

INTRODUCTION

TCNet is originally designed by developers from the entertainment industry to create an open communication protocol between devices or software to share real-time Time Code and Meta Data. The protocol is open and free to be used and everyone can contribute.

COMMUNICATION VIA NODES

TCNet is designed to have virtually unlimited amount of nodes that can participate. Each node is identified by its own unique MAC address and can have one of three roles: Auto, Master, Slave or Repeater. For example: A Master generates TCNet Time Code packets and sends these to all Slaves in network, A Slave only receives TCNet Metadata and Timing packets. A Repeater is capable of receiving AND sending TCNet Metadata and Timing Packets. No matter what role a node is, it is capable to send and receive TCNet Control Message packets.

TCNet Opt-IN packets are sent by a node, every 1000 milliseconds to establish and keep participation in a TCNet network.

Each node finds and populates other nodes this way and holds a active population list of all nodes and its functions, listener port and timer.

When a node disconnects or disappears from a TCNet network, it should be automatically deleted from the population list.

NETWORK PORTS

TCNet communicates via the UDP protocol. The following ports are used:

Broadcast ports:

60000 - Used for broadcasted messages like Opt-IN and Opt-OUT messages

60000 - Used for Application Specific Data (Non public data shared between applications)

60001 - Used for broadcasting TCNet Time Packets

Unicast ports:

65023-65535 - Used for unicast messages. (Default is 65023)

NETWORK PARTICIPATION

To join a TCNet network the following steps need to be taken:

First step:

Create an internal timer that runs from 0-999999 Microseconds (This can also be done by using computers internal clock and take Microseconds of each second cycle)

Second step:

Open a listener on port 60000,60001,60002 to receive TCNet broadcast packets.

Third step:

Send a TCNet GW Opt-IN package every 1000 milliseconds, containing basic information and functionality of the node. (See: OPT-IN/OPT-OUT MESSAGES)

Fourth step:

Wait for incoming Opt-IN messages and keep track of all nodes in a list. Each Node tells what port to use to communicate.

Additional step:

Perform a time sync between all discovered nodes. (See: SYNC MESSAGES)

After joining a TCNet network, depending on your node's role, you can send and receive information.

The basic rule is that only a Master or Repeater can send data and that a Slave or Repeater only can request data.



OPT-IN/OPT-OUT MESSAGES

The following Opt-In/Opt-Out message types are defined in this document:

- 002 – TCNet OPT-IN Packet (Broadcast on port 60000)
- 003 – TCNet OPT-OUT Packet (Broadcast on port 60000)

STATUS MESSAGES

Broadcast of Realtime Status messages:

- 005 – TCNet Status Packet (Broadcast on port 60000, Unicast to all slaves)

SYNC MESSAGES

The following Sync message types are defined in this document:

- 010 – TCNet Time Sync Packet (Unicast on port Target-Node-Port)

NOTIFICATION MESSAGES

Control messages are special messages that allow remote control TCNet nodes. (Full documentation upon request)
The following control message types are defined in this document:

- 013 – TCNet Error Notification Packet (Unicast on port Target-Node-Port)
- 020 – TCNet Request Packet (Unicast on port Target-Node-Port)
- 030 – TCNet Application Specific Data Packet (Broadcast on port 60001, Unicast on Target-Node-Port)

CONTROL MESSAGES

Control messages are special messages that allow remote control TCNet nodes. (Full documentation upon request)
The following control message types are defined in this document:

- 101 – TCNet Control Messages (Unicast on port Target-Node-Port)
- 128 – TCNet Text Data (Broadcast on port 60000 or Unicast on port Target-Node-Port)
- 132 – TCNet Keyboard Data (Broadcast on port 60000 or Unicast on port Target-Node-Port)

DATA PACKETS

Data message types are messages containing data such as metadata, timing data, waveform data, cues etc.
The following data message types are defined in this document:

- 200 - TCNet Data Packet - Metrics Data (Unicast on port Target-Node-Port) (Type 2)
- 200 - TCNet Data Packet - Metadata (Unicast on port Target-Node-Port) (Type 4)
- 200 - TCNet Data Packet - Beat Grid Info (Unicast on port Target-Node-Port) (Type 8)
- 200 - TCNet Data Packet - Cue Data Info (Unicast on port Target-Node-Port) (Type 12)
- 200 - TCNet Data Packet - Small Wave Form (Unicast on port Target-Node-Port) (Type 16)
- 200 - TCNet Data Packet - Big Wave Form (Unicast on port Target-Node-Port) (Type 32)
- 200 - TCNet Data Packet - Mixer Data (Unicast to all slaves) (Type 150)

FILE PACKETS

File packet types are packets containing data such as images and audio files.
The following data message types are defined in this document:

- 204 - TCNet Data File Packet – Low Res Artwork Image (Unicast on port Target-Node-Port) (Type 128)

APPLICATION SPECIFIC DATA PACKETS

Application Specific Data packet types are packets containing data exchanged between applications.
The following data message types are defined in this document:

- 213 - TCNet Application Specific Data (Broadcast on port 60000, Unicast on Target-Node-Port)

TIMING PACKETS

Time Packets are time critical and updated at high rates.

- 254 - TCNet Time Packet (Broadcast on port 60001, Unicast on Target-Node-Port)

NODE OPTIONS

When a node opts in on a TCNet network, the communication flags can be set in this byte. If you need to set more flags than one, just sum the flags (Flag 1+ Flag 2+ Flag 8 = 11)
The following flags are available:

- 1 – NEED AUTHENTICATION (Authentication for extended communication needed)
- 2 – SUPPORTS TCNCM (Listens to TCNet Control Messages)
- 4 – SUPPORTS TCNASDP (Listens to TCNet Application Specific Data Packet)
- 8 – DND (Do not disturb/Sleeping. Node will request data itself if needed to avoid traffic)



FLAME VERSIONS

To make sure TCNet is backwards compatible, a flame number is used for each addition or change. To make your applications backwards compatible with older versions, always check for the protocol version of incoming packets.

INFORMATION

For more background information or documentation, please don't hesitate to make inquiries to dev@eiglive.com.



TCNet Opt-IN Packet

Functionality Present and keep alive a node into a TCNet network.
Type Broadcast and Unicast
Port UDP(60000) and destination node's port
Size 68
Behavior Broadcast every 1000ms

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	6	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	2	Type 2: TCNet OPT-IN	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Node Count	24	2	0-65535 (LITTLE ENDIAN)	Amount of Registered Nodes	V3-1
Node Listener Port	26	2	65023-65535 (LITTLE ENDIAN)	Listener Port for Unicast Messages	V3-1
Uptime	28	2	0-43199 (LITTLE ENDIAN)	Uptime of Node in SEC	V3-2
RESERVED	30	2		RESERVED	V3-2
Vendor Name	32	16	ASCII TEXT	Vendor	V3-2
Application/Device Name	48	16	ASCII TEXT	Application / Device Name	V3-2
Application/Device Major Version	64	1	0-255	Application/Device Major Version	V3-2
Application/Device Minor Version	65	1	0-255	Application/Device Minor Version	V3-2
Application/Device Bug Version	66	1	0-255	Application/Device Minor Version	V3-2
RESERVED	67	1		RESERVED	V3-2

* See details below:

TCNet Opt-IN Packet – Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=2
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Node Count Number of nodes registered by system
Node Listener Port Listener port of node (Used to receive unicast messages)
Uptime Up time of Node in seconds. (!) **Must Roll over / Reset every 12 hours.**
Vendor Name Name of Vendor of Node
Application/Device Name Name of Application/Device (Node)
Major Version Major Version of Node
Minor Version Minor Version of Node
Bug Version Bug Version of Node

TCNet Opt-IN Packet – Usage

In order to correctly implement the Opt-In usage, the following steps are needed.

- Step 1:**
Create a Opt-IN packet and make sure your Node Listeners Port value is correct.
- Step 2:**
Broadcast every 1000ms a Opt-IN packet to port 60000
- Step 3:**
Unicast every 1000ms a Opt-IN packet to each discovered node, targeting that node's port. This ensures that when a node doesn't receive broadcast messages, it still can discover your node.



TCNet Opt-OUT Packet

Functionality Notifies other nodes that node leaves network.
Type Broadcast and Unicast
Port UDP(60000) and destination node's port
Size 28
Behavior Broadcast and Unicast once when leaving network

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	3	Type 3: TCNet OPT-OUT	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Node Count	24	2	0-65535 (LITTLE ENDIAN)	Amount of Registered Nodes	V3-1
Node Listener Port	26	2	65023-65535 (LITTLE ENDIAN)	Listener Port for Unicast Messages	V3-1

* See details below:

TCNet Opt-OUT Packet - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. Value=3
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Timestamp in microseconds that is used to calculate network latency.
Node Count Number of nodes registered by system
Node Listener Port Listener port of node (Used to receive unicast messages)

TIP:
 In case of a disconnect of a Master Node in the network, the next master is chosen by looking at all Nodes running as Node Type 1 (Auto Master). The node that has the highest Uptime including Timestamp becomes the new master. This node changes its type to 2 (Master) and starts its services as such.



TCNet Status Packet

Functionality Status PACKET of current settings on node.
Type Broadcast
Port UDP(60000)
Size 300
Behavior Broadcast every 1000ms

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	6	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	5	Type 5: TCNet STATUS	V3-3
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Node Count	24	2	0-65535 (LITTLE ENDIAN)	Amount of Registered Nodes	V3-3
Node Listener Port	26	2	65023-65535 (LITTLE ENDIAN)	Listener Port for Unicast Messages	V3-3
RESERVED	28	6		RESERVED	V3-3
Layer 1 Source	34	1	0-255	Layer 1 Source	V3-3
Layer 2 Source	35	1	0-255	Layer 2 Source	V3-3
Layer 3 Source	36	1	0-255	Layer 3 Source	V3-3
Layer 4 Source	37	1	0-255	Layer 4 Source	V3-3
Layer A Source	38	1	0-255	Layer A Source	V3-3
Layer B Source	39	1	0-255	Layer B Source	V3-3
Layer M Source	40	1	0-255	Layer M Source	V3-3
Layer C Source	41	1	0-255	Layer C Source	V3-3
Layer 1 Status	42	1	0-255	Layer 1 Status	V3-3
Layer 2 Status	43	1	0-255	Layer 2 Status	V3-3
Layer 3 Status	44	1	0-255	Layer 3 Status	V3-3
Layer 4 Status	45	1	0-255	Layer 4 Status	V3-3
Layer A Status	46	1	0-255	Layer A Status	V3-3
Layer B Status	47	1	0-255	Layer B Status	V3-3
Layer M Status	48	1	0-255	Layer M Status	V3-3
Layer C Status	49	1	0-255	Layer C Status	V3-3
Layer 1 Track ID	50	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer 1	V3-3
Layer 2 Track ID	54	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer 2	V3-3
Layer 3 Track ID	58	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer 3	V3-3
Layer 4 Track ID	62	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer 4	V3-3
Layer A Track ID	66	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer A	V3-3
Layer B Track ID	70	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer B	V3-3
Layer M Track ID	74	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer M	V3-3
Layer C Track ID	78	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID for Layer C	V3-3
RESERVED	82	1		RESERVED	V3-3
SMPTE Mode	83	1	0-255	SMPTE Mode	V3-3
Auto Master Mode	84	1	0-255	RESERVED	V3-3



RESERVED	85	15		RESERVED	V3-3
RESERVED (APP SPECIFIC)	100	72		APP SPECIFIC	V3-3
Layer 1 Name	172	16		Name of Layer 1	V3-3-2
Layer 2 Name	188	16		Name of Layer 2	V3-3-2
Layer 3 Name	204	16		Name of Layer 3	V3-3-2
Layer 4 Name	220	16		Name of Layer 4	V3-3-2
Layer A Name	236	16		Name of Layer 5	V3-3-2
Layer B Name	252	16		Name of Layer 6	V3-3-2
Layer M Name	268	16		Name of Layer 7	V3-3-2
Layer C Name	284	16		Name of Layer 8	V3-3-2

* See details below:

TCNet Status Packet – Details

Node ID	Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version	Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header	TCNet Protocol Header (Must be "TCN")
Message Type	Message type of packet: STATUS - Value=5
Node Name	GW Code of software/machine/source that sends packet. (8 Characters) Example: ABCDEFGH
SEQ	Sequence number of packet. (See Sequence number)
Node Type	Node Type Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options	Node options: See Node Options
Timestamp	Time stamp in microseconds that is used to calculate network latency.
Node Count	Number of nodes registered by system
Node Listener Port	Listener port of node (Used to receive unicast messages)
Layer Source	Source number of layer
Layer Status	Play head status of layer Example: 0=IDLE, 3=PLAYING, 4=LOOPING, 5=PAUSED, 6=STOPPED, 7=CUE BUTTON DOWN, 8=PLATTER DOWN, 9=FFWD, 10=FFRV, 11=HOLD
Layer Track ID	Track ID of track loaded on layer
SMPTE Mode	SMPTE Mode set on node Values: 24=24FPS, 25=25FPS, 29=29.7FPS, 30=30FPS
Auto Master Mode	Auto Master mode on node (0=Disabled, 1=HTP Master, 2=Link Master)
App Specific	Application Specific Data
Layer Name	Name of Layer



TCNet Time Sync Packet

Functionality	Send and Receive Time Sync Data.
Type	Unicast
Port	UDP(Target-Node-Port)
Size	32
Behavior	Response Required

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	10	Type 10: TCNet Time Sync Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
STEP	24	1	0-3	Step No	V3-1
RESERVED	25	1		RESERVED	
Node Listener Port	26	2	65023-65535 (LITTLE ENDIAN)	Listener Port for Unicast Messages	V3-2
Remote Timestamp	28	4	0-999999 (LITTLE ENDIAN)	Timestamp of Remote Node	V3-2

* See details below:

TCNet Time Sync Packet - Details

Node ID	Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version	Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header	TCNet Protocol Header (Must be "TCN")
Message Type	Message type of packet. - Value=10
Node Name	GW Code of software/machine/source that sends packet. (8 Characters) Example: ABCDEFGH
SEQ	Sequence number of packet. (See Sequence number)
Node Type	Node Type Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options	Node options: See Node Options
Timestamp	Time stamp in microseconds that is used to calculate network latency.
Step	Current step in process (0=Initialize, 1=Response)
Node Listener Port	Listener port of node (Used to receive unicast messages)
Remote Timestamp	Time stamp send by remote node in Sync Message

TCNet Time Sync Packet – Usage

Step 1:
Initializer send a TCNet Time Sync Message to remote node with Timestamp=Current timer in microseconds and STEP number=0

Step 2:
Remote node receives message and sends message back with Timestamp=Remote node's current timer in microseconds, STEP number=1 and Remote Timestamp= Initializer's original timestamp

Step 3:
Initializer received message back and calculates remote node's current time by:
 $Delay = (Current\ timer - Remote\ timestamp) / 2$
 Time of remote node = Timestamp + Delay

Optional:
In order to get a more accurate timing, you can initialize the routine again and calculate more accurate by:
 $Delay\ 1 = (Current\ timer - Remote\ timestamp) / 2$
 $Delay\ 2 = (Current\ timer - Remote\ timestamp) / 2$
 Time of remote node = Timestamp + ((Delay1+Delay2) / 2)

Note:
To keep track of this time, for each remote node, an internal timer should be created to keep track of current time of node.



TCNet Error / Notification

Functionality Notifies that a request is not handled
Type Unicast
Port UDP(Target-Node-Port)
Size 30
Behavior Send when a request is not handled or caused an error or for notifications, this message is sent back to notify requesting node.

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	13	Type 13: TCNet Error Notification	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Datatype	24	1	0-FF	Data type of Request	V3-1
Layer ID	25	1	0-FF	Layer ID of original request	V3-1
Code	26	2	(LITTLE ENDIAN)	Returned Code	V3-1
Message Type	28	2	(LITTLE ENDIAN)	Message type of Request	V3-1

* See details below:

TCNet Error / Notification - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet: - Value=13
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Data type Data type of failed request
Layer ID Layer ID of original request. If request was not targeted for specific layer, this value = 0
Code Error / Notification Code. The following protocol codes are defined
 001 – Request Unknown (An unknown request is made)
 013 – Request Not Possible/Featured (A request is recognized but can't be handled by node)
 014 – Request Data = EMPTY (When a request is made for data and data is empty, this could be used to notify requesting node that there is nothing to send.
 255 – Request Response: OK
Message Type Request ID (Message Type)



TCNet Request Packet

Functionality Request Data from other Node
Type Unicast
Port UDP(Target-Node-Port)
Size 26
Behavior Request is sent to a master or repeater node.As result the node will send back a packet containing small wave data or a request error message.

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	20	Type 20: TCNet Request Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	0-255	Data Type	V3-1
Layer	25	1	0-255	Layer where data belongs to	V3-1

* See details below:

TCNet Request Packet - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet: - Value=20
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Data Type Data Type to request
Layer Layer where Data is requested for



TCNet Control Packet

Functionality Send and Receive Control Packets to control nodes remotely.
Type Unicast
Port UDP(Target-Node-Port)
Size 42 + Datasize
Behavior Response Required

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	101	Type 101: TCNet Control	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
STEP	24	1	0-1	Step No	V3-1
RESERVED	25	1		RESERVED	
Data Size	26	4	(LITTLE ENDIAN)	Total Data Size	V3-2
RESERVED	30	12		RESERVED	
Control Path	42	Data Size	ASCII TEXT	String with Control Path	V3-2

* See details below:

TCNet Control Packet – Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=101
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Timestamp in microseconds that is used to calculate network latency.
Step Current step in process (0=Initialize, 1=Response)
Control Path String with Control Path, examples:

To stop a layer remotely: **layer/1/state=6;** (6=stop)
 To set layer A source layer 1: **layer/5/source=1;**
 To set layer M source layer A: **layer/7/source=5;**
 To set state to "play" on layer 2 and force a resync on layer 2: **layer/2/state=3; layer/2/resync;**

As control paths differ per application, contact your software vendor to obtain correct control path's.



TCNet Text Data Packet

Functionality Send and Receive Text Data Packets to control nodes remotely.
Type Broadcast/Unicast
Port UDP(6000 or Target-Node-Port)
Size 42 + Data size
Behavior Response Required

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	128	Type 128: TCNet Text Data	V1-0
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
STEP	24	1	0-1	Step No	V3-1
RESERVED	25	1		RESERVED	
Data Size	26	4	(LITTLE ENDIAN)	Total Data Size	V3-2
RESERVED	30	12		RESERVED	
Text Data	42	Data Size	ASCII TEXT	String Text Data	V3-2

* See details below:

TCNet Text Data Packet – Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=128
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Step Current step in process (0=Initialize, 1=Response)
Text Data Raw text data string



TCNet Keyboard Data Packet

Functionality Send and Receive Realtime Keyboard Data Packets to control nodes remotely.
Type Broadcast/Unicast
Port UDP(6000 or Target-Node-Port)
Size 44
Behavior Response Required

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	132	Type 132: TCNet Keyboard Data	V3-2
Node Name	8	8	ASCII TEXT*	Node Name	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
RESERVED	24	1		RESERVED	V3-2
RESERVED	25	1		RESERVED	V3-2
Data Size	26	4	(LITTLE ENDIAN)	Total Data Size	V3-2
RESERVED	30	12		RESERVED	V3-2
Keyboard Data	42	2	HEX ASCII Code	Keyboard Data	V3-2

* See details below:

TCNet Keyboard Data Packet – Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=132
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Timestamp in microseconds that is used to calculate network latency.
Step Current step in process (0=Initialize, 1=Response)
Keyboard Data Raw text data string



TCNet Data Packet – Metrics Data

Functionality Updates Metrics Data for Layer
Type Unicast
Port UDP(Target-Node-Port)
Size 122
Behavior Unicast when cache changes.

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	2	Datatype 2 = Metrics	V2-0
Layer ID	25	1	0-FF*	Layer Number	V2-0
RESERVED	26	1		RESERVED	V2-0
Layer State	27	1	0-FF*	Layer State	V2-0
RESERVED	28	1		RESERVED	V2-0
Sync Master	29	1	0-FF*	Sync Master	V2-0
RESERVED	30	1		RESERVED	V2-0
Beat Marker	31	1	0-4*	Beat Marker	V2-0
Track Length	32	4	0-0x5265C00 (LITTLE ENDIAN)	Track Length in Milliseconds	V2-0
Current Position	36	4	0-0x5265C00 (LITTLE ENDIAN)	Play head Position in Milliseconds	V2-0
Speed	40	4	0-20000 (LITTLE ENDIAN)	Play head Speed	V3-2
RESERVED	44	13		RESERVED	V3-0
Beat Number	57	4	(LITTLE ENDIAN)	Beat Number	V3-0
RESERVED	61-111	51			V3-0
BPM	112	4	0-0x1869F* (LITTLE ENDIAN)	BPM	V3-0
Pitch Bend	116	2	(16-BIT) 0-FFFF* (LITTLE ENDIAN)	Pitch Bend	V3-0
Track ID	118	4	0-FFFFFF* (LITTLE ENDIAN)	Assigned Track ID	V3-0

* See details next page



TCNet Data Packet - Metrics Data - Details

Node ID	Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version	Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header	TCNet Protocol Header (Must be "TCN")
Message Type	Message type of packet. - Value=200
Node Name	GW Code of software/machine/source that sends packet. (8 Characters) Example: ABCDEFGH
SEQ	Sequence number of packet. (See Sequence number)
Node Type	Node Type Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options	Node options: See Node Options
Timestamp	Time stamp in microseconds that is used to calculate network latency.
Data Type	Datatype of TCNet Data Packet. (Metrics Data = 2)
Layer ID	Layer number of layer sending data. Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED
Layer State	Play head status of layer Example: 0=IDLE, 3=PLAYING, 4=LOOPING, 5=PAUSED, 6=STOPPED, 7=CUE BUTTON DOWN, 8=PLATTER DOWN, 9=FFWD, 10=FFRV, 11=HOLD
Sync Master	Sync master status of layer. Example use of this status is to follow the current active layer and allows auto cue to this layer. Example: 0=Slave / 1=Master
Beat Marker	Beat marker status of layer - Range: 1-4
Track Length	Total track length of layer in milliseconds Example: 0-9999.9999 sec
Location Marker	Play head position of layer Example: 0-9999.9999 sec
Speed Value	Play head speed on layer Example: -0-65536 (Where 32768 = 100% speed, 0 = 0% Speed, 65536=200% speed)
Beat Number	Current Beat Number
BPM Value	Play head BPM speed of layer Example: 0.01-999.99
Speed Bend Value	Play head speed bend value of layer. (Used for live adjust.) Example: 0-65536 (Where 32768 = 100% speed, 0 = 0% Speed, 65536=200% speed)
Track ID	Track ID number of the track that is loaded on layer. This is usually the database ID number. (Used to reflect track selection changes)

Note:

This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=2, Parameter 1=LAYER, Parameter 2=0



TCNet Data Packet - Meta Data

Functionality	Contains metadata of a layer
Type	Unicast
Port	UDP(Target-Node-Port)
Size	548 (May change in future FLAMES)
Behavior	Unicast on update event or upon request

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	4	Datatype 4 = Metadata	V1-0
Layer ID	25	1	0-FF*	Layer ID	V1-0
RESERVED	26	1		RESERVED	V1-0
RESERVED	27	2		RESERVED	V1-0
Track Artist	29	128/256	ASCII TEXT (UTF-8/16 SEE BELOW)	Track Artist Name	V1-0
Track Title	285	128/256	ASCII TEXT (UTF-8/16 SEE BELOW)	Track Title Name	V1-0
Track Key	541	2	(LITTLE ENDIAN)	Track KEY	V3-2
Track ID	543	4	0-FFFFFFFF* (LITTLE ENDIAN)	Assigned Track ID	V3-3

* See details below:

TCNet Data Packet - Meta Data – Details

Node ID	Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version	Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header	TCNet Protocol Header (Must be "TCN")
Message Type	Message type of packet. - Value=200
Node Name	GW Code of software/machine/source that sends packet. (8 Characters) Example: ABCDEFGH
SEQ	Sequence number of packet. (See Sequence number)
Node Type	Node Type Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options	Node options: See Node Options
Timestamp	Timestamp in microseconds that is used to calculate network latency.
Data Type	Datatype of TCNet Meta Data Packet.
Layer ID	Layer number if layer sending data. Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED
Track ID	Track ID number of the track that is loaded on layer. This is usually the source's database ID number.
Track Artist	Artist name of content loaded to layer - Example: My Artist Name (Max 256 characters) Important! TCNet version 1.0 – 3.4.9 uses UTF-8 (Size: 256 bytes = 256 UTF-8 characters) / TCNet version 3.5.0 and above uses UTF-16 (Size: 256 bytes = 64 UTF-16 characters) In order to maintain backwards compatibility, please incorporate both, Unicode standards by checking remote TCNet protocol version (receiving/sending)
Track Name	Track name of content loaded to layer - Example: My Track Title (Max 256 characters)
Track KEY	Audio Key of track

Note:
This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=4, Parameter 1=LAYER, Parameter 2=0



TCNet Data Packet - Beat Grid Data

Functionality Contains Beat Grid Data of layer
Type Unicast
Port UDP(Target-Node-Port)
Size 2442 (May change in future FLAMES)
Behavior Unicast upon request

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data **					
Data Type	24	1	8	Datatype 8 = Beat Grid Data	V3-2
Layer ID	25	1	1-8	Layer Number	V3-2
Data Size	26	4	(LITTLE ENDIAN)	Total Data Size	V3-2
Total Packet	30	4	0-FF*	Total Packets used for data	V3-2
Packet No	34 **	4	(LITTLE ENDIAN)	Packet Number	V3-2
Data Cluster Size	38	4	2400 (LITTLE ENDIAN)	Data Cluster Size	V3-2
Beat Number	42 + OFFSET***	2	(LITTLE ENDIAN)	Beat Number	V3-2
Beat Type	44 + OFFSET***	1	(LITTLE ENDIAN)	20 = Downbeat, 10 = Up Beat	V3-2
RESERVED	45 + OFFSET***	1		RESERVED	V3-2
Beat Time Stamp	46 + OFFSET***	4	(LITTLE ENDIAN)	Timestamp in MS	V3-2

* See details below:

** Data should be split in multiple packets where each packet has a maximum of 2400 bytes of Data (Max Packet Size = 2442)

*** OFFSET = (Beat Number * 8) - (Packet No * 2400)

TCNet Data Packet - Beat Grid Data - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=200
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Data Type Datatype of TCNet Data Packet. (Beat Grid Data=8)
Layer ID Layer number if layer sending data.
 Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED
Total Packets Total amount of packets for data (LITTLE ENDIAN)
Packet No Packet number of data (LITTLE ENDIAN)
Data Size Total data size. Is total of all data send, including in extra packets (LITTLE ENDIAN)
Data Cluster Size Cluster Size of data (Amount of bytes used per cluster to split up total data. - Standard value = 32000)
Beat Number Beat Number (LITTLE ENDIAN)
Beat Type Beat Type (20=Down Beat, 10=Upbeat)
Beat Time Beat Timestamp in MS

Note:

This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=8, Layer=The layer you request data from



TCNet Data Packet - CUE Data

Functionality Contains Cue Data of Layer
Type Unicast
Port UDP(Target-Node-Port)
Size 436 (May change in future FLAMES)
Behavior Unicast upon request

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	12	Datatype 12 = Cue Data	V3-2
Layer ID	25	1	1-8	Layer Number	V3-2
RESERVED	26	16		RESERVED	V3-2
Loop IN	42	4	(LITTLE ENDIAN)	Loop IN Time	V3-2
Loop OUT	46	4	(LITTLE ENDIAN)	Loop OUT Time	V3-2
CUE 1 TYPE	47	1		Cue Type	V3-2
RESERVED	48	1		RESERVED	V3-2
CUE 1 IN TIME	49	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 1 OUT TIME	53	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	57	1			V3-2
CUE 1 COLOR	58	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	61	8			V3-2
CUE 2 TYPE	69	1		Cue Type	V3-2
RESERVED	70	1		RESERVED	V3-2
CUE 2 IN TIME	71	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 2 OUT TIME	75	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	79	1			V3-2
CUE 2 COLOR	80	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	83	8			V3-2
CUE 3 TYPE	91	1		Cue Type	V3-2
RESERVED	92	1		RESERVED	V3-2
CUE 3 IN TIME	93	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 3 OUT TIME	97	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	101	1			V3-2
CUE 3 COLOR	102	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	105	8			V3-2

* See details below:



CUE 4 TYPE	113	1		Cue Type	V3-2
RESERVED	114	1		RESERVED	V3-2
CUE 4 IN TIME	115	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 4 OUT TIME	119	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	123	1			V3-2
CUE 4 COLOR	124	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	127	8			V3-2
CUE 5 TYPE	135	1		Cue Type	V3-2
RESERVED	136	1		RESERVED	V3-2
CUE 5 IN TIME	137	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 5 OUT TIME	141	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	145	1			V3-2
CUE 5 COLOR	146	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	149	8			V3-2
CUE 6 TYPE	157	1		Cue Type	V3-2
RESERVED	158	1		RESERVED	V3-2
CUE 6 IN TIME	159	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 6 OUT TIME	163	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	167	1			V3-2
CUE 6 COLOR	168	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	171	8			V3-2
CUE 7 TYPE	179	1		Cue Type	V3-2
RESERVED	180	1		RESERVED	V3-2
CUE 7 IN TIME	181	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 7 OUT TIME	185	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	189	1			V3-2
CUE 7 COLOR	190	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	193	8			V3-2
CUE 8 TYPE	201	1		Cue Type	V3-2
RESERVED	202	1		RESERVED	V3-2
CUE 8 IN TIME	203	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 8 OUT TIME	207	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	211	1			V3-2
CUE 8 COLOR	212	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	215	8			V3-2
CUE 9 TYPE	223	1		Cue Type	V3-2
RESERVED	224	1		RESERVED	V3-2
CUE 9 IN TIME	225	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 9 OUT TIME	229	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	233	1			V3-2
CUE 9 COLOR	234	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	237	8			V3-2
CUE 10 TYPE	245	1		Cue Type	V3-2
RESERVED	246	1		RESERVED	V3-2
CUE 10 IN TIME	247	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 10 OUT TIME	251	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	255	1			V3-2
CUE 10 COLOR	256	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	259	8			V3-2



CUE 11 TYPE	267	1		Cue Type	V3-2
RESERVED	268	1		RESERVED	V3-2
CUE 11 IN TIME	269	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 11 OUT TIME	273	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	277	1			V3-2
CUE 11 COLOR	278	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	281	8			V3-2
CUE 12 TYPE	289	1		Cue Type	V3-2
RESERVED	290	1		RESERVED	V3-2
CUE 12 IN TIME	291	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 12 OUT TIME	295	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	299	1			V3-2
CUE 12 COLOR	300	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	303	8			V3-2
CUE 13 TYPE	311	1		Cue Type	V3-2
RESERVED	312	1		RESERVED	V3-2
CUE 13 IN TIME	313	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 13 OUT TIME	317	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	321	1			V3-2
CUE 13 COLOR	322	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	325	8			V3-2
CUE 14 TYPE	333	1		Cue Type	V3-2
RESERVED	334	1		RESERVED	V3-2
CUE 14 IN TIME	335	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 14 OUT TIME	339	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	343	1			V3-2
CUE 14 COLOR	344	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	347	8			V3-2
CUE 15 TYPE	355	1		Cue Type	V3-2
RESERVED	356	1		RESERVED	V3-2
CUE 15 IN TIME	357	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 15 OUT TIME	361	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	365	1			V3-2
CUE 15 COLOR	366	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	369	8			V3-2
CUE 16 TYPE	377	1		Cue Type	V3-2
RESERVED	378	1		RESERVED	V3-2
CUE 16 IN TIME	379	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 16 OUT TIME	383	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	387	1			V3-2
CUE 16 COLOR	388	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	391	8			V3-2
CUE 17 TYPE	399	1		Cue Type	V3-2
RESERVED	400	1		RESERVED	V3-2
CUE 17 IN TIME	401	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 17 OUT TIME	405	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	409	1			V3-2
CUE 17 COLOR	410	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	413	8			V3-2

CUE 18 TYPE	421	1		Cue Type	V3-2
RESERVED	422	1		RESERVED	V3-2
CUE 18 IN TIME	423	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
CUE 18 OUT TIME	427	4	(LITTLE ENDIAN)	CUE IN Time	V3-2
RESERVED	431	1			V3-2
CUE 18 COLOR	432	3	BYTE1=RED, BYTE2=GREEN, BYTE 3=BLUE	CUE Color	V3-2
RESERVED	435	8			V3-2

TCNet Data Packet - CUE Data - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.

Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00

Header TCNet Protocol Header (Must be "TCN")

Message Type Message type of packet. - Value=200

Node Name GW Code of software/machine/source that sends packet. (8 Characters)
Example: ABCDEFGH

SEQ Sequence number of packet. (See Sequence number)

Node Type Node Type
Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater

Node Options Node options: See Node Options

Timestamp Time stamp in microseconds that is used to calculate network latency.

Data Type Datatype of TCNet Data Packet. (Cue Data=12)

Layer ID Layer number if layer sending data.
Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED

Loop IN Time of Loop IN

Loop OUT Time of Loop OUT

CUE Type CUE Type

CUE IN Time IN Time of CUE

CUE OUT Time OUT Time of CUE

CUE COLOR Cue Color (1st byte = RED (0-255, 2nd byte = GREEN (0-255, 3rd byte = BLUE (0-255)

Note:

This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=12, Layer=The layer you request data from



TCNet Data Packet - Small Wave Form Data

Functionality Contains Small Wave Form Data of layer
Type Unicast
Port UDP(Target-Node-Port)
Size 2442 (May change in future FLAMES)
Behavior Unicast upon request

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	16	Datatype 16 = Small Waveform	V3-2
Layer ID	25	1	1-8	Layer Number	V3-2
Data Size	26	4	Size=2400 (LITTLE ENDIAN)	Total Datasize	V3-2
Total Packet	30	4	0-FF*	Total Packets used for data	V3-2
Packet No	34	4	(LITTLE ENDIAN)	Packet Number	V3-2
RESERVED	38	4		RESERVED	V3-2
Waveform Data	42-2441	2400	BLevel (Odd Bytes) / BColor (Even Bytes) -0-FF	Wave Form Data as Bar Levels/Bar Color Value	V3-2

* See details below:

TCNet Data Packet – Small Wave Form Data - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=200
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Data Type Datatype of TCNet Data Packet. (Small Waveform=16)
Layer ID Layer number if layer sending data.
 Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED
Total Packets Total number of packets for data (LITTLE ENDIAN)
Packet No Packet number of data
Data Size Total data size
Waveform Data Wave form data: Odd bytes are Bar Levels, Even bytes are Bar Colors (Total = 1200x2 = 2400 bytes)
 BColor value is used to draw the intensity of a Color Bar. If you want to draw a blue waveform, the BColor can be used as follow: RED=BColor Value, GREEN=BColor Value, BLUE=255.
 This gives you the typical Pioneer DJ Waveform look. If you want a green looking waveform, use: RED=BColor Value, GREEN=255, BLUE=Bcolor Value.

Note:
 This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=16, Layer=The layer you request data from



TCNet Data Packet – Big Wave Form Data

Functionality Contains Small Wave Form Data of layer
Type Unicast
Port UDP(Target-Node-Port)
Size Depending on track length
Behavior Unicast upon request

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	32	Datatype 32 = Big Waveform	V3-2
Layer ID	25	1	1-8	Layer Number	V3-2
Data Size	26	4	TOTAL DATA SIZE	Total Data size	V3-2
Total Packet	30	4	0-FF*	Total Packets used for data	V3-2
Packet No	34	4	(LITTLE ENDIAN)	Packet Number	V3-2
Data Cluster Size	38	4	Standard: 4800 (LITTLE ENDIAN)	Data Cluster Size	V3-2
Waveform Data	42 – Max 4842	Max 4842	BLevel (Odd Bytes) / BColor (Even Bytes) -0-FF	Wave Form Data as Bar Levels/Bar Colors	V3-2

* See details below:

TCNet Data Packet - Big Wave Form Data - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=200
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Data Type Datatype of TCNet Data Packet. (Big Waveform=32)
Layer ID Layer number if layer sending data.
 Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED
Total Packets Total amount of packets for data (LITTLE ENDIAN)
Packet No Packet number of data
Data Size Total data size. Is total of all data send, including in extra packets (LITTLE ENDIAN)
Data Cluster Size Cluster Size of data (Amount of bytes used per cluster to split up total data. – Standard value = 32000)
Waveform Data Wave form data: Odd bytes are Bar Levels, Even bytes are Bar Colors
 BColor value is used to draw the intensity of a Color Bar. If you want to draw a blue waveform, the BColor can be used as follow: RED=BColor Value, GREEN=BColor Value, BLUE=255.
 This gives you the typical Pioneer DJ Waveform look. If you want a green looking waveform, use: RED=BColor Value, GREEN=255, BLUE=Bcolor Value.

Note:
 This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=32, Layer=The layer you request data from

TCNet Data Packet – Mixer Data



Functionality Updates Metrics Data for Layer
Type Unicast
Port UDP(Target-Node-Port)
Size 270
Behavior Unicast when cache changes.

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	200	Type 200: TCNet Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	150	Datatype 150 = Mixer Data	V3-5
Mixer ID	25	1	0-FF*	Mixer ID	V3-5
Mixer Type	26	1	0-FF*	Mixer Type	V3-5
RESERVED	27	1		RESERVED	V3-5
RESERVED	28	1		RESERVED	V3-5
Mixer Name	29	16	ASCII TEXT*	Name of Mixer	V3-5
RESERVED	45	12		RESERVED	V3-5
RESERVED	57	2		RESERVED FOR MIC 1-2 LEVEL	V3-5
Mic EQ Hi	59	1		Mic EQ HI	V3-5
Mic EQ Low	60	1		Mic EQ Low	V3-5
Master Audio Level	61	1	0-255	Master Audio Level	V3-5
Master Fader Level	62	1	0-255	Master Fader Level	V3-5
RESERVED	63	4		RESERVED	V3-5
Link Cue A	67	1	0-1	Link CUE A	V3-5
Link Cue B	68	1	0-1	Link CUE B	V3-5
Master Filter	69	1	0-255	Master Filter	V3-5
RESERVED	70	1		RESERVED	V3-5
Master CUE A	71	1	0-1	Master CUE A	V3-5
Master CUE B	72	1	0-1	Master CUE B	V3-5
RESERVED	73	1		RESERVED	V3-5
Master Isolator ON/FF	74	1	0-1	Master Isolator Switch	V3-5
Master Isolator Hi	75	1	0-255	Master Isolator Hi	V3-5
Master Isolator Mid	76	1	0-255	Master Isolator Mid	V3-5
Master Isolator Low	77	1	0-255	Master Isolator Low	V3-5
RESERVED	78	1		RESERVED	V3-5
Filter HPF	79	1	0-255	Filter HPF	V3-5
Filter LPF	80	1	0-255	Filter LPF	V3-5
Filter Resonance	81	1	0-255	Filter Resonance	V3-5
RESERVED	82	2		RESERVED	V3-5
Send FX Effect	84	1	0-255	Send FX Effect	V3-5



Send FX Ext 1	85	1	0-1	Send Return Ext 1	V3-5
Send FX Ext 2	86	1	0-1	Send Return Ext 2	V3-5
Send FX Master Mix	87	1	0-1	Send FX Master Mix	V3-5
Send FX Size Feedback	88	1	0-255	Send FX Size Feedback	V3-5
Send FX Time	89	1	0-255	Send FX Time	V3-5
Send FX HPF	90	1	0-255	Send FX HPF	V3-5
Send FX Level	91	1	0-255	Send FX Level	V3-5
Send Return 3 Source Select	92	1	0-255	Send Return 3 Source Select	V3-5
Send Return 3 Type	93	1	0-255	Send Return 3 Type	V3-5
Send Return 3 ON/OFF	94	1	0-1	Send Return 3 ON/OFF	V3-5
Send Return 3 Level	95	1	0-1	Send Return 3 Level	V3-5
RESERVED	96	1		RESERVED	V3-5
Channel Fader Curve	97	1	0-2	Channel Fader Curve	V3-5
Cross Fader Curve	98	1	0-2	Cross Fader Curve	V3-5
Cross Fader	99	1	0-255	Cross Fader	V3-5
BeatFX ON/OFF	100	1	0-1	BeatFX ON/OFF	V3-5
BeatFX Level/Depth	101	1	0-255	BeatFX Level/Depth	V3-5
BeatFX Channel Select	102	1	0-255	BeatFX Channel Select	V3-5
BeatFX Select	103	1	0-255	BeatFX Select	V3-5
BeatFX Freq Hi	104	1	0-255	BeatFX Frequency Hi	V3-5
BeatFX Freq Mid	105	1	0-255	BeatFX Frequency Mid	V3-5
BeatFX Freq Low	106	1	0-255	BeatFX Frequency Low	V3-5
Headphones Pre EQ	107	1	0-255	Headphones Pre EQ	V3-5
Headphones A Level	108	1	0-255	Headphones A Level	V3-5
Headphones A Mix	109	1	0-255	Headphones A Mix	V3-5
Headphones B Level	110	1	0-255	Headphones B Level	V3-5
Headphones B Mix	111	1	0-255	Headphones B Mix	V3-5
Booth Level	112	1	0-255	Booth Level	V3-5
Booth EQ Hi	113	1	0-255	Booth EQ Hi	V3-5
Booth EQ Low	114	1	0-255	Booth EQ Low	V3-5
RESERVED	115	10		RESERVED	V3-5
Channel 1 Source Select	125	1	0-255	Channel 1 Source Select	V3-5
Channel 1 Audio Level	126	1	0-255	Channel 1 Audio Level	V3-5
Channel 1 Fader Level	127	1	0-255	Channel 1 Fader Level	V3-5
Channel 1 Trim Level	128	1	0-255	Channel 1 Trim Level	V3-5
Channel 1 Comp Level	129	1	0-255	Channel 1 Compressor Level	V3-5
Channel 1 EQ Hi Level	130	1	0-255	Channel 1 EQ Hi Level	V3-5
Channel 1 EQ Hi Mid Level	131	1	0-255	Channel 1 EQ Hi Mid Level	V3-5
Channel 1 EQ Low Mid Level	132	1	0-255	Channel 1 Low Mid Level	V3-5
Channel 1 EQ Low Level	133	1	0-255	Channel 1 Low Level	V3-5
Channel 1 Filter/Color	134	1	0-255	Channel 1 Filter/Color	V3-5
Channel 1 Send	135	1	0-255	Channel 1 Send	V3-5
Channel 1 CUE A	136	1	0-255	Channel 1 CUE A	V3-5
Channel 1 CUE B	137	1	0-255	Channel 1 CUE B	V3-5
Channel 1 Crossfader Assign	138	1	0-255	Channel 1 Crossfader Assign	V3-5
RESERVED	139	10		RESERVED	V3-5
Channel 2 Source Select	149	1	0-255	Channel 2 Source Select	V3-5

Channel 2 Audio Level	150	1	0-255	Chanel 2 Audio Level	V3-5
Channel 2 Fader Level	151	1	0-255	Channel 2 Fader Level	V3-5
Channel 2 Trim Level	152	1	0-255	Channel 2 Trim Level	V3-5
Channel 2 Comp Level	153	1	0-255	Channel 2 Compressor Level	V3-5
Channel 2 EQ Hi Level	154	1	0-255	Channel 2 EQ Hi Level	V3-5
Channel 2 EQ Hi Mid Level	155	1	0-255	Channel 2 EQ Hi Mid Level	V3-5
Channel 2 EQ Low Mid Level	156	1	0-255	Channel 2 Low Mid Level	V3-5
Channel 2 EQ Low Level	157	1	0-255	Channel 2 Low Level	V3-5
Channel 2 Filter/Color	158	1	0-255	Channel 2 Filter/Color	V3-5
Channel 2 Send	159	1	0-255	Channel 2 Send	V3-5
Channel 2 CUE A	160	1	0-255	Channel 2 CUE A	V3-5
Channel 2 CUE B	161	1	0-255	Channel 2 CUE B	V3-5
Channel 2 Crossfader Assign	162	1	0-255	Channel 2 Crossfader Assign	V3-5
RESERVED	163	10	0-255	RESERVED	V3-5
Channel 3 Source Select	173	1	0-255	Channel 3 Source Select	V3-5
Channel 3 Audio Level	174	1		Channel 3 Audio Level	V3-5
Channel 3 Fader Level	175	1	0-255	Channel 3 Fader Level	V3-5
Channel 3 Trim Level	176	1	0-255	Channel 3 Trim Level	V3-5
Channel 3 Comp Level	177	1	0-255	Channel 3 Compressor Level	V3-5
Channel 3 EQ Hi Level	178	1	0-255	Channel 3 EQ Hi Level	V3-5
Channel 3 EQ Hi Mid Level	179	1	0-255	Channel 3 EQ Hi Mid Level	V3-5
Channel 3 EQ Low Mid Level	180	1	0-255	Channel 3 Low Mid Level	V3-5
Channel 3 EQ Low Level	181	1	0-255	Channel 3 Low Level	V3-5
Channel 3 Filter/Color	182	1	0-255	Channel 3 Filter/Color	V3-5
Channel 3 Send	183	1	0-255	Channel 3 Send	V3-5
Channel 3 CUE A	184	1	0-255	Channel 3 CUE A	V3-5
Channel 3 CUE B	185	1	0-255	Channel 3 CUE B	V3-5
Channel 3 Crossfader Assign	186	1	0-255	Channel 3 Crossfader Assign	V3-5
RESERVED	187	10		RESERVED	V3-5
Channel 4 Source Select	197	1	0-255	Channel 4 Source Select	V3-5
Channel 4 Audio Level	198	1	0-255	Chanel 4 Audio Level	V3-5
Channel 4 Fader Level	199	1	0-255	Channel 4 Fader Level	V3-5
Channel 4 Trim Level	200	1	0-255	Channel 4 Trim Level	V3-5
Channel 4 Comp Level	201	1	0-255	Channel 4 Compressor Level	V3-5
Channel 4 EQ Hi Level	202	1	0-255	Channel 4 EQ Hi Level	V3-5
Channel 4 EQ Hi Mid Level	203	1	0-255	Channel 4 EQ Hi Mid Level	V3-5
Channel 4 EQ Low Mid Level	204	1	0-255	Channel 4 Low Mid Level	V3-5
Channel 4 EQ Low Level	205	1	0-255	Channel 4 Low Level	V3-5
Channel 4 Filter/Color	206	1	0-255	Channel 4 Filter/Color	V3-5
Channel 4 Send	207	1	0-255	Channel 4 Send	V3-5
Channel 4 CUE A	208	1	0-255	Channel 4 CUE A	V3-5
Channel 4 CUE B	209	1	0-255	Channel 4 CUE B	V3-5
Channel 4 Crossfader Assign	210	1	0-255	Channel 4 Crossfader Assign	V3-5
RESERVED	211	10		RESERVED	V3-5
Channel 5 Source Select	221	1	0-255	Channel 5 Source Select	V3-5
Channel 5 Audio Level	222	1	0-255	Chanel 5 Audio Level	V3-5
Channel 5 Fader Level	223	1	0-255	Channel 5 Fader Level	V3-5

Channel 5 Trim Level	224	1	0-255	Channel 5 Trim Level	V3-5
Channel 5 Comp Level	225	1	0-255	Channel 5 Compressor Level	V3-5
Channel 5 EQ Hi Level	226	1	0-255	Channel 5 EQ Hi Level	V3-5
Channel 5 EQ Hi Mid Level	227	1	0-255	Channel 5 EQ Hi Mid Level	V3-5
Channel 5 EQ Low Mid Level	228	1	0-255	Channel 5 Low Mid Level	V3-5
Channel 5 EQ Low Level	229	1	0-255	Channel 5 Low Level	V3-5
Channel 5 Filter/Color	230	1	0-255	Channel 5 Filter/Color	V3-5
Channel 5 Send	231	1	0-255	Channel 5 Send	V3-5
Channel 5 CUE A	232	1	0-255	Channel 5 CUE A	V3-5
Channel 5 CUE B	233	1	0-255	Channel 5 CUE B	V3-5
Channel 5 Crossfader Assign	234	1	0-255	Channel 5 Crossfader Assign	V3-5
RESERVED	235	10		RESERVED	V3-5
Channel 6 Source Select	245	1	0-255	Channel 6 Source Select	V3-5
Channel 6 Audio Level	246	1	0-255	Channel 6 Audio Level	V3-5
Channel 6 Fader Level	247	1	0-255	Channel 6 Fader Level	V3-5
Channel 6 Trim Level	248	1	0-255	Channel 4 Trim Level	V3-5
Channel 6 Comp Level	249	1	0-255	Channel 6 Compressor Level	V3-5
Channel 6 EQ Hi Level	250	1	0-255	Channel 6 EQ Hi Level	V3-5
Channel 6 EQ Hi Mid Level	251	1	0-255	Channel 6 EQ Hi Mid Level	V3-5
Channel 6 EQ Low Mid Level	252	1	0-255	Channel 6 Low Mid Level	V3-5
Channel 6 EQ Low Level	253	1	0-255	Channel 6 Low Level	V3-5
Channel 6 Filter/Color	254	1	0-255	Channel 6 Filter/Color	V3-5
Channel 6 Send	255	1	0-255	Channel 6 Send	V3-5
Channel 6 CUE A	256	1	0-255	Channel 6 CUE A	V3-5
Channel 6 CUE B	257	1	0-255	Channel 6 CUE B	V3-5
Channel 6 Crossfader Assign	258	1	0-255	Channel 6 Crossfader Assign	V3-5
RESERVED	259	10		RESERVED	V3-5

* See details next page



TCNet Data Packet - Mixer Data - Details

Node ID	Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version	Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header	TCNet Protocol Header (Must be "TCN")
Message Type	Message type of packet. - Value=200
Node Name	GW Code of software/machine/source that sends packet. (8 Characters) Example: ABCDEFGH
SEQ	Sequence number of packet. (See Sequence number)
Node Type	Node Type Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options	Node options: See Node Options
Timestamp	Time stamp in microseconds that is used to calculate network latency.
Data Type	Datatype of TCNet Data Packet. (Mixer Data = 150)
Mixer ID	ID number of mixer sending data. (Standard = 0)
Mixer Type	Mixer type (Standard = 0, Extended = 2)
Mixer Name	Given name of Mixer
Mic EQ Hi / Low	Value of Microphone EQ Hi / Low
Audio Level	Value of Current Master Audio Level
Link CUE A	Link A Cue button state
Link CUE B	Link B Cue button state
Master Filter	Value of Master Filter
Master Isolator ON/FF	Value of Master Isolator (0=Off, 1=On)
Master Isolator H/M/L	Value of Master Isolator EQ Parameter High/Mid/Low
Filter HPF/LPF	Value of Highpass/Lowpass value of Master Filter
Filter Resonance	Value of Resonance of Master Filter
Send FX Effect	Current Effect selected for Send FX
Send FX Ext	Current state of Send FX 1-2 (0=Off, 1=On)
Send FX Master Mix	Value of Send FX Master Mix
Send FX Size Feedback	Value of Send FX Feedback Size
Send FX Time	Value of Send FX Time
Send FX HPF	Value of Send FX HPF
Send FX Level	Value of Send FX Level
Send Return 3 Source	Setting of Send Return 3 Source switch (0=CH1, 1=CH2, 2=CH3, 3=CH4, 4=CH5, 5=CH6, 6=MIC, 7=MASTER 8=CRF A, 9=CRF B, 255=NONE)
Send Return 3 Type	Setting Send Return 3 Source Type (0=USB-AUX, 1=USB-INSERT, 2=1/4" TS JACK-AUX, 3=1/4" TS JACK-INSERT, 255=NONE)
Send Return 3 ON/OFF	Current state of Send Return 3 (0=Off, 1=On)
Send Return 3 Level	Value of Send Return 3 Level
Channel Fader Curve	Setting of Channel Fader Curve (1,2,3)
Cross Fader Curve	Setting of Cross Fader Curve
Cross Fader	Value of Cross Fader
BeatFX ON/OFF	Setting of BeatFX (0=Off, 1=On)
BeatFX Level/Depth	Value of BeatFX Level/Depth
BeatFX Channel Select	Setting of BeatFX Channel (0=CH1, 1=CH2, 2=CH3, 3=CH4, 4=CH5, 5=CH6, 6=MIC, 7=MASTER, 8=CRF A, 9=CRF B, 255=NONE)
BeatFX Select	Setting of BeatFX (0-13)
BeatFX Freq H/M/L	Setting of BeatFX Freq High/Mid/Low (0=Off, 1=On)
Headphones Pre EQ	Setting of Headphones Pre EQ (0=Off, 1=On)
Headphones Level	Value of Headphones Level
Headphones Mix	Value of Headphones Mix
Booth Level	Value of Booth Level
Booth EQ Hi/Low	Value Booth EQ Hi/Low
Channel Source Select	Setting of Channel Source (0=USBA, 1=USBB, 2=DIGITAL, 3=LINE 4=PHONO, 5=INT, 6=RTN1, 7=RTN2, 8=RTN3, 9=RTN_ALL)
Channel Audio Level	Value of Channel Level
Channel Fader Level	Value of Channel Fader
Channel Trim Level	Value of Channel Trim
Channel Comp Level	Value of Channel Comp Level
Channel EQ Hi Level	Value of Channel EQ Hi Level
Channel EQ Hi Mid Level	Value of Channel EQ Hi Mid Level
Channel EQ Low Mid Level	Value of Channel EQ Low Mid Level
Channel EQ Low Level	Value of Channel EQ Low Level
Channel EQ Low Level	Value of Channel EQ Low Level
Channel Filter/Color	Value of Channel Filter/Color
Channel Send	Value of Channel FX Send
Channel CUE A / B	Setting of Channel CUE A / B (0=OFF, 1=ON)
Channel Crossfader Assign	Setting Channel Crossfader Assign (0=THRU, 1=A, 2=B)

Note:

If you are not sure what mixer type to implement, use type 0.



TCNet Data File Packet - Low Res Artwork File

Functionality Contains Low Res Artwork file (JPEG Format)
Type Unicast
Port UDP(Target-Node-Port)
Size Depending on file size
Behavior Unicast upon request

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	204	Type 204: TCNet File Data File Packet	V3-2
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Type	24	1	128	Datatype 128 = Low Res Artwork File	V3-2
Layer ID	25	1	1-8	Layer Number	V3-2
Data Size	26	4	TOTAL DATA SIZE	Total Data size	V3-2
Total Packet	30	4	0-FF*	Total Packets used for data	V3-2
Packet No	34	4	(LITTLE ENDIAN)	Packet Number	V3-2
Data Cluster Size	38	4	Standard: 4800 (LITTLE ENDIAN)	Data Cluster Size	V3-2
File Data	42 – Max 4842	Max 4842	RAW FILE DATA	RAW FILE DATA	V3-2

* See details below:

TCNet Data File Packet – Low Res Artwork File - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=204
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Timestamp in microseconds that is used to calculate network latency.
Data Type Datatype of TCNet Data Packet. (Low Res Artwork File=128)
Layer ID Layer number if layer sending data.
 Example: LAYER1, 2=LAYER2, 3=LAYER3, 4=LAYER4, 5=LAYER A, 6=LAYER B, 7=MASTER OUT, 8=RESERVED
Total Packets Total number of packets for data (LITTLE ENDIAN)
Packet No Packet number of data
Data Size Total data size. Is total of all data send, including in extra packets (LITTLE ENDIAN)
Data Cluster Size Cluster Size of data (Amount of bytes used per cluster to split up total data. – Standard value = 32000)
File Data Raw file data of JPEG file

Note:
 This info can be requested from a node by sending a TCNet Request Data packet, with Datatype=12, Layer=The layer you request data from



TCNet Application Specific Data Packet

Functionality Application Specific Broadcasted Data
Type Broadcast / Unicast
Port UDP(60001) for Broadcast or Target-Node-Port for Unicast
Size Data Size
Behavior Broadcast or Unicast depending on application

PARAMETERS	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	30	Type 30: TCNet Application Specific Data Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
Data Identifier 1	24	1	0-255	Application Identifier Signature 1/2 (Defaults to 0)	V3-0
Data Identifier 2	25	1	0-255	Application Identifier Signature 2/2 (Defaults to 0)	V3-0
Data Size	26	4	(LITTLE ENDIAN)	Data Size of all packets	V3-0
Total Packets	30	4	(LITTLE ENDIAN)	Total of all packets	V3-0
Packet No	34	4	(LITTLE ENDIAN)	Packet No	V3-0
Packet Signature	38	4	178260640 (LITTLE ENDIAN)	Signature of Packet	V3-0
Data	42	Data Size		Data	V3-0

* See details below:

TCNet Application Specific Data Packet - Details

Node ID Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header TCNet Protocol Header (Must be "TCN")
Message Type Message type of packet. - Value=30
Node Name GW Code of software/machine/source that sends packet. (8 Characters)
 Example: ABCDEFGH
SEQ Sequence number of packet. (See Sequence number)
Node Type Node Type
 Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options Node options: See Node Options
Timestamp Time stamp in microseconds that is used to calculate network latency.
Application Identifier 4 Byte Application Code. This code is used to identify application.
Data Size Data Size in Little Endian
Total Packets Total number of packets for data (LITTLE ENDIAN)
Packet No Packet number of data
Packet Signature Packet Signature (LITTLE ENDIAN)
Data Data



TCNet Time Packet

Functionality	Constant stream of timing data of layers
Type	Broadcast and Unicast to local host node's
Port	UDP(60001)
Size	162 (May change in future FLAMES)
Behavior	Broadcast and Unicast every 1ms - 40ms or at time critical event.

PARAMETER	BYTE #	SIZE	VALUE	DESCRIPTION	FLAME
Management Header					
Node ID	0	2	(LITTLE ENDIAN)	Node ID of sending device	V1-0
Protocol Version (Major)	2	1	3	Protocol Version (Major) of sending device	V1-0
Protocol Version (Minor)	3	1	1	Protocol Version (Minor) of sending device	V1-0
Header	4	3	TCN	TCNet Protocol Header	V3-1
Message Type	7	1	254	Type 254: TCNet Time Packet	V1-0
Node Name	8	8	ASCII TEXT*	Node Name / Signature	V3-1
SEQ	16	1	0-255	Sequence Number	V3-1
Node Type	17	1	0-255	Node Type	V3-1
Node Options	18	2	(LITTLE ENDIAN)	Node Options	V3-1
Timestamp in Microseconds	20	4	0-999999 (LITTLE ENDIAN)	Timestamp in Microseconds	V3-1
Data					
L1 Time	24	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 1 Current Time in Milliseconds	V3-0
L2 Time	28	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 2 Current Time in Milliseconds	V3-0
L3 Time	32	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 3 Current Time in Milliseconds	V3-0
L4 Time	36	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 4 Current Time in Milliseconds	V3-0
LA Time	40	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER A Current Time in Milliseconds	V3-0
LB Time	44	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER B Current Time in Milliseconds	V3-0
LM Time	48	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER M Current Time in Milliseconds	V3-0
LC Time	48	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER C Current Time in Milliseconds	V3-0
L1 Total Time	56	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 1 Total Time in Milliseconds	V3-0
L2 Total Time	60	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 2 Total Time in Milliseconds	V3-0
L3 Total Time	64	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 3 Total Time in Milliseconds	V3-0
L4 Total Time	68	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER 4 Total Time in Milliseconds	V3-0
LA Total Time	72	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER A Total Time in Milliseconds	V3-0
LB Total Time	76	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER B Total Time in Milliseconds	V3-0
LM Total Time	80	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER M Total Time in Milliseconds	V3-0
LC Total Time	84	4	0-0x55D4A80 (LITTLE ENDIAN)	LAYER C Total Time in Milliseconds	V3-
L1 Beat Marker	88	1	0-4	Layer 1 Beatmarker	V3-0
L2 Beat Marker	89	1	0-4	Layer 2 Beatmarker	V3-0
L3 Beat Marker	90	1	0-4	Layer 3 Beatmarker	V3-0
L4 Beat Marker	91	1	0-4	Layer 4 Beatmarker	V3-0
LA Beat Marker	92	1	0-4	Layer A Beatmarker	V3-0
LB Beat Marker	93	1	0-4	Layer B Beatmarker	V3-0
LM Beat Marker	94	1	0-4	Layer M Beatmarker	V3-0
LC Beat Marker	94	1	0-4	Layer C Beatmarker	V3-0
L1 Layer State	96	1	0-FF	Layer 1 Layer State	V3-0
L2 Layer State	97	1	0-FF	Layer 2 Layer State	V3-0
L3 Layer State	98	1	0-FF	Layer 3 Layer State	V3-0
L4 Layer State	99	1	0-FF	Layer 4 Layer State	V3-0
LA Layer State	100	1	0-FF	Layer A State	V3-0
LB Layer State	101	1	0-FF	Layer B State	V3-0
LM Layer State	102	1	0-FF	Layer M State	V3-0

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TCNet Time Packet

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Data (Resume)					
LC Layer State	103	1	0-FF	Layer C State	V3-0
RESERVED	104	1			V2-0
SMPTE Mode	105	1	= 24 or 25 or 29 or 30	General SMPTE Mode	V2-0
L1 SMPTE Mode	106	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
L1 Time Code State	107	1	0-2	Time Code State	V2-0
L1 Time Code Hours	108	1	0-17	Time Code Hours	V2-0
L1 Time Code Minutes	109	1	0-3B	Time Code Minutes	V2-0
L1 Time Code Seconds	110	1	0-3B	Time Code Seconds	V2-0
L1 Time Code Frames	111	1	0-1D	Time Code Frames	V2-0
L2 SMPTE Mode	112	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
L2 Time Code State	113	1	0-2	Time Code State	V2-0
L2 Time Code Hours	114	1	0-17	Time Code Hours	V2-0
L2 Time Code Minutes	115	1	0-3B	Time Code Minutes	V2-0
L2 Time Code Seconds	116	1	0-3B	Time Code Seconds	V2-0
L2 Time Code Frames	117	1	0-1D	Time Code Frames	V2-0
L3 SMPTE Mode	118	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
L3 Time Code State	119	1	0-2	Time Code State	V2-0
L3 Time Code Hours	120	1	0-17	Time Code Hours	V2-0
L3 Time Code Minutes	121	1	0-3B	Time Code Minutes	V2-0
L3 Time Code Seconds	122	1	0-3B	Time Code Seconds	V2-0
L3 Time Code Frames	123	1	0-1D	Time Code Frames	V2-0
L4 SMPTE Mode	124	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
L4 Time Code State	125	1	0-2	Time Code State	V2-0
L4 Time Code Hours	126	1	0-17	Time Code Hours	V2-0
L4 Time Code Minutes	127	1	0-3B	Time Code Minutes	V2-0
L4 Time Code Seconds	128	1	0-3B	Time Code Seconds	V2-0
L4 Time Code Frames	129	1	0-1D	Time Code Frames	V2-0

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TCNet Time Packet

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Data (Resume)					
LA SMPTE Mode	130	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
LA Time Code State	131	1	0-2	Time Code State	V2-0
LA Time Code Hours	132	1	0-17	Time Code Hours	V2-0
LA Time Code Minutes	133	1	0-3B	Time Code Minutes	V2-0
LA Time Code Seconds	134	1	0-3B	Time Code Seconds	V2-0
LA Time Code Frames	135	1	0-1D	Time Code Frames	V2-0
LB SMPTE Mode	136	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
LB Time Code State	137	1	0-2	Time Code State	V2-0
LB Time Code Hours	138	1	0-17	Time Code Hours	V2-0
LB Time Code Minutes	139	1	0-3B	Time Code Minutes	V2-0
LB Time Code Seconds	140	1	0-3B	Time Code Seconds	V2-0
LB Time Code Frames	141	1	0-1D	Time Code Frames	V2-0
LM SMPTE Mode	142	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
LM Time Code State	143	1	0-2	Time Code State	V2-0
LM Time Code Hours	144	1	0-17	Time Code Hours	V2-0
LM Time Code Minutes	145	1	0-3B	Time Code Minutes	V2-0
LM Time Code Seconds	146	1	0-3B	Time Code Seconds	V2-0
LM Time Code Frames	147	1	0-1D	Time Code Frames	V2-0
LC SMPTE Mode	148	1	= 24 or 25 or 29 or 30	Layer SMPTE Mode	V2-0
LC Time Code State	149	1	0-2	Time Code State	V2-0
LC Time Code Hours	150	1	0-17	Time Code Hours	V2-0
LC Time Code Minutes	151	1	0-3B	Time Code Minutes	V2-0
LC Time Code Seconds	152	1	0-3B	Time Code Seconds	V2-0
LC Time Code Frames	153	1	0-1D	Time Code Frames	V2-0

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TCNet Time Packet

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Data (Resume)						
L1 Layer OnAir	154	1	0-255	Layer OnAir State	V3-3-3	
L2 Layer OnAir	155	1	0-255	Layer OnAir State	V3-3-3	
L3 Layer OnAir	156	1	0-255	Layer OnAir State	V3-3-3	
L4 Layer OnAir	157	1	0-255	Layer OnAir State	V3-3-3	
LA Layer OnAir	158	1	0-255	Layer OnAir State	V3-3-3	
LB Layer OnAir	159	1	0-255	Layer OnAir State	V3-3-3	
LM Layer OnAir	160	1	0-255	Layer OnAir State	V3-3-3	
LC Layer OnAir	161	1	0-255	Layer OnAir State	V3-3-3	

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TCNet Time Packet – Details

Node ID	Unique Node ID. When multiple applications/services are running on same IP, this number must be unique.
Protocol Version	Protocol version of source that sends the packet. - Example: 1.00 would be: 01 00
Header	TCNet Protocol Header (Must be "TCN")
Message Type	Message type of packet. - Value=254
Node Name	GW Code of software/machine/source that sends packet. (8 Characters) Example: ABCDEFGH
SEQ	Sequence number of packet. (See Sequence number)
Node Type	Node Type Example: 1=Auto, 2=Master, 4=Slave, 8=Repeater
Node Options	Node options: See Node Options
Timestamp	Time stamp in microseconds that is used to calculate network latency.
LX Time	Layer X Time in MS
LX Total Time	Layer X Total time in MS
LX Beatmarker	Layer X Beatmarker position (0=unknown, 1-4=Beatmarker pos)
LX Layer State	Layer X Layer State (Example: 0=IDLE, 3=PLAYING, 4=LOOPING, 5=PAUSED, 6=STOPPED, 7=CUE BUTTON DOWN, 8=PLATTER DOWN, 9=FFWD, 10=FFRV, 11=HOLD)
SMPTE Mode	SMPTE Mode set on node Values: 24=24FPS, 25=25FPS, 29=29.7FPS, 30=30FPS
LX Layer OnAir	Layer X Layer OnAir State, Fader Position (0-255) (Example: 0=Not on Air, >=1 =On Air)
LX SMPTE Mode	SMPTE Mode. If value =0, Use SMPTE general SMPTE mode defined in byte 105
LX TC State	Status of timecode embedded in packet (Values: 0=Stopped, 1=Running, 2=Force Re sync)
LX TC Hours	Hours value of the timecode (Values: 0-23)
LX TC Minutes	Minutes value of the timecode (Values: 0-59)
LX TC Seconds	Seconds value of the timecode (Values: 0-23)
LX TC Frames	Frames value of the timecode (Values: 0 – Depending on frame rate)

TCNet Time Packet – Usage

In order to correctly implement the Time Packet usage, the following steps are needed.

Step 1:

Create a Time Packet

Step 2:

Broadcast Time Packet to port 60001

Step 3:

Unicast Time Packet to each discovered LOCAL node, targeting that node's port. This ensures that when a node doesn't receive broadcast messages, it still can receive these packets.



Contribute

Contribution can be done by submitting your changes/idea's to info@eiglive.com.

Special thanks to all contributors!

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Registered Application Codes

If you require an Application code, please contact dev@eiglive.com



0000	Reserved for Public	
0AA0	Pioneer DJ	http://www.pioneerdj.com
0AAA	TC Supply / ShowKontrol	http://www.showkontrol.com
0AAB	TC Supply Pyrotechnic Systems	http://www.tc-supply.com
0AAC	TC Supply Ride Control Systems	http://www.tc-supply.com
0AB0	Avolites Lighting	http://www.avolites.com
0AB1	MA Lighting	http://www.malighting.com
0AB3	Chamsys Lighting	http://www.chamsys.co.uk
0AB4	Obsidian Control	http://www.obsidiancontrol.com
0ABA	Arkaos Software	http://www.arkaos.net
0ABB	BLCKBOOK / Time Code Sync	http://www.timecodesync.com
0ABC	Resolume Software	http://www.resolume.com
0ABD	Green Hippo	http://www.green-hippo.com
0ABE	RD/ShowCockpit	http://www.showcockpit.com
0ABF	Disguise	http://disguise.one
0ACA	OrangePI	http://orangepi.dmx.org
0ACB	RedPill VR	http://www.redpillvr.com
FFFF	Reserved for Public	

TCNet Change Log

02/03/22	Document Correction 3.5.1 (!) UTF32 supposed to be UTF16 in Metadata Packet.
09/07/21	Revision 3.5.1 Added CUE Data for Hot/Memory Cue's
03/13/21	Revision 3.5.0
06/22/20	Revision 3.4.2 Added Extended Data to Mixer Data Packet (Type 150)
12/03/19	Revision 3.4.1 Added Mixer Data Packet (Type 150)
12/03/19	Revision 3.4.1 Changed Revision number to 3.4.1 to ensure correct backward compatibility.
11/11/19	Revision 3.3.3 Added Fader values to On Air bytes in Time Packets
11/11/19	Revision 3.3.3 Added Unicast to Opt-IN, Opt-OUT and Time Packets
11/11/19	Revision 3.3.3 Added Explanation of Bcolor data in Small/Big waveform packets
10/13/19	Revision 3.3.2 Added Layer Name in Layer Status packets
05/28/19	Revision 3.3.1 Added back SMPTE values in timing packets, Updated list of Registered Application Codes
04/29/19	Revision 3.3.0 Added Status Packets, Updated list of Registered Application Codes
03/28/19	Revision 3.2.8 Removed SMPTE format from timing packets
02/18/19	Revision 3.2.8 Added Node Options
02/15/19	Revision 3.2.7 Clean UP
01/10/19	Revision 3.2.6 Clean Up
12/24/18	Revision 3.2.5 Added Artwork File, Cue Data, Removed Timecode format from timing packet (deprecated)
12/20/18	Revision 3.2.4 Clean Up
12/17/18	Revision 3.2.4 Clean Up
11/27/18	Revision 3.2.2 Clean Up
11/19/18	Revision 3.2.1 Added Beat Grid Info Packet
11/10/18	Revision 3.2.0 Replaced Small Wave Form Packets to 3.2.0
10/31/18	Revision 3.1.6 (PRE FINAL)
10/26/18	Revision 3.1.5 (PRE FINAL)
09/28/18	Revision 3.1.3
02/02/18	Revision 3.0.0
12/21/17	Revision 2.1.0
10/01/17	Added Flame V2-0
05/10/16	Added Flame V1.0 (REV D)
01/17/16	Document Creation