

# Freeway Monitor Product

## Summary:

The Protogate Freeway Monitor product allows users to monitor existing serial data protocol lines and store the monitored data for later viewing and/or analysis. The Freeway Monitor is especially useful for monitoring specialized serial protocols that are unavailable on standard commercial data analyzers.

## Product Description:

The Protogate Freeway Monitor is a software product which is added to the standard Freeway operating system. Combined with protocol software on Protogate ICP2432 boards, the Freeway Monitor daemon passively monitors serial data protocol traffic between two external endpoints. A passive monitor Y-cable allows monitoring the data link without affecting it in any way. The Freeway Monitor daemon can monitor multiple data links simultaneously, limited only by the number of ICP2432 boards installed on the Freeway.

The Freeway Monitor daemon records the protocol traffic that it detects to individual data files and also to an SQL database. All recorded data is available from the Freeway for later analysis. The data can also be stored offline either manually or automatically, typically on a daily or weekly schedule.

## Monitor Freeway Link Summary

Logged in as user: freeway, with access level: 2 (standard access). [\(Logout\)](#)

[Previous Day](#)    Update every  seconds, with no diffs

Card	Channel	Name	Status	Since Midnight GMT		Past 5 Minutes	
				History	Octets	History	Octets
Card 0	Channel 0	<a href="#">S12_1</a>	enabled/up		24303970		121800 (406 Bps)
Card 0	Channel 1	<a href="#">S12_2</a>	enabled/up		24304050		121500 (405 Bps)
Card 1	Channel 0	<a href="#">AUT_1</a>	enabled/up		61705648		308112 (1027 Bps)
Card 1	Channel 1	<a href="#">AUT_2</a>	enabled/up		56347066		7348 (24 Bps)
Card 2	Channel 0	<a href="#">AWS_1</a>	enabled/up		60218393		286720 (955 Bps)
Card 2	Channel 1	<a href="#">AWS_2</a>	enabled/up		60135209		287744 (959 Bps)

Monitor Freeway Summary Screenshot

A web-browser-driven user interface is included with the Freeway Monitor. It provides the ability to examine the message data in real time, at varying levels of detail. For example, a user can view the total number of messages per day or per hour, or can see a detailed graph of how the data rate varied over a 24-hour period or during the past 5-minute period. Using the web-browser, a user can view a summary of the packet exchange, or can examine the contents of actual message packets themselves, down to the byte level.

## Monitor Freeway Link Pair Detail

Logged in as user: freeway, with access level: 2 (standard access).

([Logout](#))

[Return to Monitor Freeway Main menu](#)

**Request**    First Link:     Second Link:

Start Date and Time:  Hour:  Minute:

Duration: Hours:  Minutes:

Display  items, starting at entry:

**Results**    Items 1 to 50 (total items in this time range: 1404)

Item	Time Stamp	File Ptr	Length	Flags	Frame Type	NR	NS	Errs	Link
1	21:11:00.098 GMT	0x2249f80	65	0	I-Frame	0	80	0	S12_1
2	21:11:00.101 GMT	0x2249f80	65	0	I-Frame	0	80	0	S12_2
3	21:11:00.109 GMT	0x2249fd0	0	0	RR-Frame	0	81	0	S12_1
4	21:11:00.111 GMT	0x2249fd0	0	0	RR-Frame	0	81	0	S12_2
5	21:11:00.278 GMT	0x2249fdf	65	0	I-Frame	0	81	0	S12_2
6	21:11:00.298 GMT	0x2249fdf	65	0	I-Frame	0	81	0	S12_1
7	21:11:00.306 GMT	0x224a02f	0	0	RR-Frame	0	82	0	S12_1
8	21:11:00.308 GMT	0x224a02f	0	0	RR-Frame	0	82	0	S12_2

**Packet Exchange Screenshot**

## Monitor Freeway Link Pair Detail

Logged in as user: freeway, with access level: 2 (standard access).

([Logout](#))

[Return to Monitor Freeway Main menu](#)

**Request**    **First Link:**     **Second Link:**

Start Date and Time:     Hour:     Minute:

Duration: Hours:     Minutes:

Display  items, starting at entry:

**Results**    Items 1 to 50 (total items in this time range: 3550)

Item	Time Stamp	File Ptr	Length	Flags	Frame Type	NR	NS	Errs	Link
1	17:28:00.089 GMT	0x1ca5ed5	65	0	I-Frame	0	67	0	S12_1
File name: /var/frame_records/20060407/S12_1_000.s12    File offset: 0x1ca5ed5 Timestamp: 62880089    Data Length: 65    Flags: 0x80    Type: 1    NR: 0    NS: 67    Errs: 0 Raw Frame Data:									
<pre> 0000: 03 86 86 55 56 57 58 59 5a 20 30 31 32 33 34 35 0001: 36 37 38 39 20 61 62 63 64 65 66 67 68 69 6a 6b 0002: 6c 6d 6e 6f 70 71 72 73 74 75 76 77 78 79 7a 20 0003: 41 42 43 44 45 46 47 48 49 4a 4b 4c 4d 4e 4f 50 0004: 51 52 53 54 40 9b           </pre>									
2	17:28:00.089 GMT	0x1ca5caa	65	0	I-Frame	0	67	0	S12_2
File name: /var/frame_records/20060407/S12_2_001.s12    File offset: 0x1ca5caa Timestamp: 62880089    Data Length: 65    Flags: 0x80    Type: 1    NR: 0    NS: 67    Errs: 0 Raw Frame Data:									
<pre> 0000: 01 86 86 56 57 58 59 5a 20 30 31 32 33 34 35 36 0001: 37 38 39 20 61 62 63 64 65 66 67 68 69 6a 6b 6c 0002: 6d 6e 6f 70 71 72 73 74 75 76 77 78 79 7a 20 41 0003: 42 43 44 45 46 47 48 49 4a 4b 4c 4d 4e 4f 50 51 0004: 52 53 54 55 24 10           </pre>									
3	17:28:00.098 GMT	0x1ca5cfa	0	0	RR-Frame	0	68	0	S12_2

**Packet Detail Screenshot**

### Additional Features:

The Freeway Monitor software is easily extensible, and can be customized for specific needs (to record individual data fields within messages which follow a standardized format, for example). Also, the user interface is provided in source-code form, so users can easily modify the provided webpages, or create their own webpages to display information about the recorded data-link messages in any form they wish.

## Protocols Available:

At this time, the Freeway Monitor can be used to monitor lines running the following serial protocols:

- STD-1200A or STD-1200B (ADCCP)
- STD-1300
- AUTODIN Mode I and II
- Milstar
- Various asynchronous protocols
- Various HDLC/SDLC-based protocols.

Additional protocols are available upon request.

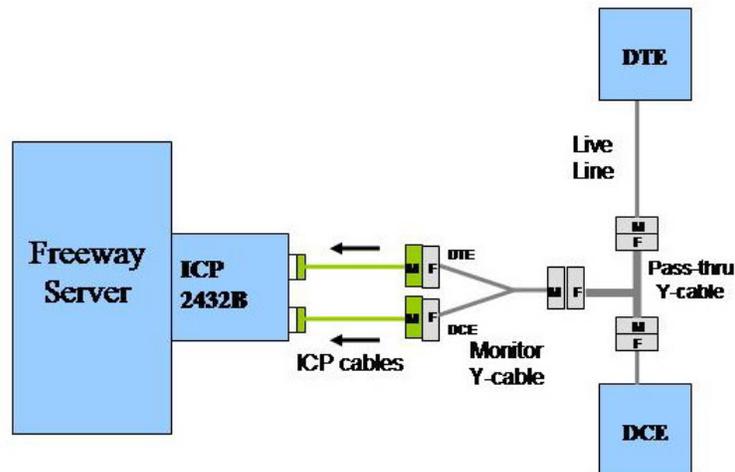
## Software Requirements:

- Freeway Server Software
- Freeway Monitor Software (includes SQL database)
- ICP Protocol Software

## Hardware Requirements:

- Freeway Server (3112, 3212, 3412, or 3612)
- ICP2432 boards (see note below)
- ICP connector cables (EIA-232 or EIA-530)
- Passive Monitor Y-cable (1 for each line monitored)

**Note:** The Freeway Monitor requires two ICP2432 serial data channels to record the traffic in both directions on a single serial data link. Therefore, a 2-port ICP can monitor 1 serial line, a 4-port ICP can monitor 2 lines, and an 8-port ICP can monitor 4 lines (EIA-232 only). For example, a Freeway 3412 with 36 serial data ports could monitor both directions of 18 data links.



Monitor Hardware Block Diagram