
Protocol "D"

TCP/IP Protocol for controlling the dynamic routing engine

Fred Gleason

Table of Contents

Overview	1
Connection Management	2
Exit	2
Ping	2
Alarms	2
List Clips	2
List Silences	2
Subscribe Clips	3
Subscribe Silences	3
Information	3
List Destinations	3
List GPIs	4
List GPOs	4
List Nodes	5
List Sources	5
Subscribe Destinations	6
Subscribe GPIs	6
Subscribe GPOs	6
Subscribe Nodes	6
Subscribe Sources	7
Commands	7
Clear Audio Crosspoint	7
Clear GPIO Crosspoint	7
Set Audio Crosspoint	7
Set GPIO Crosspoint	8
Set GPO State	8
Set Virtual GPI State	8

Overview

Messages to the DRouter dynamic routing service are by means of a TCP SOCK_STREAM connection to TCP port 23883 on the host server.

Messages have the following general syntax:

cmd-code [*arg*] [. . .]**CR/LF**

cmd-code A single word, containing no whitespace, case-insensitive.

arg Zero or more arguments, delimited by a **TAB** character (ASCII 9).

CR/LF The ASCII character **CR** (13) followed by **LF** (10).

Connection Management

Messages for managing connections to the service.

Exit

Exit

Drop the TCP connection and end the session.

Ping

Ping

Causes the remote end to return a PONG message.

Alarms

Messages for receiving alarms and querying alarm states.

List Clips

ListClips

Return a list of records delineating the currently available CLIP alarms, including current state.

<i>CLIP</i>	The string CLIP
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the destination on the parent node (zero-based).
<i>type</i>	The type of signal. Valid types are INPUT or OUTOUT.
<i>chan</i>	The audio channel. Valid types are LEFT or RIGHT.
<i>state</i>	The alarm state. 1 means the alarm is active, whereas 0 means that it is inactive.

List Silences

ListSilences

Return a list of records delineating the currently available SILENCE alarms, including current state.

<i>CLIP</i>	The string SILENCE
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the destination on the parent node (zero-based).
<i>type</i>	The type of signal. Valid types are INPUT or OUTOUT.
<i>chan</i>	The audio channel. Valid types are LEFT or RIGHT.

state The alarm state. 1 means the alarm is active, whereas 0 means that it is inactive.

Subscribe Clips

SubscribeClips

Return a list of CLIPADD records delineating the currently active clip alarms, each record terminated by CR/LF (see the description of the CLIP message in the section called “List Clips” for a breakdown of the supplied fields). Whenever a new clip alarm is added, a corresponding CLIPADD record will be sent, while changes to an existing clip alarm will cause a CLIP record to be sent. Removal of an alarm from the system will generate a corresponding CLIPDEL record, containing the following fields:

<i>CLIPDEL</i>	The string CLIPDEL.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the destination on the parent node (zero-based).
<i>type</i>	The type of signal. Valid types are INPUT or OUTOUT.
<i>chan</i>	The audio channel. Valid types are LEFT or RIGHT.

Subscribe Silences

SubscribeSilences

Return a list of SILENCEADD records delineating the currently active silence alarms, each record terminated by CR/LF (see the description of the SILENCE message in the section called “List Silences” for a breakdown of the supplied fields). Whenever a new silence alarm is added, a corresponding SILENCEADD record will be sent, while changes to an existing silence alarm will cause a SILENCE record to be sent. Removal of an alarm from the system will generate a corresponding SILENCEDEL record, containing the following fields:

<i>SILENCEDEL</i>	The string SILENCEDEL.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the destination on the parent node (zero-based).
<i>type</i>	The type of signal. Valid types are INPUT or OUTOUT.
<i>chan</i>	The audio channel. Valid types are LEFT or RIGHT.

Information

Messages for enumerating resources and getting system information.

List Destinations

ListDestinations

Return a list of records delineating the currently available destinations, terminated by CR/LF. Each record contains the following fields, delimited by TAB (ASCII 9):

<i>DST</i>	The string DST.
------------	-----------------

<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the destination on the parent node (zero-based).
<i>host-name</i>	The host name of the parent node. Depending upon system configuration, this could be the name as programmed in the node or the name as reported via a DNS PTR lookup.
<i>stream-addr</i>	The IPv4 address of the stream configured to be received, in dotted-quad notation.
<i>dest-name</i>	The name of the destination.
<i>channels</i>	The number of channels capable of being received by this destination. Possible values include 1, 2 or 8.

List GPIs

ListGpis

Return a list of records delinieating the currently available GPIs, terminated by CR/LF. Each record contains the following fields, delimited by TAB (ASCII 9):

GPI	The string GPI.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the GPI on the parent node (zero-based).
<i>host-name</i>	The host name of the parent node. Depending upon system configuration, this could be the name as programmed in the node or the name as reported via a DNS PTR lookup.
<i>code</i>	A string representing the state of the GPI lines, in the format xxxxxx.

List GPOs

ListGpos

Return a list of records delinieating the currently available GPOs, terminated by CR/LF. Each record contains the following fields, delimited by TAB (ASCII 9):

GPO	The string GPO.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the GPO on the parent node (zero-based).
<i>host-name</i>	The host name of the parent node. Depending upon system configuration, this could be the name as programmed in the node or the name as reported via a DNS PTR lookup.
<i>code</i>	A string representing the state of the GPO lines, in the format xxxxxx.
<i>name</i>	The name of the GPO entry.
<i>src-host-addr</i>	The IPv4 address of the source GPI node, in dotted-quad notation.

src-slot The slot position number of the source GPI on the source node (zero-based).

List Nodes

ListNodes

Return a list of records delinieating the currently available nodes, terminated by CR/LF. Each record contains the following fields, delimited by TAB (ASCII 9):

<i>NODE</i>	The string NODE.
<i>host-addr</i>	The IPv4 address of the node, in dotted-quad notation.
<i>host-name</i>	The host name of the node. Depending upon system configuration, this could be the name as programmed in the node or the name as reported via a DNS PTR lookup.
<i>dev-name</i>	The LWRP device name.
<i>src-slots</i>	The number of source slot positions.
<i>dst-slots</i>	The number of destination slot positions.
<i>gpi-slots</i>	The number of GPI slot positions.
<i>gpo-slots</i>	The number of GPO slot positions.

List Sources

ListSources

Return a list of SRC records, delinieating the currently available sources, terminated by CR/LF. Each record contains the following fields, delimited by TAB (ASCII 9):

<i>SRC</i>	The string SRC.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the source on the parent node (zero-based).
<i>host-name</i>	The host name of the parent node. Depending upon system configuration, this could be the name as programmed in the node or the name as reported via a DNS PTR lookup.
<i>stream-addr</i>	The IPv4 stream address in dotted-quad notation.
<i>stream-name</i>	The name of the stream.
<i>stream-enabled</i>	The current state of the stream. 1 if enabled or 0 if disabled.
<i>channels</i>	The number of channels being carried by the stream. Possible values include 1, 2 or 8.
<i>block-size</i>	The number of PCM24 frames carried by each RTP packet. Possible values include 12 (Live Stereo), 60 (8 Channel Surround) and 240 (Standard Stereo/Mono).

Subscribe Destinations

SubscribeDestinations

Return a list of DSTADD records delineating the currently available destinations, each record terminated by CR/LF (see the description of the DST message in the **ListDestinations** command for a breakdown of the supplied fields). Whenever a new destination is added, a corresponding DSTADD record will be sent, while changes to an existing destination will cause a DST record to be sent. Removal of a destination from the system will generate a corresponding DSTDEL record, containing the following fields:

<i>DSTDEL</i>	The string DSTDEL.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the destination on the parent node (zero-based).

Subscribe GPIs

SubscribeGpis

Return a list of GPIADD records delineating the currently available GPIs, each record terminated by CR/LF (see the description of the GPI message in the **ListGpis** command for a breakdown of the supplied fields). Whenever a new GPI is added, a corresponding GPIADD record will be sent, while changes to an existing GPI will cause a GPI record to be sent. Removal of a GPI from the system will generate a corresponding GPIDEL record, containing the following fields:

<i>GPIDEL</i>	The string GPIDEL.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the GPI on the parent node (zero-based).

Subscribe GPOs

SubscribeGpos

Return a list of GPOADD records delineating the currently available GPOs, each record terminated by CR/LF (see the description of the GPO message in the **ListGpos** command for a breakdown of the supplied fields). Whenever a new GPO is added, a corresponding GPOADD record will be sent, while changes to an existing GPO will cause a GPO record to be sent. Removal of a GPO from the system will generate a corresponding GPODEL record, containing the following fields:

<i>GPODEL</i>	The string GPODEL.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the GPO on the parent node (zero-based).

Subscribe Nodes

SubscribeNodes

Return a list of NODEADD records delineating the currently available nodes, each record terminated by CR/LF. Subsequently, for each newly detected node, a corresponding NODEADD record will be sent, while

changes to an existing node will cause a NODE record to be sent. Removal of a node from the system will generate a corresponding NODEDEL record with the following fields:

NODEDEL	The string NODEDEL.
<i>host-addr</i>	The IPv4 address of the node, in dotted-quad notation.

Subscribe Sources

SubscribeSources

Return a list of SRCADD records deliniateing the currently available sources, each record terminated by CR/LF (see the description of the SRC message in the **ListSources** command for a breakdown of the supplied fields). Whenever a new source is added, a corresponding SRCADD record will be sent, while changes to an existing source will cause a SRC record to be sent. Removal of a source from the system will generate a corresponding SRCDEL record, containing the following fields:

SRCDEL	The string SRCDEL.
<i>host-addr</i>	The IPv4 address of the parent node, in dotted-quad notation.
<i>slot</i>	The slot position number of the source on the parent node (zero-based).

Commands

Messages for changing the state of managed resources.

Clear Audio Crosspoint

ClearCrosspoint *dst-host-addr dst-slot*

Clear the source to be received by an audio destination --i.e. mute the destination.

<i>dst-host-addr</i>	The IPv4 address of the destination node, in dotted-quad notation.
<i>dst-slot</i>	The slot position number of the destination on the parent node (zero-based).

Clear GPIO Crosspoint

ClearGpioCrosspoint *gpo-host-addr gpo-slot*

Clear the source to be received by a GPO.

<i>gpo-host-addr</i>	The IPv4 address of the GPO node, in dotted-quad notation.
<i>gpo-slot</i>	The slot position number of the GPO on the parent node (zero-based).

Set Audio Crosspoint

SetCrosspoint *dst-host-addr dst-slot src-host-addr src-slot*

Set the source to be received by an audio destination.

<i>dst-host-addr</i>	The IPv4 address of the destination node, in dotted-quad notation.
----------------------	--

<i>dst-slot</i>	The slot position number of the destination on the parent node (zero-based).
<i>src-host-addr</i>	The IPv4 address of the source node, in dotted-quad notation.
<i>src-slot</i>	The slot position number of the source on the parent node (zero-based).

Set GPIO Crosspoint

SetGpioCrosspoint *gpo-host-addr gpo-slot gpi-host-addr gpi-slot*

Set the source to be received by a GPO.

<i>gpo-host-addr</i>	The IPv4 address of the GPO node, in dotted-quad notation.
<i>gpo-slot</i>	The slot position number of the GPO on the parent node (zero-based).
<i>gpi-host-addr</i>	The IPv4 address of the GPI node, in dotted-quad notation.
<i>gpi-slot</i>	The slot position number of the GPI on the parent node (zero-based).

Set GPO State

SetGpoState *gpo-host-addr gpo-slot code*

Set the state of a GPO device.

<i>gpo-host-addr</i>	The IPv4 address of the GPO node, in dotted-quad notation.
<i>gpo-slot</i>	The slot position number of the GPO on the parent node (zero-based).
<i>code</i>	A string representing the state of the GPO lines, in the format xxxxxx.

Set Virtual GPI State

SetGpiState *gpi-host-addr gpi-slot code*

Set the state of a virtual GPI device.

<i>gpi-host-addr</i>	The IPv4 address of the virtual GPI node, in dotted-quad notation.
<i>gpi-slot</i>	The slot position number of the virtual GPI on the parent node (zero-based).
<i>code</i>	A string representing the state of the GPI lines, in the format xxxxxx.