Developer's Guide

AudioCodes Gateway, SBC and MSBR Series

REST API for Devices

Version 7.2

audiocodes

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Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used. Device refers to SBC and gateway.

Document Revision Record

LTRT	Description
41760	Initial document release.
41761	Updates for Version 7.0.
41762	Updates for Version 7.2.
41763	User levels per REST API resource (7.20A.204.012)
41764	Typo in performanceMonitoring example; trademarks
41765	Typo in password parameter.
41767	ConfigurationPackage path

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1 Overview

The REST API is designed for developers who wish to programmatically integrate the Mediant Gateway or SBC device into their solution and for administrators who wish to perform management and configuration tasks via automation scripts.

The REST API provides access to the resources via pre-defined URL paths. Each resource represents specific device configuration element, state object or maintenance action.

The REST API uses standard HTTP/1.1 protocol. For enhanced security it is recommended to secure the traffic via the use of HTTPS transport layer.

Standard HTTP methods – GET, PUT, POST and DELETE – are used to read the resource's state and to create/update/delete the resources (wherever applicable). Resource state is described in JSON format and included in the HTTP request or response bodies.

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2 User Privilege Levels and REST API Access

Each API URL resource (e.g., alarms/active) and HTTP method (GET, PUT, POST or DELETE) has a minimum user privilege (access) level. For example, only REST users with Security Administrator level can replace (PUT) the device's License Key.

REST users and their access levels (Monitor, Administrator, and Security Administrator) are configured in the Local Users table (like for other management interfaces).

REST users accessing through LDAP or RADIUS must have a minimum access level of 50 (read-only). For prohibited user access, the device responds with a 403 Forbidden Status.

User access to the REST API directories also depends on the user's access level:

Table 2-1: Minimum User Access Level per Directory

Direcory	Minimum User Level
/alarms	**Monitor**
/performancemonitoring	**Monitor**
/status	**Monitor**
/actions	**Administrator**
/files	**Administrator**
/license	**Administrator**

For a supported HTTP method, if access is denied due to a user's access level, a 403 Forbidden Status or 405 Method Not Allowed response is sent by the device. For requested resources that do not have any content, a 400 Bad Request response is sent.

The following table lists the REST API resources and the corresponding user access level per HTTP method supported for that resource.

Table 2-2: Minimum User Access Level per REST API Resource

REST-API	HTTP Method			
	GET	**PUT**	**POST**	**DELETE**
/api/v1/versions	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
actions/reset	405 Method Not Allowed	405 Method Not Allowed	**Administrator**	405 Method Not Allowed
actions/saveConfiguration	405 Method Not Allowed	405 Method Not Allowed	**Administrator**	405 Method Not Allowed
actions/authToken	405 Method Not Allowed	405 Method Not Allowed	**Security Administrator**	405 Method Not Allowed
actions	**Administrator**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
status	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
license	**Administrator**	**Security Administrator**	405 Method Not Allowed	405 Method Not Allowed

REST-API	HTTP Method			
	GET	PUT	POST	DELETE
alarms/active	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
alarms/history	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
alarms	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
performanceMonitoring	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
mc_status	**Monitor**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
files/ini	**Security Administrator**	**Security Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/ini/incremental	405 Method Not Allowed	**Security Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/cliScript/incremental	405 Method Not Allowed	**Security Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/cliScript	**Security Administrator**	**Security Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/software	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/software/hitless	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/cpt	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/prt	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/dialplan	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/casTable	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/amd	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/usersInfo	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/configurationPackage.tar.gz	**Security Administrator**	**Security Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/sbcWizard	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/fxs	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed
files/fxo	405 Method Not Allowed	**Administrator**	405 Method Not Allowed	405 Method Not Allowed

REST-API	HTTP Method			
	GET	**PUT**	**POST**	**DELETE**
files	**Administrator**	405 Method Not Allowed	405 Method Not Allowed	405 Method Not Allowed
files/tls	**Security Administrator**	**Security Administrator**	**Security Administrator**	405 Method Not Allowed

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3 Authentication and Session Establishment

The REST API is accessible via HTTP/HTTPS protocol at `/api/v1` prefix.

Example

```
GET /api/v1/status HTTP/1.1
Host: 10.4.219.229
```

```
HTTP/1.1 200 OK
Content-Type: application/json
{
    "localTimeStamp": "2010-01-17T17:29:15.000Z",
    "ipAddress": "10.4.219.229",
    "subnetMask": "255.255.0.0",
    "defaultGateway": "10.4.0.1",
    "productType": "Mediant SW",
    "versionID": "7.20A.200.014",
    "protocolType": "SIP",
    "operationalState": "UNLOCKED",
    "highAvailability": "Not Operational",
    "serialNumber": "101780235059663",
    "macAddress": "fa163e6e7e1d",
    "systemUpTime": 161446
}
```

Each REST request must be authenticated using HTTP Basic Authentication. Provided credentials (username-password) must correspond to a valid device user. Availability of specific REST API endpoints depends on user privilege level. For more information on REST API and user privilege levels, see Section User Privilege Levels and REST API Access on page 5.

Note: It is strongly recommended to use the HTTPS transport layer when accessing the REST API to mitigate security risks.

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4 Top-Level Folder

The `/api` URL serves as a root folder for accessing the REST API.

URL

```
/api
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "versions": [
        {
            "id": "v1",
            "status": "stable",
            "url": "/api/v1"
        }
    ]
}
```

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5 Navigation Tree

The `/api/v1` URL displays the complete navigation tree that is supported by the REST API. This tree is displayed below:

```
/api/v1
       /actions
          /reset                 // reset the device
          /saveConfiguration     // save configuration to NVRAM
          /authToken             // get authentication token
       /files                    // files upload/download
          /ini                   // INI configuration file
             /incremental        // incremental INI file
          /software              // CMP software file
          /cliScript             // CLI script
             /incremental        // incremental CLI script
          /tls/<id>              // TLS context files
             /privateKey         // private key
             /certificate        // device certificate
                /request         // certificate signing request
             /trustedRoot        // trusted root
          /...                   // other (auxiliary) files
       /alarms
          /active                // active alarms
          /history               // history alarms
       /license                  // license management
       /performanceMonitoring    // performance monitoring
       /status                   // device status
```

URL

```
/api/v1
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api/v1 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "items": [
        {
            "id": "actions",
```

```
            "description": "Device actions",
            "url": "/api/v1/actions"
        },
        {
            "id": "alarms",
            "description": "Device alarms",
            "url": "/api/v1/actions"
        },
        {
            "id": "files",
            "description": "Upload and download of
configuration files",
            "url": "/api/v1/files"
        },
        {
            "id": "license",
            "description": "License management",
            "url": "/api/v1/license"
        },
        {
            "id": "performanceMonitoring",
            "description": "Performance monitoring",
            "url": "/api/v1/performanceMonitoring"
        },
        {
            "id": "status",
            "description": "Device status",
            "url": "/api/v1/status"
        },
    ]
}
```

6 Actions

The `/actions` URL provides the ability to perform maintenance actions on the device.

URL

```
/api/v1/actions
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api/v1/actions HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "actions": [
        {
            "id": "reset",
            "description": "Reset device",
            "url": "/api/v1/actions/reset"
        },
        {
            "id": "saveConfiguration",
            "description": "Save device configuration to
NVRAM",
            "url": "/api/v1/actions/saveConfiguration"
        },
        {
            "id": "authToken",
            "description": "Get authentication token",
            "url": "/api/v1/actions/authToken"
        }
    ]
}
```

6.1 Reset Device

The `/actions/reset` URL performs a device reset.

URL

```
/api/v1/actions/reset
```

HTTP Method

```
POST
```

Supported Request JSON Attributes

Attribute	Type	Value	Description
saveConfiguration	Boolean	true	Store current configuration before reset (default).
		false	Do not store current configuration.
gracefulTimeout	Number	0	Perform reset immediately (default).
		1	Wait for all calls to finish, and then perform reset.
		<sec>	Wait for specified time (in seconds) for calls to finish, and then perform reset.

HTTP Responses

- `200 OK`
- `400 Bad request` – provided attributes or values are incorrect.
- `409 Conflict` – reset can't be performed due to current device state (e.g. synchronization with the redundant device is in progress).

Example

```
POST /api/v1/actions/reset HTTP/1.1
Host: 10.4.219.229
Content-Type: application/json
{
    "saveConfiguration": true,
    "gracefulTimeout": 0
}

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Device will reset now"
}

or

HTTP/1.1 409 Conflict
```

```
Content-Type: application/json
{
    "description": "Device is currently performing HA
synchronization"
}
```

6.2 Save Configuration

The `/actions/saveConfiguration` URL saves the device configuration to the non-volatile memory so that it'll be preserved if the device reboots or is powered down.

URL

```
/api/v1/actions/saveConfiguration
```

HTTP Method

```
POST
```

HTTP Responses

- `200 OK`
- `409 Conflict` – configuration can't be save due to current device state.

Example

```
POST /api/v1/actions/saveConfiguration HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
```

6.3 Auth Token

The `/actions/authToken` URL enables the retrieval of an authentication token that may be used to access device's Web interface without need to enter a username and a password. The generated authentication token has a limited lifetime and should be used within ten seconds after generation. In order to use the token, append it to device's URL as authToken parameter:

http://10.3.4.10/index.html?mode=web&authToken=4675cd93ab9f80f45a4ec0a934f81097

URL

```
/api/v1/actions/authToken
```

HTTP Method

```
POST
```

Supported Request JSON Attributes

Attribute	Type	Value	Description
username	String		Username for new session – to be used for activity logging and graphical display.
privLevel	String	admin operator monitor	Privilege level for new session. • admin – security administrator • operator – operator with administrative privileges (can alter configuration) • monitor – monitor user (can only view configuration)
sessionTimeout	Integer		Session timeout in seconds. (optional)
crossHost	String		IP address or hostname of 3rd party Web interface that integrates device's Web interface via IFRAME directive. Needed to prevent cross-site request forgery (CSRF) attacks. (optional)

HTTP Response

```
200 OK
```

Example

```
POST /api/v1/actions/authToken HTTP/1.1
Host: 10.4.219.229
Content-Type: application/json
{
    "username": "john",
    "privLevel": "admin",
    "sessionTimeout": 180,
    "crossHost": "10.3.2.40"
}
```

```
HTTP/1.1 200 OK
Content-Type: application/json
{
    "authToken": "4675cd93ab9f80f45a4ec0a934f81097",
    "description": "Authentication token successfully
generated"
}
```

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7 Files

The `/files` URL provides access to the various device configuration files.
The PUT method is used to modify the specific configuration file.
The GET method is used to get the specific configuration file (for files which support it).

URL

```
/api/v1/files
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api/v1/files HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/octet-stream
{
    "files": [
        {
            "id": "ini",
            "description": "INI configuration file",
            "url": "/api/v1/files/ini"
        },
        {
            "id": "software",
            "description": "Software load",
            "url": "/api/v1/files/software"
        },
        {
            "id": "cliScript",
            "description": "CLI configuration script",
            "url": "/api/v1/files/cliScript"
        },
        ...
    ]
}
```

7.1 File Encoding

7.1.1 File Upload Encoding

File upload (PUT) operations use multipart/form-data encoding.

Example

```
PUT /api/v1/files/cliScript/incremental HTTP/1.1
Host: 10.4.219.229
Authorization: Basic QWRtaW46QWRtaW4=
Content-Length: 210
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file"; filename="cli.txt"
Content-Type: application/octet-stream

show system version
------WebKitFormBoundary7MA4YWxkTrZu0gW--
```

Use the following code snippets to generate proper format.

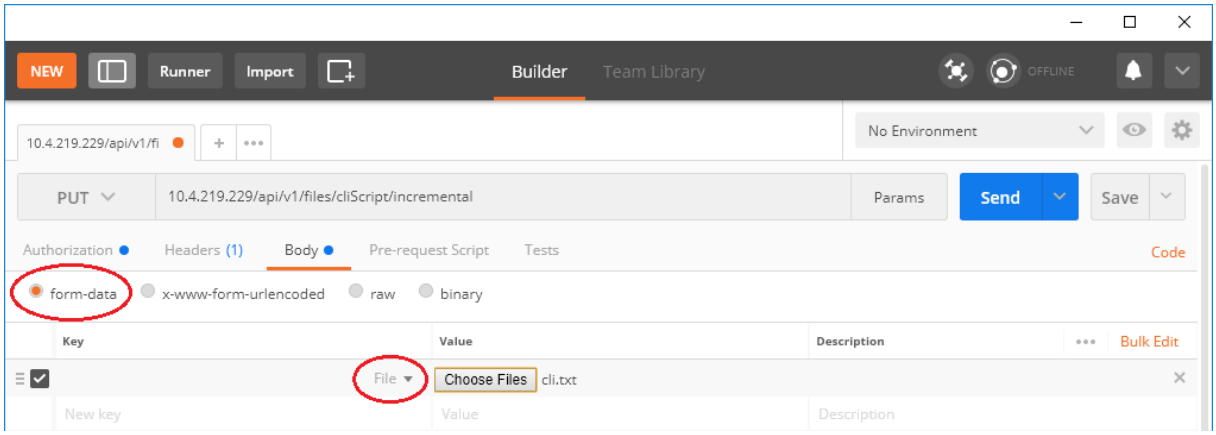
cURL

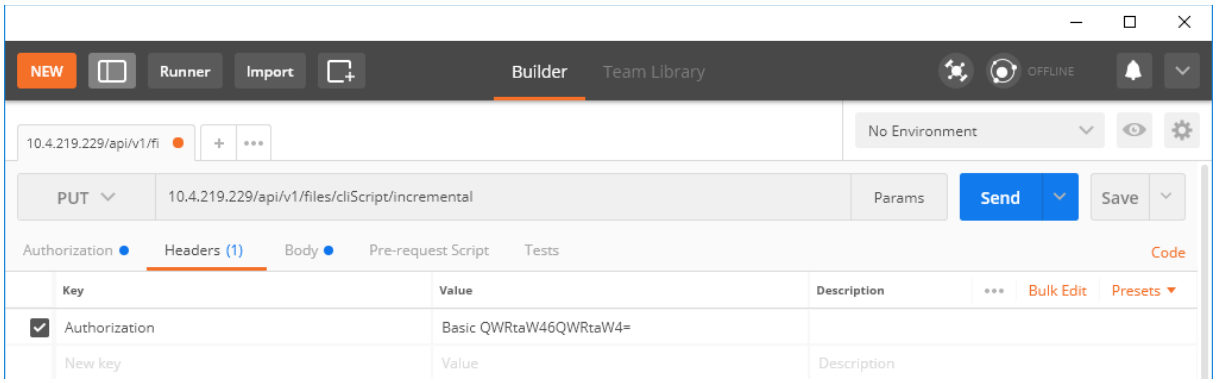
```
curl -i -X PUT -F "file=@cli.txt" -H "Expect:" --user Admin:Admin \
http://10.4.219.229/api/v1/files/cliScript/incremental
```

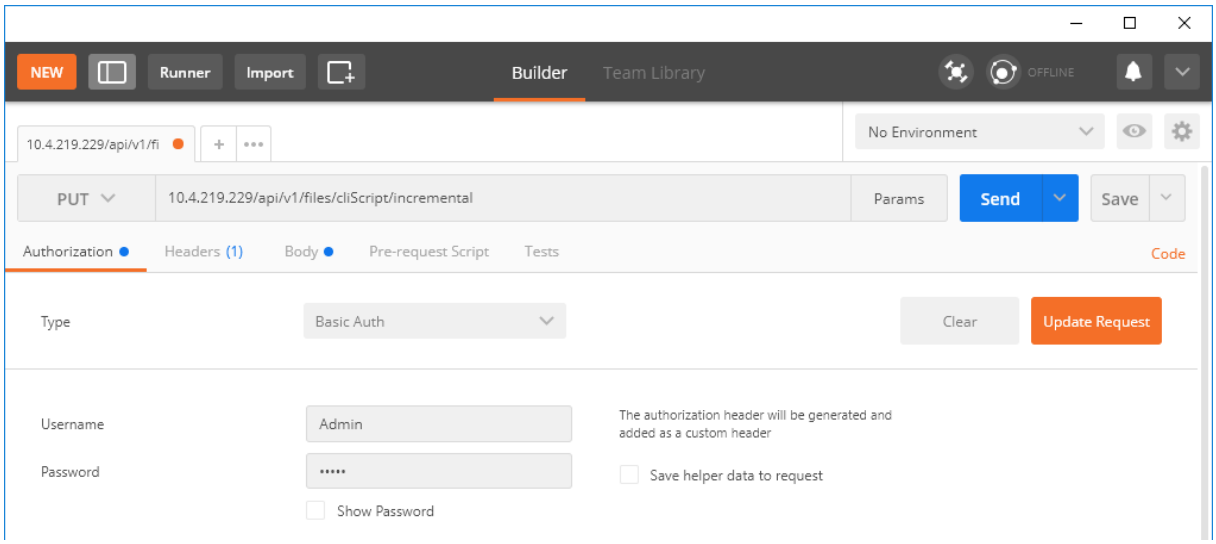
Python

```
import requests
import base64

def send_cli(ip, username, password, cli_script):
    url = 'http://' + ip + '/api/v1/files/cliScript/incremental'
    headers = {'Authorization': base64.b64encode(username + ':' +
password)}
    files = {'file': ('cli.txt', cli_script)}
    response = requests.put(url, files=files, headers=headers)
    return response.text

send_cli('10.4.219.229', 'Admin', 'Admin', 'show system version')
```

If you prefer to use the GUI tool, use Postman (https://www.getpostman.com) application or Chrome extension and set it up as follows:







7.1.2 File Download Encoding

Download (GET) operations use application/octet-stream encoding.

Example

```
GET /api/v1/files/ini HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/octet-stream

;**************
;** Ini File **
;**************

;Board: Mediant SW
;Board Type: 73
;Serial Number: 101780235059663
;Slot Number: 1
;Software Version: 7.20A.200.014
;DSP Software Version: SOFTDSP => 0.00
;Board IP Address: 10.4.219.229
;Board Subnet Mask: 255.255.0.0
...
```

7.2 INI File

The INI file is the main device configuration file.

7.2.1 Full INI File

The `/files/ini` URL provides the ability to upload or download an ini configuration file. Uploading of an ini file triggers device reset to activate the new configuration. Use `/files/ini/incremental` (see Section 7.2.2) to apply a partial configuration that doesn't require device reset.

URL

```
/api/v1/files/ini
```

HTTP Method

```
GET, PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` - provided ini file is incorrect.
- `409 Conflict` – ini file can't be loaded due to the current device state (e.g. synchronization with the redundant device is in progress).

Example

```
GET /api/v1/files/ini HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/octet-stream
<INI file>
```

Example

```
PUT /api/v1/files/ini HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file"; filename="ini.txt"
Content-Type: application/octet-stream

<INI File>
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Device will reset now to activate new
configuration"
}

or

HTTP/1.1 409 Conflict
Content-Type: application/json
{
    "description": "Device is currently performing HA
synchronization"
}
```

Note: The uploaded file gets transformed by the device; therefore the file content will differ when you download it.

7.2.2 Incremental INI File

The `/files/ini/incremental` URL provides the ability to upload an incremental (partial) ini file that can be applied to the device without reset.

URL

```
/api/v1/files/ini/incremental
```

HTTP Method

```
PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` - provided ini file is incorrect.
- `409 Conflict` – ini file can't be loaded due to the current device state (e.g. synchronization with the redundant device is in progress).

Example

```
PUT /api/v1/files/ini/incremental HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file"; filename="ini.txt"
Content-Type: application/octet-stream

<INI File>
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
```

7.3 CLI Script

The CLI configuration script is an alternative method (to the ini file) for detailing the device configuration.

7.3.1 Full CLI Script

The `/files/cliScript` URL provides the ability to upload or download a CLI configuration script. Uploading of a CLI script triggers device reset to activate the new configuration. Use `/files/cliScript/incremental` (see Section 7.2.2) to apply a partial configuration that doesn't require device reset.

Note: The full CLI script completely overrides the current device configuration in the same manner as the "copy startup-script from" CLI command. The provided script must contain configuration commands only and is typically generated by "show running-config" CLI command. If you need to run "show" commands or update device configuration – use incremental CLI script instead as described in Section 7.3.2.

URL

```
/api/v1/files/cliScript
```

HTTP Methods

```
GET, PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` - provided CLI script is incorrect.
- `409 Conflict` – CLI script can't be loaded due to the current device state (e.g. synchronization with the redundant device is in progress).

Example

```
GET /api/v1/files/cliScript HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/octet-stream
<CLI script>
```

Example

```
PUT /api/v1/files/ini/incremental HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
```

```
Content-Disposition: form-data; name="file"; filename="cli.txt"
Content-Type: application/octet-stream

<INI File>
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Device will reset now to activate new
configuration"
}

or

HTTP/1.1 409 Conflict
Content-Type: application/json
{
    "description": "Device is currently performing HA
synchronization"
}
```

Note: The uploaded file gets transformed by the device; therefore the file content will differ when you download it.

7.3.2 Incremental CLI Script

The `/files/cliScript/incremental` URL provides the ability to upload an incremental (partial) CLI script that can be applied to the device without reset.

The script may contain both configuration and "show" commands. Output of the script will be returned in the response.

Note: The incremental CLI script may not contain "action" commands that require user interaction and/or take long time. For example, the "copy" command is not supported in CLI script passed via REST API. If you need to trigger file transfer initiated by the device, use Automatic Update configuration instead – e.g.:

```
configure system
  automatic-update
    firmware http://audc.com/ssbc_7.20A.200.014.cmp
```

URL

```
/api/v1/files/cliScript/incremental
```

HTTP Method

```
PUT
```

Request Content-Type

```
application/json
```

HTTP Responses

- `200 OK`
- `400 Bad request` – provided CLI script is incorrect.
- `409 Conflict` – CLI script can't be loaded due to current device state (e.g. synchronization with the redundant device is in progress).

Example

```
PUT /api/v1/files/cliScript/incremental HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file"; filename="cli.txt"
Content-Type: application/octet-stream

show system version
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
```

```
{
    "description": "Incremental CLI Script file was loaded.",
    "output": ". Version info:. -------------. ;Board:
Mediant SW. . ;Board Type: 73. . ;Serial Number:
137172915378947. . ;Slot Number: 1. . ;Software Version:
7.20A.201.357. . ;ISO Version: Mediant Software E-SBC (ver
7.20A.156.028). . ;DSP Software Version: SOFTDSP => 0.00. .
;Board IP Address: 10.4.219.242. . ;Board Subnet Mask:
255.255.0.0. . ;Board Default Gateway: 10.4.0.1. . ;Ram size:
3829M   Flash size: 0M. . ;Num of DSP Cores: 1  Num DSP
Channels: 1022. . ;Profile: NONE . . ;;;Key features:;Board
Type: Mediant SW ;Max SW Ver: 9.80;FXSPorts=0 ;FXOPorts=0 ;QOE
features: VoiceQualityMonitoring MediaEnhancement ;DATA
features: ;Channel Type: DspCh=0 ;HA ;IP Media:
ExtVoicePrompt=0MB ;Security: MediaEncryption StrongEncryption
EncryptControlProtocol ;DSP Voice features: ;Control
Protocols: MSFT FEU=3 SIPRec=3 WebRTC MGCP SIP SBC=3 ;Default
features:;Coders: G711 G726;. . . . ;MAC Addresses in use:. ;-
-------------------------. ;GROUP_1 - fa:16:3e:5f:9a:64. ;---
-----------------------------------------. . . . "
}
```

7.4 Software Load

The `/files/software` URL provides the ability to modify the device software load. Uploading of the software load triggers a device reset to activate it.

URL

```
/api/v1/files/software
```

HTTP Method

```
PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` – provided software load is incorrect.
- `409 Conflict` – software load can't be applied due to the current device state (e.g. synchronization with the redundant device is in progress).

Example

```
PUT /api/v1/files/software HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file";
filename="software.cmp"
Content-Type: application/octet-stream

<cmp file>
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Device will reset now to activate new
software load"
}

or

HTTP/1.1 409 Conflict
Content-Type: application/json
{
    "description": "Device is currently performing HA
synchronization"
}
```

7.4.1 Hitless Software Upgrade

The `/files/software/hitless` URL provides the ability to upgrade the software load on an HA system via the "hitless" procedure (without service interruption).

URL

```
/api/v1/files/software/hitless
```

HTTP Method

```
PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` – provided software load is incorrect.
- `409 Conflict` – software load can't be applied due to the current device state (e.g. synchronization with the redundant device is in progress).

Example

```
PUT /api/v1/files/software/hitless HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file";
filename="software.cmp"
Content-Type: application/octet-stream

<cmp file>
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Device will perform switchover to activate
new software load"
}

or

HTTP/1.1 409 Conflict
Content-Type: application/json
{
    "description": "Device is currently performing HA
synchronization"
}
```

7.5 Additional Files

Additional files (e.g. auxiliary files) can be loaded to the device using the same mechanism as described in Section 7.4.

The following additional files are supported:

- `/files/amd` – answering machine detection
- `/files/castable` – CAS table
- `/files/codertable` – external coders table
- `/files/cpt` – call progress tones
- `/files/dialplan` – dialing plan
- `/files/prt` – pre-recorded tones
- `/files/voiceprompts` – voice prompts
- `/files/configurationPackage.tar.gz` – configuration package
- `/files/sbcWizard` – SBC wizard template package

URL

```
/api/v1/files/<filename>
```

HTTP Method

```
PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` – provided software load is incorrect.
- `409 Conflict` – software load can't be applied due to the current device state (e.g. synchronization with the redundant device is in progress).

Example

```
PUT /api/v1/files/cpt HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file";
filename="tones.cpt"
Content-Type: application/octet-stream

<call progress tones file>
------WebKitFormBoundary7MA4YWxkTrZu0gW--
```

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8 TLS Context Files

The `/files/tls` URL provides access to the device certificates, private key and trusted root certificates of the TLS context.

URL

```
/api/v1/files/tls
```

HTTP Method

```
GET
```

HTTP Response

- `200 OK`

Example

```
GET /api/v1/files/tls HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "tls": [
        {
            "id": "0",
            "name": "default",
            "url": "/api/v1/files/tls/0"
        }
}
```

Note: The creation / configuration / removal of TLS contexts should be performed via other APIs – e.g. by uploading incremental ini file or CLI script as described in Sections 7.2and7.3. The APIs described in this chapter are for manipulation of “files” associated with existing TLS contexts.

8.1 Selecting TLS Context

The `/files/tls/<id>` URL provides access to the specific TLS context by its <id>.

URL

```
/api/v1/files/tls/<id>
```

HTTP Method

```
GET
```

HTTP Responses

- 200 OK

Example

```
GET /api/v1/files/tls/2 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "items": [
        {
            "id": "privateKey",
            "description": "Private key",
            "url": "/api/v1/files/tls/2/privateKey"
        },
        {
            "id": "certificate",
            "description": "TLS certificate",
            "url": "/api/v1/files/tls/2/certificate"
        },
        {
            "id": "trustedRoot",
            "description": "Trusted root",
            "url": "/api/v1/files/tls/2/trustedRoot"
        }
    ]
}
```

8.2 Private Key

The `/files/tls/<id>/privateKey` URL provides access to the private key of the specific TLS context. You may verify the size and validity of the current private key or upload a new private key to the device. When uploading (via PUT method), the private key must be specified in PEM format.

Note: In accordance with the best security practices, it is impossible to extract (download) the private key from the device.

URL

```
/api/v1/files/tls/<id>/privateKey
```

HTTP Method

```
GET, PUT
```

Supported Parameters (for PUT request)

Parameter	Type	Description
password	String	(optional) Password of the private key. Default = <none>.

HTTP Responses

- `200 OK`
- `400 Bad request` – provided private key file is incorrect (e.g. not in PEM format or has invalid size).
- `409 Conflict` – private key can't be loaded due to current device state (e.g. redundant board is synchronizing).

Example 1

```
GET /api/v1/files/tls/2/privateKey HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "size": 1024,
    "valid": True  // as per "Private Key" status in Web
}
```

Example 2

```
PUT /api/v1/files/tls/2/privateKey HTTP/1.1
```

```
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file"; filename="key.pem"
Content-Type: application/octet-stream

-----BEGIN RSA PRIVATE KEY-----
zg1X8vSyH/ED929hjGNF1hAxmIVIgdQdGG3kkWnlmI+4X4kLA3TMHPIkYjwaGPhH
2cdpdkm8KXg8H/hzVIaf/qB6QyiL84d/zRtAG8FlfHVaBxkOlSp/kLzHSVT4iD/J
...
YxlA9aGrlI+wsk/h80YFO1y6LwYSfgUaFPdJ11sOjz5bpVTpwT5P0DwT4cPfHRnQ
33Hn3pxbYq22t5Q6r2RE8DEMUAN8gVQ6Ec2JYp901NrQhM4GCHm+mw==
-----END RSA PRIVATE KEY-----
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Private key was successfully changed"
}
```

8.2.1 Generate New Private Key

The `/files/tls/<id>/privateKey/generate` URL provides the ability to generate a new private key. The generation occurs on the device and therefore this method is considered to be more secure than the uploading of the private key as described in Section 8.2.

URL

```
/api/v1/files/tls/<id>/privateKey/generate
```

HTTP Method

```
POST
```

Supported Request JSON Attributes

Parameter	Type	Value	Description
size	Number	512, 768, 1024, 2048, 4096	Size of the generated private key. Default = 1024.

HTTP Responses

- 200 OK

- `400 Bad request` – provided parameters or values are incorrect
- `409 Conflict` – private key can't be generated due to current device state (e.g. redundant board is synchronizing)

Example

```
POST /api/v1/files/tls/2/privateKey/generate HTTP/1.1
Host: 10.4.219.229
Content-Type: application/json
{
    "size": 2048
}

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Private key was successfully generated"
}
```

8.3 Device Certificate

The `/files/tls/<id>/certificate` URL provides access to the device certificate of the specific TLS context. You may download the current certificate or upload a new one. When uploading (via PUT method), the certificate must be specified in PEM format.

URL

```
/api/v1/files/tls/<id>/certificate
```

HTTP Methods

```
GET, PUT
```

HTTP Responses

- `200 OK`
- `400 Bad request` – provided certificate file is wrong (e.g. not in PEM format)
- `409 Conflict` – certificate can't be loaded due to current device state (e.g. redundant board is synchronizing).

Example 1

```
GET /api/v1/files/tls/2/certificate HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/octet-stream
-----BEGIN CERTIFICATE-----
MIIDMjCCAhqgAwIBAgIBBDANBgkqhkiG9w0BAQUFADAfMQwwCgYDVQQKEwNBQ0wx
DzANBgNVBAMTBlJvb3RDQTAeFw0wMDAxMDEwMDAwMDBaFw0zMDAxMDEwMDAwMDBa
```

```
...
EcqvMKSuAmR8Csl5STrVo+7m4IgEYCTrRZ1hVL/wB8PSD51sg4lGyhos97Q7kH0w
T9cKHStw
-----END CERTIFICATE-----
```

Example 2

```
PUT /api/v1/files/tls/2/certificate HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file";
filename="cert.pem"
Content-Type: application/octet-stream

-----BEGIN CERTIFICATE-----
MIIDMjCCAhqgAwIBAgIBBDANBgkqhkiG9w0BAQUFADAfMQwwCgYDVQQKEwNBQ0wx
DzANBgNVBAMTBlJvb3RDQTAeFw0wMDAxMDEwMDAwMDBaFw0zMDAxMDEwMDAwMDBa
...
EcqvMKSuAmR8Csl5STrVo+7m4IgEYCTrRZ1hVL/wB8PSD51sg4lGyhos97Q7kH0w
T9cKHStw
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Certificate was successfully changed"
}
```

8.4 Generate Self-Signed Certificate

The `/files/tls/<id>/certificate/generate` URL generates a new self-signed device certificate for the specific TLS context.

URL

```
/api/v1/files/tls/<id>/certificate/generate
```

HTTP Method

```
POST
```

Supported Request JSON attributes:

Parameter	Type	Description
subjectName	String	Subject name [CN] of the generated certificate. Default = <empty>.

organizationalUnit	String	Organizational unit [OU] of the generated certificate. Default = <empty>.
companyName	String	Company name [O] of the generated certificate. Default = <empty>.
localityName	String	Locality of city name [L] of the generated certificate. Default = <empty>.
state	String	State [ST] of the generated certificate. Default = <empty>.
countryCode	String	Country code [C] of the generated certificate. Default = <empty>.

Supported Responses

- `200 OK`
- `400 Bad request` – provided certificate file is wrong (e.g. not in PEM format)
- `409 Conflict` – private key can't be loaded due to current device state (e.g. redundant board is synchronizing).

Example

```
POST /api/v1/files/tls/2/certificate/generate HTTP/1.1
Host: 10.4.219.229
Content-Type: application/json
{
    "subjectName": "lync-gw.company.com"
}

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Self-signed certificate was successfully
generated"
}
```

8.5 Generate Certificate Signing Request

The `/files/tls/<id>/certificate/generate` URL generates a new certificate signing request (CSR) for the specific TLS context. The generated CSR is returned in the response.

URL

```
/api/v1/files/tls/<id>/certificate/request
```

HTTP Method

```
POST
```

Supported Request JSON attributes

Parameter	Type	Description
subjectName	String	Subject name [CN] of the generated certificate. Default = <empty>.
organizationalUnit	String	Organizational unit [OU] of the generated certificate. Default = <empty>.
companyName	String	Company name [O] of the generated certificate. Default = <empty>.
localityName	String	Locality of city name [L] of the generated certificate. Default = <empty>.
state	String	State [ST] of the generated certificate. Default = <empty>.
countryCode	String	Country code [C] of the generated certificate. Default = <empty>.
signatureAlgorithm	String sha1 | sha256 | sha512	Signature algorithm to be used for the certificate signing request; default=sha1

Supported Responses

- `200 OK`
- `400 Bad request` – provided certificate file is incorrect (e.g. it is not in PEM format)
- `409 Conflict` – private key can't be loaded due to current device state (e.g. redundant board is synchronizing).

Example

```
POST /api/v1/files/tls/2/certificate/request HTTP/1.1
Host: 10.4.219.229
Content-Type: application/json
{
    "subjectName": "lync-gw.company.com"
}

HTTP/1.1 200 OK
Content-Type: application/octet-stream
-----BEGIN CERTIFICATE REQUEST-----
MIIBZDCBzgIBADAlMRUwEwYDVQQDDAxGQTE2M0VGM0IxREUxDDAKBgNVBAoMA0FD
TDCBnzANBgkqhkiG9w0BAQEFAAOBjQAwgYkCgYEA5sVNvmrwFaPkJUE2zA8TSR78
...
```

```
+pa+sF+F+N9HPQ0hqsvBtNJTL5dOEICBYcqYTx5+zqi38WAwHml4VGqduBofZWB2
pEqNck3yG/k8Hmm2pbTUFEE5XpVc6Lcu
-----END CERTIFICATE REQUEST-----
```

8.6 Trusted Root Certificates

The `/files/tls/<id>/trustedRoot` URL provides access to the trusted root store of the specific TLS context. You may download the current content of the store (multiple trusted root certificates) or upload the new content of the store. When uploading (via PUT method), certificates must be specified in PEM format. Mutiple certficates may be specified one after another.

Note: This API uploads and downloads complete trusted root store (that may contain multiple certificates). If you need to modify trusted root store by uploading an additional trusted root certificate – use `trustedRoot/incremental` API instead as described in Section 8.7.

URL

```
/api/v1/files/tls/<id>/trustedRoot
```

HTTP Method

```
GET, PUT
```

Supported Responses

- `200 OK`
- `400 Bad request` – provided certificate file is wrong (e.g. not in PEM format)
- `409 Conflict` – private key can't be loaded due to current device state (e.g. redundant board is synchronizing).

Example 1

```
GET /api/v1/files/tls/2/trustedRoot HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/octet-stream

-----BEGIN CERTIFICATE-----
MIIC7jCCAdagAwIBAgIBBjANBgkqhkiG9w0BAQUFADAgMQwwCgYDVQQKEwNBQ0wx
EDAOBgNVBAMUB0NBXzI0MzkwHhcNMDAwMTAxMDAwMDAwWhcNMzAwMTAxMDAwMDAw
...
kedoijcGdGJ9xA0bZa/lFqQQWPnKn735B5d5yjGPStHrh4QgtMaK6x3RmMnuPjoo
nK4zC2nJLBYcTpJUlAQvEFsoiLaBmyJl0wNF8HY3IgcT8g==
-----END CERTIFICATE-----

-----BEGIN CERTIFICATE-----
MIIC7jCCAdagAwIBAgIBBTANBgkqhkiG9w0BAQUFADAgMQwwCgYDVQQKEwNBQ0wx
EDAOBgNVBAMUB0NBXzI0MzkwHhcNMDAwMTAxMDAwMDAwWhcNMzAwMTAxMDAwMDAw
```

```
...
3PTmpOih9jPFd69pjzg0zDef8E3JsmYfQUHiokwnkcpC6od8WRu4JMnE9jQ4cARi
apkJGofjnELCq4ym/JjskqMSBhNpBUz93/xxZlf25K1XIQ==
-----END CERTIFICATE-----
```

Example 2

```
PUT /api/v1/files/tls/2/trustedRoot HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file";
filename="trust.pem"
Content-Type: application/octet-stream

-----BEGIN CERTIFICATE-----
MIIC7jCCAdagAwIBAgIBBjANBgkqhkiG9w0BAQUFADAgMQwwCgYDVQQKEwNBQ0wx
EDAOBgNVBAMUB0NBXzI0MzkwHhcNMDAwMTAxMDAwMDAwWhcNMzAwMTAxMDAwMDAw
...
kedoijcGdGJ9xA0bZa/lFqQQWPnKn735B5d5yjGPStHrh4QgtMaK6x3RmMnuPjoo
nK4zC2nJLBYcTpJUlAQvEFsoiLaBmyJl0wNF8HY3IgcT8g==
-----END CERTIFICATE-----

-----BEGIN CERTIFICATE-----
MIIC7jCCAdagAwIBAgIBBTANBgkqhkiG9w0BAQUFADAgMQwwCgYDVQQKEwNBQ0wx
EDAOBgNVBAMUB0NBXzI0MzkwHhcNMDAwMTAxMDAwMDAwWhcNMzAwMTAxMDAwMDAw
...
3PTmpOih9jPFd69pjzg0zDef8E3JsmYfQUHiokwnkcpC6od8WRu4JMnE9jQ4cARi
apkJGofjnELCq4ym/JjskqMSBhNpBUz93/xxZlf25K1XIQ==
-----END CERTIFICATE-----
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Trusted root store was successfully
changed"
}
```

8.7 Add Certificate to Trusted Root Store

The `/files/tls/<id>/trustedRoot/incremental` URL adds additional certificate to the trusted root store.

URL

```
/api/v1/files/tls/<id>/trustedRoot/incremental
```

HTTP Method

```
PUT
```

Supported Responses

- `200 OK`
- `400 Bad request` – provided certificate file is wrong (e.g. not in PEM format)
- `409 Conflict` – private key can't be loaded due to current device state (e.g. redundant board is synchronizing).

Example

```
PUT /api/v1/files/tls/2/trustedRoot/incremental HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file";
filename="trust.pem"
Content-Type: application/octet-stream

-----BEGIN CERTIFICATE-----
MIIC7jCCAdagAwIBAgIBBjANBgkqhkiG9w0BAQUFADAgMQwwCgYDVQQKEwNBQ0wx
EDAOBgNVBAMUB0NBXzI0MzkwHhcNMDAwMTAxMDAwMDAwWhcNMzAwMTAxMDAwMDAw
...
kedoijcGdGJ9xA0bZa/lFqQQWPnKn735B5d5yjGPStHrh4QgtMaK6x3RmMnuPjoo
nK4zC2nJLBYcTpJUlAQvEFsoiLaBmyJl0wNF8HY3IgcT8g==
-----END CERTIFICATE-----
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Trusted root certificate was successfully
added"
}
```

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9 Alarms

The `/alarms` URL provides the ability to retrieve the device active and history alarms.

URL

```
/api/v1/alarms
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api/v1/alarms HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "alarms": [
        {
            "id": "active",
            "description": "Active alarms",
            "url": "/api/v1/alarms/active"
        },
        {
            "id": "history",
            "description": "History alarms",
            "url": "/api/v1/alarms/history"
        }
    ]
}
```

9.1 Active Alarms

The `/alarms/active` URL provides the ability to retrieve active device alarms.

URL

```
/api/v1/alarms/active
```

HTTP Method

```
GET
```

Supported Parameters

Parameter	Type	Description
?limit=<value>	Number	Limits response to a specified number of alarms. Note that the device may return fewer alarms – e.g. if no more alarms exist or if the user-specified number is too large. Default = 20.
?after=<value>	as returned in previous response	Returns alarms after the alarm specified by the cursor. The cursor value should be taken from "cursor" element in the previous response.
?before=<value>	as returned in previous response	Returns alarms before the alarm specified by the cursor (backwards search). The cursor value should be taken from the "cursor" element in the previous response.

HTTP Responses

- `200 OK`
- `204 No Content` – when no alarms are found

Example 1

```
GET /api/v1/alarms/active HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "alarms": [
        {
            "id": "1",
            "description": "Trunk is down",
            "url": "/api/v1/alarms/active/1"
        },
        {
            "id": "2",
            "description": "Device will explode in 15 min",
```

```
            "url": "/api/v1/alarms/active/2"
        }
    ],
    "cursor": {
        "after": "2",
        "before": "-1"
    }
}
```

The `200 OK` response includes the "cursor" structure that includes "before" and "after" cursors that may be used in consequent requests. Value "-1" indicates than no more alarms before or after exist.

Example 2

```
GET /api/v1/alarms/active?after=2 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "alarms": [
        {
            "id": "3",
            "description": "Intrusion detected",
            "url": "/api/v1/alarms/active/3"
        }
    ],
    "cursor": {
        "after": "-1",
        "before": "3"
    }
}
```

Example 3

```
GET /api/v1/alarms/active?after=3 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 204 No Content
```

9.1.1 Specific Active Alarm

Use the following URL to retrieve a specific active alarm.

URL

```
/api/v1/alarms/active/<id>
```

HTTP Method

```
GET
```

Supported Parameters

Parameter	Type	Description
?oid=<value>	Number	If value 1 is specified, response will include “oid” attribute that indicated OID of the corresponding SNMP trap. Default = 0.

HTTP Responses

- `200 OK`
- `404 Not Found` – when alarm is not found

Example

```
GET /api/v1/alarms/active/1 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "id": "1",
    "description": "Trunk is down",
    "severity": "Major",
    "source": "Board#1",
    "date": "2010-03-01T23:00:00.000Z",
    "url": "/api/v1/alarms/active/1"
}
```

9.1.2 Time of the Last Active Alarm

Use the following URL to retrieve the last time when there was a change to the Active alarms table

URL

```
/api/v1/alarms/active/lastChange
```

HTTP Method

```
GET
```

HTTP Responses

- `200 OK`
- `404 Not Found` – when alarm is not found

The returned value represents the local device time when last active alarm was raised or cleared in RFC3339 format.

Example

```
GET /api/v1/alarms/active/lastChange HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "lastChange": "2016-06-09 19:00:00+03:00"
}
```

9.2 Alarm History

The `/alarms/history` URL provides the ability to retrieve device alarms history, including all alarms raised and cleared by the device since the last reboot.

URL

```
/api/v1/alarms/history
```

HTTP Method

```
GET
```

Supported Parameters

Parameter	Type	Description
?limit=<value>	Number	Limits response to a specified number of alarms. Note that the device may return fewer alarms – e.g. if no more alarms exist or if the user-specified number is too large. Default = 20.
?after=<value>	As returned in previous response	Returns alarms after the alarm specified by the cursor. The cursor value should be taken from the "cursor" element in the previous response.
?before=<value>	As returned in previous response.	Returns alarms before the alarm specified by the cursor (backwards search). The cursor value should be taken from the "cursor" element in the previous response.

HTTP Responses

- `200 OK`
- `204 No Content` – when no alarms are found

Example

```
GET /api/v1/alarms/history HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "alarms": [
        {
            "id": "1",
            "description": "Trunk is down",
            "url": "/api/v1/alarms/active/1"
        },
        {
            "id": "2",
```

```
            "description": "Device will explode in 15 min",
            "url": "/api/v1/alarms/active/2"
        }
    ],
    "cursor": {
        "after": "2",
        "before": "-1"
    }
}
```


The 200 OK response includes a “cursor” structure that includes “before” and “after” cursors that may be used in consequent requests. The value “-1” indicates than no more alarms before or after exist.

9.2.1 Specific History Alarm

Use the following URL to retrieve a specific history alarm.

URL

```
/api/v1/alarms/history/<id>
```

HTTP Method

```
GET
```

Supported Parameters

Parameter	Type	Description
?oid=<value>	Number	If value 1 is specified, response will include “oid” attribute that indicated OID of the corresponding SNMP trap. Default = 0.

HTTP Responses

- 200 OK
- 404 Not Found

Example

```
GET /api/v1/alarms/history/1 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "id": "1",
    "description": "Trunk is down",
    "severity": "Major",
    "source": "Board#1",
    "date": "2010-03-01T23:00:00.000Z",
    "url": "/api/v1/alarms/history/1"
}
```

10 Device Status

The `/status` URL displays the device status summary.

URL

```
/api/v1/status
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api/v1/status HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "localTimeStamp": "2010-01-17T17:29:15.000Z",
    "ipAddress": "10.4.219.229",
    "subnetMask": "255.255.0.0",
    "defaultGateway": "10.4.0.1",
    "productType": "Mediant SW",
    "versionID": "7.20A.200.014",
    "protocolType": "SIP",
    "operationalState": "UNLOCKED",
    "highAvailability": "Not Operational",
    "serialNumber": "101780235059663",
    "macAddress": "fa163e6e7e1d",
    "systemUpTime": 161446
}
```

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11 Performance Monitoring

The `/performanceMonitoring` URL provides access to performance measurements (PMs) collected by the device. The specific PM names are identical to those used in the SNMP interface.

URL

```
/api/v1/performanceMonitoring
```

HTTP Method

```
GET
```

HTTP Response

```
200 OK
```

Example

```
GET /api/v1/performanceMonitoring HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "items": [
        "ActiveContextCount",
        "NetUtilKBytes",
        "NetUtilPackets",
        ...
     ]
}
```

11.1 Specific Performance Monitoring

Use the following URL to retrieve the specific PM data.

URL

```
/api/v1/performanceMonitoring/<pm>
```

HTTP Method

```
GET
```

Supported Parameters

Parameter	Type	Description
<none>		Returns a list of supported PM indexes and intervals.
?index=<value>	Number	Returns the PM value for the specified index. Value of the index is PM-dependant – e.g. for IP Group PMs it corresponds to the IP Group ID. Refer to the SNMP Alarms Guide to determine the index meaning. Supported indexes can be discovered by issuing a GET request with no parameters.
?interval=<value>	Number	Returns the PM value for the specified interval. • 0 – current (real-time) value (default) ▪ 1 – average value in last 15 minute interval. ▪ 2 – average value in previous 15 minute interval. Supported intervals can be discovered by issuing a GET request with no parameters.

HTTP Responses

- `200 OK`
- `404 Bad Request` – when invalid parameters or values are specified.
- `404 Not Found` – when no PMs are found.

Example 1

```
GET /api/v1/performanceMonitoring/netUtilPackets HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "indexes": [0, 1],
    "intervalsPerIndex": [0, 1, 2],
    "lowThreshold": 100,
    "highThreshold": 30000
}
```

Example 2

```
GET /api/v1/performanceMonitoring/netUtilPackets?index=0 HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
    "index": 0,
    "interval": 0,
    "value": -1,
    "min": 0,
    "max": 0,
    "average": 0,
    ...
}
```

Example 3

```
GET /api/v1/performanceMonitoring/netUtilPackets?index=100
HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 400 Bad Request
Content-Type: application/json
{
    "description": "Invalid index",
}
```

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12 License Management

The `/license` URL provides the ability to view and modify the device license key.

URL

```
/api/v1/license
```

HTTP Method

```
GET, PUT
```

Request Content Types

PUT command may use one of the following content types:

- `application/json` – see description of Supported Parameters below; not supported for HA configurations
- `form/multi-part` – supported for all configurations; may include multiple license keys and the device will apply the relevant key based on the corresponding serial number. In an HA configuration, the license may be applied to both the active and redundant devices.

Supported Reqeust JSON Attributes

Attribute	Type	Value	Description
licenseVersion	Number	1	License version. Only version 1 is currently supported.
serialNumber	String		Serial number. If specified – compared to the device's serial number and if a mismatch is found, the update request is rejected. This attribute is optional.
key	String		License key in encrypted format.

HTTP Responses

- `200 OK`
- `400 Bad request` - provided license key is incorrect.
- `409 Conflict` – license key can't be loaded due to the current device state (e.g. application/json Content-Type is used for HA device).

Example 1

```
GET /api/v1/license HTTP/1.1
Host: 10.4.219.229

HTTP/1.1 200 OK
Content-Type: application/json
{
   "licenseVersion": 1,
   "serialNumber": "277522263687112",
```

```
   "key": "jCx6r5tovCIKaBBbhPtT53Yj",
   "keyDescription": "Key features: Board Type: Mediant 800
Security: IPSEC MediaEncryption StrongEncryption
EncryptControlProtocol
Coders: G723 G729 G728 NETCODER GSM-FR GSM-EFR AMR EVRC-QCELP
G727 ILBC EVRC-B "
  }
```

Example 2

```
PUT /api/v1/license HTTP/1.1
Host: 10.4.219.229
Content-Type: application/json
{
   "licenseVersion": 1,
   "serialNumber": "277522263687112",
   "key": "jCx6r5tovCIKaBBbhPtT53Yj"
}

HTTP/1.1 200 OK
Content-Type: application/json
{
    "description": "Device will reset now to activate new
license"
}

or

HTTP/1.1 409 Conflict
Content-Type: application/json
{
    "description": "License key can't be applied to device in
HA configuration. Use license file instead."
}
```

Example 3

```
PUT /api/v1/license HTTP/1.1
Host: 10.4.219.229
Content-Type: multipart/form-data; boundary=----
WebKitFormBoundary7MA4YWxkTrZu0gW

------WebKitFormBoundary7MA4YWxkTrZu0gW
Content-Disposition: form-data; name="file"; filename="key.txt"
Content-Type: application/octet-stream

<license file>
------WebKitFormBoundary7MA4YWxkTrZu0gW--

HTTP/1.1 200 OK
```

```
Content-Type: application/json
{
    "description": "Device will reset now to activate new
software load"
}
```

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13 Full List of Supported HTTP Responses

The following HTTP responses are used by the REST API:

- `200 OK` – indicates successful request completion.
- `201 Created` – indicates the creation of a new resource.
- `204 No Content` – indicates that no items are found in response to a discovery request.
- `400 Bad Request` – indicates a request failure due to an invalid input.
- `401 Unauthorized` – indicates a request failure due to incorrect authentication credentials.
- `403 Forbidden` – indicates a request failure due to an authorization failure (i.e. URL exists; however the user is not authorized to access it).
- `404 Not Found` – indicates an invalid URL.
- `405 Method Not Allowed` – indicates that the HTTP method is not supported on the specific URL/resource.
- `406 Not Acceptable` – indicates that the client included “Accept:” header in a request that doesn’t include the format used by the server (for most URLs it’s “application/JSON”).
- `409 Conflict` – indicates a failure due to “intermittent” reason (e.g. synchronization with the redundant device is in progress).
- `500 Internal Server Error` – indicates an internal failure.

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