

---

# Protocol "D"

TCP/IP Protocol for controlling the dynamic routing engine

Fred Gleason

## Table of Contents

Overview .....	2
Connection Management .....	2
Exit .....	2
Ping .....	2
Alarms .....	2
List Clips .....	2
List Silences .....	3
List Tether .....	3
Subscribe Clips .....	4
Subscribe Silences .....	4
Subscribe Tether .....	5
Information .....	5
List Destinations .....	5
List GPIs .....	5
List GPOs .....	6
List Nodes .....	6
List Sources .....	7
Subscribe Destinations .....	8
Subscribe GPIs .....	8
Subscribe GPOs .....	8
Subscribe Nodes .....	9
Subscribe Sources .....	9
Commands .....	9
Clear Audio Crosspoint .....	10
Clear GPIO Crosspoint .....	10
Set Audio Crosspoint .....	10
Set GPIO Crosspoint .....	10
Set GPO State .....	11
Set Virtual GPI State .....	11

## 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.
<i>state</i>	The alarm state. 1 means the alarm is active, whereas 0 means that it is inactive.

## List Tether

### ListTether

Return a record delinieating the current state of the tethering system, terminated by CR/LF. The record contains the following fields, delimited by TAB (ASCII 9):

TETHER	The string TETHER.
Y N	Indicates if the local <b>drouterd</b> (8) instance is (Y) or is not (N) active.

## Note

If tethering has been disabled in **drouter.conf(5)**, then this command will always return Y.

# Subscribe Clips

## SubscribeClips

Return a list of CLIPADD records delinieating 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:

CLIPDEL	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 delinieating 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:

SILENCEDEL	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.

## Subscribe Tether

### SubscribeTether

Return a record delinieating the current state of the tethering system, terminated by CR/LF (see the description of the `ListTether` message in the section the section called “List Tether” for a breakdown of the supplied fields). Whenever the state of the tethering system changes, a corresponding TETHER message will be sent.

## Information

Messages for enumerating resources and getting system information.

## List Destinations

### ListDestinations

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

<code>DST</code>	The string DST.
<code>host-addr</code>	The IPv4 address of the parent node, in dotted-quad notation.
<code>slot</code>	The slot position number of the destination on the parent node (zero-based).
<code>host-name</code>	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.
<code>stream-addr</code>	The IPv4 address of the stream configured to be received, in dotted-quad notation. A value of <code>239.192.0.0</code> indicates that no stream is currently configured to be received --i.e. the destination is muted.
<code>dest-name</code>	The name of the destination.
<code>channels</code>	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):

<i>GPI</i>	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 <code>xxxxxx</code> .

## 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):

<i>GPO</i>	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 <code>xxxxxx</code> .
<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.
<i>src-slot</i>	The slot position number of the source GPI on the source node (zero-based).

## List Nodes

### ListNodes

Return a list of records delineating 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, delineating 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 delinieating 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:

DSTDEL	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 delinieating 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:

GPIDEL	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 delinieating 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:

<i>NODEDEL</i>	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 delineating 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:

<i>SRCDEL</i>	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.

*dst-host-addr*                      The IPv4 address of the destination node, in dotted-quad notation.

*dst-slot*                              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.

*gpo-host-addr*                      The IPv4 address of the GPO node, in dotted-quad notation.

*gpo-slot*                              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.

*dst-host-addr*                      The IPv4 address of the destination node, in dotted-quad notation.

*dst-slot*                              The slot position number of the destination on the parent node (zero-based).

*src-host-addr*                      The IPv4 address of the source node, in dotted-quad notation.

*src-slot*                              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 <code>xxxxxx</code> .

## 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 <code>xxxxxx</code> .