Provider® 790 Nurse Call System

Jeron Nurse Call Activity API

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Contents

Overview

The Jeron Nurse Call Activity API (application programming interface) provides real time call activity, including call notification, escalation, and cancellation data from the Provider 790 Nurse Call System. All data that would result in pager notification (regardless of connection to an actual pager system) is extracted from the diagnostic port that is part of the 7979 Messaging Software and accessed by the facility. The API allows all nurse call system activity to be viewed by the facility in real time and can be used to help troubleshoot any problems with pager/phone communication.

Required Components

The Jeron Model 7980 Staff Assignment Software with Model 7979 Pocket Paging and Messaging Software component is required for the Jeron Nurse Call Activity API. Refer to the 7980/7979 Installation and Programming Manual for More information.

Prior to the installation of Model 7980/7979, the following are required:

- Jeron Model 7990 Administration Software on Bridge and/or Installer PC
- Jeron Model 7984 Bridge application installed
- Internet Explorer 8 or later
- IIS Web Server 7.5 or later
- .NET Framework 4.0 or later
- SQL Server (2008 R2 or later). Express or Standard Edition is required as the database component for the 7980 software. SQL Server Express can be used for Provider 790 systems up to a maximum of 150 beds. The end-user organization must determine the appropriate SQL Server licensing.

Making a Connection

The Jeron Nurse Call Activity API allows several different ways to access real time data from the nurse call system. Described below are three options for using the Jeron Nurse Call API: via Telnet, web browser, or TCP client.

Telnet

The Telnet Client on a PC can be used to retrieve data from the Jeron Nurse Call System. To establish a connection to the computer running 7980/7979, type the letter “o” in the Telnet Client, followed by the IP address and port number of the computer running 7980/7979 with spaces. Refer to Figure 1.

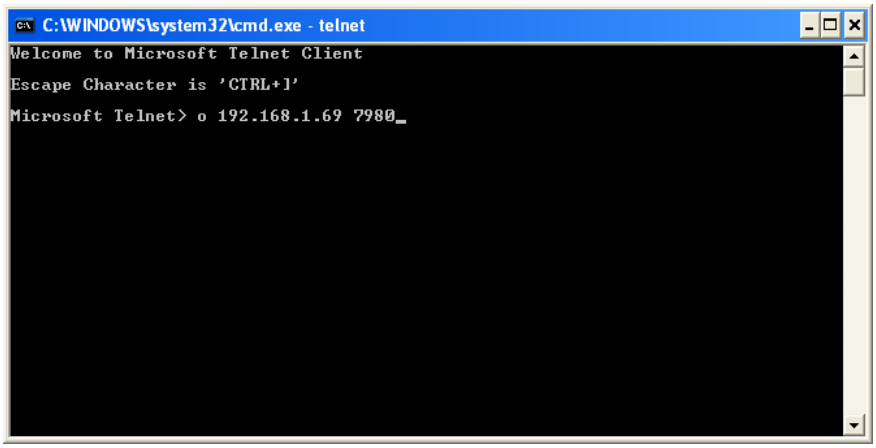

Figure 1: Connect via Microsoft Telnet Client

Once the connection is successful, a log of phone/pager communication activity will display on screen.

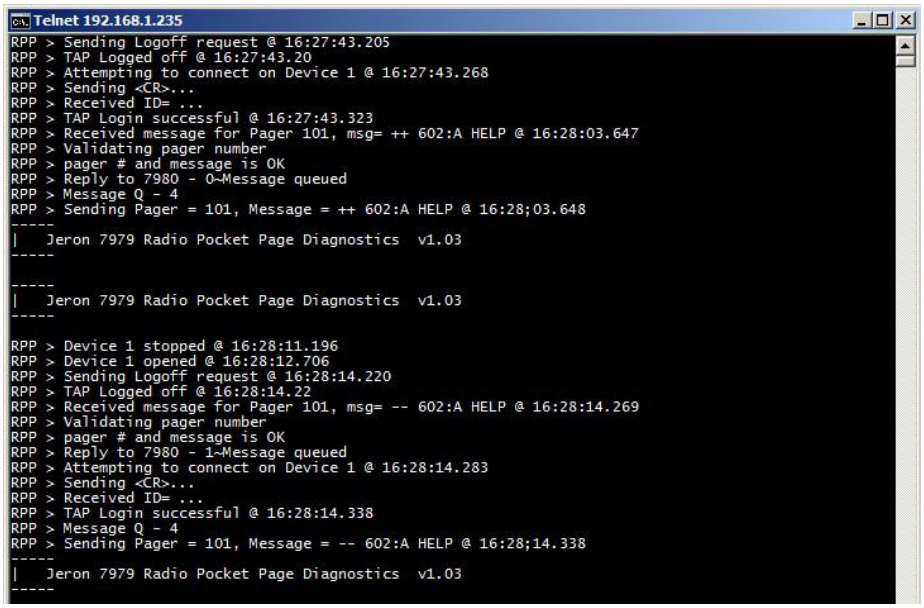

Figure 2: Telnet Successful Connection

Web Browser

Jeron Nurse Call System activity can also be accessed via a web browser. Open a browser and enter the IP address and port number of the computer running 7980/7979 in the address bar. Once connection is successful, a log of phone/pager communication activity will display on screen.

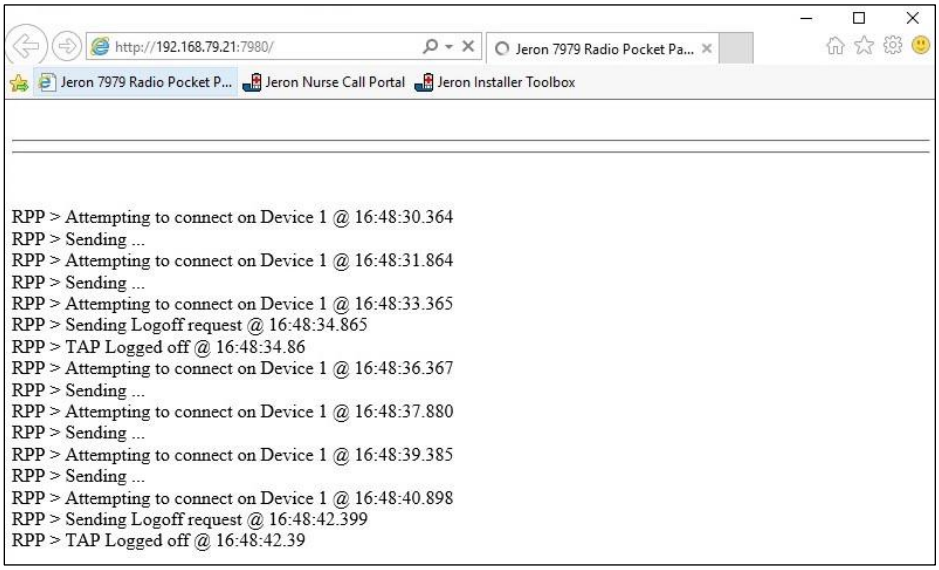

Figure 3: Web Browser Unsuccessful Connection

TCP Client

Another option for accessing the Jeron Nurse Call API is creating a TCP client. Programmers can create a TCP client and connect to the facility NIC IP address on port 7980 (default port) to receive real time output of Jeron Nurse Call system activity.

Message Format / Data

Jeron Model 7980 facilitates staff notification of calls from assigned patient beds initiated through the Provider 790 Nurse Call System. When a pocket pager system (RPP) is connected, the nurse call system activity generates TAP protocol messages to be displayed on staff pagers. This information is also transmitted via the Jeron Nurse Call API. Refer to the Jeron 7980 Radio Pocket Page Interface TAP Protocol Specification for more information on TAP messages and ASCII.

ASCII Text

The real time data output received from the Jeron Nurse Call System is ASCII (7-bit character set) using standard numeric, upper and lower case alphabetic, and some punctuation characters. Certain non-printable ASCII Control characters are also used.

Event Field Structure

All call activity lines begin with “RPP > Received message for Pager xxx, msg=” the remainder of the line is the relevant call activity data. The message text contains a two character type indicator, the room number and bed designator separated by a colon, and the call priority. In the example below, the type indicator is “++”, the room is “601”, the bed is “B”, and the call priority is “NORMAL”. Optional free text may replace or be appended to the call priority text in certain nurse call operations.

Example: RPP > Received message for Pager 101, msg= ++ 601:B NORMAL

1. The two character type indicator identifies the operation which caused the message: call placement to an assigned staff, a team, a specific level or staff, or cancellation. Refer to Table 1.

Two Character Identifier	Message Type
++	Call placement to assigned staff
T+	Call placement to a team
S+	Call placement as the result of a service request for a specific level of staff
--	Cancellation of assigned staff call
T-	Cancellation of team call
S-	Cancellation of a service request for a specific level of staff

Table 1: Two Character Message Type Identifiers

2. Room name (maximum 16 characters)
3. Colon “:” one character separating room number and bed designator (bed level calls only)
4. One character bed designator, as programmed in 7990 (bed level calls only)
5. Call priority/call text (maximum 16 characters)

Sample Message Strings

Examples of call activity message strings received using the Jeron Nurse Call API, along with explanations of their meanings are listed in Table 2 below.

Message String	Explanation
++ 601:B NORMAL	Patient call placed (1st assigned staff).
S+ 601:B NORMAL	Service Requested (by staff level).
-- 601:B	Cancel Patient call, start sending to notified staff.
S- 601:B NORMAL	Cancel Service Request, send to previously notified staff.
++ 601 CODE_BLUE	Patient call placed (1st assigned staff)
T+ 601 CODE_BLUE	Notify CODE Team staff member(s)
T- 601 CODE_BLUE	Send cancel to Team
S+ 601:B ASSIST_TO_TOILET	Free text or pre-programmed message attached to Service Request

Table 2: Example Call Activity Message Strings

Refer to Figure 4 for an example of how the raw nurse call data is received when using the Jeron Nurse Call API.

```
RPP > Sending Logoff request @ 16:27:43.205
RPP > TAP Logged off @ 16:27:43.20
RPP > Attempting to connect on Device 1 @ 16:27:43.268
RPP > Sending <CR>...
RPP > Received ID= ...
RPP > TAP Login successful @ 16:27:43.323
RPP > Received message for Pager 101, msg= ++ 602:A HELP @ 16:28:03.647
RPP > Validating pager number
RPP > pager # and message is OK
RPP > Reply to 7980 - 0~Message queued
RPP > Message Q - 4
RPP > Sending Pager = 101, Message = ++ 602:A HELP @ 16:28;03.648
-----
|   Jeron 7979 Radio Pocket Page Diagnostics  v1.03
-----
```

Figure 4: Example of Data Received Through Telnet

Refer to Figure 5 to view some examples of TAP protocol messages as sent between a Jeron system and a radio pocket page system.

Time	Sender	Data
040.985	Jeron: Tx ->	<ESC><EOT><CR>
041.063	Pager: Tx ->	PAGING EXCHANGE DISCONNECT<CR><ESC><EOT><CR>
041.094	Jeron: Tx ->	<CR>
041.110	Pager: Tx ->	ID=<CR><LF>
041.125	Jeron: Tx ->	<ESC>PG1<CR>
041.172	Pager: Tx ->	110 1.8<CR><LF><CR><ACK><CR><ESC>[p<CR>
047.736	Jeron: Tx ->	<STX>101<CR>++ 601:B NORMAL<CR><ETX>423<CR>
047.751	Pager: Tx ->	<CR><ACK><CR>
054.455	Jeron: Tx ->	<STX>104<CR>S+ 601:B NORMAL<CR><ETX>475<CR>
054.486	Pager: Tx ->	<CR><ACK><CR>
065.113	Jeron: Tx ->	<STX>101<CR>-- 601:B<CR><ETX>23><CR>
065.144	Pager: Tx ->	<CR><ACK><CR>
070.675	Jeron: Tx ->	<ESC><EOT><CR>
070.753	Pager: Tx ->	PAGING EXCHANGE DISCONNECT<CR><ESC><EOT><CR>
070.785	Jeron: Tx ->	<CR>
070.800	Pager: Tx ->	ID=<CR><LF>
070.831	Jeron: Tx ->	<ESC>PG1<CR>

Figure 5: TAP Protocol Messages

Troubleshooting

Consult Jeron Tech Services for assistance with any system errors when using the Jeron Nurse Call API.

Verify All Hardware Connections

When establishing a connection to the Jeron Nurse Call API, if no hardware is located after three to five minutes, a discard error message will display to indicate the connection attempt timed out.

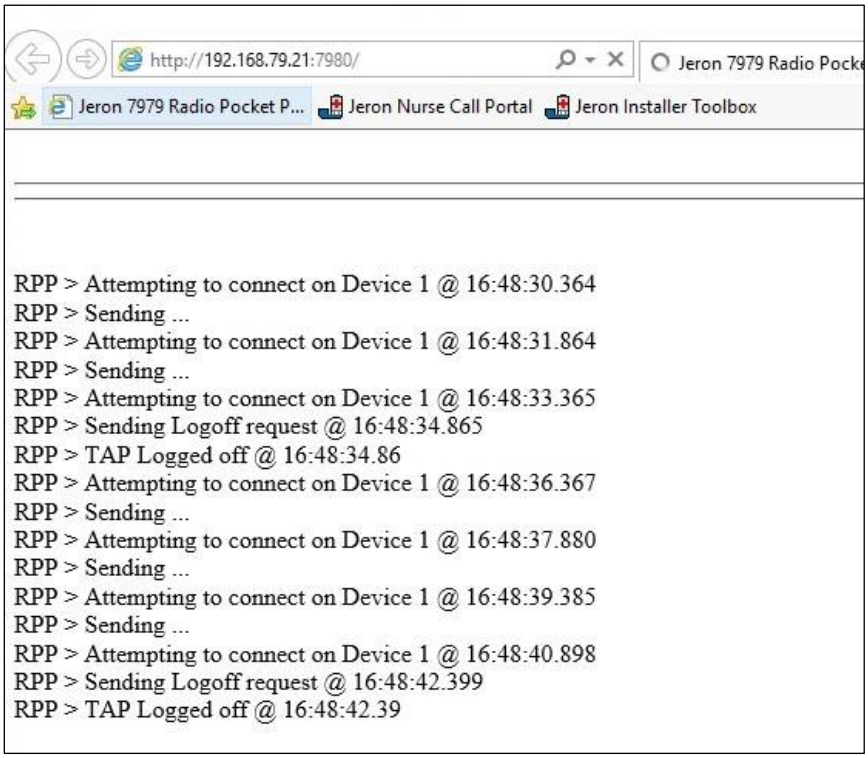

Figure 6: Unsuccessful Connection via Web Browser

Configure Firewall

When connecting via a TCP Client, make certain that any firewall enabled on the PC is configured to allow connection to the selected Port number.

Message Delivery Sequence

Message delivery is performed by sending one or more blocks consisting of <STX> pager ID, <CR>, message text, <CR>, <ETX>, 3-character checksum, <CR>. The pager system responds for each block. It may either acknowledge the message block (<CR><ACK><CR>), request a retry because of a checksum error (<CR><NAK><CR>), abandon the transaction because of an invalid pager ID (<CR><RS><CR>), or terminate the log in session (<CR><ESC><EOT><CR>).

In the event that Jeron receives either a retry or abandon response as described above, up to two more attempts will be made. After three attempts, Jeron will discard the block, send a disconnect sequence, and attempt to log in again.

