

Datavideo DVIP Control Operation Guide

1 Physical Layer

- 1.1 Control Interface : Ethernet
- 1.2 Communication Speed : 10/100Mbps
- 1.3 Control Protocol : TCP/IP

2 General Connection Information

- 2.1 By default the DVIP is configured to operate at a DHCP mode. User can re-configure to use fixed IP address
- 2.2 TCP/IP Control port number :
 - 2.2.1 TCP port : 5002
 - 2.2.2 UDP port : 5002

3 Packet Data

3.1 Control Command Packet (TCP)

- 3.1.1 To connect to the DVIP interface to use the command protocol, perform a “TCP connect” to the device using the designated IP address and use Port 5002.
- 3.1.2 TCP Prot number : 5002
- 3.1.3 Command Packets us a simple TCP packet struct as follow:

Byte (8 bits)	Description
0	Packet Length High Byte
1	Packet Length Low Byte
2	Command_Data[0]
.....
513	Command_Data[511]

- 3.1.4 Packet Length = length of Command_Data + 2
- 3.1.5 The different Datavideo product control protocol (Switcher, Recorder, Monitor....) will be encapsulated into Command_Data array then send out. Please see refer the specific protocol document.

3.2 Broadcasting Packet

3.2.1 Controller use broadcasting packet to obtain DVIP devices information in the same network

3.2.2 UDP Port number : 5002

3.2.3 Broadcasting packet format

Byte (8 bites)	Description
0	Packet Length High Byte
1	Packet Length Low Byte
2	0x81 0x80
3	Command
4	Parameter1
.....
251	Parameter248

3.2.3.1 Packet Length = Command + Length of Paramater + 2

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3.2.4 Broadcasting command list

3.2.4.1 Request all DVIP devices TCP/IP information (Broadcasting)

3.2.4.1.1 Command to DVIP device

Request TCP/IP information, include DHCP mode, DHCP Host name, IP address, Netmask, MAC address, Gateway, Primary DNS, Secondary DNS	
Command	0x00
Parameter1	0x45
Parameter2	0x54
Parameter3	0x48
Parameter4	0x5F
Parameter5	0x52
Parameter6	0x45
Parameter7	0x51

3.2.4.1.2 Return from DVIP device

Length	Description
1 byte	Data Length High Byte
1 byte	Data Length Low Byte
1 byte	0x80
1 byte	0x00
1 byte	DHCP, 0: Disable, 1: Enable
16 bytes	DHCP Host name (15 bytes max) + NULL (0x00) terminated
6 bytes	MAC address
4 bytes	IP address
4 bytes	Netmask
4 bytes	Gateway
4 bytes	Primary DNS address
4 bytes	Secondary DNS address

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3.2.4.2 Request specific DVIP device firmware revision (Broadcasting)

3.2.4.2.1 Command to DVIP device

Request DVIP firmware Revision	
Command	0x01
Parameter1	DVIP MAC address[0]
Parameter2	DVIP MAC address[1]
Parameter3	DVIP MAC address[2]
Parameter4	DVIP MAC address[3]
Parameter5	DVIP MAC address[4]
Parameter6	DVIP MAC address[5]
Parameter7	0x46
Parameter8	0x57
Parameter9	0x56
Parameter10	0x45
Parameter11	0x52
Parameter12	0x5F
Parameter13	0x52
Parameter14	0x45
Parameter15	0x51

3.2.4.2.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x06 (Data Length Low Byte)
1 byte	0x80
1 byte	0x01
1 bytes	Firmware Revision Major Number
1 bytes	Firmware Revision Minor Number

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3.2.4.3 Set DHCP mode (Broadcasting)

3.2.4.3.1 Command to DVIP device

Set DHCP mode	
Command	0x02
Parameter1	DVIP MAC address[0]
Parameter2	DVIP MAC address[1]
Parameter3	DVIP MAC address[2]
Parameter4	DVIP MAC address[3]
Parameter5	DVIP MAC address[4]
Parameter6	DVIP MAC address[5]
Parameter7	0x53
Parameter8	0x45
Parameter9	0x54
Parameter10	0x5F
Parameter11	0x44
Parameter12	0x48
Parameter13	0x43
Parameter14	0x50
Parameter15	0x4D
Parameter16	0x4F
Parameter17	0x44
Parameter18	0x45
Parameter19	0x00 : Disable. 0x01 : Enable

3.2.4.3.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x80
1 byte	0x02
1 bytes	0x06 (ACK) or 0x15 (NACK)

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3.2.4.4 Set IP Address (Broadcasting)

3.2.4.4.1 Commad to DVIP device

Set IP Address	
Command	0x03
Parameter1	DVIP MAC address[0]
Parameter2	DVIP MAC address[1]
Parameter3	DVIP MAC address[2]
Parameter4	DVIP MAC address[3]
Parameter5	DVIP MAC address[4]
Parameter6	DVIP MAC address[5]
Parameter7	0x53
Parameter8	0x45
Parameter9	0x54
Parameter10	0x5F
Parameter11	0x49
Parameter12	0x50
Parameter13	0x41
Parameter14	0x44
Parameter15	0x52
Parameter16	IP_Address[0]
Parameter17	IP_Address[1]
Parameter18	IP_Address[2]
Parameter19	IP_Address[3]
Parameter20	Gateway[0]
Parameter21	Gateway[1]
Parameter22	Gateway[2]
Parameter23	Gateway[3]

3.2.4.4.2 Retrun from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x80
1 byte	0x03
1 bytes	0x06 (ACK) or 0x15 (NACK)

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3.2.4.5 Reset to factory default (Broadcasting)

3.2.4.5.1 Command to DVIP device

Reset to factory default	
Command	0x04
Parameter1	DVIP MAC address[0]
Parameter2	DVIP MAC address[1]
Parameter3	DVIP MAC address[2]
Parameter4	DVIP MAC address[3]
Parameter5	DVIP MAC address[4]
Parameter6	DVIP MAC address[5]
Parameter7	0x52
Parameter8	0x45
Parameter9	0x53
Parameter10	0x45
Parameter11	0x54

3.2.4.5.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x80
1 byte	0x04
1 bytes	0x06 (ACK) or 0x15 (NACK)

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3.2.4.6 Get Device Model Name (Broadcasting)

3.2.4.6.1 Command to DVIP device

Get Device Model Name	
Command	0x05
Parameter1	DVIP MAC address[0]
Parameter2	DVIP MAC address[1]
Parameter3	DVIP MAC address[2]
Parameter4	DVIP MAC address[3]
Parameter5	DVIP MAC address[4]
Parameter6	DVIP MAC address[5]
Parameter7	0x47
Parameter8	0x45
Parameter9	0x54
Parameter10	0x5F
Parameter11	0x4D
Parameter12	0x4F
Parameter13	0x44
Parameter14	0x45
Parameter15	0x4C
Parameter16	0x5F
Parameter17	0x4E
Parameter18	0x41
Parameter19	0x4D
Parameter20	0x45

3.2.4.6.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x14 (Data Length Low Byte)
1 byte	0x80
1 byte	0x05
16 bytes	Device Model Name 16 bytes max. NULL (0x00) padding if less than 16 bytes.

3.3 UDP Packet

3.3.1 Controller use UDP packet to obtain DVIP devices information or config DVIP device in the same network.

3.3.2 UDP Port number : 5002

3.3.3 UDP Packet format

Byte (8 bites)	Description
0	Packet Length High Byte
1	Packet Length Low Byte
2	0x81
3	Command
4	Parameter1
.....
251	Parameter248

3.3.3.1 Packet Length = Command + Length of Paramater + 2

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3.3.4 UDP command list

3.3.4.1 Request DVIP device TCP/IP information

3.3.4.1.1 Command to DVIP device

Request TCP/IP information, include DHCP mode, DHCP Host name, IP address, Netmask, MAC address, Gateway, Primaty DNS, Secondary DNS	
Command	0x00
Parameter1	0x45
Parameter2	0x54
Parameter3	0x48
Parameter4	0x5F
Parameter5	0x52
Parameter6	0x45
Parameter7	0x51

3.3.4.1.2 Return from DVIP device

Length	Description
1 byte	Data Length High Byte
1 byte	Data Length Low Byte
1 byte	0x81
1 byte	0x00
1 byte	DHCP, 0: Disable, 1: Enable
16 bytes	DHCP Host name (15 bytes max) + NULL (0x00) terminated
6 bytes	MAC address
4 bytes	IP address
4 bytes	Netmask
4 bytes	Gateway
4 bytes	Primary DNS address
4 bytes	Secondary DNS address

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3.3.4.2 Request DVIP device firmware revision

3.3.4.2.1 Command to DVIP device

Request DVIP firmware Revision	
Command	0x01
Parameter1	0x46
Parameter2	0x57
Parameter3	0x56
Parameter4	0x45
Parameter5	0x52
Parameter6	0x5F
Parameter7	0x52
Parameter8	0x45
Parameter9	0x51

3.3.4.2.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x06 (Data Length Low Byte)
1 byte	0x81
1 byte	0x01
1 bytes	Firmware Revision Major Number
1 bytes	Firmware Revision Minor Number

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3.3.4.3 Set DHCP mode

3.3.4.3.1 Command to DVIP device

Set DHCP mode	
Command	0x02
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x44
Parameter6	0x48
Parameter7	0x43
Parameter8	0x50
Parameter9	0x4D
Parameter10	0x4F
Parameter11	0x44
Parameter12	0x45
Parameter13	0x00 : Disable. 0x01 : Enable

3.3.4.3.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x02
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.4 Set IP address & Gateway address

3.3.4.4.1 Command to DVIP device

Set DHCP mode	
Command	0x03
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x49
Parameter6	0x50
Parameter7	0x41
Parameter8	0x44
Parameter9	0x52
Parameter10	IP_address[0]
Parameter11	IP_address[1]
Parameter12	IP_address[2]
Parameter13	IP_address[3]
Parameter14	Gateway[0]
Parameter15	Gateway[1]
Parameter16	Gateway[2]
Parameter17	Gateway[3]

3.3.4.4.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x03
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.5 Reset to factory default

3.3.4.5.1 Command to DVIP device

Reset to factory default	
Command	0x04
Parameter1	0x52
Parameter2	0x45
Parameter3	0x53
Parameter4	0x45
Parameter5	0x54

3.3.4.5.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x04
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.6 Set DHCP host name

3.3.4.6.1 Command to DVIP device

Set DHCP host name	
Command	0x09
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x44
Parameter6	0x48
Parameter7	0x43
Parameter8	0x50
Parameter9	0x4E
Parameter10	0x41
Parameter11	0x4D
Parameter12	0x45
Parameter13 ...	Name (ASCII), 15 bytes max
Parameter	NULL(0x00) terminate

3.3.4.6.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x09
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.7 Set Netmask

3.3.4.7.1 Command to DVIP device

Set Netmask	
Command	0x0B
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x4E
Parameter6	0x45
Parameter7	0x54
Parameter8	0x4D
Parameter9	0x41
Parameter10	0x53
Parameter11	0x4B
Parameter12	Net_Mask[0]
Parameter13	Net_Mask[1]
Parameter14	Net_Mask[2]
Parameter15	Net_Mask[3]

3.3.4.7.2 Return form DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x0B
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.8 Set Gateway

3.3.4.8.1 Command to DVIP device

Set Gateway address	
Command	0x0C
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x47
Parameter6	0x41
Parameter7	0x54
Parameter8	0x45
Parameter9	0x57
Parameter10	0x41
Parameter11	0x59
Parameter12	Gateway_IP[0]
Parameter13	Gateway_IP[1]
Parameter14	Gateway_IP[2]
Parameter15	Gateway_IP[3]

3.3.4.8.2 Return form DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x0C
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.9 Set Primary DNS address

3.3.4.9.1 Command to DVIP device

Set Primary DNS	
Command	0x0D
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x50
Parameter6	0x52
Parameter7	0x49
Parameter8	0x44
Parameter9	0x4E
Parameter10	0x53
Parameter11	Primary_DNS_IP[0]
Parameter12	Primary_DNS_IP[1]
Parameter13	Primary_DNS_IP[2]
Parameter14	Primary_DNS_IP[3]

3.3.4.9.2 Return form DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x0D
1 byte	0x06 (ACK) or 0x15 (NACK)

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3.3.4.10 Set Secondary DNS address

3.3.4.10.1 Command to DVIP device

Set Secondary DNS	
Command	0x0E
Parameter1	0x53
Parameter2	0x45
Parameter3	0x54
Parameter4	0x5F
Parameter5	0x53
Parameter6	0x45
Parameter7	0x43
Parameter8	0x44
Parameter9	0x4E
Parameter10	0x53
Parameter11	Secondary_DNS_IP[0]
Parameter12	Secondary_DNS_IP[1]
Parameter13	Secondary_DNS_IP[2]
Parameter14	Secondary_DNS_IP[3]

3.3.4.10.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x0E
1 byte	0x06 (ACK) or 0x15 (NACK)

3.3.4.11 DVIP Initial Configuration

3.3.4.11.1 Command to DVIP device

DVIP Initial Configuration	
Command	0x0F
Parameter1	0x49
Parameter2	0x4E
Parameter3	0x49
Parameter4	0x54
Parameter5	0x5F
Parameter6	0x45
Parameter7	0x32
Parameter8	0x50
Parameter9	DHCP_Mode
Parameter10	DHCP_Host_Name[0 ~ 14] (ASCII), 15 bytes max
ParameterN	Null (0x0)
ParameterN+1	MAC_Address[0 ~ 3]
ParameterN+5	IP_Address[0 ~3]
ParameterN+9	Gateway_IP[0 ~ 3]
ParameterN+13	Net_Mask[0 ~ 3]
ParameterN+17	Primary_DNS_IP[0 ~ 3]
ParameterN+21	Secondary_DNS_IP[0 ~ 3]

3.3.4.11.2 Return from DVIP device

Length	Description
1 byte	0x00 (Data Length High Byte)
1 byte	0x05 (Data Length Low Byte)
1 byte	0x81
1 byte	0x0F
1 byte	0x06 (ACK) or 0x15 (NACK)

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Revision History:

Revision	Description	Date
1.0	Initial release	AUG-14-2014
1.1	Add Get Device Model Name (Broadcasting Command)	SEP-03-2014
1.2	Correction : Broadcasting Identifier : 0x80	FEB-12-2015