



LSS2200-8P

Managed Layer 2 Gigabit Ethernet PoE++ Switch

(8) 10/100/1000Base-T IEEE 802.3bt + (2) 10G/5G/2.5G/1G SFP+ Multi-Gig Slots

REST API User Guide

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Revision History

| Date | Rev. | Comments |
|---------|------|---|
| 6/6/23 | C | FW v 1.7.0.0R5: Add a field in the REST API for Logical Interfaces configuration. Add REST API field and CLI commands to ignore DHCP provided name servers and use in-house or static DNS Servers. Add "ignore peer-dns-servers" and "no ignore peer-dns-servers" commands to the Interface Config mode. Update OpenWRT. |
| 9/11/23 | D | FW v 2.0.0.0R4: Change 'ConsoleFlow' to 'PercepXion' in Web UI, CLI, API and Logs. Add SSH Server MaxStartups config in the REST API. Remove filter in REST for VLANs that have no IP addresses. Add SSH interface in REST API endpoints. Add function in API to enable NFC. REST API: enhance creating a route. REST API login methods (token & cookie) add "group" field to success response data body. |

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1. Introduction

Product Description

The LSS2200-8P is a managed Layer 2+ Gigabit Ethernet switch offering eight (8) 1GBase-T interfaces with full IEEE 802.3bt 90W support, two (2) 10/5/2.5/1GBase-T multi-gigabit SFP+ slots, two (2) programmable Digital Input/Outputs with 12V power output, and one (1) RJ-45 console port.

About This Manual

This manual describes how to use the LSS2200-8P REST API. Note that this manual may provide links to third party websites for which Lantronix is not responsible.

This manual does not cover the API schema in detail. The easiest way to learn the schema is to connect and login through the built-in Swagger UI client and navigate the endpoints and methods presented on that page. Details affecting individual requests may change from version to version, but in ways that are beyond the scope of this manual.

Related Manuals

- LSS2200-8P Quick Start Guide, 33859
- LSS2200-8P Install Guide, 33860
- LSS2200-8P Web User Guide, 33861
- LSS2200-8P CLI Reference, 33862
- LSS2200-8P MobileApp User Guide, 33870
- Release Notes (revision specific)

LSS2200-8P REST API

The RESTful API is available for integrating and managing the switch via third-party tools.

The LSS2200-8P REST API is a general-purpose management API used by the LSS2200-8P Web UI. It is full-featured, on par with the CLI in terms of functional scope. It is also exposed and can be used by RESTful northbound management applications that a customer would deploy. Since there are built-in ways of learning and using the API, the following information is provided in this document:

- Connecting to the API
- Logging in to the API
- Browsing and interacting with the API endpoints through the built-in OpenAPI (Swagger) client
- Obtaining the API schema via the link near the top of the OpenAPI page
- Several curl examples

REST (Representational State Transfer) is an architectural style for HTTP-based interactive Web services that allows local or remote clients to retrieve and manage data in a target system. A RESTful server uses methods, structures, and response status codes defined in IETF [RFC 7231 - Hypertext Transfer Protocol \(HTTP/1.1\): Semantics and Content](#) to implement CRUD (create, retrieve, update, delete) functionality that responds to client requests.

The LSS2200-8P REST API is used by the local Web UI. It also serves a "northbound" interface that customers can use to integrate EOS-based devices into their network management applications.

The LSS2200-8P REST API presents "endpoints." An endpoint comprises all of the server components necessary to fulfill an individual request: the protocol, path, resource and data/media parameter specification, along with the underlying handlers for that resource and parameter. Collectively, the endpoint definitions form the schema(s) that the server supports.

Currently, EOS defines one distinct schema: the LSS2200-8P REST API, version 1. In future releases, the LSS2200-8P REST API may support additional versions. Version is part of the base path, so each version defines a separate schema.

Path Structure

The path (URI) structure for each endpoint is:

`<protocol>://<mgmt_ip>:<rest_port>/<api_prefix>/<resource>` , where:

`<protocol>` http
`<mgmt_ip>` the management logical interface IP address on the switch
`<rest_port>` REST listening port, currently fixed at 8000 (eventually configurable)
`<api_prefix>` identifies the schema: rest/v1/
`<resource>` a managed entity class or instance within a namespace (e.g., sysinfo for system information, /user/{username} for requests on a specified user account)

Examples (LSS2200-8P REST API):

- GET `https://192.168.60.1:8000/rest/v1/sysinfo` - gets system info
- GET `https://192.168.60.1:8000/rest/v1/users` - gets the list of all configured user accounts
- PUT `https://192.168.60.1:8000/rest/v1/user/john` <plus header and data blocks> - create a user account with username "john"

Using and Testing

The LSS2200-8P Web UI uses the LSS2200-8P REST API to interact with the management layers.

It is also possible to interact directly with the LSS2200-8P REST API using the built-in Swagger UI (<https://swagger.io/tools/swagger-ui/>) or any command line HTTP web service, such as Curl (<https://curl.se/>) or Postman (<https://www.postman.com/>).

To use the built-in Swagger UI client

For the LSS2200-8P REST API, Swagger presents a button for each resource (e.g., `sysinfo`). Clicking on a resource expands to show a button for each method supported for that resource. After clicking on the resource and method you want to use, click "Try it out".

If data is required (typically JSON format), Swagger shows a form field and usually shows an example of valid data. Type over the values in the example, taking care not to change field names. Certain endpoints also require a user-provided identifier in the path. For example, the `user/{username}` endpoints require a valid username to be entered. When the form fields are complete, click the "Execute" button.

In a Web browser that can access your device, navigate to the base path of the schema you want to use -- `https://192.168.60.1:8000/rest/v1/` for the LSS2200-8P REST API version 1.

Swagger generates and sends a curl request to the server and then presents the response received from the server. The response includes an HTTP status code (see IETF [RFC 7231](https://tools.ietf.org/html/rfc7231)) and relevant content, where content may be data or a message, depending on the endpoint and the outcome of the request.

Using Command Line Clients (curl, postman)

Curl examples with data fields

Note: Login is required, so you must set the authentication header using the "Bearer <key>" string obtained above in the Authentication section. Example:

```
-H 'Authorization: Bearer  
eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJmcmVzaCI6ZmFsc2UsIm1hdCI6MTYyMTQ2MjkzMywianRpIjoiNzZjOGRmYzUtYjE1MS00MGU3LTk2MGUtMjgwNTFjZDI4NzA4IiwidHlwZSI6ImFjY2VzcyIsInN1YiI6ImFkbWluIiwibmJmIjoxNjIxNDYyOTMzLCJleHAiOjE2MjIwNjc3MzN9.dPSzHvn1LkYtXcX1xv3VPn3WDTwJp8Q1H2r9AiVeZVM'
```

Some endpoints require a trailing '/' in the URL when using curl, but not in Swagger UI. Curl will return a redirection error if an expected trailing '/' is omitted.

Resource: sysinfo

```
curl -k -X 'GET' 'https://192.168.60.1:8000/rest/v1/sysinfo/' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>'
```

```
curl -k -X 'POST' 'https://192.168.60.1:8000/rest/v1/sysinfo/' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>' -H 'Content-Type:  
application/json' -d '{"SYSNAME": "NewName", "LOCATION": "New Place", "CONTACT":  
"Someone Else"}'
```

Resource: banner

```
curl -k -X 'GET' 'https://192.168.60.1:8000/rest/v1/banner/' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>'
```

```
curl -k -X 'POST' 'https://192.168.60.1:8000/rest/v1/banner/' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>' -H 'Content-Type:  
application/json' -d '{"BANNER": "New login banner"}'
```

Resource: users

```
curl -k -X 'GET' 'https://192.168.60.1:8000/rest/v1/users/' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>'
```

Resource: user/{username}

```
curl -k -X 'GET' 'https://192.168.60.1:8000/rest/v1/user/bob' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>'
```

```
curl -k -X 'PUT' 'https://192.168.60.1:8000/rest/v1/user/bob' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>' -H 'Content-Type:  
application/json' -d '{"PASSWD": "abcdef", "ENABLED": "true", "GROUP": "config"}'
```

```
curl -k -X 'POST' 'https://192.168.60.1:8000/rest/v1/user/bob' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>' -H 'Content-Type:  
application/json' -d '{"GROUP": "readonly"}'
```

```
curl -k -X 'DELETE' 'https://192.168.60.1:8000/rest/v1/user/bob' -H 'accept:  
application/json' -H 'Authorization: Bearer <key>'
```

Troubleshooting

Note: The LSS2200-8P REST API uses a time-dependent web token. If the system time is changed, subsequent REST requests may return an unauthorized response, as shown below. If that occurs, the client must logout and log in again to continue using the REST API.

```
1 POST https://192.168.0.200:8000/rest/v1/date_time
2 Response: 200 {'DATE': '2022-06-22', 'TIME': '16:14:08', 'SOURCE': 'Local'}
3 GET https://192.168.0.200:8000/rest/v1/date_time
4 Response: 401 {'message': 'Unauthorized'}
```

Compatibility Changes

Changes in firmware version 1.6.0.0R6

PoE Port Config (POST poe/config/port):

The “POE-ENABLE” data field key has been changed from Boolean (true, false) to an enumerated string. Supported values are: “enabled”, “disabled” or “forced”.

The “POE-FORCED” data field has been removed.

LLDP Neighbor Status (GET lldp/neighbors):

The “NAME” response field key has been changed to “PORT_NAME”.

The “SWITCH_DESCRIPTION” response field key has been changed to “SYSTEM_DESCRIPTION”.

ConsoleFlow Connection Config (GET and POST consoleflow/config/connections):

The “CONNECT_TO” data and response field key has been added to allow selection between connecting to a cloud server (default) or an on-premise server. Supported values are: “Cloud” or “Premise”.

Changes in firmware version 1.7.0.0R5

Add REST API field and CLI commands to ignore DHCP provided name servers and use in-house or static DNS Servers.

Logical Ports Config (POST logical_ports): The “IGNORE_PEER_DNS” data field key has been added. Setting it to “true” will ignore DNS servers provided by DHCP, in order to use only configured DNS servers.

Add a field in the REST API for Logical Interfaces configuration.

Change Password (POST user_settings/change_password): This endpoint was added to allow the current user to change their own password. Required data field keys are “PASSWORD” (current) and “NEW_PASSWORD”.

Changes in firmware version 2.0.0.0R4

Change 'ConsoleFlow' to 'PercepXion' in Web UI, CLI, API and Logs.

Add SSH Server config in the REST API.

Remove filter in REST for VLANs that have no IP addresses.

Add '/nfc' namespace with GET and POST endpoints to enable/disable NFC and fetch the NFC state.

REST API: When creating a route:

- GET /routing/config: The 'ROUTE_NAME' is omitted from the response if a name was not provided when the route was configured.
- GET /routing/static: 'target_ip' query parameter replaces 'name' path parameter. Example: GET /routing/static?target_ip=192.168.56.0%2F24
- POST /routing/static: 'target_ip' query parameter replaces 'name' path parameter.
- DELETE /routing/static: 'target_ip' query parameter replaces 'name' path parameter.

REST API login methods (token & cookie) add "group" field to success response data body.

Add 'GET /auditlog' endpoint to fetch a copy of the security audit log through the REST API. (Requires login to a user account in the admin group.)

In the 'POST /datastore' endpoint, allow users in the admin group to copy 'saved-logs' to a URL. This will download the system and security audit logs that were saved just prior to the last reboot or firmware update.

Add 'GET /datastore/copy_status' endpoint to poll the status of a datastore copy operation. Possible return states include IDLE, RUNNING, FAILED or SUCCEEDED.

Add 'IDLE_TIMEOUT' data field to the 'POST /sysinfo' endpoint. This sets the global inactivity timeout for CLI and Web UI login sessions.

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