

# IP Surveillance API
# PTZ Service Specification

**Version 2.0**

**Revision 1**

**2013-12**



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# 1 Introduction

This specification mainly introduces the PTZ function section of ISAPI Protocol.

# 2 Conformance

All of interface definition in this specification is consistent with that of ISAPI protocol, the specification is a part of ISAPI protocol. The architecture, glossary and relationship are consistent with ISAPI IPMD documentation.

# 3 Glossary and Relationship

## 3.1 Glossary of Terms

- ***PTZ channel*** **=** PTZ channel is the basic unit of PTZ functions, and a PTZ channel corresponds to a PTZ control unit.
- ***Absolute PTZ*** = PTZ control unit that supports absolute PTZ. Absolute positioning can designate horizontal angle, vertical angle and lens range.
- ***Relative PTZ*** = PTZ control unit that supports relative PTZ. The parameter of relative positioning is an increment, which relatives to the current position of PTZ and can be an increment in the horizontal direction, or vertical direction, or increment of lens distance.
- ***Continuous PTZ*** = PTZ control unit that supports to configure PTZ control speed, the parameter is speed of PTZ.
- ***Momentary Move*** = this part is the extension of Continuous PTZ function. The running time can be specified in the command and PTZ movement will stop when reaching the specified time.
- ***Preset Point*** =Moving to a position can be marked as a preset, the preset includes the following parameters: horizontal direction, vertical direction and lens distance,.etc.
- ***Patrol*** = Patrol is a collection of a serials of preset points; the path of patrol will be in order of presets.
- ***Home position*** = Special preset.
- ***PTZ limitation*** =Limit the range of PTZ movement. The up, down, left and right border can be specified.
- ***PTZ Time Task*** = Support to set time and task to PTZ unit.
- ***PTZ auxcontrol*** **=** PTZ auxiliary function, including light, rain wipers and heat lamp.

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- ***Digital PTZ*** = Digital PTZ is not really used to control mechanical movement; it is generally based on a large resolution, and displayed images in electronic PTZ is a part of the original images obtained by sensor.

## 3.2 Basic PTZ space type XML

The definition of PTZ space: "X" represents the horizontal direction; "Y" represents the vertical direction, "Z" on behalf of lens distance. A few basic variables will be introduced in this section.

```
<Min><!--xs:integer--></Min>
<Max><!--xs:integer--></Max>

<XRange>
        <Min/>
        <Max/>
</XRange >

<YRange>
        <Min/>
        <Max/>
</YRange >

<ZRange>
        <Min/>
        <Max/>
</ZRange >
```

# 4 PTZ Service and Resources

Back-end devices support multi-channel PTZ, but front-end devices only contain 1-ch PTZ. For different PTZ channels, capability is a little different.

## 4.1 PTZCtrl

| **/ISAPI/PTZCtrl** | **Service** | **v2.0** |
|---|---|---|
| **Notes:** PTZCtrl control service. | | |

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## 4.2 /ISAPI/PTZCtrl/capabilities

| /ISAPI/PTZCtrl/capabilities | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get the list of PTZ channels for the device |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZCtrlCap** |
| **Notes:**<br><br>If maxPTZChannleNum is 0 , PTZ service is unavailable | |

**PTZCtrlCap XML Block**

```
<PTZCtrlCap version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <maxPTZChannleNum><!—opt,xs:interger--></maxPTZChannleNum>
</PTZCtrlCap>
```

## 4.3 /ISAPI/ PTZCtrl/channels

| /ISAPI/PTZCtrl/channels | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get the list of PTZ channels for the device |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZChannelList** |
| **PUT** | |
| **Description** | It is used to update the list of PTZ channels for the device. |
| **Query** | None |
| **Inbound Data** | **PTZChannelList** |
| **Success Return** | **ResponseStatus** |
| **POST** | |
| **Description** | It is used to add a PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | **PTZChannel** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete the list of PTZ channels for the device. |
| **Query** | None |
| **Inbound Data** | None |

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| Success Return | **ResponseStatus** |
|---|---|
| **Notes:**<br><br>PTZ channels may be hardwired, or it may be possible to create channels if the device supports it. To determine whether it is possible to dynamically PTZ channels, check the defined HTTP methods in /ISAPI/PTZCtrl/channels/description. | |

**PTZChannelList XML Block**

```
<PTZChannelList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <PTZChannel/>       <!-- opt -->
</PTZChannelList>
```

## 4.4 /ISAPI/PTZCtrl/channels/<ID>

| /ISAPI/PTZCtrl/channels/<ID> | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get a particular PTZ channel configuration for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZChannel** |
| **PUT** | |
| **Description** | It is used to update a particular PTZ channel configuration for the device. |
| **Query** | None |
| **Inbound Data** | **PTZChannel** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete a particular PTZ channel on a device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br><videoInputID> links the PTZ channel to a video channel.<br><presetSpeed> indicates the movement speed level about calling preset<br><autoScanSpeed> indicates the movement speed level about park function<br><keyPadControlSpeed> indicates the movement speed level to be controlled by keyboard<br><controlProtocol> indicates the control protocol to be used for PTZ.<br>< controlAddress>  indicates the soft address (enabled means soft address is used) | |

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**PTZChannel XML Block**

```
<PTZChannel version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <id>   <!-- req, xs:integer -->   </id>
   <enabled>   <!—ro,req, xs:boolean -->   </enabled>
   <videoInputID>        <!-- req, xs:integer -->   </videoInputID>
   <panMaxSpeed> <!—ro,opt, xs:integer, degrees/sec --> </panMaxSpeed>
   <tiltMaxSpeed> <!—ro,opt, xs:integer, degrees/sec --> </tiltMaxSpeed>
   <presetSpeed>     <!—opt, xs:integer 1..8 –>   </presetSpeed>
   <autoPatrolSpeed> <!-- opt, xs:integer, 0..100 --> </autoPatrolSpeed>
   <keyBoardControlSpeed>
         <!-- opt, xs:integer, 0..100 -->
   </keyBoardControlSpeed>
   <controlProtocol> <!-- opt, xs:string, "pelco-d,…" --> </controlProtocol>
   <controlAddress>      <!—opt -->
         <enabled>          <!-- req, xs:boolean -->   </enabled>
         <Address>         <!—opt, xs:string   1-255 -->   </Address>
   </controlAddress>
   <defaultPresetID> <!-- opt, xs:string;id --> </defaultPresetID>
   <PTZRs485Para>          <!-- opt -->
      <baudRate>          <!-- req, xs:integer -->                                    </baudRate>
      <dataBits>          <!-- req, xs:integer -->                                    </dataBits>
      <parityType>        <!-- req, xs:string, "none,even,odd,mark,space" --> </parityType>
      <stopBits>          <!-- req, xs:string, "1,1.5,2" -->                          </stopBits>
      <flowCtrl>            <!-- req, xs:string, "none, software, hardware" --> </flowCtrl>
   </PtZRs485Para>
</PTZChannel>
```

## 4.5 /ISAPI/PTZCtrl/channels/<ID>/capabilities

| **/ISAPI/PTZCtrl/channels/ID/capabilities** | **General Resource v2.0** |
|---|---|
| **GET** | |
| **Description** | It is used to get the list of PTZ channels for the device |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZChanelCap** |
| **Notes:**<br><br>XRange: Pan range<br>YRange: Tilt range<br>ZRange:Zoom range | |

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**PTZChanelCap XML Block**

```
<PTZChanelCap version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <AbsolutePanTiltPositionSpace> <!--opt-->
      <XRange/><!-- req -->
      <YRange/><!-- req -->
  </AbsolutePanTiltPositionSpace>
  <AbsoluteZoomPositionSpace> <!--opt-->
      <ZRange/> <!-- req -->
 </AbsoluteZoomPositionSpace>
 <RelativePanTiltSpace> <!--opt-->
     <XRange/><!-- req -->
     <YRange/><!-- req -->
 </ RelativePanTiltSpac >
 <RelativeZoomSpace> <!--opt-->
     <ZRange/><!-- req -->
 </RelativeZoomSpace>
 <ContinuousPanTiltSpace> <!--opt-->
     <XRange/><!-- req -->
     <YRange/><!-- req -->
 </ContinuousPanTiltSpace>
 <ContinuousZoomSpace> <!--opt-->
     <ZRange/><!-- req -->
 </ContinuousZoomSpace>
 <MomentaryPanTiltSpace> <!--opt-->
     <XRange/><!-- req -->
     <YRange/><!-- req -->
 </MomentaryPanTiltSpace>
 <MomentaryZoomSpace> <!--opt-->
     <ZRange/><!-- req -->
 </MomentaryZoomSpace>
 <homePostionSupport><!--req,xs:boolean ></homePostionSupport>
 <maxPresetNum><!--req,xs:integer></maxPresetNum>
 <maxPatrolNum><!--req,xs:integer></maxPatrolNum>
 <maxPatternNum><!--req,xs:integer></maxPatternNum>
 <maxLimitesNum><!--req,xs:integer></maxLimitesNum >
 <maxTimeTaskNum><!--req,xs:integer></maxTimeTaskNum>
  <controlProtocol> <!-- opt, xs:string, "pelco-d,…" --> </controlProtocol>
  <controlAddress>      <!—opt, xs:string    1-255 -->    </controlAddress>
  <PTZRs485Para>          <!-- opt -->
     <baudRate>          <!-- req, xs:integer -->                                    </baudRate>
     <dataBits>          <!-- req, xs:integer -->                                    </dataBits>
     <parityType>        <!-- req, xs:string, "none,even,odd,mark,space" --> </parityType>
```

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```
    <stopBits>          <!-- req, xs:string, “1,1.5,2” -->                    </stopBits>
    <flowCtrl>          <!-- req, xs:string, “none, software, hardware” --> </flowCtrl>
  </PtZRs485Para>
  <PresetNameCap> <!-- opt -->
    <presetNameSupport><!--opt,xs:boolean ><presetNameSupport>
  <maxPresetNameLen> <!—dep,xs:integer --> <maxPresetNameLen>
  <specialNo/> <!-- dep -->
  </PresetNameCap>
</ PTZChanelCap>
```

## 4.6 /ISAPI/PTZCtrl/channels/<ID>/homeposition

| /ISAPI/PTZCtrl/channels/<ID>/homeposition | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to set the current horizontal position as horizontal coordinate zero point for the device |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete system horizontal coordinate zero point and restore default zero point for the device (The photoelectric detection location) |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

## 4.7 /ISAPI/PTZCtrl/channels/<ID>/homeposition/goto

| /ISAPI/PTZCtrl/channels/<ID>/homeposition/goto | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to move a particular PTZ channel to horizontal coordinate zero point position for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

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## 4.8 /ISAPI/PTZCtrl/channels/<ID>/continuous

| /ISAPI/PTZCtrl/channels/<ID>/continuous | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to control PTZ move around and zoom for the device. |
| **Query** | pan, tilt, zoom |
| **Inbound Data** | **PTZData** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**PTZData XML Block**

```
<PTZData version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <pan> <!-- opt, xs:integer, -100..100 --> </pan>
    <tilt> <!-- opt, xs:integer, -100..100 --> </tilt>
    <zoom> <!-- opt, xs:integer, -100.. 100--> </zoom>
</PTZData>
```

## 4.9 /ISAPI/PTZCtrl/channels/<ID>/momentary

| /ISAPI/PTZCtrl/channels/<ID>/momentary | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to control PTZ move around and zoom in a period of time for the device. |
| **Query** | pan, tilt, zoom, duration |
| **Inbound Data** | **PTZData** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**PTZData XML Block**

```
<PTZData version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <pan> <!-- opt, xs:integer, -100..100 --> </pan>
    <tilt> <!-- opt, xs:integer, -100..100 --> </tilt>
    <zoom> <!-- opt, xs:integer, -100.. 100--> </zoom>
   <Momentary>
        < duration>   <!—opt , xs:integer, milliseconds -->   </duration>
   </Momentary>
</PTZData>
```

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## 4.10 /ISAPI/PTZCtrl/channels/<ID>/relative

| /ISAPI/PTZCtrl/channels/<ID>/relative | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to move the position which is defined by positionX, positionY to the screen center and relative zoom for the device. |
| **Query** | positionX, positionY, relativeZoom |
| **Inbound Data** | **PTZData** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>Mouse clicking function | |

**PTZData XML Block**

```
<PTZData version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <Relative>
        <positionX> <!-- opt, xs:integer --> </positionX>
        <positionY> <!-- opt, xs:integer --> </positionY>
        <relativeZoom> <!-- opt, xs:integer, -100-.. 100---> </relativeZoom>
    </Relative>
</PTZData>
```

## 4.11 /ISAPI/PTZCtrl/channels/<ID>/absolute

| /ISAPI/PTZCtrl/channels/<ID>/absolute | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to move a particular PTZ channel to a absolute position which is defined by Absolute for the device. |
| **Query** | elevation, azimuth, absoluteZoom |
| **Inbound Data** | **PTZData** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br>Absolute position function<br><AbsoluteHigh> is high precision positioning which is accurate to a bit after the decimal point; For example elevation -900..2700 is corresponding to vertical -90.0-270.0 degree, and azimuth 0..3600 is corresponding to horizontal 0.0-360.0 degree, absoluteZoom is corresponding to zoom 0.0..100.0; | |

**PTZData XML Block**

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```
<PTZData version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <AbsoluteHigh>
        <elevation> <!-- opt, xs:integer, -900..2700 --> </elevation>
        <azimuth> <!-- opt, xs:integer, 0..3600 --> </azimuth>
        <absoluteZoom> <!-- opt, xs:integer,0.. 1000---> </absoluteZoom>
    </AbsoluteHigh>
</PTZData>
```

## 4.12 /ISAPI/PTZCtrl/channels/<ID>/digital

| /ISAPI/PTZCtrl/channels/<ID>/digital | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to move the position number which is defined by positionX, position to the screen center and digital zoom for the device. |
| **Query** | position, positionY, digitalZoomLevel |
| **Inbound Data** | **PTZData** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>Digital zoom function<br>digitalZoomLevel: 0 indicates that maintain the original image ratio. | |

**PTZData XML Block**

```
<PTZData version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
<Digital>
        <positionX> <!-- opt, xs:integer --> </positionX>
        <positionY> <!-- opt, xs:integer --> </positionY>
        <digitalZoomLevel> <!-- opt, xs:integer, 0.. 100---> </digitalZoomLevel>
    </Digital>
</PTZData>
```

## 4.13 /ISAPI/PTZCtrl/channels/<ID>/status

| /ISAPI/PTZCtrl/channels/<ID>/status | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get currently PTZ coordinate position for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZStatus** |

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**Notes:**

<AbsoluteHigh> is high precision positioning which is accurate to a bit after the decimal point; For example elevation -900..2700 is corresponding to vertical -90.0-270.0 degree, and azimuth 0..3600 is corresponding to horizontal 0.0-360.0 degree, absoluteZoom is corresponding to zoom 0.0..100.0;

**PTZStatus XML Block**

```
< PTZStatus version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <AbsoluteHigh>
        <elevation> <!-- opt, xs:integer, -900..2700 --> </elevation>
        <azimuth> <!-- opt, xs:integer, 0..3600 --> </azimuth>
        <absoluteZoom> <!-- opt, xs:integer,0.. 1000---> </absoluteZoom>
    </AbsoluteHigh>
</PTZStatus>
```

## 4.14 /ISAPI/PTZCtrl/channels/<ID>/presets

| /ISAPI/PTZCtrl/channels/<ID>/presets | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZPresetList** |
| **PUT** | |
| **Description** | It is used to update preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | **PTZPresetList** |
| **Success Return** | **ResponseStatus** |
| **POST** | |
| **Description** | It is used to add a preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | **PTZPreset** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete a preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |

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| | |
|---|---|
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**PTZPresetList XML Block**

```
<PTZPresetList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <PTZPreset>  <!-- opt -->
</PTZPresetList>
```

## 4.15 /ISAPI/PTZCtrl/channels/<ID>/presets/<ID>

| **/ISAPI/PTZCtrl/channels/<ID>/presets/<ID>** | **General Resource v2.0** |
|---|---|
| **GET** | |
| **Description** | It is used to get particular preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZPreset** |
| **PUT** | |
| **Description** | It is used to update particular preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | **PTZPreset** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete a particular preset configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br><id> indicates the preset number.<br><presetName> indicates the preset name<br>Enable is used to indicate whether preset have been set.<br><br>PUT is used to set preset and update title of new preset. (Enable value import to **PTZPreset** should be 1 when PUT ) | |

**PTZPreset XML Block**

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```
<PTZPreset version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <enabled>    <!-- req, xs:boolean -->    </enabled>
     <id> <!-- req, xs:string;id --> </id>
     <presetName> <!-- req, xs:string --> </presetName>
</PTZPreset>
```

## 4.16 /ISAPI/PTZCtrl/channels/<ID>/presets/<ID>/goto

| /ISAPI/PTZCtrl/channels/<ID>/presets/<ID>/goto | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to move a particular PTZ channel to a ID preset position for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

## 4.17 /ISAPI/PTZCtrl/channels/<ID>/patrols

| /ISAPI/PTZCtrl/channels/<ID>/presets | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get patrol configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZPatrolList** |
| **PUT** | |
| **Description** | It is used to update patrol configuration information of a particular PTZ channel for the device. |
| **Query** | None |
| **Inbound Data** | **PTZPatrolList** |
| **Success Return** | **ResponseStatus** |
| **POST** | |
| **Description** | It is used to add a patrol point configuration for a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **PTZPatrol** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete patrol configuration for a particular PTZ channel. |
| **Query** | None |

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| | |
|---|---|
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** It is similar to presets!! | |

**PTZPatrolList XML Block**

```
<PTZPatrolList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <PTZPatrol>  <!-- opt -->
</PTZPatrolList>
```

## 4.18 /ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>

| **/ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>** | **General Resource v2.0** |
|---|---|
| **GET** | |
| **Description** | It is used to get a particular patrol route configuration of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZPatrol** |
| **PUT** | |
| **Description** | It is used to update a particular patrol configuration of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **PTZPatrol** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete a particular patrol route configuration of a particular PTZ channel |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br><PatrolSequence> indicates the patrol point.<br>< presetID > indicates the preset number<br><seqSpeed> indicates the patrol speed<br><delay> indicates the dwell time, in seconds | |

**PTZPatrol XML Block**

```
<PTZPatrol version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <enabled>  <!-- req, xs:boolean -->  </enabled>
     <id> <!-- req, xs:string;id --> </id>
```

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```
    <patrolName> <!-- req, xs:string --> </patrolName>
    <resumeType> <!-- opt, xs:string, “relative,absolute” --> </resumeType>
     <PatrolSequenceList> <!-- req, at least one entry -->
          <PatrolSequence> <!-- req -->
               <presetID> <!-- req, xs:string;id --> </presetID>
               <seqSpeed> <!-- req, xs:string;id --> </seqSpeed>
               <delay> <!-- req, xs:integer, milliseconds --> </delay>
          </PatrolSequence>
     </PatrolSequenceList>
</PTZPatrol>
```

## 4.19 /ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/start

| **/ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/start** | **General Resource v2.0** |
|---|---|
| **PUT** | |
| **Description** | It is used to start running particular patrol route of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | ResponseStaus **ResponseStatus** |
| **Notes:** | |

## 4.20 /ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/stop

| **/ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/stop** | **General Resource v2.0** |
|---|---|
| **PUT** | |
| **Description** | It is used to stop running particular patrol route of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br>It is available to stop the patrol route which is in running state or in pause state. | |

## 4.21 /ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/pause

| **/ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/pause** | **General Resource v2.0** |
|---|---|
| **PUT** | |
| **Description** | It is used to pause particular patrol route which is in running state of a particular channel. |

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| | |
|---|---|
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>Patrolstart is used to restart patrol route.<br>It doesn't support dome at this moment. | |

## 4.22 /ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/status

| **/ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/status** | **General Resource v2.0** |
|---|---|
| **GET** | |
| **Description** | It is used to get particular patrol route state of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **PTZPatrolStatus** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>It doesn't support dome at this moment!! | |

**PTZPatrolStatus XML Block**

```
< PTZPatrolStatus version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
        <patrolID> <!-- req, xs:string;id --> </patrolID>
        <patrolStatus> <!-- req, xs:string, "running,stopped,paused" --> </patrolStatus>
</ PTZPatrolStatus>
```

## 4.23 /ISAPI/PTZCtrl/channels/<ID>/patrols/<ID>/schedule

| **/ISAPI/PTZCtrl/channels/<ID>/schedule** | **General Resource v2.0** |
|---|---|
| **GET** | |
| **Description** | It is used to get patrol schedule of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **TimeBlockList** |
| **PUT** | |
| **Description** | It is used to update patrol schedule of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **TimeBlockList** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

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## 4.24 /ISAPI/PTZCtrl/channels/<ID>/patterns

| /ISAPI/PTZCtrl/channels/<ID>/patterns | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get pattern configuration of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZPatternList** |
| **Notes:**<br>It is similar to presets!! | |

**PTZPatternList XML Block**

```
<PTZPatternList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <PTZPattern>    <!-- opt -->
</ PTZPatternList >
```

## 4.25 /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>

| /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID> | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get a particular pattern configuration of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZPattern** |
| **PUT** | |
| **Description** | It is used to update a particular pattern configuration of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **PTZPattern** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to delete a particular pattern configuration of a particular PTZ channel |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

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| |
|---|
| <space> x% indicates the remaining space for pattern |

**PTZPattern XML Block**

```
<PTZPattern version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <enabled> <!-- req, xs:boolean --> </enabled>
  <id> <!-- req, xs:integer --> </id>
  <space> <!-- req, xs:integer, 0..100--> </space>
</PTZPattern>
```

## 4.26/ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/recordstart

| **/ISPAI/PTZCtrl/channels/<ID>/patterns/<ID>/recordstart** | **General Resource** | **v2.0** |
|---|---|---|
| **PUT** | | |
| **Description** | It is used to start particular pattern information recording of a particular PTZ channel. | |
| **Query** | None | |
| **Inbound Data** | None | |
| **Success Return** | **ResponseStatus** | |
| **Notes:**<br>Remaining space information will be uploaded in real time during the recording process. | | |

## 4.27 /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/recordstop

| **/ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/recordstop** | **General Resource** | **v2.0** |
|---|---|---|
| **PUT** | | |
| **Description** | It is used to stop a particular pattern information recording of a particular PTZ channel | |
| **Query** | None | |
| **Inbound Data** | None | |
| **Success Return** | **ResponseStatus** | |
| **Notes:** | | |

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## 4.28 /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/start

| /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/start | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to start a particular pattern of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

## 4.29 /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/stop

| /ISAPI/PTZCtrl/channels/<ID>/patterns/<ID>/stop | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to stop a particular pattern which is in running status of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

## 4.30 /ISAPI/PTZCtrl/channels/<ID>/PTZOSDDisplay

| /ISAPI/PTZCtrl/channels/<ID>/PTZOSDDisplay | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get OSD display information of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZOSDDisplay** |
| **PUT** | |
| **Description** | It is used to update OSD display information of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **PTZOSDDisplay** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br><zoomlable> indicates the zoom progress bar display<br><azimuth> indicates the azimuth display<br><presetlable> indicates the preset title display | |

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**PTZOSDDisplay XML Block**

```
<PTZOSDDisplay version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <zoomlable>
        <!-- req, xs:strings, "2sec, 5sec, 10sec, alwaysclose, alwaysopen"-->
    </zoomlable>
    <azimuth>
        <!-- req, xs:strings, "2sec, 5sec, 10sec, alwaysclose, alwaysopen"-->
    </azimuth>
    <presetlable>
        <!-- req, xs:strings, "2sec, 5sec, 10sec, alwaysclose, alwaysopen"-->
    </presetlable>
</PTZOSDDisplay>
```

## 4.31 /ISAPI/PTZCtrl/channels/<ID>/parkaction

| /ISAPI/PTZCtrl/channels/<ID>/parkaction | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get park action information of a PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ParkAction** |
| **PUT** | |
| **Description** | It is used to update park action information of a PTZ channel. |
| **Query** | None |
| **Inbound Data** | **ParkAction** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><br><Parktime> Time span that will trigger an park action<br><Action> park action<br><ActionNum> park action number. It is used when park action is patrol, pattern or preset. For others, it is 0 | |

**ParkAction XML Block**

```
<ParkAction version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <enabled>  <!-- req, xs:boolean -->  </enabled>
    <Parktime>  <!-- req, xs:integer, seconds -->  </Parktime>
     <Action>
          <ActionType>
               <!-- req, xs:strings, "atuoscan, framescan, randomscan, panoramascan, patrol,
```

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```
    pattern, preset" -->
        </ActionType>
        <ActionNum>    <!-- req, xs:integer, 0..255-->    </ActionNum>
    </Action>
</ParkAction>
```

## 4.32 /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds

| /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get movement limitations of PTZ channels. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZLimitedList** |
| **Notes:** | |

**PTZLimitedList XML Block**

```
<PTZLimitedList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <PTZLimited>  <!-- opt -->
</ PTZLimitedList>
```

## 4.33 /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>

| /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID> | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get movement limitations of a PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **PTZLimited** |
| **PUT** | |
| **Description** | It is used to update movement limitations of a PTZ channel. |
| **Query** | None |
| **Inbound Data** | **PTZLimited** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |
| **Description** | It is used to clear movement limitations of a PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |

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| Notes: |
|---|
| It is used to get or set the parameter that whether movement limitation is enabled or disabled.<br>Speed dome add two types of movement limitation.<br><ID>=1 Manual control movement limitation <ID>=2 Panorama scan movement limitation |

**PTZLimited XML Block**

```
<PTZLimited version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <enabled>  <!-- req, xs:boolean -->  </enabled>
    <id> <!-- req, xs:string;id --> </id>
</PTZLimited>
```

## 4.34 /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>/Initialization

| /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>/Initialization | General Resource | v2.0 |
|---|---|---|
| **PUT** | | |
| **Description** | Set the start position of a movement limitation of a PTZ channel. | |
| **Query** | None | |
| **Inbound Data** | None | |
| **Success Return** | **ResponseStatus** | |
| **Notes:**<br>Only used when movement limitation is enabled. | | |

## 4.35 /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>/confirm

| /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>/confirm | General Resource | v2.0 |
|---|---|---|
| **PUT** | | |
| **Description** | Set other positions of a movement limitation of a PTZ channel. | |
| **Query** | None | |
| **Inbound Data** | None | |
| **Success Return** | **ResponseStatus** | |
| **Notes:**<br>Only used when movement limitation is enabled and Initialization already been used.<br>Order of the positions is left→right→up→down. Please save the settings after setup. | | |
| **Notes:**<br>Only used when movement limitation is enabled and Initialization already been used. | | |

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| |
|---|
| Order of the positions is left→right→up→down. Please save the settings after setup.<br><br>**boundary: left,right,up,down** |

## 4.36 /ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>/stop

| **/ISAPI/PTZCtrl/channels/<ID>/ptzlimiteds/<ID>/setstop** | **General Resource v2.0** |
|---|---|
| **PUT** | |
| **Description** | Set the start position of a movement limitation of a PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>Stop ptz limitation setting ， save boundary to device. | |

## 4.37 /ISAPI/PTZCtrl/channels/<ID>/saveptzpoweroff

| **/ISAPI/PTZCtrl/channels/<ID>/saveptzpoweroff** | **General Resource v2.0** |
|---|---|
| **GET** | |
| **Description** | It is used to get the PTZ power off memory settings information |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **savePtzpoweroff** |
| **PUT** | |
| **Description** | It is used to update the PTZ power off memory settings information |
| **Query** | None |
| **Inbound Data** | **savePtzpoweroff** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><savePtzPoweroff>Power off memory | |

**savePtzPoweroff XML Block**

```
<savePtzPoweroff version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <savePtzPoweroffType>
         <!-- req, xs:integer, "disable, 30sec, 60sec, 300sec, 600sec"-->
   </savePtzPoweroffType>
</savePtzPoweroff>
```

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## 4.38 /ISAPI/PTZCtrl/channels/<ID>/timetasks

| /ISAPI/PTZCtrl/channels/<ID>/timetasks | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get a list of tasks based on a schedule |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | TimeTaskList |
| **PUT** | |
| **Description** | It is used to update a list of tasks based on a schedule |
| **Query** | None |
| **Inbound Data** | TimeTaskList |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>GET is used to get a list of tasks of a whole week(7)<br><enabled>Enable all the tasks<br><Parktime> Time span for a task to resume. | |

**TimeTaskList XML Block**

```
<TimeTaskList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <enabled>    <!-- req, xs:boolean -->    </enabled>
   <Parktime>    <!-- req, xs:integer, seconds -->    </Parktime>
   <TimeTaskBlock /> <!-- opt -->
</TimeTaskList>
```

## 4.39 /ISAPI/PTZCtrl/channels/<ID>/timetasks/<ID>

| /ISAPI/PTZCtrl/channels/<ID>/timetasks/<ID> | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get a list of tasks of one day |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **TimeTaskBlock** |
| **PUT** | |
| **Description** | It is used to update a list of tasks of one day |
| **Query** | None |
| **Inbound Data** | **TimeTaskBlock** |
| **Success Return** | **ResponseStatus** |
| **DELETE** | |

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| | |
|---|---|
| **Description** | It is used to delete a list of tasks of one day |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |

**Notes:**

Tasks based on a schedule consist of time blocks ad tasked. This task is enabled always.
<TimeTaskBlock> get all the time span and tasks of one day
<dayOfWeek> specify the day of a week, ranging from 1 to 7
<TimeTaskRange> time span of each task. Up to ten time spans and 10 tasks are supported in one day.
<beginDateTime> specify the begin time of each task, ranig from 0:0:0-23:59:00, format is consistent to ISO 8601.
<endDateTime> specify the end time of each task, ranig from 0:0:0-23:59:00, format is consistent to ISO 8601. endDateTime should be larger than or equal to beginDateTime.
<TaskType> Tasks type
<TaskNum> Tasks number. Enabled when park action is patrol, pattern, preset or auxoutput, otherwise the value is 0.

**TimeTaskBlock XML Block**

```
<TimeTaskBlock version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <dayOfWeek>
    <!-- req, xs:integer, ISO8601 weekday number, 1=Monday, … -->
  </dayOfWeek>
  <TimeTaskRange>
    <TaskID><!-- req, xs:string;id --></TaskID>
    <beginTime> <!-- req, xs:time, ISO8601 time --> </beginTime>
    <endTime> <!-- req, xs:time, ISO8601 time --> </endTime>
    <Task>
      <TaskType>
        <!-- req, xs:strings, "disable, atuoscan, framescan, randomscan, panoramascan, patrol, pattern, preset, tiltscan,periodreboot,periodadjust,auxoutput" -->
      </TaskType>
      <TaskNum><!-- dep, xs:integer, 0.8--></TaskNum>
    </Task>
  </TimeTaskRange>
</TimeTaskBlock>
```

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## 4.40 /ISAPI/PTZCtrl/channels/<ID>/timetasks/<ID>/copytask

| /ISAPI/PTZCtrl/channels/<ID>/timetasks/<ID>/copytask | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get the default copy time of a tasks list of a specified PTZ channel. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | TimeTaskCopy |
| **PUT** | |
| **Description** | It is used to update the default copy time of a tasks list of a specified PTZ channel. |
| **Query** | None |
| **Inbound Data** | TimeTaskCopy |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br><curDayOfWeek> specify the current day of a week;<br><copyDayOfWeek> specify the days that will have the same settings as the current day; | |

**TimeTaskCopy XML Block**

```
<TimeTaskCopy version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
  <curDayOfWeek>
    <!-- req, xs:integer, ISO8601 weekday number, 1=Monday, … -->
  </curDay>
  <copyDayOfWeek>
    <!-- req, xs:integer, ISO8601 weekday number, 1=Monday, … -->
  </copyDay>
</TimeTaskCopy >
```

## 4.41 /ISAPI/PTZCtrl/channels/<ID>/auxcontrols

| /ISAPI/PTZCtrl/channels/<ID>/auxcontrols | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get auxillary PTZ control information of a specified PTZchannel. |
| **Query** | command |
| **Inbound Data** | None |
| **Success Return** | **PTZAuxList** |

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| PUT | |
|---|---|
| **Description** | It is used to update auxillary PTZ control information of a specified PTZchannel. |
| **Query** | command |
| **Inbound Data** | **PTZAuxList** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**PTZAuxList XML Block**

```
<PTZAuxList version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <PTZAux /> <!-- opt -->
</PTZAuxList>
```

## 4.42 /ISAPI/PTZCtrl/channels/<ID>/auxcontrols/<ID>

| /ISAPI/PTZCtrl/channels/<ID>/auxcontrols/<ID> | General Resource v2.0 |
|---|---|
| **GET** | |
| **Description** | It is used to get auxillary PTZ control information of a specified PTZchannel. |
| **Query** | Command |
| **Inbound Data** | None |
| **Success Return** | **PTZAux** |
| **PUT** | |
| **Description** | It is used to update auxillary PTZ control information of a specified PTZchannel. |
| **Query** | Command |
| **Inbound Data** | **PTZAux** |
| **Success Return** | **ResponseStatus** |
| **Notes:**<br>Auxillary Types:<br>LIGHT<br>WIPER<br>FAN<br>HEATER<br><status> may be "write only", due to ptz type | |

**PTZAux XML Block**

```
<PTZAux version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <id>    <!-- req, xs:string; id -->    </id>
    <type>    <!--req, ro, xs:string, "LIGHT, WIPER, FAN, HEATER" --> </type>
```

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```
    <status /> <!--req, xs:string, “on, off”>
</PTZAux>
```

## 4.43 /ISAPI/PTZCtrl/channels/<ID>/onepushfoucs/start

| /ISAPI/PTZCtrl/channels/<ID>/onepushfoucs/start | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to start focusing by pushing a key. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

## 4.44 /ISAPI/PTZCtrl/channels/<ID>/onepushfoucs/reset

| /ISAPI/PTZCtrl/channels/<ID>/onepushfoucs/reset | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to stop focusing by pushing a key. |
| **Query** | None |
| **Inbound Data** | None |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

## 4.45 /ISAPI/PTZCtrl/channels/<ID>/ManualTrace

| /ISAPI/PTZCtrl/channels/<ID>/ManualTrace | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to set manual tracking of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **ManualTrace** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**ManualTrace XML Block**

```
<ManualTrace version=“2.0” xmlns=“http://www.isapi.org/ver20/XMLSchema”>
```

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```
    <positionX> <!-- req, xs:integer --> </positionX>
    <positionY> <!-- req, xs:integer --> </positionY>
</ManualTrace>
```

## 4.46 /ISAPI/PTZCtrl/channels/<ID>/position3D

| /ISAPI/PTZCtrl/channels/<ID>/position3D | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | It is used to set 3D zoom of a particular PTZ channel. |
| **Query** | None |
| **Inbound Data** | **Position3D** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**Position3D XML Block**

```
<Position3D version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
    <StartPoint><!--0-255-->
        <positionX> <!-- req, xs:integer --> </positionX>
        <positionY> <!-- req, xs:integer --> </positionY>
    </StartPoint>
    <EndPoint>
        <positionX> <!-- req, xs:integer --> </positionX>
        <positionY> <!-- req, xs:integer --> </positionY>
    </EndPoint>
</Position3D>
```

## 4.47 /ISAPI/PTZCtrl/channels/<ID>/autoPan

| /ISAPI/PTZCtrl/channels/<ID>/autoPan | General Resource v2.0 |
|---|---|
| **PUT** | |
| **Description** | |
| **Query** | None |
| **Inbound Data** | **autoPanData** |
| **Success Return** | **ResponseStatus** |
| **Notes:** | |

**autoPanData XML Block**

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```
<autoPanData version="2.0" xmlns="http://www.isapi.org/ver20/XMLSchema">
   <autoPan>  <!-- req, xs:integer, 0..100 --></autoPan>
</autoPanData>
```

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