

Technical Application Note

MP-20x Debugging and Diagnostic Tools

Version 3.0.0



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This document describes the debugging and diagnostic tools for AudioCodes MP-20x Telephone Adapter.

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Related Documentation

Document #	Manual Name
LTRT-505xx	MP-202 Telephone Adapter Release Notes
LTRT-506xx	MP-202 Telephone Adapter User's Manual
LTRT-504xx	MP-202 Telephone Adapter Quick Installation Guide

Revision History

Revision	Date	MP-20x Version	Comments
1	30/06/08	2.6.1	First edition
2	07/10/09	3.0.0	Second edition

1 Introduction

The MP-20x (namely, the MP-202 FXS) has several debugging tools. This Technical Application Note describes these tools and their usage:

- Logging and debug tools
- DSP packet recording
- SIP logs

Reader's Notes

2 Basic Logging and Debug Tools

2.1 System Monitoring

The 'System Monitoring - Connections' screen, displayed below, displays important system information such as:

- Key network device parameters
- Network traffic statistics
- System log
- Length of time that has transpired since the system was last reset or powered on
- Voice over IP

Figure 2-1: System Monitoring Screen - Connections

Name	WAN Ethernet	LAN Ethernet
Device Name	eth0	eth1
Status	Connected	Connected
Network	WAN	LAN
Connection Type	Ethernet	Ethernet
MAC Address	00:90:8f:09:ef:5e	00:90:8f:09:95:e2
IP Address	10.33.2.42	192.168.2.1
Subnet Mask	255.255.0.0	255.255.255.0
Default Gateway	10.33.0.1	
DNS Server	10.1.1.11 10.1.1.10	
IP Address Distribution	Disabled	DHCP Server
Received Packets	199037	10070
Sent Packets	8766	10956
Time Span	12:00:41	12:00:41

Please refer to the *MP-20X Telephone Adapter User's Manual* for additional information regarding this feature.

2.2 Log Level Option

When this parameter is enabled, SIP messages are visible in the 'System Log' screen.

➤ **To activate the log level option:**

1. Open a Telnet session to the MP-20x.
2. At the prompt, type the following command:

```
voip_set_log_level 1
```

3. To view the SIP messages, click the **System Monitoring** menu, and then click the **System Log** tab.

4. To disable this feature, type the following command:

```
voip_set_log_level 0
```

Figure 2-2: SIP Messages in the 'System Monitoring - System Log' Screen

The screenshot shows the 'System Monitoring' interface with the 'System Log' tab selected. It displays a table of log entries with columns for Time, Event, Event-Type, and Details. Two entries are visible, both showing SIP messages.

Time	Event	Event-Type	Details
Jan 5 21:18:49 2003	System Log	Message	<pre> daemon.warn ----- TX SIP MESSAGE ----- ACK sip:202@10.16.2.4 SIP/2.0 From: "133" <sip:133@10.16.2.22>;tag=10192040-1602100a-13c4-45028-671ad-64ab3b55-671ad t: "202" <sip:202@10.16.2.4>;tag=c04ipj2vdh Call-ID: 1019d008-1602100a-13c4-45028-671ad-13853047-671ad CSeq: 1 ACK Via: SIP/2.0/UDP 10.16.2.22;rport;branch=z9hG4bK-671ad-192c0f87-229d6883 Max-Forwards: 70 Contact: <sip:133@10.16.2.22> Content-Length: 0 ----- END OF SIP MESSAGE ----- </pre>
Jan 5 21:18:48	System	Message	<pre> daemon.warn ----- RX SIP MESSAGE ----- SIP/2.0 404 Not Registered f: "133" <sip:133@10.16.2.22>;tag=10192040-1602100a-13c4-45028-671ad-64ab3b55-671ad t: "202" <sip:202@10.16.2.4>;tag=c04ipj2vdh i: 1019d008-1602100a-13c4-45028-671ad-13853047-671ad rSeq: 1 INVITE </pre>

2.3 System and Security Logging

The System and Security Logging configuration remains the same as in previous versions (refer to the *MP-202 Telephone Adapter User's Manual*) – and affects debug messages that are not related to the VoIP application.

➤ **To activate the log level option:**

1. In the left-side bar, click the **Advanced** icon, and then select the **System Settings** icon.
2. In the 'System Logging' and 'Security Logging' sections, choose the logging level.

Figure 2-3: System and Security Logging

System Logging	
System Log Buffer Size:	16 KB
Remote System Notify Level:	None

Security Logging	
Security Log Buffer Size:	16 KB
Remote Security Notify Level:	None

To view the System and Security Logging, browse to 'System Monitoring' screen -> 'System Log'.

2.4 Configuration File

The MP-20x allows you to view, save, and load its configuration file to backup and restore your current configuration. Please refer to the *MP-20x Telephone Adapter User's Manual* for additional information regarding this feature.

Reader's Notes

3 DSP Packet Recording

The Packet Recording feature enables the recording of all packets transmitted and received by the MP-20x DSP. This feature is essential for efficient debugging. The recorded packets are transmitted to the host through the network port and can be captured using the Ethereal or Wireshark capturing tools. If you are requested to capture packet recording, please send the capture to AudioCodes for analysis.

➤ **To activate the Packet Recording tool:**

1. Open a Telnet session with the MP-20x.
2. Start the Ethereal or Wireshark applications located on your host PC.
3. Activate packet recording, by typing the following command:

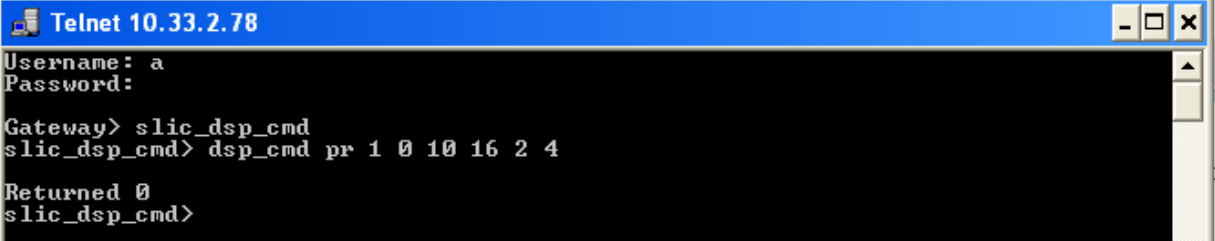
```
slic_dsp_cmd <Enter>
```

```
dsp_cmd pr <ch_id> <start/stop> <host IP> <host IP> <host IP> <host IP>
```

For example, to record the packets of Channel 0 (MP-20x, Line 1) and send it to host IP with the address of 10.16.2.4, type the following command:

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

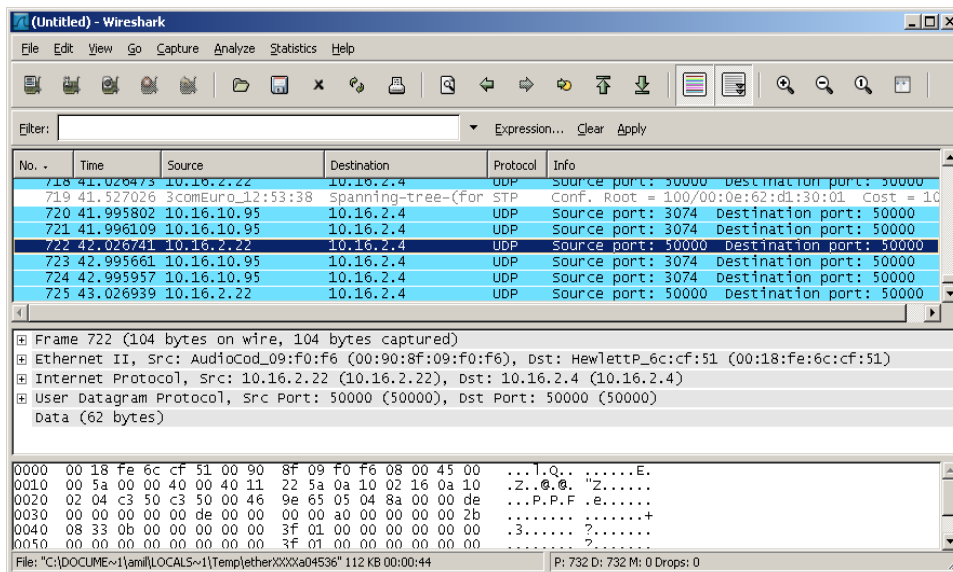
Figure 3-1: Usage of the Packet Recording



```
Telnet 10.33.2.78
Username: a
Password:
Gateway> slic_dsp_cmd
slic_dsp_cmd> dsp_cmd pr 1 0 10 16 2 4
Returned 0
slic_dsp_cmd>
```

You can identify the recorded packets by their protocol type (which is UDP) and their port number (which is 50000).

Figure 3-2: Wireshark Capture with Packet Recording



Note: The `dsp_cmd pr` command has additional functionality. Ensure that you run this command only once.

3.1 Advanced DSP Packet Recording

The Packet Recording feature enables the recording of the TDM input or the network packets in G.711 format, regardless of the channel status and configuration. In addition, this feature enables you to record RTP packets that are being transmitted/received by the DSP.

Similar to packet recording, the TDM, network and RTP recordings are transmitted to the host through the network port and can be captured using the Ethereal or Wireshark capturing tools.



Note: The packet recording captures are still active when the TDM and or network packet recording are activated.

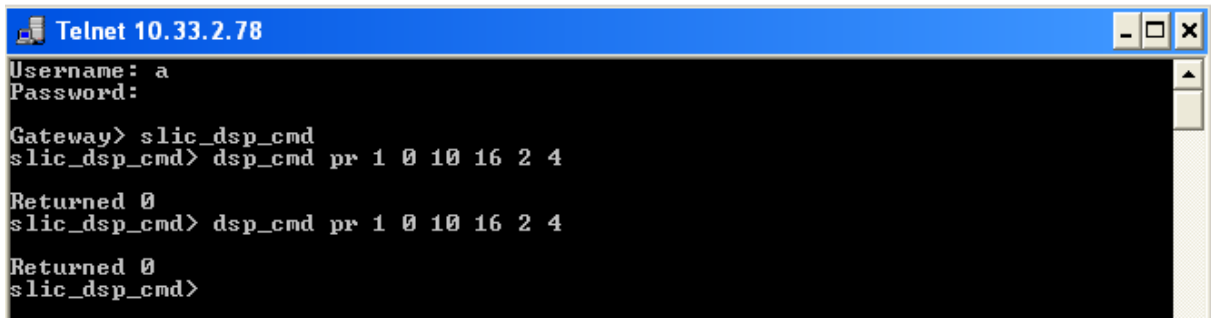
➤ **To activate the TDM input recording:**

1. If the packet recording tool is already activated, use the same command for packet recording (otherwise, skip to Step 2):

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

2. If the packet recording tool is not activated, perform the following:
 - a. Perform steps 1 through 3 for packet recording in Section 3 on page 13.
 - b. Run the **dsp_cmd pr** command again.

Figure 3-3: Wireshark Capture with TDM Recording and Packet Recording



```
Telnet 10.33.2.78
Username: a
Password:
Gateway> slic_dsp_cmd
slic_dsp_cmd> dsp_cmd pr 1 0 10 16 2 4
Returned 0
slic_dsp_cmd> dsp_cmd pr 1 0 10 16 2 4
Returned 0
slic_dsp_cmd>
```

➤ **To activate both TDM input and network recording:**

1. If the packet recording tool is already activated, enter the packet recording command twice, as shown below (otherwise, skip to Step 2):

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

2. If the packet recording tool is not activated, perform the following:
 - a. Perform steps 1 through 3 for packet recording in Section 3 on page 13.
 - b. Run the **dsp_cmd pr** command twice.

➤ **To activate RTP recording:**

1. If the packet recording tool is already activated, use the same command three more times (otherwise, skip to Step 2):

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

```
slic_dsp_cmd> dsp_cmd pr 0 1 10 16 2 4
```

2. If the packet recording tool is not activated, perform the following:
 - a. Perform steps 1 through 3 for packet recording in Section 3 on page 13.
 - b. Run the **dsp_cmd pr** command three times.

4 SIP Logs

The MP-20x enables you to capture VoIP-related debug messages (including SIP stack, call control, and VoIP application). The SIP logs are sent to the host through the network port and can be captured using the Ethereal, Wireshark, or Syslog server tools. The configuration is performed using Telnet.

➤ **To activate the SIP logs:**

1. Open a Telnet session with the MP-20x.
2. At the prompt, run the following commands:

```
conf <Enter>
set /voip/syslog/syslog_udp_terminal_flag [0-3]
set /system/rv_log_filter [0-7]
reconf 1
```
3. The default Syslog IP address is 192.168.2.2. The default port is 514. If you want to change the default Syslog address and port, run the following commands (before performing the `reconf` command):

```
conf <Enter>
set /voip/syslog/syslog_server_addr [Host IP address]
set /voip/syslog/syslog_server_port [Host Port address]
```
4. Activate Wireshark capture or Syslog server to capture the SIP logs.
5. Reboot the MP-20x.

Below are explanations regarding configuration options:

- **/voip/syslog/syslog_udp_terminal_flag:** defines the destination of the debug messages:
 - **0:** Logs are not sent at all (default)
 - **1:** Logs are sent to the Syslog server
 - **2:** Logs are sent to the RS-232 terminal
 - **3:** Logs are sent to both the RS-232 terminal and Syslog server
- **/voip/syslog/syslog_server_addr:** default server address is 192.168.2.2.
- **/voip/syslog/syslog_server_port:** default server port is 514.
- **/system/rv_log_filter:** controls the modules for printing.
 - **0:** None
 - **1:** MTF + USR (note that MTF already includes USR)
 - **2:** SIP
 - **3:** MTF, USR, and SIP
 - **4:** USR
 - **5:** MTF and USR == 1
 - **6:** SIP and USR
 - **7:** MTF, USR, and SIP == 3

4.1 Configuration Examples

The following example configures the MP-20x for sending SIP logs (no filters – all logs are open) to a Syslog server.

Assume the following:

- The host IP address is 10.16.2.4.
- The host port is 514.

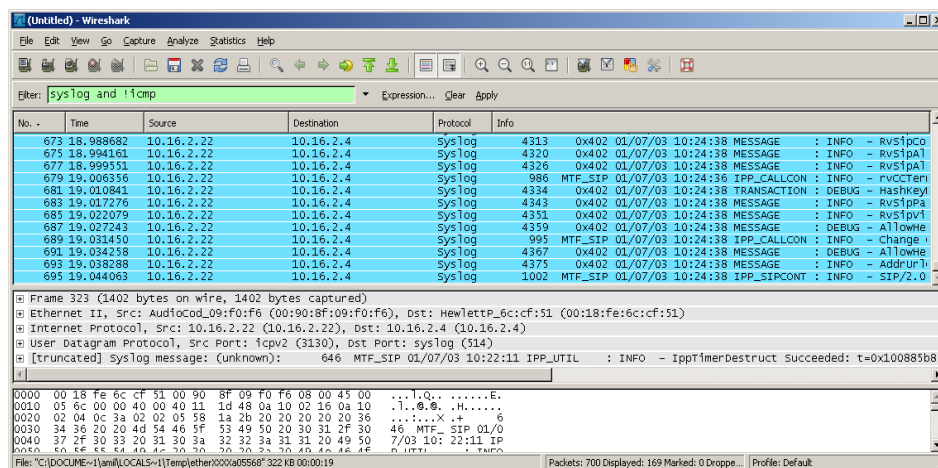
■ To activate the SIP logs:

1. Run the following commands at the MP-20x terminal prompt:

```
conf <Enter>
set /voip/syslog/syslog_udp_terminal_flag 1
set /system/rv_log_filter 7
set /voip/syslog/syslog_server_addr 10.16.2.4
reconf 1
```

2. Activate the Wireshark application, and then reboot the MP-20x; the MP-20x sends the SIP logs via Syslog server to the Host PC (see [Figure 4-1](#)).

Figure 4-1: Capturing the Syslog Packets in Wireshark



Reader's Notes

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