IneoQuest Tcl API

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Chapter 1

IneoQuest Tcl API Reference Manual

1.1 General API Information

The IneoQuest Tcl support for controlling Singulus boxes consists of two libraries.

- The C-API library provides support for controlling and communicating with IneoQuest Singulus boxes.
- The Tcl-API provides a bridge to allow Tcl scripts to make calls into the C-API library.

The Tcl-API provides different levels of abstraction built atop the “bare-metal” firmware commands supported by the C-API. The Tcl-API methods mostly correspond to C methods, but provide an easier programming methodology than structured C. There also exists a Command-Line Interface Framework.

In addition to these libraries, the Tcl-API methods are documented in the pdf file installed into the /doc directory. Several Tcl scripts are installed into the /scripts directory. These scripts provide a basic example on how to use the Tcl-API.

Chapter 2

Command Line Interface for IneoQuest Tcl API

The Command-Line Interface (CLI) provides a simple and automatable means to run standardized tests for IneoQuest devices.

The CLI wraps around the lower-level Tcl methods, aggregates them into common control flows, and further collects these tasks into more user-friendly, and market-specific tests for automated testing systems.

```
---------------------------------------------------------------------
| Host (Windows, Linux, Solaris server)                             |
---------------------------------------------------------------------
...                                                               ...
---------------------------------------------------------------------
| CLI Tests        |                                                |
|   Stimulus mode  |   DropPID                                      |
|                  |   GeneralStimTest                              |
|                  |                                                |
|   Analysis mode  |   CheckFLows                                   |
|                  |   TriggerCapture                               |
|                  |  ... etc ...                                   |
------------------|--------------------------------------------------
| CLI Methods      |  ConfigDutyCycles                              |
|                  |  CauseDropPID                                  |
|                  |  UndoDropPID                                   |
|                  |  CauseIPJitter                                 |
|                  |  ... etc ...                                   |
---------------------------------------------------------------------
| Generic procs    |    ConnectTo     | CloseOldConnections    | etc   |
---------------------------------------------------------------------
| Tcl API methods  | iqtcl_ConnectTo  | iqtcl_CloseConnection  | etc   |
---------------------------------------------------------------------
| C API methods    |   Connect        | Close                  | etc   |
---------------------------------------------------------------------
...                                                               ...
---------------------------------------------------------------------
| Target (G1-T in Stimulus or Analysis mode; IP/QAM Crickets, etc)  |
---------------------------------------------------------------------
```

The CLI supports both Stimulus and Analysis modes of operation to generate video flows and gather information about video flows, respectively, and provides Analysis Reports and Stimulus Tests.

The overall test setup used in the CLI is to have a stimulus engine providing video flows through a set of devices under test to an analysis engine. Both engines are controlled via a host running the Tcl-API CLI.

```
  -------------------      --------------      -------------------
  | STIMULUS ENGINE | ---> |  DEVICE(S) | ---> | ANALYSIS ENGINE |
  |                 |      |  UNDER     |      |                 |
  | G1-T            |      |  TEST      |      | IP Cricket      |
  | G10             |      --------------      | QAM Cricket     |
  | MediaStimulus   |                          | MediaAnalyzer   |
  | etc             |                          | etc             |
  -------------------                          -------------------
```

The Stimulus Tests are a collection of standard examples typically needed by IneoQuest customers to perform tests on and measurements of their device(s) under test (DUT). The fundamental context of a test is to perform some action in time. The action itself is the event, the timing is split into the time in in which the event is active (called the event duration) and the time in which it is inactive. Repeating a test, the total active/inactive event time required is periodic (called the event period). The total test time can be a single or multiple time periods.

In an engineering context, this timing is described by duty cycles and can be described by the figure below:

```
               |      |                      |                      |       |
               |<---->|<- EVENT PERIOD (Y) ->|<- EVENT PERIOD (Y) ->|       |
               |      |                      |                      |       |
               | Wait |                      |                      |       |
               | Time |                      |                      |       |
Active State   |      |__________            |__________            |       |
               |      |<-------->|           |<-------->|           |       |
               |      |   Event  |           |   Event  |           |       |
Inactive State |_...._| Duration |___________| Duration |___________|__...__|
               |      |    (X)               |    (X)               |       |
               |<-------------------- TOTAL TEST TIME --------------------->|
```

Variability in Stimulus Tests is provided by configuration files which set the parameters and act as a way to build, deploy, and repeatedly run standard tests on multiple systems.

For Analysis mode reporting, the parameters include which fields to query during the analysis. IneoQuest hardware utilizes the concept of a Flow Census, which aggregates the metrics associated with video flows being analyzed. The Tcl-API will query the hardware for data from the Census and provide the processed information via analysis procedures.

2.1 Stimulus-Mode Configuration Files

This section discusses the format for a Stimulus Configuration File. When the CLI framework is in Stimulus-mode, configuration files specify details of the stimuli. These details include the:

- Target(s) running the Stimulus engine
- Duty Cycle parameters (because stimulus sessions are connection-based and not threaded, duty cycles are per-target)
- Flow encapsulation parameters
- PID information (for Stim Tests performing actions on specific PIDs)

Stimulus targets are given as IP addresses. Each target is associated with a duty cycle, the format of which is: `duration=X period=Y` where `X` is the active event duration and `Y` is the event period of the cycle.

The format of a flow defines space-delimited encapsulation parameters as follows:

- srcMac: Source MAC address
- dstMac: Destination MAC address
- vlanID: VLAN ID
- TosField: TOS Field
- srcIP: Source IP address
- dstIP: Destination IP address
- srcPort: Source port
- dstPort: Destination port

- RtpType: RTP type
- EncType: Encapsulation type
  - 0: Eth2/IP/UDP encapsulation
  - 1: Eth2/IP/UDP/RTP encapsulation
  - 2: Eth2-VLAN/IP/UDP encapsulation
  - 3: Eth2-VLAN/IP/UDP/RTP encapsulation
- StimFile: Stimulus File (TS)
- StimPort: Stimulus Port (0 or 1)
- numStreams: Number of streams to replicate for stim

Example:

The following would create a stimulus of 24 flows across Port 0 of the transport stream file SPTS.ts from a source MAC of 00:08:D4:00:00:01, source IP address of 10.0.17.76, source port 8888 to a destination MAC of 00:08:D4:00:00:02, destination IP address of 10.0.17.87, destination port of 8890:

```
0008D4000001 0008D4000002 0 0 10.0.17.76 10.0.17.87 8888 8890 0 0 SPTS.ts 0 24
```

Comments are lines beginning with #.

The following is an example Stimulus-mode configuration file:

```
# Comment Line
TARGETS: 192.168.1.2
    DutyCycle: duration=15 period=60
    FLOW: 000000000001 000000000002 0 0 0.0.0.1 0.0.0.2 1024 2048 0 0 SPTS.ts 0 9
            PID: 4130 4131
            DropIP: 10 in 100
            DFJitter: start=400 stop=1200 stride=400
            IPJitter: 10 in 1000

    FLOW: 000000000003 000000000004 0 0 0.0.0.3 0.0.0.4 1024 2048 0 0 SPTS.ts 1 7
            DropIP: 10 in 100
            PID: 4131
            DFJitter: start=400 stop=1000 stride=50
            IPJitter: 10 in 100
```

2.2 Analysis-Mode Configuration Files

This section discusses the format of an Analysis Configuration File. When the CLI framework is in Analysis-mode, configuration files specify details of the analyses. These details depend on whether the Analysis target is monitoring video feeds delivered by RF or IP. The type of analysis needs to be described on the first line of the analysis configuration file.

A feature of this analysis framework is to confirm quality of video delivery within certain tolerance limits. Similar to engineering data-sheets, these limits can be described in terms of a minimum value, maximum value, and expected value with a threshold plus or minus the expected value. Therefore, the analysis-mode configuration file uses a key-value pairing and individual fields specifying quality. For PID-level parameters, the key-value described the PID number, and the fields describe data available from the probe's census. Fields below the min, above the max, or outside of the expected plus-or-minus the threshold percentage effect Fail conditions - otherwise, the test is a Pass.

Currently the PID-level metrics supported are the `BitRate, OutageCount,` and `OutageSec` fields.

If the analysis is of RF type, you can group channels and specify how much time to spend scanning each channel in the group. If IP type, the Flow parameters are specified.

An example FP-type configuration file running on 5 QAM probes, scanning different channels for different scan times, with associated PID-level datasheet parameters follows (indentation is important, indents are tabs):

```
type=rf

TARGETS: 192.168.2.1 192.168.2.2 192.168.2.3
        DefaultCaptureTime: 10

        CHANNELS: 45 48 72 73 74
                ScanTime: 30
                CaptureTime: 60

        PID: 1984
                BitRate: min=754000 exp=1925112 th=.05 max=5712192
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
        PID: 1985
                BitRate: min=19400 exp=195520 th=.05 max=200000
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0

        CHANNELS: 92 93 94 100 101 102 103 104
                ScanTime: 45
                CaptureTime: 60

        PID: 2048
                BitRate: min=754000 exp=1925112 th=.05 max=5712192
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
        PID: 2049
                BitRate: min=19400 exp=195520 th=.05 max=200000
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0

TARGETS: 192.168.2.4 192.168.2.5
        DefaultCaptureTime: 10

        CHANNELS: 76 77 78 79 82 83 84 85 86 87 88 89
                ScanTime: 60
                CaptureTime: 60

        PID: 1984
                BitRate: min=754000 exp=1925112 th=.05 max=5712192
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
        PID: 1985
                BitRate: min=19400 exp=195520 th=.05 max=200000
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
        CHANNELS: 109 110 111 112 113 114 115 116 117 118 119 120 121 122
                ScanTime: 30
                CaptureTime: 60

        PID: 2010
                BitRate: min=754000 exp=1925112 th=.05 max=5712192
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
        PID: 2011
                BitRate: min=19400 exp=195520 th=.05 max=200000
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
```

For IP-type analysis, the format of the Flow parameter is similar to that of a Stimulus configuration file, but only requires the IP parameters (source IP, destination IP, sort port, destination port).

For example:

```
type=ip

TARGETS: 192.168.3.1 192.168.3.2
        DefaultCaptureTime: 10

        FLOW: 0.0.0.1 0.0.0.2 1024 2048
                ScanTime: 5
                CaptureTime: 60

        PID: 4130
                BitRate: min=754000 exp=1925112 th=.05 max=5712192
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
        PID: 4131
                BitRate: min=19400 exp=195520 th=.05 max=200000
                OutageCount: min=0 exp=0 th=0.0 max=0
                OutageSec: min=0 exp=0 th=0.0 max=0
```

2.3 CLI Simulus-Mode Examples

This section presents some examples for the CLI framework when controlling Stimulus Tests. The CLI is intended to run on a command line session and to take command-line arguments specifying the mode to run in, the test or report to run, and any other options. For Stimlus-mode, commands should be of the form:

```
./CLI.tcl stimulus [TEST] [CONFIG FILE] [TOTAL TEST TIME (s)] [WAIT TIME (s)]
```

The total test and wait times are described above in the figure showing duty cycles.

You can see which tests are supported by running this command:

```
./CLI.tcl stimulus list
```

Currently, the following tests are supported:

- DropPID - drops a specific program ID from the flow

- PassPID - passes a PID
- DropIP - drops N IP packets in M total packets
- IPJitter - introduces IP jitter
- DFJitter - introduces DF jitter
- GeneralTest - runs through above tests, escalating monitor states

2.4 CLI Analysis-Mode Examples

This section presents some examples for the CLI framework when controlling Analysis Reports. The CLI is intended to run on a command line session and to take command-line arguments specifying the mode to run in, the test or report to run, and any other options. For Stimlus-mode, commands should be of the form:

```
./CLI.tcl analysis [TEST] [CONFIG FILE]
```

You can see which tests are supported by running this command:

```
./CLI.tcl analysis list
```

Currently, the following tests are supported:

- CheckFlows - check flow parameters in a data-sheet like form
- TriggerCaptureActive - capture first flow or active channel

2.4.1 Check Flow Parameters

The IQ probe hardware supports monitoring video feeds that are delivered via RF or IP, described above in Analysis-Mode Configuration Files. Here is example output of for an IP Cricket. In this example, PIDs 4130 and 4131 are dropped out of the flow.

```
[mgb cli]$ ./CLI.tcl analysis CheckFlows ./config/IPExample.txt
Running CheckFlows on 1 probe(s)
 Program 1/1: Pid 4130 CurrBR value 0: less than min value of 754000
 Program 1/1: Pid 4130 OutageSec value 13: more than max value of 0
 Program 1/1: Pid 4131 CurrBR value 0: less than min value of 19400
192.168.3.1 Failed CheckFlows
CheckFlows complete: 0/1 passed
```

2.4.2 Trigger Video Captures

For an RF feed, the Trigger Capture will immediately start capturing video on the active channel (in this case channel 80, 81):

```
[mgb cli]$ ./CLI.tcl analysis TriggerCaptureActive ./config/QAMExample.txt
Running TriggerCaptureActive on 2 probe(s)
```

```
->CAPTURE TRIGGERED (10000 ms) on 192.168.2.1
  Time   500 ms:  Post-buffer is 0.000% complete
  Time  1500 ms:  Post-buffer is 0.680% complete
  Time  2500 ms:  Post-buffer is 1.680% complete
  Time  3500 ms:  Post-buffer is 2.380% complete
  Time  4500 ms:  Post-buffer is 3.101% complete
  Time  5500 ms:  Post-buffer is 3.938% complete
  Time  6500 ms:  Post-buffer is 4.747% complete
  Time  7500 ms:  Post-buffer is 5.556% complete
  Time  8500 ms:  Post-buffer is 6.365% complete
  Time  9500 ms:  Post-buffer is 7.175% complete
done
Stopping record.........done

Uploading recording.....done
192.168.2.1 Passed TriggerCaptureActive

->CAPTURE TRIGGERED (10000 ms) on 192.168.2.2
  Time   600 ms:  Post-buffer is 0.057% complete
  Time  1600 ms:  Post-buffer is 0.709% complete
  Time  2600 ms:  Post-buffer is 1.360% complete
  Time  3600 ms:  Post-buffer is 2.012% complete
  Time  4600 ms:  Post-buffer is 2.663% complete
  Time  5600 ms:  Post-buffer is 3.315% complete
  Time  6600 ms:  Post-buffer is 3.966% complete
  Time  7600 ms:  Post-buffer is 4.615% complete
  Time  8600 ms:  Post-buffer is 5.267% complete
  Time  9600 ms:  Post-buffer is 5.918% complete
done
Stopping record.........done

Uploading recording.....done
192.168.2.2 Passed TriggerCaptureActive
TriggerCaptureActive complete: 2/2 passed

[mgb cli]$ ls *.ts
TriggerRecording-192.168.2.1-Chan_80.ts
TriggerRecording-192.168.2.2-Chan_81.ts
```

Chapter 3

Tcl Documentation Revision History

3.1 Revision History

2005-2006	Date	Description
1.0	January 22, 2005	Initial Release
2.0	May 31, 2005	Tcl API Version 2.0 specification
2.1	July 28, 2005	Tcl API Version 2.1 specification
2.2	August 8, 2005	Documented 'Tracer' to 'Default' name change
2.3	August 11, 2005	Added STB methods and documentation
2.4	August 31, 2005	Added iqtcl_ClearSTBDefines method
2.5	September 8, 2005	Added iqtcl_ClearAlarms method
2.6	September 21, 2005	Added iqtcl_SendSyslogMsg method
2.7	October 3, 2005	Added iqtcl_AddArpProxy, iqtcl_RemoveArpProxy, iqtcl_ClearArpProxyTable, iqtcl_SendPacketRaw methods
2.8	October 14, 2005	Added iqtcl_SendCustomCommand method
2.9	October 31, 2005	Modified iqtcl_GetCensusTable and iqtcl_GetCensusTableItem to take in column sep.
2.10	December 12, 2005	Added iqtcl_ClearStreamStats
2.11	January 27, 2006	Tcl API Version 2.2 specification Added iqtcl_GetPortCounterByIndex Added iqtcl_GetPortCounterTableItem Fixed incorrect $portvalue constants in iqtcl_StartStimulus documentation Added user defined separator capability toPortCounter strings Added ability to not loop in iqtcl_StartStimulus documentation Changed portvalue constants in PortCounter methods for consistency
2.12	February 16, 2006	Fixed case mismatches in function documentation Added iqtcl_SendTargetSyslogMsg

2007-2008	Date	Description
2.13	July 05, 2007	Version 2.7 Specification Added QAM Methods.
2.14	September 18, 2007	Added name=value census retrieval methods iqtcl_GetCensusTableItemTagged iqtcl_GetQAMTableItemTagged
2.15	January 7, 2008	Added name=value census retrieval methods: iqtcl_GetProgramTableTagged iqtcl_GetPidTableTagged Added MAC retrieval Method: iqtcl_GetMACAddress
2.16	March 27, 2008	Added new functions and documentation: General Methods General Methods: iqtcl_GetTotalAvailableMemory QAM Methods QAM Methods: iqtcl_QAMGetActiveChannel, iqtcl_QAMGetStreamID Record Methods Record Methods: iqtcl_SaveUploadRecordToFile, iqtcl_IsHostReadyForDownload, iqtcl_IsRecordDownloadComplete iqtcl_SetTriggerPos, iqtcl_AddTriggerCondition, iqtcl_RemoveTriggerCondition, iqtcl_GetTriggerStatus iqtcl_IsRecordTriggered, iqtcl_StartRecord_TriggerPos

2009	Date	Description
2.17	March 30, 2009	Synch'd functions and documentation with current firmware
2.18	August 13, 2009	Corrected functions documentation: Connection Methods Connection Methods: iqtcl_SaveSessionData, iqtcl_ResumeSession, iqtcl_RetrieveSessionData
2.19	August 19, 2009	Added Data Structure Documentation: tIXF18103CTRS, tNemoCtrs, tTritenCtrs
2.20	August 24, 2009	Corrected data structure: tTUNERSTATS, removed structures tCENCAP, tCENSUSLOOKUP

Chapter 4

Installation Procedure

The IQ Tcl-API has support for Windows, Linux, and Solaris. All platforms require a Tcl interpreter. IneoQuest requires Active State's Active Tcl, available for free download at http://activestate.com. Please download and install this Tcl runtime environment before proceeding.

For all OSes, the installation process involves the following steps:

1. Install the ActiveState Active Tcl for your OS
2. Install the IQ Tcl-API for your OS
3. Add environment variables needed to link Active Tcl and IQ Tcl-API, and to make the OS aware of the Active Tcl and IQ Tcl-API libraries. There are IQ Tcl-API library files: one that provides the fundamental routines written in C used by many IneoQuest software products (the C API library), and one that provides the routines for Tcl (the Tcl API library).

On all OSes, you can verify the installation by first checking that the Tcl-API libraries are available. Start a Tcl shell, and type the following:

```
package require iqtclapid
```

If successful, you should see the Tcl API version number in response.

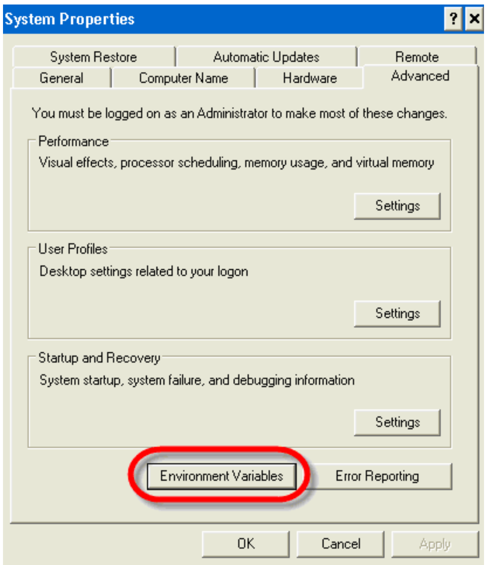
Example Tcl scripts making use of the API are in the `examples` directory wherever the Tcl-API was installed.

4.1 Installation on Windows

The IQ Tcl-API is included as part of the IQ Media Software Suite. You will need to obtain and install this software. To obtain a copy of the installer or if you have questions about installation, please email techsupport@ineoquest.com or call 1-866-GO4-INEO (1-866-464-4636).

4.1.1 Setting Windows Environment Variables

You will need to add entries to the Windows system default environment variables to link Active Tcl and IQ Tcl-API, and to make Windows aware of their libraries. The C API library goes into C:\Program Files\IneoQuest\Common (as it is used by other IneoQuest software products) and the Tcl API goes into C:\Program Files\IneoQuest\Tcl Go to My Computer - Properties - Advanced tab and click on Environment Variables.

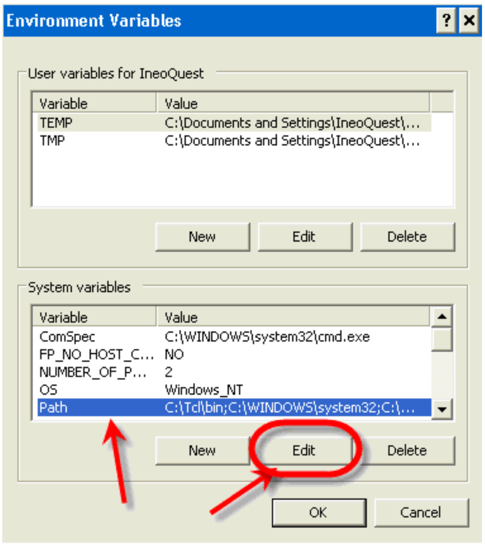


You must be logged on as an Administrator to make most of these changes.

Visual effects, processor scheduling, memory usage, and virtual memory

Desktop settings related to your logon

System startup, system failure, and debugging information



User variables for IneoQuest

Variable	Value
TEMP	C:\Documents and Settings\IneoQuest\...
TMP	C:\Documents and Settings\IneoQuest\...

System variables

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
FP_NO_HOST_C...	NO
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\Tcl\bin;C:\WINDOWS\system32;C:\...

The <Path environment variable needs the following at the end of the line (each value needs to be separated with a semi-colon):

```
;C:\Program Files\IneoQuest\Tcl;C:\Program Files\IneoQuest\Common;
```

The TCLLIBPATH environment variable needs to be set to

```
C:/Program\ Files/IneoQuest/Tcl
```

The slashes should be exactly as described because Active Tcl uses a Unix-like file hierarchy. The backslash is an escape character which allows Tcl to parse the space between “Program” and “Files”.

4.2 Installation on Linux

The IQ Tcl-API for Linux requires Red Hat Enterprise Linux 5, and ActiveState’s Active Tcl for Linux. Installation is performed using a self-extracting shell script which performs the needed tasks to add the ineoquest-iqapi RedHat package manager (RPM).

For the self-extracting shell installer, you can install the IQ Tcl-API via the comand:

```
./IQapi-1.0.5_Linux.sh
```

You should something like the following text:

```
bash$ ./IQapi-1.0.5_Linux.sh
```

The Tcl-API for Linux installer will install to /opt/ineoquest/iqapi . If you are not running the installer as root, the installer will not continue as superuser privileges are needed to add the software to the RPM database.

4.2.1 Linux Environment Variables

A shortcut is to edit your shell login to source the shell script /opt/ineoquest/iqapi/etc/ appropriate for your default Linux shell (currently bash and csh are supported).

The environment variables that need to be set are TCLLIBPATH, LD_LIBRARY_PATH, and PATH. Some of the settings depend on where Active Tcl is installed.

In the Bash shell, you can set these environment variables by typing:

```
export TCL_HOME=[Location where Active Tcl was installed]
export IQ_API_HOME=/opt/ineoquest/iqapi

export LD_LIBRARY_PATH=$TCL_HOME/lib:$IQ_API_HOME/lib:$LD_LIBRARY_PATH
export TCLLIBPATH=$IQ_API_HOME/lib
export PATH=$PATH:$TCL_HOME/bin
```

Similarly, in the Csh shell:

```
setenv TCL_HOME=[Location where Active Tcl was installed]
setenv IQ_API_HOME=/opt/ineoquest/iqapi

setenv LD_LIBRARY_PATH "$TCL_HOME/lib:$IQ_API_HOME/lib:$LD_LIBRARY_PATH"
setenv TCLLIBPATH $IQ_API_HOME/lib
set path=($path $TCL_HOME)
```

But note that these settings will not be persistent in another Linux shell session. By following the shortcut mentioned above, shell sessions will load these defaults.

4.3 Installation on Solaris

Two installation methods are supported under Solaris: using standard Sun PKG packages and using a self-extracting shell installer.

For those familiar with PKGs, you can install the IQ Tcl-API via the command:

```
pkgadd -d IQapi-1.0.5.pkg
```

For the self-extracting shell installer, you can install the IQ Tcl-API via the command:

```
./IQapi-1.0.5_Solaris.sh
```

You should something like the following text:

```
bash-2.03$ ./IQapi-1.0.5_Solaris.sh
Installing IQ API 1.0.5
The default directory /opt/ineoquest does not exist.
Would you like this installer to create this directory?
no
Would you rather install into your
home directory?
yes
Unarchiving activetcl.tar.gz Tcl distribution from ActiveState ... done
Unpacking IQ API for Solaris archive ... done
Direcotry /export/home/mgb/ineoquest/iqapi did not exist, creating now
Unarchiving IQ API for Solaris archive ... done
In order to properly run the IQ API Examples under a user account, you will
need to source the shell scripts in /opt/ineoquest/iqapi/etc depending on your
default shell.
 For BASH:
```

```
#!/bin/bash
. /export/home/mgb/ineoquest/iqapi/etc/bashrc
```

```
 For CSH:
```

```
source /export/home/mgb/ineoquest/iqapi/etc/csh.cshrc
```

4.3.1 Setting Solaris Environment Variables

For Solaris, the steps to set up the environment variables are similar to Linux, listed above. The exceptions come if you did not install using the PKG or installed using the shell installer but did not choose to install into the default location (rather choosing to install into your home directory). In this case, you will need to source the appropriate shell resource script.

Chapter 5

Module Documentation

5.1 Alarm Methods

Functions

- iqtcl_ClearAlarms
- iqtcl_ClearAlarmLog
- iqtcl_GetActiveAlarmFirst
- iqtcl_GetActiveAlarmNext
- iqtcl_GetActiveAlarmTable
- iqtcl_GetAlarmLogFirst
- iqtcl_GetAlarmLogNext
- iqtcl_GetAlarmLogTable

5.1.1 Detailed Description

Methods for ALARM

5.1.1.1 iqtcl_ClearAlarms

Clear any existing alarms on all streams.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearAlarms $connectID
```

See also:

5.1.1.2 iqtcl_ClearAlarmLog

Clears the alarm log.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearAlarmLog $connectID
```

See also:

5.1.1.3 iqtcl_GetActiveAlarmFirst

Returns the first entry in the Active Alarm table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structures:

- tALARMINFO
- tIPINFO
- tALARMHANDLE

Example

```
set alarmData [ iqtcl_GetActiveAlarmFirst $connectID ]
```

See also:

5.1.1.4 iqtcl_GetActiveAlarmNext

Returns the next entry in the Active Alarm table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***lastEntry*** The previous entry ID.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structures:

- tALARMINFO
- tIPINFO
- tALARMHANDLE

Example

```
set alarmData [ iqtcl_GetActiveAlarmNext $connectID $lastEntry ]
```

See also:

5.1.1.5 iqtcl_GetActiveAlarmTable

Returns a string representation of the Active Alarm table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A StringObj of the current Active Alarm table or TCL_ERROR.

Example

```
set strTable [ iqtcl_GetActiveAlarmTable $connectID ]
```

See also:

5.1.1.6 iqtcl_GetAlarmLogFirst

Returns the first entry in the Alarm Log table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structures:

- tALARMINFO
- tIPINFO
- tALARMHANDLE

Example

```
set alarmData [ iqtcl_GetAlarmLogFirst $connectID ]
```

See also:

5.1.1.7 iqtcl_GetAlarmLogNext

Returns the next entry in the Alarm Log table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***lastEntry*** The previous entry ID.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structures:

- tALARMINFO
- tIPINFO
- tALARMHANDLE

Example

```
set alarmData [ iqtcl_GetAlarmLogNext $connectID $lastEntry ]
```

See also:

5.1.1.8 iqtcl_GetAlarmLogTable

Returns a string representation of the Alarm Log table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A StringObj of the current Alarm Log table or TCL_ERROR.

Example

```
set strTable [ iqtcl_GetAlarmLogTable $connectID ]
```

See also:

5.2 Alias Methods

Functions

- iqtcl_GetAliasFirst
- iqtcl_GetAliasNext
- iqtcl_ClearAliases

5.2.1 Detailed Description

Group of alias methods

5.2.1.1 iqtcl_GetAliasFirst

Returns the first entry in the Alias table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structure:

- tALIASCONFIG

Example

```
set aliasData [ iqtcl_GetAliasFirst $connectID ]
```

See also:

5.2.1.2 iqtcl_GetAliasNext

Returns the next entry in the Alias table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***lastEntry*** The previous entry ID.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structure:

- tALIASCONFIG

Example

```
set aliasData [ iqtcl_GetAliasNext $connectID $lastEntry ]
```

See also:

5.2.1.3 iqtcl_ClearAliases

Clear aliases on probe.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearAliases $connectID
```

See also:

5.3 ASI Methods

Functions

- iqtcl_StartASIScan
- iqtcl_StopASIScan
- iqtcl_GetASIStatus
- iqtcl_ASILockStream
- iqtcl_ASIUnlockStream

5.3.1 Detailed Description

Methods for ASI

5.3.1.1 iqtcl_StartASIScan

Start the ASI scanning process.

Note:

The ASI scanning process will send out the locked in stream out the ASI port.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StartASIScan $connectID
```

See also:

iqtcl_StopASIScan
iqtcl_ASILockStream

5.3.1.2 iqtcl_StopASIScan

Stop the ASI scanning process.

Note:

The ASI scanning process will send out the locked in stream out the ASI port.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopASIScan $connectID
```

See also:

iqtcl_StartASIScan

5.3.1.3 iqtcl_GetASIStatus

Returns the status of the ASI process.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the request or TCL_ERROR. The data array will contain the following structure:

- tASISTATUS

Example

```
set status [ iqtcl_GetASIStatus $connectID ]
```

See also:

iqtcl_ASIUnlockStream

5.3.1.4 iqtcl_ASILockStream

Locks the requested stream into the ASI process.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested stream ID.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ASILockStream $connectID $streamID
```

See also:

iqtcl_ASIUnlockStream

5.3.1.5 iqtcl_ASIUnlockStream

Removes the requested stream from the ASI process.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested stream ID.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ASIUnlockStream $connectID $streamID
```

See also:

iqtcl_ASILockStream

5.4 Capture Methods

Functions

- iqtcl_OpenCapture
- iqtcl_OpenStreamCapture
- iqtcl_CloseCapture
- iqtcl_StartCapture
- iqtcl_StopCapture
- iqtcl_UploadCapture
- iqtcl_GetCaptureStatus

5.4.1 Detailed Description

Methods for capture

5.4.1.1 iqtcl_OpenCapture

Opens a new capture session.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A 32-bit capture Handle or TCL_ERROR.

Example

```
set captureHandle [ iqtcl_OpenCapture $connectID ]
```

See also:

5.4.1.2 iqtcl_OpenStreamCapture

Opens a new capture session setting a filter to capture only packets from a requested stream ID.

Note:

The stream ID is supplied as part of the census retrieval, or can be retrieved with the iqtcl_GetStreamID API call.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The stream ID to capture.

Returns:

A 32-bit capture Handle or TCL_ERROR.

Example

```
set captureHandle [ iqtclOpenStreamCapture $connectID $streamID ]
```

See also:

iqtcl_GetStreamID

5.4.1.3 iqtcl_CloseCapture

Closes the open capture session.

Note:

Closing the capture will release all resources reserved during the iqtcl_OpenCapture method.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***handleID*** The capture Handle ID returned from the OpenCapture method.

Returns:

TCL_OK or TCL_ERROR

Example

```
 iqtcl_CloseCapture $connectID handleID
```

See also:

iqtcl_OpenCapture

5.4.1.4 iqtcl_StartCapture

Start capturing packets on the wire.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***captureHandle*** The capture handle returned from the iqtcl_OpenCapture or iqtcl_OpenStreamCapture methods.

← ***flags*** A 32-bit flags bitmask value with the following bits defined:

1. 0x1: Circular/One Shot Mode
   (a) (Value = 1) One shot mode. Capture packets until buffer is full then stop.
   (b) (Value = 0) Capture into a circular buffer.
2. 0x2 = Record Headers
   (a) (Value = 1) Capture full packet headers with data.
   (b) (Value = 0) Capture packet data bytes only (Skip encapsulation headers).

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StartCapture $connectID $captureHandle $flags
```

See also:

5.4.1.5 iqtcl_StopCapture

Stop capturing packets on the wire.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***captureHandle*** The capture handle returned from the iqtcl_OpenCapture or iqtcl_OpenStreamCapture methods.

← ***upload*** A boolean indicating whether or not the captured packets should be uploaded from the FPGA after stopping the capture.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopCapture $connectID $captureHandle
```

See also:

5.4.1.6 iqtcl_UploadCapture

Upload the captured packet information from the target.

Note:

The capture upload will be done via a TCP connection. The requesting application should open a socket and listen. This local socket port is passed to the target as part of this API call. The target will connect to this listening socket and start sending captured packet information. When the target has completed sending the data it will close the connection. The packet data arrives in the following format:

- 16 bit tag ID: The tag ID is always 0xD.
- 16 bit data size: The data size is the total number of data bytes to follow, i.e. the number of bytes of packet data + 8 bytes for the timestamp.
- 64 bit timestamp: The timestamp has a 10ns resolution.
- n bits of packet data: The packet data may or may not include the packet encapsulation depending on what flags were passed into the iqtcl_StartCapture API method.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***captureHandle*** The capture handle returned from the iqtcl_OpenCapture or iqtcl_-OpenStreamCapture methods.

← ***tcport*** The socket port the target should connect to to start sending packets.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_UploadCapture $connectID $captureHandle $tcport
```

See also:

5.4.1.7 iqtcl_GetCaptureStatus

Get the status of the capture process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***captureHandle*** The capture Handle ID returned from the OpenCapture method.

Returns:

A Tcl_List structure or TCL_ERROR. The first item in the list is the Status flag defined as:

- 0 = INACTIVE - capture has inactive and ready to upload data
- 1 = ACTIVE - capture process is currently capturing packets
- 2 = DOWNLOADING - capture process is getting data from internal buffers
- 3 = UPLOADING - capture process is uploading data to host

The second item in the list is the number of packets in the capture buffer.

Example

```
set statusList [ iqtcl_GetCaptureStatus $connectID $captureHandle ]
```

See also:

iqtcl_OpenCapture

5.5 Census Methods

Functions

- iqtcl_GetCensusFirst
- iqtcl_GetCensusNext
- iqtcl_GetCensusByID
- iqtcl_GetNextCensusID
- iqtcl_GetStreamID
- iqtcl_ClearCensus
- iqtcl_ClearStream
- iqtcl_ClearStreamStats
- iqtcl_GetCensusTableItem
- iqtcl_GetCensusTableItemTagged
- iqtcl_GetQAMTableItem
- iqtcl_GetQAMTableItemTagged
- iqtcl_GetQAMTable
- iqtcl_GetCensusTable
- iqtcl_GetProgramTableTagged
- iqtcl_GetPidTableTagged

5.5.1 Detailed Description

Methods to get census info

5.5.1.1 iqtcl_GetCensusFirst

Returns the census first entry in the Census table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain a tCENTRY structure followed by zero or more of the following structures:

- tIPINFO
- tENCAP
- tMPEG2INFO
- tMPEG2PROGRAM
- tMPEG2PID
- tRTPINFO
- tMDIINFO
- tSTREAMSTATS
- tMTSPSTATS
- tRTPSTATS

Example

```
set censusData [ iqtcl_GetCensusFirst $connectID ]
```

See also:

5.5.1.2 iqtcl_GetCensusNext

Returns the next entry in the Census table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***previousID*** The previous entry ID.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain a tCENTRY structure followed by zero or more of the following structures:

- tIPINFO
- tENCAP
- tMPEG2INFO
- tMPEG2PROGRAM
- tMPEG2PID
- tRTPINFO
- tMDIINFO
- tSTREAMSTATS
- tMTSPSTATS
- tRTPSTATS

Example

```
set censusData [ iqtcl_GetCensusNext $connectID $previousID ]
```

See also:

5.5.1.3 iqtcl_GetCensusByID

Returns the census information of the requested stream ID.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The ID of the requested stream

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain a tCENTRY structure followed by zero or more of the following structures:

- tIPINFO
- tENCAP
- tMPEG2INFO
- tMPEG2PROGRAM
- tMPEG2PID
- tRTPINFO
- tMDIINFO
- tSTREAMSTATS
- tMTSPSTATS
- tRTPSTATS

Example

```
set censusData [ iqtcl_GetCensusByID $connectID $streamID ]
```

See also:

5.5.1.4 iqtcl_GetNextCensusID

Returns the next census information of the previous ID.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***lastID*** The ID of the previous requested stream

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain a tCENTRY structure followed by zero or more of the following structures:

- tIPINFO
- tENCAP
- tMPEG2INFO
- tMPEG2PROGRAM
- tMPEG2PID
- tRTPINFO
- tMDIINFO
- tSTREAMSTATS
- tMTSPSTATS
- tRTPSTATS

Example

```
set censusData [ iqtcl_GetNextCensusID $connectID $lastID ]
```

See also:

5.5.1.5 iqtcl_GetStreamID

This function will return the ID of the stream matching the passed in IP address tuple.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***srcIP*** An integer representing the source IP of desired stream.

← ***dstIP*** An integer representing the destination IP of desired stream

← ***srcPort*** An integer representing the source port of desired stream

← ***dstPort*** An integer representing the destination port of desired stream

← ***TargetPort*** Used to distinguish between the same tuple on multiple physical ports. If TargetPort is 0, match flow using main port 1; if non-zero, flow must be on port 2.

Returns:

The streamID of matching stream or TCL_ERROR.

Example

To get the stream ID with source IP 224.0.1.2, port 1024 to destination IP 10.1.0.1, port 2048 on probe port 1.

```
set srcIP 0xE0000102
set dstIP 0x0A010001
set srcPort 1024
set dstPort 2048
set streamID [ iqtcl_GetStreamID $srcIP $dstIP $srcPort $dstPort 0 ]
```

See also:

5.5.1.6 iqtcl_ClearCensus

Clears the current census table.

Note:

This method will clear all detected streams from the census table. If any streams are still active, they will be re-acquired into the census table, but all previous statistical information will be cleared.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearCensus $connectID
```

See also:

5.5.1.7 iqtcl_ClearStream

Clears a single stream from the current census table.

Note:

This method will clear a single stream from the census table. If the stream is still active, it will be re-acquired into the census table, but all previous statistical information will be cleared.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The stream ID

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearStream $connectID $streamID
```

See also:

5.5.1.8 iqtcl_ClearStreamStats

Clears a single stream or the entire census statistics.

Note:

This method will clear the statistics of a single stream or the entire census table.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The stream ID or 0x0 to clear all streams.

← ***flags*** A flags value indicating which stats to clear. Valid values include an OR of any of the following:

1. 0x00000001 - clear MDI information
2. 0x00000002 - clear Stream rate statistics
3. 0x00000004 - clear RTP statistics
4. 0x00000008 - clear MTSP statistics
5. 0x00000010 - clear MPEG Pid Statistics
6. 0xFFFFFFFF - clear ALL statistics

Returns:

TCL_OK or TCL_ERROR

Example

```
 iqtcl_ClearStreamStats $connectID $streamID 0xffffffff
```

See also:

5.5.1.9 iqtcl_GetCensusTableItem

Returns a string representation of the requested flow's census information.

Note:

The censusID can be retrieved by a call to iqtcl_GetNextCensusID.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***censusID*** The requested census ID.

← ***separator*** The desired column separator string.

Returns:

A StringObj of the requested census table stream entry or TCL_ERROR.

Example

```
set strItem [ iqtcl_GetCensusTableItem $connectID $censusID " " ]
```

See also:

5.5.1.10 iqtcl_GetCensusTableItemTagged

Returns a tagged string representation of the requested flow's census information.

Note:

The tagged string is defined as `<name>=<value>;<name>=<value>;` where `<name>` and `<value>` are the same strings returned by a call to iqtcl_GetCensusTable. The censusID can be retrieved by a call to iqtcl_GetNextCensusID.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***censusID*** The requested censusID.

Returns:

A StringObj of the requested census table flow entry or TCL_ERROR.

Example

```
set strItem [ iqtcl_GetCensusTableItemTagged $connectID $censusID ]
```

See also:

5.5.1.11 iqtcl_GetQAMTableItem

Returns a tagged string representation of the requested flow's census information.

Note:

The tagged string is defined as `<name>=<value>;<name>=<value>;` where `<name>` and `<value>` are the same strings returned by a call to iqtcl_GetQAMTable.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested censusID.

Returns:

A StringObj of the requested census table flow entry or TCL_ERROR.

Example

```
set strItem [ iqtcl_GetQAMTableItemTagged $connectID $streamID ]
```

See also:

5.5.1.12 iqtcl_GetQAMTableItemTagged

Returns a tagged string representation of the requested flow's census information.

Note:

The tagged string is defined as `>name<=>value<;>name<=>value<; where >name< and >value< are the same strings returned by a call to iqtcl_GetQAMTable.`

Parameters:

← ***connectID*** `The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.`

← ***streamID*** `The requested censusID.`

Returns:

`A StringObj of the requested census table flow entry or TCL_ERROR.`

Example

```
set strItem [ iqtcl_GetQAMTableItemTagged $connectID $streamID ]
```

See also:

5.5.1.13 iqtcl_GetQAMTable

Returns a string representation of the current census table for a QAM device.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***sepStr*** The desired column separator string.

Returns:

A StringObj of the current census table or TCL_ERROR.

Example

```
set strTable [ iqtcl_GetQAMTable $connectID "\t" ]
```

See also:

5.5.1.14 iqtcl_GetCensusTable

Returns a string representation of the current census table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***sepStr*** The desired column separator string.

Returns:

A StringObj of the current census table or TCL_ERROR.

Example

```
set strTable [ iqtcl_GetCensusTable $connectID "\t" ]
```

See also:

5.5.1.15 iqtcl_GetProgramTableTagged

Returns a tagged string representation of the requested flow's program information.

Note:

The tagged string is defined as name/value pairs separated by ';'. Each program information is separated by '::'. An example string would be 'Channel=1;Name=Program1;'Channel=2;Name=Prog2;''

The following items are returned for each channel:

- Channel - channel number of program
- Name - the name of this program defined in the TS.
- Alias - the Ineoquest specific alias defined for this program
- DevRef - the Ineoquest specific subreference defined for this program
- Provider - the provider string for this program defined in the SDT
- NumPids - the number of pids in this program
- AlarmStatus - the alarm status of this program

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested censusID.

Returns:

A StringObj of the requested program information or TCL_ERROR.

Example

```
set strItem [ iqtcl_GetProgramTableTagged $connectID $streamID ]
```

See also:

5.5.1.16 iqtcl_GetPidTableTagged

Returns a tagged string representation of the requested program's pid information.

Note:

The tagged string is defined as name/value pairs separated by ';'. Each pid information is separated by '::'. An example string would be Channel=1;Name=Program1;Channel=2;Name=Prog2;

The following items are returned for each channel:

- PID - the PID number
- Type - the type of pid this is (audio/video/pcr).
- CurrBR - current pid bitrate
- MinBR - minimum pid bitrate
- MaxBR - maximum pid bitrate
- AvgBR - average pid bitrate
- OutageCount - number of outages seen for this pid
- OutageSec - duration of outage for this pid
- CurrLoss - loss count of this pid over the last 15 minutes
- TotLoss - total loss count of this pid since discovery
- Alarm_Status - alarm status of this pid

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested censusID.

← ***progChannel*** The requested programChannel;

Returns:

A StringObj of the requested program information or TCL_ERROR.

Example

```
set strItem [ iqtcl_GetProgramTableTagged $connectID $streamID $progChannel ]
```

See also:

5.6 Connection Methods

Functions

- iqtcl_ConnectTo
- iqtcl_OpenConnection
- iqtcl_OpenConnectionWithMsgSize
- iqtcl_CloseConnection
- iqtcl_IsConnected
- iqtcl_CloseSession
- iqtcl_ResumeSession
- iqtcl_CloseOldConnections
- iqtcl_SaveSessionData
- iqtcl_RetrieveSessionData

5.6.1 Detailed Description

Methods for setting up and maintaining connections and sessions.

5.6.1.1 iqtcl_ConnectTo

Opens a new connection to a target.

Note:

This method takes a string representation of the target's IP address. For numerical representations use the iqtcl_OpenConnection method.

Parameters:

← ***char**** A string representation of the target's IP address.

Returns:

A connection ID used in subsequent communications with the target or TCL_ERROR.

Example

```
set connectionID [ iqtcl_ConnectTo ``192.168.1.1'' ]
```

See also:

iqtcl_OpenConnection

5.6.1.2 iqtcl_OpenConnection

Opens a new connection to a target.

Note:

This method takes a numerical representation of the target's IP address. For string representations use the iqtcl_ConnectTo method.

Parameters:

← ***NUM*** A numerical representation of the target's IP address.

← ***FLAG*** A boolean flag indicating if the IP address is in network order.

Returns:

A connection ID used in subsequent communications with the target or TCL_ERROR.

Example

To connect to 192.168.1.1 with the ip in network order:

```
set connectionID [ iqtcl_OpenConnection 0xc0a80101 1 ]
```

See also:

iqtcl_ConnectTo

5.6.1.3 iqtcl_OpenConnectionWithMsgSize

Opens a new connection to a target and sets the preferred comm message size.

Note:

This method takes a numerical representation of the target's IP address. For string representations use the iqtcl_ConnectTo method.

Parameters:

← ***NUM*** A numerical representation of the target's IP address.

← ***MSG_SIZE*** A number specifying the preferred message size for communication

← ***FLAG*** A boolean flag indicating if the IP address is in network order.

Returns:

A connection ID used in subsequent communications with the target or TCL_ERROR.

Example

To connect to 192.168.1.1 with the ip in network order:

```
set connectionID [ iqtcl_OpenConnection 0xc0a80101 $msg_size 1 ]
```

See also:

iqtcl_ConnectTo

5.6.1.4 iqtcl_CloseConnection

Closes open connection. Closes a currently open connection.

Note:

This method will release all resources reserved by the current session before closing the connection.

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_CloseConnection $connectionID
```

See also:

5.6.1.5 iqtcl_IsConnected

Specifies whether the session is connected to a target.

Note:

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A BooleanObj indicating whether the session is connected or not or TCL_ERROR.

Example

```
set state [ iqtcl_IsConnected $connectionID ]
```

See also:

5.6.1.6 iqtcl_CloseSession

Closes the current connections but does not release any resources currently being used.

Note:

This method is used in conjunction with the iqtcl_ResumeSession method to reconnect to a target without changing the state of the target. Any user-defined state information can be stored on the target with the iqtcl_SaveSessionData method.

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_CloseSession $connectionID
```

See also:

iqtcl_ResumeSession iqtcl_SaveSessionData

5.6.1.7 iqtcl_ResumeSession

Restores a previous session.

Note:

This method is used in conjunction with the iqtcl_CloseSession method to reconnect to a target without changing the state of the target. Any resources that were owned by the previous session will now be owned by the current session. Any saved user-defined state information can be retrieved from the target with the iqtcl_RetrieveSessionData method.

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***sessionID*** The sessionID returned from the iqtcl_ RetrieveSessionData method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ResumeSession $connectionID $sessionID
```

See also:

iqtcl_CloseSession iqtcl_RetrieveSessionData

5.6.1.8 iqtcl_CloseOldConnections

Releases any resources and closes connections to any sessions other than the current one.

Note:

This method will release all resources reserved by any sessions other than the current one.

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_CloseOldConnections $connectionID
```

See also:

5.6.1.9 iqtcl_SaveSessionData

Saves user session data on the target.

Note:

This method is used in conjunction with the iqtcl_ RetrieveSessionData method to store user session data on the target and retrieve it when a session is resumed.

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***data*** A ByteArrayObj containing the data to save to the target.

← ***datasize*** The size of the ByteArrayObj data

← ***mode*** Mode for saving session data, active (0) or passive (1)

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_SaveSessionData $connectionID $data $datasize $mode
```

See also:

iqtcl_RetrieveSessionData

5.6.1.10 iqtcl_RetrieveSessionData

Retrieves the user session data saved on the target during a previous iqtcl_SaveSessionData call.

Note:

This method is used in conjunction with the iqtcl_SaveSessionData method to store user session data on the target.

Parameters:

← ***connectionID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***resumeHandle*** A placeholder variable in which the resume handle will be returned. This handle is used in the iqtcl_ResumeSession method.

← ***mode*** Mode for saving session data, active (0) or passive (1)

Returns:

A byte array of the user data stored on the target during the last iqtcl_SaveSessionData call or TCL_ERROR.

Example

```
 set data [ iqtcl_RetrieveSessionData $connectionID $resumeHandle $mode]
```

See also:

iqtcl_SetSessionData

5.7 General Methods

Functions

- iqtcl_SetDefaultTimeout
- iqtcl_GetLastError
- iqtcl_GetAPIVersionString
- iqtcl_GetMACAddress
- iqtcl_GetCoreMode
- iqtcl_SetCoreMode
- iqtcl_GetTargetType
- iqtcl_GetFirmwareMode
- iqtcl_GetTargetInfo
- iqtcl_GetTotalAvailableMemory
- iqtcl_SendSyslogMsg
- iqtcl_SendTargetSyslogMsg
- iqtcl_SendCustomCommand

5.7.1 Detailed Description

Group of generally useful methods

5.7.1.1 iqtcl_SetDefaultTimeout

Sets the default socket timeout for the API.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***timeout*** The new default timeout in seconds.

Returns:

TCL_OK or TCL_ERROR

Example

To set the default timeout to 10 seconds:

```
iqtcl_SetDefaultTimeout $connectID 10
```

See also:

5.7.1.2 iqtcl_GetLastError

Returns the last error stored in the API.

Note:

This method can be called following a failed method call to get the reason for failure.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A StringObj variable of the current version or TCL_ERROR.

Example

```
set error [iqtcl_GetLastError $connectID ]
```

See also:

iqtcl_ConnectTo
iqtcl_OpenConnection

5.7.1.3 iqtcl_GetAPIVersionString

Returns the version string of the underlying C-API library.

Note:

None.

Parameters:

None.

Returns:

A StringObj variable of the current version or TCL_ERROR.

Example

```
set strVersion [ iqtcl_GetAPIVersionString ]
```

See also:

5.7.1.4 iqtcl_GetMACAddress

Returns the MAC address values for the requested port.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***port*** The requested port. Value should be one of :

- Management Port = 0x02000000
- Port1 = 0xA0000000
- Port2/TAP/RVL = 0xA0800000

Returns:

A StringObj of the requested MAC address or TCL_ERROR.

Example

```
set strMAC [ iqtcl_GetMacAddress $connectID 0x02000000 ]
```

See also:

5.7.1.5 iqtcl_GetCoreMode

Gets the target into the requested analysis mode.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

mode The target mode, defined as:

- 0 = Census Mode
- 1 = Analysis Mode

Example

To check if the target into Census Mode:

```
set state [ iqtcl_GetCoreMode $connectID ]
```

See also:

iqtcl_SetCoreMode

5.7.1.6 iqtcl_SetCoreMode

Sets the target into the requested analysis mode.

Note:

If the target is place into Analysis Mode, new streams will not be detected until it is placed back into Census Mode. Analysis Mode is used when analyzing a particular stream for errors and recording a particular stream.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***mode*** The requested target mode, defined as:

- 0 = Census Mode
- 1 = Analysis Mode

Returns:

TCL_OK or TCL_ERROR

Example

To set the target into Census Mode:

```
iqtcl_SetCoreMode $connectID 0
```

See also:

iqtcl_GetCoreMode

5.7.1.7 iqtcl_GetTargetType

Returns the type of target you are connected to.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

The current target type or TCL_ERROR. Target type is defined as:
1 = SingulusG1
2 = SingulusG1-T
3 = SingulusG10
4 = Argus
5 = Probe

Example

```
set ttype [ iqtcl_GetTargeType $connectID ]
```

See also:

5.7.1.8 iqtcl_GetFirmwareMode

Returns the current mode the target firmware is running in.

Note:

The firmware mode returned is set through the target's HTML interface.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A target's current mode or TCL_ERROR. Target mode is defined as:

- 0 = IQController Mode
- 1 = Analysis Mode
- 2 = Stimulus Mode
- 3 = Maintenance Mode

Example

```
set mode [iqtcl_GetFirmwareMode $connectID ]
```

See also:

iqtcl_ConnectTo
iqtcl_OpenConnection

5.7.1.9 iqtcl_GetTargetInfo

Returns a byte array of the target's current information.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A byte array of target information or TCL_ERROR. The target information is defined by the tTARGETINFO structure.

Example

```
set info [ iqtcl_GetTargetInfo $connectID ]
```

See also:

iqtcl_ConnectTo
iqtcl_OpenConnection

5.7.1.10 iqtcl_GetTotalAvailableMemory

Gets total available memory from probe.

Note:

None.

Parameters:

connectID The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

Size of total available memory on probe (in bytes)

Example

```
set availMem [ iqtcl_GetTotalAvailableMemory $connectID ]
```

See also:

Author:

mgb

5.7.1.11 iqtcl_SendSyslogMsg

Send a message to a syslog server.

Note:

Parameters:

← ***IpAddr*** The IP address string of the syslog server.

← ***MsgStr*** The message string to send

Returns:

TCL_OK or TCL_ERROR.

Example

```
iqtcl_SendSyslogMsg 192.168.1.1 "This is a test"
```

See also:

5.7.1.12 iqtcl_SendTargetSyslogMsg

Tell the connected target to send a syslog message to its configured syslog server with the proper headers.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***messageStr*** The message string to send.

Returns:

TCL_OK or TCL_ERROR.

Example

```
iqtcl_SendTargetSyslogMsg $connectID "This is the start of a test"
```

See also:

5.7.1.13 iqtcl_SendCustomCommand

Send a custom string command to the target.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***command*** The char∗ command

Returns:

TCL_OK or TCL_ERROR

Example

```
See also:
```

5.8 ARP Proxy Methods

Functions

- iqtcl_AddArpProxy
- iqtcl_RemoveArpProxy
- iqtcl_ClearArpProxyTable
- iqtcl_AddArpProxyEx
- iqtcl_RemoveArpProxyEx

5.8.1 Detailed Description

Group of ARP Proxy Methods methods

5.8.1.1 iqtcl_AddArpProxy

Add an entry to the proxy arp table.

Note:

None

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***destinationMAC*** The destination MAC sent as a byte array.

← ***VlanID*** The VLAN ID if used or 0xFFFFFFFF if not used.

← ***SrcIPstr*** The source IP sent as a string.

Returns:

TCL_ERROR or TCL_OK

Example

```
set arpMac [binary format H* 0008d0123456]
iqtcl_AddArpProxy $connectID $arpMac 0xFFFFFFFF "192.168.1.1"
```

See also:

iqtcl_RemoveArpProxy

5.8.1.2 iqtcl_RemoveArpProxy

Remove an entry from the proxy arp table.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***destinationMAC*** The destination MAC sent as a byte array.

← ***VlanID*** The VLAN ID if used or 0xFFFFFFFF if not used.

← ***SrcIPstr*** The source IP sent as a string.

Returns:

TCL_ERROR or TCL_OK

Example

```
set arpMac [binary format H* 0008d0123456]
iqtcl_RemoveArpProxy $connectID $arpMac 0xFFFFFFFF "192.168.1.1"
```

See also:

iqtcl_AddArpProxy

5.8.1.3 iqtcl_ClearArpProxyTable

Clear the proxy ARP table.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
 iqtcl_ClearArpProxyTable $connectID
```

See also:

5.8.1.4 iqtcl_AddArpProxyEx

Add passed in data to the proxy ARP table.

Note:

Not Implemented.

5.8.1.5 iqtcl_RemoveArpProxyEx

Remove passed in data from the proxy ARP table.

Note:

Not Implemented.

5.9 IGMP Methods

Functions

- iqtcl_GetIGMPStatus
- iqtcl_GetIGMPFirst
- iqtcl_GetIGMPNext
- iqtcl_IGMPJoin
- iqtcl_IGMPLeave
- iqtcl_StartIGMPLoop
- iqtcl_StopIGMPLoop
- iqtcl_ClearIGMP

5.9.1 Detailed Description

Methods for IGMP

5.9.1.1 iqtcl_GetIGMPStatus

Returns the status of the IGMP process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the IGMP status or TCL_ERROR. The data array will contain the following structures:

- tIGMPSTATUS
- tIGMPGROUPS

Example

```
set igmpstatusResult [ iqtcl_GetIGMPStatus $connectID]
```

See also:

5.9.1.2 iqtcl_GetIGMPFirst

Returns the first entry in the IGMP table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structures:

- tIGMPSTATS
- tNAMETAG
- tIGMPEVENT

Example

```
set alarmData [ iqtcl_GetIGMPFirst $connectID]
```

See also:

5.9.1.3 iqtcl_GetIGMPNext

Returns the next entry in IGMP table.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***previousID*** The previous entry ID.

Returns:

A ByteArrayObj containing the data of the requested entry or TCL_ERROR. The data array will contain the following structures:

- tIGMPSTATS
- tNAMETAG
- tIGMPEVENT

Example

```
set alarmData [ iqtcl_GetIGMPNext $connectID $lastEntry]
```

See also:

5.9.1.4 iqtcl_IGMPJoin

Join the passed in multicast address.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***addr*** The integer representation of the multicast address to join.

Returns:

TCL_OK or TCL_ERROR

Example

To join address 224.1.2.3:

```
set address 0xE0010203
iqtcl_IGMPJoin $address
```

See also:

iqtcl_IGMPLeave

5.9.1.5 iqtcl_IGMPLeave

Leave the passed in multicast address.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***addr*** The integer representation of the multicast address to join.

Returns:

TCL_OK or TCL_ERROR

Example

To leave address 224.1.2.3:

```
set address 0xE0010203
iqtcl_IGMPLeave $address
```

See also:

iqtcl_IGMPJoin

5.9.1.6 iqtcl_StartIGMPLoop

Start the IGMP automatic loop.

Note:

The IGMP loop will automatic ally join and leave the defined multicast addresses as defined in the IGMP configuration.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StartIGMPLoop
```

See also:

iqtcl_StopIGMPLoop

5.9.1.7 iqtcl_StopIGMPLoop

Stop the IGMP automatic loop.

Note:

The IGMP loop will automatic ally join and leave the defined multicast addresses as defined in the IGMP configuration.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopIGMPLoop
```

See also:

iqtcl_StartIGMPLoop

5.9.1.8 iqtcl_ClearIGMP

Clears the current IGMP statistical information.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR.

Example

```
iqtcl_ClearIGMp $connectID
```

See also:

5.10 STB Methods

Functions

- iqtcl_OpenSTBSession
- iqtcl_CloseSTBSession
- iqtcl_StartSTBSession
- iqtcl_StopSTBSession
- iqtcl_ClearSTBDefines
- iqtcl_DefineNewSTB
- iqtcl_GetSTBDataTable

5.10.1 Detailed Description

Methods for STB

5.10.1.1 iqtcl_OpenSTBSession

Opens a STB Mode session on the target.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A 32-bit STB handle or TCL_ERROR.

Example

```
set stbHandle [ iqtclOpenSTBSession $connectID]
```

See also:

5.10.1.2 iqtcl_CloseSTBSession

Close a STB Mode session on the target.

Note:

Closing the STB session will release all resources reserved during the iqtcl_OpenSTBSession API method.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stbID*** The STB handle returned from the iqtcl_OpenSTBSession API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
 iqtcl_CloseSTBSession $connectID $stbHandle
```

See also:

iqtcl_OpenSTBSession

5.10.1.3 iqtcl_StartSTBSession

Start the STB Session running.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stbID*** The STB handle returned from the iqtcl_OpenSTBSession API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtclStartSTBSession $connectID $stbHandle
```

See also:

5.10.1.4 iqtcl_StopSTBSession

Stop a running STB session.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stbHandle*** The STB handle returned from the iqtcl_OpenSTBSession API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtclStopSTBSession $connectID $stbHandle
```

See also:

5.10.1.5 iqtcl_ClearSTBDefines

Clear any previously defined STB definitions.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stbID*** The STB handle returned from the iqtcl_OpenSTBSession API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearSTBDefines $connectID $stbHandle
```

See also:

5.10.1.6 iqtcl_DefineNewSTB

Define a new virtual set-top box on the target.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stbHandle*** The STB Handle returned from the iqtcl_OpenSTBSession API call.

← ***macVal*** The MAC address of the virtual set-top box.

← ***vlanField*** The VLAN field of the virtual set-top box OR the value 0xFFFFFFFF if the settop box will not use VLANs.

← ***ipAddrStr*** The IP address string (in dot notation) of the virtual set-top box.

← ***index*** The starting index of groups to join. This is an offset index into the range of groups defined by the first index and the number of groups.

← ***numGroups*** The number of consecutive groups in the target's alias table that will be joined (starting from the first index).

← ***index*** The first index defines the beginning of the groups for the virtual set-top box. It is an index into the group of multicast aliases defined on the target.

← ***lenJoinDuration*** The length of time each group will remain joined defined in microseconds.

← ***lenJoinTransition*** The length of time between group joins defined in microseconds.

Returns:

A 32-bit virtual STB handle or TCL_ERROR.

Example

```
 set macVal [binary format H* 0008d0123456]


 set boxHandle [ iqtclDefineNewSTB $connectID $stbHandle $macVal 0xFFFFFFFF
192.168.10.10 0 5 0 7500 2500]
```

See also:

5.10.1.7 iqtcl_GetSTBDataTable

Returns a string representation of the current STB table.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

Example

See also:

5.11 License Methods

Functions

- iqtcl_IsLicenseValid
- iqtcl_GetLicenseCount

5.11.1 Detailed Description

Methods for LICENSE

5.11.1.1 iqtcl_IsLicenseValid

Does the target have a valid license for the requested license type.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***licenseType*** The requested license type can be one of the following:

- 1. = Stimulus License
- 2. = TSReader License

Returns:

TCL_OK or TCL_ERROR

Example

To check if the target has a valid TSReader license:

```
iqtcl_IsLicenseValid $connectID 2
```

See also:

5.11.1.2 iqtcl_GetLicenseCount

Returns the number of uses left on a given license type.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***licenseType*** The requested license type can be one of the following:

- 1. = Stimulus License
- 2. = TSReader License

Returns:

The number of uses left on the license or TCL_ERROR

Example

To get the number of uses remaining on the stimulus license:

```
set licCount [ iqtcl_GetLicenseCount $connectID 1 ]
```

See also:

5.12 MDI Methods

Functions

- iqtcl_StartMDIScan
- iqtcl_StopMDIScan
- iqtcl_GetMDIStatus
- iqtcl_MDILockStream
- iqtcl_MDIUnlockStream

5.12.1 Detailed Description

Methods for MDI

5.12.1.1 iqtcl_StartMDIScan

Start the MDI scanning process.

Note:

The MDI scanning process will calculate the current MDI for any streams that are locked into the MDI process.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StartMDIScan $connectID
```

See also:

iqtcl_StopMDIScan
iqtcl_MDILockStream

5.12.1.2 iqtcl_StopMDIScan

Stop the MDI scanning process.

Note:

The MDI scanning process will calculate the current MDI for any streams that are locked into the MDI process.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopMDIScan $connectID
```

See also:

iqtcl_StartMDIScan
iqtcl_MDILockStream

5.12.1.3 iqtcl_GetMDIStatus

Returns the status of the MDI process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

The current status of the MDI process. The status is defined as follows:

- 0 = MDI process is inactive
- 1 = MDI process is active

Example

```
set status [ iqtcl_GetMDIStatus $connectID ]
```

See also:

iqtcl_StartMDIScan
iqtcl_MDILockStream

5.12.1.4 iqtcl_MDILockStream

Locks the requested stream into the MDI process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested stream ID.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_MDILockStream $connectID $streamID
```

See also:

iqtcl_MDIUnlockStream
iqtcl_GetStreamID

5.12.1.5 iqtcl_MDIUnlockStream

Removes the requested stream from the MDI process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested stream ID.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_MDIUnlockStream $connectID $streamID
```

See also:

iqtcl_MDILockStream

5.13 QAM Methods

Functions

- iqtcl_QAMGetState
- iqtcl_QAMGetActiveChannel
- iqtcl_QAMGetStreamID
- iqtcl_QAMGenerateAliasesFromLearn
- iqtcl_QAMStartStream
- iqtcl_QAMStartScan
- iqtcl_IsQAMScanning
- iqtcl_QAMStartLearn
- iqtcl_QAMStartOp
- iqtcl_QAMTuneAndStreamBySTBChanName
- iqtcl_QAMTuneAndStreamBySTBChanNumber
- iqtcl_QAMStopStream
- iqtcl_QAMStopScan
- iqtcl_QAMStopLearn
- iqtcl_QAMStopOp

5.13.1 Detailed Description

Methods for QAM

5.13.1.1 iqtcl_QAMGetState

Returns the current state of the QAM system as an enumerated value.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***chanNum*** An integer defining the channel number you want to get the state of or 0 for current active channel.

Returns:

TCL_ERROR or an enumerated value for QAM state. Enumerations are defined as:

0	IDLE
3	LEARNING
4	TUNED (the QAM system is on the channel but not actively taking measurements)
5	STREAMING
10	NO SIGNAL ERROR
11	GENERIC ERROR

Example

```
set state [ iqtcl_QAMGetState $connectID 0 ]
```

See also:

5.13.1.2 iqtcl_QAMGetActiveChannel

Get active channel on QAM Cricket.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

Example

```
set actChannel [ iqtcl_QAMGetActiveChannel $connectID ]
```

See also:

5.13.1.3 iqtcl_QAMGetStreamID

Get the stream ID for a channel.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***chanNum*** The channel number

Returns:

Example

```
set QAMstreamId [ iqtcl_QAMGetStreamID $connectID $chan ]
```

See also:

5.13.1.4 iqtcl_QAMGenerateAliasesFromLearn

Creates alias information on the target based on channels found during the learning phase.

Note:

This method must be called after a learning phase has completed.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
 iqtcl_QAMGenerateAliasesFromLearn $connectID
```

See also:

5.13.1.5 iqtcl_QAMStartStream

Tunes in to a defined channel and monitors/measures that channel.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***chanNum*** The channel number to monitor.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStartStream $connectID 4
```

See also:

5.13.1.6 iqtcl_QAMStartScan

Starts a scan operation on the QAM System.

A scan will tune to a particular channel for a specified length of time and take measurements on that channel. It will then tune in the next channel DEFINED AS AN ALIAS and repeat the measurements on that channel. It will scan over all channels defined in the Alias table.

Note:

The scan will only operate on channels that have been defined with an alias.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***chanNum*** The channel number to start the scan on (or 0 for current active channel).

← ***lenTime*** The lenth of time in seconds to scan the channel.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStartScan $connectID 0 30
```

See also:

5.13.1.7 iqtcl_IsQAMScanning

Check if QAM Cricket is scanning.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

Boolean true or false

Example

```
set bScanMode [ iqtcl_IsQAMScanning $connectId ]
```

See also:

5.13.1.8 iqtcl_QAMStartLearn

Starts the Learning phase for the QAM system.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStartLearn $connectID
```

See also:

5.13.1.9 iqtcl_QAMStartOp

Start a QAM operation defined by passed in operation ID.

Note:

Operation IDs are defined as:

0	NO-OPERATION
3	LEARNING
4	TUNE
5	STREAM
6	SCAN
7	ALIAS

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***opID*** Integer defining the operation ID

← ***chanNum*** Integer defining the channel number to operate on, (or 0 for current active channel)

Returns:

Example

```
iqtcl_QAMStartOp $connectID 3 0
```

See also:

5.13.1.10 iqtcl_QAMTuneAndStreamBySTBChanName

Start a QAM tune and stream operation defined by passed in the STB channel name.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***char*** ∗ chanName A string representation of the STB Channel Name.

Returns:

Example

```
iqtcl_QAMTuneAndStreamBySTBChanName $connectID "Fox News"
```

See also:

5.13.1.11 iqtcl_QAMTuneAndStreamBySTBChanNumber

Start a QAM tune and stream operation defined by passed in the channel number.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***chan*** Integer defining the channel to tune and stream

Returns:

Example

```
iqtcl_QAMTuneAndStreamBySTBChanNumber $connectID 32
```

See also:

5.13.1.12 iqtcl_QAMStopStream

Stops the QAM system from streaming.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStopStream $connectID
```

See also:

5.13.1.13 iqtcl_QAMStopScan

Stops the QAM from scanning.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStopScan $connectID
```

See also:

5.13.1.14 iqtcl_QAMStopLearn

Stops the learning phase if it is currently ongoing.

Note:

The Stop Learn command is currently defined as a NO-OP. The Learning phase will be allowed to complete.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStopLearn $connectID
```

See also:

5.13.1.15 iqtcl_QAMStopOp

Generically stops the current QAM operation.

Note:

If the QAM is in a Learning operation, the Learning phase will be allowed to run to completion.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_ERROR or TCL_OK

Example

```
iqtcl_QAMStopOp $connectID
```

See also:

5.14 Record Methods

Functions

- iqtcl_OpenRecord
- iqtcl_OpenStreamRecord
- iqtcl_CloseRecord
- iqtcl_StartRecord
- iqtcl_StopRecord
- iqtcl_UploadRecord
- iqtcl_SaveUploadRecordToFile
- iqtcl_GetRecordStatus
- iqtcl_SetTriggerPos
- iqtcl_AddTriggerCondition
- iqtcl_RemoveTriggerCondition
- iqtcl_GetTriggerStatus
- iqtcl_IsRecordTriggered
- iqtcl_StartRecord_TriggerPos

5.14.1 Detailed Description

Methods for Record

5.14.1.1 iqtcl_OpenRecord

Opens a new record session.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***size*** Size of record

Returns:

A 32-bit record handle or TCL_ERROR.

Example

```
set recordHandle [ iqtcl_OpenRecord $connectID $size ]
```

See also:

5.14.1.2 iqtcl_OpenStreamRecord

Opens a new record session setting a filter to capture only packets from a requested stream ID.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The stream ID to capture.

Returns:

A 32-bit record Handle or TCL_ERROR.

Example

```
 set recordHandle [ iqtclOpenStreamRecord $connectID $streamID ]
```

See also:

iqtcl_GetStreamID

5.14.1.3 iqtcl_CloseRecord

Closes the open record session.

Note:

Closing the record will release all resources reserved during the iqtcl_OpenRecord API method.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordID*** The record Handle ID returned from the iqtcl_OpenRecord API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
 iqtcl_CloseRecord $connectID $recordHandle
```

See also:

iqtcl_OpenRecord

5.14.1.4 iqtcl_StartRecord

Start recording events to a buffer on the target.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordHandle*** The record handle returned from the iqtcl_OpenRecord or iqtcl_OpenStreamRecord methods.

← ***flags*** a 32-bit flags bitmask value with the following bits defined:

1. 0x1: Circular/One Shot Mode
   (a) (Value = 1)One shot mode. Capture packets until buffer is full then stop.
   (b) (Value = 0)Capture into a circular buffer.
2. 0x2 = Record Headers
   (a) (Value = 1) Capture full event headers with data
   (b) (Value = 0) Capture event data bytes only

Returns:

Example

See also:

5.14.1.5 iqtcl_StopRecord

Stop recording event on the target.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordHandle*** The record Handle ID returned from the iqtcl_OpenRecord API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopRecord $connectID $recordHandle
```

See also:

5.14.1.6 iqtcl_UploadRecord

Upload the recorded event information from the target.

Note:

The record upload will be done via a TCP connection. The requesting application should open a socket and listen. This local socket port is passed to the target as part of this API call. The target will connect to this listening socket and start sending recorded event information. When the target has completed sending the data it will close the connection.

The recorded data arrives in the following format:

- 32 bit event ID: The event ID is a placeholder for future use. It can be ignored
- 64 bit timestamp: The timestamp has a 10ns resolution.
- 32 bit event data size: The data size is the total number of event data bytes to follow.
- n bits of event data: The event data may or may not include an event header depending on what flags were passed into the iqtcl_StartRecord API method.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordHandle*** The record Handle ID returned from the iqtcl_OpenRecord API method.

← ***tcport*** The socket port the target should connect to to start sending data.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_UploadRecord $connectID $recordHandle $tcport
```

See also:

5.14.1.7 iqtcl_SaveUploadRecordToFile

Note:

Parameters:

- ← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.
- ← ***recordHandle*** The record Handle ID returned from the iqtcl_OpenRecord API method.
- ← ***listenPort***
- ← ***recordSize***
- ← ***fileName***

Returns:

Example

```
iqtcl_SaveUploadRecordToFile $connectID $recordHandle $listenPort $recordSize $fileName
```

See also:

5.14.1.8 iqtcl_GetRecordStatus

Get the status of the record process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordID*** The record Handle ID returned from the iqtcl_OpenRecord API method.

Returns:

A Tcl_List structure or TCL_ERROR. The first item in the list is the Status flag defined as:
0 = INACTIVE - record has inactive and ready to upload data
1 = ACTIVE - record process is currently recording packets
2 = UPLOADING - record process is uploading data to host.
The second item in the list is the number of events in the record buffer.

Example

```
set statusList [ iqtcl_GetRecordStatus $connectID $recordHandle ]
```

See also:

iqtcl_OpenRecord

5.14.1.9 iqtcl_SetTriggerPos

iqtcl_SetTriggerPos mgb: is this DEPRECATED?? .. not supported by firmware, use iqtcl_StartRecord_TriggerPos instead

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

Example

See also:

5.14.1.10 iqtcl_AddTriggerCondition

Add a trigger condition to the record-on-trigger process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordID*** The record Handle ID returned from the iqtcl_OpenRecord API method.

← ***triggerType*** The trigger type to be added.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_AddTriggerCondition $connectId $recordId $triggerType
```

See also:

5.14.1.11 iqtcl_RemoveTriggerCondition

Remove a trigger condition to the record-on-trigger process.

Note:

Parameters:

- ← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.
- ← ***recordID*** The record Handle ID returned from the iqtcl_OpenRecord API method.
- ← ***triggerID*** The trigger handle to be removed.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_RemoveTriggerCondition $connectId $recordId $triggerType
```

See also:

5.14.1.12 iqtcl_GetTriggerStatus

Check the trigger status of for a recording.

Note:

Parameters:

← ***connectId*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordId*** The record Handle ID returned from the iqtcl_OpenRecord API method.

Returns:

A StringObj of the requested trigger status or TCL_ERROR. This string includes:

- Type
- Size
- Flags
- Pre-fill buffer capacity size in bytes
- Pre-fill buffer used size in bytes
- Post-fill buffer capacity size in bytes
- Post-fill buffer used size in bytes
- Handle

Example

```
set triggerStatus [ iqtcl_GetTriggerStatus $connectId $recordId ]
```

See also:

5.14.1.13 iqtcl_IsRecordTriggered

Check if record process has been triggered.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordID*** The record Handle ID returned from the iqtcl_OpenRecord API method.

Returns:

Boolean true or false

Example

```
set TriggeredStatus [ iqtcl_IsRecordTriggered $connectId $recordId ]
```

See also:

5.14.1.14 iqtcl_StartRecord_TriggerPos

Start a record process with a trigger position specification.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***recordID*** The record Handle ID returned from the iqtcl_OpenRecord API method.

← ***TriggerEnabled*** Trigger mode, values are:

- 0: one-shot mode, event data bytes only
- 1: circular mode

← ***preTriggerPerc*** Percentage of the buffer to use for pre-fill buffer

← ***postTriggerPerc*** Percentage of the buffer to use for post-fill buffer

Returns:

Example

To set a trigger buffer of 20% pre-fill, 80% post-fill:

```
set TrigEnabled   1
set preTrigPerc  20
set postTrigPerc 80
iqtcl_StartRecord_TriggerPos $connectID $recordID $TrigEnabled
                              $preTrigPerc $postTrigPerc
```

See also:

5.15 RVL Methods

Functions

- iqtcl_StartRVLScan
- iqtcl_StopRVLScan
- iqtcl_GetRVLStatus
- iqtcl_RVLLockStream
- iqtcl_RVLUnlockStream

5.15.1 Detailed Description

Methods for RVL

5.15.1.1 iqtcl_StartRVLScan

Start the RVL scanning process.

Note:

The RVL scanning process will pass out the locked in stream through the RVL port.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR

Example

```
 iqtcl_Start RVLScan
```

See also:

iqtcl_StopRVLScan
iqtcl_RVLLockStream

5.15.1.2 iqtcl_StopRVLScan

Stop the RVL scanning process.

Note:

The RVL scanning process will pass out the locked in stream through the RVL port.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

TCL_OK or TCL_ERROR.

Example

```
iqtcl_StopRVLScan
```

See also:

iqtcl_StartRVLScan

5.15.1.3 iqtcl_GetRVLStatus

Returns the status of the RVL process.

Note:

None.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A ByteArrayObj containing the data of the request or TCL_ERROR. The data array will contain the following structures:

- tTAPSTATUS

Example

```
set status [ iqtcl_GetRVLStatus $connectID ]
```

See also:

5.15.1.4 iqtcl_RVLLockStream

Locks the requested stream into the RVL process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The requested stream ID.

Returns:

TCL_OK or TCL_ERROR.

Example

```
iqtcl_RVLLockStream $connectID $streamID
```

See also:

iqtcl_RVLUnlockStream

5.15.1.5 iqtcl_RVLUnlockStream

Removes the requested stream from the RVL process.

Note:

Parameters:

- ← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.
- ← ***streamID*** The requested stream ID.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_RVLUnlockStream $connectID $streamID
```

See also:

iqtcl_RVLLockStream

5.16 Port Methods

Functions

- iqtcl_ClearPortCounters
- iqtcl_GetPortStatus
- iqtcl_GetPortCounters
- iqtcl_GetPortCounterByIndex
- iqtcl_GetPortCounterTableItem
- iqtcl_GetPortCounterTable

5.16.1 Detailed Description

Methods for PORT

5.16.1.1 iqtcl_ClearPortCounters

Clear the RMON stats from a particular port.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***portNum*** The port to clear. Valid values are:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

Returns:

TCL_OK or TCL_ERROR

Example

```
set port1 0
iqtcl_ClearPortCounters $connectID $port1
```

See also:

5.16.1.2 iqtcl_GetPortStatus

Retrieve the current status structure for a particular port.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***portNum*** The port counters to retrieve. Valid values are:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

Returns:

A ByteArrayObj containing the requested stats or TCL_ERROR. The data array will be the tPORTSTATE structure.

Example

```
set port1 0
set stats [ iqtcl_GetPortStatus $connectID $port1 ]
```

See also:

5.16.1.3 iqtcl_GetPortCounters

Retrieve the RMON stats from a particular port.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***portNum*** The port counters to retrieve. Valid values are:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

Returns:

A ByteArrayObj containing the requested stats or TCL_ERROR. The data array will be one of the following structures:

- tTRITENCTRS
- tNEMOCTRS
- tIXF18103CTRS

Example

```
set port1 0
set stats [ iqtcl_GetPortCounters $connectID $port1 ]
```

See also:

5.16.1.4 iqtcl_GetPortCounterByIndex

Retrieve a specific RMON counter from a particular port.

Note:

The index values are defined in the tcl file iq_defines.tcl. The available port counters may vary depending on the type of target you are connecting to.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***portNum*** The port to clear. Valid values are:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

← ***index*** The index of RMON counter desired

Returns:

A 64 bit value containing the requested stats value or TCL_ERROR.

Example

```
set port1 0
set index 0
set stats [ iqtcl_GetPortCounterByIndex $connectID $port1 $index ]
```

See also:

5.16.1.5 iqtcl_GetPortCounterTableItem

Retrieve a specific RMON counter from a particular port.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***portNum*** The port counters to retrieve. Valid values are:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

← ***index*** The index of RMON counter desired

← ***strSeps*** An optional separator string between name and value. If not defined the default separator value (TAB) will be used.

Returns:

A string containing a table of the requested stats or TCL_ERROR.

Example

```
set port1 0
set index 0
set strSep " : "
set strTable [ iqtcl_GetPortCounterTable $connectID $port1 $index $strSep ]
```

See also:

5.16.1.6 iqtcl_GetPortCounterTable

Retrieve a table of RMON stats from a particular port.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***portNum*** The port counters to retrieve. Valid values are:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

← ***strSep*** An optional separator string between name and value. If not defined the default separator value (TAB) will be used.

Returns:

A string containing a table of the requested stats or TCL_ERROR.

Example

```
set port1 0
set strSep " : "
set strTable [ iqtcl_GetPortCounterTable $connectID $port1 $strSep ]
```

See also:

5.17 Stimulus Methods

Functions

- iqtcl_GetStimulusStatus
- iqtcl_OpenStimulus
- iqtcl_OpenSmallStimulus
- iqtcl_CloseStimulus
- iqtcl_ReplicateStream
- iqtcl_DownloadStimulusFile
- iqtcl_LoadDefaultFile
- iqtcl_SetBackgroundTraffic
- iqtcl_DownloadLibpcapFile
- iqtcl_StartStimulus
- iqtcl_StopStimulus
- iqtcl_GetStimDiscovery
- iqtcl_StopStimDiscovery
- iqtcl_SetTracer
- iqtcl_ClearTracer

5.17.1 Detailed Description

Methods for Stimulus

5.17.1.1 iqtcl_GetStimulusStatus

Get the current status of the stimulus engine.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

A 32-bit value containing the current stimulus status. Current status values are defined as:

- 0 = Engine Stopped
- 1 = Engine Transmitting

Example

```
set stimStatus [ iqtcl_GetStimulusStatus $connectID $stimHandle ]
```

See also:

5.17.1.2 iqtcl_OpenStimulus

Open a new stimulus session.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A 32-bit stimulus handle or TCL_ERROR.

Example

```
set stimHandle [ iqtclOpenStimulus $connectID ]
```

See also:

5.17.1.3 iqtcl_OpenSmallStimulus

Open a stimulus session to one of the small capability engines.

Note:

The small capability engines have an internal buffer limit of 1000 bytes.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

Returns:

A 32-bit stimulus handle or TCL_ERROR.

Example

set stimHandle [iqtclOpenSmallStimulus $connectID]

See also:

5.17.1.4 iqtcl_CloseStimulus

Closes the open stimulus session.

Note:

Closing the stimulus session will release all resources reserved during the iqtcl_OpenStimulus API method.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
 iqtcl_CloseStimulus $connectID $stimHandle
```

See also:

iqtcl_OpenStimulus

5.17.1.5 iqtcl_ReplicateStream

Replicate an incoming live stream back out as stimulus.

Note:

Input values 4-13 are used to create a filter to capture only a specific stream to replicate.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***min_size*** The minimum number of bytes to buffer before starting stimulus.

← ***srcMAC*** The source MAC of the incoming stream, should use sent as a byte array.

← ***dstMAC*** The destination MAC of the incoming stream, should use sent as a byte array.

← ***vlanID*** The VLAN ID of the incoming stream should use

← ***TosField*** The TOS field of the incoming stream should use

← ***srcIP*** The source IP of the incoming stream should use sent as a string.

← ***dstIP*** The destination IP of the incoming stream should use sent as a string.

← ***srcPort*** The source port of the incoming stream should use

← ***dstPort*** The destination port of the incoming stream should use

← ***RtpType*** The RTP type of the incoming stream should use

← ***EncType*** The encapsulation type of the incoming stream should use. Valid values are:

- 0 = Eth2/IP/UDP encapsulation
- 1 = Eth2/IP/UDP/RTP encapsulation
- 2 = Eth2-VLAN/IP/UDP encapsulation
- 3 = Eth2-VLAN/IP/UDP/RTP encapsulation

← ***srcMAC*** The source MAC of the stimulus engine, should use sent as a byte array.

← ***dstMAC*** The destination MAC of the stimulus engine, should use sent as a byte array.

← ***vlanID*** The VLAN ID of the stimulus engine should use

← ***TosField*** The TOS field of the stimulus engine should use

← ***srcIP*** The source IP of the stimulus engine should use sent as a string.

← ***dstIP*** The destination IP of the stimulus engine should use sent as a string.

← ***srcPort*** The source port of the stimulus engine should use

← ***dstPort*** The destination port of the stimulus engine should use

← ***RtpType*** The RTP type of the stimulus engine should use

← ***EncType*** The encapsulation type of the stimulus engine (See 13)

Returns:

TCL_OK or TCL_ERROR

Example

```
See also:
```

5.17.1.6 iqtcl_DownloadStimulusFile

Download a data file for transmission.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***filepath*** The filename and path of data file

← ***srcMAC*** The source MAC the stimulus engine should use sent as a byte array.

← ***dstMAC*** The destination MAC the stimulus engine should use sent as a byte array.

← ***vlanID*** The VLAN ID the stimulus engine should use

← ***TosField*** The TOS field the stimulus engine should use

← ***srcIP*** The source IP the stimulus engine should use sent as a string.

← ***dstIP*** The destination IP the stimulus engine should use sent as a string.

← ***srcPort*** The source port the stimulus engine should use

← ***dstPort*** The destination port the stimulus engine should use

← ***RtpType*** The RTP type the stimulus engine should use

← ***EncType*** The encapsulation type the stimulus engine should use. Valid values are:

- 0 = Eth2/IP/UDP encapsulation
- 1 = Eth2/IP/UDP/RTP encapsulation
- 2 = Eth2-VLAN/IP/UDP encapsulation
- 3 = Eth2-VLAN/IP/UDP/RTP encapsulation

Any fields not used in the defined encapsulation type will be ignored.

Returns:

TCL_OK or TCL_ERROR

Example

```
set srcMac [ binary format H* 0008d0123456 ]
set dstMac [ binary format H* 0008d0133333 ]
iqtcl_DownloadStimulusFile $connectID $stimHandle /tmp/a.ts $srcMac $dstMac 0 0
                           "192.168.1.1" "192.168.2.2" 100 200 33 1
```

See also:

5.17.1.7 iqtcl_LoadDefaultFile

Load the default video file from the target's file system into the stimulus engine.

Note:

Part of the target's firmware installation is a MPEG-2 transport stream file for use as a default video file source.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***srcMac*** The source MAC the stimulus engine should use sent as a byte array.

← ***dstMac*** The destination MAC the stimulus engine should use sent as a byte array.

← ***vlanID*** The VLAN ID the stimulus engine should use

← ***TosField*** The TOS field the stimulus engine should use

← ***srcIP*** The source IP the stimulus engine should use sent as a string.

← ***dstIP*** The destination IP the stimulus engine should use sent as a string.

← ***srcPort*** The source port the stimulus engine should use

← ***dstPort*** The destination port the stimulus engine should use

← ***RtpType*** The RTP type the stimulus engine should use

← ***EncType*** The encapsulation type the stimulus engine should use. Valid values are:

- 0 = Eth2/IP/UDP encapsulation
- 1 = Eth2/IP/UDP/RTP encapsulation
- 2 = Eth2-VLAN/IP/UDP encapsulation
- 3 = Eth2-VLAN/IP/UDP/RTP encapsulation

Returns:

TCL_OK or TCL_ERROR

Example

```
set srcMac [ binary format H* 0008d0123456 ]
set dstMac [ binary format H* 0008d0133333 ]
iqtcl_LoadDefaultFile $connectID $stimHandle $srcMac $dstMac 0 0 "192.168.1.1" "192.168.2.
```

See also:

5.17.1.8 iqtcl_SetBackgroundTraffic

Download a background traffic format file for replay.

Note:

The background traffic file is created by the IQIPDataCreator application from IneoQuest Technologies Inc. There is no replication of a background traffic file.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***FilePath*** The filename and path of traffic format file.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_SetBackgroundTraffic $connectID $stimHandle /tmp/afile.iqd
```

See also:

5.17.1.9 iqtcl_DownloadLibpcapFile

Download a libpcap format file for replay.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***filename*** The filename and path of traffic format file.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_DownloadLibpcapFile $connectID $stimHandle /tmp/afile.pcap
```

See also:

5.17.1.10 iqtcl_StartStimulus

Start the stimulus engine.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***modmask*** The modmask is a bitmask representing which fields should be incremented if the stimulus stream is replicated. The following are the bitmask values:

- 0x1 = destination MAC
- 0x2 = source MAC
- 0x4 = VLAN ID
- 0x8 = source IP
- 0x10 = destination IP
- 0x20 = source Port
- 0x40 = destination Port
- 0x80 = RTP SSRCID field

← ***modvalue*** The modvalue is the increment value to apply to the fields defined by the modmask.

← ***portvalue*** The portvalue can be one of the following:

- 0 = Port 1 (Main Port)
- 1 = Port 2 (TAP/RVL Port)

← ***RecNum*** The number of records can be either the number of MTSPs per packet for a video stream or the number of bytes in a packet for voice streams.

← ***Stop*** The shouldloop can be one of the following:

- 0 = should loop
- 1 = should NOT loop

Returns:

TCL_OK or TCL_ERROR

Example

See also:

5.17.1.11 iqtcl_StopStimulus

Stop the stimulus engine from transmitting.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR.

Example

```
iqtcl_StopStimulus $connectID $stimHandle
```

See also:

5.17.1.12 iqtcl_GetStimDiscovery

After downloading a data file, the target needs analyze the data file to determine stream information (data type, bitrate, etc). This call will start that process.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

A ByteArray Object identical to that returned from the iqtcl_GetCensusFirst API method.

Example

```
set censusData [ iqtcl_GetStimDiscovery $connectID $stimHandle ]
```

See also:

iqtcl_GetCensusFirst

5.17.1.13 iqtcl_StopStimDiscovery

Stop the target from continuing in the StimDiscovery phase for a downloaded file.

Note:

This method stops the process started by the iqtcl_GetStimDiscovery API call.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopStimDiscovery $connectID $stimHandle
```

See also:

5.17.1.14 iqtcl_SetTracer

Set the requested stream as a TRACER stream.

Note:

The stream ID is supplied as part of the census retrieval, or can be retrieved with the iqtcl_GetStreamID API call.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The stream ID to set.

Returns:

TCL_OK or TCL_ERROR

Example

iqtcl_SetTracer $connectID $streamID

See also:

iqtcl_GetStreamID

5.17.1.15 iqtcl_ClearTracer

Stop sending the stream as a TRACER stream.

Note:

The stream ID is supplied as part of the census retrieval, or can be retrieved with the iqtcl_GetStreamID API call.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***streamID*** The ID of stream to stop sending as tracer.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_ClearTracer $connectID $streamID
```

See also:

5.18 Stimulus Modification Methods

Functions

- iqtcl_SetXCount
- iqtcl_SetIPDrops
- iqtcl_SetIPJitter
- iqtcl_SetDFJitter
- iqtcl_SetPCRBitrate
- iqtcl_SetBitrate
- iqtcl_DropPid
- iqtcl_StopIPDrops
- iqtcl_StopIPJitter
- iqtcl_StopDFJitter
- iqtcl_StopDropPid

5.18.1 Detailed Description

Methods for Stimulus Modifications

5.18.1.1 iqtcl_SetXCount

Set the replication count for the stream.

Note:

Parameters:

- ← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.
- ← ***stimhandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.
- ← ***num*** The number of copies of the stream. Setting this value to 0 results in a single stream being transmitted.

Returns:

TCL_OK or TCL_ERROR

Example

To send 22 copies of a sream:

```
iqtcl_SetXCount $connectID $stimhandle 22
```

See also:

5.18.1.2 iqtcl_SetIPDrops

Drop IP Packets to cause packet loss to appear to the receiving stations.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***mode*** The drop mode to use - can be one of the following:

- 2 = Drop a specific number of packets (drop N)
- 4 = Drop a specific number of packets per packet count (drop N every X)

← ***drops*** The number of packets to drop (N)

← ***pass*** The number of packets to pass (X)

Returns:

TCL_OK or TCL_ERROR

Example

To drop 10 every 100 packets:

```
set mode   4
set drops 10
set pass  90
iqtcl_SetIPDrops $connectID $stimHandle $mode $drops $pass
```

See also:

5.18.1.3 iqtcl_SetIPJitter

Set the jitter value on the IP packets.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***mode*** The jitter mode - can be one of the following:

- 2 = Drop a specific number of packets (drop N)
- 4 = Drop a specific number of packets per packet count (drop N every X)

← ***drops*** The number of packets to drop (N)

← ***pass*** The number of packets to pass (X)

Returns:

TCL_OK or TCL_ERROR

Example

To drop 10 eve ry 100 packets:

```
set mode 3
set drops 10
set pass 100
iqtcl_SetIPDrops $connectID $stimHandle $mode $drops $pass
```

See also:

5.18.1.4 iqtcl_SetDFJitter

Set the current DF Jitter for the stream.

Note:

This will set a DF value for a stream. The stream will delay the arrival time of packets to achieve the desired DF value, and then burst other packets to maintain the expected bitrate.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***jitter*** The amount of DF jitter to add.

Returns:

TCL_OK or TCL_ERROR

Example

To set 100ms of DF Jitter:

```
iqtcl_SetDFJitter $connectID $stimHandle 100
```

See also:

5.18.1.5 iqtcl_SetPCRBitrate

Set the PCR bitrate of the stream.

Note:

This will vary the PCR bitrate away from the 27 Mhz default.

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimhandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***PcrBitrate*** The new PCR Bitrate in MHz.

Returns:

TCL_OK or TCL_ERROR

Example

To Set PCR bitrate to 28 MHz:

```
iqtcl_SetPCRBitrate $connectID $stimhandle 28
```

See also:

5.18.1.6 iqtcl_SetBitrate

Set the bitrate that the stream should be transmitted at.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimhandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***type*** The detection mode for the bitrare - can be one of the following values

- 0 = Default mode
- 1 = Detected Bitrate
- 2 = Received Bitrate
- 3 = User Defined Bitrate

← ***newBitrate*** The new bitrate of the stream

Returns:

TCL_OK or TCL_ERROR

Example

To change a video stream to 3.5 Mb/s:

```
set newBitrate 3500000
set type 3
iqtcl_SetBitrate $connectID $stimHandle $type $newBitrate
```

See also:

5.18.1.7 iqtcl_DropPid

Start dropping the designated Pid from the video stream.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

← ***pidID*** The Pid ID to drop.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_DropPid $connectID $stimHandle 0x81
```

See also:

5.18.1.8 iqtcl_StopIPDrops

Stop the IP Drops modification set using the iqtcl_SetIPDrops API method.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopIPDrops $connectID $stimHandle
```

See also:

5.18.1.9 iqtcl_StopIPJitter

Stop the IP Jitter modification set using the iqtcl_SetIPJitter API method.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopIPJitter $connectID $stimHandle
```

See also:

5.18.1.10 iqtcl_StopDFJitter

Stop the DF Jitter modification set using the iqtcl_SetDFJitter API method.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopDFJitter $connectID $stimHandle
```

See also:

5.18.1.11 iqtcl_StopDropPid

Stop the PID drop modification set using the iqtcl_DropPid API method.

Note:

Parameters:

← ***connectID*** The connection ID returned from the iqtcl_ConnectTo or iqtcl_OpenConnection methods.

← ***stimHandle*** The stimulus handle returned from the iqtcl_OpenStimulus API method.

Returns:

TCL_OK or TCL_ERROR

Example

```
iqtcl_StopDropPid $connectID $stimHandle
```

See also:

Chapter 6

Data Structure Documentation

6.1 tALARMHANDLE Struct Reference

6.1.1 Field Documentation

6.1.1.1 tTAG tag

6.1.1.2 char timestamp[32]

6.1.1.3 char handle[384]

6.1.1.4 char description[80]

6.2 tALARMINFO Struct Reference

6.2.1 Field Documentation

6.2.1.1 tTAG tag

6.2.1.2 UINT32 Id

6.2.1.3 UINT16 alarmId

6.2.1.4 UINT8 status

6.2.1.5 UINT8 severity

6.2.1.6 UINT32 streamId

6.2.1.7 UINT32 threshold

6.2.1.8 UINT32 value

6.2.1.9 WINT64 timestamp

6.3 tALIASCONFIG Struct Reference

Data Fields

- tTAG tag
- UINT32 id
- UINT32 srcIpAddress
- UINT32 destIpAddress
- UINT32 srcIpMask
- UINT32 destIpMask
- UINT16 srcPort
- UINT16 destPort
- char name [TEMPLATE_NAME_SIZE]
- UINT8 igmpStatus
- UINT8 modType
- UINT8 mac [6]
- char fmTemplate [TEMPLATE_NAME_SIZE]
- UINT16 fieldMask
- UINT8 bJoined
- UINT8 configStatus
- UINT32 ssrc
- UINT8 aliasType
- char charTemplate [TEMPLATE_NAME_SIZE]
- int vlanTci
- UINT8 videoType
- UINT8 tunerSdvType
- UINT32 tunerSdvMaxBw
- char tunerSdvDesc [TEMPLATE_NAME_SIZE]
- UINT32 intendedBitrate
- UINT8 intendedType
- UINT16 tsId
- UINT32 igmpSets
- UINT16 ports

6.3.1 Field Documentation

6.3.1.1 tTAG tag

structs TLV tag

6.3.1.2 UINT32 id

id

6.3.1.3 UINT32 srcIpAddress

source IP address

6.3.1.4 UINT32 destIpAddress

destination IP address

6.3.1.5 UINT32 srcIpMask

source netmask

6.3.1.6 UINT32 destIpMask

destination netmask

6.3.1.7 UINT16 srcPort

source port

6.3.1.8 UINT16 destPort

desination port

6.3.1.9 char name[TEMPLATE_NAME_SIZE]

alias name

6.3.1.10 UINT8 igmpStatus

IGMP status

6.3.1.11 UINT8 modType

modType

6.3.1.12 UINT8 mac[6]

MAC address

6.3.1.13 char fmTemplate[TEMPLATE_NAME_SIZE]

fm template

6.3.1.14 UINT16 fieldMask

field mask

6.3.1.15 UINT8 bJoined

boolean for joined IGMP flow

6.3.1.16 UINT8 configStatus

configStatus

6.3.1.17 UINT32 ssrc

ssrc

6.3.1.18 UINT8 aliasType

aliasType

6.3.1.19 char charTemplate[TEMPLATE_NAME_SIZE]

char template

6.3.1.20 int vlanTci

VLAN tag control info

6.3.1.21 UINT8 videoType

video type

6.3.1.22 UINT8 tunerSdvType

tunerSdvType

6.3.1.23 UINT32 tunerSdvMaxBw

tunerSdvMaxBw

6.3.1.24 char tunerSdvDesc[TEMPLATE_NAME_SIZE]

tunerSdvDesc

6.3.1.25 UINT32 intendedBitrate

intendedBitrate

6.3.1.26 UINT8 intendedType

intendedType

6.3.1.27 UINT16 tsId

transport stream ID

6.3.1.28 UINT32 igmpSets

IGMP set(s) of which this flow is a member

6.3.1.29 UINT16 ports

ports

6.4 tALIASNAME Struct Reference

6.4.1 Field Documentation

6.4.1.1 tTAG tag

6.4.1.2 char alias[80]

6.5 tASISTATUS Struct Reference

6.5.1 Field Documentation

6.5.1.1 tTAG tag

6.5.1.2 UINT32 status

6.5.1.3 UINT32 id

6.5.1.4 UINT32 hostIP

6.6 tCENTRY Struct Reference

6.6.1 Field Documentation

6.6.1.1 tTAG tag

6.6.1.2 UINT32 ID

6.6.1.3 WINT64 timestamp

6.6.1.4 UINT32 flags

6.6.1.5 UINT8 streamType

6.6.1.6 UINT8 hdrSize

6.6.1.7 UINT16 payloadSize

6.6.1.8 UINT32 bitrate

6.6.1.9 UINT32 detectedBitrate

6.6.1.10 UINT32 extFlags

6.7 tETHINFO Struct Reference

6.7.1 Field Documentation

6.7.1.1 tTAG tag

6.7.1.2 UINT8 destMac[6]

6.7.1.3 UINT8 srcMac[6]

6.8 tIGMPEVENT Struct Reference

6.8.1 Field Documentation

6.8.1.1 tTAG tag

6.8.1.2 UINT32 handle

6.8.1.3 UINT32 address

6.8.1.4 UINT32 vlan

6.8.1.5 UINT32 srcFilter

6.8.1.6 UINT32 minTime

6.8.1.7 UINT32 maxTime

6.8.1.8 UINT32 lastTime

6.8.1.9 UINT32 avgTime

6.8.1.10 UINT32 result[4]

6.8.1.11 struct { ... } join

6.8.1.12 struct { ... } leave

6.8.1.13 UINT8 state

6.9 tIGMPGROUPS Struct Reference

6.9.1 Field Documentation

6.9.1.1 tTAG tag

6.9.1.2 UINT32 address[2]

6.10 tIGMPSTATS Struct Reference

6.10.1 Field Documentation

6.10.1.1 tTAG tag

6.10.1.2 UINT32 handle

6.10.1.3 UINT32 flags

6.10.1.4 UINT32 address

6.10.1.5 UINT32 minTime

6.10.1.6 UINT32 maxTime

6.10.1.7 UINT32 lastTime

6.10.1.8 UINT32 avgTime

6.10.1.9 UINT32 nSuccess

6.10.1.10 UINT32 nFail

6.10.1.11 UINT32 vlan

6.10.1.12 UINT32 srcFilter

6.10.1.13 UINT32 lastLveTime

6.11 tIGMPSTATUS Struct Reference

6.11.1 Field Documentation

6.11.1.1 tTAG tag

6.11.1.2 UINT32 taskStatus

6.12 tIPINFO Struct Reference

6.12.1 Field Documentation

6.12.1.1 tTAG tag

6.12.1.2 UINT32 srcIP

6.12.1.3 UINT32 dstIP

6.12.1.4 UINT16 srcPort

6.12.1.5 UINT16 dstPort

6.12.1.6 UINT8 protocol

6.12.1.7 UINT8 tos

6.12.1.8 UINT16 vlanID

6.13 tIXF18103CTRS Struct Reference

Data Fields

- WINT64 TxTotalOctets
- WINT64 TxMulticastFrames
- WINT64 TxBroadcastFrames
- WINT64 TxTotalFrames
- WINT64 TxSizeFrames [7]
- WINT64 TxVLANFrames
- WINT64 TxPAUSECtrlFrames
- WINT64 TxUnicastFrames
- WINT64 TxMACCtrlFrames
- WINT64 RxTotalOctets
- WINT64 RxMulticastFrames
- WINT64 RxBroadcastFrames
- WINT64 RxTotalFrames
- WINT64 RxSizeFrames [7]
- WINT64 RxVLANFrames
- WINT64 RxPAUSECtrlFrames
- WINT64 RxUnicastFrames
- WINT64 RxMACCtrlFrames
- WINT64 RxEthUndersized
- WINT64 RxEthOversized
- WINT64 RxEthOctets
- WINT64 RxEthPkts
- WINT64 RxEthFragments
- WINT64 RxEthJabbers
- WINT64 RxEthFcs
- WINT64 TxTotalBytes
- WINT64 RxTotalBytes
- WINT64 RxBadFrames
- WINT64 RxGoodFrames

6.13.1 Field Documentation

6.13.1.1 tTAG tag

6.13.1.2 WINT64 TxTotalOctets

transmit_octets_counter - cleared on SNAP

6.13.1.3 WINT64 TxMulticastFrames

transmit_mcast_counter

6.13.1.4 WINT64 TxBroadcastFrames

transmit_bcast_counter

6.13.1.5 WINT64 TxTotalFrames

transmit_pkt_counter

6.13.1.6 WINT64 TxSizeFrames[7]

transmit_64_octets to transmit_MAX_octets_counter

6.13.1.7 WINT64 TxVLANFrames

transmit_VLAN_counter

6.13.1.8 WINT64 TxPAUSECtrlFrames

transmit_pausectl_counter

6.13.1.9 WINT64 TxUnicastFrames

transmit_unicast_counter

6.13.1.10 WINT64 TxMACCtrlFrames

transmit_MAC_ctl_counter

6.13.1.11 WINT64 RxTotalOctets

receive_octets_counter - cleared on SNAP

6.13.1.12 WINT64 RxMulticastFrames

receive_mcast_counter

6.13.1.13 WINT64 RxBroadcastFrames

receive_bcast_counter

6.13.1.14 WINT64 RxTotalFrames

receive_pkt_counter

6.13.1.15 WINT64 RxSizeFrames[7]

receive_64_octets to transmit_MAX_octets_counter

6.13.1.16 WINT64 RxVLANFrames

receive_VLAN_counter

6.13.1.17 WINT64 RxPAUSECtrlFrames

receive_pausectl_counter

6.13.1.18 WINT64 RxUnicastFrames

receive_unicast_counter

6.13.1.19 WINT64 RxMACCtrlFrames

receive_MAC_ctl_counter

6.13.1.20 WINT64 RxEthUndersized

receive_eth_undersize_pkt_counter

6.13.1.21 WINT64 RxEthOversized

receive_eth_oversize_pkt_counter

6.13.1.22 WINT64 RxEthOctets

receive_eth_octet_counter

6.13.1.23 WINT64 RxEthPkts

receive_eth_pkt_counter

6.13.1.24 WINT64 RxEthFragments

receive_eth_fragment_counter

6.13.1.25 WINT64 RxEthJabbers

receive_eth_jabber_counter

6.13.1.26 WINT64 RxEthFcs

receive_eth_fcs_error_counter

6.13.1.27 WINT64 TxTotalBytes

NOT cleared on snap

6.13.1.28 WINT64 RxTotalBytes

NOT cleared on snap

6.13.1.29 WINT64 RxBadFrames

RxBadFrames

6.13.1.30 WINT64 RxGoodFrames

RxGoodFrames

6.14 tMDIINFO Struct Reference

6.14.1 Field Documentation

6.14.1.1 tTAG tag

6.14.1.2 UINT32 nSamples

6.14.1.3 UINT32 dfMin

6.14.1.4 UINT32 dfMax

6.14.1.5 UINT32 dfCurrent

6.14.1.6 UINT32 dfAvg

6.14.1.7 WINT64 dfTotal

6.14.1.8 UINT32 mlMin

6.14.1.9 UINT32 mlMax

6.14.1.10 UINT32 mlCurrent

6.14.1.11 UINT32 mlAvg

6.14.1.12 WINT64 mlTotal

6.14.1.13 UINT32 ml15

6.14.1.14 UINT32 ml24

6.14.1.15 UINT32 vbMin

6.14.1.16 UINT32 vbMax

6.14.1.17 UINT32 vbCurrent

6.14.1.18 UINT32 vbAvg

6.14.1.19 WINT64 vbTotal

6.15 tMPEG2INFO Struct Reference

6.15.1 Field Documentation

6.15.1.1 tTAG tag

6.15.1.2 UINT16 networkPid

6.15.1.3 UINT8 nPrograms

6.15.1.4 UINT8 patVersion

6.15.1.5 UINT8 mtspSize

6.15.1.6 UINT32 nProgramAdded

6.15.1.7 UINT32 nProgramRemoved

6.15.1.8 UINT16 tsId

6.16 tMPEG2PID Struct Reference

6.16.1 Field Documentation

6.16.1.1 tTAG tag

6.16.1.2 UINT16 pid

6.16.1.3 UINT8 type

6.16.1.4 UINT8 flags

6.16.1.5 UINT32 nSamples

6.16.1.6 UINT32 pbrMin

6.16.1.7 UINT32 pbrMax

6.16.1.8 UINT32 pbrCurrent

6.16.1.9 UINT32 pbrAvg

6.16.1.10 WINT64 pbrTotal

6.16.1.11 UINT32 ccErrCurrent

6.16.1.12 UINT32 ccErrTotal

6.16.1.13 UINT32 extFlags

6.16.1.14 UINT32 outagePd

6.16.1.15 UINT32 lossRatio

6.16.1.16 UINT32 stateTime

6.16.1.17 UINT32 outages

6.16.1.18 UINT16 language

6.16.1.19 UINT16 misc

6.16.1.20 UINT8 duplicate[3]

6.17 tMPEG2PROGRAM Struct Reference

6.17.1 Field Documentation

6.17.1.1 tTAG tag

6.17.1.2 UINT16 nChannel

6.17.1.3 UINT8 nPids

6.17.1.4 char name[64]

6.17.1.5 char aliasName[TEMPLATE_NAME_SIZE]

6.17.1.6 UINT16 chanNumber

6.17.1.7 UINT8 progStatus

6.17.1.8 UINT8 alarmPids

6.17.1.9 char deviceRef[48]

6.17.1.10 UINT32 flags

6.17.1.11 UINT32 curBitrate

6.17.1.12 UINT32 stateTime

6.17.1.13 char providerName[64]

6.17.1.14 UINT32 totLoss

6.17.1.15 UINT16 curMlr

6.17.1.16 UINT16 firstPidIndex

6.17.1.17 UINT32 crc

6.18 tMTSPSTATS Struct Reference

6.18.1 Field Documentation

6.18.1.1 tTAG tag

6.18.1.2 UINT32 ccErrTotal

6.18.1.3 UINT32 ccErrCurrent

6.18.1.4 UINT32 syncError

6.18.1.5 UINT32 syncErrorTotal

6.18.1.6 UINT16 totalPids

6.18.1.7 UINT16 monPids

6.18.1.8 UINT16 almPids

6.18.1.9 UINT16 future

6.18.1.10 UINT32 nSamples

6.18.1.11 UINT32 pbrMin

6.18.1.12 UINT32 pbrMax

6.18.1.13 UINT32 pbrCurrent

6.18.1.14 UINT32 pbrAvg

6.18.1.15 WINT64 pbrTotal

6.19 tNAMETAG Struct Reference

6.19.1 Field Documentation

6.19.1.1 tTAG tag

6.19.1.2 char name[32]

6.20 tNemoCtrs Struct Reference

Data Fields

- WINT64 RxOctetsTotal
- WINT64 RxPacketsTotal
- WINT64 RxPacketsUnicast
- WINT64 RxPacketsMulticast
- WINT64 RxPacketsBroadcast
- WINT64 RxPackets [7]
- WINT64 TxOctetsTotal
- WINT64 TxPacketsTotal
- WINT64 TxPacketsUnicast
- WINT64 TxPacketsMulticast
- WINT64 TxPacketsBroadcast
- WINT64 TxPackets [7]
- WINT64 RxCrcError
- WINT64 RxErrors [3]

6.20.1 Field Documentation

6.20.1.1 WINT64 RxOctetsTotal

0x00

6.20.1.2 WINT64 RxPacketsTotal

0x08

6.20.1.3 WINT64 RxPacketsUnicast

0x10

6.20.1.4 WINT64 RxPacketsMulticast

0x18

6.20.1.5 WINT64 RxPacketsBroadcast

0x20

6.20.1.6 WINT64 RxPackets[7]

0x28

6.20.1.7 WINT64 TxOctetsTotal

0x60

6.20.1.8 WINT64 TxPacketsTotal

0x68

6.20.1.9 WINT64 TxPacketsUnicast

0x70

6.20.1.10 WINT64 TxPacketsMulticast

0x78

6.20.1.11 WINT64 TxPacketsBroadcast

0x80

6.20.1.12 WINT64 TxPackets[7]

0x88

6.20.1.13 WINT64 RxCrcError

0xC0

6.20.1.14 WINT64 RxErrors[3]

0xC8

6.21 tNEMOCTRS Struct Reference

6.21.1 Field Documentation

6.21.1.1 tTAG tag

6.21.1.2 struct tNemoCtrs ctrs `[read]`

6.22 tOldMPEG2PROGRAM Struct Reference

6.22.1 Field Documentation

6.22.1.1 tTAG tag

6.22.1.2 UINT16 nChannel

6.22.1.3 UINT16 pmtPid

6.22.1.4 UINT16 pcrPid

6.22.1.5 UINT8 nPids

6.23 tPMPIDSTATS Struct Reference

6.23.1 Field Documentation

6.23.1.1 tTAG tag

6.23.1.2 UINT32 maxBr

6.23.1.3 UINT32 minBr

6.23.1.4 UINT32 loss

6.23.1.5 UINT16 alarms

6.23.1.6 UINT16 ess

6.23.1.7 UINT32 ivlFaults

6.23.1.8 UINT32 avgBr

6.23.1.9 UINT16 outages

6.23.1.10 UINT16 outagePd

6.23.1.11 UINT32 ivlMask

6.23.1.12 UINT32 ivlHist

6.23.1.13 UINT32 ivlState

6.24 tPMPIDTOTALSTATS Struct Reference

6.24.1 Field Documentation

6.24.1.1 tTAG tag

6.24.1.2 UINT32 stopTime

6.24.1.3 UINT32 totalBr

6.24.1.4 UINT32 mlt24

6.24.1.5 UINT16 stateFlags

6.24.1.6 UINT16 totAlarms

6.24.1.7 UINT32 totEss

6.24.1.8 UINT32 totOutagePd

6.25 tPMPROGRAMIVLSTATS Struct Reference

Data Fields

- tTAG tag
- UINT32 maxBr
- UINT32 minBr
- UINT16 ess
- UINT8 outPids
- UINT8 alarms
- UINT16 maxMlr
- UINT16 mls15
- UINT32 mlt15
- UINT32 ivlMask
- UINT32 ivlFaults
- UINT32 ivlHist
- UINT8 progStatus
- UINT8 almPids
- UINT8 monPids
- UINT8 monOutPids
- UINT16 outages
- UINT16 outagePd
- UINT16 totOutagePd
- UINT16 totEss
- UINT16 totScteEvts
- UINT8 monitors
- UINT8 ivlFlags
- UINT32 avgBr
- UINT8 lastProgStatus
- UINT8 lossAlarms
- UINT16 totMls
- UINT16 maxMLp
- UINT16 minMLd
- UINT32 stateChanges

6.25.1 Field Documentation

6.25.1.1 tTAG tag

tag

6.25.1.2 UINT32 maxBr

maxBr

6.25.1.3 UINT32 minBr

minBr

6.25.1.4 UINT16 ess

ess

6.25.1.5 UINT8 outPids

outPids

6.25.1.6 UINT8 alarms

alarms

6.25.1.7 UINT16 maxMlr

maxMlr

6.25.1.8 UINT16 mls15

mls15

6.25.1.9 UINT32 mlt15

mlt15

6.25.1.10 UINT32 ivlMask

ivlMask

6.25.1.11 UINT32 ivlFaults

ivlFaults

6.25.1.12 UINT32 ivlHist

ivlHist

6.25.1.13 UINT8 progStatus

progStatus

6.25.1.14 UINT8 almPids

almPids

6.25.1.15 UINT8 monPids

monPids

6.25.1.16 UINT8 monOutPids

monPids

6.25.1.17 UINT16 outages

outagePd

6.25.1.18 UINT16 outagePd

outagePd

6.25.1.19 UINT16 totOutagePd

totEss

6.25.1.20 UINT16 totEss

totEss

6.25.1.21 UINT16 totScteEvts

totScteEvts

6.25.1.22 UINT8 monitors

monitors

6.25.1.23 UINT8 ivlFlags

ivlFlags

6.25.1.24 UINT32 avgBr

ivlFlags

6.25.1.25 UINT8 lastProgStatus

lastProgStatus

6.25.1.26 UINT8 lossAlarms

lastProgStatus

6.25.1.27 UINT16 totMls

totMls

6.25.1.28 UINT16 maxMLp

maxMLp

6.25.1.29 UINT16 minMLd

maxMLp

6.25.1.30 UINT32 stateChanges

maxMLp

6.26 tPMPROGRAMTOTSTATS Struct Reference

6.26.1 Field Documentation

6.26.1.1 tTAG tag

6.26.1.2 UINT32 mlt24

6.26.1.3 UINT32 ess

6.26.1.4 UINT32 mls24

6.26.1.5 UINT32 scteEvtTime

6.26.1.6 UINT32 stateCount

6.26.1.7 UINT32 pidStateCount

6.26.1.8 UINT32 totScteEvts

6.26.1.9 UINT32 maxMLp

6.26.1.10 UINT32 curMLp

6.26.1.11 UINT32 curMLd

6.26.1.12 UINT32 totEss

6.26.1.13 UINT32 totMLT

6.26.1.14 UINT32 totMLS

6.26.1.15 UINT32 totOutagePd

6.26.1.16 UINT32 totMaxMLp

6.26.1.17 UINT32 totMinMLd

6.27 tPMSTREAMGRAPHMETRICS Struct Reference

Data Fields

- tTAG tag
- UINT32 streamId
- UINT32 ivlTime
- UINT32 minBitRate
- UINT32 maxBitRate
- UINT32 pktLoss
- UINT32 mdiDf
- UINT16 rtpLd
- UINT16 Mls
- UINT16 Ess
- UINT16 Sess
- UINT16 Pess
- UINT16 starts
- UINT16 lastFlowPayldStatus
- UINT16 minPktRate
- UINT16 maxPktRate
- UINT16 minVBuffer
- UINT16 faultStatus
- UINT16 outagePd
- UINT32 faultTime
- UINT32 maxVBuffer
- UINT32 minVTsb
- UINT32 maxVTsb
- UINT16 lossProgCount
- UINT8 monPrograms
- UINT8 fltPrograms
- UINT8 monTsPids
- UINT8 fltTsPids
- UINT8 extFlags
- UINT8 flags
- UINT32 eMask [4]
- UINT32 eFaults [4]
- UINT32 eHistory [4]
- UINT32 rtpLoss
- UINT32 rtpLossEvts
- UINT16 rtplP
- UINT16 retryReqs
- UINT16 retryFills
- UINT16 usrFeebacks
- UINT16 rtpLs
- UINT16 flowPayldStatus
- float lossPercent
- UINT32 eStateChanges [4]

6.27.1 Field Documentation

6.27.1.1 tTAG tag

tag

6.27.1.2 UINT32 streamId

tag

6.27.1.3 UINT32 ivlTime

ivlTime

6.27.1.4 UINT32 minBitRate

minBitRate

6.27.1.5 UINT32 maxBitRate

maxBitRate

6.27.1.6 UINT32 pktLoss

pktLoss

6.27.1.7 UINT32 mdiDf

pktLoss

6.27.1.8 UINT16 rtpLd

rtpLd

6.27.1.9 UINT16 Mls

Mls

6.27.1.10 UINT16 Ess

Ess

6.27.1.11 UINT16 Sess

Sess

6.27.1.12 UINT16 Pess

Pess (formerly Uass)

6.27.1.13 UINT16 starts

starts

6.27.1.14 UINT16 lastFlowPayldStatus

lastFlowPayldStatus

6.27.1.15 UINT16 minPktRate

minPktRate

6.27.1.16 UINT16 maxPktRate

maxPktRate

6.27.1.17 UINT16 minVBuffer

maxPktRate

6.27.1.18 UINT16 faultStatus

faultStatus

6.27.1.19 UINT16 outagePd

outagePd

6.27.1.20 UINT32 faultTime

faultTime

6.27.1.21 UINT32 maxVBuffer

maxVBuffer

6.27.1.22 UINT32 minVTsb

minVTsb

6.27.1.23 UINT32 maxVTsb

lossProgCount

6.27.1.24 UINT16 lossProgCount

lossProgCount

6.27.1.25 UINT8 monPrograms

fltPrograms

6.27.1.26 UINT8 fltPrograms

fltPrograms

6.27.1.27 UINT8 monTsPids

monTsPids

6.27.1.28 UINT8 fltTsPids

fltTsPids

6.27.1.29 UINT8 extFlags

extFlags

6.27.1.30 UINT8 flags

flags

6.27.1.31 UINT32 eMask[4]

eMask

6.27.1.32 UINT32 eFaults[4]

eFaults

6.27.1.33 UINT32 eHistory[4]

eHistory

6.27.1.34 UINT32 rtpLoss

rtpLoss

6.27.1.35 UINT32 rtpLossEvts

rtpLossEvts

6.27.1.36 UINT16 rtplP

rtplP

6.27.1.37 UINT16 retryReqs

retryReqs

6.27.1.38 UINT16 retryFills

retryFills

6.27.1.39 UINT16 usrFeebacks

usrFeebacks

6.27.1.40 UINT16 rtpLs

rtpLs

6.27.1.41 UINT16 flowPayldStatus

flowPayldStatus

6.27.1.42 float lossPercent

lossPercent

6.27.1.43 UINT32 eStateChanges[4]

eStateChanges

6.28 tPMSTREAMMETRICS Struct Reference

6.28.1 Field Documentation

6.28.1.1 tTAG tag

6.28.1.2 UINT32 streamId

6.28.1.3 UINT32 Sdps

6.28.1.4 UINT32 Mls

6.28.1.5 UINT32 Ess

6.28.1.6 UINT32 Sess

6.28.1.7 UINT32 Uass

6.28.1.8 UINT32 starts

6.28.1.9 UINT32 faults

6.28.1.10 UINT32 flags

6.29 tPMSTREAMTOTALMETRICS Struct Reference

Data Fields

- tTAG tag
- UINT32 streamId
- UINT16 progNoAliasCnt
- UINT16 progAliases
- UINT32 Mls24
- UINT32 Ess
- UINT32 Sess
- UINT32 Pess
- UINT32 Actss
- UINT32 Totss
- UINT32 Totsts
- UINT32 pktLoss
- UINT32 outagePd
- UINT32 outageCt
- UINT32 Mls
- UINT32 usrQos
- UINT32 ls24
- UINT32 rtpLoss24
- float lossPercent
- UINT32 stateTime
- UINT32 progStateCount
- UINT32 flowStateCount
- UINT32 ledToFaultMap
- UINT32 mgtId
- UINT32 totOutagePd
- UINT32 totMloss
- UINT32 totEss
- UINT32 totPess

6.29.1 Field Documentation

6.29.1.1 tTAG tag

tag

6.29.1.2 UINT32 streamId

streanId

6.29.1.3 UINT16 progNoAliasCnt

progNoAliasCnt

6.29.1.4 UINT16 progAliases

progAliases

6.29.1.5 UINT32 Mls24

Mls24

6.29.1.6 UINT32 Ess

Ess

6.29.1.7 UINT32 Sess

Sess

6.29.1.8 UINT32 Pess

Pess (formerly Uass)

6.29.1.9 UINT32 Actss

Actss

6.29.1.10 UINT32 Totss

Totss

6.29.1.11 UINT32 Totsts

Totsts

6.29.1.12 UINT32 pktLoss

outagePd

6.29.1.13 UINT32 outagePd

outagePd

6.29.1.14 UINT32 outageCt

outageCt

6.29.1.15 UINT32 Mls

Mls

6.29.1.16 UINT32 usrQos

usrQos

6.29.1.17 UINT32 ls24

ls24

6.29.1.18 UINT32 rtpLoss24

rtpLoss24

6.29.1.19 float lossPercent

lossPercent

6.29.1.20 UINT32 stateTime

stateTime

6.29.1.21 UINT32 progStateCount

progStateCount

6.29.1.22 UINT32 flowStateCount

flowStateCount

6.29.1.23 UINT32 ledToFaultMap

ledToFaultMap

6.29.1.24 UINT32 mgtId

mgtId

6.29.1.25 UINT32 totOutagePd

total Stats

6.29.1.26 UINT32 totMloss

totMloss

6.29.1.27 UINT32 totEss

totEss

6.29.1.28 UINT32 totPess

totPess

6.30 tPMSYSTEMMETRICS Struct Reference

Data Fields

- tTAG tag
- UINT32 ivlTime
- UINT16 tNewStreams [12]
- UINT16 tBadStreams [4]
- UINT16 tMaxStreams [4]
- UINT16 tMinStreams [4]
- UINT32 mediaLoss
- UINT32 fltMapChanged
- UINT16 blueStreams [MAX_SYS_VIDEO_TYPES]
- UINT16 greyStreams [MAX_SYS_VIDEO_TYPES]
- UINT16 greenStreams [MAX_SYS_VIDEO_TYPES]
- UINT16 redStreams [MAX_SYS_VIDEO_TYPES]
- UINT16 orangeStreams [MAX_SYS_VIDEO_TYPES]
- UINT16 util [MAX_SYS_VIDEO_TYPES]
- UINT16 activeStreams [MAX_SYS_VIDEO_TYPES]
- UINT16 usrQos
- UINT16 retryReqs
- UINT16 evtsP0 [3]
- UINT16 evtsP1 [3]
- UINT16 retryFills
- UINT16 mls
- UINT16 maxLp
- UINT16 minLp
- UINT16 lpErrors
- UINT16 minLd
- UINT32 ipLoss
- UINT16 bcastStreams
- UINT16 evtsP2 [3]
- UINT8 systemStatus
- UINT8 flags
- UINT16 trapSentRate
- UINT32 timestamp

6.30.1 Field Documentation

6.30.1.1 tTAG tag

tag

6.30.1.2 UINT32 ivlTime

ivlTime

6.30.1.3 UINT16 tNewStreams[12]

tNewStreams

6.30.1.4 UINT16 tBadStreams[4]

tBadStreams

6.30.1.5 UINT16 tMaxStreams[4]

tMaxStreams

6.30.1.6 UINT16 tMinStreams[4]

tMinStreams

6.30.1.7 UINT32 mediaLoss

mediaLoss

6.30.1.8 UINT32 fltMapChanged

fltMapChanged

6.30.1.9 UINT16 blueStreams[MAX_SYS_VIDEO_TYPES]

blueStreams

6.30.1.10 UINT16 greyStreams[MAX_SYS_VIDEO_TYPES]

greyStreams

6.30.1.11 UINT16 greenStreams[MAX_SYS_VIDEO_TYPES]

greenStreams

6.30.1.12 UINT16 redStreams[MAX_SYS_VIDEO_TYPES]

redStreams

6.30.1.13 UINT16 orangeStreams[MAX_SYS_VIDEO_TYPES]

orangeStreams

6.30.1.14 UINT16 util[MAX_SYS_VIDEO_TYPES]

util

6.30.1.15 UINT16 activeStreams[MAX_SYS_VIDEO_TYPES]

activeStreams

6.30.1.16 UINT16 usrQos

usrQos

6.30.1.17 UINT16 retryReqs

retryReqs

6.30.1.18 UINT16 evtsP0[3]

evtsP0

6.30.1.19 UINT16 evtsP1[3]

evtsP1

6.30.1.20 UINT16 retryFills

retryFills

6.30.1.21 UINT16 mls

mls

6.30.1.22 UINT16 maxLp

maxLp

6.30.1.23 UINT16 minLp

minLp

6.30.1.24 UINT16 lpErrors

lpErrors

6.30.1.25 UINT16 minLd

minLd

6.30.1.26 UINT32 ipLoss

ipLoss

6.30.1.27 UINT16 bcastStreams

bcastStreams

6.30.1.28 UINT16 evtsP2[3]

evtsP2

6.30.1.29 UINT8 systemStatus

systemStatus

6.30.1.30 UINT8 flags

flags

6.30.1.31 UINT16 trapSentRate

trapSentRate

6.30.1.32 UINT32 timestamp

timestamp

6.31 tRTPINFO Struct Reference

6.31.1 Field Documentation

6.31.1.1 tTAG tag

6.31.1.2 UINT8 payloadType

6.32 tRTPSTATS Struct Reference

6.32.1 Field Documentation

6.32.1.1 tTAG tag

6.32.1.2 UINT32 seqErrTotal

6.32.1.3 UINT32 seqErrCurrent

6.32.1.4 UINT32 ldMin

6.32.1.5 UINT32 lpMax

6.32.1.6 UINT32 ldCurrent

6.32.1.7 UINT32 lpCurrent

6.32.1.8 UINT32 ldErrors

6.32.1.9 UINT32 lpErrors

6.32.1.10 UINT32 lossDuration

6.32.1.11 UINT32 lossEvtCurrent

6.32.1.12 UINT32 lossEvtTotal

6.32.1.13 float lossPercent

6.32.1.14 UINT32 dupCurrent

6.32.1.15 UINT32 dupTotal

6.32.1.16 UINT32 oosCurrent

6.32.1.17 UINT32 oosTotal

6.33 tSTREAMSTATS Struct Reference

Data Fields

- tTAG tag
- UINT32 nSamples
- UINT16 pktSizeMin
- UINT16 pktSizeMax
- UINT32 lbrMin
- UINT32 lbrMax
- UINT32 lbrCurrent
- UINT32 lbrAvg
- WINT64 lbrTotal
- UINT32 mbrMin
- UINT32 mbrMax
- UINT32 mbrCurrent
- UINT32 mbrAvg
- WINT64 mbrTotal
- UINT32 utilMin
- UINT32 utilMax
- UINT32 utilCurrent
- UINT32 utilAvg
- WINT64 utilTotal
- UINT32 faultStatus
- UINT32 faultMap
- UINT32 faultHistory
- UINT32 faultTime
- UINT32 decayCount
- UINT8 tos
- UINT32 userFeedback
- UINT32 pktMin
- UINT32 pktMax
- UINT32 pktCurrent
- UINT32 pktAvg
- WINT64 pktTotal

6.33.1 Field Documentation

6.33.1.1 tTAG tag

tag

6.33.1.2 UINT32 nSamples

nSamples

6.33.1.3 UINT16 pktSizeMin

pktSizeMin

6.33.1.4 UINT16 pktSizeMax

pktSizeMax

6.33.1.5 UINT32 lbrMin

line byte rate

6.33.1.6 UINT32 lbrMax

lbrMax

6.33.1.7 UINT32 lbrCurrent

lbrCurrent

6.33.1.8 UINT32 lbrAvg

lbrAvg

6.33.1.9 WINT64 lbrTotal

lbrTotal

6.33.1.10 UINT32 mbrMin

media byte rate

6.33.1.11 UINT32 mbrMax

mbrMax

6.33.1.12 UINT32 mbrCurrent

mbrCurrent

6.33.1.13 UINT32 mbrAvg

mbrAvg

6.33.1.14 WINT64 mbrTotal

mbrTotal

6.33.1.15 UINT32 utilMin

stream utilization

6.33.1.16 UINT32 utilMax

utilMax

6.33.1.17 UINT32 utilCurrent

utilCurrent

6.33.1.18 UINT32 utilAvg

utilAvg

6.33.1.19 WINT64 utilTotal

Stream Fault Status

6.33.1.20 UINT32 faultStatus

Deprecated. Alarms are NOW 64 bits

6.33.1.21 UINT32 faultMap

we can use this space(16 bytes) for any future.

6.33.1.22 UINT32 faultHistory

stream level data

6.33.1.23 UINT32 faultTime

faultTime

6.33.1.24 UINT32 decayCount

decayCount

6.33.1.25 UINT8 tos

latest TOS field

6.33.1.26 UINT32 userFeedback

button presses

6.33.1.27 UINT32 pktMin

packet count

6.33.1.28 UINT32 pktMax

pktMax

6.33.1.29 UINT32 pktCurrent

pktCurrent

6.33.1.30 UINT32 pktAvg

pktAvg

6.33.1.31 WINT64 pktTotal

pktTotal

6.34 tTAG Struct Reference

6.34.1 Field Documentation

6.34.1.1 UINT16 type

6.34.1.2 UINT16 size

6.35 tTAPSTATUS Struct Reference

6.35.1 Field Documentation

6.35.1.1 tTAG tag

6.35.1.2 UINT32 status

6.35.1.3 UINT32 id

6.35.1.4 UINT32 hostIP

6.36 tTARGETINFO Struct Reference

6.36.1 Field Documentation

6.36.1.1 tTAG tag

6.36.1.2 UINT32 targetMode

6.36.1.3 WINT64 timeDate

6.36.1.4 char targetName[32]

6.36.1.5 char targetLocation[32]

6.36.1.6 char targetContact[32]

6.37 tTRITENCTRS Struct Reference

6.37.1 Field Documentation

6.37.1.1 tTAG tag

6.37.1.2 tTritenCtrs ctrs

6.38 tTritenCtrs Struct Reference

Data Fields

- WINT64 RxOctetsGood
- WINT64 RxOctetsBad
- WINT64 RxPacketsUnicast
- WINT64 RxPacketsMulticast
- WINT64 RxPacketsBroadcast
- WINT64 RxPackets [7]
- WINT64 RxFcsErrors
- WINT64 RxTagged
- WINT64 RxDataErrors
- WINT64 RxAlignErrors
- WINT64 RxLongErrors
- WINT64 RxJabberErrors
- WINT64 RxPauseControl
- WINT64 RxUnknownControl
- WINT64 RxVeryLongErrors
- WINT64 RxRuntErrors
- WINT64 RxShortErrors
- WINT64 CarrierExtendErrors
- WINT64 RxSequenceErrors
- WINT64 RxSymbolErrors
- WINT64 RxTotalOctets
- WINT64 RxTotalPackets
- WINT64 RxTotalErrors
- WINT64 TxOctetsGood
- WINT64 TxOctetsBad
- WINT64 TxPacketsUnicast
- WINT64 TxPacketsMulticast
- WINT64 TxPacketsBroadcast
- WINT64 TxPackets [7]
- WINT64 TxDeffered
- WINT64 TxTotalCollisions
- WINT64 TxSingleCollisions
- WINT64 TxMultipleCollisions
- WINT64 TxLateCollisions
- WINT64 TxExcessiveCollisionErrors
- WINT64 TxExcessiveDefferalErrors
- WINT64 TxExcessiveLengthDrop
- WINT64 TxUnderrun
- WINT64 TxTagged
- WINT64 TxFcsErrors
- WINT64 TxPauseFrames
- WINT64 TxFlowControlCollisions
- WINT64 TxTotalOctets
- WINT64 TxTotalPackets
- WINT64 TxTotalErrors
- WINT64 TapPacketsDropped
- WINT64 TapBytesDropped

6.38.1 Field Documentation

6.38.1.1 WINT64 RxOctetsGood

RxOctetsGood

6.38.1.2 WINT64 RxOctetsBad

RxOctetsGood

6.38.1.3 WINT64 RxPacketsUnicast

RxPacketsUnicast

6.38.1.4 WINT64 RxPacketsMulticast

RxPacketsUnicast

6.38.1.5 WINT64 RxPacketsBroadcast

RxPacketsUnicast

6.38.1.6 WINT64 RxPackets[7]

RxPackets

6.38.1.7 WINT64 RxFcsErrors

RxPackets

6.38.1.8 WINT64 RxTagged

RxTagged

6.38.1.9 WINT64 RxDataErrors

RxTagged

6.38.1.10 WINT64 RxAlignErrors

RxAlignErrors

6.38.1.11 WINT64 RxLongErrors

RxLongErrors

6.38.1.12 WINT64 RxJabberErrors

RxJabberErrors

6.38.1.13 WINT64 RxPauseControl

RxPauseControl

6.38.1.14 WINT64 RxUnknownControl

RxUnknownControl

6.38.1.15 WINT64 RxVeryLongErrors

RxVeryLongErrors

6.38.1.16 WINT64 RxRuntErrors

RxRuntErrors

6.38.1.17 WINT64 RxShortErrors

RxShortErrors

6.38.1.18 WINT64 CarrierExtendErrors

CarrierExtendErrors

6.38.1.19 WINT64 RxSequenceErrors

RxSequenceErrors

6.38.1.20 WINT64 RxSymbolErrors

RxSymbolErrors

6.38.1.21 WINT64 RxTotalOctets

RxTotalOctets

6.38.1.22 WINT64 RxTotalPackets

RxTotalPackets

6.38.1.23 WINT64 RxTotalErrors

RxTotalErrors

6.38.1.24 WINT64 TxOctetsGood

TxOctetsGood

6.38.1.25 WINT64 TxOctetsBad

TxOctetsBad

6.38.1.26 WINT64 TxPacketsUnicast

TxPacketsUnicast

6.38.1.27 WINT64 TxPacketsMulticast

TxPacketsMulticast

6.38.1.28 WINT64 TxPacketsBroadcast

TxPacketsBroadcast

6.38.1.29 WINT64 TxPackets[7]

TxPackets

6.38.1.30 WINT64 TxDeffered

TxDeffered

6.38.1.31 WINT64 TxTotalCollisions

TxTotalCollisions

6.38.1.32 WINT64 TxSingleCollisions

TxSingleCollisions

6.38.1.33 WINT64 TxMultipleCollisions

TxMultipleCollisions

6.38.1.34 WINT64 TxLateCollisions

TxLateCollisions

6.38.1.35 WINT64 TxExcessiveCollisionErrors

TxExcessiveCollisionErrors

6.38.1.36 WINT64 TxExcessiveDefferalErrors

TxExcessiveDefferalErrors

6.38.1.37 WINT64 TxExcessiveLengthDrop

TxExcessiveLengthDrop

6.38.1.38 WINT64 TxUnderrun

TxUnderrun

6.38.1.39 WINT64 TxTagged

TxTagged

6.38.1.40 WINT64 TxFcsErrors

TxFcsErrors

6.38.1.41 WINT64 TxPauseFrames

TxPauseFrames

6.38.1.42 WINT64 TxFlowControlCollisions

TxFlowControlCollisions

6.38.1.43 WINT64 TxTotalOctets

TxTotalOctets

6.38.1.44 WINT64 TxTotalPackets

TxTotalPackets

6.38.1.45 WINT64 TxTotalErrors

TxTotalErrors

6.38.1.46 WINT64 TapPacketsDropped

TapPacketsDropped

6.38.1.47 WINT64 TapBytesDropped

TapBytesDropped

6.39 tTUNERRFMAP Struct Reference

6.39.1 Field Documentation

6.39.1.1 tTAG tag

6.39.1.2 UINT32 num

6.39.1.3 UINT32 freq

6.39.1.4 UINT32 symbolRate

6.40 tTUNERSTATS Struct Reference

Data Fields

- UINT32 freq
- UINT8 chan
- UINT8 signal
- UINT8 mod
- UINT8 id
- UINT8 active
- UINT32 nSamples
- UINT32 snrMin
- UINT32 snrMax
- UINT32 snrCurrent
- UINT32 snrAvg
- WINT64 snrTotal
- UINT32 rsUcCurrent
- UINT32 rsUcTotal
- UINT32 rsCoCurrent
- UINT32 rsCoTotal
- char chanPre
- UINT32 rsUcPercent
- UINT32 rsCoPercent
- WINT64 rsBytesTotal
- UINT8 tuner
- UINT8 align
- UINT32 flags
- UINT32 nSamplesRxPwr
- INT32 rxPwrMin
- INT32 rxPwrMax
- INT32 rxPwrCurrent
- INT32 rxPwrAvg
- INT64 rxPwrTotal
- UINT32 nSamplesBer
- float berPreMin
- float berPreMax
- float berPreCurrent
- float berPreAvg
- float berPreTotal
- float berPostMin
- float berPostMax
- float berPostCurrent
- float berPostAvg
- float berPostTotal

6.40.1 Field Documentation

6.40.1.1 tTAG tag

6.40.1.2 UINT32 freq

frequency (Hz)

6.40.1.3 UINT8 chan

channel

6.40.1.4 UINT8 signal

signal status

6.40.1.5 UINT8 mod

modulation

6.40.1.6 UINT8 id

identifier

6.40.1.7 UINT8 active

active/tuned flag

6.40.1.8 UINT32 nSamples

nSamples)

6.40.1.9 UINT32 snrMin

SNR min (dB x 1000)

6.40.1.10 UINT32 snrMax

SNR max (dB x 1000)

6.40.1.11 UINT32 snrCurrent

SNR current (dB x 1000)

6.40.1.12 UINT32 snrAvg

SNR average (dB x 1000)

6.40.1.13 WINT64 snrTotal

SNR total

6.40.1.14 UINT32 rsUcCurrent

Reed-Solomon uncorrected errors current

6.40.1.15 UINT32 rsUcTotal

Reed-Solomon uncorrected errors total

6.40.1.16 UINT32 rsCoCurrent

Reed-Solomon corrected errors current

6.40.1.17 UINT32 rsCoTotal

Reed-Solomon corrected errors total

6.40.1.18 char chanPre

optional channel number prefix character

6.40.1.19 UINT32 rsUcPercent

Reed-Solomon uncorrected percent x 10000

6.40.1.20 UINT32 rsCoPercent

Reed-Solomon corrected percent x 10000

6.40.1.21 WINT64 rsBytesTotal

rsBytesTotal

6.40.1.22 UINT8 tuner

tuner number if more than one tuner/port

6.40.1.23 UINT8 align

align

6.40.1.24 UINT32 flags

flags

6.40.1.25 UINT32 nSamplesRxPwr

nSamplesRxPwr

6.40.1.26 INT32 rxPwrMin

Rx power min (dBmV x 10)

6.40.1.27 INT32 rxPwrMax

Rx power max (dBmV x 10)

6.40.1.28 INT32 rxPwrCurrent

Rx power current (dBmV x 10)

6.40.1.29 INT32 rxPwrAvg

Rx power average (dBmV x 10)

6.40.1.30 INT64 rxPwrTotal

Rx power total (dBmV x 10)

6.40.1.31 UINT32 nSamplesBer

nSamplesBer

6.40.1.32 float berPreMin

BER pre-FEC min

6.40.1.33 float berPreMax

BER pre-FEC max

6.40.1.34 float berPreCurrent

BER pre-FEC current

6.40.1.35 float berPreAvg

BER pre-FEC average

6.40.1.36 float berPreTotal

BER pre-FEC total

6.40.1.37 float berPostMin

BER post-FEC min

6.40.1.38 float berPostMax

BER post-FEC max

6.40.1.39 float berPostCurrent

BER post-FEC current

6.40.1.40 float berPostAvg

BER post-FEC average

6.40.1.41 float berPostTotal

BER post-FEC total

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