



A Sierra Monitor Company

Driver Manual
(Supplement to the FieldServer Instruction Manual)

FS-8704-11 Telnet

APPLICABILITY & EFFECTIVITY

Effective for all systems manufactured after May 1, 2001

| | |
|-------------------|-------|
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1. Introduction

The Telnet driver allows a user to connect to the FieldServer using a standard Telnet client (such as the Windows Telnet client). A command prompt is provided which allows the user to request specific driver functions. Presently, the following functions are implemented:

1. help / ?: lists available commands and states their functions.
2. port: this allows the user to take over a serial port.
3. linefeed: this allows the user to control sending and receiving of line feeds in association with carriage returns.
4. echo: allows the user to determine whether characters typed into the Telnet terminal should be echoed by the FieldServer.
5. verbose: allows the user to determine the level of detail of diagnostic messages.
6. tab: allows the user to select substitution of received tab characters by space characters

The driver will support up to 5 concurrent Telnet sessions but will not allow two sessions to control the same serial port.

2. Configuring the Telnet driver

To use the Telnet driver, the configuration (*.csv) file in use must resemble the following example:

```
//      Set up common information

FieldServer
Title
Telnet Server

Adapters
Adapter, Protocol, Username, Password, autoconnect_port, autoconnect_mode, session_timeout
N1, TLN, Joe, Secret, R1, Text, 60s
```

```
Adapters
Adapter,protocol
N1,SMT

//      Set up the TLN Server side

Ports
Port          Baud          Parity
R1            9600          None
R2            9600          None
P1            9600          None
P2            9600          None
// examples of virtual comports
VS1           -           -
VC1           -           -
```

Note that the Telnet Driver will only be able to connect to ports that have been declared in the configuration file.

3. Optional Configuration Items

3.1. Autoconnect Port

If a port is specified in the autoconnect port field, the first Telnet session to connect to the FieldServer will immediately be connected to the specified port (see Using Serial Port Capture below). Any further simultaneous Telnet sessions will see the usual command prompt.

3.2. Autoconnect Mode

Two modes, Text and Binary, are available for use with Autoconnect Ports. Text mode is optimized for manual use when using Telnet to communicate with a serial device that presents a user interface (such as a text driven menu screen). This allows the user to customize how tabs and linefeeds are sent and received. Also, the user can quit a port capture by hitting Ctrl-C.

If the intention is to run a binary serial protocol over a Telnet connection, the Binary mode must be specified. This does not modify the data stream in any way.

3.3. Login

If desired, a username and password can be set in the csv file to restrict access to all functions modifying the operation of the Telnet driver, e.g. port, linefeed, tab. The Login command will prompt the user for the username and password before these commands may be used.

3.4. Timeout

A timeout can be set to close the Telnet session and its TCP connection after the specified period of inactivity. Specify the timeout in seconds in the session_timeout field.

It is important to specify the session_timeout if the FieldServer is mainly used as a serial protocol client continually communicating with the device. Under these circumstances, if a Telnet session captures the serial port, the protocol driver is put on hold until the port is released. If the user forgets to release the port and leaves the Telnet session connected, the protocol driver on the FieldServer can never resume communications with the device, and the bridge data is never updated. If the session_timeout is set, then a period of inactivity will cause the port to be released and the Telnet session to be closed, so that the protocol driver can resume its communication activity.

4. Using the Serial Port Capture

4.1. Manual Serial Port Capture

- Once the FieldServer is up and running, connect to it using its IP address.
- Type port <Enter>
- When prompted, enter the name of the port to be captured (e.g. P8 <Enter>). The driver will check if the desired port has been initialized by a “port” statement in the configuration file. If the port has been initialized and is available, the driver will wait for any current polls to finish, and will then print “Connected” to indicate that the port is now under the control of the Telnet client. If a device is connected to the captured serial port, you can now communicate with it as if you had a direct serial connection.
- To disconnect the port from the Telnet session, press **Ctrl-C**. This will also work while the driver is still waiting for an active poll to complete.
- To terminate the Telnet session, close the Telnet client.

Notes:

1. If a port has been manually captured in one Telnet session, it will not be available to any other Telnet sessions. Other sessions attempting to capture the port will be returned to the command prompt with an error message. To release a port, the connected Telnet session must be disconnected.
2. Capturing a port makes the port unavailable to any protocol driver on the FieldServer that might have been communicating with the device. Refer to the comments on session_timeout above on how to prevent an indefinite lockout if a Telnet session with a port capture is forgotten on.
3. A Serial connection needs to be specified before defining the Telnet connection (which has autoconnect_port) or else the FieldServer will give system error.

Example

| | | | |
|--------------------------------|-------------------|------------------------|---------------|
| <u>Not Correct:</u> | | | |
| Connections Adapter, N1, | Protocol, TLN, | Autoconnect_port P1 | |
| <u>Correct:</u> | | | |
| Connections Adapter, P1, | Baud, 9600, | Timeout, 10s, | Protocol - |
| Connections Adapter, N1, | Protocol, TLN, | Autoconnect_port P1 | |

4.2. Autoconnect Serial Port Capture and Multiple Telnet Sessions

If an autoconnect port has been specified, a new Telnet session to the FieldServer will automatically be connected to the specified port (in binary or text mode as specified). This raises a potential conflict if there is already an existing session autoconnected to that port. The FieldServer resolves this by terminating the original Telnet session, so that new session is not locked out.

In text mode it is possible to quit out of a port autoconnect by hitting Ctrl-C; this session then receives a Telnet command prompt. If this is done, the next new Telnet connection that is made to the FieldServer will connect to the autoconnect port without affecting the first session.

5. Setting the Linefeed Options

Linefeed sending refers to the transmission of linefeeds generated by the Telnet user to a comport he may be connected to.

Linefeed receiving refers to the option of inserting a linefeed into the data stream received from a comport whenever a carriage return has been received.

- Once the FieldServer is up and running, connect to it using its IP address.
- Type **linefeed** <Enter>
- When prompted, enter the desired state for linefeed sending and receiving (on/off <Enter>).
- To keep the current setting, just hit <Enter>.

6. Setting the Echo Option

This option determines whether or not the FieldServer echoes characters typed into a Telnet terminal.

- At the Telnet prompt, type **echo** <Enter>
- When prompted, enter the desired setting (on/off <Enter>).
- To keep the current setting, just hit <Enter>.

7. Setting the Tab Option

This option determines whether or not the FieldServer replaces incoming tab characters with spaces during port capture.

- At the Telnet prompt, type **tab** <Enter>
- When prompted, enter the desired setting (on/off <Enter>).
- To keep the current setting, just hit <Enter>.

8. Setting the Verbose Option

This option determines the level of detail of diagnostic messages printed to the Telnet client. There are three levels: 0 – not verbose; 1 – medium verbose; 2 – verbose.

- At the Telnet prompt, type **verbose** <Enter>
- When prompted, enter the desired setting (0/1/2 <Enter>).
- To keep the current setting, just hit <Enter>.

9. Running Serial Protocols over Telnet using Virtual Ports

The Telnet driver can be used to run serial protocols over TCP. To connect the Telnet driver to a serial driver, use virtual comports. Virtual comports are software emulations of real comports, and are connected in pairs. These connected pairs are ports VC1 and VS1, VC2 and VS2, VC3 and VS3, VC4 and VS4, and VC5 and VS5. Anything written to the port VCx will be received at the port VSx, and vice versa. Note that autoconnect mode does not modify the data passing through in any way; it overrides any linefeed or tab options that might have been set.

Serial ports on two FieldServers may be connected over TCP in this way, using a Telnet client on one end and a Telnet server on the other. The client is configured to connect to the server using Telnet, and both client and server autoconnect to the desired serial ports on the respective FieldServers. The two serial ports are then transparently linked.

10. Limitations

The Telnet driver will only capture ports that have been specified in the configuration file used by the FieldServer. It will use the specified port parameters (baud rate, start/data/stop bits, parity), or FieldServer defaults where these have not been specified.

11. Revision History

| Date | Driver Version | Document Revision | Resp | Comment |
|----------|----------------|-------------------|------|-------------------------|
| 09/05/02 | 1.00 | 0 | JCE | JCE-Created Document |
| 09/06/02 | 1.00 | 1 | MF | MF-Reformatted Document |
| 7/23/03 | 1.00 | 2 | JD | Releasing |
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