
Software Authority Protocol

TCP/IP Protocol for controlling endpoint routers

Fred Gleason

Table of Contents

Overview	2
Protocol Command Syntax	2
Protocol Response Syntax	2
Booleans	3
Connection Management	3
Exit	3
Login	3
Quit	4
Configuration Discovery	4
List Destination Names [DestNames]	4
List Router Names [RouterNames]	5
List Snapshots [SnapShots]	5
List Source Names [SourceNames]	6
State Discovery	7
Get Crosspoint Route State [RouteStat]	7
Get General Purpose Input (GPI) State [GPIStat]	8
Get General Purpose Output (GPO) State [GPOStat]	8
Commands	9
Set Snapshot [ActivateSnap / ActivateScene]	9
Set Crosspoint Route [ActivateRoute]	10
Set General Purpose Input (GPI) State [TriggerGPI]	10
Set General Purpose Output (GPO) State [TriggerGPO]	11
Extended Protocol Messages	12
Mask GPIStat Update Messages	12
Mask GPOStat Update Messages	12
Mask RouteStat Update Messages	12
Mask All Update Messages	13

Overview

Messages to the Software Authority routing service are by means of a TCP SOCK_STREAM connection to TCP port 9500 on the host server.

Protocol Command Syntax

Commands from a control client to the service have the following general syntax:

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

cmd-phrase A single phrase, consisting of one or more "camel-case" words; containing no whitespace, case-insensitive.

arg Zero or more arguments, delimited by a **space** character (ASCII 32).

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

Protocol Response Syntax

Responses from the service to the control client take one of two possible forms:

State Updates

Single line message communicating a change of state, with the syntax:

resp-phrase [*arg*] [. . .]**CR/LF**

resp-phrase A single phrase, consisting of one or more "camel-case" words; containing no whitespace.

arg Zero or more arguments, delimited by a **space** character (ASCII 32).

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

Lists

Multi-line messages containing a list of multiple attributes. Lists are only sent in response to a command requesting them, and have the general format:

```
Begin cmd-phrase [- cmd-arg]CR/LF
    param1HTparam2HT[...]CR/LF
End cmd-phrase [- cmd-arg]CR/LF
```

Where:

cmd-phrase The command phrase issued by the client, consisting of one or more "camel-case" words; containing no whitespace.

cmd-arg An optional argument, provided by the command from the client.

HT The ASCII character **HT** [horizontal tab] (9).

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

A Begin/End block contains zero or more lines, each line consisting of HT delimited records.

Booleans

Those commands that require and/or return boolean values do so by using the strings **True** or **False**.

Connection Management

Messages for managing connections to the service.

Exit

Exit

Drop the TCP connection and end the session.

Login

Login *user-name password*

Authenticate to the service.

Note

On the Drouter system, the **Login** command does nothing, and will accept any combination of *user-name* and *password* as being valid. It is provided strictly for compatibility with clients designed to use PathFinder.

Quit

Quit

Drop the TCP connection and end the session.

Configuration Discovery

Messages for interrogating the system about its configuration. These commands all return list-type responses.

List Destination Names [DestNames]

DestNames *router-num*

Return a list of destination endpoints on the specified router.

Returns:

```
Begin DestNames - router-num
    endpt-num short-name long-name node-addr node-name node-slot
End DestNames - router-num
```

Example:

```
>>DestNames 2
Begin DestNames - 2
  1  Mackie 3/4  Mackie 3/4 ON FRED-XNODE  172.30.4.211  FRED-XNODE  1
  2  Mackie 5/6  Mackie 5/6 ON FRED-XNODE  172.30.4.211  FRED-XNODE  2
  3  Delta 1/2   Delta 1/2 ON FRED-XNODE  172.30.4.211  FRED-XNODE  3
  9  PGM 4      PGM 4 ON RDVIRT-SERV  172.30.4.212  RDVIRT-SERV  1
 10  PGM 3      PGM 3 ON RDVIRT-SERV  172.30.4.212  RDVIRT-SERV  2
```

End DestNames - 2

List Router Names [RouterNames]

RouterNames

Return a list of routers configured on this system.

Returns:

```
Begin RouterNames
    router-num router-name
End RouterNames
```

Example:

```
>>RouterNames
Begin RouterNames
    1 RFA-ALL
    2 Fred-Test
    3 Fred-GPIO-Test
    4 RFA_AIR_MC
    7 Rivendell-Test
    9 GPIO
    11 RFA_AIRPLAYS_BLUE
    12 RFA_AIRPLAYS_GOLD
End RouterNames
```

List Snapshots [SnapShots]

SnapShots *router-num*

Return a list of snapshots on the specified router.

Returns:

```
Begin SnapshotNames - router-num
    snapshot-name
End SourceNames - router-num
```

Example:

```
>>SnapshotNames 4
Begin SnapshotNames - 4
    BUR from FEED
    BUR from Studio 11
    TIB from MC
End SnapshotNames - 4
```

List Source Names [SourceNames]

SourceNames *router-num*

Return a list of source endpoints on the specified router.

Returns:

```
Begin SourceNames - router-num
    endpt-num short-name long-name node-addr node-name node-slot src-num stream-addr
End SourceNames - router-num
```

Example:

```
>>SourceNames 2
Begin SourceNames - 2
  1  Mackie Main  Mackie Main ON FRED-XNODE  172.30.4.211  FRED-XNODE  1  30001  239.192.117.49
  2  SRC 2      SRC 2 ON FRED-XNODE  172.30.4.211  FRED-XNODE  2  30002  239.192.117.50
  9  Rivenberry  Rivenberry ON RDVIRT-SERV  172.30.4.212  RDVIRT-SERV  1  30301  239.192.118.93
 10 SRC 2      SRC 2 ON RDVIRT-SERV  172.30.4.212  RDVIRT-SERV  2  30302  239.192.118.94
```

End SourceNames - 2

State Discovery

Messages for interrogating the system about its current state. These commands all return single-line style responses.

Get Crosspoint Route State [RouteStat]

RouteStat *router-num* [*endpt-num*]

If the *endpt-num* argument is omitted, the system will send RouteStat messages for *all* of the destinations that belong to the specified *router-num*.

Interrogate one or more destinations for their connected source. Returns messages of the following form:

RouteStat *router-num* *dest-endpt-num* *src-endpt-num* *lock-active*

Note

The *lock-active* field will *always* be "False" on Drouter as Drouter does not support the notion of locking routes.

A returned value of "0" for *src-endpt-num* indicates that the respective destination is either disconnected, or connected to a source that is not a member of the specified *router-num*.

Example (single destination):

```
>>RouteStat 2 2
RouteStat 2 2 17 False
```

Example (entire router):

```
>>RouteStat 2
RouteStat 2 1 17 False
RouteStat 2 2 2 False
RouteStat 2 3 0 False
RouteStat 2 9 1 False
```

```
RouteStat 2 10 1 False
```

Get General Purpose Input (GPI) State [GPISat]

GPISat *router-num* [*endpt-num*]

If the *endpt-num* argument is omitted, the system will send GPISat messages for *all* of the sources that belong to the specified *router-num*.

Interrogate one or more sources for their GPI state. Returns messages of the following form:

```
GPISat router-num endpt-num state-str
```

The returned *state-str* will be a five character string indicating the low (l) or high (h) state of the respective GPI source.

Note

An error will be returned if the specified *router-num* is not a GPIO router.

Example (single source):

```
>>GPISat 3 11
GPISat 3 11 lhlhh
```

Example (entire router):

```
>>GPISat 3
GPISat 3 1 lhlhh
GPISat 3 2 hhhhh
GPISat 3 3 hlhhh
GPISat 3 4 hhhhh
GPISat 3 5 hhhhh
GPISat 3 6 hhhhh
```

Get General Purpose Output (GPO) State [GPOStat]

GPOStat *router-num* [*endpt-num*]

If the *endpt-num* argument is omitted, the system will send `GPOStat` messages for *all* of the destinations that belong to the specified *router-num*.

Interrogate one or more sources for their GPO state. Returns messages of the following form:

`GPOStat router-num endpt-num state-str`

The returned *state-str* will be a five character string indicating the low (l) or high (h) state of the respective GPO destination.

Note

An error will be returned if the specified *router-num* is not a GPIO router.

Example (single source):

```
>>GPOStat 3 11
GPOStat 3 11 lhlhh
```

Example (entire router):

```
>>GPOStat 3
GPOStat 3 1 lhlhh
GPOStat 3 2 hhhhh
GPOStat 3 3 hlhhh
GPOStat 3 4 hhhhh
GPOStat 3 5 hhhhh
GPOStat 3 6 hhhhh
```

Commands

Messages for actively changing the state of the system.

Set Snapshot [ActivateSnap / ActivateScene]

ActivateSnap *router-num snapshot-name*

The system will respond with zero or more **RouteStat** messages to reflect changed crosspoint states.

Note

ActivateScene is merely a synonym for **ActivateSnap**. The syntax and operation of the two commands are identical.

Example:

```
>>ActivateSnap 4 MAN from MC
RouteStat 4 3 9 False
RouteStat 7 3 0 False
RouteStat 1 5045 1953 False
```

Set Crosspoint Route [ActivateRoute]

ActivateRoute *router-num dest-endpt-num src-endpt-num*

The system will respond with zero or more **RouteStat** messages to reflect changed crosspoint state.

Example:

```
>>ActivateRoute 2 3 9
RouteStat 2 3 9 False
RouteStat 7 3 0 False
RouteStat 1 5045 1953 False
```

Set General Purpose Input (GPI) State [TriggerGPI]

TriggerGPI *router-num src-endpt-num state-str [duration]*

The specified *state-str* should be a five character string indicating the state to which to set the specified GPI endpoint. Valid characters are:

- h** Set the corresponding line to the HIGH state.
- l** Set the corresponding line to the LOW state.
- x** Leave the corresponding line state UNCHANGED.

Caution

The *duration* parameter exists solely for compatibility with PathFinder. Drouter does not support setting momentary GPI states, thus, any *duration* parameter given on Drouter will be silently ignored.

Note

An error will be returned if the specified *router-num* is not a GPIO router.

The system will respond with zero or more **GPIStat** messages to reflect changed GPI state. Only virtual GPIO devices can have their GPI state set remotely; attempts to do so to physical GPI devices will be silently ignored.

Example:

```
>>TriggerGPI 3 11 xxlxx
GPIStat 3 11 hhlhh
```

Set General Purpose Output (GPO) State [TriggerGPO]

TriggerGPO *router-num dest-endpt-num state-str [duration]*

The specified *state-str* should be a five character string indicating the state to which to set the specified GPO endpoint. Valid characters are:

- h** Set the corresponding line to the HIGH state.
- l** Set the corresponding line to the LOW state.
- x** Leave the corresponding line state UNCHANGED.

Caution

The *duration* parameter exists solely for compatibility with PathFinder. Drouter does not support setting momentary GPO states, thus, any *duration* parameter given on Drouter will be silently ignored.

Note

An error will be returned if the specified *router-num* is not a GPOO router.

The system will respond with zero or more **GPOStat** messages to reflect changed GPO state.

Example:

```
>>TriggerGPO 3 11 xxlxx  
GPOStat 3 11 hhlhh
```

Extended Protocol Messages

Caution

The messages described in this section are all "extended" inasmuch as they are Drouter-specific extensions to Software Authority Protocol. Hence, they are not present in non-Drouter implementations of the protocol!

Mask GPIStat Update Messages

DrouterMaskGPIStat True | False

If set to **True**, this command will suppress any **GPIStat** response message(s) that would otherwise have been received on the connection upon which it was issued.

Note

The **DrouterMaskGPIStat** command affects only the specific protocol connection in which it is used.

Mask GPOStat Update Messages

DrouterMaskGPOStat True | False

If set to **True**, this command will suppress any **GPOStat** response message(s) that would otherwise have been received on the connection upon which it was issued.

Note

The **DrouterMaskGPOStat** command affects only the specific protocol connection in which it is used.

Mask RouteStat Update Messages

DrouterMaskRouteStat True | False

If set to **True**, this command will suppress any **RouteStat** response message(s) that would otherwise have been received on the connection upon which it was issued.

Note

The **DrouterMaskRouteStat** command affects only the specific protocol connection in which it is used.

Mask All Update Messages

DrouterMaskStat **True** | **False**

If set to **True**, this command will suppress all route state update messages --i.e. **GPIStat**, **GPOStat** and **RouteStat** messages -- that would otherwise have been received on the connection upon which it was issued.

Note

The **DrouterMaskRouteStat** command affects only the specific protocol connection in which it is used.