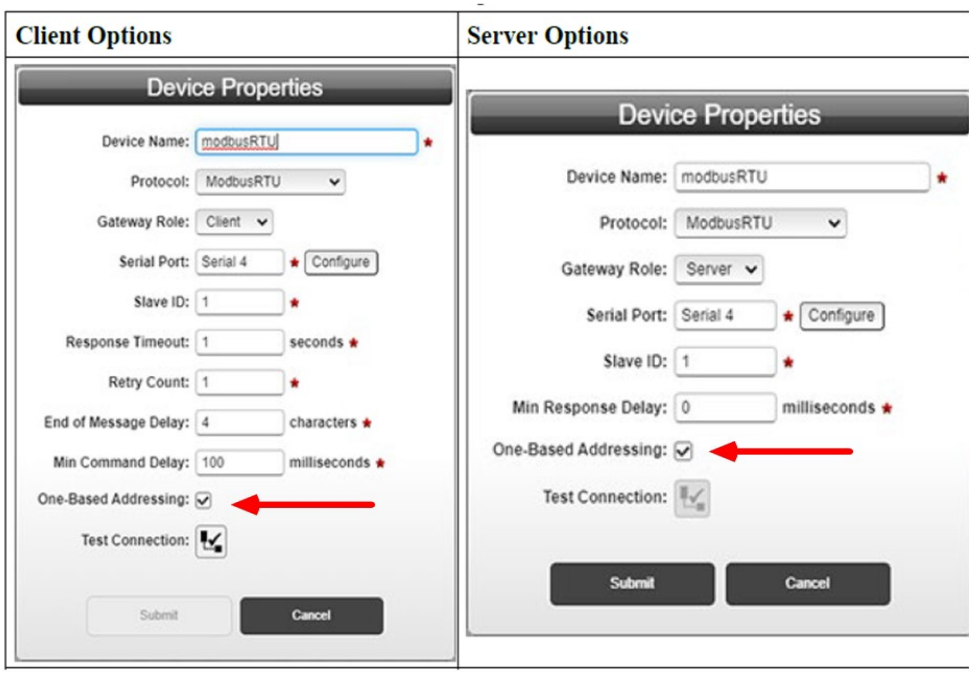
Modbus Base Addressing

In the automation world, the dominant protocol in communications is Modbus mainly because of its simplicity. However, with simplicity comes complexity and Modbus is no exception.

One aspect of Modbus that generates a fair amount of confusion is the “Modbus Base X Addressing”. There are two Base addresses, 1 and 0. Modbus addressing has two components to it, the physical memory location, which is where the data is actually kept in the device’s memory, and the nomenclature (or logical) which represents the user interface. Because PLC memory is binary, its location for both Base 1 and Base 0 addressing always starts with a physical address of 0. However, with Base 1 addressing, the first memory location is represented with a “1”. For example, the Holding Register 40001 represents the physical memory location “0” or the “first” register. With Base 0 addressing, register 40001 represents the second physical memory location which is location 1 (because the first location is 0). Refer to the following table. .

Base 1 addressing logical	**40001**	**40002**	**40003**	**40004**	**40005**
Base 0 addressing Binary	40000	40001	40002	40003	40004
Physical location	0/First	1/Second	2/Third	3/Fourth	4/Fifth

Because different manufacturers will use different Base addresses, it is possible to find a scenario where one device is using Base 0 addressing while another is using Base 1. In situations like this, the Gateway allows you to set the type of addressing it will use when communicating with the device it is connecting to, Base 1 or Base 0. This allows you to set the correct address for the tag without having to use an offset.



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