VCON
VISUAL COMMUNICATIONS

Videoconferencing Systems

HD100
Videoconferencing Engine

API Programmer's Guide

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VCON Technical Support

This API & Setup Guide was designed to help you set up and work with the HD100 Integrator system easily.

If a situation occurs that is not covered by the supplied documentation, please request help from our Technical Support channels. VCON's organization will make its strongest efforts to help you resume your software integration activities as soon as possible.

1. Contact your local VCON distributor, and request assistance from its technical support department.
2. Send an e-mail message fully describing the condition plus your system's configuration to zapi@vcon.com.

TABLE OF CONTENTS

1 WELCOME TO HD100

The HD100 API Programmer's Guide contain description, syntaxes, and examples of the HD100 API system events, commands, and parameters.

The HD100 is a videoconferencing engine for integration into a custom multimedia room environment. When combined with external audio mixers, video switches and touch-screen control devices, virtually any rich media communication solution can be created. The HD100 produces high quality video with extremely low latency and IP conferencing data rates up to 2 Mbps. With an embedded MCU and streaming capabilities, as well as a suite of integration APIs, the HD100 can be used to create any custom application in an array of industries such as healthcare, large education facilities and corporate boardrooms.

Key Features Include:

- ❑ Compact form-factor ready for integration
- ❑ TV-quality video at 60 fields per second
- ❑ VCON PacketAssist™ architecture for advanced Quality of Service (QoS) over IP
- ❑ H.323 v4 and VCON Interactive Multicast
- ❑ Embedded 4-port MCU with speed matching and audio transcoding
- ❑ Multicast and unicast streaming
- ❑ Integration APIs for custom integration
- ❑ VCON Media Xchange Manager™ management and adminstration agent
- ❑ Embedded web server for remote management
- ❑ Compact flash memory for easy software upgrade

2 ACCESSING THE HD100 PROGRAMMING INTERFACE

Use COM2 for sending Integrator API commands to the HD100.

2.1 Setting Up an RS-232 Connection

This section includes procedures for setting up an RS-232 communications session.

➤ **To connect the RS-232 serial cable**

1. Connect one end of the RS-232 serial cable (DB9-to-DB9) to the serial port of your computer.
2. Connect the other end to the RS-232 serial port on the rear panel of the HD100 Integrator (default is **COM2**).

➤ **To start a communications session**

1. Set up a HyperTerminal session. In the Windows desktop, run **Start>Programs>Accessories>Communications>HyperTerminal**.
2. In the Connection Description dialog box, enter a **Name**. Select an icon. Click **OK**.
3. In the Connect To dialog box, select **COM1** from the **Connect Using** list. Click **OK**.
4. In the COM Properties dialog box, enter the following Port Settings:

Bits per second	9600
Data Bits	8
Parity	None
Stop Bit	1
Flow Control	None

5. Click **OK**.

6. Restart the HD100. After the HD100 initializes, the following prompt appears on the screen:

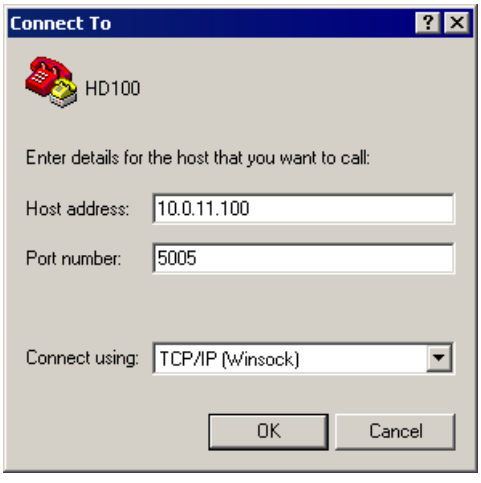
```
Welcome to HD100:
Version      : 0150.M07.D17.H12
Board Type   : Tetra VC Board
Camera Input: PAL

HD>>
EVENT_SYSTEM_INIT_COMPLETED_SUCCESS
HD>>
```

2.2 Setting Up a Telnet Session

Use standard Telnet client configured with the HD100 IP address and **port 5005**.

➤ **To start a Telnet session from Windows**

1. Turn the HD100 on.
2. From the Windows **Start** menu, open **Programs>Accessories>Communications>HyperTerminal**.
3. Enter a session.



4. From the **Connect Using** list, choose **TCP/IP (Winsock)**.
5. Enter the HD100 IP address.

6. As the **Port Number**, type **5005**.
7. Click **OK**.

   You are now in an active Telnet session. Information from the HD100 appears on the screen.

```
Welcome to HD100:

Version      : 0150.M07.D16.H14
Board Type   : Tetra VC Board
Camera Input: NTSC

HD>>
EVENT_SYSTEM_INIT_COMPLETED_SUCCESS
HD>>
```

To display the list of available API commands, type **help**.

Hiding the HD100 User Interface

If you want to remove the entire user interface or only its dialog boxes from view, perform the procedures below.

➤ **To hide the HD100 user interface**

1. Connect to the HD100 over Telnet (see "Setting Up a Telnet Session" on page 11).
2. In the Telnet session screen, type **IniWrite user.ini gui hideall 0**.

➤ **To hide only dialog boxes (icons and popup messages remain visible):**

1. Connect to the HD100 over Telnet (see "Setting Up a Telnet Session" on page 11).
2. In the Telnet session screen, type **IniWrite user.ini gui hidedlg 0**.

3 SYNTAX CONVENTIONS

The following conventions are used for the API command syntaxes:

- Parameters placed between < > are mandatory.
- Parameters placed between [ ] are optional.
- Only one of the parameters placed between { } and separated by | may be used at a single time.
- Available values appear in **bold**.
- Default values appear in ***bold italics***.
- Words or characters appearing in *italics* represent variable values that you must supply.
- Examples of text that appear on the monitor (application console) appear in `Courier` font.
- The return string for all commands is structured as follows:

  <*CommandName*> < *Status*={OK|ERROR}> [*Value*]

- Links to other events, commands, and parameters appear in blue.

Commands are not case sensitive.

4 COMMANDS

4.1 Call Commands

Dial

Description Initiate a videoconference call to a remote user associated with the entered address.

Format Dial <*RemoteAddress*> [*Bitrate*=***384000***]

Parameters **RemoteAddress** – The address of the remote user (IP Address, DNS Name H.323-ID or E.164).

Bitrate – The bitrate of the call.

Return **OK** on success together with the created call ID.

ERROR – with an error code.

Example

```
Dial 10.0.11.25 128000
DIAL OK 0

Dial danny.vcon.co.il 128000
DIAL OK 1
```

Remarks

Hangup

Description Disconnect an active call.

Format Hangup [*CallID*=***0***]

Parameters **CallID** – The ID of the call to disconnect.

Return **OK** on success.

ERROR – with an error code.

Example

```
Hangup 0
HANGUP OK
```

Remarks

CallAnswer

Description Answer an incoming call.

Format CallAnswer [*CallID*=***0***]

Parameters **CallID** – The ID of the incoming call.

Return **OK** on success.

ERROR – with an error code.

Example

```
CallAnswer 0
CALLANSWER OK
```

Remarks When the system is set to auto-answer mode, this command is unnecessary.

CallReject

Description Reject an incoming call.

Format CallReject [*CallID*=***0***]

Parameters **CallID** – The ID of the incoming call.

Return **OK** on success.

ERROR – with an error code.

Example

```
CallReject 0
REJECTCALL OK
```

Remarks When the system is set to auto-answer mode, this command is unnecessary.

CallGetParam

Description Retrieve a call parameter.

Format CallGetParam [*CallID*=***0***] <*CallParameter*>

Parameters **CallID** – The ID of the call.
CallParameter – The specific call parameter.

Return **OK** on success together with the parameter value.
ERROR on error together with an error code.

Example

```
CallGetParam 0 REMOTE_NAME
CALLGETPARAM OK DemoRoom
```

Remarks To retrieve all the Call parameters, type **GetCallParam**.

NULL string represents a null value.

Supported call parameters list:

STATE

REMOTE_TERMINAL_TYPE

DIRECTION

BITRATE

TX_VIDEO_CODEC

RX_VIDEO_CODEC

TX_VIDEO_SEC_CODEC

RX_VIDEO_SEC_CODEC

TX_AUDIO_CODEC

RX_AUDIO_CODEC

TX_VIDEO_BITRATE

RX_VIDEO_BITRATE

TX_VIDEO_SEC_BITRATE

RX_VIDEO_SEC_BITRATE

Remarks (cont.)

TX_AUDIO_BITRATE

RX_AUDIO_BITRATE

TX_VIDEO_HANDLE

RX_VIDEO_HANDLE

TX_VIDEO_SEC_HANDLE

RX_VIDEO_SEC_HANDLE

TX_AUDIO_HANDLE

RX_AUDIO_HANDLE

TX_VIDEO_FRAMERATE

RX_VIDEO_FRAMERATE

TX_VIDEO_SEC_FRAMERATE

RX_VIDEO_SEC_FRAMERATE

DURATION

REMOTE_NAME

REMOTE_ADDRESS

AUDIO_TO_VIDEO_DELAY

JITTER_BUFFER_SIZE

Descriptions for the parameters listed above appear on the following pages.

STATE

Description

Start or stop sending call event to the console.

Type of call event to the console.

Current call state.

Valid Value

DIALTONE - A dialtone state followed dialing.

DISCONNECTED - A call was disconnected.

RINGBACK - An “Alerting” or “Proceeding” message was received from the remote side.

CONNECTED - A call connected successfully.

IDLE - A call was disconnected, and its resources are no longer valid.

OFFERING - An incoming call indication was received.

Access

Read only.

Remarks

REMOTE_TERMINAL_TYPE

Description Type of remote H.323 terminal.

Valid Value

TERMINAL

GATEWAY

MCU

GATEKEEPER

Access Read only.

Remarks

DIRECTION

Description	The direction of call.
Valid Value	**RX** - incoming. **TX** - outgoing.
Access	Read only.
Remarks	

BITRATE

Description	Current call bit rate.
Valid Value	From **0** to **max** supported bit rate.
Access	Read only.
Remarks	

TX_VIDEO_CODEC

Description The call's main outgoing video codec.

Valid Value

OFF

H261

H263

Access Read only.

Remarks

RX_VIDEO_CODEC

Description The call's main incoming video codec.

Valid Value

OFF

H261

H263

Access Read only.

Remarks

TX_VIDEO_SEC_CODEC

Description The call's secondary outgoing video codec.

Valid Value

OFF

H261

H263

Access Read only.

Remarks

RX_VIDEO_SEC_CODEC

Description The call's secondary incoming video codec.

Valid Value

OFF

H261

H263

Access Read only.

Remarks

TX_AUDIO_CODEC

Description The call's outgoing audio codec.

Valid Value

OFF

G711A

G711U

G722

G723

G728

G729

Access Read only.

Remarks

RX_AUDIO_CODEC

Description The call's incoming audio codec.

Valid Value

OFF

G711A

G711U

G722

G723

G728

G729

Access Read only.

Remarks

TX_VIDEO_BITRATE

Description Actual main outgoing video bit rate.

Valid Value From **0** to **max** supported bit rate.

Access Read only.

Remarks

RX_VIDEO_BITRATE

Description Actual main incoming video bit rate.

Valid Value From **0** to **max** supported bit rate.

Access Read only.

Remarks

TX_VIDEO_SEC_BITRATE

Description Actual secondary outgoing video bit rate.

Valid Value From **0** to **max** supported bit rate.

Access Read only.

Remarks

RX_VIDEO_SEC_BITRATE

Description Actual secondary incoming video bit rate.

Valid Value From **0** to **max** supported bit rate.

Access Read only.

Remarks

TX_AUDIO_BITRATE

Description Actual outgoing audio bit rate.

Valid Value From **0** to **64** Kb.

Access Read only.

Remarks

RX_AUDIO_BITRATE

Description Actual incoming audio bit rate.

Valid Value From **0** to **64** Kb

Access Read only.

Remarks

TX_VIDEO_HANDLE

Description The main outgoing video codec handle.

Valid Value Any value.

Access Read only.

Remarks

RX_VIDEO_HANDLE

Description The main incoming video codec handle.

Valid Value Any value.

Access Read only.

Remarks

TX_VIDEO_SEC_HANDLE

Description The secondary outgoing video codec handle.

Valid Value Any value.

Access Read only.

Remarks

RX_VIDEO_SEC_HANDLE

Description The secondary incoming video codec handle.

Valid Value Any value.

Access Read only.

Remarks

TX_AUDIO_HANDLE

Description The outgoing audio codec handle.

Valid Value Any value.

Access Read only.

Remarks

RX_AUDIO_HANDLE

Description The incoming audio codec handle.

Valid Value Any value.

Access Read only.

Remarks

TX_VIDEO_FRAMERATE

Description The main outgoing video codec frame rate.

Valid Value **0** – **60** frames per second.

Access Read only.

Remarks

RX_VIDEO_FRAMERATE

Description The main incoming video codec frame rate.

Valid Value 0 – 60 frames per second.

Access Read only.

Remarks

TX_VIDEO_SEC_FRAMERATE

Description The secondary outgoing video codec frame rate.

Valid Value **0** – **60** frames per second.

Access Read only.

Remarks

RX_VIDEO_SEC_FRAMERATE

Description The secondary incoming video codec frame rate.

Valid Value **0** – **60** frames per second.

Access Read only.

Remarks

DURATION

Description Call duration in seconds.

Valid Value value > 0.

Access Read only.

Remarks

REMOTE_NAME

Description Name of remote endpoint.

Valid Value Any value.

Access Read only.

Remarks

REMOTE_ADDRESS

Description IP address of remote endpoint.

Valid Value A valid IP address.

Access Read only.

Remarks

AUDIO_TO_VIDEO_DELAY

Description The delay between the incoming video and audio streams (in percent).

Valid Value **0** - **100** percent

Access Read/Write.

Remarks

JITTER_BUFFER_SIZE

Description	Returns the size of the used jitter buffer (in percent).
Valid Value	**0** - **100** percent
Access	Read / Write.
Remarks	Relevant only when AUTO_JITTER_ENABLE = **0**

CallSetBitrate

Description Set the video transmission rate for a specific call.

Format CallSetBitrate [*CallID*=***0***] <*Bitrate*=***384000***>

Parameters **CallID** – The ID of the call.

Bitrate – The new call bit per seconds.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CallSetBitrate 0 192000
CALLSETBITRATE OK
```

Remarks

CallSendIntra

Description Send an intra frame to the remote party during a specific call.

Format CallSendIntra [*CallID*=***0***]

Parameters **CallID** – The ID of the call.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CallSendIntra 0
CALLSENDINTRA OK
```

Remarks

CallRequestIntra

Description Request an intra frame from the remote party during a specific call.

Format CallRequestIntra [*CallID*=***0***]

Parameters **CallID** – The ID of the call.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CallRequestIntra 0
CALLREQUESTINTRA OK
```

Remarks

CallSendDTMF

Description Send a DTMF tone to the remote party for a specific call.

Format CallSendDTMF <*CallID*=***0***> <*DTMF*>

Parameters **CallID** – The ID of the call.

DTMF – The DTMF tone to send

{**0..9** | **#** | *****}

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CallSendDTMF 0 3
CALLSENDDTMF OK
```

Remarks

CallEvents

Description Start or stop sending call event to the console.

Format CallEvents [*IsEnable=**1***]

Parameters **IsEnable** – {**0** | **1**}

0 - Stop sending call event to the console.

1 - Start sending call event to the console.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CallEvents 1
CALLEVENTS OK
```

Remarks Supported call events:

EVENT_CALL_DIALTONE <*CallID*>

EVENT_CALL_RINGBACK <*CallID*>

EVENT_CALL_CONNECTED <*CallID*>

EVENT_CALL_OFFERING <*CallID*> <*RemoteAddress*> <*RemoteName*>

EVENT_CALL_DISCONNECTED <*CallID*> <*DisconnectionReason*>

EVENT_CALL_IDLE <*CallID*>

EVENT_CALL_CHANNEL_ON <*CallID*> <*ChannelID*> <*Dir*> <*Type*>

EVENT_CALL_CHANNEL_OFF <*CallID*> < *ChannelID* > <*Dir*> <*Type*>

EVENT_CALL_REMOTE_NOT_RESPONDING <*CallID*>

4.2 LAN Commands

GetParam

Description Retrieve the value of a specific LAN configuration parameter.

Format GetParam <*LANParameter*>

Parameters **LANParameter** – The name of the LAN parameter.

Return **OK** on success together with the LAN parameter value.

ERROR on error together with an error code.

Example

```
GetParam IP_ADDRESS
GETPARAM OK 10.0.11.25
```

Remarks To retrieve all the LAN parameters, type **GetParam**.

NULL string represents a null value.

Supported LAN parameters:

GATEKEEPER_LOGIN_STATE

GATEKEEPER_ADDRESS

STATION_NUMBER

STATION_NAME

SERVER_LOGIN_STATE

SERVER_ADDRESS

AUTO_ADDRESS

MAC_ADDRESS

IP_ADDRESS

SUBNET_MASK

DEFAULT_GATEWAY

Remarks (cont.)

DNS_SERVER_ADDRESS

WINS_SERVER_ADDRESS

DOMAIN_NAME

NAT_ADDRESS

AUTO_ANSWER

LIPSYNC_ENABLE

AUTO_JITTER_ENABLE

ABA_ENABLE

MAX_BITRATE

MIN_BITRATE

DEF_BITRATE

USE_GATEKEEPER

USE_SERVER

MIN_UDP_PORT

MAX_UDP_PORT

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MAX_TCP_PORT

AUDIO_QOS

VIDEO_QOS

RTCP_QOS

QOS_TYPE

AUTO_ACCEPT_MULTICAST_FLOOR

DHCP_STATE

WINS_LOGIN_STATE

STREAMING_ENABLE

STREAMING_ADDRESS

STREAMING_VIDEO_PORT

Remarks (cont.)

STREAMING_AUDIO_PORT

STREAMING_BITRATE

STREAMING_TTL

STREAMING_TIMEOUT

STREAMING_ENABLE_ANNOUNCEMENT

ETHERNET_SPEED

MAX_ACTIVE_CALLS

ACTIVE_CALLS

FECC_ALLOWED

Descriptions for the parameters listed above appear on the following pages.

GATEKEEPER_LOGIN_STATE

Description Login state of the gatekeeper.

Valid Value
LOGGED_IN
LOGIN_FAILED_DUPLICATE_ALIAS
LOGIN_FAILED_GENERAL_ERROR
LOGGED_OFF

Default Value ***LOGGED_OFF***

Access Read only.

Set Effect N/A.

Remarks

GATEKEEPER_ADDRESS

Description IP address of the gatekeeper.

Valid Value Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).

Default Value NULL

Access Read / Write.

Set effect Reboot.

Remarks

STATION_NUMBER

Description	E.164 alias of a H.323 station.
Valid Value	A string of digits.
Default Value	NULL
Access	Read / Write.
Set effect	Reboot.
Remarks	Dialing a STATION_NUMBER as a remote address is only relevant when endpoint is configured to work with a gatekeeper.

STATION_NAME

Description	Name of the endpoint.
Valid Value	String of characters, with a letter as the first character.
Default Value	NULL
Access	Read / Write.
Set effect	Reboot.
Remarks	Dialing a STATION_NAME as a remote address is only relevant when endpoint is configured to work with a gatekeeper.

SERVER_LOGIN_STATE

Description The endpoint's login state in the MXM server.

Valid Value

LOGGED_IN

LOGIN_FAILED_DUPLICATE_ALIAS

LOGIN_FAILED_LICENSE_VIOLATION

LOGIN_FAILED_UNSUPPORTED_VERSION

LOGIN_FAILED_TIME_OUT

LOGIN_FAILED_WAIT_FOR_GRANT

LOGIN_FAILED_GENERAL_ERROR

LOGGED_OFF

Default Value ***LOGGED_OFF***

Access Read only.

Set effect N/A.

Remarks

SERVER_ADDRESS

Description The IP address of the MXM server.

Valid Value Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).

Default Value NULL

Access Read / Write.

Set effect Reboot.

Remarks

AUTO_ADDRESS

Description Enable or disable automatic get of IP address from DHCP server.

Valid Value {**0**|**1**}

0 – Disable.

1 – Enable.

Default Value ***0***

Access Read / Write.

Set effect Reboot.

Remarks

MAC_ADDRESS

Description Returns the MAC address of the endpoint.

Valid Value A string in the following format *XX:XX:XX:XX:XX* where *X* can be either a digit OR a letter in the following range **A-F**.

Default Value N/A.

Access Read only.

Set effect N/A.

Remarks

IP_ADDRESS

Description Local endpoint IP address.

Valid Value Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).

Default Value N/A.

Access Read / Write.

Set effect Reboot.

Remarks

SUBNET_MASK

Description Subnet mask of the local endpoint.

Valid Value Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).

Default Value N/A.

Access Read / Write.

Set effect Reboot.

Remarks

DEFAULT_GATEWAY

Description	The network's default gateway.
Valid Value	Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).
Default Value	N/A.
Access	Read / Write.
Set effect	Reboot.
Remarks	

DNS_SERVER_ADDRESS

Description	IP Address of network's DNS Server.
Valid Value	Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).
Default Value	NULL.
Access	Read / Write.
Set effect	Reboot.
Remarks	

WINS_SERVER_ADDRESS

Description	IP Address of network's WINS Server.
Valid Value	Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).
Default Value	NULL.
Access	Read / Write.
Set effect	Reboot.
Remarks	

DOMAIN_NAME

Description	The name of the domain in which the endpoint is located.
Valid Value	String of dot-separated name elements.
Default Value	NULL.
Access	Read / Write.
Set effect	Reboot.
Remarks	

NAT_ADDRESS

Description The NAT IP address of the endpoint.

Valid Value Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).

Default Value NULL.

Access Read / Write.

Set effect Next Call.

Remarks

AUTO_ANSWER

Description	Enable/disable automatic answer of incoming call.
Valid Value	{**0**|**1**} **0** –Disable **1** - Enable
Default Value	***1***
Access	Read / Write.
Set effect	Next Call.
Remarks	

LIPSYNC_ENABLE

Description	Enable/disable lip synchronization mechanism.
Valid Value	{**0**|**1**} **0** –Disable **1** - Enable
Default Value	***1***
Access	Read / Write.
Set effect	Next Call.
Remarks	

AUTO_JITTER_ENABLE

Description Enable/disable automatic buffering control, which allows manual or automatic control over delay and picture smoothness.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***1***

Access Read / Write.

Set effect Next Call.

Remarks

ABA_ENABLE

Description Enable/disable Adaptive Bandwidth Adjustment mechanism for overcoming network congestion problems.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***1***

Access Read / Write.

Set effect Next Call.

Remarks

MAX_BITRATE

Description	Maximum bandwidth the system can allocate to initiate a call, according to its capabilities and/or license permissions.
Valid Value	**0 – 2048000**
Default Value	***2048000***
Access	Read / Write.
Set effect	Next Call.
Remarks	

MIN_BITRATE

Description	Minimum bandwidth the system can allocate to initiate a call, according to its capabilities and/or license permissions.
Valid Value	**0 - 2048000**
Default Value	***64000***
Access	Read / Write.
Set effect	Next Call.
Remarks	

DEF_BITRATE

Description	Default bandwidth the system can allocate to initiate a call, according to its capabilities and/or license permissions.
Valid Value	**0 - 2048000**
Default Value	***768000***
Access	Read / Write.
Set effect	Next Call.
Remarks	

USE_GATEKEEPER

Description Enable or disable usage of gatekeeper management and services.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

Access Read / Write.

Set effect Next Reboot.

Remarks

USE_SERVER

Description Enable/disable usage of VCON Server management and services.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

Access Read / Write.

Set effect Next Reboot.

Remarks

MIN_UDP_PORT

Description	Lowest UDP port allowed.
Valid Value	**1024 - 65536**
Default Value	***5004***
Access	Read / Write.
Set effect	Next Call.
Remarks	

MAX_UDP_PORT

Description	Highest UDP port allowed.
Valid Value	**1024 - 65536**
Default Value	***6004***
Access	Read / Write.
Set effect	Next Call.
Remarks	

MIN_TCP_PORT

Description	Lowest TCP port allowed.
Valid Value	**1024 - 65536**
Default Value	***5004***
Access	Read / Write.
Set effect	Next Call.
Remarks	

MAX_TCP_PORT

Description	Highest TCP port allowed.
Valid Value	**1024 - 65536**
Default Value	***6004***
Access	Read / Write.
Set effect	Next Call.
Remarks	

AUDIO_QOS

Description The QOS value appended to each audio packet.

Valid Value **0 - 255**

Default Value ***160***

Access Read / Write.

Set effect Next Call.

Remarks

VIDEO_QOS

Description The QOS value appended to each video packet.

Valid Value **0 - 255**

Default Value ***128***

Access Read / Write.

Set effect Next Call.

Remarks

RTCP_QOS

Description The QOS value appended to each RTCP packet.

Valid Value **0 - 255**

Default Value ***192***

Access Read / Write.

Set effect Next Call.

Remarks

QOS_TYPE

Description	Type of QOS which is currently used during the endpoint's calls.
Valid Value	**NONE** **IPPRECEDENCE** **DIFFSERV**
Default Value	***IPPRECEDENCE***
Access	Read / Write.
Set effect	Next Call.
Remarks	

AUTO_ACCEPT_MULTICAST_FLOOR

Description Automatically accept a multicast floor grant from the chair.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***1***

Access Read / Write.

Set effect Next Call.

Remarks

DHCP_STATE

Description The endpoint received or did not receive IP address from the DHCP server.

Valid Value
- **NOT_IN_USE**
- **RECEIVED_ADDRESS**
- **FAILED_RECEIVING_ADDRESS**

Default Value ***NOT_IN_USE***

Access Read only.

Set effect N/A.

Remarks

WINS_LOGIN_STATE

Description The endpoint's login state in the WINS server.

Valid Value

LOGGED_OFF

LOGIN_IN

LOGIN_FAILED_NAME_FORMAT_ERROR

LOGIN_FAILED_GENERAL_ERROR

LOGIN_FAILED_NAME_ALREADY_USED

LOGIN_FAILED_SERVER_NOT_RESPONDING

Default Value ***LOGGED_OFF***

Access Read only.

Set effect N/A.

Remarks

STREAMING_ENABLE

Description The streaming option is enabled or disabled.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***1***

Access Read \ Write.

Set effect Next Call.

Remarks

STREAMING_ADDRESS

Description The destination multicast address for streaming video and audio.

Valid Value Should match IP addressing conventions (*x.x.x.x* where *x*=**0–255**).

Default Value ***239****.XXX.YYY.ZZZ*

Access Read \ Write.

Set effect Next Call.

Remarks

STREAMING_VIDEO_PORT

Description	The destination port for the streaming video.
Valid Value	**1024 – 65536**
Default Value	***36100***
Access	Read \ Write.
Set effect	Next Call.
Remarks	

STREAMING_AUDIO_PORT

Description	The destination port for the streaming audio.
Valid Value	**1024 – 65536**
Default Value	***18100***
Access	Read \ Write.
Set effect	Next Call.
Remarks	

STREAMING_BITRATE

Description The bit rate of the streaming session.

Valid Value **0 - 2048000**

Default Value ***384000***

Access Read \ Write.

Set effect Next Call.

Remarks

STREAMING_TTL

Description	The time-to-live value appended to each multicast streaming packet.
Valid Value	**0 - 255**
Default Value	***1***
Access	Read \ Write.
Set effect	Next Call.d
Remarks	

STREAMING_TIMEOUT

Description	Unicast streaming stops automatically if the remote viewer has not requested resume-streaming within this time value.
Valid Value	*value* > **0** (in milliseconds)
Default Value	***1800000***
Access	Read \ Write.
Set effect	Next Call.
Remarks	Relevant to unicast streaming sessions only.

STREAMING_ENABLE_ANNOUNCEMENT

Description Send SDP announcement for a multicast streaming session.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***1***

Access Read \ Write.

Set effect Next Call.

Remarks

ETHERNET_SPEED

Description Get the current speed at which the LAN card is configured to work.

Valid Value

10_HALF_DUPLEX

10_FULL_DUPLEX

100_HALF_DUPLEX

100_FULL_DUPLEX

Default Value N/A.

Access Read only.

Set effect N/A.

Remarks

MAX_ACTIVE_CALLS

Description Get the maximum number of concurrent calls supported.

Valid Value *value* > **0**

Default Value ***3***

Access Read only.

Set effect N/A.

Remarks

ACTIVE_CALLS

Description Get the set of active CallIDs.

Valid Value See Remarks section.

Default Value NULL

Access Read only.

Set effect N/A.

Remarks For example:

If the endpoint is running two active calls with IDs 1 & 2, the result is:

```
SetParam ACTIVE_CALLS
SETPARAM OK 1 2
```

FECC_ALLOWED

Description Enable remote party to control the local camera.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***1***

Access Read \ Write.

Set effect Next Call.

Remarks

```
SetParam FECC_ALLOWED 1
SETPARAM OK
```

SetParam

Description Edit the value of a LAN configuration parameter.

Format GetParam <*LANParameter*> <*Value*>

Parameters **LANParameter** – The name of the LAN parameter to edit.

Value – The new value

Return **OK** on success together with the expected result and an indication of when the effect occurs.

ERROR on error together with an error code.

Example

```
SetParam IP_ADDRESS 10.0.11.25
SETPARAM OK EFFECT_REBOOT
```

Remarks To retrieve all the LAN parameters, type **SetParam**.

For a list of LAN parameters, see "GetParam" on page 56.

NULL string represents a null value.

Supported Effects:

EFFECT_NONE — No change was made.

EFFECT_IMMEDIATE — Effect occurs immediately.

EFFECT_NEXT_CALL — Effect occurs during the next call.

EFFECT_REBOOT — Effect occurs after the computer restarts.

ServerEvents

Description Start or stop sending server event to the console.

Format ServerEvents [*IsEnable*=***1***]

Parameters **IsEnable** – {**0**|**1**}

0 - Stop sending server events to the console.

1 - Start sending server events to the console.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
ServerEvents 1
SERVEREVENTS OK
```

Remarks Supported server events:

EVENT_SERVER_DATA_CHANGED <*Action*>

EVENT_SERVER_COMMAND <*Command*>

EVENT_SERVER_STATE_CHANGED <*NewState*>

GatekeeperEvents

Description Start or stop sending gatekeeper event to the console.

Format GatekeeperEvents [*IsEnable=**1***]

Parameters **IsEnable** – {**0**|**1**}

0 - Stop sending gatekeeper events to the console.

1 - Start sending gatekeeper events to the console.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
GatekeeperEvents 1
GATEKEEPEREVENTS OK
```

Remarks Gatekeeper supported events:

EVENT_GATEKEEPER_STATE_CHANGED <*NewState*>

4.3 Streaming Commands

StreamingStart

Description Start a new streaming session.

Format StreamingStart [*RemoteAddress*=” ”]

Parameters **RemoteAddress** – The IP address to where to send the media.

Return **OK** on success together with a SessionID.

ERROR on error together with an error code.

Example

```
StreamingStart
STREAMINGSTART OK 0
```

Remarks

1. When the RemoteAddress is NULL a multicast session will be created.
2. If the value is a valid IP a unicast streaming session will be created.
3. There may be only one Multicast session. For the maximum number of permitted unicast sessions, see the HD100 Integrator data sheet.

StreamingStop

Description End an active streaming session.

Format StreamingStop <*SessionID*>

Parameters **SessionID** – The ID of the session to stop.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
StreamingStop 1
STREAMINGSTOP OK
```

Remarks

StreamingResume

Description Resume an active streaming session.

Format StreamingResume <*SessionID*>

Parameters **SessionID** – The ID of the streaming session.

Return **OK** on success together with a new resume timeout.

ERROR on error together with an error code.

Example

```
StreamingResume 1
STREAMINGRESUME OK 180000
```

Remarks Unicast streaming session has a watchdog mechanism. Users must call this function periodically at intervals smaller than the interval returned by this command; otherwise, the unicast session shall be terminated by the HD.

StreamingEvents

Description Start or stop sending streaming event to the console.

Format StreamingEvents [*IsEnable*=***1***]

Parameters **IsEnable** – {**0**|**1**}

0 - Stop sending streaming event to the console.

1 - Start sending streaming event to the console.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
StreamingEvents 1
STREAMINGEVENTS OK
```

Remarks Streaming supported events:

EVENT_STREAMING_STARTED <*SessionID*> <*IsFirstSession*>

EVENT_STREAMING_ STOPPED <*SessionID*> <*IsLastSession*>

4.4 Interactive Multicast Commands

MulticastSendPassword

Description Send the multicast password to the multicast chair.

Format MulticastSendPassword [*CallID=**0***] <*Password*>

Parameters **CallID** – The ID of the call.

Password – The session's password.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MulticastSendPassword 0 1234

MULTICASTSENDPASSWORD OK
```

Remarks This function is the required response to the EVENT_MULTICAST_PASSWORD_ REQUESTED event received from the multicast chair.

MulticastSendText

Description Send a text message to the multicast chair.

Format MulticastSendText [*CallID=**0***] <*Text*>

Parameters **CallID** – The ID of the call.

Text – The text message.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MulticastSendText 0 "Hello Chair"
MULTICASTSENDTEXT OK
```

Remarks

MulticastRequestFloor

Description Request the multicast floor from the chair.

Format MulticastRequestFloor [*CallID*=***0***]

Parameters **CallID** – The ID of the call.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MulticastRequestFloor 0
MULTICASTREQUESTFLOOR OK
```

Remarks

MulticastRejectFloor

Description Reject a floor grant from the chair.

Format MulticastRejectFloor [*CallID*=***0***]

Parameters **CallID** – The ID of the call.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MulticastRejectFloor 0
MULTICASTREJECTFLOOR OK
```

Remarks

MulticastAcceptFloor

Description Accept a floor grant from the chair.

Format MulticastAcceptFloor [*CallID*=***0***]

Parameters **CallID** – The ID of the call.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MulticastAcceptFloor 0
MULTICASTACCEPTFLOOR OK
```

Remarks

MulticastEvents

Description Start or stop sending multicast event to the console.

Format MulticastEvents [*IsEnable=**1***]

Parameters **IsEnable** – {**0**|**1**}

0 - Stop sending multicast event to the console.

1 - Start sending multicast event to the console.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MulticastEvents 1
MULTICASTEVENTS OK
```

Remarks Supported multicast events:

EVENT_MULTICAST_CONNECTED <*CallID*>

EVENT_MULTICAST_FLOOR_OFFERING <*CallID*>

EVENT_MULTICAST_FLOOR_REQUEST_REJECTED <*CallID*>

EVENT_MULTICAST_FLOOR_CHANGED <*CallID*> <*Type*> <*Name*>

EVENT_MULTICAST_FLOOR_GRANTED <*CallID*>

EVENT_MULTICAST_PASSWORD_REJECTED <*CallID*>

EVENT_MULTICAST_PASSWORD_ REQUESTED <*CallID*>

4.5 Camera Commands

CameraGetSelected

Description Get the selected local or remote camera.

Format CameraGetSelected <*Location*={**l** | **r**}>

Parameters **Location** – {**l** | **r**}

l - local camera.

r - remote camera.

Return **OK** on success together with the selected camera number.

ERROR on error together with an error code.

Example

```
CameraGetSelected 1
CAMERAGETSELECTED OK 1
```

Remarks

CameraSetSelected

Description Switch the selected camera to either the local or remote camera.

Format CameraSetSelected <*Location*={**l** | **r**}> <*CameraNumber*={**1**..**4**}>

Parameters **Location** – {**l** | **r**}

l - local camera.

r - remote camera.

CameraNumber

1..**4** - The selected camera number

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CameraSetSelected l 3
CAMERASETSELECTED OK
```

Remarks The “Main” camera’s number is **1**.

CameraPresetSet

Description Set the selected local or remote camera's preset position.

Format CameraPresetSet <*Location*={**l** | **r**}>
<*PresetNumber*={**0**..**9**}>

Parameters **Location** – {**l** | **r**}

l - local camera.

r - remote camera.

PresetNumber – {**0**..**9**}

0..**9** - The preset position number

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CameraPresetSet l 9
CAMERAPRESETSET OK
```

Remarks

CameraPresetRecall

Description Move the selected local or remote camera to one of the preset positions.

Format CameraPresetRecall <*Location*={**l** | **r**}> <*PresetNumber*={**0**..**9**}>

Parameters **Location** – {**l** | **r**}

l - local camera.

r - remote camera.

PresetNumber – {**0**..**9**}

0..**9** - The preset position number

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CameraPresetRecall l 3

CAMERAPRESETRECALL OK
```

Remarks

CameraMove

Description Move the camera's position.

Format CameraMove <*Location*={**l** | **r**}>
<*Dir*={**u** | **d** | **r** | **l** | **i** | **o** | **s**}>

Parameters **Location** – {**l** | **r**}

l - local camera.

r - remote camera.

Dir – The direction in which to move the camera
u | **d** | **r** | **l** | **i** | **o** | **s**

u - up

d - down

r - right

l left

i - in

o - out

s - stop

Return **OK** on success.

ERROR on error together with an error code.

Example

```
CameraMove l u

CAMERAMOVE OK
```

Remarks

4.6 Audio Commands

MuteMic

Description Mute or unmute the microphone.

Format MuteMic [*Enable*=***1***]

Parameters **Enable**: {**0**|**1**}

0 – Unmute

1 – Mute

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MuteMic  1
MUTEMIC OK
```

Remarks

MuteSpeaker

Description Mute or unmute the speaker.

Format MuteSpeaker [*Enable=**1***]

Parameters **Enable** – {**0**|**1**}

0 – Unmute

1 – Mute

Return **OK** on success.

ERROR on error together with an error code.

Example

```
MuteSpeaker  1
MUTESPEAKER OK
```

Remarks

VolumeGet

Description Get the current volume level.

Format VolumeGet

Parameters N/A

Return **OK** on success together with the current volume level.

ERROR on error together with an error code.

Example

```
VolumeGet
VOLUMEGET OK 60
```

Remarks

VolumeSet

Description Change the current volume level.

Format VolumeSet <*Level*>

Parameters **Level** - The volume level {**0**-**99**}.

0 - Lowest.

99 - Highest.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
VolumeSet  50
VOLUMESET OK
```

Remarks

4.7 Phonebook Commands

PhonebookGetEntry

Description Get the phonebook entry that matches the specified number.

Format PhonebookGetEntry <*EntryNum*>

Parameters **EntryNum** - The number of the entry to get.

Return **OK** on success together with the entry details.

ERROR on error together with an error code.

Example

```
PhonebookGetEntry 1
PHONEBOOKGETENTRY OK JohnY 10.0.11.24
768000
```

Remarks

PhonebookGetNumOfEntries

Description Get the number of entries in the phonebook.

Format PhonebookGetNumOfEntries

Parameters N/A

Return **OK** on success together with the number of entries in the phonebook.

ERROR on error together with an error code.

Example

```
PhonebookGetNumOfEntries
PHONEBOOKGETNUMOFENTRIES OK 100
```

Remarks

PhonebookAddEntry

Description Add a new entry to the phonebook.

Format PhonebookAddEntry <*Name*> <*Address*> [*Bitrate*=***768000***]

Parameters **Name** - The name of the entry.

Address - The remote party address (IP , DNS name , E164 , H323-ID).

Bitrate - The bit rate of the call.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
PhonebookAddEntry
PHONEBOOKADDENTRY OK
```

Remarks

PhonebookDeleteEntry

Description Delete the specified entry.

Format PhonebookDeleteEntry <*Name*>

Parameters **Name** - The name of the entry.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
PhonebookDeleteEntry JohnY
PHONEBOOKDELETEENTRY OK
```

Remarks

PhonebookShow

Description Show the content of the phonebook.

Format PhonebookShow

Parameters N/A

Return **OK** on success.

ERROR on error together with an error code.

Example

```
PhonebookShow
##  Name       Address              Bitrate
0.  JohnY       10.0.11.24           768000
1.  DavidS      10.0.11.25           384000
```

Remarks

PhonebookDial

Description Dial to the address of the specified entry.

Format PhonebookDial <*EntryName*>

Parameters EntryName - The name of the specific entry.

Return **OK** on success together with the CallID.

ERROR on error together with an error code.

Example

```
PhonebookDial JohnY
PHONEBOOKDIAL OK 0
```

Remarks

4.8 System Commands

IniRead

Description Read a configuration entry value from an INI file. The INI is in the HD non-volatile memory.

Format IniRead <*FileName*> <*Section*> <*Entry*>

Parameters **FileName** – The INI file name.

Section – The section name.

Entry – The entry name.

Return **OK** on success together with the entry value.

ERROR on error together with an error code.

Example

```
IniRead H323.ini Configuration AutoIP
INIREAD OK 1
```

Remarks

IniWrite

Description Write a configuration entry value to an INI file.

Format IniWrite <*FileName*> <*Section*> <*Entry*> <*Value*>

Parameters **FileName** – The INI file name.

Section – The section name.

Entry – The entry name.

Value – The new value to be written.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
IniWrite H323.ini Configuration AutoIP 0
INIWRITE OK
```

Remarks

Reboot

Description Reboot the system.

Format Reboot

Parameters None.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
Reboot
REBOOT OK
```

Remarks

KeyPressed

Description Simulate the pressing of a remote control key.

Format KeyPressed <*KeyName*>

Parameters **KeyName** - The name of the key that was pressed.

Return **OK** on success.

ERROR on error together with an error code.

Example

```
KeyPressed Dial
KEYPRESSED OK
```

Remarks To get all the supported key names, type **KeyPressed**.

The supported key names are:

Zero

One

Two

Three

Four

Five

Six

Seven

Eight

Nine

Asterisk

Pound

Clear

Display

PIP

Dial

Remarks (cont.)

Hangup

Menu

Multipoint

Status

Help

OK

Cancel

Select

Pound

Up

Left

Down

Right

ZoomIn

ZoomOut

MuteMic

MuteSpeaker

VolumePlus

VolumeMinus

Red

Green

Blue

Yellow

ConsoleGetParam

Description Retrieve a console parameter.

Format ConsoleGetParam <*ConsoleParam*>

Parameters **ConsoleParam** - The specific console parameter.

Return **OK** on success together with the parameter value.

ERROR on error together with an error code.

Example

```
ConsoleGetParam BAUD_RATE
CONSOLEGETPARAM OK 9600
```

Remarks To get a list of supported commands, type **ConsoleGetParam**.

Supported call parameters:

COM_NUMBER

BAUD_RATE

ConsoleSetParam

Description Edit a console parameter.

Format ConsoleSetParam <*ConsoleParam*> <*Value*>

Parameters **ConsoleParam** - The specific console parameter.

Value - The value that will replace the current value.

Return **OK** on success together with the parameter value.

ERROR on error together with an error code.

Example

```
ConsoleSetParam BAUD_RATE 115200
CONSOLESETPARAM OK
```

Remarks To get a list of supported commands, type **ConsoleSetParam**.

Supported call parameters:

COM_NUMBER

BAUD_RATE

5 EVENTS

5.1 Call Events

EVENT_CALL_DIALTONE

Description A dialtone state followed dialing.

Format EVENT_CALL_DIALTONE <*CallID*>

Parameters **CallID** – The ID of the call.

Example

```
EVENT_CALL_DIALTONE 0
```

Remarks

1. Relevant for outgoing calls only.
2. This is the first event for outgoing calls.

EVENT_CALL_RINGBACK

Description An “Alerting” or “Proceeding” message was received from the remote side.

Format EVENT_CALL_RINGBACK <*CallID*>

Parameters **CallID** – The ID of the call.

Example

```
EVENT_CALL_RINGBACK 0
```

Remarks Relevant for outgoing calls only.

EVENT_CALL_CONNECTED

Description A call connects successfully.

Format EVENT_CALL_CONNECTED <*CallID*>

Parameters **CallID** – The ID of the call.

Example

```
EVENT_CALL_CONNECTED 0
```

Remarks Relevant for both outgoing and incoming calls.

EVENT_CALL_OFFERING

Description An incoming call indication was received.

Format EVENT_CALL_OFFERING <*CallID*> <*RemoteAddress*> <*RemoteName*>

Parameters

CallID – The ID of the call

RemoteAddress – The remote party IP address

RemoteName – The remote party name

Example

```
EVENT_CALL_OFFERING 0 10.0.11.25 DemoRoom
```

Remarks

1. Relevant for incoming calls.
2. When working in manual answer the user will need to call either CallAnswer or CallReject commands.

EVENT_CALL_DISCONNECTED

Description A call was disconnected.

Format EVENT_CALL_ DISCONNECTED <*CallID*> <*DisconnectionReason*>

Parameters **CallID** – The ID of the call

DisconnectionReason – The disconnection reason

Example

```
EVENT_CALL_ DISCONNECTED 0 REMOTE
```

Remarks

1. Relevant for incoming and outgoing calls.
2. Disconnection reason
   - LOCAL – Call disconnected by local party
   - REMOTE – Call disconnected by remote party
   - BUSY – Remote party is busy
   - REJECT - Remote party rejected the call
   - UNREACHABLE – Remote party is unreachable
   - NO_ANSWER – Remote party hasn't answered the calls
   - UNKNOWN – Call disconnected due to unknown reason.

EVENT_CALL_IDLE

Description Fired after a call is disconnected. The disconnected call's resources are no longer valid.

Format EVENT_CALL_IDLE <*CallID*>

Parameters **CallID** – The ID of the call

Example

```
EVENT_CALL_IDLE 0
```

Remarks Relevant for incoming and outgoing calls.

EVENT_CALL_CHANNEL_ON

Description A new channel has been established on a call.

Format EVENT_CALL_CHANNEL_ON <*CallID*> <*ChannelID*> <*Dir*> <*Type*>

Parameters

CallID – The ID of the call

ChannelID – The ID of the Channel

Dir – The Channel Direction

{**RX** | **TX**}

Type – The Channel media type

{**AUDIO** | **VIDEO** | **DATA**}

Example

```
EVENT_CALL_CHANNEL_ON 0 0 TX AUDIO
EVENT_CALL_CHANNEL_ON 0 1 TX VIDEO
EVENT_CALL_CHANNEL_ON 0 2 TX DATA
EVENT_CALL_CHANNEL_ON 0 3 RX AUDIO
EVENT_CALL_CHANNEL_ON 0 4 RX VIDEO
EVENT_CALL_CHANNEL_ON 0 5 RX DATA
```

Remarks Relevant for incoming and outgoing calls.

EVENT_CALL_CHANNEL_OFF

Description An active channel was disconnected on a call.

Format EVENT_CALL_CHANNEL_OFF <*CallID*> <*ChannelID*> <*Dir*> <*Type*>

Parameters

CallID – The ID of the call

ChannelID – The ID of the Channel

Dir – The Channel Direction

(**RX** | **TX**)

Type – The Channel media type

(**AUDIO** | **VIDEO** | **DATA**)

Example

```
EVENT_CALL_CHANNEL_OFF 0 0 TX AUDIO
EVENT_CALL_CHANNEL_OFF 0 1 TX VIDEO
EVENT_CALL_CHANNEL_OFF 0 2 TX DATA
EVENT_CALL_CHANNEL_OFF 0 3 RX AUDIO
EVENT_CALL_CHANNEL_OFF 0 4 RX VIDEO
EVENT_CALL_CHANNEL_OFF 0 5 RX DATA
```

Remarks Relevant for incoming and outgoing calls.

EVENT_CALL_REMOTE_NOT_RESPONDING

Description During an active call, no signal is received from the remote side.

Format EVENT_CALL_REMOTE_NOT_RESPONDING <*CallID*>

Parameters **CallID** – The ID of the call

Example

```
EVENT_CALL_REMOTE_NOT_RESPONDING 0
```

Remarks

1. Relevant for outgoing and incoming calls only.
2. The application may disconnect the call or display a message to the user.

5.2 Server Events

EVENT_SERVER_DATA_CHANGED

Description Configuration data was changed by the MXM server.

Format EVENT_SERVER_DATA_CHANGED <*Action*>

Parameters **Action** –The current action the application should perform.

REBOOT the system.

REFRESH the application dialog.

Example

```
EVENT_SERVER_DATA_CHANGED REBOOT
EVENT_SERVER_DATA_CHANGED REFRESH
```

Remarks

EVENT_SERVER_COMMAND

Description A server command was received and must be addressed by the application.

Format EVENT_SERVER_COMMAND <*Command*>

Parameters **Command** – The command the application should perform.

REBOOT the system.

Example

```
EVENT_SERVER_COMMAND REBOOT
```

Remarks

EVENT_SERVER_STATE_CHANGED

Description The endpoint's login state with the MXM server has changed.

Format EVENT_SERVER_STATE_CHANGED <*NewState*>

Parameters **NewState** – The current state with the MXM server.

Example `EVENT_SERVER_STATE_CHANGED LOGGED_IN`

Remarks Possible states with the MXM:

1. LOGGED_IN:
   Endpoint is logged in the the MXM server.
2. LOGIN_FAILED_DUPLICATE_ALIAS:
   Another end point with the same H.323-ID | E.164 is already logged in to the MXM.
3. LOGIN_FAILED_UNSUPPORTED_VERSION:
   The MXM version doesn't support the endpoint.
4. LOGIN_FAILED_LICENSE_VIOLATION:
   Failed to login due to license violation.
5. LOGIN_FAILED_TIME_OUT:
   The login timeout has expired.
6. LOGIN_FAILED_WAIT_FOR_GRANT:
   The endpoint is waiting for administrator to grant login.
7. LOGIN_FAILED_GENERAL_ERROR:
   Failed to login due to unspecified reason.
8. LOGGED_OFF:
   The endpoint isn't configured to work with MXM server.

5.3 Gatekeeper Events

EVENT_GATEKEEPER_STATE_CHANGED

Description The endpoint's login state with the gatekeeper has changed.

Format EVENT_GATEKEEPER_STATE_CHANGED <*NewState*>

Parameters **NewState** – The current state with the gatekeeper

Example `EVENT_GATEKEEPER_STATE_CHANGED LOGGED_IN`

Remarks Possible states with the gatekeeper:

1. LOGGED_IN:
   Endpoint is logged in to the Gatekeeper.
2. LOGIN_FAILED_DUPLICATE_ALIAS:
   Another end point with the same H.323-ID | E.164 is already logged in to the gatekeeper.
3. LOGIN_FAILED_GENERAL_ERROR:
   Failed to login due to an unspecified reason.
4. LOGGED_OFF:
   The endpoint isn't configured to work with this gatekeeper.

5.4 Multicast Events

VCON developed a type of H.323 session called Interactive Multicast, in which one end point (*Chair*) transmits the same video and audio at a single time to all the other end points (*Participants*) in the session.

The Chair manages one “floor” token. An end point must have the token in order to speak. End points may request the token and wait for the Chair to accept its request. In addition, the Chair may give the token to any end point without a specific end point request.

EVENT_MULTICAST_CONNECTED

Description Fired after a multicast session is connected.

Format EVENT_MULTICAST_CONNECTED <*CallID*>

Parameters **CallID** – The ID of the call.

Example

```
EVENT_MULTICAST_CONNECTED 0
```

Remarks

EVENT_MULTICAST_FLOOR_OFFERING

Description Fired when the multicast chair offers the floor to this endpoint. Only the endpoint who has the multicast floor can broadcast video and audio to all the other endpoints in the session.

Format EVENT_MULTICAST_FLOOR_OFFERING <*CallID*>

Parameters **CallID** – The ID of the call.

Example

```
EVENT_MULTICAST_FLOOR_OFFERING 0
```

Remarks Application may call MulticastAcceptFloor to accept the floor or MulticastRejectFloor to reject it.

EVENT_MULTICAST_FLOOR_REQUEST_REJECTED

Description Fired when the multicast chair rejected this endpoint's floor request.

Format EVENT_MULTICAST_FLOOR_REQUEST_REJECTED <*CallID*>

Parameters **CallID** – The ID of the call

Example `EVENT_MULTICAST_FLOOR_REQUEST_REJECTED 0`

Remarks

EVENT_MULTICAST_FLOOR_CHANGED

Description Fired when the floor is given to another endpoint.

Format EVENT_MULTICAST_FLOOR_CHANGED <*CallID*> <*Type*> <*Name*>

Parameters **CallID** – The ID of the call.

Type – The type of floor that has been changed

{**VIDEO** | **AUDIO**}.

Name – The name of the participant who now owns the floor.

Example

```
EVENT_MULTICAST_FLOOR_CHANGED 0 VIDEO
DemoRoom
```

Remarks

EVENT_MULTICAST_FLOOR_GRANTED

Description Fired when the multicast chair has granted the floor to this endpoint.

Format EVENT_MULTICAST_FLOOR_GRANTED <*CallID*> <*Type*>

Parameters **CallID** – The ID of the call

Type – The type of floor that has been granted

(**VIDEO** | **AUDIO**)

Example

```
EVENT_MULTICAST_FLOOR_GRANTED 0 VIDEO
```

Remarks

EVENT_MULTICAST_PASSWORD_REJECTED

Description Fired when this endpoint enters an incorrect password while attempting to join a multicast session.

Format EVENT_MULTICAST_PASSWORD_REJECTED <*CallID*>

Parameters **CallID** – The ID of the call.

Example

```
EVENT_MULTICAST_PASSWORD_REJECTED 0
```

Remarks Fired as a result of a call to MulticastSendPassword.

EVENT_MULTICAST_PASSWORD_ REQUESTED

Description Fired when the endpoint must enter a password in order to join a multicast session.

Format EVENT_MULTICAST_PASSWORD_ REQUESTED <*CallID*>

Parameters **CallID** – The ID of the call

Example `EVENT_MULTICAST_PASSWORD_ REQUESTED 0`

Remarks Call MulticastSendPassword to provide the password

5.5 Streaming Events

EVENT_STREAMING_STARTED

Description Fired when a streaming session starts.

Format EVENT_STREAMING_STARTED <*SessionID*> <*IsFirstSession*>

Parameters **SessionID** – The streaming session ID.

IsFirstSession – {**0** | **1**}
Set to **1** if this is the first active streaming session.

Example

```
EVENT_STREAMING_STARTED 0 1
```

Remarks

EVENT_STREAMING_ STOPPED

Description Fired after the streaming session ends.

Format EVENT_STREAMING_ STOPPED <*SessionID*> <*IsLastSession*>

Parameters **SessionID** – The ID of the streaming session.

IsLastSession – {**0** | **1**}
Set to **1** if this is the last active streaming session.

Example

```
EVENT_STREAMING_STOPPED 0 1
```

Remarks

5.6 System Events

EVENT_SYSTEM_INIT_COMPLETED_ SUCCESS

Description Fired when the system initializes successfully.

Format EVENT_SYSTEM_INIT_COMPLETED_ SUCCESS

Parameters None.

Example

```
EVENT_SYSTEM_INIT_COMPLETED_ SUCCESS
```

Remarks Calling some of the commands prior to receiving this event may result in an error.

EVENT_SYSTEM_INIT_COMPLETED_ FAILURE

Description Fired when the system fails to initialize.

Format EVENT_SYSTEM_INIT_COMPLETED_ FAILURE

Parameters None.

Example

```
EVENT_SYSTEM_INIT_COMPLETED_ FAILURE
```

Remarks User may try to Reboot the system to recover.

EVENT_ SYSTEM_ DHCP_STATE_RECEIVED_ADDRESS

Description Fired when the system received a valid IP address from the DHCP server.

Format EVENT_SYSTEM_DHCP_STATE_RECEIVED_ ADDRESS

Parameters None.

Example `EVENT_ SYSTEM_ DHCP_STATE_RECEIVED_ADDRESS`

Remarks Relevant only when the endpoint is configured to work with a DHCP.

EVENT_DHCP_STATE_FAILED_RECEIVING_ADDRESS

Description Fired when system failed to receive an IP address from the DHCP server.

Format EVENT_DHCP_STATE_FAILED_RECEIVING_ADDRESS

Parameters None.

Example

```
EVENT_DHCP_STATE_FAILED_RECEIVING_ADDRESS
```

Remarks

1. Relevant only when the endpoint is configured to work with a DHCP.
2. Notify the user, check that the HD is connected to the network, and the DHCP server is working properly.

6 THE USER.INI FILE

Description

The *user.ini* file contains several configuration parameters that you may edit. The file is located in the HD100 system's */ver/ini* folder.

Parameters

- Configuration parameters:

  CallEvents

  MulticastEvents

  StreamingEvents

  GatekeeperEvents

  ServerEvents

- GUI parameters:

  HideAll

  HideDlg

6.1 Configuration Parameters

CallEvents

Description System sends all Call Events automatically. User does not need to manually call the CallEvents command.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

MulticastEvents

Description System sends all Multicast Events automatically. User does not need to manually call the MulticastEvents command.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

StreamingEvents

Description System sends all Streaming Events automatically. User does not need to manually call the StreamingEvents command.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

GatekeeperEvents

Description System sends all Gatekeeper Events automatically. User does not need to manually call the GatekeeperEvents command.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

ServerEvents

Description System sends all Server Events automatically. User does not need to manually call the ServerEvents command.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

6.2 GUI Parameters

HideAll

Description Hides the HD100 user interface. Only video is displayed on the screen.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

HideDlg

Description Hides the HD100 dialog boxes. Only video, messages and icons are displayed on the screen.

Valid Value {**0**|**1**}

0 –Disable

1 - Enable

Default Value ***0***

7 WORKFLOW EXAMPLES

This section provides examples of the workflow of the HD100 system during basic operations. By following the numbered order of the commands, screen text, and actions presented in the tables, you can understand the action/effect relationship among the application interface, the screen console, and the HD100.

In the following examples:

- Commands listed in the Application column are entered into the end-user application.
- Text that appears on the screen, resulting either from the entry of command or an action by the HD100, appears in the Console column.
- Actions that occur in the HD100 are described in the HD100 column.

7.1 Incoming Call Flow

The following table presents the flow of events and actions that result in a successful incoming videoconference call:

APPLICATION	CONSOLE	HD100

1. Connect to console	2. `Welcome to HD100`
	`Version`
	`Board Type`
	`Camera Input`
		3. System completes the initialization phase.

	4. `EVENT_SYSTEM_INIT_COMPLETED_ SUCCESS`	
5. CallEvents 1	6. `CALLEVENTS OK`	7. Incoming call.
	8. `EVENT_CALL_OFFERING 0 10.11.24 Demo`	
9. CallAnswer 1	10. `CALLANSWER OK`	11. Call is connected successfully.
	12. `EVENT_CALL_CONNECTED 0`	13. Outgoing video channel opened.

	14. `EVENT_CALL_CHANNEL_ON 0 0 TX VIDEO`	15. Outgoing audio channel opened.
	16. `EVENT_CALL_CHANNEL_ON 0 1 TX AUDIO`	17. Outgoing data channel opened.
	18. `EVENT_CALL_CHANNEL_ON 0 2 TX DATA`	19. Incoming Video channel opened.
	20. `EVENT_CALL_CHANNEL_ON 0 3 RX VIDEO`	21. Incoming Audio channel opened.
	22. `EVENT_CALL_CHANNEL_ON 0 4 RX AUDIO`	23. Incoming Data channel opened.
	24. `EVENT_CALL_CHANNEL_ON 0 5 RX DATA`	
25. **Hangup 0**	26. `HANGUP OK`	27. Outgoing video channel closed.
	28. `EVENT_CALL_CHANNEL_OFF 0 0 TX VIDEO`	29. Outgoing audio channel closed.
	30. `EVENT_CALL_CHANNEL_OFF 0 1 TX AUDIO`	31. Outgoing data channel closed.
	32. `EVENT_CALL_CHANNEL_OFF 0 2 TX DATA`	33. Incoming Video channel closed.
	34. `EVENT_CALL_CHANNEL_OFF 0 3 RX VIDEO`	35. Incoming Audio channel closed.
	36. `EVENT_CALL_CHANNEL_OFF 0 4 RX AUDIO`	37. Incoming Data channel closed.
	38. `EVENT_CALL_CHANNEL_OFF 0 5 RX DATA`	39. Call is disconnected.
	40. `EVENT_CALL_DISCONNECTED 0 LOCAL`	41. System becomes idle.
	42. `EVENT_CALL_IDLE 0`	

7.2 Outgoing Call Flow

The following table presents the flow of events and actions that result in a successful outgoing videoconference call:

APPLICATION	CONSOLE	HD100
1. Connect to console	2. `Welcome to HD100 Version Board Type Camera Input`	3. System completes the initialization phase.
	4. `EVENT_SYSTEM_INIT_COMPLETED_ SUCCESS`	
5. CallEvents 1	6. `CALLEVENTS OK`	
7. Dial 10.0.11.12	8. `DIAL OK`	9. Call state dialtone arrived
	10. `EVENT_CALL_DIALTONE 0`	11. Call state ringback arrived
	12. `EVENT_CALL_RINGBACK 0`	13. Call become connected
	14. `EVENT_CALL_CONNECTED 0`	15. Outgoing video channel opened
	16. `EVENT_CALL_CHANNEL_ON 0 0 TX VIDEO`	17. Outgoing audio channel opened.
	18. `EVENT_CALL_CHANNEL_ON 0 1 TX AUDIO`	19. Outgoing data channel opened.
	20. `EVENT_CALL_CHANNEL_ON 0 2 TX DATA`	21. Incoming Video channel opened.

	22. `EVENT_CALL_CHANNEL_ON 0 3 RX VIDEO`	23. Incoming Audio channel opened.
	24. `EVENT_CALL_CHANNEL_ON 0 4 RX AUDIO`	25. Incoming Data channel opened.
	26. `EVENT_CALL_CHANNEL_ON 0 5 RX DATA`	27. Remote party disconnects the call
		28. Outgoing video channel closed.
	29. `EVENT_CALL_CHANNEL_OFF 0 0 TX VIDEO`	30. Outgoing audio channel closed.
	31. `EVENT_CALL_CHANNEL_OFF 0 1 TX AUDIO`	32. Outgoing data channel closed.
	33. `EVENT_CALL_CHANNEL_OFF 0 2 TX DATA`	34. Incoming Video channel closed.
	35. `EVENT_CALL_CHANNEL_OFF 0 3 RX VIDEO`	36. Incoming Audio channel closed.
	37. `EVENT_CALL_CHANNEL_OFF 0 4 RX AUDIO`	38. Incoming Data channel closed.
	39. `EVENT_CALL_CHANNEL_OFF 0 5 RX DATA`	40. Call is disconnected.
	41. `EVENT_CALL_DISCONNECTED 0 REMOTE`	42. Call become idle
	43. `EVENT_CALL_IDLE 0`	