



## D5 Interface APIs

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The Next Generation Session and Resource Management (NG-SRM) architecture is an evolution of the Next Generation On Demand (NGOD) architecture intended to improve scalability, performance, and service velocity.

NG-SRM architecture adopts web services as the standard communication mechanism between different components.

D5 is HTTP over XML based interface between On Demand Resource Manager (ODRM) and Streaming Server component of Next Generation On Demand (NGOD) system.

This two way interface is used by Streaming Server to notify the ODRM of streaming server configuration and streaming server statistics/current resource usage and is also used by ODRM to query the streaming server status and current resource usage.

This chapter describes the format and content of the following D5 Interface APIs:

- [SetStreamingServerConfig](#), page 5-1
- [SetStreamingServerStatus](#), page 5-4
- [GetStreamingServerStatus](#), page 5-5

## SetStreamingServerConfig

The Streaming Server invokes the HTTP POST method to notify the ODRM of the Streaming Server configuration information. Since the configuration does not change frequently, this message is not exchanged often.



### Note

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The operational status is sent in a different message. Thus a configured device that suddenly has an output port failure will not report a configuration change, but rather reports a status change.

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### Request

Element: **StreamingServerconfig**

### Request Format

`http://<device-url>/odrm/StreamingServerConfig/<StreamingServerName>`

### Response

One of the following HTTP status codes is returned:

- 200 Ok—Request was successful.
- 400 Bad Request—Request parameters were incomplete or invalid.

The StreamingServerConfig element is returned in the XML body response.

Table 5-1 describes the XML body elements and attributes returned in the StreamingServerConfig element.

**Table 5-1 StreamingServerConfig**

Element	Attributes	Data Types	Descriptions
SetStreamingServerConfig	—	List element	Streaming Server Config message.
	xmlns	xs:string	Namespace for the XML which is always "urn:com:comcast:ngsrm:d5"
	protocolVersion	xs:integer	The protocol version number of the configuration. It is always "1" for the current version of software.
	componentName	xs:string	Name of the Streaming Server defined in the configuration.
	deviceStatus	xs:string	The operational status of the Streaming Server. Device Status across all ServerPorts in the Streaming Group is considered.
	modelName	xs:string	User defined string to represent the Streaming Server model.
	ManagementURLList	Subelement	List of control plane interface address on the streaming server.
	ServerPortList	Subelement	A list of streaming output ports.
	DeliveryProtocolList	Subelement	A list of supported content delivery protocols.
	PolicyList	Subelement	A list of standard policy definitions.
ManagementURLList	—	List element	List of control plane interface address on the streaming server.
ServerPortList	—	List element	List of streaming output ports.
	ServerPort	Subelement	The server port address.
ServerPort	—	List element	The server port address.
	ServerPortId	xs:string	Name or ID of the server port. It is composed of server name and port number.
	ServerPortStatus	xs:string	The operational status of the server port.
	maxBW	xs:integer	The Maximum aggregate bandwidth that can be delivered by a particular server port in kilobits per second.
	routerLoopBackAddress	xs:string	The loopback address of the router to which the server port is connected.

**Table 5-1 StreamingServerConfig**

Element	Attributes	Data Types	Descriptions
DeliveryProtocolList	—	List element	A list of supported content delivery protocols.
	DeliveryProtocol	Sub element	
PolicyList	—	List element	A list of standard policy definitions.
	Policy	Sub element	
	Name	xs:string	Name of the policy to be considered.
	Value	xs:integer	Associated integer value of the policy.

**Response Example:**

```

<StreamingServerConfig
  xmlns="urn:com:comcast:ngsrm:d5"
  protocolVersion="1"
  componentName="VIP"
  deviceStatus="OPERATIONAL"
  modelName="HCL!!!CISCO!!!">
  <ManagementURLList>
    <ManagementURL>10.78.178.116:554
  </ManagementURL>
  </ManagementURLList>
  <ServerPortList>
    <ServerPort
      serverPortId="SOP1"
      serverPortStatus="OPERATIONAL"
      routerLoopBackAddress="192.169.102.212"
      maxBW="10208000"/>
    <ServerPort
      serverPortId="SOP2"
      serverPortStatus="OPERATIONAL"
      routerLoopBackAddress="192.169.103.213"
      maxBW="4640000"/>
    <ServerPort
      serverPortId="SOP3"
      serverPortStatus="OPERATIONAL"
      routerLoopBackAddress="192.169.104.5"
      maxBW="5568000"/>
    <ServerPort
      serverPortId="SOP5"
      serverPortStatus="OPERATIONAL"
      routerLoopBackAddress="192.169.105.5"
      maxBW="4640000"/>
    <ServerPort
      serverPortId="SOP6"
      serverPortStatus="OFFLINE"
      routerLoopBackAddress="192.169.106.200"
      maxBW="1856000"/>
    <ServerPort
      serverPortId="SOP7"
      serverPortStatus="OPERATIONAL"
      routerLoopBackAddress="192.169.107.200"
      maxBW="928000"/>
  </ServerPortList>
  <DeliveryProtocolList>
    <DeliveryProtocol>UDP</DeliveryProtocol>
  </DeliveryProtocolList>
  <PolicyList>

```

```

    <Policy>
      <Name>nDVR</Name>
      <Value>1</Value>
    </Policy>
  </PolicyList>
</StreamingServerConfig>

```

## SetStreamingServerStatus

The Streaming Server calls the HTTP POST method to notify the ODRM of the Streaming Server status and current resource usage details.

### Request

Element: **StreamingServerStatus**

### Request Format

`http://<device-url>/odrm/StreamingServerStatus/<StreamingServerName>`

### Response

One of the following HTTP status codes is returned:

- 200 Ok—Request was successful.
- 400 Bad Request—Request parameters were incomplete or invalid.

The StreamingServerconfig element is returned in the XML body response.

[Table 5-2](#) describes the XML body elements and attributes returned in the StreamingServerconfig element.

**Table 5-2 StreamingServerStatus**

Element	Attributes	Data Types	Descriptions
StreamingServerStatus	—	List element	The status of the streaming server.
	componentName	xs:string	Name of the streaming server.
	deviceStatus	xs:string	The operational status of the streaming server.
ServerPortStatusList	—	List element	The status of all the server ports reported in the configuration.
	serverPortId	xs:string	The name or Id of the server port.
	serverPortStatus	xs:string	The operational status of the server port is displayed.
	streamCurrBW	xs:integer	Current Bandwidth usage on the server port for content delivery in kbps.
	streamAvailBW	xs:integer	Available Bandwidth usage on the server port for content delivery in kbps.

### Response Example:

```

<StreamingServerStatus
xmlns="urn:com:comcast:ngsrm:d5"
componentName="VIP"

```

```
deviceStatus="OPERATIONAL">
<ServerPortStatusList>
<ServerPortStatus serverPortId="SOP1"
serverPortStatus="OPERATIONAL"
streamCurrBW="3751"
streamAvailBW="7420249" />
<ServerPortStatus serverPortId="SOP2"
serverPortStatus="OPERATIONAL"
streamCurrBW="0"
streamAvailBW="3712000" />
<ServerPortStatus serverPortId="SOP3"
serverPortStatus="OPERATIONAL"
streamCurrBW="0"
streamAvailBW="3712000" />
<ServerPortStatus serverPortId="SOP5"
serverPortStatus="OPERATIONAL"
streamCurrBW="0"
streamAvailBW="3712000" />
<ServerPortStatus serverPortId="SOP6"
serverPortStatus="OFFLINE"
streamCurrBW="0"
streamAvailBW="0" />
<ServerPortStatus serverPortId="SOP7"
serverPortStatus="OPERATIONAL"
streamCurrBW="0"
streamAvailBW="928000" />
</ServerPortStatusList>
</StreamingServerStatus>
```

## GetStreamingServerStatus

The ODRM invokes the HTTP GET method to query the Streaming Server of its status and current resource usage information.

### Request

Element: **StreamingServerStatus**

### Request Format

`http://<device-url>/ss/StreamingServerStatus/<StreamingServerName>`

### Response

One of the following HTTP status codes is returned:

- 200 Ok—Request was successful.
- 400 Bad Request—Request parameters were incomplete or invalid.
- 401 Unauthorized
- 403 Forbidden
- 404 Not Found
- 500 Internal Server Error
- 503 Service Unavailable

The StreamingServerStatus element is returned in the XML body response.

Table 5-3 describes the XML body elements and attributes returned in the StreamingServerStatus element.

**Table 5-3 StreamingServerStatus**

Element	Attributes	Data Types	Descriptions
StreamingServerStatus	—	List element	The status of the streaming server.
	ServerPortStatus	Subelement	The operational status of the server port.
Component Name	—	xs:string	Name of the Streaming Server.
deviceStatus	Content	xs:string	The operational status of streaming server device.
ServerPortStatus	—	List element	The operational status of the server port.
	serverPortId	xs:string	The name or Id of the server port.
	serverPortStatus	xs:string	The operational status of the server port is displayed.
	streamCurrBW	xs:integer	Current Bandwidth usage on the server port for content delivery in kbps.
	streamAvailBW	xs:integer	Available Bandwidth usage on the server port for content delivery in kbps.

**Response Example:**

```
<StreamingServerStatus
  xmlns="urn:com:comcast:ngsrm:d5"
  componentName="VIP"
  deviceStatus="OPERATIONAL">
  <ServerPortStatusList>
  <ServerPortStatus serverPortId="SOP1"
    serverPortStatus="OPERATIONAL"
    streamCurrBW="3751"
    streamAvailBW="7420249" />
  <ServerPortStatus serverPortId="SOP2"
    serverPortStatus="OPERATIONAL"
    streamCurrBW="0"
    streamAvailBW="3712000" />
  <ServerPortStatus serverPortId="SOP3"
    serverPortStatus="OPERATIONAL"
    streamCurrBW="0"
    streamAvailBW="3712000" />
  <ServerPortStatus serverPortId="SOP5"
    serverPortStatus="OPERATIONAL"
    streamCurrBW="0"
    streamAvailBW="3712000" />
  <ServerPortStatus serverPortId="SOP6"
    serverPortStatus="OFFLINE"
    streamCurrBW="0"
    streamAvailBW="0" />
  </ServerPortStatusList>
</StreamingServerStatus>
```