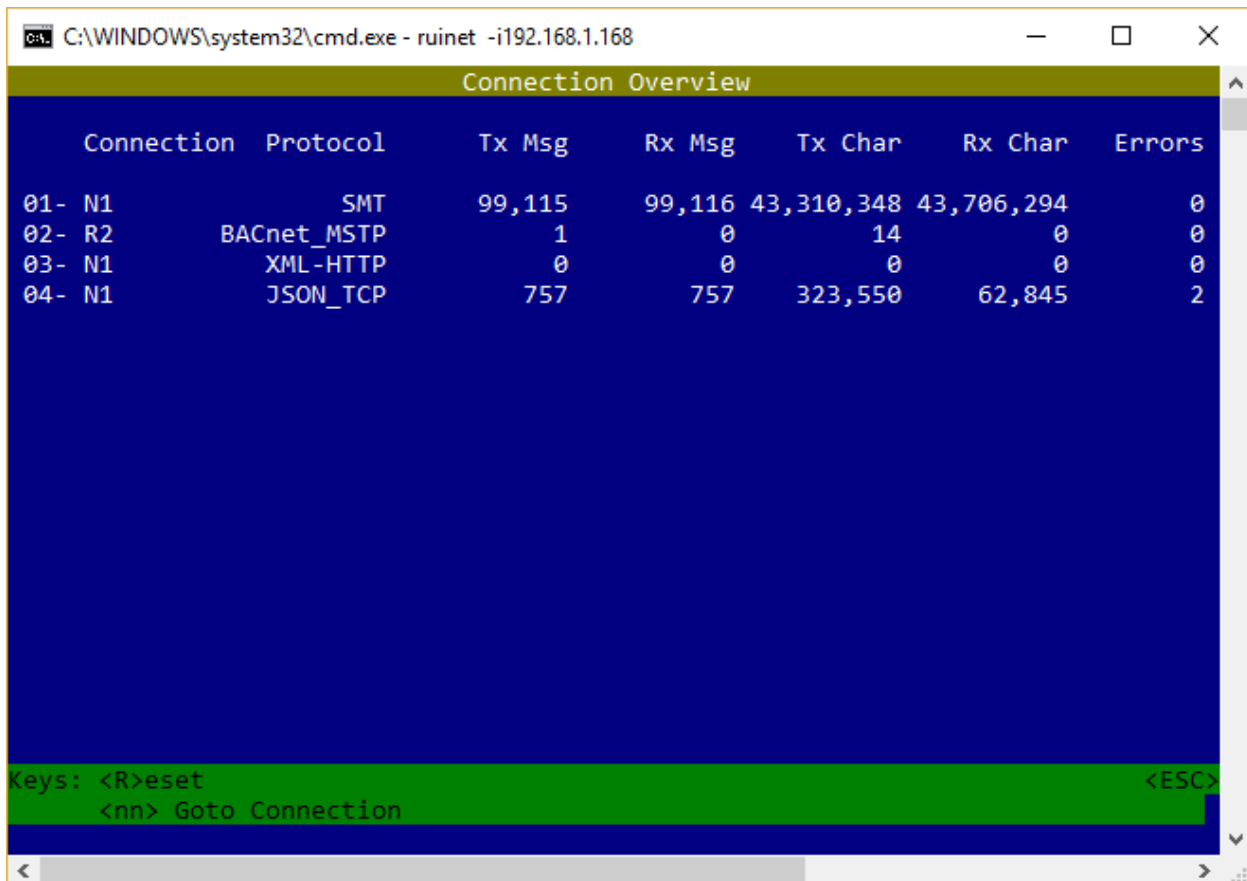# Case Study: How to Diagnose and Solve BACnet MSTP Connection Problems on a FieldServer

If you are using a QuickServer and are having problems with the connection, you are not alone! At Chipkin, we see BACnet MS/TP Connection problems all the time. Let us look at a few possible issues and solutions:

Problem #1: You can transmit messages from the FieldServer, but are not receiving any messages back
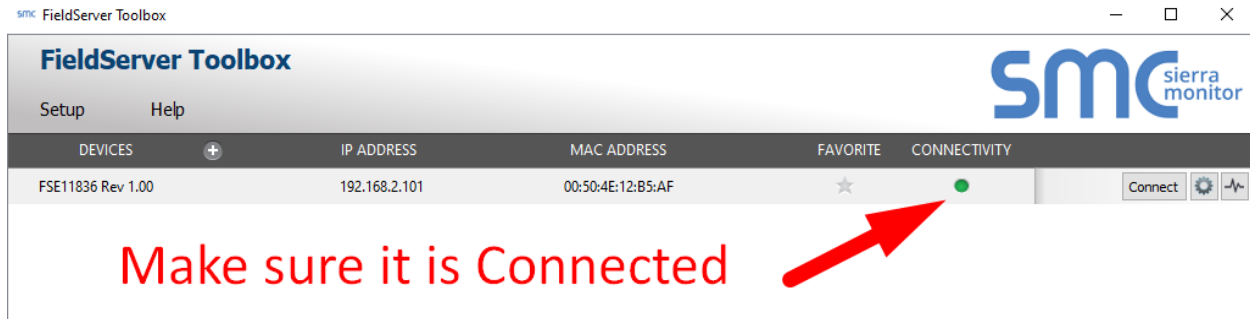
In the screen capture (top) we see these numbers:

Tx Msg = 1, Tx Char = 14

This means that the FieldServer is properly transmitting data.

However, look at these numbers:

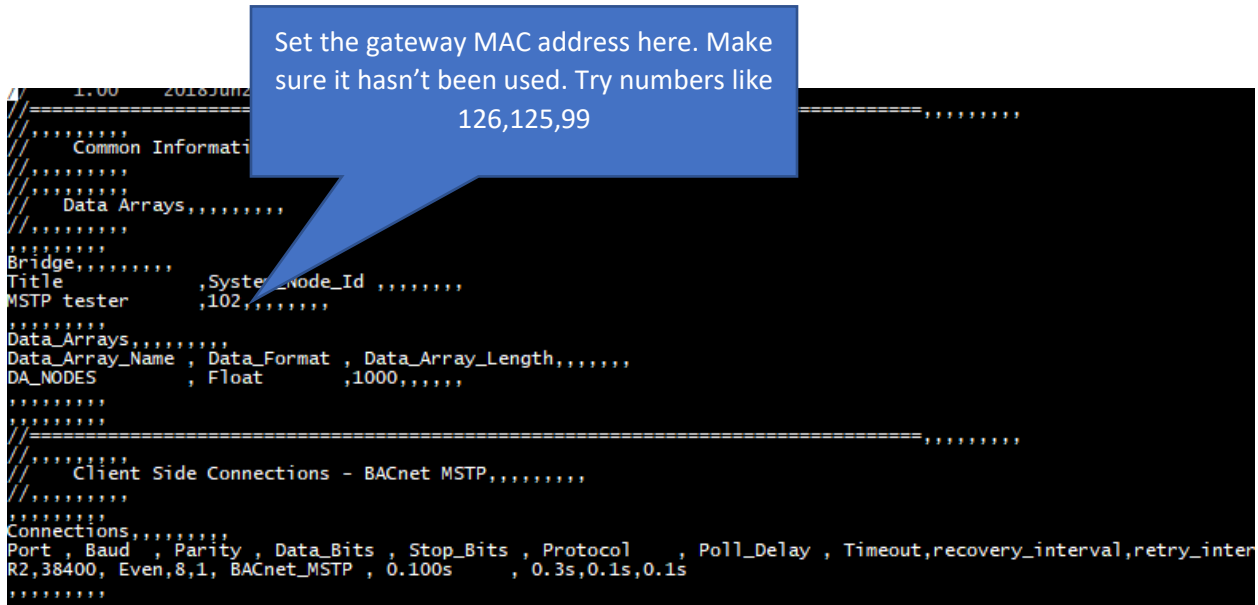**Rx Msg = 0, Rx Char = 0**

This shows that zero messages are being received into the FieldServer, through BACnet MS/TP. This is a classic symptom of the MSTP connection failure. Tx Messages are being transmitted, but there are no Rx (response) Messages being received.

Solution: Check your BACnet MSTP wiring into the FieldServer. Try changing the + and – wires and test again. If this does not fix the solution, try one of the other solutions below.

Problem #2: Duplicate MAC Address

In the config file, a System_Node_ID is where the MAC Address of the FieldServer device can be set. However, if it happens to be the same MAC address as any other device, the token will not pass well.

Solution: Set the MAC address of the gateway to an unlikely number (< 127). Zero and one are often used, so try 126 for your gateway.

> Set the gateway MAC address here. Make sure it hasn't been used. Try numbers like 126,125,99

```
//                1.00     2018Jun2
//========================================================================,,,,,,,,
//  ,,,,,,,,
//     Common Informati
//  ,,,,,,,,
//  ,,,,,,,,
//     Data Arrays,,,,,,,,,
//  ,,,,,,,,
,,,,,,,,,
Bridge,,,,,,,,,
Title              ,Syste_Node_Id ,,,,,,,,
MSTP tester        ,102,,,,,,,,
,,,,,,,,,
Data_Arrays,,,,,,,,,
Data_Array_Name , Data_Format , Data_Array_Length,,,,,,
DA_NODES         , Float        ,1000,,,,,,
,,,,,,,,,
,,,,,,,,,
//========================================================================,,,,,,,,
//  ,,,,,,,,
//     Client Side Connections - BACnet MSTP,,,,,,,,
//  ,,,,,,,,
,,,,,,,,,
Connections,,,,,,,,,
Port , Baud  , Parity , Data_Bits , Stop_Bits , Protocol    , Poll_Delay , Timeout,recovery_interval,retry_inter
R2,38400, Even,8,1, BACnet_MSTP , 0.100s     , 0.3s,0.1s,0.1s
,,,,,,,,,
```

Problem #3: Connection Settings Do Not Match

Solution: The connection settings (such as Baud, Parity, Data_Bits, Stop Bits etc.) must be the same in the config file (FieldServer) as it is on the incoming connections. Look at the config file to see what the connections on the FieldServer are set at and make sure they match (exactly) the incoming device/BMS settings.

Problem #4: An aggressive Scan_Interval can cause problems in BACnet MS/TP Connections

An aggressive scan interval may overload the operation of the controller. After every specific scan interval, the controller must pass a token and wait for the response. It is acceptable when there is a smaller number of devices. But when, the numbers of devices are more, the aggressive scan interval may slowdown the processing speed and may overload the memory of the controller.

Solution: Increase the overall Scan_Interval timing.