Kaleido Remote Control Protocol (Gateway)

User's Guide

M770-0900-118

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www.grassvalley.com

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1 Introduction

Grass Valley multiviewers can execute commands received via a gateway, allowing third-party developers and individual users remote access to some functions of the multiviewer's operating system. This document describes the Gateway functionality, and defines the commands that are available.

In this document, the term *Kaleido* is used to describe features common to the Kaleido-K2, Kaleido-Alto/Quad/Quad-Dual, and Kaleido-X series of multiviewers. The term *Kaleido-X series* refers to the Kaleido-X, Kaleido-X16, KMV-3901/3911, Kaleido-XQUAD, Kaleido-IP, Kaleido-MX, Kaleido-MX 4K, Kaleido-Modular-X, and KMX-4911 multiviewer models. Features exclusive to any one of these products will be described using the full product name (e.g., Kaleido-K2, Kaleido-X, Kaleido-IP, etc.).

Software Versions

The information in this document applies to software released up to the date of publication, beginning with the versions given here for each Kaleido product:

Kaleido-X series	Kaleido-X Software version 3.00 or later (see Kaleido-X Series Support History, on page 31, for a detailed breakdown by command and multiviewer model)
Kaleido-Alto, Kaleido-Quad, Kaleido-Quad-Dual	Kaleido-Alto/Quad/Quad-Dual Software version 3.01 or later
Kaleido-K2	Kaleido Software version 5.30 or later

Remote Operation of a Multiviewer via TCP/IP

To send commands to your multiviewer's Gateway, you can use a Terminal Emulation (telnet) program or create your own application using the language of your choice (e.g., C++, Visual Basic, Java). Refer to A Typical Session, on page 27, for a sample scenario using HyperTerminal. The commands are described in the next chapter (see Gateway Commands, on page 5).

- **Kaleido-Alto/Quad/Quad-Dual** and **Kaleido-X series** multiviewer systems can execute commands received on **port 13000** via TCP/IP (Transmission Control Protocol/Internet Protocol). On these multiviewers, the port 13000 is always ON, and no configuration is required.
- **Kaleido-K2** multiviewers can execute commands received via either the multiviewer's internal gateway (preferred), or via its MT-gateway (deprecated). The internal gateway supports all Kaleido-K2 Gateway commands when connected via **port 13000**. When connected via port 10001, it supports the `<listnodes/>` command only. (This command is exclusive to the Kaleido-K2.)

In an environment containing many Kaleido-K2 multiviewers, there is a gateway running on each Kaleido-K2. Remember that in such an environment you should configure your system to have at most two lookups running (refer to *How to configure the Kaleido-K2 in systems including more than two units and application servers?* in the Kaleido-K2 documentation, for more information).

Gateway Options for the Kaleido-K2

Two gateways are available for use with the Kaleido-K2:

- The internal gateway is implemented within the Kaleido-K2 software. See Kaleido-K2 Internal Gateway below.
- The MT-Gateway runs as a Windows service on the Kaleido-K2's operating system. See Kaleido-K2 MT-Gateway on page 3.

> IMPORTANT
>
> The internal gateway is the preferred gateway, and Grass Valley strongly recommends that it be used instead of the MT-Gateway, as it is more robust. The MT-Gateway might be used for legacy applications, or in specific situations based on design considerations, but its use is deprecated.
>
> Only one gateway can be operating at a time: you must manage the gateway resources to ensure that this is the case.

Kaleido-K2 Internal Gateway

The internal gateway is implemented in the Kaleido-K2 software itself, and is therefore internal to and exclusively functional with a specific Kaleido-K2 frame. It is configured through the `Kaleido.properties` file, and is turned on or off by editing that file.

The internal gateway and the MT-Gateway must *not* be running concurrently: refer to Disabling the Kaleido-K2's MT-Gateway, on page 3, to verify that the MT-Gateway is turned off.

Enabling or Disabling the Kaleido-K2's Internal Gateway

To enable or disable the Kaleido-K2's internal gateway

1. On your Kaleido-K2's desktop, double-click **My Computer**.
2. Navigate to `C:\iControl\Startup\` and open the file `Kaleido.properties` using Notepad (right-click the `Kaleido.properties` file, and then select **Notepad** from the **Open With** menu).
3. Search the file for either of the following lines:

   ```
   activateInternalGateway=TRUE
   activateInternalGateway=FALSE
   ```

   - If `activateInternalGateway` is TRUE, the internal gateway is ON by default at startup. Disable the internal gateway at startup by replacing TRUE with FALSE in this line.
   - If `activateInternalGateway` is FALSE, the internal gateway is OFF by default at startup. Enable the internal gateway at startup by replacing FALSE with TRUE in this line.

4 On the **File** menu, click **Save** to save your changes.
5 Close Notepad.
6 Restart the Kaleido-K2.

Kaleido-K2 MT-Gateway

The MT-Gateway is shipped with current versions of the Kaleido-K2 in support of legacy applications (the internal gateway was not available in early versions of the software), but its use is *not* recommended.

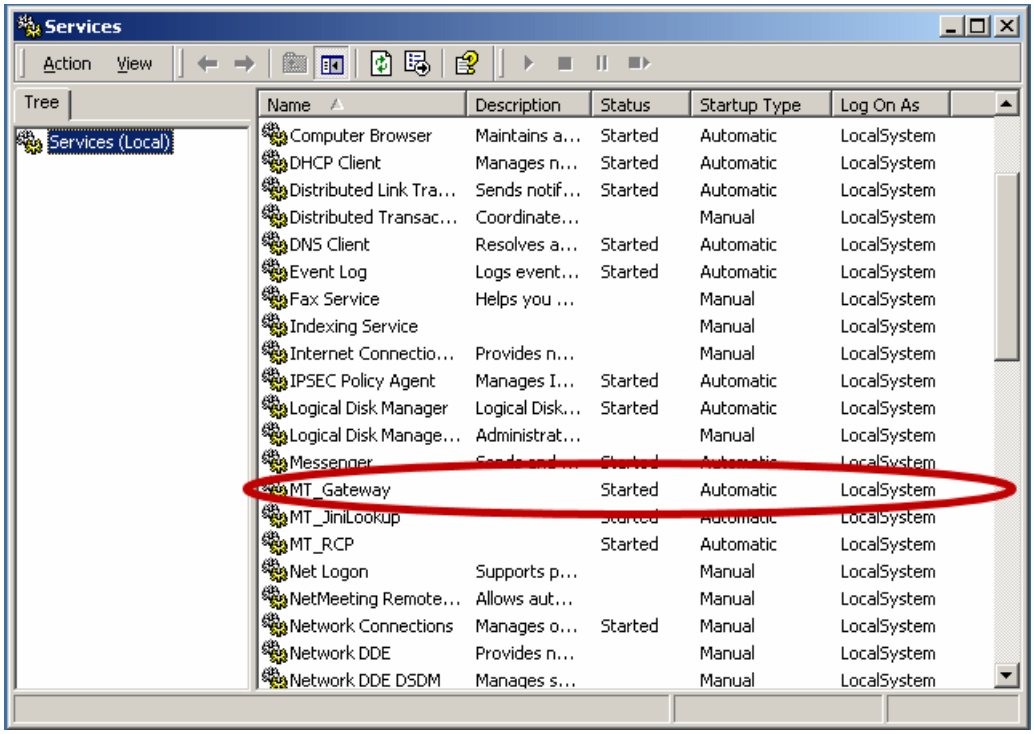
Disabling the Kaleido-K2's MT-Gateway

To disable the Kaleido-K2 MT-Gateway

1 On the Kaleido-K2, display the desktop (use the desktop icon on the menu bar).
2 Double-click the **Services** icon.

  The **Services** management console will appear. You can see if the MT-Gateway service is running, and whether it is configured to start automatically when the Kaleido-K2 is booted.

3 Right-click **MT_Gateway** and then click **Properties** on the shortcut menu.
4 Select **Manual** as the startup type, and then click **OK**.
5 Click the Stop Service button on the toolbar to turn the gateway off.



2 Gateway Commands

Kaleido multiviewers support the following commands through the Gateway access. Most of these apply to all Kaleido multiviewer models, but some only apply to one platform, as indicated in the list. Furthermore, there may be differences in the use or syntax of some commands depending on the platform. All of these points are clarified in the detailed description of each command that follows.

> Note: All gateway commands must be followed by a carriage return. In scripts, add `\n` at the end of each gateway command.

Index of Gateway Commands

The applicable Kaleido systems are indicated as follows:

Code	System	Multiviewer Models
KX	Kaleido-X Software	Kaleido-X, Kaleido-X16, KMV-3901/3911, Kaleido-XQUAD, Kaleido-IP, Kaleido-MX, Kaleido-MX 4K, Kaleido-Modular-X, KMX-4911
K2	Kaleido-K2 Software	Kaleido-K2
AQ	Kaleido-Alto/Quad/Quad-Dual	Kaleido-Alto, Kaleido-Quad, Kaleido-Quad-Dual

The star (★) symbol indicates a new command, or a command with new parameters.

Command	Applies to			Description	Page
openID	KX	K2	AQ	Opens a session with the specified Kaleido	7
closeID	KX	K2	AQ	Closes a previously opened session	8
getParameterInfo	KX			Gets the system name, or its software version	8
getKCurrentLayout	KX	K2	AQ	Gets the name of the current layout	8
setKCurrentLayout	KX	K2	AQ	Loads a specific layout	9
getKLayoutList	KX	K2	AQ	Gets the list of available layouts	10
getKRoom	KX			Gets information on how the heads are positioned within the specified room	10
getKRoomList	KX			Gets the list of available rooms	11
setKStatusMessage	KX	K2	AQ	Sets a Gateway alarm to the specified state	11
setKUnlatch	KX			Acknowledges the global alarm for the specified source (channel)	12
getKChannel	KX			Gets the source (channel) currently assigned to the specified monitor	13

Command	Applies to			Description	Page
setKChannel	KX	K2	AQ	Associates a source (channel) to the specified monitor	13
setKDynamicText	KX	K2	AQ	Sends text to the specified layout element	14
getKDynamicText	KX			Retrieves text from the specified layout element	14
getKMetaData		K2		Gets metadata from a MultiData component	15
setKTimer	KX	K2	AQ	Configures the specified countdown timer	16
setKTimer2	KX	K2		Configures the specified timer	16
setKTimerTrigger	KX	K2	AQ	Starts, stops or resets a countdown timer	17
setKFireAction	KX	K2	AQ	Fires the specified action	17
getKActionList	KX			Gets the list of available actions	18
setKEnableAlarmGroup	KX	K2		Enables an alarm group	18
setKDisableAlarmGroup	KX	K2		Disables an alarm group	18
setKSaveLayout		K2	AQ	Saves the current layout	19
getKAudioOut	KX	K2	AQ	Identifies the current audio output	19
setKAudioOut	KX	K2	AQ	Selects the audio to be monitored	20
getKAudioOutVolume	KX	K2	AQ	Gets the current audio monitoring output volume	21
setKAudioOutVolume	KX	K2	AQ	Sets the volume of the audio monitoring output	22
getKAudioOutMode	KX	K2	AQ	Gets the current audio monitoring output mode	23
setKAudioOutMode	KX	K2	AQ	Sets the audio monitoring output mode	23
setKVerticalOffset			AQ	Offsets the graphic from display	24
setKIcontrolMode			AQ	Enables/Disables mouse color keying over video	24
setKMouseColorA			AQ	Sets the mouse color to be keyed over the video	24
setKMouseColorB			AQ	Sets the mouse color to be keyed over the video	25
setKMouseColorC			AQ	Sets the mouse color to be keyed over the video	25

Document Conventions

Each command in this document is presented in the following format:

Command Name

Applicable Kaleido Systems

Command description

The proper command syntax with variables

Gateway response — A list of possible answers:

a For a successful execution of the command

b For an unsuccessful execution of the command

Special notes for the command or specific platform

Gateway Command Descriptions

The syntax must be exactly replicated when sending a command. Use the UTF-8 format to send Unicode text messages via the Gateway.

openID

KX K2 AQ

This command opens a session with the specified Kaleido multiviewer.

> Note: It is not necessary to open a session every time you want to send a command to the Gateway. Since opening a session takes a few seconds, it is recommended that you keep a session open as long as commands need to be sent.

- On a Kaleido-K2 or Kaleido-Alto/Quad/Quad-Dual multiviewer:
  `<openID>`**IP_ADDRESS**`_0_4_0_0</openID>`
- On a Kaleido-X series multiviewer:
  - To open a session without room context:
    `<openID/>`
  - To open a session with a room context:
    `<openID>`**ROOM_NAME**`</openID>`
  - To open a session with user privilege validation with MD5 password hash:
    `<openID>mirandagateway://`**USERNAME**`:`**PASSWORD_MD5_HASH**`@`**SYSTEM_NAME**`/`**ROOM_NAME**`</openID>`
  - To open a session with user privilege validation without MD5 password hash:
    `<openID>mirandagateway://`**USERNAME**`:`**CLEAR_PASSWORD**`@`**SYSTEM_NAME**`/`**ROOM_NAME**`</openID>`

Where:

`IP_ADDRESS` is the IP address of your destination Kaleido frame.

`ROOM_NAME` is the room context for the session (see getKCurrentLayout, setKCurrentLayout and getKLayoutList).

`USERNAME` is the user name of the RCP user (authorized for the room) that will be used to validate permissions.

`PASSWORD_MD5_HASH` is the md5 hash of the user password, encoded in base 64.[1]

`CLEAR_PASSWORD` is the user password.

`SYSTEM_NAME` is the system name as specified in XAdmin.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`:
  - The Gateway was not able to recognize the command.
  - The room name was invalid.
  - The user name did not match the password provided.

1. For information on md5 see `http://www.ietf.org/rfc/rfc1321.txt`; for information on base 64 see RFC 3548.

- The system name was invalid.
- The IP address was wrong.

closeID

KX K2 AQ

This command closes a session with the specified Kaleido.

- On a Kaleido-X series multiviewer:
  `<closeID/>`
- On a Kaleido-K2 or Kaleido-Alto/Quad/Quad-Dual multiviewer:
  `<closeID>`**IP_ADDRESS**`_0_4_0_0</closeID>`

  Where `IP_ADDRESS` is the IP address of the Kaleido-K2 or Kaleido-Alto/Quad/Quad-Dual

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

> Note: This command closes the current connection on port 13000. This connection must be re-established before another session can be opened. If you are using HyperTerminal, it will automatically re-establish the previous connection if you begin typing new commands, but other clients may require you to manually reconnect.

getParameterInfo

KX

This command serves two purposes: it can retrieve the current system's name, or the version of the Kaleido-X Software installed on this system.

- To obtain the software version, the command is:
  `<getParameterInfo>get key="softwareVersion"</getParameterInfo>`

  Gateway response:
  - `<kParameterInfo>softwareVersion="`**Software Version**`"</kParameterInfo>`

    Example:
    `<kParameterInfo>softwareVersion="7.20 build 5407"</kParameterInfo>`
  - `<nack/>`: The Gateway was not able to recognize the command.
- To obtain the system name, the command is:
  `<getParameterInfo>get key="systemName"</getParameterInfo>`

  Gateway response:
  - `<kParameterInfo>systemName="`**System Name**`"</kParameterInfo>`

    Example: `<kParameterInfo>systemName="Cougar-X"</kParameterInfo>`
  - `<nack/>`: The Gateway was not able to recognize the command.

getKCurrentLayout

KX K2 AQ

This command retrieves the name of the current layout.

```
<getKCurrentLayout/>
```

> Note: On a Kaleido-X series multiviewer, the session must have a room context for the command to be used. If the session was opened using the `<openID/>` command the gateway will return `<nack/>`.

Gateway response:

- For a Kaleido-Alto/Quad/Quad-Dual multiviewer:
  `<kCurrentLayout>`**Currentlayout**`.xml</kCurrentLayout>`
  Where `CurrentLayout.xml` is the name of the layout currently loaded to the monitor wall
- For a Kaleido-K2 or a Kaleido-X series multiviewer:
  `<kCurrentLayout>name="`**CurrentLayout**`.kg2"</kCurrentLayout>`
  Where `CurrentLayout.kg2` is the name of the layout currently loaded to the monitor wall
- `<nack/>`: The Gateway was not able to recognize the command.

setKCurrentLayout

KX K2 AQ

This command loads the specified layout.

- For a Kaleido-K2 or a Kaleido-X series multiviewer:
  `<setKCurrentLayout>set` **LayoutToLoad**`.kg2</setKCurrentLayout>`
- For a Kaleido-Alto/Quad/Quad-Dual multiviewer:
  `<setKCurrentLayout>set` **LayoutToLoad**`.xml</setKCurrentLayout>`

Where `LayoutToLoad` is the name of the layout to load.

> Notes
>
> - This Layout must be available on the multiviewer prior to executing this command.
> - You can use getKLayoutList to retrieve the names of the available layouts before sending this command.
> - For a Kaleido-Alto/Quad/Quad-Dual multiviewer, the layout suffix is `.xml` instead of `.kg2`.
> - For a Kaleido-X series multiviewer, if the session does not have a room context, the layout name must be prefixed with the room name and a "/". Example: `<setKCurrentLayout>set Room1/Layout1.kg2</setKCurrentLayout>`

Gateway response:

- `<ack/>`: The command was recognized by the Gateway, and the layout has been fully loaded.
- `<nack/>`: The Gateway was not able to recognize the command, or the layout could not be found.

getKLayoutList

KX K2 AQ

This command returns the list of layouts that are available on the multiviewer.

```
<getKLayoutList/>
```

Gateway response:

- `<kLayoutList> Layout1.kg2 Layout2.kg2 … AnAvailableLayout.kg2</kLayoutList>`

  Where: `Layout1`, `Layout2` and `AnAvailableLayout` are the names of the layouts that are available on the multiviewer.
- `<nack/>`: The Gateway was not able to recognize the command.

Notes

- For a Kaleido-X series multiviewer:
  - If the session does not have a room context, the layout names will be prefixed with the room name and a "/". Example:

    ```
    <kLayoutList>Room1/MAIN.kg2 Room1/BACKUP1.kg2 Room2/MAIN.kg2</kLayoutList>
    ```
  - If the session has a room context, only layouts for that room will be returned and the layout names will not be prefixed with the room name.
- For Kaleido-Alto/Quad/Quad-Dual multiviewers, the layout suffix is `.xml` instead of `.kg2`.

getKRoom

KX

This command is used to obtain information on how the heads are positioned relatively to each other within the specified room.

- For a session without room context, the command is:

  `<getKRoom>`**ROOM_NAME**`</getKRoom>`
- For a session with a room context, the command is:

  ```
  <getKRoom/>
  ```

Gateway response:

- The response is the specified room exactly as it is stored in the database but without the XML header. Example:

```
<room UUID="4afa6407-a753-11dc-9fb9-e3bbad2712e5"
beanType="monako.data.rooms" createdTime="1197313709663"
currentLayoutUrl="miranda.data.access:MultiHeadLayoutBean/
d8b14b99-8321-11dd-8648-49f166ea7203" friendlyName="Room1"
lastModifiedTime="1228233770264" path="/" readOnly="false"
version="824" xmlVersion="273114">
<defaultRoomPreferences>
<preferences>
<preference editable="true" editablePerUser="true" type="audioOut"
uid="audioOut" value="miranda.monako.daq://local/data/master/9/
card/head:0/port:Analog%20AES%20Audio%20Out"/>
<preference editable="true" editablePerUser="true" type="Preset"
uid="MultiHeadLayoutBean.10"
value="miranda.data.access:MultiHeadLayoutBean/3aadaaff-df2b-11dc-
86c6-b5c2f6a72665"/>
```

```
<preference editable="false" editablePerUser="true"
type="useLargeCursor" uid="useLargeCursor" value="true"/>
<preference editable="true" editablePerUser="true" type="Preset"
uid="MultiHeadLayoutBean.9"
value="miranda.data.access:MultiHeadLayoutBean/5a475f81-df1b-11dc-
a920-9d4ecc32cf8e"/>
...
</preferences>
</defaultRoomPreferences>
<heads>
<head allowDashboard="true" frameName="Cougar-X"
friendlyName="Default Display" headID="23" headNumber="1"
id="Cougar-X.23" logicalID="2" resolutionSettingsUuid="8af91a81-
0af1-11dd-a25a-f534b3d6b0d3" rotated="false" rotation="normal"
slotNumber="11">
<dimension x="1398" y="874"/>
<position x="4408" y="32"/>
<resolution height="1200" width="1920"/>
<rotDimension x="1398" y="874"/>
<rotResolution height="1200" width="1920"/>
</head>
<head allowDashboard="true" frameName="Cougar-X"
friendlyName="Default Display" headID="21" headNumber="1"
id="Cougar-X.21" logicalID="1" resolutionSettingsUuid="9016b92b-
cdbe-11db-ae68-a122768fdba0" rotated="false" rotation="normal"
slotNumber="10">
<dimension x="1400" y="875"/>
...
</head>
...
</heads>
</room>
```

- `<nack/>`: The Gateway was not able to recognize the command.

getKRoomList

KX This command is used to obtain the list of rooms known to your multiviewer system.

```
<getKRoomList/>
```

Gateway response:

- `<kRoomList><room>`Room A`</room><room>`Room B`</room></kRoomList>`
- `<nack/>`: The Gateway was not able to recognize the command.

setKStatusMessage

KX K2 AQ This command associates an alarm state with an ID. The multiviewer can be configured to listen to alarm status messages from the Gateway, and thus report the state it receives. This is a convenient way of reporting alarms to multiviewers.

```
<setKStatusMessage>set id="ID" status="Status" message="Message"
</setKStatusMessage>
```

Where:

- `ID` is the identifier that will receive the new state.

> Note: Kaleido-Alto/Quad/Quad-Dual will only accept numeric values for this parameter, in the range 0 to 1024. The Kaleido-K2 and Kaleido-X series do not have this limitation.

- `Status` is any of the available statuses:

Status	Alternate status[a]	Kaleido-X series	Kaleido-K2/Alto/Quad/Quad-Dual
DISABLE	DISABLE	Disabled	Disabled
NORMAL	OK	Normal	OK
MINOR	WARNING	Minor	Warning
MAJOR	MAJOR	Major	(not supported)
CRITICAL	ERROR	Critical	Error

a. Legacy

- `Message` is reserved for future use, and is ignored.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKUnlatch

KX

This command is used to acknowledge the global alarm for a given logical source (channel). It can also be used to acknowledge specific alarms.

The command supports three parameter types: `channelName`, `id` or `uri`.

- Use `channelName` to acknowledge the global alarm associated with the specified source:

  ```
  <setKUnlatch>set channelName="ChannelName"</setKUnlatch>
  ```

  Example:

  ```
  <setKUnlatch>set channelName="/Input A/Channel 01"</setKUnlatch>
  ```

- Use `uri` to acknowledge the alarm with the specified URI:

  ```
  <setKUnlatch> set uri="AlarmURI"</setKUnlatch>
  ```

  Example:

  ```
  <setKUnlatch>set uri="miranda.monako.daq://local/data/master/3/card/
  av1/DTVCCData#dtvccService1Presence"</setKUnlatch>
  ```

- Use `id` to acknowledge the gateway alarm with the specified name:

  ```
  <setKUnlatch>set id="AlarmName"</setKUnlatch>
  ```

Example: `<setKUnlatch>set id="my_gateway_alarm_1"</setKUnlatch>`

> Note: Only one parameter can be specified, otherwise the Gateway will return `<nack/>`.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

getKChannel

KX

> Note: This command is currently supported on the **Kaleido-IP** multiviewer models only.

This command is used to obtain the logical source (channel) currently assigned to the specified monitor in the current layout.

`<getKChannel>set monitor="`**MonitorName**`"</getKChannel>`

Where `MonitorName` is the name of the monitor whose source you wish to obtain. The monitor name must be prefixed with the room name and a "/" if the session does not have a room context. Example: *Room1/composite42*. To find the monitor name, open the layout in XEdit (see **Name**, under **Assignments** in the **Properties** tab).

Gateway response:

- `<kChannel>channelname="`**ChannelName**`"</kChannel>`

  Where `ChannelName` is the full path to the source (channel) currently assigned to the specified monitor. Example: `/Input A/Channel 1`.
- `<nack/>`: The Gateway was not able to recognize the command, or a parameter could not be resolved.

setKChannel

KX K2 AQ

This command is used to assign a logical source (channel) to the specified monitor in the current layout.

`<setKChannel>set channelname="`**ChannelName**`" monitor="`**MonitorNumber**`" </setKChannel>`

Where:

- `ChannelName` is the name of the logical source you wish to assign to the specified monitor. On a Kaleido-X series multiviewer this is the full path to the source (channel). Example: /Input A/Channel 1.
- `MonitorNumber` is the identifier of the monitor to which the source is to be assigned. On a Kaleido-X series multiviewer the monitor number must be prefixed with the room name and a "/" if the session does not have a room context. Example: *Room1/*

composite42. The monitor name is the name you see (under **Assignments** in the **Properties** tab) when you open the layout in XEdit and select this monitor.

> Note: On the Kaleido-K2, to get the monitors' identifiers for your current layout press the Tab key on the keyboard, or the select key on the Kaleido-RCP.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command, or a parameter could not be resolved.

setKDynamicText

KX K2 AQ

This command is used to set the text of a UMD or text label component that is configured to use dynamic text. Note that the Service ID for this component must be set to "Gateway" when the layout is created in KEdit/XEdit in order for this command to work.

```
<setKDynamicText>set address="Address" text="NewText"</
setKDynamicText>
```

Where:

- Address is the configured text address of the UMD or text label component.

> Note: The Kaleido-Alto/Quad/Quad-Dual systems require a numeric value in the range 0-1024. The Kaleido-K2 and Kaleido-X series do not have this limitation.

- `NewText` is the text to display.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

getKDynamicText

KX

This command is used to retrieve dynamic text previously sent to a multiviewer by a peripheral device (e.g., a router or tally interface device).

```
<getKDynamicText>set address="Address"</getKDynamicText>
```

Where `Address` is the configured text address of the UMD or text label component whose text you wish to retrieve.

Gateway response:

- `<kDynamicText>`**RetrievedText**`</kDynamicText>`
- `<nack/>`: The Gateway was not able to recognize the command.

> Note: This command will only return text that was previously set via the <setKDynamicText> command.

getKMetaData

K2

This command is used to get metadata that is assigned to a MultiData component assigned to a text label in the Kaleido-K2. The Kaleido-K2 will return XDS, Dolby-E and video format data in response to this command.

```
<getKMetaData>get dataname=MultiDataName</getKMetaData>
```

Where `MultiDataName` is the name of the MultiData source, as defined in the MultiData Configuration panel.

Gateway response:

- `<kMetaData><error>MultiDataName not found</error></kMetaData>`: The MultiData entity does not exist in the Kaleido-K2.
- `<kMetaData><input id="1" stationID="1234" channelNumber="12"/> <input id="2" stationID="RDS" channelNumber="25"/></kMetaData>`

  Where the returned information (shown in *italics* above) is the data contents of the MultiData element. This example shows a typical return of data; the actual data returned will depend upon the configuration and definition of the MultiData component on the Kaleido-K2.

  The response is grouped by input, and the inputs sorted in ascending order (from input 1 to 32).

  For each input, all the data is presented as attributes.

  The data legends is mapped to valid XML attribute names, which are listed here:

  - inputFormat
  - WSS
  - scansys
  - AFD
  - AFD3Bits
  - AFDANC
  - SID
  - programConfig
  - dialogLevel
  - networkName
  - stationID
  - channelNumber
  - TSID
  - programName
  - programType
  - vChipRating
  - programDescription
  - programLength
  - elapsedTime
  - programID
  - timeOfDay

- timeZone

The value field is escaped as defined in the XML protocol for an attribute value. For example, `ABC"DEF\GHI<JKL>MNO/PQR&STU;VWX'YZ` becomes `ABC"DEF\GHI<JKL>MNO/PQR&STU;VWX'YZ`

The attributes order is not guaranteed and may change for two consecutive calls to the same command.

- `<nack/>`: There is a syntax error in the XML command.

> Note: If the MultiData component is not assigned to a text component, no values will be included in the information returned to the user from the gateway. Make sure to assign the MultiData component to a text label component.

setKTimer

KX K2 AQ

This command is used to configure the specified countdown timer component.

```
<setKTimer>set id="TimerID" preset="hh:mm:ss" direction="Direction"
loop="Loop" </setKTimer>
```

Where:

- `TimerID` is the ID of the countdown timer component to modify.
- `hh:mm:ss` is the preset value for the countdown timer component.
- `Direction` is the direction to count, either *UP* or *DOWN*.
- `Loop` indicates if the counter must count continuously. This value can be either *ON* or *OFF*.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKTimer2

KX K2

This command is used to configure a timer in a Kaleido-K2 or Kaleido-X series multiviewer system.

```
<setKTimer2>set TimerName="NAME" StartTime="HH:MM:SS:FF"
PresetTime="HH:MM:SS:FF" TimerMode="Timer mode" EndMode="End mode"
</setKTimer2>
```

Where:

- `NAME` is the name assigned to the timer in the Timer configuration panel accessed from the **Timer Browser** window in KEdit, or in the **Timer Editor** window in XEdit.
- `StartTime` may be one of the following:
  - `HH:MM:SS:FF` – time in hours:minutes:seconds:frames at which this timer will start its count, depending on its configuration and presence of triggers. Note that if the hour value is *00,* the start time is deemed to be the previous midnight, whereas *24* is considered to be the next midnight. This allows the timer to decide whether it

should be counting or waiting to start when it compares the start time to the current time.

> Note: Although the current implementation of this command allows you to specify frame values, they are not used by the timer, which will start on the exact second.

  - *NOW* – the timer will start counting immediately upon receiving the command.
  - *WAIT* – the timer will not start until it receives a setKTimerTrigger gateway command with the argument *START*.
- `PresetTime` may be one of the following:
  - Count duration (hours:minutes:seconds:frames) for UP and DOWN timer modes.
  - End time (hours:minutes:seconds:frames) for the REMAINING timer mode.

> Note: Although the current implementation of this command allows you to specify frame values, they are not used by the timer, which will start on the exact second.

- `TimerMode` is the operating mode of the timer. Possible values are: up, down, remaining.
- `EndMode` defines what is to happen when the timer reaches the end of its count. Possible values are: *LOOP, STOP,* and *OVERRUN*.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKTimerTrigger

KX K2 AQ

This command is used to control the specified countdown timer component. The countdown timer can be started, stopped or reset.

```
<setKTimerTrigger>set id="TimerID" trigger="Trigger"
</setKTimerTrigger>
```

Where:

- `TimerID` is the ID of the countdown timer component to control.
- `Trigger` is the action that the countdown timer must do. This value can either be *START, STOP,* or *RESET*.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKFireAction

KX K2 AQ

This command is used to fire the specified Action (for example, by an external third-party system that is unable to use the GPI in as a trigger).

```
<setKFireAction>set name="NameOfTheActionToFire"</setKFireAction>
```

Where `NameOfTheActionToFire` is the friendly name of the action to be executed.

Notes

- For a Kaleido-X series multiviewer, the friendly name is specified under the **Properties** tab in XEdit.
- The action must be available on the multiviewer in order to be executed.
- On a Kaleido-X series multiviewer, background actions listed in the **On Change/Gateway** column under XEdit's **Actions** tab will be executed when the action is fired by the Gateway command.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command, or the command could not be executed.

Note: On a Kaleido-X series multiviewer, an action that consists of multiple action items will stop as soon as one of the action items cannot be executed. The Gateway would then return `<nack/>`.

getKActionList

KX

This command is used to obtain the list of actions known to your multiviewer system.

```
<getKActionList/>
```

Gateway response:

- `<kActionList><action>`**Action1**`</action><action>`**Action2**`</action><action>`**Action3**`</action></kActionList>`
- `<nack/>`: The Gateway was not able to recognize the command.

setKEnableAlarmGroup

KX K2

This command enables the specified alarm group or virtual alarm.

```
<setKEnableAlarmGroup>set name="NameOfTheGroupToEnable"
</setKEnableAlarmGroup>
```

Where `NameOfTheGroupToEnable` is the name of the alarm group (for a Kaleido-K2 multiviewer), or virtual alarm (for a Kaleido-X series multiviewer model) you wish to enable. In the case of a Kaleido-X series multiviewer model, this parameter can be the `path/friendlyName` of the virtual alarm, or its URI.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKDisableAlarmGroup

KX K2

This command is used to disable the specified alarm group or virtual alarm.

```
<setKDisableAlarmGroup>set name="NameOfTheGroupToDisable"
</setKDisableAlarmGroup>
```

Where `NameOfTheGroupToDisable` is the name of the alarm group (for a Kaleido-K2 multiviewer), or virtual alarm (for a Kaleido-X series multiviewer model) you wish to disable. In the case of a Kaleido-X series multiviewer model, this parameter can be the `path/friendlyName` of the virtual alarm, or its URI. The virtual alarm will be set to OFFLINE.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKSaveLayout

K2 AQ

This command allows the user to save the currently displayed layout to a file.

```
<setKSaveLayout>set name="FileName"</setKSaveLayout>
```

Where `FileName` is the name of the file that will contain the layout. Do not specify an extension to the file name. The file extension `.kg2` (for Kaleido-K2 layouts) or `.xml` (for Kaleido-Alto/Quad/Quad-Dual layouts) will be automatically added by the system.

Gateway response:

- `<ack/>`: The command was correctly interpreted and executed.
- `<nack/>`: The command was not executed, due to wrong spelling or invalid parameter.

getKAudioOut

KX K2 AQ

> Notes
>
> - To use this command with a Kaleido-X series multiviewer, you must first open a session *with user privilege validation* (see openID), otherwise the gateway will return `<nack/>`.
> - Kaleido-IP multiviewers do not support this command.

This command allows the user to get information on the current source at the audio monitoring output.

```
<getKAudioOut/>
```

Gateway response:

- `<kAudioOut>`**DETAILS**`</kAudioOut>`: The command was executed.

  `DETAILS` will vary depending on the type of audio output detected.

  - When no audio is currently being monitored:

    ```
    <kAudioOut>Type="NONE"</kAudioOut>
    ```

  - For a streaming source, the returned value indicates the IP address and the Feed ID of the source using the following syntax:

    ```
    <kAudioOut>Type="STREAMING" IP="999.999.999.999" FeedID="XX"
    </kAudioOut>
    ```

    Where:

    - `999.999.999.999` is the IP address of the device from where the stream originates.
    - `XX` is the identifier of the feed to use.

- For an Audio Bridge Terminal (ABT) source, the returned value indicates which ABT input is being monitored:
  `<kAudioOut> Type="AUDIOCARD" Input="999"</kAudioOut>`
  Where `999` represents the ABT input number. ABT input numbers 1–64 are associated with the SDTI IN (or ABT/MADI) connector on your multiviewer's INPUT A card; numbers 65-128 to the connector on INPUT B, etc.
- For an embedded source, the returned value will contain the video input, the group and the AES used. The syntax will be:
  `<kAudioOut>Type="EMBEDDED" Input="AAA" Group="BB" AES="X" </kAudioOut>`
  Where:
  - `AAA` indicates the video input.
  - `BB` indicates the group. Valid values are from 1 to 4.
  - `X` indicates the AES. Valid value can be either 1 or 2.

- `<nack/>`: The command was not executed.

setKAudioOut

KX K2 AQ

Notes

- To use this command with a Kaleido-X series multiviewer, you must first open a session *with user privilege validation* (see openID), otherwise the gateway will return `<nack/>`.
- You may select any audio source for monitoring, independent of whether it is being metered in the current layout, with the exception that a streaming source must be part of the current layout.
  - If the source is included in the layout, the meter assigned to it will be highlighted.
  - If the source is not included in the layout, the sound will be routed to the audio monitors, but there will be no indication of the source, in the layout.

You can select the audio source to be monitored at the audio output by using this Gateway command. The syntax of the command depends on whether you wish to monitor audio from a Kaleido-IP logical source, from a stream, from an Audio Bridge Terminal device, from an embedded source, or no audio at all.

`<setKAudioOut>DETAILS</setKAudioOut>`

Where `DETAILS` will differ depending on the type of audio source being selected for monitoring, as shown below.

- To select an audio level from a Kaleido-IP logical source, format the command as follows:
  `<setKAudioOut>set Type="CHANNELNAME" Channel="CHANNEL_NAME" Level="AUDIO_LEVEL"</setKAudioOut>`
  Where:

- `CHANNEL_NAME` is the logical source name (i.e., the **Cat.**, and **Name** levels configured under **Source info**, in XEdit's sources table). The string must start with a slash (/), and a slash must also appear between the category and name.
- `AUDIO_LEVEL` is the friendly name of the audio level you wish to monitor, configured in XEdit's sources table.

> Note: This is the only supported syntax for Kaleido-IP multiviewers.

- To select a streaming source, format the command as follows:

```
<setKAudioOut>set Type="STREAMING" IP="999.999.999.999"
FeedID="XX"</setKAudioOut>
```

  Where:

  - `999.999.999.999` is the IP address of the device from where the stream occurs.
  - `XX` is the identifier of the feed to use.

> Note: The Kaleido-Alto, Kaleido-Quad, and Kaleido-Quad-Dual do not support streaming sources.

- To select an Audio Bridge Terminal (ABT) source, format the command as follows:

```
<setKAudioOut>set Type="AUDIOCARD" Input="999"</setKAudioOut>
```

  Where `999` represents the ABT input number. ABT input numbers 1–64 are associated with the SDTI IN (or ABT/MADI) connector on your multiviewer's INPUT A card; numbers 65-128 to the connector on INPUT B, etc.

- To select an embedded source, format the command as follows:

```
<setKAudioOut>set Type="EMBEDDED" Input="AAA" Group="BB"
AES="X"</setKAudioOut>
```

  Where:

  - `AAA` indicates the video input.
  - `BB` indicates the group. Valid values range from 1 to 4.
  - `X` indicates the AES. Value can be either 1 or 2.

- To stop audio monitoring and mute the audio output:

```
<setKAudioOut>set Type="NONE"</setKAudioOut>
```

Gateway response:

- `<ack/>`: The command was correctly interpreted.
- `<nack/>`: The command was not executed, due to wrong spelling or an invalid parameter.

getKAudioOutVolume

KX K2 AQ

> Notes
>
> - To use this command with a Kaleido-X series multiviewer, you must first open a session *with user privilege validation* (see openID), otherwise the gateway will return `<nack/>`.

Notes *(continued)*

- The following Kaleido-X series multiviewer models do not support this command:
  - KMV-3901/3911
  - Kaleido-IP
  - Kaleido-MX 16×4
  - Kaleido-MX 4K 16×1
  - KMX-4911

This command retrieves the current volume at the analog audio monitoring output.

```
<getKAudioOutVolume/>
```

Gateway response:

- `<kAudioOutVolume>volume="XX"</kAudioOutVolume>`

  Where `XX` is the value, expressed in dB, at which the audio monitoring volume is set. This value ranges between 96 dB and +24 dB for a Kaleido-X series multiviewer, and between 90 dB and 0 dB for a Kaleido-K2/Alto/Quad/Quad-Dual. Fractions of dB are supported on the Kaleido-X series multiviewers only.
- `<nack/>`: The command was not recognized.

setKAudioOutVolume

KX K2 AQ

Notes

- To use this command with a Kaleido-X series multiviewer, you must first open a session *with user privilege validation* (see openID), otherwise the gateway will return `<nack/>`.
- The following Kaleido-X series multiviewer models do not support this command:
  - KMV-3901/3911
  - Kaleido-IP
  - Kaleido-MX 16×4
  - Kaleido-MX 4K 16×1
  - KMX-4911
- If the audio signal is muted, executing this command will unmute the signal.

This command sets the volume at the analog audio monitoring output.

```
<setKAudioOutVolume>set volume="XX"</setKAudioOutVolume>
```

Where `XX` is the value, expressed in dB, at which the volume will be set. Valid values range between 96 dB and +24 dB for a Kaleido-X series multiviewer, and between 90 dB and 0 dB for a Kaleido-K2/Alto/Quad/Quad-Dual. Fractions of dB are supported on the Kaleido-X series multiviewers only.

Gateway response:

- `<ack/>`: The command was correctly interpreted. The volume was set to the new value.

- `<nack/>`: The command was not executed, due to a spelling error or invalid parameter. The volume remains unchanged.

getKAudioOutMode

KX K2 AQ

Notes

- To use this command with a Kaleido-X series multiviewer, you must first open a session *with user privilege validation* (see openID), otherwise the gateway will return `<nack/>`.
- The following Kaleido-X series multiviewer models do not support this command:
  - KMV-3901/3911
  - Kaleido-IP
  - Kaleido-MX 16×4
  - Kaleido-MX 4K 16×1
  - KMX-4911

This command retrieves the audio monitoring mode currently used at the analog audio monitoring output.

```
<getKAudioOutMode/>
```

Gateway response:

- `<kAudioOutMode>mode="`**XXXXX**`"</kAudioOutMode>`

  Where `XXXXX` is the mode, which can be any of NORMAL, MUTE or –20 dB.
- `<nack/>`: The command was not executed, due to a spelling error or invalid parameter.

setKAudioOutMode

KX K2 AQ

Notes

- To use this command with a Kaleido-X series multiviewer, you must first open a session *with user privilege validation* (see openID), otherwise the gateway will return `<nack/>`.
- The following Kaleido-X series multiviewer models do not support this command:
  - KMV-3901/3911
  - Kaleido-IP
  - Kaleido-MX 16×4
  - Kaleido-MX 4K 16×1
  - KMX-4911

To set the audio monitoring mode at the analog audio monitoring output, the following command is used:

```
<setKAudioOutMode>set mode="XXXXX"</setKAudioOutMode>
```

Where `XXXXX` is the value at which the mode must be set. Valid values are NORMAL, MUTE and –20 dB.

Gateway response:

- <ack/>: The command was correctly interpreted. The Audio Monitoring Mode was set to the specified value.
- <nack/>: The command was not executed, due to bad spelling or invalid parameter. The audio monitoring mode remains unchanged.

setKVerticalOffset

AQ This command is used to position the CPU's graphic output vertically within the final DVI output on the display. The Kaleido-Alto/Quad's CPU includes up to 1024 lines, whereas the final output includes up to 1200 lines.

```
<setKVerticalOffset>set offset="NN"</setKVerticalOffset>
```

Where NN is the number of lines (between 0 and 175) by which to offset the CPU's graphic output, from the top of the final DVI output.

Gateway response:

- <ack/>: The command was recognized by the Gateway.
- <nack/>: The Gateway was not able to recognize the command.

setKIcontrolMode

AQ This command is used to enable the Kaleido-Alto/Quad to key the detected mouse pointer colors on video.

```
<setKIcontrolMode>set mode="N"</setKIcontrolMode>
```

Where N is either 0 (color not keyed), or 1 (color key enabled).

Gateway response:

- <ack/>: The command was recognized by the Gateway.
- <nack/>: The Gateway was not able to recognize the command.

setKMouseColorA

AQ This command is used to set a color to key.

```
<setKMouseColorA>set mouseColorA="FFBBGGRR"</setKMouseColorA>
```

Where FFBBGGRR is the hexadecimal triplet for mouseColorA prefixed with the hexadecimal value *FF*.

- BB represents the blue component.
- GG represents the green component.
- RR represents the red component.

For example *FFFF00FF* would set magenta as the key color.

Gateway response:

- <ack/>: The command was recognized by the Gateway.
- <nack/>: The Gateway was not able to recognize the command.

setKMouseColorB

AQ

This command is used to set a color to key.

```
<setKMouseColorB>set mouseColorB="FFBBGGRR"</setKMouseColorB>
```

Where `FFBBGGRR` is the hexadecimal triplet for `mouseColorB` prefixed with the hexadecimal value *FF*.

- `BB` represents the blue component.
- `GG` represents the green component.
- `RR` represents the red component.

For example *`FFFF00FF`* would set magenta as the key color.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

setKMouseColorC

AQ

This command is used to set a color to key.

```
<setKMouseColorC>set mouseColorC="FFBBGGRR"</setKMouseColorC>
```

Where `FFBBGGRR` is the hexadecimal triplet for `mouseColorC` prefixed with the hexadecimal value *FF*.

- `BB` represents the blue component.
- `GG` represents the green component.
- `RR` represents the red component.

For example *`FFFF00FF`* would set magenta as the key color.

Gateway response:

- `<ack/>`: The command was recognized by the Gateway.
- `<nack/>`: The Gateway was not able to recognize the command.

3 A Typical Session

Here is a description of how to open and close a typical session during which you will use the Gateway commands to operate a Kaleido multiviewer. You can open concurrent sessions with multiple Kaleido systems; each session will have its own window on your desktop.

- If you are using a Kaleido-K2, make sure the internal gateway is turned ON, and the MT-gateway is turned OFF (see Remote Operation of a Multiviewer via TCP/IP, on page 1).
- If your environment includes a Grass Valley iControl Application Server, refer to the Application Server's user guide for a discussion of appropriate network configurations.

There is no limit to the number of commands that can be sent in a session, and it is recommended to keep a session open as long as there are commands to send, since opening a session takes a few seconds. Here is a simplified example of a session:

Open a session

send command

send command

…

send command

Close the session.

Opening an HyperTerminal Session

HyperTerminal is a Windows application that was typically installed on every Windows computer, up until Windows XP.[2] This application can communicate with the machine on which the gateway is running using communications **port 13000**.

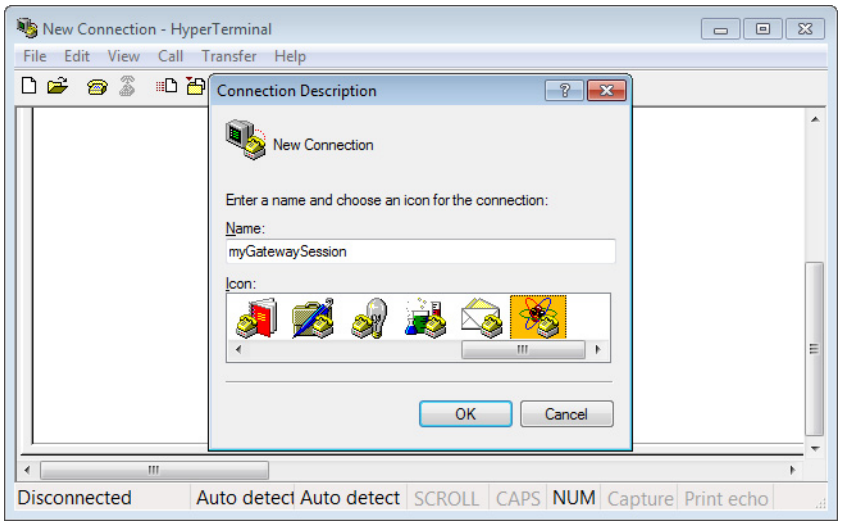
To open HyperTerminal from your PC or laptop

- **Windows XP** and earlier: On the Start menu, point to **All Programs**, **Accessories**, **Communications**, and then click **HyperTerminal**.
- **Windows 7** and later: Navigate to the folder where you installed the HyperTerminal files (typically under `C:\Program Files\Windows NT\HyperTerminal`), and then open `hypertrm.exe`.

2., A number of HyperTerminal replacement applications for Windows 7 and later are available (e.g. Hilgraeve's *HyperTerminal Private Edition*). It is also possible to just copy the files that make up HyperTerminal, from a Windows XP computer, if you still have one available, or to download them from the Web. To install HyperTerminal on Windows 7, copy `hypertrm.exe`, and `htrn_jis.dll` from `C:\Program Files\Windows NT\`, and `hypertrm.dll`, and `hticons.dll`, from `C:\Windows\System32\`, from Windows XP to a folder in your Windows 7 file system (e.g., `C:\Program Files\Windows NT\HyperTerminal`).

To establish the HyperTerminal session with the multiviewer

1 In **Connection Description**, type a name for the connection, select an icon from the list, and then click **OK**.



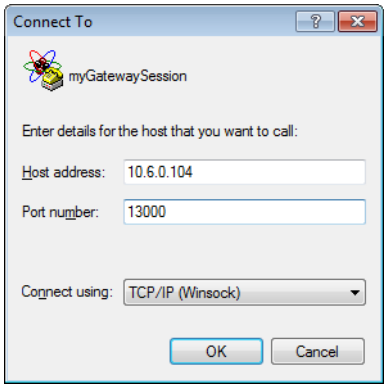
The **Connect To** window appears.

2 In **Connect To**, select **TCP/IP (Winsock)**, from the **Connect using** list.

Two new boxes appear in the window.

3 In **Host address**, type the IP address of the multiviewer system.

4 In **Port number**, type `13000`. This indicates that the connection to the Kaleido will be established via port 13000.



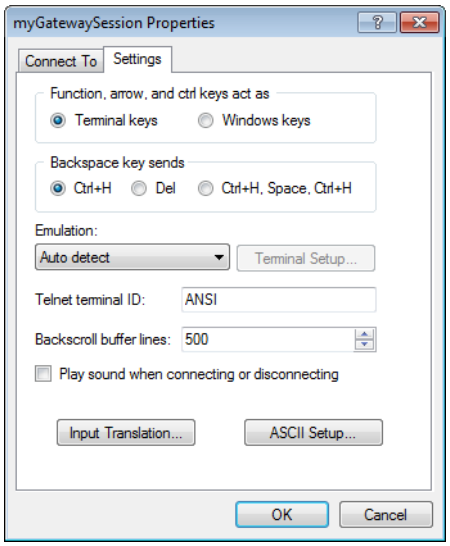
5 Click **OK**.

To be able to see the characters you type in the HyperTerminal console

1 On the **File** menu, click **Properties**.

The **[connection name] Properties** window appears.

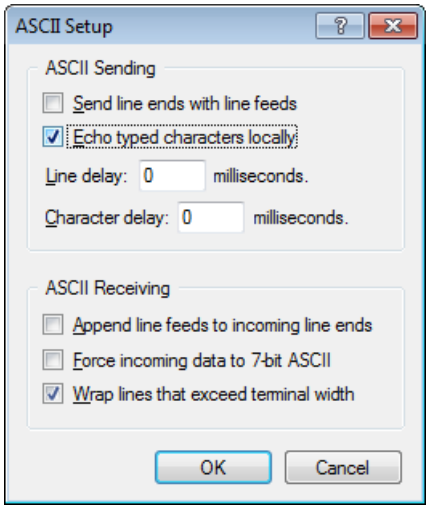
2 Click the **Settings** tab.



3 On the **Settings** tab, click **ASCII Setup**.

The **ASCII Setup** window appears.

4 In **ASCII Setup**, select the **Echo typed characters locally** check box.



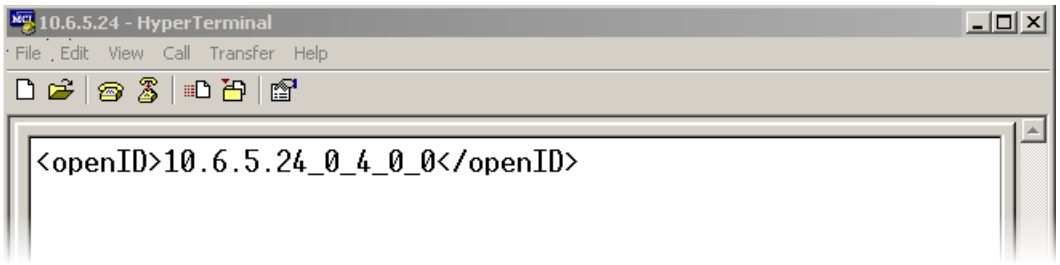
5 Click **OK** to close **ASCII Setup**, and then click **OK** again to close the **Properties** window.

The next characters you type will appear in the console. Commands can now be sent to the Gateway, while the session remains open.

Opening a Gateway Session With a Multiviewer

To open a Gateway session with a multiviewer

- Enter the `openID` command using the IP address of the multiviewer with which the connection has to be established.



  - If the Gateway receives the command and recognizes it, it will respond with the following: `<ack/>`.

    The multiviewer is ready to receive commands.
  - If the command cannot be recognized the following message will appear: `<nack/>`.

Sending Commands to the Gateway

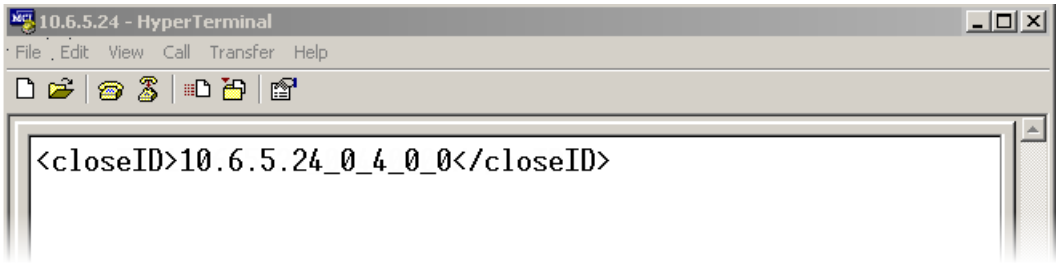
To send a command

- Type it in the console, and then press the Enter key.

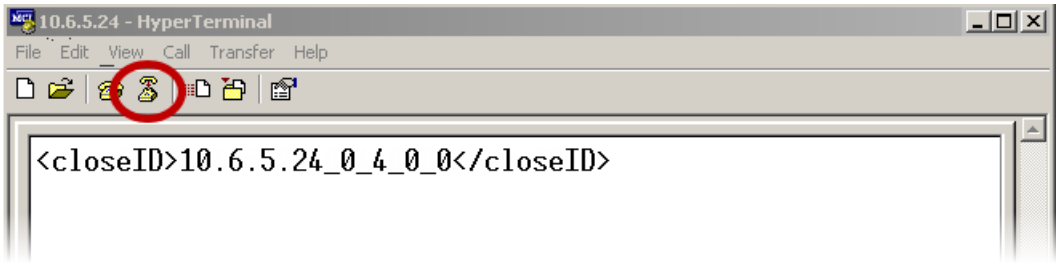
Closing a Gateway Session

To close the Gateway session

1 Enter the `closeID` command, to close the link to the multiviewer.



2 To end the communication session, click the Disconnect button on the toolbar.



A Kaleido-X Series Support History

For each Kaleido Remote Control Protocol (Gateway) command, the following table indicates, for each Kaleido-X series multiviewer model, the version number of the Kaleido-X Software that first supported the command.

Command	Kaleido-X	Kaleido-X16	KMV-3911[a]	Kaleido-IP	Kaleido-MX[b]	KMX-4911
openID	1.00	4.10	5.00	6.00	7.00	8.00
closeID	1.00	4.10	5.00	6.00	7.00	8.00
getParameterInfo	4.00	4.10	5.00	6.00	7.00	8.00
getKCurrentLayout	1.00	4.10	5.00	6.00	7.00	8.00
setKCurrentLayout	1.00	4.10	5.00	6.00	7.00	8.00
getKLayoutList	1.00	4.10	5.00	6.00	7.00	8.00
getKRoom	4.00	4.10	5.00	6.00	7.00	8.00
getKRoomList	4.00	4.10	5.00	6.00	7.00	8.00
setKStatusMessage	4.00	4.10	5.00	6.00	7.00	8.00
setKUnlatch	4.00	4.10	5.00	6.00	7.00	8.00
getKChannel	—	—	—	6.00	—	—
setKChannel	1.00	4.10	5.00	6.00	7.00	8.00
setKDynamicText	1.00	4.10	5.00	6.00	7.00	8.00
getKDynamicText	4.00	4.10	5.00	6.00	7.00	8.00
getKMetaData	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
setKTimer	3.00	4.10	5.00	6.00	7.00	8.00
setKTimer2	3.00	4.10	5.00	6.00	7.00	8.00
setKTimerTrigger	3.00	4.10	5.00	6.00	7.00	8.00
setKFireAction	3.00	4.10	5.00	6.00	7.00	8.00
getKActionList	5.00	5.00	5.00	6.00	7.00	8.00
setKEnableAlarmGroup	5.10	5.10	5.10	6.00	7.00	8.00
setKDisableAlarmGroup	5.10	5.10	5.10	6.00	7.00	8.00
setKSaveLayout	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
getKAudioOut	2.00	4.10	5.20	—	7.00	8.00
setKAudioOut	2.00	4.10	5.20	6.20	7.00	8.00

Command	Kaleido-X	Kaleido-X16	KMV-3911[a]	Kaleido-IP	Kaleido-MX[b]	KMX-4911
getKAudioOutVolume	3.00	4.10	—	—	7.00	—
setKAudioOutVolume	3.00	4.10	—	—	7.00	—
getKAudioOutMode	3.00	4.10	—	—	7.00	—
setKAudioOutMode	3.00	4.10	—	—	7.00	—
setKVerticalOffset	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
setKIcontrolMode	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
setKMouseColorA	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
setKMouseColorB	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
setKMouseColorC	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

a. Also KMV-3901, and Kaleido-XQUAD.
b. Also Kaleido-MX 4K, Kaleido-Modular-X.

Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the Contact Us section of Grass Valley's website (www.grassvalley.com).

An online form for e-mail contact is also available from the website.

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