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Announcement

The following information applies to version 1.001 of the Multimedia Streaming Protocols (MSP) software on the HP-UX 11i v1, HP-UX 11i v2, and HP-UX 11i v3 operating systems.

The MSP framework for HP-UX multimedia streaming servers comprises libraries required for implementing the MSP protocols and transmitting real-time data.

The following lists the protocols that the multimedia streaming applications use:

- Real Time Protocol (RTP)
- Real Time Streaming Protocol (RTSP)
- Session Description Protocol (SDP)

In the HP-UX 11i v2 and HP-UX 11i v3 operating systems both the 32-bit and 64-bit versions of MSP libraries are delivered but the HP-UX 11i v1 operating system contains only the 32-bit version of MSP libraries.

The MSP software is available as a web upgrade on the HP-UX 11i v1 and HP-UX 11i v2 operating systems at http://www.software.hp.com

Starting with the HP-UX 11i v3 release, MSP is available as an optional bundle (Media-Streaming) while installing the HP-UX 11i v3 operating system. By default, this bundle is not selected for installation. You must select this bundle to install MSP while installing the HP-UX 11i v3 operating system.

What Is in This Version

This section outlines the features that MSP offers.

The MSP software includes the following libraries:

- RTP library – librtp.sl
- RTSP library – librtsp.sl
- SDP library – libsdp.sl

Protocol Overview

The following lists the protocols that MSP includes:

- RTP

  Real Time Protocol (RTP) is a transport protocol that provides end-to-end network transport functions for applications transmitting data with real-time properties, such as interactive audio and video.
RTP consists of Real-Time Control Protocol (RTCP), a closely linked protocol, that provides a mechanism for reporting feedback on the transmitted real-time data.

- **RTSP**
  Real Time Streaming Protocol (RTSP) controls the transfer of real-time media data and serves as a network-remote-control for multimedia services.

- **SDP**
  Session Description Protocol (SDP) describes the general real-time multimedia sessions.


**Benefits**

Multimedia application developers use these protocols for developing multimedia streaming applications. With MSP, developers can develop multimedia streaming applications on the HP-UX operating system.

MSP conforms to the following RFCs:

- RFC 1889 (*RTP: A Transport Protocol for Real-Time Applications*)
- RFC 2326 (*Real Time Streaming Protocol (RTSP]*)
- RFC 2327 (*SDP: Session Description Protocol*)

**Documentation Availability**

*HP-UX Multimedia Streaming Protocols (MSP) Programmer’s Guide* is available at the following URL:


**Man Pages**

*Table 1-1* describes the man pages in the MSP depot.

<table>
<thead>
<tr>
<th>Man Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>rtp(7p)</td>
<td>Provides an introduction to the RTP library.</td>
</tr>
<tr>
<td>rtp_close(3n)</td>
<td>Describes rtp_close that closes an RTP connection.</td>
</tr>
<tr>
<td>rtp_ioctl(3n)</td>
<td>Describes rtp_ioctl that controls an RTP session.</td>
</tr>
<tr>
<td>rtp_open(3n)</td>
<td>Describes rtp_open that opens an RTP session.</td>
</tr>
<tr>
<td>rtp_poll(3n)</td>
<td>Describes rtp_poll that monitors I/O conditions on multiple RTP session descriptors.</td>
</tr>
<tr>
<td>Man Page</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>rtp_recv(3n)</td>
<td>Describes rtp_recv that receives RTP or RTCP packets from an RTP session.</td>
</tr>
<tr>
<td>rtp_send(3n)</td>
<td>Describes rtp_send that sends an RTP packet.</td>
</tr>
<tr>
<td>rtsp</td>
<td>Provides an introduction to the RTSP library.</td>
</tr>
<tr>
<td>rtsp_alloc_cache(3n)</td>
<td>Describes rtsp_alloc_cache that dynamically allocates memory for the rtsp_cache_t structure and initializes the structure members with application-specified values.</td>
</tr>
<tr>
<td>rtsp_alloc_range(3n)</td>
<td>Describes rtsp_alloc_range that dynamically allocates memory for the rtsp_range_t structure and initializes its members with application-specified values.</td>
</tr>
<tr>
<td>rtsp_alloc_rtpinfo(3n)</td>
<td>Describes rtsp_alloc_rtpinfo that dynamically allocates memory for the rtsp_rtpinfo_t structure and initializes its members with application-specified values.</td>
</tr>
<tr>
<td>rtsp_append_msg_hdr(3n)</td>
<td>Describes rtsp_append_msg_hdr that appends the header field information in an RTSP message.</td>
</tr>
<tr>
<td>rtsp_close(3n)</td>
<td>Describes rtsp_close that closes an RTSP connection.</td>
</tr>
<tr>
<td>rtsp_alloc_xport_spec(3n)</td>
<td>Describes rtsp_alloc_xport_spec that dynamically allocates memory for the rtsp_xport_spec_t structure and initializes its members with application-specified values.</td>
</tr>
<tr>
<td>rtsp_copy_msg_hdr(3n)</td>
<td>Describes rtsp_copy_msg_hdr that copies header from one RTSP Message to another.</td>
</tr>
<tr>
<td>rtsp_create_conn(3n)</td>
<td>Describes rtsp_create_conn that creates an RTSP connection.</td>
</tr>
<tr>
<td>rtsp_free_cache(3n)</td>
<td>Describes rtsp_free_cache that frees the dynamically allocated memory for the rtsp_cache_t structure and its members.</td>
</tr>
<tr>
<td>rtsp_free_msg(3n)</td>
<td>Describes rtsp_free_msg that frees the dynamically allocated memory for the rtsp_msg_t structure and its members.</td>
</tr>
<tr>
<td>rtsp_free_range(3n)</td>
<td>Describes rtsp_free_range that frees the dynamically allocated memory for the rtsp_range_t structure and its members.</td>
</tr>
<tr>
<td>rtsp_free_rtpinfo(3n)</td>
<td>Describes rtsp_free_rtpinfo that frees the dynamically allocated memory for the rtsp_rtpinfo_t structure and its members.</td>
</tr>
<tr>
<td>Man Page</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><code>rtsp_free_session(3n)</code></td>
<td>Describes <code>rtsp_free_session</code> that frees the dynamically allocated memory for the <code>rtsp_session_t</code> structure and its members.</td>
</tr>
<tr>
<td><code>rtsp_free_session_flds(3n)</code></td>
<td>Describes <code>rtsp_free_session_flds</code> that frees the dynamically allocated memory for the <code>rtsp_session_t</code> structure and its members.</td>
</tr>
<tr>
<td><code>rtsp_free_xport_spec(3n)</code></td>
<td>Describes <code>rtsp_free_xport_spec</code> that frees the dynamically allocated memory for the <code>rtsp_xport_spec_t</code> structure and its members.</td>
</tr>
<tr>
<td><code>rtsp_free_xport_spec_flds(3n)</code></td>
<td>Describes <code>rtsp_free_xport_spec_flds</code> that frees the dynamically allocated memory for the <code>rtsp_xport_spec_t</code> structure members.</td>
</tr>
<tr>
<td><code>rtsp_get_conn_opt(3n)</code></td>
<td>Describes <code>rtsp_get_conn_opt</code> that retrieves options associated with an RTSP connection.</td>
</tr>
<tr>
<td><code>rtsp_get_msg_body(3n)</code></td>
<td>Describes <code>rtsp_get_msg_body</code> that gets the body of an RTSP message.</td>
</tr>
<tr>
<td><code>rtsp_get_msg_hdr(3n)</code></td>
<td>Describes <code>rtsp_get_msg_hdr</code> that retrieves the header field from an RTSP message.</td>
</tr>
<tr>
<td><code>rtsp_get_msg_request_line(3n)</code></td>
<td>Describes <code>rtsp_get_msg_request_line</code> that retrieves the RTSP method and the URL information from an RTSP request message.</td>
</tr>
<tr>
<td><code>rtsp_get_msg_response_line(3n)</code></td>
<td>Describes <code>rtsp_get_msg_response_line</code> that retrieves the Status Code and the Reason Phrase information from an RTSP response message.</td>
</tr>
<tr>
<td><code>rtsp_init_cache(3n)</code></td>
<td>Describes <code>rtsp_init_cache</code> that initializes the members of the <code>rtsp_cache_t</code> structure with their default values.</td>
</tr>
<tr>
<td><code>rtsp_init_range(3n)</code></td>
<td>Describes <code>rtsp_init_range</code> that initializes the members of the <code>rtsp_range_t</code> structure with the default values.</td>
</tr>
<tr>
<td><code>rtsp_init_request_msg(3n)</code></td>
<td>Describes <code>rtsp_init_request_msg</code> that creates a new RTSP request message and sets the Method and URL information in the message.</td>
</tr>
<tr>
<td><code>rtsp_init_response_msg(3n)</code></td>
<td>Describes <code>rtsp_init_response_msg</code> that creates a new RTSP response message and sets the Status Code and Reason Phrase information in the message.</td>
</tr>
<tr>
<td><code>rtsp_init_rtpinfo(3n)</code></td>
<td>Describes <code>rtsp_init_rtpinfo</code> that initializes the members of the <code>rtsp_rtpinfo_t</code> structure with the default values.</td>
</tr>
<tr>
<td>Man Page</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><code>rtsp_init_session(3n)</code></td>
<td>Describes <code>rtsp_init_session</code> that initializes the members of the <code>rtsp_session_t</code> structure with the specified values.</td>
</tr>
<tr>
<td><code>rtsp_init_xport_spec(3n)</code></td>
<td>Describes <code>rtsp_init_xport_spec</code> that initializes the members of the <code>rtsp_xport_spec_t</code> structure with the default values.</td>
</tr>
<tr>
<td><code>rtsp_is_request_msg(3n)</code></td>
<td>Describes <code>rtsp_is_request_msg</code> and <code>rtsp_is_response_msg</code> that check if an RTSP message is a request message or a response message.</td>
</tr>
<tr>
<td><code>rtsp_open(3n)</code></td>
<td>Describes <code>rtsp_open</code> that creates a new RTP connection to the peer.</td>
</tr>
<tr>
<td><code>rtsp_parse_url(3n)</code></td>
<td>Describes <code>rtsp_parse_url</code> that parses a string containing the RTSP URL in RFC2326 format into the <code>rtsp_url_t</code> structure.</td>
</tr>
<tr>
<td><code>rtsp_recv(3n)</code></td>
<td>Describes <code>rtsp_recv</code> that receives either an RTSP message or an interleaved media packet from an RTSP connection.</td>
</tr>
<tr>
<td><code>rtsp_send_msg(3n)</code></td>
<td>Describes <code>rtsp_send_msg</code> that sends an RTSP message over an RTSP Connection.</td>
</tr>
<tr>
<td><code>rtsp_send_stream(3n)</code></td>
<td>Describes <code>rtsp_send_stream</code> that sends interleaved binary data over an RTSP connection.</td>
</tr>
<tr>
<td><code>rtsp_set_conn_opt(3n)</code></td>
<td>Describes <code>rtsp_set_conn_opt</code> that sets the options associated with a RTSP connection.</td>
</tr>
<tr>
<td><code>rtsp_set_msg_body(3n)</code></td>
<td>Describes <code>rtsp_set_msg_body</code> that sets the body of an RTSP message.</td>
</tr>
<tr>
<td><code>rtsp_set_msg_hdr(3n)</code></td>
<td>Describes <code>set_msg_hdr</code> that sets the Status Code and Reason Phrase information in an RTSP response message.</td>
</tr>
<tr>
<td><code>rtsp_set_msg_request_line(3n)</code></td>
<td>Describes <code>rtsp_set_msg_request_line</code> that sets the RTSP Method and the URL information in an RTSP request message.</td>
</tr>
<tr>
<td><code>rtsp_set_msg_response_line(3n)</code></td>
<td>Describes <code>rtsp_set_msg_response_line</code> that sets the Status Code and Reason Phrase information in an RTSP response message.</td>
</tr>
<tr>
<td><code>sdp(5)</code></td>
<td>Provides an introduction to the SDP library.</td>
</tr>
<tr>
<td><code>sdp_get(3n)</code></td>
<td>Describes APIs that get or set SDP structure members.</td>
</tr>
<tr>
<td><code>sdp_get_connection(3n)</code></td>
<td>Describes APIs that get or set SDP structure members.</td>
</tr>
</tbody>
</table>
Table 1-1  Man Pages (continued)

<table>
<thead>
<tr>
<th>Man Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sdtp_get_media_info(3n)</td>
<td>Describes APIs that get or set SDP structure members for media descriptions.</td>
</tr>
<tr>
<td>sdtp_init(3n)</td>
<td>Describes sdtp_init that allocates space and initializes the SDP structures, and sdtp_free that frees the space allocated for the SDP structures.</td>
</tr>
<tr>
<td>sdtp_parse_buf(3n)</td>
<td>Describes sdtp_parse_buf that parses the buffer containing SDP descriptions and fills up the sdtp structure, and sdtp_create_buf that generates an SDP packet from the SDP structure,</td>
</tr>
</tbody>
</table>

**Known Problems and Workarounds**

There are no known problems in MSP.

**Installing MSP**

This chapter describes how to install the MSP Software Developer’s Kit (SDK) on the HP-UX 11i v1 and HP-UX 11i v2 operating systems.

**NOTE:** MSP is available in the HP-UX 11i v3 operating system as an optional product. You must select the MSP bundle (Media-Streaming) to install MSP while installing the HP-UX 11i v3 operating system.

This chapter addresses the following topics:

- “Prerequisites” (page 13)
- “Using swinstall to Install MSP” (page 13)
- “Installing the rtp and rtcp Kernel Modules” (page 14)
- Verifying the MSP Installation

**Prerequisites**

The following lists the prerequisites for installing MSP:

- HP systems running HP-UX 11i v1 or HP-UX 11i v2
- 1.3 MB of memory

**Using swinstall to Install MSP**

You can download the MSP software bundle from the following URL: http://www.software.hp.com

After downloading the software bundle, use the swinstall command to install the package on your system. You need not create or modify any system file while installing the MSP software on your system. The swinstall command creates and modifies
the necessary files on your system automatically. For more information about the swinstall command, see swinstall(1).

Installation Instructions

To install MSP on the HP-UX 11i v1 or HP-UX 11i v2 operating system, complete the following steps:

1. Review “Prerequisites” (page 13) to ensure your system meets MSP installation requirements.

2. To download the MSP software, complete the following steps:
   a. Go to the HP Software Depot at:
      
   b. Search for “MSP” and read the “Overview” and “Installation” pages for MSP.
   c. Select the Receive for Free >> option at the bottom right of the Overview page.
   d. Choose the MSP release for the HP-UX 11i v1 or HP-UX 11i v2 operating system.
   e. Enter your registration information, and read and accept the Terms and Conditions statements.
   f. Select Download at the bottom of the page and save the MSP depot to a local file on your system, for example, /tmp/MSP.depot.

3. Use the following swinstall command to install the MSP depot on your system:
   
   # swinstall -s <destination path>

   where:

   <destination path> specifies the absolute path of MSP depot on your system.

   **NOTE:** The swinstall command installs the library files and header files in the /usr/lib and /usr/include directories, respectively.

Installing the rtp and rtcp Kernel Modules

MSP contains the following Dynamically Loadable Kernel Modules (DLKM):

- rtp
- rtcp

The modules rtp and rtcp are automatically loaded after installing the MSP software. These modules are also loaded when you reboot your system after installing the MSP software.

If you wish to remove these modules and load them later, you can reload these modules manually using the kmadmin or the kcmodule command. You can also use the kmadmin or the kcmodule command to unload and query the status of these modules.
For the HP-UX 11i v1 Operating System

This section discusses the different kmadmin options that you use to load, unload, and query the status of the rtp and rtcp modules on the HP-UX 11i v1 operating system.

You can use the following command to load the rtp and rtcp kernel modules on the HP-UX 11i v1 operating system:

```
kmadmin -L rtp rtcp
```

You can use the following command to unload the rtp and rtcp kernel modules:

```
kmadmin -U rtp rtcp
```

You can use the following command to query the status of the rtp and rtcp kernel modules and to check if the modules are installed on the system:

```
kmadmin -Q rtp rtcp
```

For more information on the kmadmin command, type `man 1M kmadmin` at the HP-UX prompt.

For the HP-UX 11i v2 Operating System

This section discusses the different kcmodule options that you use to load, unload, and query the status of the rtp and rtcp modules on the HP-UX 11i v2 operating system.

You can use the following command to load the rtp and rtcp kernel modules:

```
kcmodule rtp=loaded rtcp=loaded
```

You can use the following command to unload the rtp and rtcp kernel modules:

```
kcmodule rtp=unused rtcp=unused
```

You can use the following command to query the status of the rtp and rtcp kernel modules and to check if the modules are installed properly on the system:

```
kcmodule -q rtp rtcp
```

For more information on kcmodule, type `man 1M kcmodule` at the HP-UX prompt.

Verifying the MSP Installation

To verify if the MSP depot is installed successfully on your system, run the following command:

```
# swlist <depot_name>
```

If the MSP depot is installed successfully, the following output is displayed:

- For the HP-UX 11i v1 operating system
  ```
  # swlist MSP
  # Initializing...
  # Contacting target "hosta"...
  #
  # Target:  hosta:/
  #
  ```
• For the HP-UX 11i v2 operating system
  # swlist MSP
  
  # Initializing...
  # Contacting target "hostb"...
  #
  # Target:  hostb:/
  #

  # swlist Media-Streaming
  
  # Initializing...
  # Contacting target "hostc"...
  #
  # Target:  hostc:/
  #

Software Availability in Native Languages

This version of MSP is not available in non-English languages.

Defect Fix

The defect fixed in this release of MSP is SR 8606273202.