Title: Software Requirements Specification of Video Server for Project Terrex Gen 5

Total Pages: 11

	Prepared By:	Vetted By:	Approved By:
Name		Chee Yong Way	Tan Sung Kai Dennis
Signature			
Appointment	Software Engineer	Software Lead	Software Head
Date	stk_submitdate	stk_revieweddate	stk_approvaldate

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ST Engineering Land Systems Ltd.
249 Jalan Boon Lay, Singapore 619523
T: (65) 6265 1066 F: (65) 6265 9763
(Regn. No.: 197100263N)

Contents

1 INTRODUCTION

1.1 Purpose

The purpose of the Software Requirement Specification (SRS) document is to formally describe the software requirements of the Video Server for Terrex Gen 5 (TG5). It serves as a guide for engineers who are responsible in engineering and developing the software. The document should cover all of the information necessary to design, develop and test the software.

1.2 Scope

The scope of this Software Requirements Specification (SRS) covers the following areas for the Video Server developed for Project Terrex Gen 5:

- The capabilities, interface and performance requirements.

1.3 Intended Audience

The intended audience for this document is written for project members for STELS and Team One.

1.4 Acronym & Abbreviation

Abbreviation	Definition
CSCI	Computer Software Configuration Item
DBW	Drive-By-Wire
MCM	Mobility Control Module
MSS	Mobility Selector Switch
SRS	Software Requirements Specification
SSS	System / Subsystems Specification
VSR	Video Server

1.5 Definition

Term	Definition
Shall	Mandatory requirement
Should	Desirable requirement
Will	Mandatory requirement outside the scope of this document
May	Desirable requirement outside the scope of this document

Term	Definition
Computer Software Configuration Item (CSCI)	An aggregation of software components that satisfies an end use function and is designated for separate configuration management by the acquirer.
Data Distribution Service (DDS)	The Data Distribution Service (DDS) is an Object Management Group (OMG) machine-to-machine (sometimes called middleware) standard that aims to enable scalable, real-time, dependable, high performance and interoperable data exchanges using a publish-subscribe pattern.

1.6 Reference Documents

The documents listed below were either used to create this document or are referenced in it:

DOCUMENT NO.	TITLE

1.7 Assumption and Dependencies

The assumption shall be the following:

- Any new requirements should only affect the system behavior and performance and should not affect the software architecture designed.

1.8 Overview Of This Document

Section 1: Introduction: Define purpose and scope of this document, the document structure, the document intended audience and the references made.
Section 2: Overall Description: Describe the product perspective, the system interface, the functional requirements, the safety features, and the performance requirements.
Section 3: Design Constraints/Limitation: List of hardware software constraints.
Section 4: Software System Attributes: The list of expecting attributes of the developed software.
Section 5: Other Requirements

2 OVERALL DESCRIPTION

This chapter describes the overview of the Video Server where the software is to be designed and developed.

2.1 Product Perspective

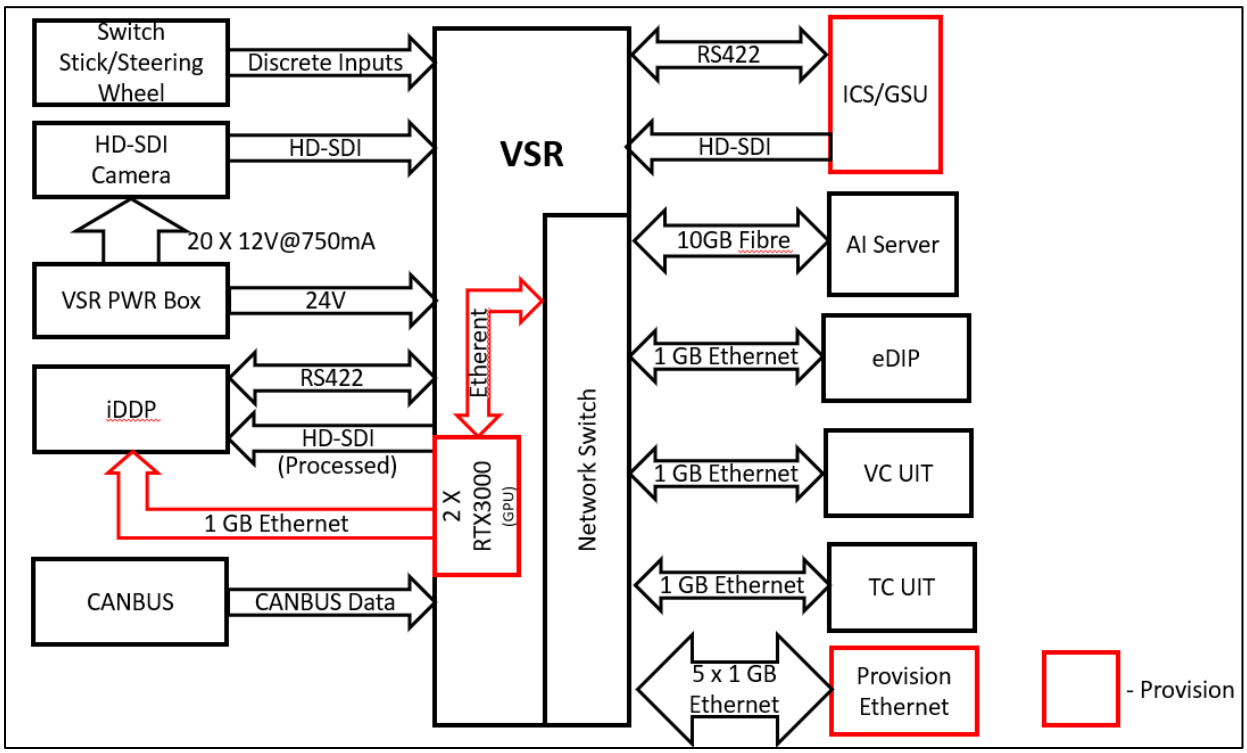


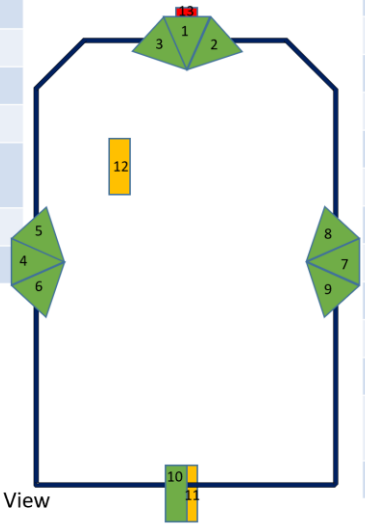
Figure 1: Video Server Interface Block Diagram

2.2 Camera Placement

Views	Cam ID
Front View 1(Default for Drive & Neutral Gear)	5, 1, 8
Front View 2	3, 1, 2
Front View 3 (TI)	5, 13, 8
Front View 4 (TI)	3, 13, 2
Rear View (Default for Reverse Gear)	6, 10, 9**
Ramp View	6, 11, 9 **

- HD-SDI Day (70(H) x 40(V))
- HD-SDI Day (90(H) x 50(V))
- HD-SDI TI (70(H) x 42(V))

** - Mirrored View



Cam ID	Cam Position	Abbreviation
1	Front Center	FC
2	Front Right	FR
3	Front Left	FL
4	Left Center	LC
5	Left Side Front	LSF
6	Left Side Rear	LSR**
7	Right Center	RC**
8	Right Side Front	RSF
9	Right Side Rear	RSR**
10	Rear Far	RF**
11	Rear Near	RN**
12	Swim/Driver Cam	DC
13	Front TI Cam	FIC

2.3 System Interface

2.3.1 User Interfaces

ID No	REQUIREMENTS
	Not Applicable

2.3.2 Hardware Interfaces

ID No	REQUIREMENTS
	Not Applicable

.

2.3.3 Software Interfaces

ID No	REQUIREMENTS
	Not Applicable

2.3.4 Communications interfaces

ID No	REQUIREMENTS
	Not Applicable

2.3.5 Memory Constraints

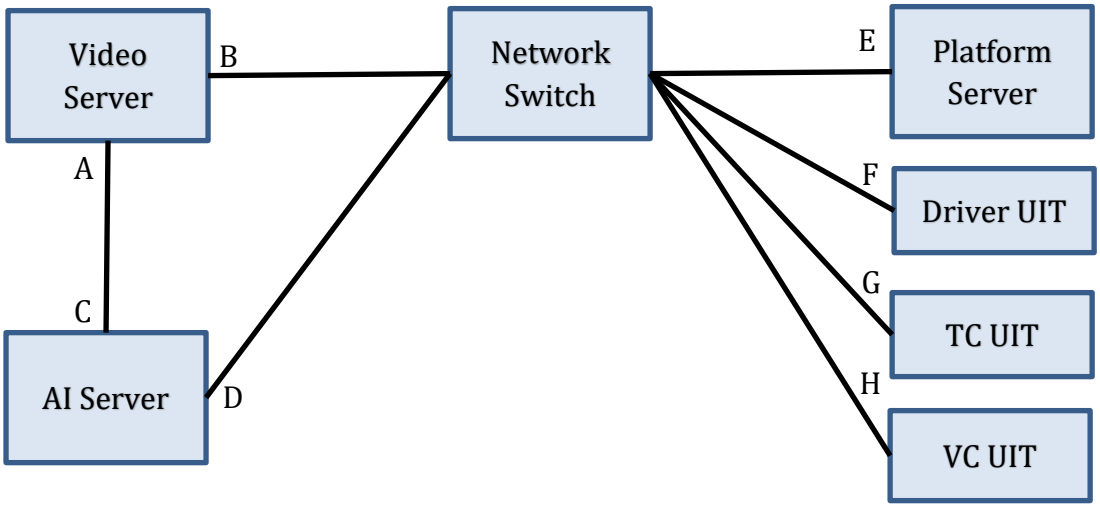
ID No	REQUIREMENTS
	Not Applicable

2.3.6 Site Adaption Requirements

ID No	REQUIREMENTS
	Not Applicable

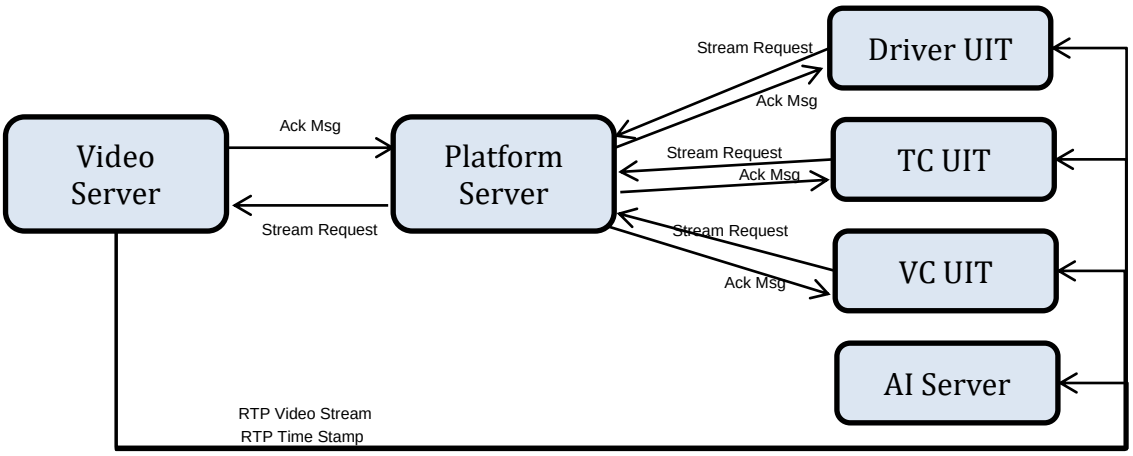
2.4 Functional requirements

2.4.1 Network Configuration



Device	Port	Link Speed	IP Address	Subnet Mask
Video Server	A	10 Gbps	10.1.153.61	255.255.255.0
Video Server	B	1 Gbps	10.1.154.61	255.255.255.0
AI Server	C	10 Gbps	10.1.153.71	255.255.255.0
AI Server	D	1 Gbps	10.1.154.71	255.255.255.0
Platform Server	E	1 Gbps	10.1.153.51	255.255.255.0
Driver UIT	F	1 Gbps	10.1.153.101	255.255.255.0
TC UIT	G	1 Gbps	10.1.153.102	255.255.255.0
VC_UIT	H	1 Gbps	10.1.153.103	255.255.255.0

2.4.2 Software Architecture



The above diagram shows the software architecture of the Video Server. The Use Case is detailed in Section 3.2.

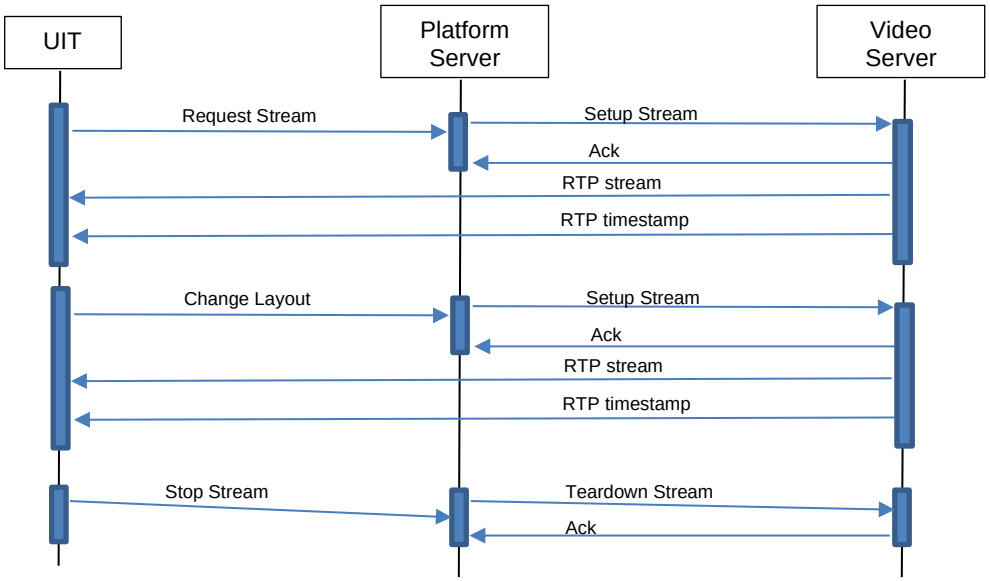
2.4.3 Time Synchronization

A network time synchronization (IEEE PTP1588) shall be used to synchronize between multiple computers in a network.

ID No	REQUIREMENTS
	Video Server shall implement Precise Time Protocol daemon as a SLAVE mode to synchronize its internal computing units' system time at startup.
	The PTP daemon shall operate in SLAVE mode on the 1Gbps network.

2.4.4 ARSS Services

UIT shall be able to request for a configurable layout via Platform Server to Video Server. The UIT shall be able to request for up to 20 RTP streams, and each RTP stream can support up to 20 video layouts. The Sequence Diagram shows the message sequence.



ID No	REQUIREMENTS
	The Video Server upon successful startup shall broadcast VDS_Heartbeat message to Platform Server.
	UIT shall request for RTP stream via Platform Server. Platform Server shall act as a gateway to communicate directly to Video Server to request stream and handle Acknowledgement messages.
	The Video Server shall listen for VDS_Setup message from Platform Server and send an Ack message back to Platform Server. Video Server shall check the layout configuration and output a RTP stream and RTP timestamp to a destination IP address and port number.
	When stream is setup successfully, Video Server shall publish the RTP stream and VDS_RTP_Timestamp message to the requester (UIT and AI Server)
	The Video Server shall listen for VDS_Teardown message from Platform Server and send an Ack message back to Platform Server The Video Server shall check and terminate the requested stream.
	The Video Server shall be able to output up to 20 RTP streams simultaneously to destinations with multiple IP addresses and ports.

2.4.4.1 UDP Datagram

UDP Datagram header

Offsets	Octet	0								1								2								3							
Octet	Bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	Source port																Destination port															
4	32	Length																Checksum															
8	#	Payload																															

Field	Description
Source Port	This field identifies the sender's port, when used, and should be assumed to be the port to reply to if needed.
Destination Port	This field identifies the receiver's port and is required.
Length	This field specifies the length in bytes of the UDP header and UDP data. The minimum length is 8 bytes, the length of the header. The field size sets a theoretical limit of 65,535 bytes (8-byte header + 65,527 bytes of data) for a UDP datagram. However the actual limit for the data length, which is imposed by the underlying IPv4 protocol, is 65,507 bytes.
Checksum	The checksum field shall be used for error-checking of the header and data.
Payload	The payload data defined in 2.4.4.2

ID No	REQUIREMENTS
	The Video Server shall use UDP datagram to receive commands and transmit heartbeat messages between Platform Server and Video Server.
	The UDP Datagram library shall take care of the integrity of the message by checking the checksum of the message.

2.4.4.2 UDP Payload data

The UDP Payload data carries the following messages: VDS_Heartbeat, VDS_Setup, VDS_Teardown, VDS_RTP_Timestamp messages.

Octet	0	1	2	3
0	Header		Type	Version
4	SequenceNumber			
8	Timestamp			
12	Timestamp			
16	Message data			

Data description

Field	Data Type	Resolution	Range	Remarks
Header	UINT32			A fixed message header: 0x5354
Type	UINT8			Message type: 0x00: Undefined 0x01: Heartbeat 0x02: Acknowledge 0x10: Stream Setup 0x11: Stream Teardown
Version	UINT8			Version type for message type Default: 0x00
SequenceNumber	UINT32		0…2^32	Incremental running sequence for loss packet detection
Timestamp	UINT64	1us / bit	0…2^64	Time since epoch in microseconds

2.4.4.3 Heartbeat Message

ID No	REQUIREMENTS
	The Video Server shall send a Heartbeat message periodically (a repetitive rate of 500ms) with the following statuses: • Version number • Serial number of Video Server • CPU loading of all computing units • Memory usage of all computing units • Temperature of all computing units • BitReportMask
	When Platform Server did not receive a heartbeat message for more than 5 consecutive times or 2.5 seconds, it shall deem as a loss communication with Video Server.
	The SequenceNumber shall start from 0. It shall increment by 1 at every publish. The SequenceNumber shall restart to 0 if it reaches maximum value.

VDS_Heartbeat Repetition Rate: 500ms				
Octet	0	1	2	3
0	Header		Type	Version
4	SequenceNumber			
8	Timestamp			
12	Timestamp			
16	SerialNumber			
20	SysLoad0	SysLoad1	SysLoad2	SysLoad3
24	SysMem0	SysMem1	SysMem2	SysMem3
28	SysTemp0	SysTemp1	SysTemp2	SysTemp3
20	VersionMajor	VersionMinor	VersionSubMinor	Variant
28	iDDP View	NumRTPStreams	Reserved	Reserved
32	BitReportMask			

Data description

Field	Data Type	Resolution	Range	Remarks
Header	UINT32			A fixed message header: 0x5354
Type	UINT8			Message type: 0x00: Undefined 0x01: Heartbeat 0x02: Acknowledge 0x10: Stream Setup 0x11: Stream Teardown
Version	UINT8			Message version: 0x00
SequenceNumber	UINT32		0…2^32	Incremental running sequence for loss packet detection
Timestamp	UINT64	1us / bit	0…2^64	Time since epoch in microseconds
SerialNumber	UINT32		0…2^32	Serial number of Video Server
SysLoad	UINT16	1%/bit	0…100	System CPU Load usage
SysMem	UINT16	1%/bit	0…100	System Memory usage
SysTemp	UINT16	1degC/bit	0…255	System temperature
VersionMajor	UINT8		0…255	Major Version
VersionMinor	UINT8		0…255	Minor Version
VersionSubMinor	UINT8		0…255	Sub Minor Version
Variant	UINT8		0..255	0: unknown variant 1: Land variant (Default) 2: Swim variant
iDDP View	UINT8		0…255	See table
NumRTPStreams	UINT8		0…20	Number of RTP Streams output
VDS Fault Codes	UINT32			See table

iDDP View

Shows the IDDP view that was selected and displayed on the IDDP.

iDDP View	Description
0	No view
1	Front View 1 (cam_id: 5,1,8)
2	Front View 2 (cam_id: 3,1,2)
3	Front View 3 (cam_id: 5,13,8)
4	Front View 4 (cam_id: 3,13,2)
5	Ramp View (cam_id: 6,11,9**)
6	Rear View (cam_id: 6,10,9**)
7	Front Swim (cam_id:5,12,8)

VDS Fault codes

Byte	Bit	Parameter
1	1(LSB)	HD-SDI 1 input error (0: No error, 1: error)
	2	HD-SDI 2 input error (0: No error, 1: error)
	3	HD-SDI 3 input error (0: No error, 1: error)
	4	HD-SDI 4 input error (0: No error, 1: error)
	5	HD-SDI 5 input error (0: No error, 1: error)
	6	HD-SDI 6 input error (0: No error, 1: error)
	7	HD-SDI 7 input error (0: No error, 1: error)
	8(MSB)	HD-SDI 8 input error (0: No error, 1: error)
2	1(LSB)	HD-SDI 9 input error (0: No error, 1: error)
	2	HD-SDI 10 input error (0: No error, 1: error)
	3	HD-SDI 11 input error (0: No error, 1: error)
	4	HD-SDI 12 input error (0: No error, 1: error)
	5	HD-SDI 13 input error (0: No error, 1: error)
	6	HD-SDI 14 input error (0: No error, 1: error)
	7	HD-SDI 15 input error (0: No error, 1: error)
	8(MSB)	HD-SDI 16 input error (0: No error, 1: error)
3	1(LSB)	HD-SDI 17 input error (0: No error, 1: error)
	2	HD-SDI 18 input error (0: No error, 1: error)
	3	HD-SDI 19 input error (0: No error, 1: error)
	4	HD-SDI 20 input error (0: No error, 1: error)
	5	HD-SDI 1 output error (0: No error, 1: error)
	6	HD-SDI 2 output error (0: No error, 1: error)
	7	HD-SDI 3 output error (0: No error, 1: error)
	8(MSB)	HD-SDI 4 output error (0: No error, 1: error)
4	1(LSB)	Reserved
	2	Reserved
	3	Reserved
	4	Reserved
	5	Reserved
	6	Reserved
	7	Reserved

	8(MSB)	Reserved

2.4.4.4 Setup Stream Command Message

ID No	REQUIREMENTS
	The Video Server shall receive “Setup Stream” command message from Platform Server.
	Upon receiving Setup Stream command message, Video Server it shall check the requested configuration. Video Server shall broadcast an Acknowledge message back to Platform Server with a fault code.
	During Setup Stream, the Video Server shall be able to set the following configurations: • Set frame size to be output as a stream • Set destination IP address and port number for RTP stream and stream status message • Set the compression video format (H264, YUV422) • Set the frame rate of the RTP stream • Set the number of placeholder images and its position and size • Set the computing device in the Video Server to process the request (ie: CPU0, CPU1, CPU2 or CPU3)
	During Setup Stream, if there is no existing RTP Stream and Stream data with the destination IP address and port, Video Server shall create a new RTP stream and stream data with the destination IP Address and port.
	During Setup Stream, if there is existing RTP Stream and Stream data with matching destination IP address and port, Video Server shall reconfigure the layout setup and broadcast the RTP stream and Stream data on the same destination IP address and port.
	Video Server shall note the timestamp of the grabbed camera frame. Video Server shall render the requested layout and publish the frame using RTP protocol to the destination address and port. Video Server shall publish RTP Stamp to the destination address and port.

Setup Video Frame

VDS_Setup_Request Repetition Rate: On Request				
Octet	0	1	2	3
0	Header		Type	Version
4	SequenceNumber			
8	Timestamp			
12	Timestamp			
16	IP-Address(0)	IP-Address(1)	IP-Address(2)	IP-Address(3)
20	Port		Reserved	
24	FrameWidth		FrameHeight	
28	CompressFormat	ComputeId	FPS	NumLayouts
32+N*12	VideoSrcId	FlipHV	Reserved	Reserved
32+N*12+4	Layout_X		Layout_Y	
32+N*12+8	Layout_Width		Layout_Height	

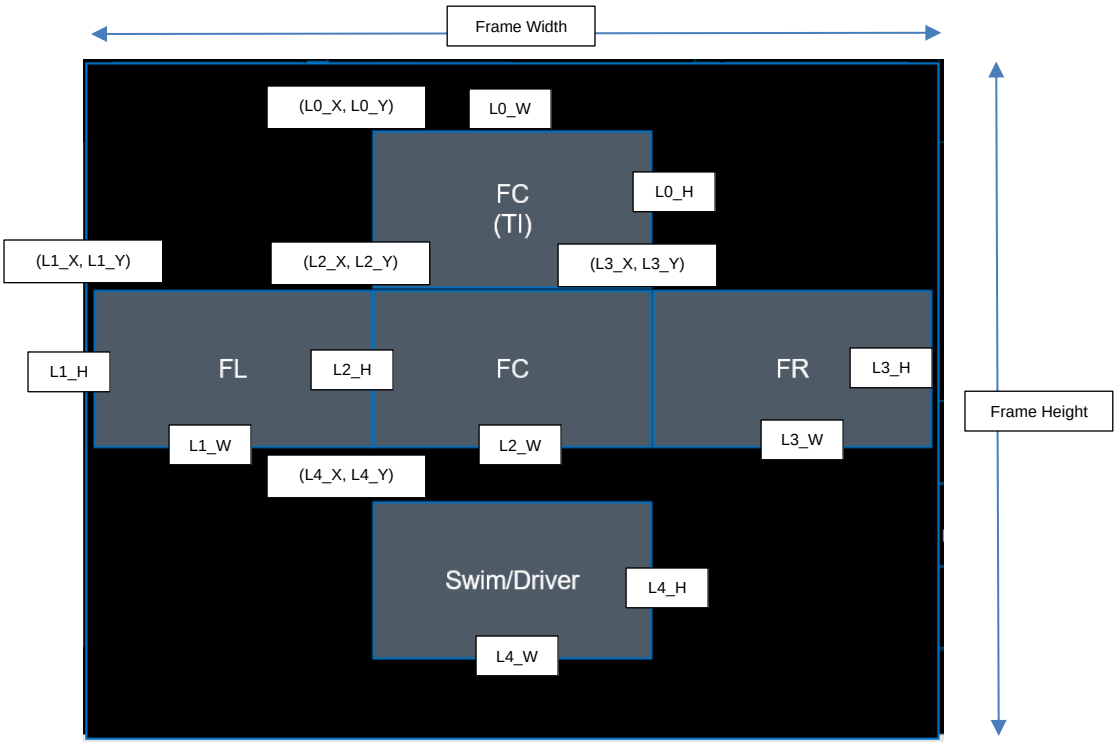
Where N is the Layout Id from 1 to 20

Data description

Field	Data Type	Resolution	Range	Remarks
Header	UINT32			Header: 0x5354
Type	UINT8			Message type: 0x00: Undefined 0x01: Heartbeat 0x02: Acknowledge 0x10: Stream Setup 0x11: Stream Teardown
Version	UINT8			Version: 0x00
SequenceNumber	UINT32		0…2^32	Incremental running sequence for loss packet detection
Timestamp	UINT64	1us / bit	0…2^64	Time since epoch in microseconds
IP-Address(0)	UINT8		0…255	IP Address of RTP (ie: 192)
IP-Address(1)	UINT8		0…255	IP Address of RTP (ie: 168)
IP-Address(2)	UINT8		0…255	IP Address of RTP (ie: 31)
IP-Address(3)	UINT8		0…255	IP Address of RTP (ie: 101)
Port	UINT32		0…2^16	Port number of RTP (ie: 8001)
FrameWidth	UINT16		0…2^16	Output Video Frame Width
FrameHeight	UINT16		0…2^16	Output Video Frame Height
CompressFormat	UINT8		0…4	Compress Format 0: H264 (default) 1: YUV422

ComputeId	UINT8		0…5	To allocate which CPU to do the computation 0: Auto assignment 1: CPU0 2: CPU1 3: CPU2 4: CPU3
FPS	UINT8		0…255	FPS of output frame 0: Auto assignment
NumLayout	UINT8		1…255	Number of layouts in a frame
VideoSrcId	UINT8		0…255	Video Source Id or HDSDI input port number
FlipHV	UINT8		0…255	Flip operation mask 0000 0000: No operation 0000 0001: Flip Horizontal 0000 0010: Flip Vertical 0000 0100: Rotate 90deg CW 0000 1000: Rotate 90deg CCW
Layout_X	UINT16		0…2^16	X Position of Top-Left Layout Image on Frame
Layout_Y	UINT16		0…2^16	Y Position of Top-Left Layout Image on Frame
Layout_Width	UINT16		0…2^16	Layout Image Width
Layout_Height	UINT16		0…2^16	Layout Image Height

Example of VDS_Setup_Request message



VDS_Setup_Request

VDS_Setup_Request Repetition Rate: On Request				
Octet	0	1	2	3
0	MsgHeader: 0x5354		MsgType: 0x10	MsgVersion: 0x00
4	SequenceNumber: 1			
8	Timestamp since epoch			
12				
16	192	168	31	101
20	Port: 8001		Reserved: 0x0000	
24	FrameWidth: 1920		FrameHeight: 1024	
28	CompressFormat: 0	ComputeId: 0	FPS: 30	NumLayouts: 5
32+0*12+0	VideoSrcId: 0	FlipHV: 0	Reserved	Reserved
32+0*12+4	L0_X		L0_Y	
32+0*12+8	L0_W		L0_H	
32+1*12+0	VideoSrcId: 1	FlipHV: 0	Reserved	Reserved
32+1*12+4	L1_X		L1_Y	
32+1*12+8	L1_W		L1_H	
32+2*12+0	VideoSrcId: 2	FlipHV: 0	Reserved	Reserved
32+2*12+4	L2_X		L2_Y	
32+2*12+8	L2_W		L2_H	
32+3*12+0	VideoSrcId: 3	FlipHV: 0	Reserved	Reserved

32+3*12+4	L3_X		L3_Y	
32+3*12+8	L3_W		L3_H	
32+4*12+0	VideoSrcId: 4	FlipHV: 0	Reserved	Reserved
32+4*12+4	L4_X		L4_Y	
32+4*12+8	L4_W		L4_H	

2.4.4.5 Teardown Stream Command Message

ID No	REQUIREMENTS
	The Video Server shall receive “Setup Stream” command message from Platform Server.
	The Video Server shall receive “Teardown Stream” command message from Platform Server.
	Upon receiving Teardown Stream, Video Server it shall broadcast an Acknowledge message back to Platform Server.
	Video Server shall identify the requested RTP stream based on IP address and port number and terminate the RTP stream and RTP Stamp.

VDS_Teardown_Request

VDS_Teardown_Request Repetition Rate: On Request				
Octet	0	1	2	3
0	MsgHeader		MsgType	MsgVersion
4	SequenceNumber			
8	Timestamp			
12	Timestamp			
16	IP-Address(0)	IP-Address(1)	IP-Address(2)	IP-Address(3)
20	Port		Reserved	

Data description

Field	Data Type	Resolution	Range	Remarks
Header	UINT16			A fixed message header: 0x5354
Type	UINT8			Message type: 0x00: Undefined 0x01: Heartbeat 0x02: Acknowledge 0x10: Stream Setup 0x11: Stream Teardown

SequenceNumber	UINT32			Running sequence number
Timestamp	UINT64	1us / bit	0…2^64	Time since epoch in microseconds
IP-Address	UINT32			IP Address of RTP to be terminated
Port	UINT16			Port Number of RTP to be terminated

2.4.4.6 Acknowledgement Message

ID No	REQUIREMENTS
	The Video Server upon receiving a Setup Video Request or Teardown Video request, shall publish an Acknowledgement message within 100ms.
	The Video Server shall do a check and reply in the AckStatus whether the request can be served. 0x00: Not Acknowledged (Request cannot be served) 0x01: Acknowledged (Request can be served)
	If Platform Server does not receive any Acknowledgement message from Video Server within 100ms, Platform Server shall resend the command message with a sequence number increment by 1.

Acknowledge Message

VDS_Acknowledge Repetition Rate: On Request				
Octet	0	1	2	3

0	Header		Type	Version
4	SequenceNumber			
8	Timestamp			
12	Timestamp			
16	AckSequenceNumber			
20	AckStatus	Reserved	Fault Codes	

Data description

Field	Data Type	Resolution	Range	Remarks
Header	UINT16			A fixed message header: 0x5354
Type	UINT8			Message Type: 0x00: Undefined 0x01: Heartbeat 0x02: Acknowledge 0x10: Stream Setup 0x11: Stream Teardown
Version	UINT8			Message Version: 0x00
SequenceNumber	UINT32			Running sequence number from 0
Timestamp	UINT64	1us / bit	0…2^64	Time since epoch in microseconds
AckSequenceNumber	UINT32			The sequence number of the command message that was acknowledged
AckStatus	UINT8		0..1	0x00: Not Acknowledge 0x01: Acknowledge
FaultCode	UINT16		0..1	Fault code. See table

FaultCodes (To be reviewed)

Byte	Bit	Parameter
1	1(LSB)	Invalid Sequence Number
	2	Invalid Message Type
	3	Invalid Destination RTP IP Address
	4	Invalid Destination RTP Port number
	5	Invalid Frame Width
	6	Invalid Frame Height
	7	Invalid Compress Format
	8(MSB)	Invalid Compute Id
2	1(LSB)	Invalid Layout Parameter
	2	
	3	
	4	
	5	
	6	

	7	
	8(MSB)	
3	1(LSB)	
	2	
	3	
	4	
	5	
	6	
	7	
	8(MSB)	

2.4.4.7 RTP Message

RTP packet header

Offsets	Octet	0							1								2								3							
Octet	Bit [a]	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	0	Version			P	X	CC			M	PT							Sequence number															
4	32	Timestamp																															
8	64	SSRC identifier																															
12	96	CSRC identifiers ...																															
12+4×CC	96+32×CC	Profile-specific extension header ID																Extension header length															
16+4×CC	128+32×CC	Extension header ...																															

Field	Description
Version	Indicates the version of the protocol. Current version is 2
P (Padding)	Used to indicate if there are extra padding bytes at the end of the RTP packet. Padding may be used to fill up a block of certain size, for example as required by an encryption algorithm. The last byte of the padding contains the number of padding bytes that were added (including itself).
X (Extension)	Indicates presence of an extension header between the header and payload data. The extension header is application or profile specific.
CC (CSRC count)	Contains the number of CSRC identifiers (defined below) that follow the SSRC.
M (Marker)	Signaling used at the application level in a profile-specific manner. If it is set, it means that the current data has some special relevance for the application.

PT (Payload type)	Indicates the format of the payload and thus determines its interpretation by the application. Values are profile specific and may be dynamically assigned.
Sequence Number	The sequence number is incremented for each RTP data packet sent and is to be used by the receiver to detect packet loss[3] and to accommodate out-of-order delivery.
Timestamp	Used by the receiver to play back the received samples at appropriate time and interval. The timestamp is defined as the system time where the camera frame is captured or grabbed. This is important as the time will be used to synchronize multiple camera frames for video analytics. The timestamp unit is in milli-seconds.
SSRC Identifier	Synchronization source identifier uniquely identifies the source of a stream. The synchronization sources within the same RTP session will be unique.
CSRC Identifier	Contributing source IDs enumerate contributing sources to a stream which has been generated from multiple sources.

VDS_RTPStamp Message

VDS_Acknowledge Repetition Rate: On Request				
Octet	0	1	2	3
0	Header		Type	Version
4	SequenceNumber			
8	Timestamp			
12	Timestamp			
16	RTP Sequence Number		Fault code	

Data description

Field	Data Type	Resolution	Range	Remarks
Header	UINT16			0x5354
Type	UINT8			Message Type: 0x00: Undefined 0x01: Heartbeat 0x02: Acknowledge 0x10: Stream Setup 0x11: Stream Teardown 0x20: RTP Stamp
Version	UINT8			0x00

SequenceNumber	UINT32			Running sequence number from 0
Timestamp	UINT64	1us / bit	0…2^64	Time since epoch in microseconds
RTP Sequence Number	UINT16			The corresponding RTP Sequence Number
FaultCode	UINT16			Bit mask of a list of faults (TBD)

2.5 Safety Features

ID No	REQUIREMENTS
	Not Applicable

2.6 Performance requirements

ID No	REQUIREMENTS
	Not Applicable

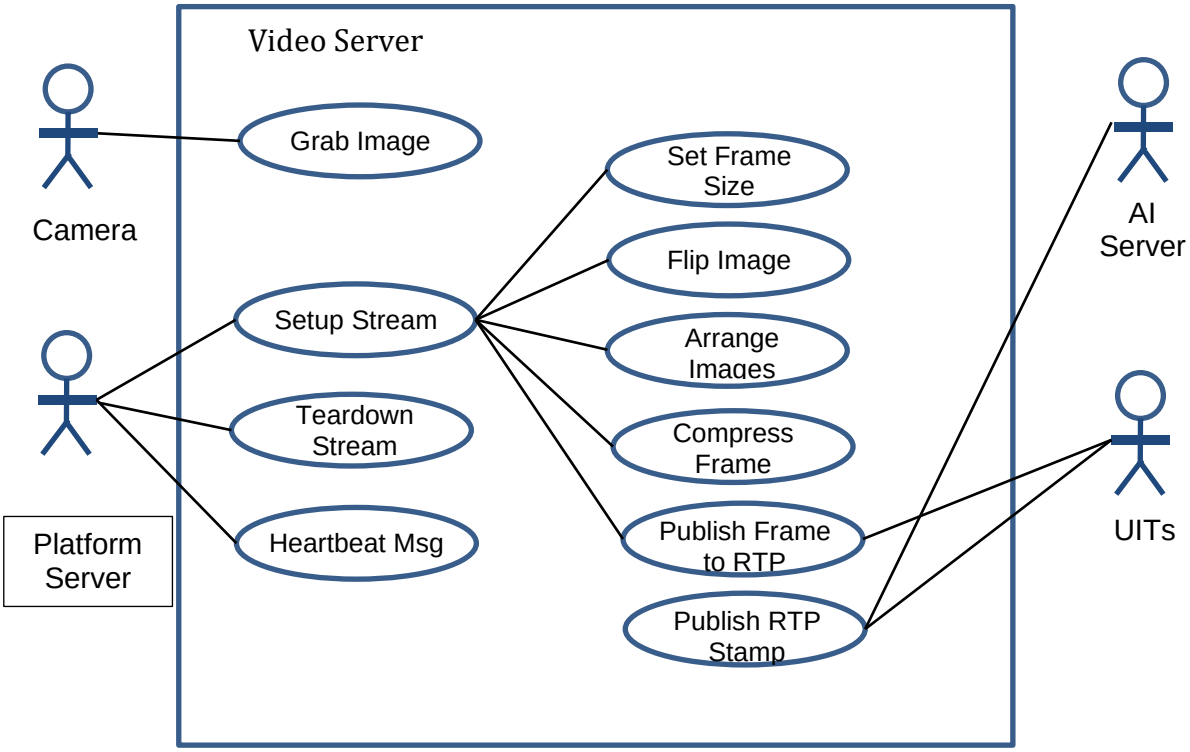
3 USE CASE ANALYSIS MODEL

3.1 Actor List

ACTOR	CHARACTERISTICS
	Not Applicable

3.2 Use Case Modelling

The Use Case diagram shows the interaction between Video Server and other actors.



3.3 Use Case

Not Applicable

4 DESIGN CONSTRAINTS / LIMITATION

4.1.1 Hardware Constraints / Limitation

ID No	CONSTRAINTS / LIMITATION
	Not Applicable

4.1.2 Software Constraints / Limitation

ID No	CONSTRAINTS / LIMITATION
	Not Applicable

5 SOFTWARE SYSTEM ATRIBUTES

5.1.1 Reliability

ID No	REQUIREMENTS
	Not Applicable

5.1.3 Availability

ID No	REQUIREMENTS
	Not Applicable

5.1.4 Security

ID No	REQUIREMENTS
	Not Applicable

5.1.5 Maintainability

ID No	REQUIREMENTS
	Not Applicable

5.1.6 Portability

ID No	REQUIREMENTS
	Not Applicable

6 OTHER REQUIREMENTS

ID No	REQUIREMENTS
	Not Applicable

7 ANNEX